G147–07/08
507.6, 507.7 (New)

Proponent: Wayne R. Jewell, CBO, City of Southfield, MI

Revise as follows:

507.6 (Supp) Group A-3 buildings Type II Construction. The area of a Group A-3 building no more than one-story above grade plane, used as a place of religious worship, community hall, dance hall, exhibition hall, gymnasium, lecture hall, indoor swimming pool or tennis court of Type II construction shall not be limited when all of the following criteria are met:

1. The building shall not have a stage other than a platform.
2. The building shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
3. ~~The assembly floor shall be located at or within 21 inches (533 mm) of street or grade level and all exits are provided with ramps complying with Section 1010.1 to the street or grade level.~~
4. ~~3.~~ The building shall be surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

507.7 Group A-3 buildings Type III and IV Construction. The area of a Group A-3 building no more than one-story above grade plane, used as a place of religious worship, community hall, dance hall, exhibition hall, gymnasium, lecture hall, indoor swimming pool or tennis court of Type III or IV construction shall not be limited when all of the following criteria are met:

1. The building shall not have a stage other than a platform.
2. The building shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
3. The assembly floor shall be located at or within 21 inches (533 mm) of street or grade level and all exits are provided with ramps complying with Section 1010.1 to the street or grade level.
4. The building shall be surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

(Renumber subsequent sections)

Reason: Section 507.6 was added into the IBC by code change G104-00, which had a supporting statement that cited one story buildings of Group A-3 were permitted in two legacy codes. While two of the three legacy codes did permit one story unlimited area buildings of Group A-3, the language that was proposed, modified and approved by the membership did not completely reflect the scope of what was permitted in the previous codes.

Those previously permitted unlimited area buildings were not:

1. Limited to just Type II construction by either code.
2. Not all A-3 Uses were subject to the provision of having the assembly floor within 21 inches (533mm) of street or grade level.
   a. Provision to limit the elevation of assembly floors was not applied to any Group A-3 Uses in one of the codes.
   b. Wasn't applied to sport facility type uses without spectator seating in the other code.

What has occurred in adding this language is to group a selection of A-3 Uses together that were not identified in either of the legacy codes. What was limited to having an assembly floor within 21" of street or grade level within the Standard Building Code was all Group A buildings without a stage requiring proscenium opening protection of Type V 1-hour, IV or III construction. The types of construction in the Standard building Code were different from those we now use Type IV is what is now known as Type IIB. Another Section in the Standard Building Code addressed large and small Group A occupancies with and without stages requiring proscenium protection. What has been done is to narrow the scope of what was permitted in both legacy codes by listing selected uses. This language further prohibits uses that are less of a risk to persons than others permitted to be two stories and unlimited in area such as Group M. What is current language ignored what was permitted; having a building containing participant sports from being unlimited in area. G104-00 allowed some of what was missing from the IBC, but increased the limitations than previously were required. Also it greatly impacted all A-3 Uses for the other code of origin.

I have no concern with the added limitation for Types of Construction that current language requires that didn't previously, but to not allow a mezzanine or raised floor surface beyond 21 inches for the uses such as a running track or location to have tread mills, aerobic cycles or dance studios or business offices is very restrictive. More restrictive than either of the codes of origin and is more restrictive than the source of the original language and what was the expressed intent of the original proposal.

Elimination of the 21 inch floor elevation limit for Type II construction and retaining it for Types III and IV which more closely reflects a compromise of the provisions of both legacy codes. While retaining the restriction for types of construction that permit combustible materials.

If we want to restrict unlimited area buildings used as a place of worship or lecture hall to the floor level elevation limit of 21 inches (533 mm), I guess that we have done. Such a restriction eliminates all balconies and reduces or limits the slope of a floor to improve sight lines to a platform or stage. It certainly limits the height of raised areas in an exhibition hall; even those completely accessed by ramps.

