F89–07/08 604.2.15.1.3, 604.2.15.3, IBC [F] 403.10.2, IBC [F] 403.11.1

Proponent: James C. Gerren, Clark County, NV Department of Development Services

1. Revise as follows:

604.2.15.1.3 Connected facilities. Power and lighting facilities for the fire command center and elevators specified in Sections 403.8 and 403.9 of the *International Building Code*, as applicable, and electrically powered fire pumps required to maintain pressure, shall be transferable to the standby source. Standby power shall be provided for at least one elevator to serve all floors and be transferable to any elevator.

604.2.15.3 Emergency systems. Exit signs, exit illumination as required by Chapter 10, <u>electrically powered fire</u> <u>pumps required to maintain pressure</u>, and elevator car lighting are classified as emergency systems and shall operate within 10 seconds of failure of the normal power supply and shall be capable of being transferred to the standby source.

Exception: Exit sign, exit and means of egress illumination are permitted to be powered by a standby source in buildings of Group F and S occupancies.

2. Revise IBC as follows:

[F] 403.10.2 Standby power loads. The following are classified as standby power loads:

- 1. Power and lighting for the fire command center required by Section 403.8; and
- 2. Electrically powered fire pumps; and
- 3-2. Ventilation and automatic fire detection equipment for smokeproof enclosures.

Standby power shall be provided for elevators in accordance with Sections 1007.4 and 3003.

[F] 403.11.1 Emergency power loads. The following are classified as emergency power loads:

- 1. Exit signs and means of egress illumination required by Chapter 10;
- 2. Elevator car lighting;
- 3. Emergency voice/alarm communications systems;
- 4. Automatic fire detection systems; and
- 5. Fire alarm systems.
- 6. Electrically powered fire pumps.

Reason: The purpose of the proposed change is to clarify the code.

Section 9.6.2.1 of NFPA 20 (2003 edition), Standard for the Installation of Stationary Pumps for Fire Protection, requires on-site generators that are used to supply alternate power to electric motor-driven fire pumps to meet the requirements of Level 1, Type 10, Class X emergency power supply systems (EPSSs) of NFPA 110, Standard for Emergency and Standby Power Systems. NFPA 110 (2005 edition), Table 4.1(b) requires Type 10 EPSSs to restore power within 10 seconds. Since standby power is required to be available within 60 seconds, it is not appropriate to include electrically powered fire pumps in the list of standby power loads. Accordingly, the proposed code change would move electrically powered fire pumps from the list of standby power loads in Section 604.2.15.1.3 and IBC [F] 403.10.2 to the list of emergency power loads in Section 604.2.15.3 and IBC [F] 403.11.1.

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

F90–07/08 604.2.16.1.1 (IBC 405.9.1), 604.2.16.2.1 (IBC [F] 405.10.1)

Proponent: James C. Gerren, Clark County, NV, Department of Development Services

Revise as follows:

604.2.16.1.1 (IBC 405.9.1) Standby power loads. The following loads are classified as standby power loads.

- 1. Smoke control system.
- 2. Ventilation and automatic fire detection equipment for smokeproof enclosures.
- 3. Fire pumps.
- 4. <u>3.</u> Standby power shall be provided for elevators in accordance with Section 3003 of the *International Building Code*.

604.2.16.2.1 (IBC [F] 405.10.1) Emergency power loads. The following loads are classified as emergency power loads:

- 1. Emergency voice/alarm communications systems.
- 2. Fire alarm systems.
- 3. Automatic fire detection systems.
- 4. Elevator car lighting.
- 5. Means of egress and exit sign illumination as required by Chapter 10.
- 6. Electrically powered fire pumps.

Reason: The purpose of the proposed change is to clarify the code.

Section 9.6.2.1 of NFPA 20 (2003 edition), Standard for the Installation of Stationary Pumps for Fire Protection, requires on-site generators that are used to supply alternate power to electric motor-driven fire pumps to meet the requirements of Level 1, Type 10, Class X emergency power supply systems (EPSSs) per NFPA 110, Standard for Emergency and Standby Power Systems. NFPA 110 (2005 edition), Table 4.1(b) requires Type 10 EPSSs to restore power within 10 seconds. Since standby power is required to be available within 60 seconds, it is not appropriate to include electrically powered fire pumps in the list of standby power loads. Accordingly, the proposed code change would move electrically powered fire pumps from the list of standby power loads in Section 604.2.16.1.1 (IBC 405.9.1) to the list of emergency power loads in Section 604.2.16.2.1 (IBC [F] 405.10.1).

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

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

F91-07/08

605.10

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

Revise as follows:

605.10 Portable, electric space heaters. Where not prohibited by other sections of this code, Pportable, electric space heaters shall comply be permitted to be used in all occupancies other than Groups I-2 and I-5 in accordance with Sections 605.10.1 through 605.10.4.

Exception: The use of portable electric space heaters in which the heating element cannot exceed a temperature of 212 degrees F. (100 degrees C.) shall be permitted in non-sleeping staff and employee areas in Groups I-2 and I-5 occupancies.

Reason: Currently the IFC allows portable space heaters to be located and used within Group I occupancies. This proposal will restrict their use within Group I-2 occupancies and also with Group I-5 occupancies (dependent on another code change to create the I-5).

These facilities have a higher life hazard which results in a longer evacuation time. Limiting the portable heater temperature will reduce the incidence of fire from these devices and therefore the evacuation never needs to occur. This proposal will also correlate the IFC requirements with Federal regulations for these facilities.

Analysis: The reference in this proposal to new occupancy "Group I-5" is dependent on the action on Code Change G33-07/08. If that code change is not approved, the reference to "Group I-5" would be deleted from these sections.

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

F92–07/08 606.9

Proponent: Aaron Coate, SSOE, Inc., Architects and Engineers

Revise as follows:

606.9 Remote controls. Where required by Section 1106 of the *International Mechanical Code*, remote control of the mechanical equipment and appliances located in the machinery room shall be provided at an approved location immediately outside the machinery room and adjacent to its principal entrance.

Reason: The purpose of the change is to clarify the International Fire Code, making it consistent with the requirements of the International Mechanical Code Chapter 11. The IMC only requires the remote controls for machinery rooms that must meet IMC Section 1106 Machinery Room, Special Requirements. Per IMC 1104.2, machinery rooms for Group A1 and B1 refrigerants must comply with the Section 1105, but are not required to comply with Section 1106 Special Requirements. Thereby, the remote controls are not required when using A1 and B1 refrigerants per the IMC. The proposed added verbiage should make it clear that the intent of the IFC is to be consistent with the IMC on when remote controls are required.

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

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

F93-07/08 606.10.1.1, 606.10.2.2

Proponent: Jeffrey M. Shapiro, International Code Consultants, representing International Institute of Ammonia Refrigeration

Revise as follows:

606.10.1.1 Overpressure limit setpoint. Automatic crossover valves shall be arranged to automatically relieve excess system pressure to a lower pressure zone if the pressure in a high- or intermediate-pressure zone rises to within 15 psi (108.4 kPa) <u>90 percent</u> of the set point for emergency pressure-relief devices.

606.10.2.2 Overpressure in low-pressure zone. The lowest pressure zone in a refrigeration system shall be provided with a dedicated means of determining a rise in system pressure to within <u>15 psi (108.4 kPa)</u> <u>90 percent</u> of the setpoint for emergency pressure-relief devices. Activation of the overpressure sensing device shall cause all compressors on the effected system to immediately stop.

Reason: Provides in increased safety buffer between activation of the EPCS and operation of a relief valve. Because of variances in operational tolerances among relief valves and because some relief valves may begin to seep at 90-percent of their rated operating pressure, it is appropriate to have the EPCS shut-down a system if system pressure rises to 90-percent of the relief valve set pressure. This further reduces the potential for any release from a system that has malfunctioned and overpressurized.

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

F94–07/08 606.13

Proponent: Jeffrey M. Shapiro, International Code Consultants, representing International Institute of Ammonia Refrigeration

Revise as follows:

606.13 Discharge location for refrigeration machinery room ventilation. Exhaust from mechanical ventilation systems serving refrigeration machinery rooms <u>containing flammable</u>, toxic or highly toxic refrigerants, other than <u>ammonia</u>, capable of exceeding 25 percent of the LFL or 50 percent of the IDLH shall be equipped with approved treatment systems to reduce the discharge concentrations of flammable, toxic or highly toxic refrigerants to those values or lower.

Reason: The origin of the requirement in IFC Section 606.13 to treat exhaust from machinery room ventilation systems dates back to the 1994 Uniform Mechanical Code (UMC). The requirement was added as part of a complete rewrite of the UMC chapter on mechanical refrigeration, and the entire substantiation for the new provision offered by the proponent of this change was "Gives specific machinery room ventilation requirements." No statistical, technical or anecdotal basis was offered to justify the additional controls on machinery room ventilation system discharge. Nevertheless, the entire rewrite, including this section, was eventually approved by the International Conference of Building Officials (ICBO) membership at the time, and the provisions were duplicated into the Uniform Fire Code (UFC).

Presumably, the basis to justify adding this new requirement to the Uniform codes might have been parity with the general hazardous materials regulations for toxic gases in UFC Article 80; however, because Article 80 never required ventilation treatment for local exhaust systems in areas where ammonia is stored or used (because ammonia is not classified by fire codes as a toxic hazardous material), it makes no sense for ammonia refrigeration regulations to be more restrictive than general hazardous materials regulations for the same material.

During the drafting process for the International codes, the requirement for treatment of machinery room ventilation was initially dropped when the UMC was merged into the International Mechanical Code (IMC) and the UFC was merged into the IFC. At the time, the goal was to make the IMC and the IFC consistent with provisions in ASHRAE 15, which is the American National Standards Institute (ANSI) recognized standard governing refrigeration system safety, and ASHRAE 15 does not contain any requirement for treatment of exhaust from machinery room ventilation systems.

In the public comment process affecting the final draft of the IFC, a proposal was made to reinstate some of the old UFC provisions into the IFC, and the requirement related to treatment of machinery room exhaust found its way back into the code. Nevertheless, designers and engineers indicate that it is only enforced occasionally.

It should be noted that refrigeration plants in the Central and Eastern portions of the U.S. were not required by the legacy codes previously used in those regions to provide ventilation treatment systems. Justification for requiring new plants in these areas to now be burdened with this requirement is not evident. Likewise, there is no apparent justification for maintaining this requirement elsewhere, given that there was no justification to support the requirement in the first place.

It is worth pointing out that in preparing this proposal, IIAR studied the complete database on releases associated with ammonia refrigeration on file with EPA, and no incident could be identified where ammonia from machinery room ventilation was the source of injuries or off-site consequences. Since treatment of ventilation systems is very uncommon, even in newer facilities, and older facilities tend to be where release incidents occur, it is unlikely that any facilities reflected in this favorable incident history had ventilation exhaust treatment systems. Also, it is noteworthy that the simple way of avoiding the requirement to provide machinery room exhaust treatment is to place refrigeration machinery outside of the building, where no such requirement applies. It make no sense for the code to penalize the safer condition of putting machinery in an enclosure by requiring treatment of room exhaust when an outdoor installation is at greater risk of a release to atmosphere.

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

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

F95-07/08 607.3 (New)

Proponent: Ed Donoghue, Edward Donoghue Associates, Inc.

Add new text as follows:

607.3 Fire service access elevator lobbies. Where fire service access elevators are required by Section 3007 of the *International Building Code,* fire service access elevator lobbies shall be maintained free of storage and furnishings.

Reason: In this specific proposal the focus is upon storage and furnishings within the fire service access elevator lobby. The fire service access elevator in high rise buildings over 120 feet above fire department vehicle access is a tool for fire fighters to enhance their ability to gain access to and undertake necessary staging activities in. Therefore, any obstructions located in lobbies associated with such elevators in the form of storage or furnishings, whether combustible or non-combustible, could hamper their ability to fully use such features. Prohibiting storage and furnishings in fire service access elevators also eliminates potential fire loads in such areas.

Background: As a result of the September 11, 2001 attacks on the World Trade Center, code provisions for emergency egress from tall buildings are being re-examined. There is renewed interest in the use of elevators for both occupant egress and fire fighters access. Therefore a Workshop on the Use of Elevators in Fires and Other Emergencies was held March 2-4, 2004, in Atlanta, Georgia. The workshop was cosponsored by American Society of Mechanical Engineers (ASME International), National Institute of Standards and Technology (NIST), International Code Council (ICC), National Fire Protection Association (NFPA), U.S. Access Board, and the International Association of Fire Fighters (IAFF).

The workshop focused on two general topics:

- 1. Use of Elevators by Fire fighters and
- 2. Use of Elevators by Occupants during Emergencies

To follow up on the ideas generated at the workshop, 2 task groups were formed; one for each topic. Their goals are:

- Review the suggestions from the Workshop on the Use of Elevators in Fires and other Emergencies.
- Develop a prioritized list of issues.
- Conduct a hazard analysis of the prioritized list of issues to see if there are any residual hazards.
- Draft code revisions for those issues that survive the process and the task group members still want addressed.

The membership of these task groups is broad and includes representatives from the elevator industry and manufacturers of devices such as fire alarms, the fire service, model codes and standards development organizations, and the accessibility community as well as fire protection engineers, architects and specialists in human factors and behavior. Since February 2005 the groups have each been conducting a hazard analysis on their assigned topic. The results of the hazard analysis focused upon the fire fighter needs is nearing completion.

The task group studied 16 different cases. In these cases a particular hazard followed by a cause/trigger was reviewed. The result of the hazard interacting with cause/trigger events may create a particular incident/effect. To address possible incident/effects corrective actions are proposed. Such corrective actions are then reviewed to see if they create any residual hazards. The hazard analysis then carries out each of the residual hazards with additional corrective actions until the hazard is mitigated. It is strictly a hazard analysis (i.e. not probabilistic) and certain assumptions were made such as a single fire start in a high rise building.

The code changes generated by this analysis are related both to the summary of corrective actions resulting from the hazard analysis and the existing language related to fire service access elevators placed into the 2007 supplement.

These proposals will work with the 2007 supplement requirements for fire service access elevators to address these concerns. It should be noted that the hazard analysis assumed a lobby to be directly connected with the fire service access elevator thus making the result of the analysis consistent with the philosophical approach found in the 2007 Supplement.

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

Public Hearing: Co	ommittee:	AS	AM	D
As	sembly:	ASF	AMF	DF

F96–07/08 607.4 (New), 903.3.1.1.1 (IBC [F] 903.3.1.1.1); IBC 3006.4, IBC 3006.5 (New)

Proponent: Daniel Najera, University of California, Davis Fire Department, representing California Fire Chiefs' Association (CFCA)

THESE PROPOSALS ARE ON THE AGENDA OF THE IFC AND THE IBC GENERAL CODE DEVELOPMENT COMMITTEES AS 2 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IFC

1. Add new text as follows:

607.4 Shunt trip. Where elevator hoistways or elevator machine rooms containing elevator control equipment are protected with automatic sprinklers, a means installed in accordance with NFPA 72, Section 3-9.4, Elevator Shutdown, shall be provided to disconnect automatically the main line power supply to the affected elevator prior to the application of water. This means shall not be self-resetting. The activation of sprinklers outside the hoistway or machine room shall not disconnect the main line power supply. The shunt trip shall not be required where the provisions of Section 903.3.1.1.1, Item #6 (Supp) have been complied with.

2. Revise as follows:

903.3.1.1.1 (IBC [F] 903.3.1.1.1) (Supp) Exempt locations. Automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas are protected with an approved automatic fire detection system in accordance with Section 907.2 that will respond to visible or invisible particles of combustion. Sprinklers shall not be omitted from any room merely because it is damp, of fire-resistance rated construction or contains electrical equipment.

- 1. Any room where the application of water, or flame and water, constitutes a serious life or fire hazard.
- 2. Any room or space where sprinklers are considered undesirable because of the nature of the contents, when approved by the fire code official.
- 3. Generator and transformer rooms separated from the remainder of the building by walls and floor/ceiling or roof/ceiling assemblies having a fire-resistance rating of not less than 2 hours.
- 4. Rooms or areas that are of noncombustible construction with wholly noncombustible contents.
- 5. Fire service access elevator machine rooms and machinery spaces.
- 6. <u>At the top of elevator hoistways and elevator machine rooms enclosed by fire barriers as required by the</u> International Building Code.

PART II – IBC GENERAL

Revise as follows:

3006.4 (Supp) Machine rooms and machinery spaces. Elevator machine rooms and machinery spaces shall be enclosed with fire barriers constructed in accordance with Section 706 or horizontal assemblies constructed in accordance with Section 711, or both. The fire-resistance rating shall not be less than the required rating of the hoistway enclosure served by the machinery. Openings in the fire barriers shall be protected with assemblies having a fire protection rating not less than that required for the hoistway enclosure doors.

Exceptions:

- Where machine rooms and machinery spaces do not abut and have no openings to the hoistway
 enclosure they serve the fire barriers constructed in accordance with 706 or horizontal assemblies
 constructed in accordance with Section 711, or both, shall be permitted to be reduced to a 1-hour fireresistance rating.
- 2. In buildings 4 stories or less, above grade plane when machine room and machinery spaces do not abut and have no openings to the hoistway enclosure they serve, the machine room and machinery spaces are not required to be fire-resistance rated.

3006.5 Shunt trip. Where elevator hoistways or elevator machine rooms containing elevator control equipment are protected with automatic sprinklers, a means installed in accordance with NFPA 72, Section 3-9.4, Elevator Shutdown, shall be provided to disconnect automatically the main line power supply to the affected elevator prior to the application of water. This means shall not be self-resetting. The activation of sprinklers outside the hoistway or machine room shall not disconnect the main line power supply. The shunt trip shall not be required where the provisions of Section 903.3.1.1.1, Item #6 (Supp) have been complied with.

Reason: (**Part I)** The Building Code and NFPA 13 recognize ASME A17.1 and the requirement for elevator shunts whenever elevator hoistways or elevator machine rooms are protected with automatic fire sprinklers. Elevator shunts are typically operated by heat detectors installed at the top of elevator hoistways and elevator machine rooms. An unintended activation of elevator shunts could trap fire department personnel in the elevator shaft. False alarms associated with heat detectors during every day passenger use are far more likely than false activation of a fire sprinkler.

Elevator hoistways and elevator machine rooms are required to be separated from the rest of the building by a minimum of one- or two-hour fire resistive construction. The removal of sprinkler protection from the tops of elevator hoistways should not be considered detrimental to fire and life safety when the bottom of elevator hoistways are still protected with fire sprinkler protection (ASME A17.1 and NFPA 13 have coordinated this item). Elevator machine rooms, which are typically not occupied rooms, are separated from the rest of the building by fire barriers and protected by a smoke detector. Removal of sprinkler protection should provide the level of fire and life safety as item #2 of 903.3.1.1.1 in rooms or areas that are of noncombustible construction with wholly noncombustible contents.

Part II: If the removal of sprinkler protection from elevator hoistways and elevator machine rooms are approved, the separation of the elevator machine rooms is necessary to confine a fire until emergency personnel arrive.

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

Analysis: The maintenance of the technical content of proposed IFC Section 607.4 will be the responsibility of the IBC-General Code Development Committee. The need for and suitability of having the new section within the IFC is a matter to be determined by the IFC Code Development Committee.

PART I - IFC

Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF
PART II – IBC GENERAL			
Public Hearing: Committee:	AS	AM	D
Assembly:	ASF	AMF	DF

F97–07/08 608, 602.1 (New)

Proponent: Ronald Marts, Telcordia Technologies, representing AT&T, BellSouth, SBC, PacBell, Ameritech, SNET, Qwest, Cincinnati Bell

1. Revise as follows:

608.1 (Supp) Scope. Stationary storage battery systems having an electrolyte capacity of more than 50 gallons (189L) for flooded lead acid, Nickel Cadmium, and VRLA, or <u>a total battery weight (excluding racks or cabinets) of</u> 1000 pounds for Lithium-Ion<u>, and</u> Lithium Metal Polymer <u>and Nickel Metal Hydride</u>, used for facility standby power, emergency power, or uninterrupted power supplies shall comply with this section and with Table 608.1.

	Non-Recomb	ombinant Batteries		Recombinant Batteries		Other
Requirement	Flooded Lead Acid Batteries	Flooded Nickel Cadmium (Ni- Cd) Batteries	Valve Regulated Lead Acid (VRLA) Batteries	Lithium- Ion	<u>Nickel Metal</u> <u>Hydride</u>	Lithium Metal Polymer
Safety Caps (608.2)	Venting caps (608.2.1)	Venting caps (608.2.1)	Self-resealing flame-arresting caps (608.2.2)	No caps	Self-resealing flame-arresting caps (608.2.2)	No caps
Thermal Runaway Management	Not required	Not required	Required (608.3)	Not required	<u>Required</u> (608.3)	Required (608.3)
Spill Control	Required (608.5)	Required (608.5)	Not required	Not required	Not Required	Not Required
Neutralization	Required (608.5.1)	Required (608.5.1)	Required (608.5.2)	Not required	<u>Required</u> (608.5.2)	Not Required
Ventilation	Required (608.6.1; 608.6.2)	Required (608.6.1; 608.6.2)	Required (608.6.1; 608.6.2)	Not Required	<u>Required</u> (608.6.1; 608.6.2)	Not Required
Signage	Required (608.7)	Required (608.7)	Required (608.7)	Required (608.7)	<u>Required</u> (608.7)	Required (608.7)
Seismic Control	Required (608.8)	Required (608.8)	Required (608.8)	Required 608.8	<u>Required</u> (608.8)	Required 608.8
Fire Detection	Required (608.9)	Required (608.9)	Required (608.9)	Required 608.9	<u>Required</u> (608.9)	Required 608.9

TABLE 608.1 (Supp) BATTERY REQUIREMENTS

608.2.2 Recombinant batteries. Valve-regulated lead-acid (VRLA)<u>, nickel metal hydride</u>, or other types of sealed, recombinant batteries shall be equipped with self-resealing flame-arresting safety vents.

608.3 (Supp) Thermal runaway. VRLA and lithium metal polymer. and nickel metal hydride battery systems shall be provided with a listed device or other approved method to preclude, detect, and control thermal runaway.

608.5 (Supp) Spill control and neutralization. An approved method and materials for the control and neutralization of a spill of electrolyte shall be provided in areas containing lead-acid, nickel-cadmium, or other types of batteries with freeflowing liquid electrolyte. For purposes of this paragraph, a "spill" is defined as any unintentional release of electrolyte.

Exception: VRLA, Lithium-Ion, Lithium Metal Polymer, <u>nickel metal hydride</u>, or other types of sealed batteries with immobilized electrolyte shall not require spill control.

608.5.1 Non-recombinant battery neutralization. For battery systems containing lead-acid, nickel-cadmium, or other types of batteries with free-flowing electrolyte, the method and materials shall be capable of neutralizing a spill from the largest lead-acid battery <u>cell or block</u> to a pH between 7.0 and 9.0.

608.5.2 (Supp) Recombinant battery neutralization. For VRLA, <u>nickel metal hydride</u>, or other types of sealed batteries with immobilized electrolyte, the method and material shall be capable of neutralizing a spill of 3.0 percent of the capacity of the largest VRLA cell or block in the room to a pH between 7.0 and 9.0.

Exception: Lithium-Ion and Lithium Metal Polymer batteries shall not require neutralization.

608.6 Ventilation. Ventilation of stationary storage battery systems shall comply with Sections 608.6.1 and 608.6.2.

608.6.1 (Supp) Room ventilation. Ventilation shall be provided in accordance with the *International Mechanical Code* and <u>one of</u> the following:

- For flooded lead acid, flooded Ni-Cad, and VRLA, and nickel metal hydride batteries, the ventilation system shall be designed to limit the maximum concentration of hydrogen to 1.0 percent of the total volume of the room; or
- Continuous ventilation shall be provided at a rate of not less than 1 cubic foot per minute per square foot (1 ft₃/min/ft₂) [0.0051m₃/s m₂] of floor area of the room.

Exception: Lithium-Ion and Lithium Metal Polymer batteries shall not require ventilation <u>beyond what is</u> normally required in accordance with the *International Mechanical Code*.

2. Add new definition as follows:

602.1 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.

BATTERY TYPES

Nickel metal hydride battery. An electrochemical secondary (rechargeable) alkaline battery where the charge carriers (positive Hydrogen ions) are stored in non-gaseous form in a metal alloy hydride material.

Reason: This proposed change adds Nickel Metal Hydride (NMH) batteries to Section 608. NMH batteries are currently undergoing tests by several end users for use as stationary battery back-up systems where lead acid and VRLA batteries are currently used. Section 608 has become the "battery" section of the code, where several requirements can be addressed for each technology battery. The new definition is required for clarity.

This proposed change also includes an enhancement to rooms where Lithium-Ion and Lithium Metal Polymer batteries are located by requiring general ventilation in accordance with the IMC.

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

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

F98-07/08 608.5.1, 608.5.2

Proponent: Stephen McCluer, APC-MGE

Revise as follows:

608.5.1 Nonrecombinant battery neutralization. For battery systems containing lead-acid, nickel-cadmium or other types of batteries with free-flowing electrolyte, the method and materials shall be capable of neutralizing a spill <u>of the total capacity</u> from the largest lead-acid battery <u>cell or block</u> to a pH between 7.0 <u>5.0</u> and 9.0.

608.5.2 (Supp) Recombinant battery neutralization. For VRLA or other types of sealed batteries with immobilized electrolyte, the method and material shall be capable of neutralizing a spill of 3.0 percent of the capacity of the largest $\frac{VRLA}{VRLA}$ cell or block in the room to a pH between 7.0 5.0 and 9.0.

Exception: Lithium-Ion and Lithium Metal Polymer batteries shall not require neutralization.

Reason: The paragraph covers multiple battery types, but the neutralization is limited to only lead-acid batteries. Substitute "lead-acid battery" and "VRLA" with "cell or block"," which covers single-cell and multi-cell containers.

Absolute neutral is pH 7.0. To accommodate both acidic (e.g., lead-acid) and basic or alkaline (e.g., nickel-cadmium), the requirement should be "neutralize a spill... to a pH of 7.0 plus or minus 2.0.

Institute of Electrical and Electronics Engineers Standard 1578, *Recommended Practice for Stationary Battery Electrolyte Spill Containment and Management* has been approved and is presently going through final editorial and printing process. It will be published in the fall of 2007 [prior to the next update of the IFC]. I do not have authorization to provide copies of the complete standard. The following paragraph applies:

4.2.2 Neutralization. Electrolyte can be acidic (for example, sulfuric acid inside a lead-acid battery) or basic (for example, potassium hydroxide inside a Ni-Cd battery). Neutralizer should be able to safely convert the electrolyte to a pH between 5.0 and 9.0

Cost Impact: The code change proposal will not increase the cost of construction beyond what is already required by the International Fire Code.

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

F99–07/08 608.6.1

Proponent: Stephen McCluer, APC-MGE

Revise as follows:

608.6.1 (Supp) Room ventilation. Ventilation shall be provided in accordance with the *International Mechanical Code* and the following:

- For flooded lead acid, flooded Ni-Cad, <u>nickel metal hydride</u> and VRLA batteries, the ventilation system shall be designed to limit the maximum concentration of hydrogen to 1.0 percent of the total volume of the room <u>within</u> <u>an eight hour period and under the worst case condition of recharge following a discharge, or equalize</u> <u>charging, if the capability exists, whichever is higher;</u> or
- Continuous ventilation shall be provided at a rate of not less than 1 cubic foot per minute per square foot (1 ft³/min/ft²) [0.0051m₃/s m²] of floor area of the room.

Exception: Lithium-Ion and Lithium Metal Polymer batteries shall not require ventilation in excess of that required by the *International Mechanical Code*..

Reason: The IMC is a big document. It would be helpful to guide the reader to the relevant section of the IMC, which would logically be the VENTILATION section (presently Chapter 4). [see proposal on IMC Ch 5]

Add nickel-metal-hydride batteries to the list of regulated battery types. Stationary NiMH battery systems have only recently been introduced to the market and are expected to become more widely used in the near future.

Add a time limit to the requirement for gassing. Theoretically, given enough time in a sealed space and given an infinite amount of gas generation, enough hydrogen could be generated to reach a one percent concentration... sometimes in days, weeks or even months. Assuming that other monitoring protections required by this code are functioning, such a design requirement is unrealistic and needlessly expensive. A requirement to design a ventilation system to prevent the accumulation of 1% hydrogen gas within an eight hour period is reasonable. Realistically, most battery systems must be in a sustained failure mode to generate that much gas. Vented batteries could do so, and would require a ventilation system designed for such conditions under this proposal.

Add the requirements under which such hydrogen gassing could occur. It should not be the theoretical laboratory maximum failure mode. Hydrogen release is created under conditions of excessive heat and/or voltage through the cells. Assuming compliance with the thermal runaway protection required by 608.3, the requirement should be based upon the worst case event likely to be seen in actual applications. Worst case would be during the high voltage event of equalize charging for a vented (flooded) battery. Some battery systems, such as UPS with VRLA batteries, do not permit or have provisions for equalize charging, in which case the worst case high voltage condition is recharge following a discharge.

Add the caveat that no "additional" ventilation is required beyond what is required by the IMC. Even Li-Ion and LMP batteries need at least some ventilation.

Cost Impact: The code change proposal will not increase the cost of construction beyond what is already required by the *International Fire Code* and the *International Mechanical Code*.

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

F100-07/08

Proponent: Stephen McCluer, APC-MGE

Revise as follows:

608.6.3 (Supp) Supervision. <u>Mechanical</u> ventilation systems <u>where</u> required by Section 608.6.1 and 608.6.2 shall be supervised by an approved central, proprietary, or remote station service or shall initiate an audible and visual signal at a constantly attended onsite location.

Reason: The requirement to monitor ventilation in cabinets per 608.6.2 implies that there is mechanical ventilation, even though 608.6.2.specifically permits a cabinet to be "naturally ventilated." Monitoring natural ventilation is extremely difficult – if not impossible in some cases – and extremely expensive. The existing requirement effectively forces a huge burden on battery cabinet manufacturers to add mechanical ventilation systems, hydrogen detectors, or flow sensors, for little or no apparent improvement over existing methods. When this requirement was added to the IFC, the author presented no evidence to suggest that the existing designs are unsafe or do not work. This proposal would limit the monitoring requirement to only those battery cabinets that depend upon forced or mechanical ventilation.

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

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

F101–07/08 610 (New), 601.1

Proponent: Bob Eugene, Underwriters Laboratories

1. Add new section as follows:

SECTION 610 COMMERCIAL KITCHEN GREASE STORAGE TANK SYSTEM

<u>610.1 General.</u> Systems used to store grease from commercial kitchen equipment in aboveground tanks shall be approved and shall comply with the requirements of Sections 610.2 through 610.6 and Chapter 34.

610.2 Cooking grease storage tanks. Cooking grease storage tanks shall be listed for the storage of combustible liquids and installed in accordance with the manufacturers instructions.

610.3 Cooking grease storage piping systems. Cooking grease storage system components, including but not limited to, piping, connections, fittings, valves, tubing, and other related components used for the transfer of cooking grease from the cooking appliance to the storage tank shall be installed in accordance with Section 3403.6.

610.4 Venting. Venting for the cooking grease storage equipment shall be to the outside air for normal and emergency vent as specified in Sections 3404.2.7.3 and 3404.2.7.4.

610.5 Electrical equipment. Electrical equipment used for the operation and heating of the cooking grease storage system shall comply with NFPA 70.

610.6 Location. Cooking grease storage tanks shall not be located in areas accessible to the general public.

2. Revise as follows:

601.1 Scope. The provisions of this chapter shall apply to the installation, operation and maintenance of fuel-fired appliances and heating systems, emergency and standby power systems, electrical systems and equipment, mechanical refrigeration systems, elevator recall, stationary storage battery systems and commercial kitchen hoods equipment.

Reason: Currently, many new products on the storage of recovered cooking grease are entering the market. The product uses a similar approach by storing the grease in a sealed aboveground tank. This tank typically is provided with many features to assist in pumping the grease from the cooking appliance to the storage unit, to pump the grease from the storage unit to a tank truck design to pick up the grease and reduce the hazard of

the grease stored onsite. Many include a heating element that assists in keeping the grease in a form that is easily pumped in the truck. This item could create a problem if not installed and tested. In addition, the grease is a combustible liquid, in an aboveground tank and is permanently installed, so all the protection feature for this tank should be considered also outlined in Chapter 34 Flammable and Combustible Liquids. Without this change in the kitchen equipment section, many installation of this product may not be installed with the needed protection for the employees and public. With the tanks needing a listing, the manufacturing of the product components, the normal venting, emergency venting, the opening location and tank appurtenances will be independently reviewed and tested.

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

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

F102–07/08 610 (New), 601.1; IPC Table 403.1 (IBC [P] 2902.1)

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

THESE PROPOSALS ARE ON THE AGENDA OF THE IFC AND THE IPC CODE DEVELOPMENT COMMITTEES AS 2 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I - IFC

1. Add new section as follows:

SECTION 610 EMERGENCY SHOWER AND EYE WASH STATION

610.1 General. In Group I-2 and I-5 occupancies in areas where chemicals are used that could necessitate the immediate flushing with water after an exposure, an emergency shower and eye wash station shall be installed and maintained in accordance with Section 411 of the *International Plumbing Code*.

2. Revise as follows:

601.1 Scope. The provisions of this chapter shall apply to the installation, operation and maintenance of fuel-fired appliances and heating systems, emergency and standby power systems, electrical systems and equipment, mechanical refrigeration systems, elevator recall, stationary storage battery systems, and commercial kitchen hoods, and emergency shower and eye wash stations.

PART II – IPC

Revise table as follows:

				Wate (Uri Sect	er closets nals See ion 419.2)	Lav	atories	Bathtubs or	Drinking Fountains (See	
No.	Classification	Occupancy.	Description	Male	Female	Male	Female	Showers	Section 410.1)	Other
5	Institutional	I-2 <u>, I-5</u>	Hospitals, ambulatory nursing home patients ^b	1 p	er room ^c	1 pe	r room ^c	(See Section 411)	1 per 100	1 service sink <u>and 1</u> <u>emergency</u> <u>shower and</u> eve wash ^e

TABLE 403.1 (IBC TABLE [P] 2902.1) (Supp) MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES^a

(Portions of table not shown remain unchanged)

- a. The fixtures shown are based on one fixture being the minimum required for the number of persons indicated or any fraction of the number of persons indicated. The number of occupants shall be determined by the *International Building Code*.
- b. Toilet facilities for employees shall be separate from facilities for inmates or patients.

- c. A single-occupant toilet room with one water closet and one lavatory serving not more than two adjacent patient sleeping units shall be permitted where such room is provided with direct access from each patient room and with provisions for privacy.
- d. The occupant load for seasonal outdoor seating and entertainment areas shall be included when determining the minimum number of facilities required.
- e. Where emergency shower and eye wash is required by Section 610.1 of the International Fire Code.
- e. <u>f.</u> The minimum number of required drinking fountains shall comply with Table 403.1 and Chapter 11 of the *International Building Code*.

Reason: This proposal will require the installation of an eye wash and eye shower in Group I-2 occupancies and Group I-5 occupancies (dependent on another code change to create the I-5). The eye wash and shower will be required in areas of the facility where hazardous chemicals are being used. IPC Section 411 currently has design criteria and requirements for emergency shower and eye wash stations when they are installed. This change will correlate the IBC and IFC with Federal Regulations for these facilities.

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

Analysis: The reference in this proposal to new occupancy "Group I-5" is dependent on the action on Code Change G33-07/08. If that code change is not approved, the reference to "Group I-5" will be deleted from these sections.

PART I – IFC

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF
PART II – IPC				
Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

F103-07/08

Proponent: Wayne R. Jewell, Chair, Hazard Abatement in Existing Buildings Committee

Revise as follows:

701.1 Scope. The provisions of this chapter shall specify the requirements for and the maintenance of fire-resistancerated construction and requirements for enclosing floor openings and shafts in existing buildings. New construction <u>or</u> <u>new floor openings in existing buildings</u> shall comply with the *International Building Code*.

Reason: The addition of this language provides for clarity to separate the issue of the construction of new floor openings in existing buildings from the need to enclose existing floor openings in existing buildings, which is addressed by Section 704 Floor Openings and Shafts. The current language has had numerous questions if new construction for the enclosure of an existing floor can comply with the provisions of Section 704 or if they must comply with the requirements of the IBC. The proposed language will clarify the intent of the code

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

Public Hearing:	Committee:	AS	S AM	D
	Assembly:	AS	F AMF	DF

F104-07/08 701.2 (New)

Proponent: Wayne R. Jewell, Chair, Hazard Abatement in Existing Buildings Committee

Add new text as follows:

701.2 Unsafe conditions. Where any components in this chapter are not maintained and do not function as intended or do not have the fire resistance required by the code under which the building was constructed, remodeled or altered such component(s) or portion thereof shall be deemed an unsafe condition, in accordance with Section 110.1.1.

Components or portions thereof determined to be unsafe shall be repaired or replaced to conform to that code under which the building was constructed, remodeled, altered or this chapter, as deemed appropriate by the code official.

Where the extent of the conditions of components is such that any building, structure or portion thereof presents an imminent danger to the occupants of the building, structure or portion thereof, the fire code official shall act in accordance with Section 110.2.

Reason: The ICC Board approved the development of new code requirements in the I-Codes which address hazards, such as those from fire, as well as, the development of requirements relative to issues such as hazardous conditions due to structural issues. This would provide code requirements for all disciplines to be used by building owners to bring their existing building stock up to minimum standards and enforcing agencies when performing inspections of existing buildings. The Hazard Abatement of Existing Buildings Committee (HAEB) was formed to develop these requirements.

During this 07/08 cycle, the HAEB committee is proposing several unsafe conditions requirements for inclusion within the text of the existing International Codes, predominately the International Property Maintenance Code and the International Fire Code.

During last years code cycle there was concern expressed declaring that assemblies which were and are required to have a fire resistance rating and found to be in a condition that was less than that required were being called unsafe. Using the term unsafe is not new to the IFC as it is used in Section 110 Unsafe Buildings. This section of the code not only deals with "buildings" but also deals with unsafe conditions defined in Subsection 110.1.1 Unsafe Conditions. However, in reading that section the only element that is related to what is proposed here is the wording "or inadequate maintenance" which is then "deemed" to be unsafe. So we have accepted inadequate maintenance as unsafe but a condition that renders a fire resistant assembly non-functional is not unsafe.

It was expressed at the hearings that defining damaged or breached fire resistant rated assemblies as unsafe would force the evacuation of the entire building. That is a non-issue – Section 110.1 currently clearly states "fire code official <u>shall issue such notice or orders to remove or remedy</u> the conditions as shall be deemed necessary in accordance with this section and shall refer the building to the building department for any repairs, alterations, remodeling, removing or demolition required." It is not automatic that an unsafe condition requires evacuation. It is possible that such a condition could exist that a building, structure or portion thereof does need to be evacuated until corrective actions are made, but these should be rare. What is mandated is that the fire code official issue a notice or order to rectify the conditions.

The new language of section 701.2 provides a basis of evaluating the conditions and determining a resource to determine the level of fire resistance that is required to be maintained. Again during the hearings comments were made about the lack of being able to know which code a building was constructed under and if that is not known how is this language to be applied. Well, all communities should have some record of when a building was constructed knowing what year it should be relatively easy to determine a published edition of the code that is close and prior to that year. To some this might seem like roulette, but it is better than trying to make a building constructed 30, 50 or 80 years ago comply with today's requirements that are sometimes based on alternatives, a different type of construction or fire protection systems being in place. If all else fails there is the exception for the Fire Code Official to work with the design professionals to resolve the issue. Currently, there is no direction on what to use as a basis for requirements for corrective actions, nothing is better than something?

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

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

F105-07/08 703.1, 107.2

Proponent: John C. Dean, National Association of State Fire Marshals (NASFM)

Revise as follows:

703.1 Maintenance. The required fire-resistance rating of fire-resistance-rated construction (including walls, firestops, shaft enclosures, partitions, smoke barriers, floors, fire-resistive coatings and sprayed fire-resistant materials applied to structural members and fire-resistant joint systems) shall be maintained. Such elements shall be <u>visually inspected</u> <u>annually</u>, properly repaired, restored or replaced when damaged, altered, breached or penetrated. Openings made therein for the passage of pipes, electrical conduit, wires, ducts, air transfer openings and holes made for any reason shall be protected with approved methods capable of resisting the passage of smoke and fire. Openings through fire-resistance-rated assemblies shall be protected by self- or automatic-closing doors of approved construction meeting the fire protection requirements for the assembly.

107.2 <u>Inspection</u>, testing and operation. <u>Passive fire systems and</u> equipment requiring periodic testing or operation to ensure maintenance shall be <u>inspected</u>, tested or operated as specified in this code.

Reason: Currently there is no requirement for fire-resistance-rated construction to be inspected. In many areas around the country there is no formal, organized inspection program in place and as such countless buildings go without ongoing inspections. The requirement to maintain and repair suggests that this has to occur if a situation is found to exist. Even in regulated occupancies, problems exist with various coatings and spray applied fire-resistant materials¹. Without any requirement to inspect these elements, conditions could exist for years before being noticed and repaired. This creates a false sense of security and puts building occupants at risk. The code has been formulated to require certain fire resistive features. It only stands to reason that these features should be periodically inspected to insure that they are, and remain, compliant for the life of the building.

¹ Findings from the *Initial Report of the Partnership for Safer Buildings*'. The National Association of State Fire Marshals. March 2003. http://www.firemarshals.org/mission/catastrophic/initial_report.asp.

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

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

F106–07/08 703.1.2, Chapter 45 (New)

Proponent: Vickie J. Lovell, InterCode Incorporated, representing Air Movement and Control Association

1. Revise as follows:

703.1.2 (Supp) Smoke barriers and smoke partitions. Required smoke barriers and smoke partitions shall be maintained to prevent the passage of smoke. All openings protected with approved smoke barrier doors or smoke dampers shall be maintained <u>in accordance with NFPA 105</u>.

2. Add standard to Chapter 45 as follows:

NFPA

NFPA 105-07 Installation of Smoke Door Assemblies and Other Opening Protectives

Reason: NFPA fire data indicates that assemblies intended to contain smoke to the area of the fire's origin are sometimes compromised. Protective devices and products intended to protect openings permitted by the code can fail if they are not properly installed. They may also fail to operate satisfactorily due to poor or non-existent maintenance regimen if such maintenance is not regularly carried out and the records inspected for consistent compliance. NFPA 105 is in the building code in Section 715.4.3.1, requiring compliance for the installation of smoke doors. The scope of the document also includes maintenance and care requirements for smoke doors and smoke dampers.

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

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

F107-07/08 703.1.3

Proponent: Vickie J. Lovell, InterCode Incorporated, representing Air Movement and Control Association

Revise as follows:

703.1.3 (Supp) Fire walls, fire barriers and fire partitions. Required fire walls, fire barriers and fire partitions shall be maintained to prevent the passage of fire. All openings protected with approved doors or fire dampers shall be maintained in accordance with NFPA 80.

Reason: NFPA fire data indicates that fire –resistance rated assemblies, intended to contain a fire to the area of origin, are sometimes compromised. Protective devices and products intended to protect openings permitted by the code can also fail if they are not properly installed. They may also fail to operate satisfactorily due to poor or non-existent maintenance regimen if such maintenance is not regularly carried out and the records inspected for consistent compliance. NFPA 80 is already referenced in the building code for the installation of such opening protectives. The new scope of the document also includes maintenance and care requirements.

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

F108–07/08 703.5 (New), 703.1.2

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

1. Add new text as follows:

703.5 Incidental accessory occupancies in Group I-1, I-2 and R-4 occupancies. Where located in existing Group I-1, I-2 and R-4 occupancies, the incidental accessory occupancies listed in Table 508.2.5 (Supp) of the *International Building Code* shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 of the *International Building Code* or a horizontal assembly constructed in accordance with Section 711 of the *International Building Code* or both, with not less than a one-hour fire-resistance rating. Openings shall be protected by smoke-actuated automatic-closing or self-closing fire doors with a 3/4-hour fire rating.

Exception: Where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3.

2. Revise as follows:

703.1.2 Smoke barriers. Required smoke barriers shall be maintained to prevent the passage of smoke and all openings protected with approved smoke barrier doors or smoke dampers. <u>Construction elements designed to resist</u> the passage of smoke shall be maintained to prevent the passage of smoke.

Reason: The incidental use areas identified in IBC 508.2 are portions of a building where there is an increased potential for fire. As a result of the increased hazard, these areas are required to be separated by either 1-HR fire rated construction or provided with sprinklers when in a new building. This proposal does not mandate compliance with requirements for new construction. For example, waste collection rooms, linen collection rooms, and paint shops are required to have 1-HR separation **and** sprinklers in new construction.

Group I occupancies have a higher life hazard than other occupancies, therefore, this proposal only addresses existing Group I occupancies. This proposal will require that the separation between the incidental use areas and the remainder of the building is constructed to resist the passage of smoke. Incidental use areas are frequently adjacent to, or have direct access, corridors. Providing construction to limit the spread of smoke will increase the integrity of the corridor during evacuation.

The "construction capable of resisting passage of smoke" is currently required in the IBC. This construction is by definition not a smoke barrier, and the IFC currently only requires maintenance of smoke barriers. Therefore, the revision to IFC 703.1.2 is added to include a maintenance requirement for the construction designed to resist the passage of smoke.

This proposal will correlate the IFC with Federal regulations for these facilities.

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

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

F109-07/08 703.5 (New)

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

Add new text as follows:

703.5 Separation of sleeping rooms. In existing Group R-4 occupancies, sleeping rooms shall be separated from other portions of the building by construction with not less than a ½ hour fire-resistance rating. Openings shall be protected by smoke-actuated automatic-closing or self-closing fire doors. Sleeping room doors shall be 20-minute fire rated, or 1¾ inch thick, solid wood-core construction.

Exception: Walls need only resist the passage of smoke where buildings are protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, and doors are automatic-closing or self-closing.

Reason: This proposal will include requirements that only apply to existing R-4 occupancies. The requirements will require that the sleeping areas are provided with a fire separation from the rest of the building. This separation will provide a higher level of protection for the occupants in their sleeping rooms.

Annually, multiple deaths occur in these facilities. This proposal will address that problem in existing buildings. If the building is sprinklered, the fire rating of the wall is not needed.

This proposal will correlate the IFC requirements with Federal requirements for these facilities.

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

F110–07/08 703.5 (New), 701.1

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

1. Add new section as follows:

703.5 Smoke barriers. Existing Group I-2 occupancies shall be subdivided by smoke barriers to create smoke compartments in accordance with Sections 703.5.1 through 703.5.4.

703.5.1 Smoke compartments. At least two smoke compartments shall be provided in existing Group I-2 occupancies where the following criteria apply:

- 1. The floor is used by patients for sleeping or treatment, and
- 2. The floor has an occupant load of 50 or more persons.

703.5.2 Size of smoke compartments. Smoke barriers shall be constructed so that smoke compartments do not exceed 22,500 square feet (2092 m²) and the travel distance from any point in a smoke compartment to a smoke barrier door shall not exceed 200 feet (60 960 mm). The smoke barriers shall be constructed in accordance with Section 709 of the *International Building Code*.

703.5.3 Area of refuge. At least 30 net square feet (2.8 m²) per patient shall be provided within the aggregate area of corridors, patient rooms, treatment rooms, lounge or dining areas and other low-hazard areas on each side of each smoke barrier. On floors not housing patients confined to a bed or litter, at least 6 net square feet (0.56 m²) per occupant shall be provided on each side of each smoke barrier for the total number of occupants in adjoining smoke compartments.

703.5.4 Independent egress. A means of egress shall be provided from each smoke compartment created by smoke barriers without having to return through the smoke compartment from which means of egress originated.

2. Revise as follows:

701.1 Scope. The provisions of this chapter shall specify the requirements for and the maintenance of fire-resistance-rated construction and protection of enclosing floor openings and shafts in existing buildings. New construction shall comply with *the International Building Code*.

Reason: This proposal will require the retroactive installation of smoke barriers in Group I-2 occupancies to create smoke compartments. Group I-2 occupancies by definition contain patients who are not capable of self-preservation.

Smoke compartments are used during firefighting operations to move patients horizontally on a floor to a safe location. This horizontal movement provides additional time for the safety of the patients who typically cannot evacuate on their own. Moving patients to the adjacent smoke compartment allows the movement of more patients to a safe location in a more efficient and timely manner. If the fire continues, and patients need to be further evacuated, that can still occur and the patients can be further evacuated to outside or to an adjacent floor.

New construction under IBC 407.4 requires smoke compartments on every floor used for patient sleeping or treatment regardless of occupant load, and for all other stories with an occupant load of 50 or more. This retroactive provision is somewhat less restrictive in that it only applies on floors used for patient sleeping or treatment, and then only applies when the occupant load is 50 or more. Even though it is less restrictive than new construction, this proposal will provide an acceptable level of safety without requiring full compliance with the current code requirements.

The requirements for the size of the area of refuge in Section 703.5.3 and egress from the smoke compartment in Section 703.5.4 are consistent with the requirements in the IBC.

The scope in Section 701.1 is revised in two ways. First, to include the provisions for the construction of fire barriers. Second, the sentence is revised by changing "enclosing" shafts to "protecting" shafts. In Table 704.1, the owner has the option in most cases to resolve the issue of an unenclosed vertical opening by either enclosing the shaft, or providing a fire sprinkler system. Protection of the shaft is a more accurate depiction of the options available to the owner.

This proposal will correlate the IFC with Federal regulations for these facilities.

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

F111-07/08

Proponent: Maureen Traxler, Department of Planning & Development, City of Seattle, WA

Revise as follows:

704.1 Enclosure. Interior vertical shafts, <u>Openings through floor/ceiling assemblies</u>, including but not limited to stairways, elevator hoistways, service and utility shafts, that connect two or more stories of a building shall be enclosed or protected as specified in Table 704.1.

Reason: The term "shaff" is defined in IBC Section 702.1 as "an enclosed space extending through one or more stories of a building, connecting vertical openings in successive floors, or floors and roof." IFC Section 201.3 states that IBC definitions apply to the IFC for terms not defined by the IFC. The current IFC uses circular language in stating that shafts, which are defined as enclosed spaces, must be enclosed or protected. It's more logical to say that openings through floors are required to be enclosed by a shaft or otherwise protected. The proposed language is similar to IBC Section 707.2.

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

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

F112-07/08

Proponent: Maureen Traxler, Department of Planning & Development, City of Seattle, WA

Revise as follows:

704.1 Enclosure. Interior vertical shafts, including but not limited to stairways, elevator hoistways, service and utility shafts that connect two or more stories of a building shall be enclosed or protected as specified in Table 704.1.

Exception: Openings through floor/ceiling assemblies need not be enclosed or protected where the code in effect when the openings were created would not require shaft enclosures or other protection.

Reason: Section 704.1 is inconsistent with the requirements of the IBC and the IEBC by requiring retrofit of shaft enclosure or sprinkler protection when the other codes would allow existing conditions to remain. Chapter 34 of the IBC allows buildings to be maintained according to the code in effect when it was built, and allows alterations to be done without making other areas of the building comply with the requirements for new construction. The IEBC, even at Level 3, the highest level of alteration, allows shafts other than stairways to remain in their original condition—required stairways are only required to be enclosed up to the highest work area.

More problematic is the inconsistency between Section 704.1 and IBC requirements for new construction. For example, the third row of Table 704.1 requires one-hour protection or a sprinkler system for openings connecting three to five stories. IBC Section 707.2 has 10 pertinent exceptions that the IFC does not recognize. Another example of an inconsistency is the seventh row in Table 704.1 which implies that some protection is required for escalator openings connecting more than 4 stories. The IBC in contrast, allows escalator and convenience stairway openings to connect an unlimited number of stories. (IBC 707.2 exception 2).

A retroactive requirement should not be more stringent than the requirements for new construction. A building that receives its Certificate of Occupancy should not immediately be subject to additional requirements. It is much more reasonable to allow conditions that were permitted by the code in effect when the building was constructed.

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

F113-07/08

Table 704.1

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

Revise table as follows:

TABLE 704.1 VERTICAL OPENING PROTECTION REQUIRED

OCCUPANCY CLASSIFICATION	CONDITIONS	PROTECTION REQUIRED
All, other than Groups I and R-4	Vertical openings connecting two stories	No protection required ^{a,b}
All, other than Group <u>s</u> I and R-4	Vertical openings connecting three to five stories	1-hour protection or automatic sprinklers throughout ^{a,b}
All, other than Group <u>s</u> I <u>and R-4</u>	Vertical openings connecting more than five stories	1-hour protection ^{a,b}
All, other than Group <u>s</u> I <u>and R-4</u>	Atriums and covered mall buildings	1-hour protection or automatic sprinklers throughout
<u>R-4</u>	Vertical openings connecting two or more stories	¹ /2-hour protection or automatic sprinklers throughout

(Portions of table and footnotes not shown remain unchanged)

Reason: Group R-4 occupancies contain clients and client rooms that are just as susceptible to the travel of smoke, heat and fire through vertical shafts as other occupancies. It is critical to protect the clients in these facilities.

This proposal will correlate the IFC with Federal regulations for board and care facilities.

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

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

F114-07/08

801.1

Proponent: Jon Napier, Fire Department, City of Kent, WA, representing Washington State Building Code Council

Revise as follows:

801.1 Scope. The provisions of this chapter shall govern interior finish, interior trim, furniture, furnishings, decorative materials and decorative vegetation in buildings. Sections 803 through 808 of this code shall be applicable to existing buildings. Section 803 of the *International Building Code* and Sections 804 through 808 shall be applicable to new and existing buildings.

Reason: The intent of this change is to clarify which codes are to be used for new buildings and which ones are used for existing buildings. This chapter has been completely rewritten and while Section 803 of the IBC is referenced in Section 803.1, it should be included in the scope of the chapter to make it more clear to check the IBC for requirements for the application of interior finishes and interior trim. The change specifically identifies which sections are to be used only for existing buildings and which ones to use for new and existing buildings.

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

F115–07/08 803; 803.1; 803.1.1, 803.1.2 (New); 803.8 (New), 803.8.1 (New); Chapter 45

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

1. Revise as follows:

SECTION 803 INTERIOR WALL<u>, FLOOR</u> AND CEILING FINISH AND TRIM IN EXISTING BUILDINGS

803.1 General. The provisions of this section shall limit the allowable flame spread and smoke development of interior Wall, <u>floor</u> and ceiling finishes and interior wall and ceiling trim in existing buildings based on location and occupancy classification.

803.1.1 Wall and ceiling finishes. Interior wall and ceiling finishes shall be classified in accordance with Section 803 of the *International Building Code*. Such materials shall be grouped in accordance with ASTM E 84, as indicated in Section 803.1.1 803.1.1.1, or in accordance with NFPA 286, as indicated in Section 803.1.2 803.1.1.2.

Exceptions:

- 1. Materials having a thickness less than 0.036 inch (0.9 mm) applied directly to the surface of walls and ceilings.
- 2. Exposed portions of structural members complying with the requirements of buildings of Type IV construction in accordance with the *International Building Code* shall not be subject to interior finish requirements.

803.1.1 803.1.1.1 Classification in accordance with ASTM E 84. Interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed index when tested in accordance with ASTM E 84.

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

803.1.2 803.1.1.2 (Supp) Classification in accordance with NFPA 286. Interior wall or ceiling finishes shall be allowed to be tested in accordance with NFPA 286. Finishes tested in accordance with NFPA 286 shall comply with Section 803.1.2.1. Interior wall and ceiling finish materials tested in accordance with NFPA 286 and meeting the acceptance criteria of Section 803.1.2.1, shall be allowed to be used where a Class A classification in accordance with ASTM E 84 is required.

803.1.2 Floor finishes. Interior floor finishes shall be classified in accordance with Section 804 of the *International Building Code*.

(Renumber subsequent sections)

2. Add new text as follows:

[B] 803.8 (IBC 804.4) Floor finish and floor covering. In all occupancies, interior floor finish and floor covering materials installed 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 803.8.1.

[B] 803.8.1 (IBC 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-2 and I-3 and not less than Class I 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 <u>Section 903.3.1.1 or 903.3.1.2</u>, Class II materials are permitted in any area where Class I materials are required, and materials complying with the DOC FF-1 "pill test" (CPSC 16 CFR, Part 1630) are permitted in any area where <u>Class II materials are required</u>.

3. Add standard to Chapter 45 as follows:

CPSC

<u>16 CFR Part 1630-2000</u> <u>Standard for the Surface Flammability of Carpets and Rugs</u>

Reason: The IBC currently requires a fire resistance rating of floor coverings in new construction. However, the IFC does not indicate that either that required flame spread rating must be maintained, or that a new floor covering installed in an existing building must also comply with the same requirements.

This proposal will provide consistency with the requirements in the IBC and allow for the regulation of new floor coverings within an existing facility and for maintenance of the floor coverings.

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

Analysis: The maintenance of the technical content of proposed IFC Sections 803.8 and 803.8.1, which are current Sections 804.4 and 804.4.1, respectively, of the IBC would rest with the IBC-Fire Safety Code Development Committee. The need for and suitability of having the new sections within the IFC is a matter to be determined by the IFC Code Development Committee.

A review of the standard proposed for inclusion in the code, CPSC 16 CFR Part 1630-2000, 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 January 15, 2008.

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

F116–07/08 Table 803.3; IBC Table 803.9

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

THESE PROPOSALS ARE ON THE AGENDA OF THE IFC AND THE IBC FIRE SAFETY CODE DEVELOPMENT COMMITTEES AS 2 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IFC

Revise table as follows:

INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY						
	Sprinklered			Nonsprinklered		
	Exit enclosures and exit		Rooms and enclosed	Exit enclosures and exit		Rooms and enclosed
Group	passageways ^{a,b}	Corridors	spaces ^c	passageways ^{a,b}	Corridors	spaces ^c
B, E, M, R-1 , R-4	В	С	С	A	В	С
<u>R-4</u>	<u>B</u>	<u>C</u>	<u>C</u>	<u>A</u>	<u>B</u>	<u>B</u>

TABLE 803.3

INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY^k

(Portions of table and footnotes not shown remain unchanged)

PART II - IBC FIRE SAFETY

Revise table as follows:

TABLE 803.9 (Supp) INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY ^k						
	S	prinklered		No	nsprinklered	
Group	Exit enclosures and exit passageways ^{a,b}	Corridors	Rooms and enclosed spaces ^c	Exit enclosures and exit passageways ^{a,b}	Corridors	Rooms and enclosed spaces ^c
B, E, M, R-1 , R-4	В	С	С	A	В	С
<u>R-4</u>	B	<u>C</u>	<u>C</u>	<u>A</u>	<u>B</u>	B

(Portions of table and footnotes not shown remain unchanged)

Reason: Table 803.3 in the IFC governs wall and ceiling finish in existing buildings. Table 803.3 in the IBC governs wall and ceiling finish in new buildings.

The change that occurs in this proposal is to increase the flame spread rating from Class C to Class B in rooms and areas within Group R-4 occupancies. These occupancies house clients that in many cases need assistance to evacuate. The increased level of safety afforded by requiring a Class B rating will provide additional time for evacuation before the room is totally involved in fire.

This proposal is consistent with Federal regulations for board and care facilities.

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

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

F117-07/08 803.5.1, 803.5.1.1; Chapter 45 (New)

Proponent: Marcelo M. Hirschler, GBH International

1. Revise as follows:

803.5.1 (Supp) Textile wall coverings. Textile wall coverings shall comply with one of the following:

- 1. The <u>textile wall or ceiling</u> coverings 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. <u>Test specimen preparation and mounting shall be in accordance with ASTM E 2404.</u>
- The <u>textile wall</u> covering shall meet the criteria of Section 803.5.1.1 or 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, or
- 3. The <u>textile wall or ceiling</u> covering shall meet the criteria of Section 803.1.2.1 when tested in accordance with NFPA 286 using the product-mounting system, including adhesive, of actual use.

2. Delete without substitution:

803.5.1.1 Method A test protocol. During the Method A protocol, flame shall not spread to the ceiling during the 40 kW exposure. During the 150 kW exposure, the textile wall covering shall comply with all of the following:

- 1. Flame shall not spread to the outer extremity of the sample on the 8-foot by 12-foot (203 mm by 305 mm) wall.
- 2. The specimen shall not burn to the outer extremity of the 2-foot-wide (610 mm) samples mounted in the corner of the room.
- Burning droplets deemed capable of igniting textile wall coverings or that burn for 30 seconds or more shall not form.
- 4. Flashover, as defined in NFPA 265, shall not occur.
- The maximum net instantaneous peak heat release rate, determined by subtracting the burner output from the maximum heat release rate, does not exceed 300 kW.

(Renumber subsequent section)

2. Add standard to Chapter 45 as follows:

ASTM

<u>E 2404-07</u> <u>Standard Practice for Specimen Preparation and Mounting of Textile, Paper or Vinyl Wall or Ceiling</u> Coverings to Assess Surface Burning Characteristics

Reason: This proposal does several things:

- 1. It clarifies that NFPA 265 method A no longer is contained within the standard and needs to be eliminated from the code.
- 2. It clarifies that NFPA 265 is unsuitable for testing ceiling coverings but ASTM E 84 and NFPA 286 can be used for testing ceiling
- coverings.
- 3. It recommends that a standard practice be referenced for testing textile wall and ceiling coverings and expanded vinyl wall and ceiling coverings in the Steiner tunnel test, ASTM E 84. The committee on fire standards, ASTM E05, developed a standard practice, entitled Standard Practice for Specimen Preparation and Mounting of Textile, Paper or Vinyl Wall or Ceiling Coverings to Assess Surface Burning Characteristics, specifically for a mandatory way of preparing test specimens and mounting them in the tunnel. This replaces optional guidance on mounting methods found in the Appendix of ASTM E 84 and ensures testing consistency.

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

Analysis: A review of the standard proposed for inclusion in the code, ASTM E 2404-07, 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 January 15, 2008.

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

F118-07/08 803.6.2, Chapter 45 (New)

Proponent: Marcelo M. Hirschler, GBH International

1. Revise as follows:

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.

2. Add standard to Chapter 45 as follows:

ASTM

E 2404-07 Standard Practice for Specimen Preparation and Mounting of Textile, Paper or Vinyl Wall or Ceiling Coverings to Assess Surface Burning Characteristics

Reason: This proposal recommends that a standard practice be referenced for testing textile wall and ceiling coverings and expanded vinyl wall and ceiling coverings in the Steiner tunnel test, ASTM E 84. The committee on fire standards, ASTM E05, developed a standard practice, entitled Standard Practice for Specimen Preparation and Mounting of Textile, Paper or Vinyl Wall or Ceiling Coverings to Assess Surface Burning Characteristics, specifically for a mandatory way of preparing test specimens and mounting them in the tunnel. This replaces optional guidance on mounting methods found in the Appendix of ASTM E 84 and ensures testing consistency.