This is one of two code change proposals accomplishing essentially the same end goal. The first proposal is preferred but represents a larger shift from current code text. Therefore the second option G148-07/08 is offered as an alternative.

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

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

G148–07/08
507.6

Proponent: Wayne R. Jewell, CBO, City of Southfield, MI

Revise as follows:

507.6 (Supp) Group A-3 buildings. The area of a Group A-3 building no more than one-story above grade plane, used as a place of religious worship, community hall, dance hall, exhibition hall, gymnasium, lecture hall, indoor swimming pool or tennis court of Type II construction shall not be limited when all of the following criteria are met:

1. The building shall not have a stage other than a platform.
2. The building shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
3. ~~The assembly floor shall be located at or within 21 inches (533 mm) of street or grade level and all exits are provided with ramps complying with Section 1010.1 to the street or grade level.~~
4. ~~.~~3. The building shall be surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

Buildings of Type III or IV construction shall not be limited in area when all three of the above enumerated criteria are met and the following additional criteria is met:

1. The assembly floor shall be located within 21 inches (533 mm) of street or grade level and all exits are provided with ramps complying with Section 1010.1 to the street or grade level.

Reason: Section 507.6 was added into the IBC by code change G104-00, which had a supporting statement that cited one story buildings of Group A-3 were permitted in two legacy codes. While two of the three legacy codes did permit one story unlimited area buildings of Group A-3, the language that was proposed, modified and approved by the membership did not completely reflect the scope of what was permitted in the previous codes.

Those previously permitted unlimited area buildings were not:

3. Limited to just Type II construction by either code.
4. Not all A-3 Uses were subject to the provision of having the assembly floor within 21 inches (533mm) of street or grade level.
   a. Provision to limit the elevation of assembly floors was not applied to any Group A-3 Uses in one of the codes.
   b. Wasn't applied to sport facility type uses without spectator seating in the other code.

What has occurred in adding this language is to group a selection of A-3 Uses together that were not identified in either of the legacy codes. What was limited to having an assembly floor within 21" of street or grade level within the Standard Building Code was all Group A buildings without a stage requiring proscenium opening protection of Type V 1-hour, IV or III construction. The types of construction in the Standard building Code were different from those we now use Type IV is what is now known as Type IIB. Another Section in the Standard Building Code addressed large and small Group A occupancies with and without stages requiring proscenium protection. What has been done is to narrow the scope of what was permitted in both legacy codes by listing selected uses. This language further prohibits uses that are less of a risk to persons than others permitted to be two stories and unlimited in area such as Group M. What is current language ignored what was permitted; having a building containing participant sports from being unlimited in area. G104-00 allowed some of what was missing from the IBC, but increased the limitations than previously were required. Also it greatly impacted all A-3 Uses for the other code of origin.

I have no concern with the added limitation for Types of Construction that current language requires that didn't previously, but to not allow a mezzanine or raised floor surface beyond 21 inches for the uses such as a running track or location to have tread mills, aerobic cycles or dance studios or business offices is very restrictive. More restrictive than either of the codes of origin and is more restrictive than the source of the original language and what was the expressed intent of the original proposal.

Elimination of the 21 inch floor elevation limit for Type II construction and retaining it for Types III and IV which more closely reflects a compromise of the provisions of both legacy codes. While retaining the restriction for types of construction that permit combustible materials.

If we want to restrict unlimited area buildings used as a place of worship or lecture hall to the floor level elevation limit of 21 inches (533 mm), I guess that we have done. Such a restriction eliminates all balconies and reduces or limits the slope of a floor to improve sight lines to a platform or stage. It certainly limits the height of raised areas in an exhibition hall; even those completely accessed by ramps.