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

Analysis: A review of the standard proposed for inclusion in the code, ASTM E 2404-07, 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 January 15, 2008.

Public Hearing: C	Committee:	AS	AM	D
۲ ۲	Assembly:	ASF	AMF	DF

F119-07/08 803.8 (New), 802.1 (New), Chapter 45 (New)

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

1. Add new text and definition as follows:

803.8 Site-fabricated stretch systems. Where used as interior wall or interior ceiling finish materials, site-fabricated stretch systems shall be tested in the manner intended for use, and shall comply with the requirements of Section 803.1.1 or 803.1.2. If the materials are tested in accordance with ASTM E 84 or UL 723, specimen preparation and mounting shall be in accordance with ASTM E 2573.

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

SITE-FABRICATED STRETCH SYSTEM, A system, fabricated on site and intended for acoustical, tackable or aesthetic purposes, that is comprised of three elements:

- A frame constructed of plastic, wood, metal or other material used to hold fabric in place,
- A core material (infill, with the correct properties for the application), and
- <u>2.</u> 3. An outside layer, comprised of a textile, fabric or vinyl, that is stretched taunt and held in place by tension or mechanical fasteners via the frame.

2. Add standard to Chapter 45 as follows:

ASTM

E 2573-07 Standard Practice for Specimen Preparation and Mounting of Site-Fabricated Stretch Systems to Assess Surface Burning Characteristics,

Reason: The ASTM committee on fire standards, ASTM E05, has issued a standard practice, ASTM E 2573, Standard practice for specimen preparation and mounting of site-fabricated stretch systems. Until now there was no correct mandatory way to test these systems. These systems are now being used extensively because they can stretch to cover decorative walls and ceilings with unusual looks and shapes. The systems consist of three parts: a fabric (or vinyl), a frame and an infill core material. The testing has often been done of each component separately instead of testing the composite system. That is an inappropriate way to test and not the safe way to conduct the testing. Now that a consensus standard method of testing exists, the code should recognize it. The proposed definition was taken from the standard, ASTM E 2573, word for word.

This type of product is not exclusive to any individual manufacturer. Three examples, taken from different manufacturers, are shown as illustrations.







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

Analysis: Similar requirements and definition are proposed for the *International Building Code* in code change proposal FS167-07/08. A review of the standard proposed for inclusion in the code, ASTM E 2573-07, 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 January 15, 2008.

Public Hearing:	Committee:	A	S	A	M	D
-	Assembly:	A	SF	A	MF	DF

F120-07/08 804.1; IBC [F] 806.5

Proponent: Douglas H. Evans, PE, Department of Development Services, Clark County, NV

1. Revise IFC as follows:

804.1 (Supp) Interior trim. Material, other than foam plastic, used as interior trim shall have a minimum Class C flame spread index and smoke-developed index, when tested in accordance with ASTM E 84, as described in Section 803.1.1. Combustible trim, excluding handrails and guardrails, shall not exceed 10 percent of the <u>specific</u> wall or ceiling areas in to which it is located <u>attached</u>.

2. Revise IBC as follows:

[F] 806.5 (Supp) Interior trim. Material, other than foam plastic used as interior trim shall have a minimum Class C flame spread and smoke-developed index when tested in accordance with ASTM E 84 or UL 723, as described in Section 803.1. Combustible trim, excluding handrails and guardrails, shall not exceed 10 percent of the aggregate specific wall or ceiling area in to which it is located attached.

Reason: If one reads the code literally, 10 percent all the allowable decorative wall materials may be placed on a single wall, which may actually allow the quantity of decorative materials to exceed the size of a specific wall. The proposed revision limits the percentage of decorative material to the respective wall.

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

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

F121–07/08 804.2.3 (IBC [F] 2604.2.3)

Proponent: Douglas H. Evans, PE, Department of Development Services, Clark County, NV

Revise as follows:

804.2.3 (IBC [F] 2604.2.3) (Supp) Area limitation. The interior trim shall not constitute more than 10 percent of the specific wall or ceiling areas of a room or space to which it is attached.

Reason: First of all, the code is inconsistent. Sometimes it specifies walls and ceilings and sometimes walls or ceilings. This revision can be looked at partially as clarification.

Most importantly, imagine a 100,000 sq ft casino, convention center or ballroom with 30 foot high walls (this is not uncommon). Within the other limitations specified in this section, a substantial quantity of decorative foam plastic materials may be installed on a single wall or ceiling. For the 100,000 sq ft example specified, that could allow in excess of 13,000 sq ft of decorative combustible foam plastic "trim".

Cost Impact: The code change proposal will increase the cost of construction and should not affect most applications

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

F122–07/08 804.2 through 804.2.4 (IBC [F] 2604.2 through [F] 2604.2.4)

Proponent: Douglas H. Evans, PE, Department of Development Services, Clark County, NV

Delete without substitution:

804.2 (IBC [F] 2604.2) Foam plastic. Foam plastic used as interior trim shall comply with Sections 804.2.1 through 804.2.4.

804.2.1 (IBC [F] 2604.2.1) Density. The minimum density of the interior trim shall be 20 pounds per cubic foot (320 kg/m³).

804.2.2 (IBC [F] 2604.2.2) Thickness. The maximum thickness of the interior trim shall be 0.5 inch (12.7 mm) and the maximum width shall be 8 inches (203 mm).

804.2.3 (IBC [F] 2604.2.3) (Supp) Area limitation. The interior trim shall not constitute more than 10 percent of the wall or ceiling areas of a room or space.

804.2.4 (IBC [F] 2604.2.4) (Supp) Flame spread. The flame spread index shall not exceed 75 where tested in accordance with ASTM E 84 or UL 723. The smoke developed index shall not be limited.

Exception: When the interior trim material has been tested as an interior finish in accordance with NFPA 286 and complies with the acceptance criteria in 803.1.2.1, it shall not be required to be tested for flame spread index in accordance with ASTM E 84 or UL 723.

Reason: Apparently, there were some foam plastics that met these parameters when this section originated. I am not aware of any manufacturers today that are still formulating foam plastics with a density exceeding 20 pounds per cubic foot. In addition, the 0.5 inch thickness is frequently exceeded. For example foam plastic crown molding can be purchased at various home improvement stores that do not meet the density, or thickness restrictions. If there are no materials being manufactured that can comply with the allowances outlined, the section has outlived its usefulness and should be deleted.

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

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

F123-07/08

805.1.1.2, 805.2.1.2, 805.2.2.2, 805.3.1.2, 805.4.1.1, 805.4.1.2, 805.4.2.2, 805.4.2.3 (New), 805.5 through 805.5.2.3, Chapter 45

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

1. Revise as follows:

805.1.1.2 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 megajoules (MJ).

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

805.2.1.2 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.

805.2.2.2 Heat release rate. Newly introduced mattresses shall have limited rates of heat release when tested in accordance with ASTM E 1590 or California Technical Bulletin 129, as follows:

1. The peak rate of heat release for the single mattress shall not exceed 100 kW.

Exception: Mattresses 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 mattress during the first 10 minutes of the test shall not exceed 25 MJ.

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

805.3.1.2 (Supp) Heat release rate. Newly introduced upholstered furniture shall have limited rates of heat release when tested in accordance with ASTM E 1537, as follows:

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

Exception: In Use Condition I, II and III occupancies, as defined in the *International Building Code*, upholstered furniture in rooms or spaces protected by approved smoke detectors that initiate, without delay, an alarm that is audible in that room or space.

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

805.4.1.1 (Supp) Ignition by cigarettes. Newly introduced upholstered furniture shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with NFPA 260 and shall meet the requirements for Class I one of the following:

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

805.4.1.2 (Supp) 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 megajoules (MJ).

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

805.4.2.2 (Supp) Heat release rate. Newly introduced mattresses shall have limited rates of heat release when tested in accordance with ASTM E 1590 or California Technical Bulletin 129, as follows.

1. The peak rate of heat release for the single mattress shall not exceed 100 kW.

Exception: Mattresses 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 mattress during the first 10 minutes of the test shall not exceed 25 megajoules (MJ).

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

2. Add new text as follows:

805.4.2.3 Alternate provision. In lieu of compliance with Sections 805.4.2.1 and 805.4.2.2, newly introduced mattresses shall be permitted to comply with the requirements of ignition source 5 of British Standard BS 5852, when all materials of the product are shown to pass the test.

805.4.2.3 805.4.2.4 (Supp) Identification. (No change to Supplement text)

805.5 All other occupancies. The requirements in Sections 805.5.1 through 805.5.2 shall apply to all other occupancy groups.

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. <u>Mocked-up composites of the upholstered furniture shall have a char length not exceeding 1.5 inches (38 mm)</u> 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.
- 2. The total energy released by the single upholstered furniture item during the first 10 minutes of the test shall not exceed 25 megajoules (MJ).

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.

Exception: Private owners of upholstered furniture in private dwellings shall be permitted to remove the tags.

805.5.2 Mattresses. Newly introduced mattresses shall meet the requirements of sections 805.5.2.1 through 805.5.2.3.

805.5.2.1 Ignition by cigarettes. 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 2.0 inches (51 mm).

805.5.2.2 Heat release rate. Newly introduced mattresses shall have limited rates of heat release when tested in accordance with DOC 16 CFR 1633, as follows.

- 1. The peak rate of heat release for the single mattress shall not exceed 200 kW during the first 30 minutes of test.
- The total energy released by the single mattress during the first 10 minutes of the test shall not exceed 15 megajoules (MJ).

Exception: Private owners of mattresses in private dwellings shall be permitted to remove the tags.

3. Add standards to Chapter 45 as follows:

British Standards Institution 389 Chiswick High Road London, W4 4AL, United Kingdom

BS 5852:2006 Methods of Test for Assessment of the Ignitability of Upholstered Seating by Smouldering and Flaming Ignition Sources

CPSC

16 CFR 1633-2006 Standard for the Flammability (Open Flame) of Mattress Sets

Reason: This is a general proposal for revising the requirements for upholstered furniture and mattresses, which are widely acknowledged to be the most important items causing fire fatalities in the US. In fact, the tragedy that killed 9 firefighters in the line of duty in Charleston, SC, on June 18, 2007 was the most visible example of this problem. The firefighters died because the upholstered furniture warehouse was full of furniture that did not meet any type of fire safety requirements. The National Association of State Fire Marshals (NASFM) petitioned the Consumer Product Safety Commission (CPSC) in 1993 that upholstered furniture fire legislation be put in place, perhaps following the British model. NASFM petitioned for federal regulation requiring that upholstered furniture be safe from ignition by cigarettes and by small open flames. CPSC has still not acted in August of 2007. In the 14 intervening years some 8,000 people have died in the US in fires that started in upholstered furniture. Those deaths should have been prevented and many would have been prevented if regulation was in place. CPSC is still unable to act, as it has no quorum for commissioners to vote and it is therefore important for someone else to act.

- 1. The IFC is not a regulation but it can require that upholstered furniture used everywhere meet certain fire safety standards, and that is what this proposal does.
- The standards required for upholstered furniture involve low heat release and resistance to smoldering ignition (by cigarettes).
 For heat release, the proposal introduces for all furniture requirements based on the same test as is required for the high risk occupancies
- For resistance to smoldering ignition, the proposal introduces the same tests that are being used, on a voluntary basis, by the major
- 4. For resistance to smoleting ignition, the proposal introduces the same tests that are being used, on a voluntary basis, by the major upholstered furniture manufacturer trade associations, namely UFAC (Upholstered Furniture Action Council, NFPA 260) and BIFMA (Business and Institutional Manufacturers Association, NFPA 261). The standards are already included in the code, for several high risk occupancies. In fact, the addition of this requirement is really mostly a reflection of reality, since the overwhelming majority of US upholstered furniture meets it.
- 5. This proposal does not present an alternate option, as a companion proposal does. The other proposal allows furniture made with individual components that comply with BS 5852 crib 5 to be used as an alternative to the use of the heat release test in CA TB 133/ASTM E 1537. Upholstered furniture sold in the United Kingdom has had to comply with BS 5852 since the late 1980s and that has resulted in dramatic improvements in fire safety associated with upholstered furniture.
- 6. The BS 5852 test is simple to conduct and requires minimal equipment or instrumentation. Therefore, this should make it easier for furniture manufacturers and individual suppliers to check whether they meet the requirements. Moreover, BS 5852 does not require testing of the entire upholstered furniture (or mattress) item, but each component can be tested individually. Again, this should make checking for conformance easier for manufacturers.
- 7. The proposal also includes in the code the mandatory federal requirements for fire safety of mattresses, which have been in effect since July 1, 2007 throughout the United States, based on 16 CFR 1633 (and in California, based on CA TB 603) and the ones that have existed for many years, based on CPSC's 16 CFR 1632. This is not an option in the US any more, but the proposal recognizes the international use of the IFC.
- 8. Once more, for mattresses, the option of complying with BS 5852 is not given here but in the other proposal, for international users of the IFC.
- 9. This proposal recognizes that CA TB 129/ASTM E 1590 is a more severe requirement than CA TB 603/16 CFR 1633 and therefore makes the distinction that mattresses in high risk environments must meet the more severe fire test. This does not represent a change.
- The proposal also eliminates the remainder of the sprinkler exceptions, because it is clear that the only proper way to get new furniture and mattresses introduced is by ensuring that all of it meets the proper fire safety requirements.
- 11. The proposal eliminates the exception for a smoke detector in a detention occupancy cell. This exception needs to be deleted, as it is still there because of incomplete proposals in the last cycle. The companion exception, in the section on mattresses, does not exist. Moreover, it makes no sense for an exception associated with an alarm sounding in the cell since the inmate cannot leave the cell even when notified even when notified of a fire. The upholstered furniture needs to meet the proper fire safety requirements. An exception for smoke detectors still exists for the patient's own furniture in the section on nursing homes and that is not addressed by this proposal. This portion is also being presented as a stand-alone proposal.
- 12. The proposal brings consistency to the smoldering ignition requirements by allowing all upholstered furniture resistance to smoldering ignition to be conducted with either of the two tests, NFPA 260 or NFPA 261, in 805.4.1.1. This portion is also being presented as a stand-alone proposal for the only occupancy where the option is missing.

An alternate proposal is also being presented that includes the option of using BS 5852 for all individual components.

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

Analysis: The action on this proposal should be consistent with the action on Code Change F124-07/08. A review of the standards proposed for inclusion in the code, British Standard BS 5852:2006 and CPSC 16 CFR 1633-2006, 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 January 15, 2008.

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

F124-07/08

805.1.1.2, 805.1.1.3 (New), 805.1.1.4, 805.1.2.2, , 805.1.2.3 (New), 805.1.2.4, 805.2.1.2, 805.2.1.3 (New), 805.2.1.4, 805.2.2.2, 805.2.2.3 (New), 805.2.2.4, 805.3.1.2, 805.3.1.3 (New), 805.3.1.4, 805.3.2.3 (New), 805.3.2.4, 805.4.1.1, 805.4.1.2, 805.4.1.3 (New), 805.4.1.4, 805.4.2.2, 805.4.2.3 (New), 805.4.2.4, 805.5 through 805.5.2.4 (New), Chapter 45

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

1. Revise as follows:

805.1.1.2 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 megajoules (MJ).

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

2. Add new text as follows:

805.1.1.3 Alternate provision. In lieu of compliance with Section 805.1.1.2, newly introduced upholstered furniture shall be permitted to comply with the requirements of ignition source 5 of British Standard BS 5852, when all materials of the product are shown to pass the test.

805.1.1.3 805.1.1.4 Identification. Upholstered furniture shall bear the label of an approved agency, confirming compliance with the requirements of Sections 805.1.1.1 and 805.1.1.2 or 805.1.1.3.

3. Revise as follows:

805.1.2.2 Heat release rate. Newly introduced mattresses shall have limited rates of heat release when tested in accordance with ASTM E 1590 or California Technical Bulletin 129, as follows:

1. The peak rate of heat release for the single upholstered furniture item shall not exceed 100 kW.

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

4. Add new text as follows:

805.1.2.3 Alternate provision. In lieu of compliance with Sections 805.1.2.2, newly introduced mattresses shall be permitted to comply with the requirements of ignition source 5 of British Standard BS 5852, when all materials of the product are shown to pass the test.

805.1.2.3 805.1.2.4 Identification. Mattresses shall bear the label of an approved agency, confirming compliance with the requirements of Sections 805.2.2.1 and 805.2.2.2 or 805.1.2.3.

5. Revise as follows:

805.2.1.2 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.

6. Add new text as follows:

805.2.1.3 Alternate provision. In lieu of compliance with Section 805.2.1.2, newly introduced upholstered furniture shall be permitted to comply with the requirements of ignition source 5 of British Standard BS 5852, when all materials of the product are shown to pass the test.

805.2.1.3 805.2.1.4 Identification. Upholstered furniture shall bear the label of an approved agency, confirming compliance with the requirements of Sections 805.2.1.1 and 805.2.1.2 or 805.2.1.3.

7. Revise as follows:

805.2.2.2 Heat release rate. Newly introduced mattresses shall have limited rates of heat release when tested in accordance with ASTM E 1590 or California Technical Bulletin 129, as follows:

1. The peak rate of heat release for the single mattress shall not exceed 100 kW.

Exception: Mattresses 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 mattress during the first 10 minutes of the test shall not exceed 25 MJ.

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

8. Add new text as follows:

805.2.2.3 Alternate provision. In lieu of compliance with Section 805.2.2.2, newly introduced mattresses shall be permitted to comply with the requirements of ignition source 5 of British Standard BS 5852, when all materials of the product are shown to pass the test.

805.2.2.3 805.2.2.4 Identification. Mattresses shall bear the label of an approved agency, confirming compliance with the requirements of Sections 805.2.2.1 and 805.2.2.2 or 805.2.2.3.

9. Revise as follows:

805.3.1.2 (Supp) Heat release rate. Newly introduced upholstered furniture shall have limited rates of heat release when tested in accordance with ASTM E 1537, as follows:

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

Exception: In Use Condition I, II and III occupancies, as defined in the *International Building Code*, upholstered furniture in rooms or spaces protected by approved smoke detectors that initiate, without delay, an alarm that is audible in that room or space.

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

10. Add new text as follows:

805.3.1.3 Alternate provision. In lieu of compliance with Section 805.3.1.2, newly introduced upholstered furniture shall be permitted to comply with the requirements of ignition source 5 of British Standard BS 5852, when all materials of the product are shown to pass the test.

805.3.1.3 805.3.1.4 Identification. Upholstered furniture shall bear the label of an approved agency, confirming compliance with the requirements of Sections 805.3.1.1 and 805.3.1.2 <u>or 805.3.1.3</u>.

805.3.2.3 Alternate provision. In lieu of compliance with Sections 805.3.2.1 and 805.3.2.2, newly introduced mattresses shall be permitted to comply with the requirements of ignition source 5 of British Standard BS 5852, when all materials of the product are shown to pass the test.

805.3.2.3 805.3.2.4 Identification. Mattresses shall bear the label of an approved agency, confirming compliance with the requirements of Sections 805.3.2.1 and 805.3.2.2 or 805.3.2.3.

11. Revise as follows:

805.4.1.1 (Supp) Ignition by cigarettes. Newly introduced upholstered furniture shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with NFPA 260 and shall meet the requirements for Class I one of the following:

- 1. <u>Mocked-up composites of the upholstered furniture shall have a char length not exceeding 1.5 inches (38 mm)</u> 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.

805.4.1.2 (Supp) 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 megajoules (MJ).

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

12. Add new text as follows:

805.4.1.3 Alternate provision. In lieu of compliance with Section 805.4.1.2, newly introduced upholstered furniture shall be permitted to comply with the requirements of ignition source 5 of British Standard BS 5852, when all materials of the product are shown to pass the test.

805.4.1.3 805.4.1.4 Identification. Upholstered furniture shall bear the label of an approved agency, confirming compliance with the requirements of Sections 805.4.1.1 and 805.4.1.2 <u>or 805.4.1.3</u>.

13. Revise as follows:

805.4.2.2 (Supp) Heat release rate. Newly introduced mattresses shall have limited rates of heat release when tested in accordance with ASTM E 1590 or California Technical Bulletin 129, as follows.

1. The peak rate of heat release for the single mattress shall not exceed 100 kW.

Exception: Mattresses 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 mattress during the first 10 minutes of the test shall not exceed 25 megajoules (MJ).

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

14. Add new text as follows:

805.4.2.3 Alternate provision. In lieu of compliance with Sections 805.4.2.1 and 805.4.2.2, newly introduced mattresses shall be permitted to comply with the requirements of ignition source 5 of British Standard BS 5852, when all materials of the product are shown to pass the test.

805.4.2.3 805.4.2.4 Identification. Mattresses shall bear the label of an approved agency, confirming compliance with the requirements of Sections 805.4.2.1 and 805.4.2.2 <u>or 805.4.2.3</u>.

805.5 All other occupancies. The requirements in Sections 805.5.1 through 805.5.2 shall apply to all other occupancy groups.

805.5.1 Upholstered furniture. Newly introduced upholstered furniture shall meet the requirements of Sections 805.5.1.1 through 805.5.1.4.

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

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

805.5.1.3 Alternate provision. In lieu of compliance with Section 805.5.1.2, newly introduced upholstered furniture shall be permitted to comply with the requirements of ignition source 5 of British Standard BS 5852, when all materials of the product are shown to pass the test.

805.5.1.4 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 or 805.5.1.3.

Exception: Private owners of upholstered furniture in private dwellings shall be permitted to remove the tags.

805.5.2 Mattresses. Newly introduced mattresses shall meet the requirements of Sections 805.5.2.1 through 805.5.2.4.

805.5.2.1 Ignition by cigarettes. 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 2.0 inches (51 mm).

805.5.2.2 Heat release rate. Newly introduced mattresses shall have limited rates of heat release when tested in accordance with DOC 16 CFR 1633, as follows.

- 1. The peak rate of heat release for the single mattress shall not exceed 200 kW during the first 30 minutes of test.
- 2. The total energy released by the single mattress during the first 10 minutes of the test shall not exceed 15 megajoules (MJ).

805.5.2.3 Alternate provision. In lieu of compliance with Section 805.2.2.2, newly introduced mattresses shall be permitted to comply with the requirements of ignition source 5 of British Standard BS 5852, when all materials of the product are shown to pass the test.

Exception: Private owners of mattresses in private dwellings shall be permitted to remove the tags.

15. Add standards to Chapter 45 as follows:

British Standards Institution 389 Chiswick High Road London, W4 4AL, United Kingdom

BS 5852:2006 Methods of Test for Assessment of the Ignitability of Upholstered Seating by Smouldering and Flaming Ignition Sources

CPSC

16 CFR 1633-2006 Standard for the Flammability (Open Flame) of Mattress Sets

Reason: This is a general proposal for revising the requirements for upholstered furniture and mattresses, which are widely acknowledged to be the most important items causing fire fatalities in the US. In fact, the tragedy that killed 9 firefighters in the line of duty in Charleston, SC, on June 18, 2007 was the most visible example of this problem. The firefighters died because the upholstered furniture warehouse was full of furniture that did not meet any type of fire safety requirements. The National Association of State Fire Marshals (NASFM) petitioned the Consumer Product Safety Commission (CPSC) in 1993 that upholstered furniture fire legislation be put in place, perhaps following the British model. NASFM petitioned for federal regulation requiring that upholstered furniture be safe from ignition by cigarettes and by small open flames. CPSC has still not acted in August of 2007. In the 14 intervening years some 8,000 people have died in the US in fires that started in upholstered furniture. Those deaths should have been prevented and many would have been prevented if regulation was in place. CPSC is still unable to act, as it has no quorum for commissioners to vote and it is therefore important for someone else to act.

- The IFC is not a regulation but it can require that upholstered furniture used everywhere meet certain fire safety standards, and that is 1. what this proposal does.
- The standards required for upholstered furniture involve low heat release and resistance to smoldering ignition (by cigarettes). 2.
- For heat release, the proposal introduces for all furniture requirements based on the same test as is required for the high risk occupancies 3. with requirements in the code, namely CA TB 133 (or ASTM E 1537).
- For resistance to smoldering ignition, the proposal introduces the same tests that are being used, on a voluntary basis, by the major 4 upholstered furniture manufacturer trade associations, namely UFAC (Upholstered Furniture Action Council, NFPA 260) and BIFMA (Business and Institutional Manufacturers Association, NFPA 261). The standards are already included in the code, for several high risk occupancies. In fact, the addition of this requirement is really mostly a reflection of reality, since the overwhelming majority of US upholstered furniture meets it.
- The proposal presents an alternate option, in that it allows furniture made with individual components that comply with BS 5852 crib 5 to 5. be used as an alternative to the use of the heat release test in CA TB 133/ASTM E 1537. Upholstered furniture sold in the United Kingdom has had to comply with BS 5852 since the late 1980s and that has resulted in dramatic improvements in fire safety associated with upholstered furniture
- 6. The BS 5852 test is simple to conduct and requires minimal equipment or instrumentation. Therefore, this should make it easier for furniture manufacturers and individual suppliers to check whether they meet the requirements. Moreover, BS 5852 does not require testing of the entire upholstered furniture (or mattress) item, but each component can be tested individually. Again, this should make checking for conformance easier for manufacturers.
- 7. The proposal also includes in the code the mandatory federal requirements for fire safety of mattresses, which have been in effect since July 1, 2007 throughout the United States, based on 16 CFR 1633 (and in California, based on CA TB 603) and the ones that have existed for many years, based on CPSC's 16 CFR 1632. This is not an option in the US any more, but the proposal recognizes the international use of the IFC.
- 8
- Once more, for mattresses, the option of complying with BS 5852 is given, for international users of the IFC. This proposal recognizes that CA TB 129/ASTM E 1590 is a more severe requirement than CA TB 603/16 CFR 1633 and therefore makes 9. the distinction that mattresses in high risk environments must meet the more severe fire test. This does not represent a change The proposal also eliminates the remainder of the sprinkler exceptions, because it is clear that the only proper way to get new furniture 10
- and mattresses introduced is by ensuring that all of it meets the proper fire safety requirements.
- The proposal eliminates the exception for a smoke detector in a detention occupancy cell. This exception needs to be deleted, as it is still 11. there because of incomplete proposals in the last cycle. The companion exception, in the section on mattresses, does not exist. Moreover, it makes no sense for an exception associated with an alarm sounding in the cell since the inmate cannot leave the cell even when notified even when notified of a fire. The upholstered furniture needs to meet the proper fire safety requirements. An exception for smoke detectors still exists for the patient's own furniture in the section on nursing homes and that is not addressed by this proposal. This portion is also being presented as a stand-alone proposal.
- The proposal brings consistency to the smoldering ignition requirements by allowing all upholstered furniture resistance to smoldering ignition to be conducted with either of the two tests, NFPA 260 or NFPA 261, in 805.4.1.1. This portion is also being presented as a 12. stand-alone proposal for the only occupancy where the option is missing.

An alternate proposal is also being presented that does not include the option of using BS 5852.

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

Analysis: The action on this proposal should be consistent with the action on Code Change F123-07/08. A review of the standards proposed for inclusion in the code, British Standard BS 5852:2006 and CPSC 16 CFR 1633-2006, 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 January 15, 2008.

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

F125-07/08 805.3.1.2

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

Revise as follows:

805.3.1.2 (Supp) Heat release rate. Newly introduced upholstered furniture shall have limited rates of heat release when tested in accordance with ASTM E 1537, as follows:

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

Exception: In Use Condition I, II and III occupancies, as defined in the *International Building Code*, upholstered furniture in rooms or spaces protected by approved smoke detectors that initiate, without delay, an alarm that is audible in that room or space.

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

Reason: This exception for a smoke detector in a detention occupancy cell should be deleted. The exception is still there because of incomplete proposals in the last cycle. The companion exception, in the section on mattresses, does not exist. Moreover, it makes no sense for an exception associated with an alarm sounding in the cell since the inmate cannot leave the cell even when notified of a fire. The upholstered furniture needs to meet the proper fire safety requirements. An exception for smoke detectors still exists for the patient's own furniture in the section on nursing homes and that is not addressed by this proposal.

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

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

F126-07/08 805.4.1.1

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

Revise as follows:

805.4.1.1 (Supp) Ignition by cigarettes. Newly introduced upholstered furniture shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with NFPA 260 and shall meet the requirements for Class I one of the following:

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

Reason: This proposal brings consistency to the smoldering ignition requirements by allowing all upholstered furniture resistance to smoldering ignition testing to be conducted with either of the two tests, NFPA 260 or NFPA 261, in 805.4.1.1. All other occupancies covered already permit this option.

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

F127-07/08 807.1

Proponent: Philip M. Chandler, NY State Office of Fire Prevention and Control

Revise as follows:

807.1 General requirements. In occupancies in Groups A, E, I and R-1 and dormitories in Group R-2, curtains, draperies, hangings and other decorative materials suspended from walls or ceilings shall meet the flame propagation performance criteria of NFPA 701 in accordance with Section 806.2 or be noncombustible.

Exceptions:

- 1. Curtains, draperies, hangings and other decorative materials suspended from walls of sleeping units and dwelling units in dormitories in Group R-2 protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1 and such materials are limited to not more than 50 percent of the aggregate area of walls.
- Decorative materials, including, but not limited to, photographs and paintings in dormitories in Group R-2 where such materials are of limited quantities such that a hazard of fire development or spread is not present.

In Groups I-1 and I-2, combustible decorative materials shall meet the flame propagation criteria of NFPA 701 unless the decorative materials, including, but not limited to, photographs and paintings, are of such limited quantities that a hazard of fire development or spread is not present. In Group I-3, combustible decorative materials are prohibited.

Fixed or movable walls and partitions, paneling, wall pads and crash pads, applied structurally or for decoration, acoustical correction, surface insulation or other purposes, shall be considered interior finish if they cover 10 percent or more of the wall or of the ceiling area, and shall not be considered decorative materials or furnishings.

In Group B and M occupancies, fabric partitions suspended from the ceiling and not supported by the floor shall meet the flame propagation performance criteria in accordance with Section 807.2 and NFPA 701 or shall be noncombustible.

Reason: It is well recognized that dormitories, especially those housing college students, present an elevated set of fire risk factors. Students often away from home for the first time, crowded conditions, experimentation with alcohol and controlled substances, smoking and use of candles and incense, not to mention a general feeling of invincibility of this age group, are all factors increasing the possibility of fire. Fire prevention experts have long recognized this fact and accordingly have worked to counter these risks with greater stringencies in the design, construction, maintenance and management of these occupancies. Section 807.1 of the IFC and its prohibition of combustible decorative materials not meeting the flame propagation standards of NFPA 701 in dormitories in Group R-2 is a good example. And not without good reason, as in the Chapel Hill fraternity fire and the Providence College fire of 1977 where ten students were killed, combustible interior trim and decorative materials were identified as playing a major role in the spread and development of the fire. (Comeau, Ed, "Campus Fire Safety," in, Cote, Arthur E. P.E., ed., *Fire Protection Handbook, Nineteenth Edition, Vol. 1*, Quincy, National Fire Protection Association, 2003: 5-99.)

Notwithstanding the above, in our zeal to prevent loss of life and limb, we have in fact gone overboard in our regulation of dormitory interior decoration. According to 807.1 college students are not allowed to post pictures of mom, team pennants, holiday cards, posters of Bob Dylan, you name it, on the walls of their own bedrooms. Nor can young coeds living at street level in inner city dormitories provide for their privacy and security by placing curtains over their windows. To be sure, no one is advocating that dormitory residents be allowed to cover every available inch of wall and ceiling with combustible materials that will most certainly enhance the growth and spread of any fire. Rather in the proposed addition of two exceptions to 807.1, we are attempting to balance the legitimate needs of dormitory residents to personalize their own spaces in accordance with their own individual tastes, preferences and privacy concerns with the over-arching need to provide for their life-safety.

In Exception 1, we are liberalizing the use of combustible materials on windows and walls only, excluding ceilings and the risk of drop-down fire spread. We allow only an amount sufficient to accommodate the real-world lifestyle of today's students. And in all cases we require the dormitories to be fully equipped with automatic sprinkler systems. For those institutions already sprinklered, we feel that this level of protection will adequately offset the relaxation of restrictions. To those institutions that have not yet sprinklered all of their existing dormitories, we feel that the market-driven need to deliver what their customers demand and can get elsewhere, will provide an added incentive to install sprinklers sooner than later. We feel strongly that sprinklers save lives.

In Exception 2, we provide for only the most basic level of personalization of dormitories. A level exactly the same as already allowed for residents of occupancies in Groups I-1 and I-2: alcohol and drug centers, half-way-houses, mental hospitals and detoxification centers, to name a few. Is it unreasonable to allow these residents the right to tack a photograph from home on the wall while denying the same right to homesick college students?

There are some that might argue that Exception 2 relies on an overly subjective assessment standard for establishing the acceptable limits of combustible decoration: Does it produce a risk of fire spread or not? They might prefer an arbitrarily set percentage of allowable combustibles as opposed to a more open-ended standard. However we in the code enforcement community have already adopted and embraced this criterion as evidenced by the language in 807.1 in regard to Groups I-1 and I-2. We as professionals are well equipped to determine if a fire hazard exists in a dormitory when dealing with such minute quantities of decorative materials without recourse to our slide rules and tape measures.

Apart from all that has been said above, consider one more reason to liberalize 807.1: its lack of practicality. If we are persistent in our efforts to enforce this provision as written, as many of us have been, seeking 100 percent compliance, we are more than likely to completely alienate students and institutional administrators as well. Fire prevention is accomplished through education as much as it is by code enforcement and engineering. If we are the ones that are seen as the grinch that stole freedom of personal expression and individuality, if we are the ones handing out fines for an

American flag on the wall, our ability to get in front of students and faculty and positively influence their life-safety decisions will be severely compromised, and for what? A few scraps of paper or strips of cloth? There are laws, rules and regulations, that regardless of how well intended, are simply draconian in their impact. The cost of their enforcement is counter-productive and counter-intuitive to their purpose. Prohibition comes to mind. We feel that the proposed exceptions to 807.1 provide a more realistic and humane standard without putting the public at increased risk of harm by fire.

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

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

F128–07/08 807.1.2 (IBC [F] 806.1.2)

Proponent: Douglas H. Evans, PE, Department of Development Services, Clark County, NV

Revise as follows:

807.1.2 (IBC [F] 806.1.2) Combustible decorative materials. The permissible amount of decorative materials meeting the flame propagation performance criteria of NFPA 701 shall not exceed 10 percent of the aggregate area of specific walls and ceilings wall or ceiling area to which it is attached.

Exceptions:

- In auditoriums in Group A, the permissible amount of decorative material meeting the flame propagation
 performance criteria of NFPA 701 shall not exceed 50 <u>75</u> percent of the aggregate <u>wall</u> area of walls and
 ceiling where the building is equipped throughout with an approved automatic sprinkler system in
 accordance with Section 903.3.1.1, and where the material is installed in accordance with Section 803.4 of
 the International Building Code.
- 2. The amount of fabric partitions suspended from the ceiling and not supported by the floor in Group B and M occupancies shall not be limited.

Reason: First of all, the code is inconsistent. Sometimes it specifies walls and ceilings and sometimes walls or ceilings. This revision can be looked at partially as clarification.

Most importantly, imagine a 100,000 sq ft casino, convention center or ballroom with 30 foot high walls (this is not uncommon). If one reads the code literally, this section allows all the decorative materials to be placed in a single location. This could allow draperies or other combustible features to be well in excess of the entire wall area. For the 100,000 sq ft example specified, that could allow in excess of 13,000 sq ft of decorative combustible applications in a single location.

The change to Exception 1 clarifies that the surface being considered is the walls and not the ceiling. In most cases, 50 percent of the walls and ceiling area will exceed 75 percent of the wall area. As such, the proposed amendment will be more conservative (and more specific), while still allowing draperies in theaters to cover a substantial portion of the walls.

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

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

F129-07/08 808.1

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

Revise as follows:

808.1 Wastebaskets <u>and soiled linen containers</u> in Group <u>I-2</u>, I-3 <u>and I-5</u> <u>occupancies</u> <u>detention and correction</u> <u>facilities</u>. Wastebaskets, <u>soiled linen containers</u> and other waste containers, including their lids, located in Group <u>I-2</u>, I-3 <u>and I-5 occupancies</u> <u>detention and correction</u> facilities shall be constructed of noncombustible materials or of materials that meet a peak rate of heat release not exceeding 300 kW/m² when tested in accordance with ASTM E 1354 at an incident heat flux of 50 kW/m² in the horizontal orientation. Metal wastebaskets and other metal waste containers with a capacity of 20 gallons (75.7 L) or more shall be listed in accordance with UL 1315 and shall be provided with a noncombustible lid. <u>Portable containers exceeding 32 gallons shall be stored in an area classified as a waste and linen collection room and constructed in accordance with Table 508.2 of the *International Building Code*.</u>
Reason: This proposal will require that trash and linen containers in I-2 and I-5 occupancies (dependent on a separate code change creating the I-5 occupancy) must meet the same requirement as those containers in I-3 occupancies. In each facility, the occupants have limited, if any, ability for self-evacuation. Plastic containers can add a tremendous fuel load to a fire in a trash or linen container. Many plastic containers will more than triple the fuel load in a fire situation.

This proposal will control the fuel load for these containers that are used routinely throughout the facilities.

This proposal will correlate the IFC with Federal Regulations for these facilities.

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

Analysis: The reference in this proposal to a new occupancy "Group I-5" is dependent on the action on Code Change G33-07/08. If that code change is not approved, the reference to Group I-5 will be deleted from this section.

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

F130-07/08 902 (IBC 902)

Proponent: Harry J. Oster, Village of Spring Valley, New York, representing himself

Add new definition as follows:

902.1 (IBC [F] 902.1) 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.

MANUAL FIRE ALARM SYSTEM. A fire alarm system that uses manual fire alarm boxes to initiate an alarm signal.

Reason: Although the term "MANUAL FIRE ALARM SYSTEM" is used extensively throughout IFC section 907, it's definition is no where mentioned in any ICC code or referenced standard NFPA 72. By adding a definition for MANUAL FIRE ALARM SYSTEM, it can only help avoid confusion with a designer or AHJ. The term without definition may be interpreted as a locally transmitted fire alarm to a constantly attended location on site whereas a person would then need to take manual action to either investigate the source of alarm or manually dial 911 for emergency services.

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

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

F131–07/08 903 (Various sections) [IBC [F] 903 (Various sections)]

Proponent: Patrick Vandergriff, Vandergriff Code Consulting Services, representing US Gypsum

Revise as follows:

903.2.1.1 (IBC [F] 903.2.1.1) Group A-1. An automatic sprinkler system shall be provided for Group A-1 occupancies where one of the following conditions exists:

- The fire area exceeds 12,000 square feet (1115 m²) for Type II-B, III-B, IV, and V-B construction, 24,000 square feet (2230 m²) for Type II-A and III-A construction and 36,000 square feet (3346 m²) for Type I-A and I-B construction.
- 2. The fire area has an occupant load of 300 or more for Type II-B, III-B, IV, and V-B construction, 600 or more Type II-A and III-A construction and 900 or more for Type I-A and I-B construction.
- 3. The fire area is located on a floor other than the level of exit discharge.
- 4. The fire area contains a multi-theater complex.

903.2.1.2 (IBC [F] 903.2.1.2) Group A-2. An automatic sprinkler system shall be provided for Group A-2 occupancies where one of the following conditions exists:

 The fire area exceeds 5,000 square feet (465 m²) where alcoholic beverages are served; or where only nonalcoholic beverages are served 10,000 Square feet (930 m2) for Type II-B, III-B, IV, and V-B construction, 20,000 square feet (1860 m²) for Type II-A and III-A construction and 30,000 square feet (2790 m²) for Type I-A and I-B construction.

- The fire area has an occupant load of 100 or more <u>where alcoholic beverages are served</u>, or <u>where only non-alcoholic beverages are served the fire area has an occupant load of 300 for Type II-B, III-B, IV, and V-B construction, 600 or more Type II-A and III-A construction and 900 or more for Type I-A and I-B construction; or
 </u>
- 3. The fire area is located on a floor other than the level of exit discharge.

903.2.1.3 (IBC [F] 903.2.1.3) Group A-3. An automatic sprinkler system shall be provided for Group A-3 occupancies where one of the following conditions exists:

- The fire area exceeds 12,000 square feet (1115 m2) for type II-B, III-B, IV, and V-B construction, 24,000 square feet (2230 m²) for Type II-A and III-A construction and 36,000 square feet (3346 m²) for Type I-A and I-<u>B construction.</u>
- 2. The fire area has an occupant load of 300 or more <u>for Type II-B, III-B, IV, and V-B construction, 600 or more</u> <u>Type II-A and III-A construction and 900 or more for Type I-A and I-B construction</u>.
- 3. The fire area is located on a floor other than the level of exit discharge.

Exception: Areas used exclusively as participant sports areas where the main floor area is located at the same level as the level of exit discharge of the main entrance and exit.

903.2.1.4 (IBC [F] 903.2.1.4) Group A-4. An automatic sprinkler system shall be provided for Group A-4 occupancies where one of the following conditions exists:

- The fire area exceeds 12,000 square feet (1115 m²) for type II-B, III-B, IV, and V-B construction, 24,000 square feet (2230 m²) for Type II-A and III-A construction and 36,000 square feet (3346 m²) for Type I-A and I-B construction.
- 2. The fire area has an occupant load of 300 or more for Type II-B, III-B, IV, and V-B construction, 600 or more Type II-A and III-A construction and 900 or more for Type I-A and I-B construction.
- 3. The fire area is located on a floor other than the level of exit discharge.

Exception: Areas used exclusively as participant sports areas where the main floor area is located at the same level as the level of exit discharge of the main entrance and exit.

903.2.1.5 (IBC [F] 903.2.1.5) Group A-5. An automatic sprinkler system shall be provided for Group A-5 occupancies in the following areas: concession stands, retail areas, press boxes and other accessory use areas in excess of 1,000 square feet (93 m²) for type II-B, III-B, IV, and V-B construction, 2,000 square feet (186 m²) for Type II-A and III-A construction and 3,000 square feet (279 m²) for Type I-A and I-B construction.

903.2.2 (IBC [F] 903.2.2) (Supp) Group E. An automatic sprinkler system shall be provided for Group E occupancies as follows:

- Throughout all Group E fire areas greater than 20,000 square feet (1858 m²) in area for type II-B, III-B, IV, and V-B construction, 40,000 square feet (3717 m²) for Type II-A and III-A construction and 60,000 square feet (5576 m²) for Type I-A and I-B construction.
- 2. Throughout every portion of educational buildings below the level of exit discharge.

Exception: An automatic sprinkler system is not required in any fire area or area below the level of exit discharge where every classroom throughout the building has at least one exterior exit door at ground level.

[903.2.3 (IBC [F] 903.2.3) Group F-1. An automatic sprinkler system shall be provided throughout all buildings containing a Group F-1 occupancy where one of the following conditions exists:

- Where a Group F-1 fire area exceeds 12,000 square feet (1115 m²) for type II-B, III-B, IV, and V-B construction, 24,000 square feet (2230 m²) for Type II-A and III-A construction and 36,000 square feet (3346 m²) for Type I-A and I-B construction.
- 2. Where a Group F-1 fire area is located more than three stories above grade plane; or
- 3. Where the combined area of all Group F-1 fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m²).

903.2.6 (IBC [F] 903.2.6) Group M. An automatic sprinkler system shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:

- Where a Group M fire area exceeds 12,000 square feet (1115 m²) for type II-B, III-B, IV, and V-B construction, 24,000 square feet (2230 m²) for Type II-A and III-A construction and 36,000 square feet (3346 m²) for Type I-A and I-B construction.
- 2. Where a Group M fire area is located more than three stories above grade plane; or
- Where the combined area of all Group M fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m²) for type II-B, III-B, IV, and V-B construction, 48,000 square feet (4460 m²) for Type II-A and III-A construction and 72,000 square feet (6690 m²) for Type I-A and I-B Construction.

903.2.8 (IBC [F] 903.2.8) Group S-1. An automatic sprinkler system shall be provided throughout all buildings containing a Group S-1 occupancy where one of the following conditions exists:

- A Group S-1 fire area exceeds 12,000 square feet (1115 m²) for type II-B, III-B, IV, and V-B construction, 24,000 square feet (2230 m²) for Type II-A and III-A construction and 36,000 square feet (3346 m²) for Type I-A and I-B construction.
- 2. A Group S-1 fire area is located more than three stories above grade plane; or
- The combined area of all Group S-1 fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m²) for type II-B, III-B, IV, and V-B construction, 48,000 square feet (4460 m²) for Type II-A and III-A construction and 72,000 square feet (6690 m²) for Type I-A and I-B construction.

903.2.8.1 (IBC [F] 903.2.8.1) (Supp) Repair garages. An automatic sprinkler system shall be provided throughout all buildings used as repair garages in accordance with the *International Building Code*, as follows:

- Buildings two or more stories in height, including basements, with a fire area containing a repair garage exceeding 10,000 square feet (929 m²) for type II-B, III-B, IV, and V-B construction, 20,000 square feet (1858 m²) for Type II-A and III-A construction and 30,000 square feet (2787 m²) for Type I-A and I-B construction.
- One-story buildings with a fire area containing a repair garage exceeding 12,000 square feet (1115 m²) for type II-B, III-B, IV, and V-B construction, 24,000 square feet (2230 m²) for Type II-A and III-A construction and 36,000 square feet (3346 m²) for Type I-A and I-B construction.
- 3. Buildings with a repair garage servicing vehicles parked in the basement.

903.2.9.1 (IBC [F] 903.2.9.1) Commercial parking garages. An automatic sprinkler system shall be provided throughout buildings used for storage of commercial trucks or buses where the fire area exceeds 5,000 square feet (464 m²) for type II-B, III-B, IV, and V-B construction, 10,000 square feet (928 m²) for Type II-A and III-A construction and 15,000 square feet (1392 m²) for Type I-A and I-B construction.

Reason: The consideration of fire areas is still a rather young proposal in relation to the overall history of the codes. As such there are certain issues that have not been taken into account. One of those issues is: Should the same size fire area and number of fire area limitations be the same for fire resistive, non-combustible construction as it is for the totally combustible and non-fire resistive construction?

In reality, what we are trying to achieve is buildings that provide a reasonable level of safety for the inhabitants. The code recognizes that issues such as use of buildings, level of lighting, capacity of inhabitants and numbers of people can require additional construction safeguards to provide for the same level of safety across the board. The provisions of Chapter 9 governing fire areas took this into account by adding sprinklers at given levels to insure safety, but did not provide logical design alternatives utilizing passive fire-resistiveness for increased inhabitant safety. This code change addresses the inherent capacity for safety based on construction materials and provides the designer alternatives to reach the goal of the public health, safety and welfare.

Additionally, under Section 903.2.1.2 the code change proposal recognizes that there are facilities that serve food and not alcohol. The provision to lower the occupant load from 300 occupants in the 2003 IBC to 100 occupants in the 2006 IBC was based upon an incident in a night club in which dozens of code violations to existing codes led to a large number of deaths. This incident also underscored the issue that large groups of for the most part inebriated people do not do things they should do in an emergency situation.

Cost Impact: The code change proposal will not increase the cost of construction. The proposal may result in cost savings in some locations when the designer makes a carefully crafted design decision as to the use of passive or active protection for the specific project.

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

F132-07/08 903.2.1.3, 903.2.1.4 (IBC [F] 903.2.1.3, [F] 903.2.1.4)

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

Revise as follows:

903.2.1.3 (IBC [F] 903.2.1.3) Group A-3. An automatic sprinkler system shall be provided for Group A-3 occupancies where one of the following conditions exists:

- 1. The fire area exceeds 12,000 square feet (1115 m²);
- 2. The fire area has an occupant load of 300 or more; or
- 3. The fire area is located on a floor other than the level of exit discharge.

Exception: Areas used exclusively as participant sports areas where the main floor area is located at the same level as the level of exit discharge of the main entrance and exit.

903.2.1.4 (IBC [F] 903.2.1.4) Group A-4. An automatic sprinkler system shall be provided for Group A-4 occupancies where one of the following conditions exists:

- 1. The fire area exceeds 12,000 square feet (1115 m²);
- 2. The fire area has an occupant load of 300 or more; or
- 3. The fire area is located on a floor other than the level of exit discharge.

Exception: Areas used exclusively as participant sports areas where the main floor area is located at the same level as the level of exit discharge of the main entrance and exit.

Reason: The intention of the exception was for gymnasiums and similar areas where the probable occupant load was significantly less than what would be determined based on a square footage per occupant factor. These facilities have become multi-use and the occupant load is frequently higher than what was anticipated or expected when the exception was developed, and the fire load can vary based on the used to far exceed what would be expected for a sporting area.

For example, a community recreation center is constructed with no sprinklers over the gymnasium floor. The same area is also utilized for receptions and various community activities such as work fairs, rummage sale, art exhibits, emergency shelters for persons displaced by natural disasters, etc. Such uses could even include eating, sleeping, and fire loads far in excess of a few uniforms and leather volleyballs.

Cost Impact: Since the rest of the building will be sprinklered, the additional cost is only for additional sprinkler lines.

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

F133-07/08 903.2.2 (IBC [F] 903.2.2)

Proponent: Jeff Hugo, National Fire Sprinkler Association

Revise as follows:

903.2.2 (IBC [F] 903.2.2) (Supp) Group E. An automatic sprinkler system shall be provided for Group E occupancies as follows:

- 1. Throughout all Group E fire areas greater than 20,000 12,000 square feet (1858 1115 m²) in area.
- 2. Throughout every portion of educational buildings below the lowest level of exit discharge that serves that portion of the building.

Exception: An automatic sprinkler system is not required in any fire area or area below the level of exit discharge where every classroom throughout the building has at least one exterior exit door at ground level.

Reason: The continuity of mission is important for educational occupancies. If a community loses a school that community cannot quickly recover to resume normal school activities. There are several similarities between educational and several other occupancies, therefore sprinkler requirements should also be similar. Reducing the fire area from 20,000 s.f. to 12,000 s.f. will aid in fire fighter rescue, smaller area of damage, and a quicker recovery to school programs if a sprinkler system is not chosen. Although through consistent fire drills, deaths are rare, but the possibility exists for a

large loss of life in educational occupancies. A threshold of 20,000 square feet is one of the highest minimum sprinkler thresholds in the code and exists without good reason. Some states have already mandated complete sprinkler protection in educational occupancies.

In most cases it is not economically feasible to build a school without sprinkler protection. The cost savings for a community to build a school is introduced when the decision to install sprinklers is done at the early stages of the project where they can take advantage of the sprinkler trade ups for building construction. Another factor to consider is federal, state, and local tax monies available to build and repair schools. A fire sprinkled school will cost less to insure, less to rebuild, less liability to the school system, less injuries, less taxes, and less downtime. According to statistics only 24% of the nation's schools have fire sprinklers. However the average fire loss when sprinklers are present are \$2,800 versus \$12,900 having no sprinklers, resulting in a 78% reduction in damage.

Fires during lockdowns, hostage, or terrorist events are now a concern than during the legacy codes where the 20,000 s.f. threshold evolved from. A fire during a lockdown is a lose-lose event for the administrators' and children. Fire sprinklers can control the fire during the lockdown in lieu of endangering the children exiting during the lockdown or prohibiting egress caused by the fire.

Statistics from a four year period of 1999-2002, there were an estimated average of 7,070 structure fires in educational occupancies along with 113 injuries and \$112 million in property damage. K-12 schools make up 5,230 fires, 88 injuries, and \$74 million in fire damage. This is money from the taxes we pay, and these are our children getting burned and injured. Fire sprinklers can reduce the cost while increasing fire protection. Including fire sprinklers during the design process can significantly reduce the construction cost.

Bibliography:

EDUCATIONAL PROPERTIES, National Fire Protection Association, September 2006 Practical Information on Crisis Planning: A Guide for Schools and Communities, US Dept of Education, Jan. 2007

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

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

F134-07/08 903.2.4.2 (IBC [F] 903.2.4.2)

Proponent: Daniel E. Nichols, PE, NY State Division of Code Enforcement and Administration

Revise as follows:

903.2.4.2 (IBC [F] 903.2.4.2) Group H-5. An automatic sprinkler system shall be installed throughout buildings containing Group H-5 occupancies. The In Group H-5 occupancies, the design of the automatic sprinkler system required in 903.2.4.1 shall not be less than that required by this code for the occupancy hazard classifications in accordance with Table 903.2.4.2. Where the design area of the sprinkler system consists of a corridor protected by one row of sprinklers, the maximum number of sprinklers required to be calculated is 13.

Reason: Removes redundant language. Section 903.2.4.1, located directly before 903.2.4.2, requires sprinkler systems in all H occupancies. The code doesn't need to say it again for H-5. This code change proposal retains the specific fire hazard control requirements for H-5 occupancies.

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

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

F135–07/08 903.2.6 (IBC [F] 903.2.6)

Proponent: Jesse J. Beitel, Hughes Associates, Inc., representing American Home Furnishings Alliance and National Home Furnishings Association

Revise as follows:

903.2.6 (IBC [F] 903.2.6) Group M. An automatic sprinkler system shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:

- 1. Where a Group M fire area exceeds 12,000 square feet (1115 m²);
- 2. Where a Group M fire area is located more than three stories above grade plane; or
- Where the combined area of all Group M fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m²)-; or
- 4. Where a Group M occupancy is used primarily for the display and sale of upholstered furniture.

Reason: This proposal is submitted jointly by the American Home Furnishings Alliance (AHFA) and the National Home Furnishings Association (NHFA) in the interest of making furniture retail and warehouse facilities safer for employees, customers and first responders. AHFA represents manufacturers and importers of residential furniture, some of whom also operate branded retail stores. NHFA's membership comprises 2,800 corporate entities representing 10,000 retail furniture stores in all 50 states and several foreign countries.

The proposal to require sprinklers for Group M occupancies containing significant amounts of upholstered furniture recognizes that, under certain circumstances, all upholstered furniture will ignite and contribute to the fuel load of a fire. There is no such thing as totally fire safe upholstered furniture.

The AFHA and the NHFA have examined proposals for exempting vendors of certain constructions of furniture and concluded that such exemptions would be impractical for local code officials to enforce. This is the case because the internal construction of furniture cannot be established reliably without deconstructing it.

Further, materials and constructions touted as more fire resistant have not proven so to the satisfaction of fire authorities. The U.S. Consumer Product Safety Commission (CPSC) has tested furniture with combustion modified polyurethane foam such as that required in California and the United Kingdom and found that such foam does not meaningfully improve fire performance when furniture is exposed to an open flame. Other researchers have found that constructions employing the fire-blocking barriers now prevalent in mattresses do not reliably slow the progression of furniture fires. This is likely due to the variety of upholstery fabrics and seating geometries typical of furniture as compared to mattresses.

The most protective code measure would establish uniform, easily enforceable sprinkler requirements and not base safety considerations on differences in furniture construction that may or may not exhibit better fire performance in a retail setting.

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

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

F136–07/08 903.2.8, 903.2.8.1, 903.2.9 (IBC [F] 903.2.8, [F] 903.2.8.1, [F] 903.2.9)

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

Revise as follows:

903.2.8 (IBC [F] 903.2.8) Group S-1. An automatic sprinkler system shall be provided throughout all buildings containing a Group S-1 occupancy where one of the following conditions exists:

- 1. A Group S-1 fire area exceeds 12,000 square feet (1115 m²);
- 2. A Group S-1 fire area is located more than three stories above grade plane; or
- 3. The combined area of all Group S-1 fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m²).
- 4. <u>A group S-1 fire area used for the storage of commercial trucks or buses where the fire area exceeds 5,000 square feet (464 m²).</u>

903.2.8.1 (IBC [F] 903.2.8.1) (Supp) Repair garages. An automatic sprinkler system shall be provided throughout all buildings used as repair garages in accordance with Section 406 of the *International Building Code*, as shown:

- 1. Buildings having two or more stories above grade plane, including basements, with a fire area containing a repair garage exceeding 10,000 square feet (929 m²).
- 2. Buildings no more than one story above grade plane, with a fire area containing a repair garage exceeding 12,000 square feet (1115 m²).
- 3. Buildings with a repair garage servicing vehicles parked in the basement.
- <u>4.</u> A group S-1 fire area used for the repair of commercial trucks or buses where the fire area exceeds 5,000 square feet (464 m^2).

903.2.9 (IBC [F] 903.2.9) (Supp) Group S-2. An automatic sprinkler system shall be provided throughout buildings classified as enclosed parking garages in accordance with Section 406.4 of the *International Building Code* as follows.

- 1. Where the fire area of the enclosed parking garage exceeds 12,000 square feet (1115 m²); or
- 2. Where the enclosed parking garage is located beneath other groups.

Exception: Enclosed parking garages located beneath Group R-3 occupancies.

Reason: This proposal adds an additional trigger for sprinkler protection in repair garages. This is a logical alignment with Section 903.2.9.1. Currently, a building that stores trucks is required to be protected by a fire sprinkler system at 5,000 square but if trucks are repaired within the same building, the building can go up to 12,000 square feet. The addition of the term 'stored' within 903.2.8 has been added since a multi-purpose are used to store more than trucks, such as a fire station bay, is an S-1 rather than an S-2.

The removal of the exception to 903.2.9 is to add clarity. Group R-3 occupancies are required to be protected by a fire sprinkler system and the exception adds confusion.

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

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

F137-07/08 903.2.9.1 (IBC [F] 903.2.9.1)

Proponent: Gary Lampella, City of Redmond, OR, representing Oregon Building Officials Association

Revise as follows:

903.2.9.1 (IBC [F] 903.2.9.1) Commercial parking garages. An automatic sprinkler system shall be provided throughout buildings used for storage of commercial trucks or busses where the fire area exceeds 5,000 square feet (464 m²).

Exception: One-story buildings with a fire area not exceeding 12,000 square feet (1115 m²) completely constructed of noncombustible material, and except for columns required to support the roof, are entirely open on at least three sides.

Reason: Currently, the code requires automatic fire sprinklers in all structures used to store commercial trucks and busses when the fire area exceeds 5,000. This is reasonable for typical parking structures that the code addresses in Section 406. Section 406 addresses tier type structures either open or enclosed. Parking of busses and trucks is prohibited in open parking garages per Section 406.3.13, so by default, all structures whether open on all sides or not are classified as enclosed parking garages and are required to be sprinkled when the fire area exceeds 5,000 square feet per Section 903.2.9.1.

School bus shelters and similar stand-alone covered shelters used for parking that are constructed without any walls do not accommodate the accumulation of smoke and hot gases within the structure. Furthermore, by restricting the construction materials to non-combustibles, the structure does not add any fuel load in the event of fire. Due to the space required for maneuvering trucks and busses into these parking structures, access for fire fighting operations is relatively good.

12,000 square feet is allowed for auto repair shops that are usually fully enclosed and normal use includes grinding, welding and the like. This scenario has not presented problems and is much more hazardous than a structure used for parking.

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

Public Hearing: Con	nmittee:	AS	AM	D
Ass	embly:	ASF	AMF	DF

F138–07/08 903.2.10, 903.2.12.1, 903.2.12.2, 903.2.13, Table 903.2.13 (IBC [F] 903.2.10, [F] 903.2.12.1, [F] 903.2.12.2, [F] 903.2.13, [F] Table 903.2.13)

Proponent: Daniel E. Nichols, PE, NY State Division of Code Enforcement and Administration

1. Revise as follows:

903.2.10 (IBC [F] 903.2.10) Windowless stories in all occupancies Specific buildings areas and hazards. In all <u>occupancies</u> an automatic sprinkler system shall be installed for building design or hazards in the locations set forth in Sections 903.2.10.1 through 903.2.10.1.3 903.2.10.6.

Exception: Group R-3 and Group U.

2. Relocate sections and table as follows:

903.2.12.1 903.2.10.4 (IBC [F]903.2.12.1 [F]903.2.10.4) Ducts conveying hazardous exhausts. Where required by the *International Mechanical Code*, automatic sprinklers shall be provided in ducts conveying hazardous exhaust, flammable or combustible materials.

Exception: Ducts where the largest cross-sectional diameter of the duct is less than 10 inches (254 mm).

903.2.12.2 903.2.10.5 (IBC [F]903.2.12.2 [F]903.2.10.5) Commercial cooking operations. An automatic sprinkler system shall be installed in a commercial kitchen exhaust hood and duct system where an automatic sprinkler system is used to comply with Section 904.

903.2.13 903.2.10.6 (IBC [F]903.2.13 [F]903.2.10.6) Other required suppression system. In addition to requirements of 903.2, the provisions indicated in Table 903.2.13 903.2.10 also require the installation of a suppression system for certain buildings and areas.

TABLE 903.2.13903.2.10(IBC TABLE [F]903.2.13[F]903.2.10)ADDITIONAL REQUIRED FIRE-EXTINGUISHING SYSTEMS

(No change to table contents)

Reason: At present both Section 903.2.10 and 903.2.12 identify "other" places where sprinkler protection is required. These 5 things are either based on an identifiable hazard of the activity or design. As compared to section 903.2.11 which is essentially a list of references to other provisions, these 5 are detailed in Section 903. The distinction between the items in 903.2.10 and .12 is artificial and unneeded. Further, the existing title of 903.2.10 – Windowless stories in all occupancies is misleading. Only subsection 903.2.10.1 addresses the windowless situation. The intent of this proposal is editorial. It results in the sprinkler requirement provisions of 903 to be in 4 rough categories: 1 – Based on occupancy; 2 – based on building design or feature; 3-reference to other section; 4 – during construction;

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

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

F139–07/08 903.2.10.3 (IBC [F] 903.2.10.3)

Proponent: Anthony C. Apfelbeck, City of Altamonte Springs, FL

Revise as follows:

903.2.10.3 (IBC [F] 903.2.10.3) Buildings 55 <u>30</u> feet or more in height. An automatic sprinkler system shall be installed throughout buildings with a floor level having an occupant load of 30 or more that is located 55 <u>30</u> feet (16 764 (16 764 <u>9144</u> mm) or more above the lowest level of fire department vehicle access.

Exceptions:

- 1. Airport control towers.
- 2. Open parking structures.
- 3. Occupancies in Group F-2.

Reason:

- 1. This code change will reduce occupant and fire fighter risk in unsprinkled mid-rise buildings with a height of 30 to 50 feet. Currently, unsprinklered buildings of between 30' and 50' are allowed by the code but create significant access and rescue issues for fire department operations. Most fire departments are equipped with only 24 or 35 foot ground extension ladders on engine companies. Therefore, the only method of exterior access to the 30 to 50 foot levels in these structures is via an aerial fire apparatus. In many cases, an aerial fire apparatus may not be available. If the aerial apparatus is available, the presence does not compensate for the added risk due to the height of mid-rise structures.
- 2. The standpipe threshold is set at 30 feet, therefore a large diameter pipe, as a potential water supply, will already exist in these buildings. This significantly reduces the cost impact of this proposal.
- 3. Balanced fire protection needs to include an active fire protection component. The proven effectiveness of fire sprinklers will round out the balanced fire protection approach to mid-rise buildings and significantly reduce the risk exposure.
- 4. Unsprinklered buildings have a higher death rate, injury rate and property loss as compared to fire sprinkler protected properties.
- 5. The effectiveness of sprinklers in reducing, if not eliminating, firefighter fireground deaths is well documented.

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

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

F140–07/08 903.3.1.2 (IBC [F] 903.3.1.2)

Proponent: Jeffrey M. Shapiro, PE, International Code Consultants, representing National Multi Housing Council

Revise as follows:

903.3.1.2 (IBC [F] 903.3.1.2) NFPA 13R sprinkler systems. Where allowed in buildings of <u>In</u> Group R occupancies, up to and including four stories in height, automatic sprinkler systems shall be installed throughout in accordance with NFPA 13R.

Reason: The proposed change is intended to clarify application of the code with respect to NFPA 13R systems. The title of NFPA 13R is "Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height," with the key word being "occupancies." Currently, Section 903.3.1.2, by referring to "buildings of Group R," implies that NFPA 13R systems would not be permitted in any portion of a mixed use occupancy, which is inappropriate. In a mixed use containing Group R, it is entirely appropriate to permit NFPA 13R as a basis for sprinkler protection in the residential portion of the building, as well as accessory uses within residential areas. Other areas are, however, be required to be protected in accordance with NFPA 13. The proposal makes this clear.

Note that Section 903.2.7 still requires fire sprinklers throughout all buildings with a Group R fire area, so by changing Section 903.3.1.2 to refer to "occupancies," there is no impact on the requirement that the entire building containing a Group R fire area must be sprinklered.

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

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

F141–07/08 903.3.1.2 (IBC [F] 903.3.1.2), 902.1

Proponent: Philip Brazil, PE, Reid Middleton, Inc., representing himself

1. Revise as follows:

903.3.1.2 (IBC [F] 903.3.1.2) NFPA 13R sprinkler systems. Where allowed in buildings of Group R, up to and including four stories in height above grade plane, automatic sprinkler systems shall be installed throughout in accordance with NFPA 13R.

2. Add new definition as follows:

902.1 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.

[B] STORY ABOVE GRADE PLANE. Any story having its finished floor surface entirely above grade plane or in which the finished surface of the floor above is:

- 1. More than 6 feet (1829 mm) above grade plane; or
- 2. More than 12 feet (3658 mm) above the finished ground level at any point.

Reason: There has been an ongoing effort in the development of the IBC to clarify the measurement of the heights of buildings and their components above the ground surface when code requirements are based on such heights.

Proposal G44-04/05-AM successfully established the distinction between "grade plane" as a measurement of the height and number of stories of a building above the finished ground surface and "grade" as a measurement of the height of a component of the building above the finished ground surface and "grade" as a measurement of the height of a component of the building above the finished ground surface. Grade plane is an imaginary horizontal reference plane representing the weighted average of the finished ground surface adjoining the building at its perimeter. The grade plane of each building is located at a single, unique elevation. Grade, however, is not imaginary but is the actual finished ground surface adjoining the building at its perimeter, which varies in elevation with the ground surface.

Proposals G6-06/07-AS and G8-06/07-AMPC1 continued this development by establishing the measurement of stories from grade plane. Previously, limits on the number of stories above the finished ground surface were specified in terms of either the number of stories in height or the number of stories above grade plane. With the approval of G6-06/07-AS and G8-06/07-AMPC1, the IBC consistently specifies the limits in terms of the number of stories above grade plane. Proposal G8-06/07-AMPC1 also revised the definition of "basement" to be a story that is not a story above grade plane.

Proposal G81-06/07-AS contributed to this development by establishing the measurement of the height of a building from the finished ground surface in terms of its building height rather than its height. This was done because "height" is not defined but "building height" is defined in Section 502.1 as the "vertical distance from grade plane to the average height of the highest roof surface." This contributed by distinguishing between dimensional limits (in feet) based on building height and story limits based on the number of stories above grade plane.

Overall, the combined effect of these proposals has been to gain approval for revisions to approximately 40 sections in the IBC as well as related sections in the IFC.

The language Section 903.3.1.2 is one of the last remaining sections of the IBC that has not been correlated with the approved changes summarized above. This proposal extends the correlation to this section. The correlation is also addressed by IFC Interpretation No. 43-03 (Issued 2/28/05), which establishes that an NFPA 13R automatic sprinkler system is permitted in a Group R occupancy where four stories of the building are located above grade plane and one story is located one story below grade plane.

It is my understanding that one of the reasons for the variation in terminology that prompted the submission of the proposals described above is the meaning of "stories in height." This was reportedly understood by certain users of one of the legacy codes as being synonymous with "stories in building height" and "building height" was measured from grade plane. Thus, a limit based on "stories in height" was equivalent to the limit of "stories above grade plane," which now is consistently applied throughout the IBC. This apparently being the case, the change proposed above could be considered editorial, not technical.

I would be remiss if I didn't discuss the status of NFPA 13R with respect to this issue. I assume the 2007 edition of NFPA 13 will be the edition that is referenced in the 2009 IBC and IFC. Section 1.1 of NFPA 13R-07 limits the use of NFPA 13R to the design and installation of automatic sprinkler systems in residential occupancies up to and including four stories in height.

Where an automatic sprinkler system is required or is used as an alternative method of protection, either for total or partial building coverage, Section 23.3.6.2 of NFPA 5000-06 on lodging and rooming house occupancies permits the design and installation of automatic sprinkler systems in accordance with NFPA 13R in buildings up to and including four stories in height above grade (Item 2). Similar statements are found in Section 24.3.5.4 on hotels and dormitory occupancies (Item 2) and Section 25.3.5.4 on apartment buildings (Item 2). Section 26.2.3.5.2.1 on residential board and care occupancies, however, permits NFPA 13R in "facilities up to and including four stories in height."

Section 3.3.590.2 of NFPA 5000-06 defines "first story above grade" as "any story having its finished floor surface entirely above grade, except that a basement shall be considered as a first story above grade where the finished surface of the floor above the basement is (1) more than 6 feet above grade, or (2) more than 6 feet above the finished ground level for more than 50 percent of the total building perimeter, or (3) more than 12 feet above the finished ground level at any point." Section 3.3.590 of NFPA 5000-06 defines "story" as "the portion of a building located between the upper surface of a floor and the upper surface of the floor or roof next above." Section 3.3.278 of NFPA 5000-06 defines "grade (ground level)" as "a reference plane representing the average of finished ground level adjoining the building at all exterior walls. When the finished ground level slopes down from the exterior walls, the reference plane is established by the lowest points within the area between the building and the lot line or, when the lot line is more than 6 feet from the building, between the building and a point 6 feet from the building."

The definitions above are similar to, and the intent is the same as, the definitions of "story above grade plane," "story" and "grade plane," respectively, in the 2007 IBC Supplement ("story above grade plane") and "story") and 2006 IBC ("grade plane").

Although, the language in the applicable NFPA standards is not entirely consistent, the overall intent is that the threshold for permitted use of NFPA 13R is for residential occupancies up to and including four stories in height above grade. When converted to IBC terminology, the threshold becomes four stories above grade plane. The purpose of this proposal is to make this change to Section 903.3.1.2.

The addition to IFC Section 902.1 of the definition of "story above grade plane" from Section 202 of the 2007 IBC Supplement is not essential to the proposal but is included in the proposal to assist code users of the IFC who may be less familiar with the provisions of the IBC.

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

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

F142–07/08 903.3.1.2.1; 903.3.1.2.1.1 through 903.3.1.2.1.3 (New) [IBC [F] 903.3.1.2.1; 903.3.1.2.1.1 through 903.3.1.2.1.3 (New)]

Proponent: Joseph T. Holland, III, Hoover Treated Wood Products

Add new text as follows:

903.3.1.2.1 (IBC [F] 903.3.1.2.1) (Supp) Balconies and decks. Sprinkler protection shall be provided for exterior balconies, decks and ground floor patios of dwelling units where the building is of Type V construction, provided there is a roof or deck above. Sidewall sprinklers that are used to protect such areas shall be permitted to be located such that their deflectors are within 1 inch (25 mm) to 6 inches (152 mm) below the structural members and a maximum distance of 14 inches (356 mm) below the deck of the exterior balconies and decks that are constructed of open wood joist construction.

903.3.1.2.1.1 (IBC [F] 903.3.1.2.1.1) Fire-retardant-treated wood. Sprinkler protection is not required where balconies and decks are constructed of fire-retardant-treated wood in accordance with Section 2303.2 of the *International Building Code*.

903.3.1.2.1.2 (IBC [F] 903.3.1.2.1.2) Heavy timber. Sprinkler protection is not required where balconies and decks are constructed of Type IV Construction in accordance with Section 602.4 of the International Residential Code.

903.3.1.2.1.3 (IBC [F] 903.3.1.2.1.3) Rated construction: Sprinkler protection is not required where balconies and decks have a fire resistance rating in accordance with the *International Building Code*.

Reason: Eliminate a conflict with Section 1406.3 of the *International Building Code*. Section 1406.3 of the *International Building Code* provides options for protection of combustible projections. FRTW, Heavy Timber, or sprinklers are recognized. The modification recognizes fire protection can be achieved by other methods.

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

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

F143–07/08 903.3.1.3 (IBC [F] 903.3.1.3)

Proponents: Betsy Voss Lease, Christole, Incorporated/Bert Clemons, Brown County Partnership, Accessibility Committee

Revise as follows:

903.3.1.3 (IBC [F] 903.3.1.3) NFPA 13D sprinkler systems. Where allowed, automatic sprinkler systems in one- and two-family dwellings <u>and congregate living facilities with 16 or fewer occupants</u> shall be installed throughout in accordance with NFPA 13D.

Reason: The intent of this change is to clarify that an NFPA 13D sprinkler system is permitted in Group R-3 and R-4 congregate residences.

NFPA Handbook states that and NFPA13D system is appropriate for "one- and two-family dwellings or equivalent." The question is what would be what is considered "equivalent." It is not longer appropriate to define 'family' by blood or marriage. Facilities that operate similar to single family homes can include small fraternities, sororities, convents, monasteries, and group homes where residents are capable of self preservation. Currently Group R-2 and Group R-4 with 16 or fewer occupants can comply with Group R-3 requirements in the codes (Section 310.1). The Exception in Section 903.2.5 allows for an NFPA13D system to be installed in Group I-1 facilities. Court cases have shown that **not** treating small group homes similar to single family residences is a discriminatory and a possible violation of the Fair Housing Act. This section should be consistent with this intent.

The choice to make the proposal for adding "and congregate living facilities with 16 or fewer occupants" rather than change the entire requirement to Group R-3 and R-4 was based on two factors. The limit for an NFPA 13D system is 16 occupants. There are some R-3 facilities that are not similar to single family homes where it would not be appropriate to allow this type of system – such as the Group R-1 with 10 or fewer occupants now referenced to Group R-3 as part of code change G47-06/07.

The state of Indiana has passed a law requiring all group homes to be sprinklered by 2012. It is important that it is clear what sprinkler system is appropriate for these facilities.

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

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

F144–07/08 903.3.1.3 (IBC [F] 903.3.1.3)

Proponent: Anthony C. Apfelbeck, City of Altamonte Springs, FL

Revise as follows:

903.3.1.3 (IBC [F] 903.3.1.3) NFPA 13D sprinkler systems. Where allowed, automatic sprinkler systems installed in one and two-family dwellings and townhouses shall be installed throughout in accordance with NFPA 13D.

Reason: This proposal clarifies that NFPA 13D systems are an appropriate application in the townhouse environment. A townhouse is defined as a "single-family dwelling" by the IBC and the IRC. IRC Section R317.2 further indicates, "Each townhouse shall be considered a separate building. ..." NFPA 13D's scope states, "This standard shall cover the design and installation of automatic sprinkler systems for protection against the fire hazards in one- and two-family dwellings and manufactured homes." NFPA 13D's definition of dwelling states, "Any building that contains not more than one or two dwelling units. . ." Therefore, since each townhouse is classified as a separate building designed under the IBC, IRC and 13D definitions, the 13D system is an appropriate level of protection for each townhouse.

There are also a number of practical applications that preclude the utilization of a 13R system in a townhouse environment without significant difficulty:

- 1. Since "townhomes" typically involve separate ownership of property and the units extent from "foundation to roof", a common 13R system piping supplying all units would necessitate a complex common ownership element shared between the differing property owners. A community association would need to be established in order to "own" the common element. This common element may also require recorded easement to access the system in each persons house.
- 2. This community association would need to maintain the 13R system since 13R systems require maintenance and inspections in accordance with NFPA 25. This would involve coordinated access to each property and a shared maintenance cost.

- 3. If an external bell or monitoring of the 13R system is required, this would necessitate a separate house electrical panel, again owned by a community association. This would create an ongoing expense of electrical service and maintenance/testing of a fire alarm monitoring panel, if present.
- 4. If monitoring of the 13R system is required, this would then mandate a method of transmission which may involve the added expense of phone lines to the community association. An easement may be needed to access the phone lines.

None of these issues are present when an NFPA 13D system is installed in a townhouse. Therefore, the 13D system is appropriate for the townhouse application.

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

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

F145–07/08 903.3.1.3 (IBC [F] 903.3.1.3)

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

Revise as follows:

903.3.1.3 (IBC [F] 903.3.1.3) NFPA 13D sprinkler systems. Where allowed, automatic sprinkler systems installed in one and two-family dwellings <u>and townhouses not more than three stories above grade plane in height</u> shall be installed throughout in accordance with NFPA 13D.

Reason: This proposal clarifies that NFPA 13D systems are an appropriate application in the townhouse environment. A townhouse is defined as a "single-family dwelling" by the IBC and the IRC. IRC Section R317.2 further indicates, "Each townhouse shall be considered a separate building..." NFPA 13D's scope states, "This standard shall cover the design and installation of automatic sprinkler systems for protection against the fire hazards in one- and two-family dwellings and manufactured homes." NFPA 13D's definition of dwelling states, "Any building that contains not more than one or two dwelling units. . ." Therefore, since each townhouse is classified as a separate building designed under the IBC, IRC and 13D definitions, the 13D system is an appropriate level of protection for each townhouse.

There are also a number of practical applications that preclude the utilization of a 13R system in a townhouse environment without significant difficulty:

- 1. IBC Chapter 5 only allows the height of a townhouse to be three stories for Type V construction unless a NFPA 13 or 13R system is installed. Therefore you can never get to 4 story, Type V townhouse with a fire sprinkler system designed to NFPA 13D.
- 2. Since "townhouses" typically involve separate ownership of property and the unit's extent from "foundation to roof", a common 13R system piping supplying all units would necessitate a complex common ownership element shared between the differing property owners. A community association would need to be established in order to "own" the common element. This common element may also require recorded easement to access the system in each person's house.
- 3. This community association would need to maintain the 13R system since 13R systems require maintenance and inspections in accordance with NFPA 25. This would involve coordinated access to each property and a shared maintenance cost.
- 4. If an external bell or monitoring of the 13R system is required, this would necessitate a separate house electrical panel, again owned by a community association. This would create an ongoing expense of electrical service and maintenance/testing of a fire alarm monitoring panel, if present.
- 5. If monitoring of the 13R system is required, this would then mandate a method of transmission which may involve the added expense of phone lines to the community association. An easement may be needed to access the phone lines.

None of these issues are present when a NFPA 13D system is installed in a townhouse. Therefore, the 13D system is appropriate for the townhouse application.

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

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

F146–07/08 903.3.5.2 (New) [IBC [F] 903.3.5.2 (New)]

Proponent: Richard Schulte, Schulte & Associates

Add new text as follows:

<u>903.3.5.2 (IBC [F] 903.3.5.2) Water supply reliability for buildings in Seismic Design Category C, D, E or F. The</u> water supply for a sprinkler system provided for buildings in Seismic Design Category C, D, E or F shall be reliable.

(Renumber subsequent section)

Reason: The purpose of this proposal is to address the issue of sprinkler system water supply reliability for buildings in Seismic Design Category C, D, E or F.

Members of the ICC Code Technology Committee (CTC) heights and areas/features study group from the State of California have indicated that municipal water supply distribution systems in areas subject to seismic activity may not be a reliable water supply source for sprinkler systems. The issue of the reliability of municipal water supply distribution systems is already addressed in NFPA 13 (and has been for decades). NFPA 13 only permits a municipal water supply distribution system to be used as a water supply source for a sprinkler system if the distribution system is reliable.

The purpose of including the requirements for water supply reliability contained in NFPA 13 in the IBC is to remind enforcing authorities in areas subject to seismic activity that the municipal distribution system is not an acceptable water supply source for sprinkler systems if the municipal distribution system is not considered to be reliable by the enforcing authority. Where the municipal distribution system is not considered to be a reliable water supply, alternative water supplies such as elevated tanks, pressure tanks or pumps taking suction from a tank would be required to be provided.

It should be noted that most, if not all, jurisdictions in the State of California presently allow the municipal distribution system to be used as a water supply source for sprinkler systems. Hence, it must be assumed that either most jurisdictions in California accept that the municipal distribution system is a reliable water supply source for a sprinkler system during and after a seismic event, or that most jurisdictions have been improperly enforcing the sprinkler installation standard.

Again, it should be pointed out that NFPA 13 has long ago addressed the issue of the reliability of municipal water distribution systems as a water supply source for sprinkler systems in seismic areas (and also areas prone to flooding). This code change proposal is simply submitted to address the concerns of code officials in the State of California who apparently are not familiar with the requirements for sprinkler system water supplies contained in NFPA 13.

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

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

F147-07/08 903.4.1 (IBC [F] 903.4.1)

Proponent: Steven L. Schoon, Golder Ranch Fire District, AZ, representing Arizona Fire Marshals Association

Revise as follows:

903.4.1 (IBC [F] 903.4.1) (Supp) Monitoring. Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to an approved central station, remote supervising station or proprietary supervising station or, when approved by the fire code official, shall sound an audible signal at a constantly attended location.

Exceptions:

- 1. Underground key or hub valves in roadway boxes provided by the municipality or public utility are not required to be monitored.
- Backflow prevention device test valves located in limited area sprinkler system supply piping shall be locked in the open position. In occupancies required to be equipped with a fire alarm system, the backflow preventer valves shall be electrically supervised by a tamper switch installed in accordance with NFPA 72 and separately annunciated.

Reason: The proposed revision is for consistency with the code language found in the fire alarm system monitoring Section 907.7.5 (2007 Supplement to the IFC) Supervising Station is defined by the IFC and the wording of central station, remote supervising station or proprietary supervising station is not needed.

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

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

F148–07/08 903.4.2 (IBC [F] 903.4.2)

Proponent: Sharon Myers, State of Ohio, representing Ohio Building Officials Association

Revise as follows:

903.4.2 (IBC [F] 903.4.2) Alarms. Approved audible <u>and visible</u> devices shall be connected to every automatic sprinkler system. Such sprinkler water-flow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Alarm devices shall be provided on the exterior of the building in an approved location. Where a fire alarm system is installed, actuation of the automatic sprinkler system. shall actuate the building fire alarm system.

Reason: Existing text disregards federal requirement for all required alarms to be both audible and visible. Current text confuses the user by appearing to only allow 'audible alarms'. The proposed text clarifies the intent and makes the IBC consistent with Federal Accessibility requirements for alarms as required by the Americans with Disabilities Act Accessibility Guidelines (ADAAG) Section 4.28.

Water flow alarms warn any person from entering the building as well as to notify any 'passerby' (tenant, patron, employee, security guard, maintenance personnel, etc) that there is a water flow condition in the building and that emergency response is necessary. ADAAG does not differentiate between alarms or locations within the interior or exterior of a building, it simply requires that "all required alarms" be provided as both audible and visual devices.

Cost Impact: The code change proposal will not increase the cost of construction because this is already a requirement under federal law.

Public Hearing:	Committee:	AS	S AM	D
	Assembly:	AS	SF AMF	DF

F149–07/08 903.6 (New), [IBC [F] 903.6 (New)]

Proponent: Jeff Hugo, National Fire Sprinkler Association

Add new text as follows:

903.6 (IBC [F] 903.6) Clearances for maintenance and replacement. Fire pump and automatic sprinkler system riser rooms, where provided, shall be designed with adequate working room around the stationary equipment, as defined by the equipment manufacturer. Clearances from equipment to elements of permanent construction, including, but not limited to, other installed equipment and appliances, shall allow inspection, service, repair or replacement without removing such elements of permanent construction or disabling the function of a required fire-resistance-rated assembly. Fire pump and automatic sprinkler system riser rooms shall be provided with a door and unobstructed passageway large enough to allow removal of the largest piece of equipment.

(Renumber subsequent section)

Reason: Fire pump and fire sprinkler riser rooms require routine maintenance, repairs, and possible replacement, adequate working clearances is needed. Typically one could assume that a 36" work space in front of the piece of equipment would be adequate, but the design sizes and layout of these rooms is limitless, and thus should rely on the manufacturer to lay out specific guidelines for their equipment. This new section will relieve the workforce responsible for maintaining such equipment, provide adequate room for fire fighters, and finally giving designers and building officials some direction in this area.

The NFSA as an industry representative is constantly hearing this plea from its members throughout the country. Rooms designed or built too small, have no or little space to maneuver equipment and other unnecessary impairments to the flow of normal repair are the most common complaints. Such delays can cause more expense and in some cases personal injury, causing more expense to the building owner. OS&Y valves and backflow preventors can weigh several hundred pounds and could be several feet long, fire pump control cabinets fall into the same category. Insight to the size, weight, layout, along with the manufacturer's recommended working space can aid the designer in accomplishing this task on paper prior to the construction of the room.

This new section will also mandate such equipment to fit through the doors along with an adequate path out of the structure so that interior walls and finishes do not need to be removed and replaced after several years. Similar language can be found in the IMC, IPC, and the National Electrical Code for installed equipment and appliances.

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

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

F150-07/08 903.6.1

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

Revise as follows:

903.6.1 Pyroxylin plastics. All structures occupied for the manufacture or storage of articles of cellulose nitrate (pyroxylin) plastic shall be equipped with an approved automatic fire-extinguishing system. An automatic sprinkler system shall be provided in all existing buildings where cellulose nitrate film or pyroxylin plastics are manufactured, stored or handled in quantities exceeding 100 pounds (45 kg). Vaults located within buildings for the storage of raw pyroxylin shall be protected with an approved automatic sprinkler system capable of discharging 1.66 gallons per minute per square foot (68 L/min/m²) over the area of the vault.

Reason: The current requirement for newly constructed facilities in the IFC/IBC is as follows:

903.2.4.3 Pyroxylin plastics. An automatic sprinkler system shall be provided in buildings, or portions thereof, where cellulose nitrate film or pyroxylin plastics are manufactured, stored or handled in quantities exceeding 100 pounds (45 kg).

The requirements for existing structures are more restrictive than the requirements for new construction. If this section is not revised, then a new facility could be constructed that is not required to install fire sprinklers. However, after construction is completed, and it becomes an existing structure, then fire sprinklers would be required.

This proposal will provide consistency between the requirements for new and existing facilities.

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

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

F151–07/08 903.6.2 (New), 903.6.2.1 (New)

Proponents: Anthony C. Apfelbeck, City of Altamonte Springs, FL; William Connolly, Safe Buildings Coordinating Council

Add new text as follows:

903.6.2 High-rise buildings. An automatic sprinkler system shall be installed throughout existing buildings with a floor level that is located 75 feet or more above the lowest level of fire department vehicle access.

Exception: The provisions of this section shall not apply to the following buildings and structures:

- <u>1.</u> <u>Airport traffic control towers.</u>
- 2. Open parking structures.
- 3. Group U Occupancies.
- 4. Occupancies in Group F-2.

903.6.2.1 Compliance schedule. Building owners shall file a compliance schedule with the fire code official not later than 180 days after the effective date of this code. The compliance schedule shall not exceed 12 years.

Reason: (Apfelbeck) Existing unsprinklered high-rise buildings continue to be a hazard to occupants, firefighters and their ability to mitigate damage from fires. As an example:

1988 First Interstate Bank: \$200 million in direct property damage, 64 fire companies, gutted 12th-16th floor.

1991 One Meridian Plaza: \$100 million in direct property damage, 18 hour fire gutting 22 floors.

1996 Rockefeller Center: Fires in 5 separate electrical rooms, 300+ firefighters responded, television broadcasts interrupted.

2003 Cook County Office Building: Six civilian deaths.

2004 Caracas Tower: Fire spread to 26 floor and burned for 17 hours, 40 firefighters injured.

2005 Madrid Windsor: 32 Story totally destroyed by fire.

The concern with existing high-rise buildings is best summed up in the Cook County Administration Fire Report, authored by James Lee Witt Associates, in major finding number 1: "Lack of an automatic fire sprinkler system. The building was not equipped with an automatic fire sprinkler system that would have controlled or extinguished the fire in the incipient stage."

The recommendations in the Cook County Administration Fire Report further state, "The State of Illinois and City of Chicago should amend their codes to include provisions for the mandatory retrofit installation of complete automatic fire sprinkler systems in all existing-high rise structures." It is important to note that Mr. Witt brings significant credibility to this finding and recommendation as he is also the past CEO of the ICC.

If this finding and recommendation is valid for the City of Chicago and the State of Illinois for the protection of their citizens and firefighters, then this finding and recommendation is also valid as a base level of building and life safety protection within the IFC.

In addition, the NIST Final Report of the Collapse of the World Trade Center Tower states in recommendation 26: "NIST recommends that state and local jurisdictions adopt and aggressively enforce available provisions in building codes to ensure that egress and sprinkler requirements are met by existing buildings."

Unfortunately, this and other fire sprinkler retrofit issues have been discussed by the committee as an issue of politics rather than as a technical code issue. As an example: "The retroactive requiring of sprinklers in buildings should be left as a local decision due to the economic and political impact of such requirements." (F116-04/05) By taking this type of response on a code issue, the committee removes itself from the making a technical decision based on the need of the code change and inserts itself as a local political body. The two roles are distinctly different. It is the burden of the code promulgation body to determine if there is sufficient technical justification to warrant the code change and if the code change is within the scope of the document. The scope of the IFC states:

102.1 Construction and design provisions. The construction and design provisions of this code shall apply to:

- 1. Structures, facilities and conditions arising after the adoption of this code.
- 2. Existing structures, facilities and conditions not legally in existence at the time of adoption of this code.
- 3. Existing structures, facilities and conditions when identified in specific sections of this code.

4. Existing structures, facilities and conditions which, in the opinion of the fire code official, constitute a distinct hazard to life or property.

This code change, and all retrofit code changes, are clearly within the scope of the IFC. The only question for the committee to answer is: Does an existing unsprinklered high-rise building provide a reasonable level of property protection, civilian life safety protection and firefighter protection? The technical evidence indicates that this is not the case. By ignoring the technical need and deflecting responsibility for retrofit issues, a message is sent via this code to state and local government, by a lack of requirement in the code, that an unsprinklered existing high-rise building does provide a reasonable level of building and life safety protection. This is clearly not the case.

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

Reason: (Connolly) The life safety and property damage risks of existing unsprinklered high-rise building are well documented:

- The NIST Final Report of the Collapse of the World Trade Center Tower states in recommendation 26: "NIST recommends that state and local jurisdictions adopt and aggressively enforce available provisions in building codes to ensure that egress and sprinkler requirements are met by existing buildings."
- 2. NFPA's Fire Analysis & Research Division has documented the extensive fire history, life loss and manual fire suppression challenges that are caused by fires in unsprinklered high-rise structures.
- 3. The extreme hazards associated with existing unsprinklered high-rise structures is reiterated in the Cook County Administration Fire Report, authored by James Lee Witt Associates, contained in major finding number 1: "Lack of an automatic fire sprinkler system. The building was not equipped with an automatic fire sprinkler system that would have controlled or extinguished the fire in the incipient stage." The recommendations in the Cook County Administration Fire Report further state, "The State of Illinois and City of Chicago should amend their codes to include provisions for the mandatory retrofit installation of complete automatic fire sprinkler systems in all existing-high rise structures." Mr. Witt recommendations are significant as he is also the past CEO of the ICC.

The issue of fire sprinkler retrofit requirements contained in the IFC is not a political decision for the committee or the membership, as it has been treated in past code cycles. It is a technical one. Clearly, high-rise retrofit requirements are a technical code issued that is necessary to provide a reasonable level of building and life safety protection within these occupancies and meet the level of care expected by the public. If a local jurisdiction chooses to remove the requirement, so be it. However, since the IFC does not currently have a section requiring high rise sprinkler retrofit, the code is, in effect, stating that a reasonable level of building and life safety protection is provided in existing unsprinklered high-rise. All technical evidence indicates that this is not the case.

The proposed language in 903.6.2.1 regarding a compliance schedule could be debated extensively on its own. There is no right answer as to whether 12 years is too long or not enough. A reasonable period at least works as a base for local government to work from in order to move compliance forward in these buildings. If the committee is unable to reach agreement regarding the language in 903.6.2.1, the SBCC recommends that the core language in 903.6.2 be passed as is. These would leave the compliance period open to local government. However, it is important to note that the 12-year retrofit period is similar to the time provided in the NFPA 1, Uniform Fire Code. That code requirement has an extensive history of success in addressing the high-rise hazards by retrofitting sprinklers.

This code change comes down to one question for the Committee to answer: Does an existing unsprinklered high-rise building provide a reasonable level of property protection, civilian life safety protection and firefighter protection?

The technical evidence indicates that the answer to the question is resounding "No." Therefore, it is clearly justified and necessary that the Committee, the ICC and the IFC document take a leadership role in protecting the public, firefighters and property via the approval of this code change.

The exceptions in 903.6.2 are consistent with the current 914.3.1 and 903.2.10.3 for new construction.

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

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

F152-07/08 903.6.2 (New)

Proponent: Anthony C. Apfelbeck, City of Altamonte Springs, FL

Add new text as follows:

903.6.2 Group A-2. An automatic sprinkler system shall be provided throughout Group A-2 fire areas where the occupant load exceeds 100. The sprinkler system shall be provided throughout the floor where the Group A occupancy is located, and in all floors between the Group A occupancy and the level of exit discharge.

Reason: Recommendation #2 of the "Report of the Technical Investigation of the Station Nightclub Fire" recommends that fire sprinklers be provided "for existing nightclubs with an occupancy limit greater than 100." An extract of this recommendation is listed below: "Recommendation 2

The results of the investigation clearly demonstrated the value of an NFPA 13 compliant automatic fire sprinkler system in extending the time the nightclub remained tenable. Recommendation 2 mirrors the action already taken by NFPA to strengthen the requirement for sprinklers in new and existing nightclubs and festival seating venues.

NIST recommends that model codes require sprinkler systems, and that state and local authorities adopt and aggressively enforce this provision:

a) for all new nightclubs regardless of size, and

b) for existing nightclubs with an occupancy limit greater than 100 people."

As indicated in the NIST report, this recommendation has already been implemented in NFPA 101. However, not all jurisdictions adopt NFPA 101. In many jurisdictions, the IFC is the only adopted document that regulates life safety in existing buildings. Therefore, for existing occupancies in IFC only states, there is no current requirement for fire sprinklers in existing assembly occupancies. The lack of a requirement addressing this issue presents the adopting jurisdiction with a false perception that a reasonable level of life safety protection is provided in existing unsprinklered nightclubs with a high-occupant load. If an adopting jurisdiction chooses to remove this code provision during the adoption process, that is their local prerogative. However, it is the burden of the ICC process to promulgate codes based on a technical basis and not a potential political implication at the local level. The NIST report clearly recommends that a reasonable level of life safety is only provided when an existing nightclub is protected by a fire sprinkler system. A copy of the NIST report justifying this code change recommendation is available on-line at: http://www.nist.gov/public_affairs/releases/Vol_1_NCSTAR2.pdf

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

Public Hearing: Co	ommittee:	AS	AM	D
As	sembly:	ASF	AMF	DF

F153–07/08 903.6.2 (New), 903.6.3 (New)

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

Add new text as follows:

903.6.2 Group I-1. An automatic sprinkler system in accordance with Section 903.3.1.1 shall be installed throughout all existing buildings with a fire area containing a Group I-1 occupancy.

903.6.3 Group I-2. An automatic sprinkler system in accordance with Section 903.3.1.1 shall be installed throughout all existing buildings with a fire area containing a Group I-2 occupancy.

Reason: This proposal recognizes the need to provide fire sprinkler protection for some of the existing Group I occupancies. These facilities have a high potential for life loss and contain patients/clients who are incapable of self-preservation.

A new Group I-1 or I-2 occupancy would be required to be protected by fire sprinklers in addition to other construction requirements. This proposal does not mandate compliance with current code, however, it does require fire sprinklers in existing Group I-1 and I-2 occupancies where the life safety of the patients is most in need.

The installation of a fire sprinkler system will provide an increased level of safety to provide protection in place or within a separate smoke compartment of the building without necessitating a full evacuation.

In 2005, Kimberly D. Rohr and John R. Hall, Jr., of the Association's Fire Analysis and Research Division presented some pretty startling statistics regarding the efficacy of automatic extinguishing equipment. The data examined was for the years 1989 to 1998 (the last year for which good data on sprinklers is available) and measured the average number of civilian deaths per thousand fires in various types of facilities. In stores and offices the figures were 1.0 to 0.3 respectively; in health care facilities for the aged or sick 4.9 per thousand fires in non-sprinklered buildings compared to 1.2 in those that were protected with fire sprinklers.

There was also a significant decline in property damage costs per fire; down 66 percent in health care occupancies when the facility is protected by a fire sprinkler system.

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

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

F154–07/08 903.6.2 (New)

Proponent: Anthony C. Apfelbeck, City of Altamonte Springs, FL

Add new text as follows:

903.6.2 Group I-2. An automatic sprinkler system shall be provided throughout Group I-2 fire areas. The sprinkler system shall be provided throughout the floor where the Group I-2 occupancy is located, and in all floors between the Group I-2 occupancy and the level of exit discharge.

Reason: Fire Sprinkler protection of existing hospitals and nursing homes is of critical importance due to the nature of the occupants. In the I-2 occupancies, the occupants are "not capable of self-preservation." Since the occupants are not capable of self-preservation, reliance must be placed on an active fire suppression system to provide the first line of life safety protection to these occupants. Per the NFPA report on Facilities that Care for the Aged, "The death rate per 1,000 fires was 82% lower when automatic suppression systems were present." Furthermore, the report states that "Residents of these facilities are particularly vulnerable. People over 65 face twice the risk of dying in a home fire as the general population. The risk increases with increasing age.1 Consequently, the aged are considered a high-risk population. Institutional facilities that care for older adults must work diligently to prevent fires and to train staff and to equip the property (e.g., active systems) for effective response should a fire occur. The deadliest fire in U.S. history in this property class was the 1957 Katie Jane Nursing Home fire in Warrenton, Missouri, that killed 72 people. "

Recently, the Nashville nursing home fire on September 25th 2003 resulted in 15 deaths. The Hartford nursing home fire on February 26th resulted in 16 deaths. Both of these fires were in non-fire sprinkler protected properties.

The NFPA 101 has responded to this issue by requiring fire sprinklers in all existing nursing homes. It is important to note that the proposal for this change to NFPA 101 was actually submitted by the American Health Care Association (AHCA). However, for the numerous states and jurisdictions that do not have NFPA 101 adopted, and rely solely on the IFC as a stand-alone document, this minimum protection level is not provided. If an adopting jurisdiction chooses to remove this code provision during the adoption process, that is their local prerogative. However, it is the burden of the ICC process to promulgate codes based on a technical basis and not a potential political implication at the local level. This code change proposal will ensure that existing nursing homes are provided with a reasonable level of life safety protection that is warranted by the technical evidence and expected by the at large public.

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

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

F155–07/08 903.6.2 (New)

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

Add new text as follows:

903.6.2 Group R-4. An automatic sprinkler system installed in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3 shall be provided throughout all existing buildings with a Group R-4 fire area.

Reason: The IFC does not contain requirements for existing Group R-4 occupancies. However, these facilities can house clients that have limited capabilities for self-evacuation.

One other solution would be to restrict residents in Group R-4 occupancies only to those who can evacuate without assistance. Those clients not capable of self-evacuation would be placed into an I occupancy. This solution brings with it many more requirements than sprinklers and is more restrictive than necessary. Therefore, the installation of fire sprinklers in the existing Group R-4 occupancies provides a mitigation to the other hazards present and allows for extended evacuation times.

The problem created by only placing clients capable of self-evacuation into Group R-4 is that as the client continues to live in the facility and loses mobility, the resident at some point is no longer capable of self-evacuation. This would result in having to relocate after living in a facility many times for years.

The solution of installing fire sprinklers into the existing facilities mitigates many of the issues and provides a safe environment for the clients.

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

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

F156–07/08 904.11.6.4 (New)

Proponent: Michael J. Laderoute, MJL Associates, Inc., representing Fire Equipment Manufacturer's Association

Add new text as follows:

<u>904.11.6.4 Existing automatic fire extinguishing systems.</u> Where changes in the cooking media, positioning of cooking equipment or replacement of cooking equipment occur in existing commercial cooking systems, the automatic fire extinguishing system shall be required to comply with the applicable provisions of Sections 904.11 through 904.11.4.

(Renumber subsequent sections)

Reason: New text provides guidance, as well as adds clarity to when existing automatic fire extinguishing systems protecting commercial cooking operations need to be modified, upgraded or replaced to meet UL 300 requirements mandated by this code. AHJ's, inspectors and end-users have been requesting guidance from the code. Many states already adopted a similar requirement or put compliance dates into effect. The above text and requirement are consistent with other codes.

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

Public Hearing: Com	mittee:	AS	AM	D
Asse	embly:	ASF	AMF	DF

F157–07/08 905.3.3 (IBC [F] 905.3.3)

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

Revise as follows:

905.3.3 (IBC [F] 905.3.3) (Supp) Covered mall buildings. A covered mall building shall be equipped throughout with a standpipe system where required by Section 905.3.1. Covered mall buildings not required to be equipped with a standpipe system by Section 905.3.1 shall be equipped with Class I hose connections connected to the automatic sprinkler system sized to deliver water at 250 gallons per minute (946.4 L/min) at the most hydraulically remote outlet hose connection while concurrently supplying the automatic sprinkler system demand. The standpipe system shall be designed to not exceed a friction loss of 50 pounds per square inch (345 kPa) with a flow of 250 gallons per minute (946.4 L/min) from the fire department connection to the hydraulically most remote hose connection. Hose connections shall be provided at each of the following locations:

- 1. Within the mall at the entrance to each exit passageway or corridor.
- 2. At each floor-level landing within enclosed stairways opening directly on the mall.
- 3. At exterior public entrances to the mall.
- 4. At other locations as necessary so that the distance to reach all portions of a tenant space or anchor store does not exceed 200 (60 960 mm) feet from a hose connection.

Reason: Design of standpipe systems need to have two parameters, flow and pressure. Currently, there is no residual design pressure as part of the requirement which, in turn, provides a discrepancy on what output pressure to a fire department standpipe pack will be. Additionally, this section provides for hose connections connected to a sprinkler system rather than a bona-fide standpipe system. A vast majority of these systems act as a manual wet system, requiring the fire department to pump the FDC. Since this section deals with is a sprinkler system with hose connections, it makes sense that the maximum pump pressure is 175 psi so there is not unneeded damage to the sprinkler heads.

Location of the standpipe connections is revised to take into account some of the vast and varying designs found in mall layouts. The design of a covered mall has its roots to the covering of a city street. Section 402 of the IBC is still based on this premise, noticeable by the 20 foot wide mall walkway, tenant separations, etc. The fire department hose connections required by the section are to allow the fire department to extinguish a fire within the building, independent of the height of the mall. The problem is that the current hose connections are predicated on the exiting requirements found in IBC Section 402. Section 402.4.4 requires the travel distance within the mall space of a maximum of 200 feet. The theory is that the measurement starts at all mall entrances and exits, and meets the distances found in IFC Section 905 for sprinklered buildings. However, the current system does nothing for fires in tenant spaces and anchor buildings.

The current code text does not provide adequate coverage for the covered mall building design. The revision in Item 4 will allow for additional hose connections throughout the mall to reach those portions of the mall that are not within 200' of hose from a connection required in Items #1-3. The term "outlet" is revised to "connection" so that it is consistent throughout the requirements.

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

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

F158–07/08 905.3.7 (IBC [F] 905.3.7)

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

Delete without substitution:

905.3.7 (IBC [F] 905.3.7) Marinas and boatyards. Marinas and boatyards shall be equipped throughout with standpipe systems in accordance with NFPA 303.

Reason: This section is no longer needed after the recent adoption of the Chapter 45 Marinas (Supp). Section 905.3.7 now needs to be deleted since the issue of standpipes is now addressed in Chapter 45 (Supp). The deletion needs to occur in the IFC and IBC.

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

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

F159-07/08 905.4 (IBC [F] 905.4)

Proponent: Gene Boecker, Code Consultants, Inc.

Revise as follows:

905.4 (IBC [F] 905.4) Location of Class I standpipe hose connections. Class I standpipe hose connections shall be provided in all of the following locations:

- 1. In every required stairway, a hose connection shall be provided for each floor level above or below grade. Hose connections shall be located at an intermediate floor level landing between floors, unless otherwise approved by the fire code official.
- 2. On each side of the wall adjacent to the exit opening of a horizontal exit.

Exception: Where floor areas adjacent to a horizontal exit are reachable from exit stairway hose connections by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30480 mm) of hose, a hose connection shall not be required at the horizontal exit.

3. In every exit passageway, at the entrance from the exit passageway to other areas of a building.

Exception: Where floor areas adjacent to an exit passageway are reachable from exit stairway hose connections by a 30-foot (9144 mm) hose stream from a nozzle attached to 100 feet (30480 mm) of hose, a hose connection shall not be required at the entrance from the exit passageway to other areas of the building.

- 4. In covered mall buildings, adjacent to each exterior public entrance to the mall and adjacent to each entrance from an exit passageway or exit corridor to the mall.
- 5. Where the roof has a slope less than four units vertical in 12 units horizontal (33.3-percent slope), each standpipe shall be provided with a hose connection located either on the roof or at the highest landing of a stairway with stair access to the roof. An additional hose connection shall be provided at the top of the most hydraulically remote standpipe for testing purposes.
- 6. Where the most remote portion of a nonsprinklered floor or story is more than 150 feet (45 720 mm) from a hose connection or the most remote portion of a sprinklered floor or story is more than 200 feet (60 960 mm) from a hose connection, the fire code official is authorized to require that additional hose connections be provided in approved locations.

Reason: The exception to item #2 was included in the code as a recognition of the fact that multiple outlets in the same vicinity do not add to safety but merely increase costs. The same should be true for the situation described in item #3. If there is an outlet that is located in the vicinity of the exit passageway entrance, then it makes sense to use that and not require an outlet at each entrance.

To illustrate, imagine two scenarios: 1) In a multi-level covered mall building, an exit stairway exists in which a vertical standpipe is provided. The stairway is located approximately 30 feet from the mall entrance. Because the code requires an outlet at the entrance to the exit passageway, a second outlet would need to be installed although the area could be reached from the outlet in the stairway. 2) An exit passageway is provided in a

health care setting as a way to meet travel distances and smoke compartment criteria. It is not a horizontal exit because the area of refuge does not exist in the passageway. Multiple doors access the corridor from rooms and spaces adjacent to it. According to the current language of the code, a hose outlet would be required adjacent to each of these doors which would result in an outlet every 20 – 30 feet (or even closer) inside the passageway.

In both these scenarios the literal application of the code does not contribute to additional safely but merely adds cost to the construction. It is only reasonable that the exception apply to this condition in the same manner as that item immediately prior.

This proposal will afford the same level of logic and reason as that in the prior item and eliminate a sometimes costly duplication.

Cost Impact: The code change proposal will not increase the cost of construction. A reduction in construction costs will occur in situations where the proposed exception reduces the redundant outlet(s).

Public Hearing: Comr	nittee:	AS	AM	D
Asse	mbly:	ASF	AMF	DF

F160-07/08 906.2 (IBC [F] 906.2)

Proponent: A. Brooks Ballard, Virginia Department of Corrections

Revise as follows:

906.2 (IBC [F] 906.2) (Supp) General requirements. Portable fire extinguishers shall be selected, installed and maintained in accordance with this section and NFPA 10.

Exceptions:

- 1. The travel distance to reach an extinguisher shall not apply to the spectator seating portions of Group A-5 occupancies.
- Thirty-day inspections shall not be required and maintenance shall be allowed to be once every three years for dry-chemical or halogenated agent portable fire extinguishers that are supervised by a listed and approved electronic monitoring device, provided that all of the following conditions are met:

2.1. Electronic monitoring shall confirm that extinguishers are properly positioned, properly charged and unobstructed.

- 2.2. Loss of power or circuit continuity to the electronic monitoring device shall initiate a trouble signal.
- 2.3. The extinguishers shall be installed inside of a building or cabinet in a noncorrosive environment.
- 2.4. Electronic monitoring devices and supervisory circuits shall be tested every three years when extinguisher maintenance is performed.
- 2.5. A written log of required hydrostatic test dates for extinguishers shall be maintained by the owner to ensure that hydrostatic tests are conducted at the frequency required by NFPA10.
- 3. In Group I-3, portable fire extinguishers shall be permitted to be located at staff locations.

Reason: Extinguishers located throughout the facility are at times tampered with, removed and/or used for weapons by occupants in a detention or correctional setting. This change would protect the extinguishers from damage or removal by inmates while still making them available to staff and employees for use in an emergency situation. At least one of the Legacy Codes allowed extinguishers to be located at staff locations and/or locked.

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

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

F161–07/08 907.1.1, 907.1.2 (New) [IBC [F] 907.1.1, [F] 907.1.2 (New)]

Proponent: Gene Boecker, Code Consultants, Inc.

Revise as follows:

907.1.1 (IBC [F] 907.1.1) (Supp) Construction documents. Construction documents for fire alarm systems shall be submitted for review and approval prior to system installation. of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code, the *International Building Code*, and relevant laws, ordinances, rules and regulations, as determined by the fire code official.

907.1.2 (IBC [F] 907.1.2) (Supp) Fire alarm shop drawings. Construction documents Shop drawings for fire alarm

systems shall be submitted for review and approval prior to system installation-, Construction documents and shall include, but not be limited to, all of the following:

- 1. A floor plan which indicates the use of all rooms.
- 2. Locations of alarm-initiating and notification appliances devices.
- 3. Locations of alarm notification appliances, including candela ratings for visible alarm notification appliances.
- 3 <u>4</u> Location of fire alarm control unit, transponders, and notification power supplies.
- 4. <u>5.</u> Annunciators.
- 5. 6. Power connection.
- 6. <u>7.</u> Battery calculations.
- 7. <u>8.</u> Conductor type and sizes.
- 8. <u>9.</u> Voltage drop calculations.
- 9.10. Manufacturers, data sheets indicating model numbers and listing information for equipment, devices and materials.
- 10.11. Details of ceiling height and construction.
- 11.12. The interface of fire safety control functions.
- 12.13. Classification of the supervising station.

907.1.2 (Supp) 907.1.3 (IBC [F] 907.1.3) Equipment. (No change to current text)

Reason: Section 907 evolved as an amalgamation of the three legacy codes. Although Section 907 was revised during the last cycle some additional items have been identified that need further clarification. The charging statement for Occupancy Groups is inconsistent. The text that indicates what is required is inconsistent. And, the general arrangement of text, although in a logical format, is not consistent with the way many people approach the code. Nor is it consistent with the way that Section 903 is organized. The proposal is an effort made by a group of people from various segments of the industry and code application to correlate, reformat and generally improve usability of the code. Before addressing the technical and formatting changes involved in the proposal, it is worth noting appreciation to the people who helped work on this effort. In alphabetical order:

Bill Aaron (Code Consultants, Inc.), Diane Arend (Office of the State Fire Marshal; California), Gene Boecker (Code Consultants, Inc), Shane Clary (Bay Alarm) John Guhl (Office of the State Fire Marshal; California), Tom Hammerberg (Automatic Fire Alarm Association, Inc), Bill Hopple (SimplexGrinnell), Dan Nichols (Building Codes Division; State of New York), Jim Schifiliti (Fire Safety Consultants, Inc)

These changes are important because construction documents and shop drawings are not for the same purpose. The wording added to 907.1.1 was extracted from the IBC, Section 106.1.1. Shop drawings referred to in Section 907 are specific to fire alarm equipment and installation. This information may not be available at the time the contractor applies for the building permit, but is essential for review prior to the installation of the fire alarm system.

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

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

F162-07/08 907.2 (IBC [F] 907.2)

Proponent: Jeffrey M. Shapiro, PE, International Code Consultants, representing National Multi Housing Council

Revise as follows:

907.2 (IBC [F] 907.2) (Supp) Where required - new buildings and structures. An approved manual, automatic or manual and automatic fire alarm system installed in accordance with the provisions of this code and NFPA 72 shall be provided in new buildings and structures in accordance with Sections 907.2.1 through 907.2.22 and provide occupant notification in accordance with Section 907.6, unless other requirements are provided by another section of this code.

A minimum of one manual fire alarm box shall be provided in an approved location to initiate a fire alarm signal for fire alarm systems employing automatic fire detectors or waterflow detection devices. Where other sections of this code allow elimination of fire alarm boxes due to sprinklers, a single fire alarm box shall be installed.

Exceptions:

- <u>1.</u> The manual fire alarm box is not required for fire alarm systems dedicated to elevator recall control and supervisory service.
- 2. The manual fire alarm box is not required for Group R-2 occupancies.

Reason: Manual fire alarm boxes in apartment occupancies invite tampering and false alarms, and there is no apparent fire safety benefit to be gained by placing a single fire alarm box in such occupancies.

Justification offered last year to substantiate the need for the single manual alarm box was that it might be needed by a sprinkler technician to initiate an alarm if sprinklers/waterflow switches are out of service, but this makes no sense. Assuming that the alarm box is located in the valve room to avoid making it available to vandals, a technician working on any part of the sprinkler system, other than the valve, would be far away, and may or may not even know where the alarm box is. If the box were to be located where it will be accessible for occupant use, it is difficult to believe that occupants would know the location of a single pull box in a building or that they would seek out the box to initiate an alarm if the waterflow switch failed.

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

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

F163-07/08

907.2, 907.2.6.3, 907.2.8.2, 907.2.11, 907.2.12, 907.2.12.1, 907.2.13, 907.2.14, 907.2.17, 902.1 (IBC [F] 907.2, [F] 907.2.6.3, [F] 907.2.8.2, [F] 907.2.11, [F] 907.2.12, [F] 907.2.12.1, [F] 907.2.13, [F] 907.2.14, [F] 907.2.17, [F] 902.1)

Proponent: Gene Boecker, Code Consultants, Inc.

1. Revise as follows:

907.2 (IBC [F] 907.2) (Supp) Where required new buildings and structures. An approved manual, automatic or manual and automatic fire alarm system installed in accordance with the provisions of this code and NFPA 72 shall be provided in new buildings and structures in accordance with Sections 907.2.1 through 907.2.22 and provide occupant notification in accordance with Section 907.6, unless other requirements are provided by another section of this code.

A minimum of one manual fire alarm box shall be provided in an approved location to initiate a fire alarm signal for fire alarm systems employing automatic fire detectors or waterflow detection devices. Where other sections of this code allow elimination of fire alarm boxes due to sprinklers, a single fire alarm box shall be installed.

Exception: The manual fire alarm box is not required for fire alarm systems dedicated to elevator recall control and supervisory service.

907.2.6.3 (IBC [F] 907.2.6.3) (Supp) Group I-3 occupancies. Group I-3 occupancies shall be equipped with a manual <u>fire alarm system</u> and automatic fire alarm <u>smoke detection</u> system installed for alerting staff.

907.2.8.2 (IBC [F] 907.2.8.2) (Supp) Automatic <u>smoke detection</u> fire alarm system. An automatic <u>smoke detection</u> fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed throughout all interior corridors serving sleeping units.

Exception: An automatic <u>smoke</u> fire 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.

907.2.11 (IBC [F] 907.2.11) (Supp) Special amusement buildings. An automatic smoke detection system shall be provided in special amusement buildings in accordance with Sections 907.2.11.1 through 907.2.11.3.

Exception: In areas where ambient conditions will cause a smoke detection system to alarm, an approved alternative type of automatic fire detector shall be installed.

907.2.12 (IBC [F] 907.2.12) (Supp) High-rise buildings. Buildings with a floor used for human occupancy located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access shall be provided with an automatic fire alarm smoke detection system in accordance with Section 907.2.12.1 and an emergency voice/alarm communication system in accordance with Section 907.6.2.2.

Exceptions:

- 1. Airport traffic control towers in accordance with Section 907.2.21 and Section 412 of the *International Building Code*.
- 2. Open parking garages in accordance with Section 406.3 of the International Building Code.
- 3. Buildings with an occupancy in Group A-5 in accordance with Section 303.1 of the *International Building Code*.
- 4. Low-hazard special occupancies in accordance with Section 503.1.1 of the *International Building Code*.
- 5. Buildings with an occupancy in Group H-1, H-2 or H-3 in accordance with Section 415 of the *International Building Code*.
- 6. In Group I-1 and I-2 occupancies, the alarm shall sound at a constantly attended location and general occupant notification shall be broadcast by the paging system.

907.2.12.1 (IBC [F] 907.2.12.1) (Supp) Automatic fire smoke detection. Smoke detectors An automatic smoke detection system shall be provided in accordance with this section. Smoke detectors shall be connected to an automatic fire alarm system. The activation of any detector required by this section shall operate the emergency voice/alarm communication system. Smoke detectors shall be located as follows:

- 1. In each mechanical equipment, electrical, transformer, telephone equipment or similar room which is not provided with sprinkler protection, elevator machine rooms, and in elevator lobbies.
- In the main return air and exhaust air plenum of each air-conditioning system having a capacity greater than 2,000 cubic feet per minute (cfm) (0.94 m₃/s). Such detectors shall be located in a serviceable area downstream of the last duct inlet.
- 3. 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. In Group R-1 and R-2 occupancies, a smoke detector is allowed to be used in each return-air riser carrying not more than 5,000 cfm (2.4m3/s) and serving not more than 10 air-inlet openings.

907.2.13 (IBC [F] 907.2.13) (Supp) Atriums connecting more than two stories. A fire alarm smoke detection system shall be installed in occupancies with an atrium that connects more than two stories. The system shall be activated in accordance with Section 907.6. Such occupancies in Group A, E or M shall be provided with an emergency voice/alarm communication system complying with the requirements of Section 907.6.2.2.

907.2.14 (IBC [F] 907.2.14) (Supp) High-piled combustible storage areas. An automatic fire smoke detection system shall be installed throughout high-piled combustible storage areas where required by Section 2306.5.

907.2.17 (IBC [F] 907.2.14) (Supp) Underground buildings with smoke control systems. Where a smoke control system is installed in an underground building in accordance with the *International Building Code*, automatic fire smoke detectors shall be provided in accordance with Sections 907.2.17.1 and 907.2.17.2.

2. Add new definition as follows:

902.1 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.

AUTOMATIC SMOKE DETECTION SYSTEM. A fire alarm system that has initiation devices that utilize smoke detectors for protection of an area such as a room or space with detectors to provide early warning of fire.

Reason: Section 907 evolved as an amalgamation of the three legacy codes. Although Section 907 was revised during the last cycle some additional items have been identified that need clarification. The charging statement for Occupancy Groups is inconsistent. The text that indicates what is required is inconsistent. And, the general arrangement of text, although in a logical format, is not consistent with the way many people approach the code. Nor is it consistent with the way that Section 903 is organized. The proposal is an effort made by a group of people from various segments of the industry and code application to correlate, reformat and generally improve usability of the code. Before addressing the technical and formatting changes involved in the proposal, it is worth noting appreciation to the people who helped work on this effort. In alphabetical order:

Bill Aaron (Code Consultants, Inc.), Diane Arend (Office of the State Fire Marshal; California), Gene Boecker (Code Consultants, Inc), Shane Clary (Bay Alarm) John Guhl (Office of the State Fire Marshal; California), Tom Hammerberg (Automatic Fire Alarm Association, Inc), Bill Hopple (SimplexGrinnell), Dan Nichols (Building Codes Division; State of New York), Jim Schifiliti (Fire Safety Consultants, Inc) The main purpose of this code proposal is to align terms within this Section to two main terms, "automatic smoke detection system" and "manual fire alarm system." Currently, the language can be confusing with some sections requiring automatic fire detection systems and others requiring automatic smoke detection systems. Both of these terms are technically requiring the same thing. However, an automatic fire detection can be interpreted as a sprinkler system, which is not the intent of this section. If it was, the requirements would be found in Section 903.

A definition has been added for automatic smoke detection system, to assist the code user in determining what the code is specifically requiring.

Of special note, Section 907.2.11 appears to be a technical change. However, this is editorial since this allowance is globally accepted throughout Section 907, being specifically regulated in Section 907.5.3.

Furthermore, Section 907.2.12.1 removes redundant language with the addition of the 'system' requirement and is not a technical change.

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

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

F164-07/08

907.2.5, 907.2.6, 907.2.6.3.3, 907.2.7.1, 907.2.12.2, 907.6, 907.6.2.1.1, 9097.6.2.1.2, 907.6.2.2, 907.6.2.3.3 (New), 907.6.2.2.4, 907.7.3.2, 907.7.4 (IBC [F] 907.2.5, [F] 907.2.6, [F] 907.2.6.3.3, [F] 907.2.7.1, [F] 907.2.12.2, [F] 907.6, [F] 907.6.2.1.1, [F] 907.6.2.1.2, [F] 907.6.2.2, [F] 907.6.2.3.3 (New), [F] 907.6.2.2.4, [F] 907.7.3.2, [F] 907.7.4

Proponent: Gene Boecker, Code Consultants, Inc.

Revise as follows:

907.2.5 (IBC [F] 907.2.5) (Supp) Group H. A manual fire alarm system <u>that activates the occupant notification system</u> shall be installed in Group H-5 occupancies and in occupancies used for the manufacture of organic coatings. An automatic smoke detection system <u>that activates the occupant notification system</u> shall be installed for highly toxic gases, organic peroxides and oxidizers in accordance with Chapters 37, 39 and 40, respectively.

907.2.6 (IBC [F] 907.2.6) (Supp) Group I. A manual fire alarm system that activates the occupant notification system shall be installed in Group I occupancies. An automatic smoke detection system that activates the occupant notification system shall be provided in accordance with Sections 907.2.6.1 and 907.2.6.2.

907.2.6.3.3 (IBC [F] 907.2.6.3.3) Smoke detectors. An automatic smoke detection system shall be installed throughout resident housing areas, including sleeping units and contiguous day rooms, group activity spaces and other common spaces normally accessible to residents.

Exceptions:

- 1. Other approved smoke-detection arrangements providing equivalent protection, including, but not limited to, placing detectors in exhaust ducts from cells or behind protective guards listed for the purpose, are allowed when necessary to prevent damage or tampering.
- 2. Sleeping units in Use Conditions 2 and 3 as described in Section 308 of the International Building Code.
- Smoke detectors are not required in sleeping units with four or fewer occupants in smoke compartments that are equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

907.2.7.1 (IBC [F] 907.2.7.1) (Supp) Occupant notification. During times that the building is occupied, the initiation of a signal from a manual fire alarm box or from a water flow switch shall not be required to activate the alarm notification appliances when an alarm signal is activated at a constantly attended location from which evacuation instructions shall be initiated over an emergency voice/alarm communication system installed in accordance with Section 907.6.2.2.

The emergency voice/alarm communication system shall be allowed to be used for other announcements, provided the manual fire alarm use takes precedence over any other use.

907.2.12.2 (IBC [F] 907.2.12.2) (Supp) Fire department communication system. An approved two-way, fire department communication system designed and installed in accordance with NFPA 72 shall be provided for fire department use. It shall operate between a fire command center complying with Section 509 and elevators, elevator lobbies, emergency and standby power rooms, fire pump rooms, areas of refuge and inside enclosed exit stairways. The fire department communication device shall be provided at each floor level within the enclosed exit stairway.

Exception: Fire department radio systems <u>are allowed to replace two-way fire department communication</u> <u>systems</u> where approved by the fire department.

907.6 (IBC [F] 907.6) (Supp) Alarm <u>Occupant</u> notification systems. A fire alarm system shall annunciate at the panel and shall initiate occupant notification upon activation, in accordance with Sections 907.6.1 through 907.6.2.3.4. Where a fire alarm system is required by another section of this code, it shall be activated by:

- 1. Automatic fire detectors.
- 2. Sprinkler water-flow devices.
- 3. Manual fire alarm boxes.
- 4. Automatic fire-extinguishing systems.

Exceptions:

- 1. Occupant notification is not required for fire detectors used to control fire safety functions in accordance with Section 907.4.
- 2. Where notification systems are allowed elsewhere in Section 907 to annunciate at a constantly attended location.

907.6.2.1.1 (IBC [F] 907.6.2.1.1) (Supp) Average sound pressure. The audible alarm notification appliances shall provide a sound pressure level of 15 decibels (dBA) above the average ambient sound level or 5 dBA above the maximum sound level having a duration of at least 60 seconds, whichever is greater, in every occupied occupiable space within the building. The minimum sound pressure levels shall be: 75 dBA in occupancies in Groups R and I-1; 90 dBA in mechanical equipment rooms; and 60 dBA in other occupancies.

907.6.2.1.2 (IBC [F] 907.6.2.1.2) (Supp) Maximum sound pressure. The maximum sound pressure level for audible alarm notification appliances shall be 110 dBA at the minimum hearing distance from the audible appliance. Where the average ambient noise is greater than 105 95 dBA, visible alarm notification appliances shall be provided in accordance with NFPA 72 and audible alarm notification appliances shall not be required.

907.6.2.2 (IBC [F] 907.6.2.2) (Supp) Emergency voice/alarm communication system. The emergency voice/alarm communication system shall be designed and installed in accordance with NFPA 72. The operation of any automatic fire detector, sprinkler waterflow device or manual fire alarm box shall automatically sound an alert tone followed by voice instructions giving approved information and directions for a general or staged evacuation on a minimum of the alarming floor, the floor above and the floor below in accordance with the buildings fire safety and evacuation plans required by Section 404. In high-rise buildings, the system shall operate on a minimum of the alarming floor, the floor below. Speakers shall be provided throughout the building by paging zones. As a minimum, paging zones shall be provided as follows:

- 1. Elevator groups.
- 2. Exit stairways.
- 3. Each floor.
- 4. Areas of refuge as defined in Section 1002.1.

Exception: In Group I-1 and I-2 occupancies, the alarm shall sound in a constantly attended area and a general occupant notification shall be broadcast over the overhead page.

907.6.2.2.3 (IBC [F] 907.6.2.2.3) Alternate uses. The emergency voice/alarm communication system shall be allowed to be used for other announcements, provided the manual fire alarm use takes precedence over any other use.

(Renumber subsequent section)

907.7.3.2 (IBC [F] 907.7.3.2) (Supp) High-rise buildings. In buildings with a floor used for human occupancy that is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, a separate zone by floor shall be provided for all <u>each</u> of the following types of alarm-initiating devices where provided:

- 1. Smoke detectors.
- 2. Sprinkler water-flow devices.
- 3. Manual fire alarm boxes.
- 4. Other approved types of automatic fire detection devices or suppression systems.

907.7.4 (IBC [F] 907.7.4) (Supp) Access. Access shall be provided to each detector fire alarm device and notification appliance for periodic inspection, maintenance and testing.

Reason: Section 907 evolved as an amalgamation of the three legacy codes. Although Section 907 was revised during the last cycle some additional items have been identified that need clarification. The charging statement for Occupancy Groups is inconsistent. The text that indicates what is required is inconsistent. And, the general arrangement of text, although in a logical format, is not consistent with the way many people approach the code. Nor is it consistent with the way that Section 903 is organized. The proposal is an effort made by a group of people from various segments of the industry and code application to correlate, reformat and generally improve usability of the code. Before addressing the technical and formatting changes involved in the proposal, it is worth noting appreciation to the people who helped work on this effort. In alphabetical order:

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Jim Schifiliti (Fire Safety Consultants, Inc)

907.2.5 Justification – The added language is for consistency with the language for other Occupancy Groups.

907.2.6 Justification – The added language is for consistency with the language for other Occupancy Groups.

907.2.6.3.3 Exceptions Justification – The added language is to identify where to find more information regarding Use Conditions 2 and 3. This improves usability of the Code.

907.2.7.1 Justification – The language is relocated to section 907.6.2.2 for clarity so that emergency voice alarm system requirements are grouped in one area.

907.2.12.2 Justification – The added language is for clarity indicating that fire department radio systems are allowed as a substitute for two-way fire department communications systems.

907.6 Justification - This exception is in direct conflict with the requirements of Section 907.4 which requires occupant notification.

907.6.2.1.1 Justification - The added language is for consistency with the language throughout this code.

907.6.2.1.2 Justification – The decibel level is revised to be in alignment with NFPA 72 and A.D.A.

907.6.2.2.3 Justification - The language is relocated from section 907.2.7.1 for clarity so that emergency voice alarm system requirements are grouped in one area.

907.6.2.2.34 Justification – Renumbering to incorporate the relocated emergency voice/alarm communication requirement.

907.7.4 Justification - The added language is for clarity indicating that access is to be provide for all fire alarm devices for servicing

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

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

F165–07/08 907.2.6 (IBC [F] 907.2.6)

Proponent: Gene Boecker, Code Consultants, Inc.

Revise as follows:

907.2.6 (IBC [F] 907.2.6) (Supp) Group I. A manual fire alarm system shall be installed in Group I occupancies. An automatic smoke detection system shall be provided in accordance with Sections 907.2.6.1 and 907.2.6.2.

Exceptions:

- Manual fire alarm boxes in resident or patient sleeping areas of Group I-1 and I-2 occupancies shall not be required at exits if located at all nurses= control stations or other constantly attended staff locations, provided such stations are visible and continuously accessible and that travel distances required in Section 907.5.2 are not exceeded.
- 2. Occupant notification systems are not required to be activated where private mode signaling installed in accordance with NFPA 72 is approved by the fire code official.

Reason: Section 907 evolved as an amalgamation of the three legacy codes. Although Section 907 was revised during the last cycle some additional items have been identified that need further clarification. The charging statement for Occupancy Groups is inconsistent. The text that indicates what is required is inconsistent. And, the general arrangement of text, although in a logical format, is not consistent with the way many people approach the code. Nor is it is consistent with the way that Section 903 is organized. The proposal is an effort made by a group of people from various segments of the industry and code application to correlate, reformat and generally improve usability of the code. Before addressing the technical and formatting changes involved in the proposal, it is worth noting appreciation to the people who helped work on this effort. In alphabetical order:

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The new exception is to clearly allow only notifying the staff instead of all building occupants in the event of a fire. This is a common practice in Group I occupancies, and the current language would not allow that.

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

Public Hearing: Co	ommittee:	AS	AM	D
As	sembly:	ASF	AMF	DF

F166–07/08 907.2.9.1 (IBC [F] 907.2.9.1)

Proponent: Jeffrey M. Shapiro, PE, International Code Consultants, representing himself

Revise as follows:

907.2.9.1 (IBC [F] 907.2.9.1) (Supp) Manual fire alarm system. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in Group R-2 occupancies where:

- 1. Any dwelling unit or sleeping unit is located three or more stories above the lowest level of exit discharge;
- 2. Any dwelling unit or sleeping unit is located more than one story below the highest level of exit discharge of exits serving the dwelling unit or sleeping unit; or
- 3. The building contains more than 16 dwelling units or sleeping units.

Exceptions:

- 1. <u>A fire alarm system is not required in buildings not more than two stories in height where all dwelling units</u> or sleeping units and contiguous attic and crawl spaces are separated from each other and public or common areas by at least 1-hour fire partitions and each dwelling unit or sleeping unit has an exit directly to a public way, exit court or yard.
- 1. <u>2.</u> Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and the occupant notification appliances will automatically activate throughout the notification zones upon a sprinkler water flow.
 - 2. A manual fire alarm system is not required in buildings not more than two stories in height that do not have interior corridors serving dwelling units provided that dwelling units either have a means of egress door opening directly to an exterior exit access that leads directly to the exits or are served by open-ended corridors designed in accordance with Section 1023.6, Exception 4.
 - 3. A fire alarm system is not required in buildings that do not have interior corridors serving dwelling units and are protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, provided that dwelling units either have a means of egress door opening directly to an exterior exit access that leads directly to the exits or are served by open-ended corridors designed in accordance with Section 1023.6, Exception 4.

Reason: This proposal returns the exceptions in Section 907.2.9.1 to the 2006 IFC text. These exceptions were changed as part of Proposal F122-06/07, which according to the proponent was not intended to make technical changes to the 2006 requirements. However, closer scrutiny revealed that the change significantly reduced the scope of the old Exception 3 (which was revised and renumbered as Exception 2 in the 2007 Supplement) by limiting application to only allow elimination of manual alarms, as opposed to the entire alarm system, and only in buildings not exceeding two stories in height.

Likewise, the change to the old Exception 1 (which was revised and incorporated into Exception 2 in the 2007 Supplement) significantly reduced the scope of Exception 1 by only allowing elimination of manual fire alarm boxes, as opposed to the entire alarm system. Because Proposal F122 provided no justification for making these technical changes, this proposal simply reverses unsubstantiated revisions to the code.

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

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

F167–07/08 907.2.10 through 907.2.10.3 (New) [IBC [F] 907.2.10 through [F] 907.2.10.3 (New)], 907.3.3.4

Proponent: Gene Boecker, Code Consultants, Inc.

1. Add new text as follows:

907.2.10 (IBC [F] 907.2.10) Group R-4. Fire alarm systems and smoke alarms shall be installed in Group R-4 occupancies as required in Sections 907.2.10.1 through 907.2.10.3.

907.2.10.1 (IBC [F] 907.2.10.1) Manual fire alarm system. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in Group R-4 occupancies.

Exceptions:

- 1. A manual fire alarm system is not required in buildings not more than two stories in height where all individual sleeping units and contiguous attic and crawl spaces to those units are separated from each other and public or common areas by at least 1-hour fire partitions and each individual sleeping unit has an exit directly to a public way, exit court or yard.
- 2. Manual fire alarm boxes are not required throughout the building when the following conditions are met:
 - 2.1. The building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
 - 2.2. The notification appliances will activate upon sprinkler water flow; and
 - 2.3. At least one manual fire alarm box is installed at an approved location.
- 3. <u>Manual fire alarm boxes in resident or patient sleeping areas shall not be required at exits where located</u> <u>at all nurses' control stations or other constantly attended staff locations, provided such stations are visible</u> <u>and continuously accessible and that travel distances required in Section 907.5.2.1 are not exceeded.</u>

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. <u>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.</u>
- 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.

907.2.10.3 (IBC [F] 907.2.10.3) Smoke alarms. Single- and multiple-station smoke alarms shall be installed in accordance with Section 907.2.11.

(Renumber subsequent sections)

2. Revise as follows:

907.3.3.4 (Supp) Group R-4. An automatic or manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-4 residential care/assisted living facilities <u>in</u> accordance with Section 907.2.10.

Exceptions:

- 1. Where there are interconnected smoke alarms meeting the requirements of Section 907.2.10 907.2.11 and there is at least one manual fire alarm box per floor arranged to sound continuously the smoke alarms.
- 2. Other manually activated, continuously sounding alarms approved by the fire code official.

Reason: Section 907 evolved as an amalgamation of the three legacy codes. Although Section 907 was revised during the last cycle some additional items have been identified that need further clarification. The charging statement for Occupancy Groups is inconsistent. The text that indicates what is required is inconsistent. And, the general arrangement of text, although in a logical format, is not consistent with the way many people approach the code. Nor is it consistent with the way that Section 903 is organized. The proposal is an effort made by a group of people from

various segments of the industry and code application to correlate, reformat and generally improve usability of the code. Before addressing the technical and formatting changes involved in the proposal, it is worth noting appreciation to the people who helped work on this effort. In alphabetical order:

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This is to add a requirement for new Group R-4 occupancies. Reviewing the occupancy categories in Chapter 3, a Group R-4 can be considered either a small Group I-1 or a Group R-2 with occupants that have special needs or limitations. A further review finds that both Group I-1 and Group R-2 occupancies both have fire alarm requirements for new buildings, but Group R-4 does not. The lack of needed requirements in the current IBC/IFC is very evident. The code change proposal will not increase the cost of construction since IFC Section 907.3 requires a fire alarm retroactively in Group R-4 occupancies. As the IFC currently reads, a one day old R-4 would technically be required to retrofit an automatic or manual alarm system into the building, which doesn't make sense.

The proposed language is based on the Group R-2 requirements for manual fire alarm systems and Group I-1 requirements for automatic smoke detection systems. The proposed language adds exceptions that would apply to Group I-1 occupancies, such as additional manual pull box exceptions for sprinklered sleeping areas and nurses stations, and removes the 16 dwelling unit requirement for manual fire alarms since an Group R-4 cannot have more than 16 occupants.

The proposed language also modifies the retroactive Group R-4 requirements to reference back to the new requirements. Currently, there is not clear direction on what is required for a fire alarm system retroactively. The reference to the new section provides needed requirements.

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

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

F168–07/08 907.2.12 (IBC [F] 907.2.12)

Proponent: Gene Boecker, Code Consultants, Inc.

Revise as follows:

907.2.12 (IBC [F] 907.2.12) (Supp) High-rise buildings. Buildings with a floor used for human occupancy located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access shall be provided with an automatic fire alarm system and an emergency voice/alarm communication system in accordance with Section 907.6.2.2.

Exceptions:

- 1. Airport traffic control towers in accordance with Section 907.2.21 and Section 412 of the *International Building Code*.
- 2. Open parking garages in accordance with Section 406.3 of the International Building Code.
- 3. Buildings with an occupancy in Group A-5 in accordance with Section 303.1 of the *International Building Code*.
- 4. Low-hazard special occupancies in accordance with Section 503.1.1 of the International Building Code.
- 5. Buildings with an occupancy in Group H-1, H-2 or H-3 in accordance with Section 415 of the *International Building Code*.
- 6. In Group I-1 and I-2 occupancies, the alarm shall sound at a constantly attended location and general occupant notification shall be broadcast by the paging system emergency voice/alarm communication system.

Reason: Section 907 evolved as an amalgamation of the three legacy codes. Although Section 907 was revised during the last cycle some additional items have been identified that need further clarification. The charging statement for Occupancy Groups is inconsistent. The text that indicates what is required is inconsistent. And, the general arrangement of text, although in a logical format, is not consistent with the way many people approach the code. Nor is it consistent with the way that Section 903 is organized. The proposal is an effort made by a group of people from various segments of the industry and code application to correlate, reformat and generally improve usability of the code. Before addressing the technical and formatting changes involved in the proposal, it is worth noting appreciation to the people who helped work on this effort. In alphabetical order:

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All other fire alarm systems in high-rises require the use of an emergency voice/alarm communication system. Paging systems do not have supervised wiring or specific secondary power requirements. There is no assurance this system will work when it is needed to work. NFPA 72 and this Code allow emergency voice/alarm systems to be used for other purposes, such as paging. In addition, NFPA 72 does not require emergency voice/alarm systems to operate automatically, so the operation will be the same with the added benefit of having the circuits supervised and the ability to operate on secondary power in the event of a building power failure. Currently there is no requirement for paging systems to be on an emergency power source.

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

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

F169–07/08 907.2.12.1, 907.2.12.1.1 (New), 907.2.12.1.2 (New) [IBC [F] 907.2.12.1, [F] 907.2.12.1.1 (New), [F] 907.2.12.1.2 (New)

Proponent: Gene Boecker, Code Consultants, Inc.

Revise as follows:

907.2.12.1 (IBC [F] 907.2.12.1) (Supp) Automatic fire detection. <u>Automatic smoke detection in high rise buildings</u> shall be in accordance with Sections 907.2.12.1.1 and 907.2.12.1.2.

907.2.12.1.1 (IBC [F] 907.2.12.1.1) Area smoke detection. Area smoke detectors shall be provided in accordance with this section. Smoke detectors shall be connected to an automatic fire alarm system. The activation of any detector required by this section shall operate the emergency voice/alarm communication system in accordance with Section 907.6.2.2. Smoke detectors shall be located as follows:

- 1. In each mechanical equipment, electrical, transformer, telephone equipment or similar room which is not provided with sprinkler protection, elevator machine rooms, and in elevator lobbies.
- 2. In each elevator machine room and in elevator lobbies.

907.2.12.1.2 (IBC [F] 907.2.12.1.2) Duct smoke detection. Duct smoke detectors complying with Section 907.4.1 shall be located as follows:

- 2. 1. In the main return air and exhaust air plenum of each air-conditioning system having a capacity greater than 2,000 cubic feet per minute (cfm) (0.94 m³/s). Such detectors shall be located in a serviceable area downstream of the last duct inlet.
- 3. 2. 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. In Group R-1 and R-2 occupancies, a smoke detector is allowed to be used in each return-air riser carrying not more than 5,000 cfm (2.4m³/s) and serving not more than 10 air-inlet openings.

Reason: Section 907 evolved as an amalgamation of the three legacy codes. Although Section 907 was revised during the last cycle some additional items have been identified that need clarification. The charging statement for Occupancy Groups is inconsistent. The text that indicates what is required is inconsistent. And, the general arrangement of text, although in a logical format, is not consistent with the way many people approach the code. Nor is it consistent with the way that Section 903 is organized. The proposal is an effort made by a group of people from various segments of the industry and code application to correlate, reformat and generally improve usability of the code. Before addressing the technical and formatting changes involved in the proposal, it is worth noting appreciation to the people who helped work on this effort. In alphabetical order:

Bill Aaron (Code Consultants, Inc.), Diane Arend (Office of the State Fire Marshal; California), Gene Boecker (Code Consultants, Inc), Shane Clary (Bay Alarm) John Guhl (Office of the State Fire Marshal; California), Tom Hammerberg (Automatic Fire Alarm Association, Inc), Bill Hopple (SimplexGrinnell), Dan Nichols (Building Codes Division; State of New York), Jim Schifiliti (Fire Safety Consultants, Inc)

Justification for proposal for Section 907.2.12.1: Item 2 is added to avoid confusion with the requirements of item 1. Elevator machine rooms and elevator lobbies are required to have smoke detectors for elevator recall even if these locations are sprinklers. By moving them to a separate line, it should reduce confusion in interpretations in this code.

Justification for proposal for Section 907.2.12.1.2: A separate duct smoke detection section is being added to avoid confusion and to clarify that the type of smoke detector used shall be approved for duct applications (higher air velocities, temperatures and humidity) and to allow the use of a supervisory signal in lieu of a fire alarm signal (emergency voice alarm/communication notification).

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

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

F170-07/08

907.2.12.1, 907.2.12.1.1 (New), 907.2.12.1.2 (New), 907.4.2 (New) [IBC [F] 907.2.12.1, [F] 907.2.12.1.1 (New), [F] 907.2.12.1.2 (New), [F] 907.4.2 (New)]; IMC 606.2, 606.2.1 (New), 606.2.2, 606.2.3

Proponent: David Frable, U.S. General Services Administration

THESE PROPOSALS ARE ON THE AGENDA OF THE IFC AND THE IMC CODE DEVELOPMENT COMMITTEES AS 2 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IFC

1. Revise as follows:

907.2.12.1 (IBC [F] 907.2.12.1) (Supp) Automatic fire detection. Smoke Detectors shall be provided in accordance with this section. Smoke detectors shall be connected to an automatic fire alarm system. The activation of any detector required by this section shall operate the emergency voice/alarm communication system. Smoke detectors shall be located as follows:

<u>907.2.12.1.1 (IBC [F] 907.2.12.1.1) Area detection.</u> 1. Smoke detectors shall be installed in each mechanical equipment, electrical, transformer, telephone equipment or similar room which is not provided with sprinkler protection, elevator machine rooms, and in elevator lobbies.

Exception: Heat detectors shall be permitted to be installed in lieu of smoke detectors where the ambient conditions of the space preclude the effective operation of smoke detectors.

907.2.12.1.2 (IBC [F] 907.2.12.1.2) Air handling system detection Smoke detectors serving air handling systems shall comply with Section 907.4.2 and be installed 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.
- 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.

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.

3. In the return air system where multiple air-handling systems share common or supply return air ducts or plenums with a combined design capacity greater than 15,000 cfm (7.1 m³/s),

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.

4. <u>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.</u>

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.

3. <u>5.</u> 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 smoke detector is allowed to be used in each return-air riser carrying not more than 5,000 cfm (2.4m³/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.

2. Add new text as follows:

907.4.2 (IBC [F] 907.4.2) Controls operation. Upon activation, the smoke detectors shall shut down all operational capabilities of the air distribution system in accordance with the listing and labeling of appliances used in the system. Air distribution systems that are part of a smoke control system shall switch to the smoke control mode upon activation of a detector.

PART II – IMC

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 <u>606.2.2</u> Return air systems. Smoke detectors shall be installed in return air systems with a design capacity greater than $\frac{2,000}{15,000}$ cfm ($\frac{0.9}{7.1}$ 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 <u>606.2.3</u> 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 $\frac{2,000}{15,000}$ cfm ($\frac{0.9}{7.1}$ m³/s), the return air system shall be provided with smoke detectors in accordance with Section 606.2.1 <u>606.2.2</u>.

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.

606.2.3 606.2.4 Return air risers. (No change to current text)

Reason: The intent of this proposal is improve the level of detection of smoke within air handling units 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. To the best of our knowledge, only one attempt has formally been made to change the current I-Code requirements regarding this issue, and that was during the 2006/2007 ICC Code Development Cycle.

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. **Note**: 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 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 and provides the ability to detect more fires than return air detectors. 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 1:

(Deleted text) IFC 907.2.12.1. a. Since the title of this section is (and has always been) "automatic fire detection", the term "smoke" has been deleted to offer the opportunity to install other types of detectors as the situation requires. Though there are no current or proposed requirements for other types of detectors, it is better to have a place holder just in case. b. All text requiring detectors to activate the fire alarm system or voice system has been deleted since it is redundant. See 907.6 and 907.6.2.2.

(new) IFC 907.2.12.1.1 and 907.2.12.1.2. New sections have been inserted to distinguish between area detectors required for certain applications (e.g., elevator lobbies, electrical rooms, etc.) and detectors required to serve air handling systems.

(new) Exception to IFC 907.2.12.1.1. The new exception has been added to permit the installation of heat detectors in place of smoke detectors in those locations where smoke detectors would not operate effectively (e.g., unheated elevator lobbies in parking garages where temperatures may be subject to freezing and unenclosed or partially enclosed elevator lobbies where detectors may be subject to wind or high humidity).

(new) 907.2.12.1.2 and 907.4.2. Added the requirement for smoke detectors serving air handling systems to shut down their respective air handling system, as currently required by the IMC. Text proposed is the same as currently contained in IMC 606.4.

(new) IFC 907.2.12.1.2, paragraph 1 and 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 fires within the supply air filters or in the air handling motors 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) and (new) 907.2.12.1.2, paragraphs 2 & 3 (Note: the intent is for 907.2.12.1.2 to be have similar language as 606.2.2 and 606.2.3 so the codes are coordinated). The current requirement for installing 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) Requiring 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 907.2.12.1.2, 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) 907.2.12.1.2 Paragraph No. 5 (formally Paragraph No. 3) – 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 smoke detectors in multi-story return air systems unless they exceeded 15,000 cfm. This change also would correlate the capacity requirements currently specified in NFPA 90A - 2002 edition (NFPA 90A - 6.4.2).

(new) Exception to IFC 907.2.12.1.2 (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 smoke detectors in return air systems when the entire building is protected by area smoke detectors.

PART 2:

(revision) 606.2. This is an editorial change to coordinate the two codes.

(new) IMC 606.2.1 and IFC 907.2.12.1.2, paragraph 1 (restated)

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 fires within the supply air filters or in the air handling motors 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) and (new) 907.2.12.1.2, paragraphs 2 & 3 (Note: the intent is for 907.2.12.1.2 to be have similar language as 606.2.2 and 606.2.3 so the codes are coordinated). The current requirement for installing 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):

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.

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

F171–07/08 907.2.12.2, 907.2.12.2.1 (New) [IBC [F] 907.2.12.2, [F] 907.2.12.2.1 (New)]; 907.3.5 (New), 907.3.5.1 (New)

Proponent: Paul K. Heilstedt, PE, Chair, ICC Code Technology Committee (CTC)

1. Revise as follows:

907.2.12.2 (IBC [F] 907.2.12.2) (Supp) Fire department communication system. An approved two-way, fire department communication system designed and installed in accordance with NFPA 72 this section shall be provided for fire department use in buildings classified as high rise buildings or underground buildings, in accordance with Section 403.1 or Section 405.1 respectively, of the *International Building Code* and in buildings that contain Group A occupancies with an occupant load of more than 1,000. It shall operate between a fire command center complying with Section 509 and elevators, elevator lobbies, emergency and standby power rooms, fire pump rooms, areas of refuge and inside enclosed exit stairways. The fire department communication device shall be provided at each floor level within the enclosed exit stairway.

Exceptions: Fire department radio systems where approved by the fire department.

- 1. Where approved by the building code official and the fire code official, a wired communication system shall be permitted to be installed or maintained in lieu of a bi-directional amplifier system. Wired fire department communications systems shall be designed and installed in accordance with NFPA 72 and shall operate between a fire command center complying with Section 509, elevators, elevator lobbies, emergency and standby power rooms, fire pump rooms, areas of refuge and inside enclosed exit stairways. The fire department communication device shall be provided at each floor level within the enclosed exit stairway.
- 2. Where it is determined by the fire code official that amplification of the fire department communication systems is not needed.

2. Add new text as follows:

907.2.12.2.1 (IBC [F] 907.2.12.2.1) System operation. The fire department communication system shall operate between the exterior of the building, a fire command center complying with Section 509 where required or provided, and internal areas of the building. The bi-directional amplifier system shall be compatible with the fire department radio communication system and shall be designed to provide 95% radio coverage based on a 3 watt portable radio nominally located at waist level of a standing or walking adult.

907.3.5 Fire department communications in existing buildings. An approved two-way, fire department communication system designed in accordance with Section 907.2.12.2 shall be provided for fire department use in existing buildings classified as high rise buildings or underground buildings, in accordance with Section 403.1 or Section 405.1 respectively, of the *International Building Code* and in existing buildings that contain Group A occupancies with an occupant load of more than 1,000.

Exceptions:

1. Where approved by the building code official and the fire code official, a wired communication system shall be permitted to be installed or maintained in lieu of a bi-directional amplifier system. Wired fire department communications systems shall be designed and installed in accordance with NFPA 72 and shall operate

between a fire command center complying with Section 509, elevators, elevator lobbies, emergency and standby power rooms, fire pump rooms, areas of refuge and inside enclosed exit stairways. The fire department communication device shall be provided at each floor level within the enclosed exit stairway.

2. Where it is determined by the fire code official that amplification of the fire department communication systems is not needed.

907.3.5.1 Timing of Installation. Wherever existing wired communication systems cannot be repaired, they shall be replaced with a compliant bi-directional amplifier system. All existing high-rise buildings shall be made compliant within a time frame established by the adopting authority.

Reason: The ICC Board established the ICC Code Technology Committee (CTC) as the venue to discuss contemporary code issues in a committee setting which provides the necessary time and flexibility to allow for full participation and input by any interested party. The code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html Since its inception in April/2005, the CTC has held twelve meetings - all open to the public.

This proposed change is a result of the CTC's investigation of the area of study entitled "Review of NIST WTC Recommendations". The scope of the activity is noted as:

Review the recommendations issued by NIST in its report entitled "Final Report on the Collapse of the World Trade Center Towers", issued September 2005, for applicability to the building environment as regulated by the I-Codes.

This proposal is intended to address NIST recommendation 24. NIST Recommendation 24 recommends the establishment and implementation of codes and protocols for ensuring effective operation of the command and control system for large-scale building emergencies.

Due to firefighter safety concerns, fire departments are distributing radios to a larger percentage of emergency response personnel and more are using trunked radio systems which allow better control of radio frequency usage and better monitoring of emergency radio traffic. Wired on-site communications systems cannot be monitored by communications and dispatch personnel and have the potential for missed emergency communications and other essential communications between incident command personnel and on-scene operations personnel. The use of radio amplification systems will allow emergency services personnel to communicate properly throughout the building during an emergency. The revised exception gives authority to any jurisdiction when there is a need to retain wired communications systems or when the code officials believe the use of bi-directional amplifiers is not in the best interest of the emergency service departments serving the jurisdiction.

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

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

F172–07/08 907.2.18.1 (IBC [F] 907.2.18.1)

Proponent: Gene Boecker, Code Consultants, Inc.

Delete without substitution:

907.2.18.1 (IBC [F] 907.2.18.1) (Supp) Public address system. Where a fire alarm system is not required by Section 907.2, a public address system shall be provided which shall be capable of transmitting voice communications to the highest level of exit discharge serving the underground portions of the structure and all levels below.

Reason: Section 907 evolved as an amalgamation of the three legacy codes. Although Section 907 was revised during the last cycle some additional items have been identified that need further clarification. The charging statement for Occupancy Groups is inconsistent. The text that indicates what is required is inconsistent. And, the general arrangement of text, although in a logical format, is not consistent with the way many people approach the code. Nor is it consistent with the way that Section 903 is organized. The proposal is an effort made by a group of people from various segments of the industry and code application to correlate, reformat and generally improve usability of the code. Before addressing the technical and formatting changes involved in the proposal, it is worth noting appreciation to the people who helped work on this effort. In alphabetical order:

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This is a 'do-loop' and old language. The 'do-loop' is that an automatic smoke detection system is required by 907.2 (namely 907.2.17), so 907.2.18.1 is not needed. Also, if a reason was found where an automatic detection system isn't needed, the PA system is in direct conflict with the EVACS system found in 907.2.18 for deep underground buildings.

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

Public Hearing:	Committee:	AS	AM	D
Ū.	Assembly:	ASF	AMF	DF
F173–07/08 907.2.21 (IBC [F] 907.2.21)

Proponent: Gene Boecker, Code Consultants, Inc.

Revise as follows:

907.2.21 (IBC [F] 907.2.21) (Supp) Airport traffic control towers. An automatic fire detection system that activates the occupant notification system in accordance with Section 907.6 shall be provided in airport control towers in all occupiable <u>and equipment</u> spaces.

Exception: Audible appliances shall not be installed within the control tower cab.

Reason: Section 907 evolved as an amalgamation of the three legacy codes. Although Section 907 was revised during the last cycle some additional items have been identified that need clarification. The charging statement for Occupancy Groups is inconsistent. The text that indicates what is required is inconsistent. And, the general arrangement of text, although in a logical format, is not consistent with the way many people approach the code. Nor is it consistent with the way that Section 903 is organized. The proposal is an effort made by a group of people from various segments of the industry and code application to correlate, reformat and generally improve usability of the code. Before addressing the technical and formatting changes involved in the proposal, it is worth noting appreciation to the people who helped work on this effort. In alphabetical order:

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The proposed changes to 907.2.21 are to provide clarification as to where fire alarm devices and appliances are required within airport traffic control towers. Equipment spaces have been added as these may be areas within an airport traffic control tower where a fire may begin, but may not be occupied. Early warning of a fire in these areas is required so as to alert the occupants of occupancy and emergency forces.

Due to the nature of the operation of airport traffic control towers, the notification of occupants within the cab is to be by visual notification appliances only.

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

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

F174–07/08 907.2.22 (IBC [F] 907.2.22)

Proponent: Gene Boecker, Code Consultants, Inc.

Revise as follows:

907.2.22 (IBC [F] 907.2.22) (Supp) Battery rooms. An automatic smoke detection system shall be installed in areas containing stationary storage battery systems with a liquid capacity of more than 50 gallons (189 L). The detection system shall activate a local alarm signal at a constantly attended location or shall be supervised by an approved central, proprietary, or remote station service.

Reason: Section 907 evolved as an amalgamation of the three legacy codes. Although Section 907 was revised during the last cycle some additional items have been identified that need clarification. The charging statement for Occupancy Groups is inconsistent. The text that indicates what is required is inconsistent. And, the general arrangement of text, although in a logical format, is not consistent with the way many people approach the code. Nor is it consistent with the way that Section 903 is organized. The proposal is an effort made by a group of people from various segments of the industry and code application to correlate, reformat and generally improve usability of the code. Before addressing the technical and formatting changes involved in the proposal, it is worth noting appreciation to the people who helped work on this effort. In alphabetical order:

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This is in conflict with IFC Section 907.7.5 (Supp) regarding monitoring. A battery room does not have any special conditions that should give the local alarm option since IFC 907.7.5 (Supp) does not permit any other automatic smoke detection system from utilizing a local alarm only.

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

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

F175-07/08

907.3, 907.3.2, 907.3.2.1, 907.3.2.2, 907.3.2.3

Proponent: Gene Boecker, Code Consultants, Inc.

Revise as follows:

907.3 (Supp) Where required - retroactive in existing buildings and structures. An approved manual, automatic or manual and automatic fire alarm system shall be installed in existing buildings and structures in accordance with Sections 907.3.1 through 907.3.1.8 and provide occupant notification in accordance with Section 907.6 unless other requirements are provided by other sections of this code.

Exception: Occupancies with an existing, previously approved fire alarm system.

907.3.2 (Supp) Group I. A fire alarm system <u>that activates the occupant notification system in accordance with</u> <u>Section 907.6</u> shall be installed in existing Group I occupancies in accordance with Sections 907.3.2.1 through 907.3.2.3.

Exception: Manual fire alarm boxes in resident or patient sleeping areas of Group I-1 and I-2 occupancies shall not be required at exits if located at all nurses' control stations or other constantly attended staff locations, provided such stations are visible and continuously accessible and that travel distances required in Section 907.5.2 907.5.2.1 are not exceeded.

907.3.2.1 (Supp) Group I-1. An automatic or manual fire alarm system shall be installed in existing Group I-1 residential care/assisted living facilities in accordance with Section 907.2.6.1.

Exception: Where each sleeping room has a means of egress door opening directly to an exterior egress balcony that leads directly to the exits in accordance with Section 1014.5, and the building is not more than three stories in height.

907.3.2.2 (Supp) Group I-2. An automatic or manual fire alarm system shall be installed in existing Group I-2 occupancies in accordance with Section 907.2.6.2.

907.3.2.3 (Supp) Group I-3. An automatic or and manual fire alarm system shall be installed in existing Group I-3 occupancies in accordance with Section 907.2.6.3.

Reason: Section 907 evolved as an amalgamation of the three legacy codes. Although Section 907 was revised during the last cycle some additional items have been identified that need clarification. The charging statement for Occupancy Groups is inconsistent. The text that indicates what is required is inconsistent. And, the general arrangement of text, although in a logical format, is not consistent with the way many people approach the code. Nor is it consistent with the way that Section 903 is organized. The proposal is an effort made by a group of people from various segments of the industry and code application to correlate, reformat and generally improve usability of the code. Before addressing the technical and formatting changes involved in the proposal, it is worth noting appreciation to the people who helped work on this effort. In alphabetical order:

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907.3.2 Exception Justification - This proposal is editorial to direct the code user to the specific section regarding travel distances.

907.3.2.1 Justification – The removed language is to clarify the code requirements for this Occupancy Group.

907.3.2.2 Justification – The removed language is to clarify the code requirements for this Occupancy Group

907.3.2.3 Justification - The removed language is to clarify the code requirements for this Occupancy Group

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

Public Hearing:	Committee:	A	S	AM	D
-	Assembly:	A	SF	AMF	DF

F176-07/08 907.3.3.1, 907.3.3.1.1 (New)

Proponent: Gene Boecker, Code Consultants, Inc.

1. Revise as follows:

907.3.3.1 (Supp) Group R-1 hotel and motel <u>manual fire alarm system</u>. An <u>automatic or</u> manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-1 hotels and motels more than three stories or with more than 20 sleeping units.

Exception: Buildings less than two stories in height where all sleeping units, attics and crawl spaces are separated by 1-hour fire-resistance-rated construction and each sleeping unit has direct access to a public way, exit court or yard.

2. Add new text as follows:

907.3.3.1.1 Group R-1 hotel and motel automatic fire alarm system. An automatic fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-1 hotels and motels throughout all interior corridors serving sleeping rooms not equipped with an approved, supervised sprinkler system installed in accordance with Section 903.

Exception: An automatic fire 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: Section 907 evolved as an amalgamation of the three legacy codes. Although Section 907 was revised during the last cycle some additional items have been identified that need clarification. The charging statement for Occupancy Groups is inconsistent. The text that indicates what is required is inconsistent. And, the general arrangement of text, although in a logical format, is not consistent with the way many people approach the code. Nor is it consistent with the way that Section 903 is organized. The proposal is an effort made by a group of people from various segments of the industry and code application to correlate, reformat and generally improve usability of the code. Before addressing the technical and formatting changes involved in the proposal, it is worth noting appreciation to the people who helped work on this effort. In alphabetical order:

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This proposal is part of the effort to clean up the language for existing occupancies. The existing language requires an automatic or manual fire alarm system to be installed in existing R-1 hotel occupancies with no explanation of where the automatic fire alarm system would be required. By adding new language in 907.3.3.1.1, it clearly states where an automatic fire alarm system is required. The next exception allows an exception when existing R-1 hotel occupancies have a fire sprinkler system, since the legacy codes allowed the sprinkler exception. This was added to ensure the existing requirements are no more stringent than past new requirements.

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

F177–07/08 907.3.3.2, 907.3.3.2.1 (New)

Proponent: Gene Boecker, Code Consultants, Inc.

1. Revise as follows:

907.3.3.2 (Supp) Group R-1 boarding and rooming house. An automatic or manual fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-1 boarding and rooming houses.

Exception: Buildings that have single station smoke alarms meeting or exceeding the requirements of Section 907.2.10.1 and where the fire alarm system includes at least one manual fire alarm box per floor arranged to initiate the alarm. Buildings less than two stories in height where all sleeping units, attics and crawl spaces are separated by 1-hour fire-resistance-rated construction and each sleeping unit has direct access to a public way, exit court or yard.

2. Add new text as follows:

907.3.3.2.1 Automatic fire alarm system. An automatic fire alarm system that activates the occupant notification system in accordance with Section 907.6 shall be installed in existing Group R-1 boarding and rooming houses throughout all interior corridors serving sleeping units not equipped with an approved, supervised sprinkler system installed in accordance with Section 903.

Exception: Buildings equipped with single-station smoke alarms meeting or exceeding the requirements of Section 907.2.10.1 and where the fire alarm system includes at least one manual fire alarm box per floor arranged to initiate the alarm.

Reason: Section 907 evolved as an amalgamation of the three legacy codes. Although Section 907 was revised during the last cycle some additional items have been identified that need clarification. The charging statement for Occupancy Groups is inconsistent. The text that indicates what is required is inconsistent. And, the general arrangement of text, although in a logical format, is not consistent with the way many people approach the code. Nor is it consistent with the way that Section 903 is organized. The proposal is an effort made by a group of people from various segments of the industry and code application to correlate, reformat and generally improve usability of the code. Before addressing the technical and formatting changes involved in the proposal, it is worth noting appreciation to the people who helped work on this effort. In alphabetical order:

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This proposal is part of the effort to clean up the language for existing occupancies. The existing language requires an automatic or manual fire alarm system to be installed in existing R-1 boarding and rooming house occupancies with no explanation of where the automatic fire alarm system would be required. By adding new language in 907.3.3.1.1, it clearly states where an automatic fire alarm system is required. The next exception allows an exception when existing R-1 boarding and rooming houses occupancies that have a fire sprinkler system, since the legacy codes allowed the sprinkler exception. This was added to ensure the existing requirements are no more stringent than past new requirements.

Public Hearing: Con	nmittee:	AS	AM	D
Ass	embly:	ASF	AMF	DF

F178–07/08 907.3.4 through 907.3.4.3

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing Joint Fire Service Review Committee

Revise as follows:

907.3.4 (Supp) Single- and multiple-station smoke alarms. Single- and multiple-station smoke alarms shall be installed in existing Group R occupancies <u>and in dwellings not classified as Group R occupancies</u> in accordance with Sections 907.3.4.1 through 907.3.4.3.

907.3.4.1 (Supp) Where required. Existing Group R occupancies <u>and dwellings not classified as Group R</u> <u>occupancies</u> not already provided with single-station smoke alarms shall be provided with single-station smoke alarms. Installation shall be in accordance with Section 907.2.10, except as provided in Sections 907.3.4.2 and 907.3.4.3.

907.3.4.2 (Supp) Interconnection. Where more than one smoke alarm is required to be installed within an individual dwelling unit or sleeping unit in Group R-1, R-2, R-3 or R-4, the smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

Exceptions:

- 1. Interconnection is not required in buildings that are not undergoing alterations, repairs or construction of any kind.
- 2. Smoke alarms in existing areas are not required to be interconnected where alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available which could provide access for interconnection without the removal of interior finishes.

907.3.4.3 (Supp) Power source. In Group R occupancies, Single-station smoke alarms shall receive their primary power from the building wiring provided that such wiring is served from a commercial source and shall be equipped with a battery backup. Smoke alarms with integral strobes that are not equipped with battery back-up shall be connected to an emergency electrical system. Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection.

Exception: Smoke alarms are permitted to be solely battery operated: in existing buildings where no construction is taking place; in buildings that are not served from a commercial power source; and in existing areas of buildings undergoing alterations or repairs that do not result in the removal of interior walls or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available which could provide access for building wiring without the removal of interior finishes.

Reason: The IPMC requires smoke alarms to be installed in R occupancies and dwellings not considered R occupancies. The IPMC reads as follows:

"704.2 Smoke alarms. Single or multiple-station smoke alarms shall be installed and maintained in Groups R-2, R-3, R-4 and in dwellings not regulated in Group R occupancies, regardless of occupant load at all of the following locations..."

The IPMC language has been simplified by stating that smoke alarms are required in "all residential occupancies".

Section 907.3.4 in the IFC covers smoke alarms in all other dwelling units and guest rooms. This revision will provide consistency with the requirements in IPMC Section 704.2.

['] The revisions in Sections 907.3.4.2 and 907.3.4.3 only remove the reference to R-1 through R-4. The inclusion of this terminology is unnecessary, since the charging statements in Sections 907.3.2 and 907.3.2.1 already specify that the subsections apply to "Group R occupancies and dwellings not classified as Group R". It is not necessary to restate the applicable occupancies in every section.

Public Hearing: Committ	ee: AS	AM	D
Assemb	y: ASF	AMF	DF

F179–07/08 907.4.1 (IBC [F] 907.4.1)

Proponent: Gene Boecker, Code Consultants, Inc.

Revise as follows:

907.4.1 (IBC [F] 907.4.1) (Supp) Duct smoke detectors. Smoke detectors installed in ducts shall be listed for the air velocity, temperature and humidity present in the duct. Duct smoke detectors shall be connected to the building's fire alarm control unit when a fire alarm system is required by 907.2. Activation of a duct smoke detector shall initiate a visible and audible supervisory signal at a constantly attended location and shall perform the intended fire safety function in accordance with this code and the *International Mechanical Code*. Duct smoke detectors shall not be used as a substitute for required open area detection.

Exceptions:

- 1. The supervisory signal at a constantly attended location is not required where duct smoke detectors activate the buildings alarm notification appliances.
- In occupancies not required to be equipped with a fire alarm system, actuation of a smoke detector shall activate a visible and an audible signal in an approved location. Smoke detector trouble conditions shall activate a visible or audible signal in an approved location and shall be identified as air duct detector trouble.

Reason: Section 907 evolved as an amalgamation of the three legacy codes. Although Section 907 was revised during the last cycle some additional items have been identified that need clarification. The charging statement for Occupancy Groups is inconsistent. The text that indicates what is required is inconsistent. And, the general arrangement of text, although in a logical format, is not consistent with the way many people approach the code. Nor is it consistent with the way that Section 903 is organized. The proposal is an effort made by a group of people from various segments of the industry and code application to correlate, reformat and generally improve usability of the code. Before addressing the technical and formatting changes involved in the proposal, it is worth noting appreciation to the people who helped work on this effort. In alphabetical order:

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This section is being modified to clarify that duct smoke detectors shall be listed for the air velocity, temperature and humidity present in the duct system (due to the higher air velocities, temperatures and humidity's inside HVAC ducts) and to correlate with the fire safety function requirements of the International Mechanical Code (HVAC shut-down and fire-smoke damper activation). The language in this proposal is also consistent with the requirements of NFPA 72.

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

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

F180–07/08 907.5.3, 907.5.3.1 (New) [IBC [F] 907.5.3, [F] 907.5.3.1 (New)]

Proponent: Gene Boecker, Code Consultants, Inc.

Revise as follows:

907.5.3 (IBC [F] 907.5.3) (Supp) Automatic <u>smoke detection.</u> <u>An automatic smoke detection system shall utilize</u> The automatic fire detectors shall be smoke detectors. Where <u>unless</u> ambient conditions prohibit <u>such an</u> installation. of smoke detectors, <u>In spaces where smoke detectors are not utilized</u>, other approved automatic fire detection shall be permitted <u>required</u>. Where an automatic sprinkler protection system installed in such areas in accordance with Section 903.3.1.1 or 903.3.1.2 is provided and connected to the building fire alarm system, automatic heat detection required by this section shall not be required.

907.5.3.1 (IBC [F] 907.5.3.1)Automatic sprinkler system. In areas where ambient conditions prohibit the installation of smoke detectors, an automatic sprinkler system installed in such areas in accordance with Section 903.3.1.1 or 903.3.1.2 and connected to the fire alarm system shall be approved as automatic fire detection.

Exception: Heat detectors for elevator functions.

Reason: Section 907 evolved as an amalgamation of the three legacy codes. Although Section 907 was revised during the last cycle some additional items have been identified that need clarification. The charging statement for Occupancy Groups is inconsistent. The text that indicates what is required is inconsistent. And, the general arrangement of text, although in a logical format, is not consistent with the way many people approach the code. Nor is it consistent with the way that Section 903 is organized. The proposal is an effort made by a group of people from various segments of the industry and code application to correlate, reformat and generally improve usability of the code. Before addressing the technical and formatting changes involved in the proposal, it is worth noting appreciation to the people who helped work on this effort. In alphabetical order:

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This is an attempt to clean up the language regarding automatic smoke detection. The purpose is to drive home that automatic smoke detection systems use smoke detectors unless they are not able to be installed because of the space being served. Also, it spins off the automatic sprinkler system tradeoff to make it an approved use in place of smoke detectors when the area cannot be served with smoke detectors and the system is connected to the fire alarm system. The exception listed as part of the proposed sprinkler system tradeoff section is so the code user does not utilize this section for the prescriptive elevator requirements in ASME A17.1 for the specialized fire safety functions regulated therein.

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

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

F181–07/08 907.6.2.3.4 (IBC [F] 907.6.2.3.4)

Proponent: Jon H. Metzgar, Keystone Fire Protection Company

Revise as follows:

907.6.2.3.4 (IBC [F] 907.6.2.3.4) (Supp) Group R-2. In Group R-2 occupancies required by Section 907 to have a fire alarm system, all dwelling units and sleeping units required for the hard of hearing shall be provided with the capability to support visible alarm notification appliances in accordance with ICC A117.1 with a building visual alarm notification appliance that can be operated from the local single-station smoke detector.

Reason: The requirement for "all" units needs to be clarified because ANSI A117.1 stipulates a strobe at each single or multiple station smoke detector location that complies with NFPA 72. NFPA 72 Chapter 11 Section 11.6.4 requires a secondary power source. The problem occurs because NFPA 72 – 2007 Section 7.5.4.6 stipulates 177 cd (or in some cases 110 cd) that is not available on single station detectors operating a visual device in compliance because they are not backed up with a secondary power source. In addition, ANSI 117.1 Section 1005.4 Visible Notification Appliances require operation of the Visible Notification Appliance upon activation of a smoke detector in the unit and/or from the building fire alarm system per 1005.3.

This becomes expensive to implement because it requires activation of the single station smoke detector to activate a visual notification appliance while also providing a visual notification appliance for the building fire alarm system. One method is to provide single station smoke detectors with auxiliary contact that would activate the building fire alarm system that in turn would activate an output module to operate installed visible notification appliances within the unit. This assumes the building fire alarm system is capable of identifying individual inputs with selectable outputs and presumes an addressable fire alarm system. This also would permit the visible notification appliance to be operated from a building alarm too.

Another method is to provide commercial grade addressable smoke detectors with built in sounder bases that provide the individual unit notification including an audible alarm and a programmable output. The programmable output would activate a control module turning on visible notification appliances within the unit. This provides the advantage of being able to turn on all sounder bases in all units on a general fire alarm so that minimum db levels can be achieved without additional fire alarm horns.

This request is for clarification so approval and inspection of visual notification appliances for hearing impaired units can be adequately prewired as well as properly installed when required.

Cost Impact: Cost impact of current code is indeterminate because implementation is not defined. Presumably a negligible cost was anticipated by using single station detectors with built in Visible Notification Appliance but this does not meet NFPA 72. Proposed methods will increase costs by requiring a tie-in to the building fire alarm system.

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

F182–07/08 907.6.2.1.1 (IBC [F] 907.6.2.1.1)

Proponent: A. Brooks Ballard, Virginia Department of Corrections

Revise as follows:

907.6.2.1.1 (IBC [F] 907.6.2.1.1) (Supp) Average sound pressure. The audible alarm notification appliances shall provide a sound pressure level of 15 decibels (dBA) above the average ambient sound level or 5 dBA above the maximum sound level having a duration of at least 60 seconds, whichever is greater, in every occupied space within the building. The minimum sound pressure levels shall be: 75 dBA in occupancies in Groups R and I-1; 90 dBA in mechanical equipment rooms; and 60 dBA in other occupancies.

Exception: Sound pressure levels in Group I-3 occupancies shall be permitted to be limited to only the notification of occupants and staff in the affected smoke compartment.

Reason: Inmates in Group I-3 occupancies are dependent on administration to leave the occupied areas. Notification of the supervisory personnel in the zone and central control (a 24/7 post) triggers a response for evacuating the affected occupants. Inmates frequently tamper with detectors and sprinklers to create false alarms to disrupt the operation of the whole facility; I-3 occupancies are required to be sprinklered, are non-combustible construction and have minimal decorations or fuel loading.

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

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

F183–07/08 907.10 (New) [IBC [F] 907.10 (New)]

Proponent: David Frederick Scarelli, Sentry Signal Wire

Add new text as follows:

907.10 Line type switch activated by heat or fire.

907.10.1 The line type open switch shall be installed 4 inches above the NM-B building cable and all electrical boxes.

907.10.2 The line type open switch shall be installed in open loop circuits each of which signals an independent area of the dwelling structure.

907.10.3 The line type open switch shall be installed within walls, ceilings, crawl spaces, attics, cellars and all areas of possible fire origin, (spontaneous combustion, lightning, outside fires).

907.10.4 Where there is an open ceiling the line type open switch shall be stapled to the bottom of floor joists above furnaces, water heaters, work benches, store rooms, etc.

907.10.5 The line type open switch shall be strung within chimney and fire place wall enclosures.

907.10.6 The line type open switch shall be stapled beneath the kitchen wall cabinets above the range and behind the dishwasher and refrigerator. Normal cooking temperature shall not activate the open switch but pan fire will.

907.10.7 The line type open switch shall be installed according to the manufacturer's directions.

907.10.8 The line type open switch shall not be installed outdoors in wet or damp areas or where corrosive vapors are encountered. It shall not be installed in raceways with or within power and/or phone cables, etc. It shall be installed above, beneath or beside them at a distance of 6 inches.

907.10.9 The line type open switch shall be connected one line to the power source and the other to the alarm.

907.10.10 All connections shall be made within its own electrical boxes.

<u>907.10.11</u> A circuit indicator light shall be installed in the power line of each loop circuit. When lit, it will designate the area of the fire. An infrared indicator carried by the fire brigade shall designate the spot.

907.10.12 At the location of the power source and the alarm box, the unconnected ends of the line type open switch shall be joined to an open toggle switch. Mechanically closing this switch shall testify to the circuit integrity.

907.10.13 The line type open switch shall be installed between a power limiting source and the alarm.

907.10.14 Once activated the line type open switch shall be replaced.

Reason: Smoke detectors cover the living space of a dwelling but fire originating within the walls, cellars, attics, crawl spaces, work shops and all areas of fire origin not within the range of the smoke detectors go unnoticed until they rage throughout the dwelling structure, trapping the occupants by closing their possibilities of egress.

Lightning and outside fires are not detected by the smoke detector until they burn their way through the dwelling structure. The line type open switch activated by heat of fire when strung throughout the dwelling walls, together with the smoke detectors can complete the fire sensing throughout the dwelling. Early warning, early safe vacating of the premises ... LIVES SAVED.

The cost will be regained through the lowering of the home owner policy over the years and full recovery when the dwelling is up for resale. The dwelling will then have a greater safer resale feature. If a fire occurs and the occupants are saved, the cost is of no consequence.

THE EARLIER A DWELLING FIRE IS REPORTED TO THE FIRE BRIGADE, THE LOWER IN COST IS THE FIRE DAMAGE. It should be mentioned that the sooner 911 is activated the lower the risk of danger to the MEN OF THE FIRE BRIGADE.

Cost Impact: The code change proposal will increase the cost of construction less than ½ of 1% of dwelling cost.

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

F184–07/08 909.4.6 (IBC [F] 909.4.6)

Proponents: Douglas H Evans, PE, Clark County, NV/John Klote John H. Klote, Inc.

Revise as follows:

909.4.6 (IBC [F] 909.4.6) Duration of operation. All portions of active or passive smoke control systems shall be capable of continued operation after detection of the fire event for a period of not less than either 20 minutes or 1.5 times the calculated egress time, whichever is less the safe egress time determined by a life safety evaluation complying with NFPA 101.

Reason: As presently worded, Section 909.4.6 allows the smoke control system to only operate for 20 minutes even if the egress time calculated is greater than 20 minutes. This means that people who do not get out in 20 minutes could be exposed to lethal concentrations of smoke. If the calculated egress time is 30 minutes, Section 909.4.6 allows people to be exposed to smoke for 10 minutes. This creates a known hazard and should not be allowed by a prescriptive code.

Smoke control systems must be able to operate as long as needed. For very large buildings, the time to evacuate can be quite extensive. One rule of thumb is that it takes about one minute per floor for occupants to discharge a high-rise building. As such, a 60 story building can be expected to take one hour to evacuate. Another important consideration is that stairs have a maximum rating of 2 hours. Shouldn't the stair pressurization system be expected to function for the same duration?

It is unlikely this proposal affects most smoke control systems. The duration required for emergency generators are frequently dependent on the requirements for fire pumps. As such, the generators can be expected to be operational for at least two hours anyway.

Although, some may try to argue that the reference to NFPA 101 is excessive, the parameters specified therein require a diligent analysis taking into account various issues that can affect safe evacuation time. This reference to NFPA 101 is already included in Section 1025.6.2 of the IBC for smoke-protected assembly seating, but is also appropriate for analyzing safe egress time for proper functioning of a smoke-control system. This is an appropriate inclusion into the code to ensure that the intent of Section 909 is provided.

Cost Impact: The code change may increase the cost of construction slightly in some cases.

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

F185–07/08 909.4.6 (IBC [F] 909.4.6)

Proponents: Douglas H Evans, PE, Clark County, NV/John Klote John H. Klote, Inc.

Revise as follows:

909.4.6 (IBC [F] 909.4.6) Duration of operation. All portions of active or passive smoke control systems shall be capable of continued operation after detection of the fire event for a period of not less than either 20 minutes or 1.5 times the calculated egress time, whichever is less.

Exception: A timed egress analysis including a factor of safety of 1.5 demonstrating that all occupants can safely evacuate shall be permitted.

Reason: As presently worded, Section 909.4.6 allows the smoke control system to only operate for 20 minutes even if the egress time calculated is greater than 20 minutes. This means that people who do not get out in the 20 minutes could be exposed to lethal concentrations of smoke. If the calculated egress time is 30 minutes, Section 909.4.6 allows people to be exposed to smoke for 10 minutes.

The proponent of the initial amendment, which incorporated the timed egress analysis into Section 909.4.6 (FS117-04/05), intended to allow protection for a shorter period if an analysis can demonstrate that the smoke zone can be evacuated in less than 20 minutes. The rationale was; since the purpose of the smoke control system is to allow safe evacuation, why shouldn't less than 20 minutes be allowed? This position is reasonable and is retained by the proposed revision by breaking the timed egress analysis out as an exception to the 20 minutes.

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

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

F186–07/08 909.6 (IBC [F]909.6)

Proponent: A. Brooks Ballard, Virginia Department of Corrections

Revise as follows:

909.6 (IBC [F] 909.6) Pressurization method. The primary mechanical means of controlling smoke shall be <u>Where</u> approved by the fire code official, the means of controlling smoke shall be permitted to be by pressure differences across smoke barriers. Maintenance of a tenable environment is not required in the smoke control zone of fire origin.

Reason: This change allows systems described in 909.6, 909.7 and 909.8 to be chosen equally based on the occupancy of the building. Different systems are better for use in different use groups. This is necessary to allow 909.8 to be chosen for its tenable environment for security, safety for I-3 occupancies, which must use a 'defend in place' method of emergency response.

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

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

F187–07/08 909.8 (IBC [F] 909.8; IMC [F] 513.8)

Proponent: Raymond A. Grill, PE, Arup, representing himself

Revise as follows:

909.8 (IBC [F] 909.8; IMC [F] 513.8) Exhaust method. When approved by the fire code official, mechanical smoke control for large enclosed volumes, such as in atriums or malls, shall be permitted to utilize the exhaust method. Smoke control systems using the exhaust method shall be designed in accordance with NFPA 92B. <u>Balcony spill</u> plume calculations are not required to determine smoke development.

Reason: During the 03/04 code development cycle, the requirement for a balcony spill plume calculation was removed from the IBC by Proposal F120-03/04.

The proposal is reproduced below. When the NFPA 92 was incorporated as a reference to replace the methodology in Section 909.8, no modifications were made to clarify the intent. The result is that NFPA 92B can be interpreted and has been interpreted to require a balcony spill plume calculation to determine smoke development regardless of the level of protection at balconies. This language is needed in the code to appropriately reflect the intent of the code.

FS120-03/04 909.8.3 (IFC [B] 909.8.3)

Proponent: Gene Boecker, Code Consultants, Inc.

Delete without substitution:

909.8.3 Balcony spill plumes. The plume mass flow rate (mp) for spill plumes shall be determined using the geometrically probable width based on architectural elements and projections in the following equation:

 $\begin{array}{l} mp = 0.124(QW2)1/3(Zb \pm 0.25H) \mbox{ (Equation 9-5)}\\ \hline For SI: mp = 0.36(QW2)1/3(Zb \pm 0.25H)\\ \hline where:\\ H = Height above fire to underside of balcony, feet (m).\\ mp = Plume mass flow rate, pounds per second (kg/s).\\ Q = Total heat output.\\ \hline W = Plume width at point of spill, feet (m).\\ \hline Zb = Height from balcony, feet (m).\\ \hline \end{array}$

The balcony spill plume equation should be removed from the Code due to lack of substantiation that the equation provides an accurate description of the smoke production of a balcony spill plume and due to the lack of a need for such an equation. Section 909 of the IBC was adapted from Section 905 of the 1997 Uniform Building Code (UBC). Section 905 of the UBC was a result of ICBO code change 57-95-1 (Item 213) in the 1991 code development cycle. Code change 57-95-1 (Item 213) was based on Design of Smoke Control Systems for Buildings published by ASHRAE, NFPA 92A Recommended Practice for Smoke Control Systems, and the draft publication of NFPA 92B, Technical Guide for Smoke Control Systems in Malls, Atria and Large Areas. The equation in Section 909.8.3 of the IBC is from what is now Section 3.8.2.1 of NFPA 92B. NFPA 92B references the following papers by Law and by Morgan and Marshall as the basis for NFPA 92B Section 3.8.2.1: Law, M., "A Note on Smoke Plumes from Fires in Multi-level Shopping Malls," Fire Safety Journal, 10, 1986, pp. 197-202.

Morgan, H.P., and Marshall, N.R., "Smoke Control Measures in Covered Two-Story Shopping Malls Having Balconies as Pedestrian Walkways," BRE CP 11/79, Borehamwood, 1979.

The paper by Law examines the data developed in the paper by Morgan and Marshall to determine the balcony spill plume equation. The data developed by Morgan and Marshall was for a 1/10 scale model of a two-story shopping mall. The experiments used an electric heater with a maximum heat output of 4 kW as the fire source. Data was collected for a single compartment size, balcony height, and mall ceiling height. Based on this very limited data, Law developed the balcony spill plume equation. The paper by Law even states in its conclusion on the balcony spill plume equation that, "... further analysis is needed to establish its validity."

While the validity of the balcony spill plume is questionable for the situation it was designed for, it is also often misapplied in applications that is was not designed for. The balcony spill plume equation was designed to calculate the amount of smoke produced from a fire in a shopping mall store, where the smoke spills into the mall and across a balcony. The models used to develop the balcony spill plume equation included a lintel between the store and the balcony. The equation is not applicable to situations where a lintel is not provided, since the lintel changes the momentum of the smoke traveling from the store into the mall. This is discussed in further detail, in, Klote, J.H., "An Overview of Atrium Smoke Management," Fire Protection Engineering, No. 7, 2000, pp. 24-34. The National Research Council of Canada with the support of the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) is currently conducting full scale experiments to determine the extent of the applicability of the balcony spill plume equation and to provide data for the development of new correlations describing the balcony spill plume. This study is intended to address the many questions that exist about the balcony spill plume equation used in NFPA 92B and the IBC.

In practice the balcony spill plume equation is of little use in an atrium, covered mall building, or arena, since these buildings are required to be protected throughout with an automatic sprinkler system. A fire under a balcony or in an adjacent store, which would be relatively close to the automatic sprinkler protection, is expected to be quickly controlled or extinguished by the automatic sprinkler protection. Based on the limited validity of the balcony spill plume equation, Equation 9-5 in the IBC, and the limited use of the equation given the Code's requirements for automatic sprinkler protection, Section 909.8.3 should be deleted.

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

F188–07/08 909.8.1 (IBC [F] 909.8.1)

Proponent: Jeffrey S. Tubbs, PE, Arup, representing himself

Revise as follows:

909.8.1 (IBC [F] 909.8.1) (Supp) Smoke layer. The height of the lowest surface of the smoke layer interface shall be maintained at least 6 feet above any walking surface that forms a portion of a required egress system within the smoke layer. Where approved, methods to maintain a tenable environment as defined in NFPA 92B shall be permitted. Where methods to maintain a tenable environment are used, such environment shall be maintained within all exit accesses and area of refuge access paths for the time necessary to allow occupants to reach an exit or area of refuge. A peer review shall be required where methods to maintain a tenable environment are used.

Reason: NFPA 92B includes simple algebraic equations to calculate the exhaust required to maintain a smoke layer height to 6 feet above the highest walking surfaces, as well as advanced methods to allow smoke below 6 feet, when the environment is shown to be tenable. Computational Fluid Dynamics (CFD) techniques such as Fire Dynamics Simulator (developed by NIST) provide advanced methods for calculating concentrations of smoke and hot gases within egress and evacuation paths. CFD methods are better suited to simulate the movement of smoke and hot gases than simple algebraic equations, as these methods simulate the fundamental physics of smoke and hot gas movement through compartments. CFD methods have the added benefits of better simulating the compartment geometry, better simulating the affects of the placement and velocity of exhaust and make-up air locations, and providing visualizations of smoke flows. This can lead to more effective smoke management designs, and provide designers with a better understanding of the expected flows within the compartment. However, for many situations, the simple two-layer assumption inherent in the algebraic equations is not valid, rather the smoke layer interface transitions from a higher concentration to a lower concentration. In these situations, CFD methods require tenability assessments to determine if smoke management goals are achieved. The current prescriptive code requirements are unclear as to whether or not methods to maintain a tenable environment are allowed. This code change intends to better align the IBC requirements with the NFPA 92B and clarify the appropriate use of tenability assessments for smoke management design.

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

Public Hearing: (Committee:	AS	AM	D
- /	Assembly:	ASF	AMF	DF

F189–07/08 909.11 (IBC [F] 909.11)

Proponent: Robert J. Davidson, Davidson Code Concepts, LLC, representing himself

Revise as follows:

909.11 (IBC [F] 909.11) (Supp) Power systems. The smoke control system shall be supplied with two sources of power. Primary power shall be the normal building power systems. Secondary power shall be from an approved standby source complying with the International Code Council *Electrical Code Administrative Provisions*. The standby power source and its transfer switches shall be in a room separate from the normal power transformers and switch gear and ventilated directly to and from the exterior. The room shall be enclosed with not less than 1-hour fire barriers constructed in accordance with Section 706 of the *International Building Code* or horizontal assemblies constructed in accordance with Section 711 of the *International Building Code*, or both. Power distribution from the two sources shall be by independent routes. Transfer to full standby power shall be automatic and within 60 seconds of failure of the primary power. The systems shall comply with this code or the International Code Council *Electrical Code Administrative Provisions*.

Reason: This deletion is being recommended form a practical standpoint. The section requires that the stand-by power source and the transfer switches be in a room separate from the normal power transformers and switch gear.

Both the normal power supply and the stand-by power supply are controlled by the transfer switches. The power to the various devices and equipment that make up the smoke control system are distributed from the transfer switches.

That being the case, how can you distribute power from the two sources independently? To do so would require the power supply to go to a transfer switch located at each device or piece of equipment.

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