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

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

G149–07/08
507.7

Proponent: Robert J Davidson, Davidson Code Concepts, LLC, representing himself

Revise as follows:

507.7 (Supp) Group H occupancies. Group H-2, H-3 and H-4 occupancies shall be permitted in unlimited area buildings containing Group F and S occupancies, in accordance with Sections 507.3 and 507.4 and the limitations of this section. The aggregate floor area of the Group H occupancies located at the perimeter of the unlimited area building shall not exceed 10 percent of the area of the building nor the area limitations for the Group H occupancies as specified in Table 503 as modified by Section 506.2, based upon the percentage of the perimeter of each Group H floor area that fronts on a street or other unoccupied space. The aggregate floor area of Group H-4 occupancies not located at the perimeter of the building shall not exceed 25 percent of the area limitations for the Group H occupancies as specified in Table 503. Group H occupancies shall be separated from the rest of the unlimited area building and from each other in accordance with Table 508.3.3. For two-story unlimited area buildings, the Group H occupancies shall not be located more than one story above grade plane unless permitted by the allowable height in stories and feet as set forth in Table 503 based on the type of construction of the unlimited area building.

Reason: This proposal is intended to eliminate a conflict between Sections 415.3 and 507.7 of the IBC concerning the requirement for an H-2 or H-3 occupancy to have at least 25 percent of the perimeter wall of the occupancy to be an exterior wall.

Section 507.7 permits H-2, H-3, and H-4 occupancies to be located in unlimited area buildings containing Group F and S occupancies with certain area limitations. One of the limitations provides for a Group H occupancy that is not located at the perimeter of the building. However, there is a conflict with Section 415.3 of the IBC which requires H-2 and H-3 occupancies to have not less than 25 percent of their perimeter wall to be an exterior wall with three minor exceptions.

The 2006 IBC Commentary identifies that the issue concerning the H occupancy to be located on an exterior wall has to do with adequate access for fire fighting.

2006 IBC Commentary – 507.7

If the high-hazard occupancy is surrounded on all sides by an unlimited area building, it is difficult for fire department personnel to locate and access that area; therefore, Group H-2, H-3 and H-4 occupancies that are not located at the perimeter of the building are limited to 25 percent of the area limitation specified in Table 503 for the building type of construction, as shown in Figure 507.6(1).

2006 IBC Commentary 415.3

This section specifies the location of Group H storage areas within a building. In order to provide adequate access for fire-fighting operations and venting of the products of combustion, Group H-2 and H-3 storage areas within a building must be located along an exterior wall.

To eliminate the conflict and to maintain adequate fire fighting access the proposed change would limit the Section 507.7 allowance for the H occupancy not having its perimeter located at an exterior wall to be restricted to the H-4 Group.

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

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

G150–07/08
507.8

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

Revise as follows:

507.8 (Supp) Aircraft paint hangar. The area of a Group H-2 aircraft paint hangar no more than one-story above grade plane, shall not be limited where such aircraft paint hangar complies with the provisions of Section 412.4 and is ~~entirely~~ surrounded and adjoined by public ways or yards not less in width than one and one-half times the height of the building.

Reason: The changes are proposed for consistency with identical language in Sections 507.2, 507.3, 507.4, 507.6 (Item 4), 507.9 (Item 3) and 507.10.

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

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

G151–07/08

508, 303.1 (IFC 202), 407.2.1, 407.2.3, 407.8 (New), 407.9 (New), 408.9 (New), [F] 416.5 (New), [F]420.9 (New), 421 (New), 706.3.6, 706.5, 711.4, IBC [F] Table 903.2.13 (IFC Table 903.2.13), 3410.6.18 (IEBC [B] 1301.19), Table 3410.6.18 (IEBC [B] Table 1301.19), Table 3410.7 (IEBC [B] Table 1301.7), IEBC 902.1

Proponent: Gregory R. Keith, Professional heuristic Development, representing the Boeing Company; Sarah A. Rice, CBO, Schirmer Engineering Corp.

1. Revise as follows:

SECTION 508 (Supp)
MIXED ~~USE AND~~ OCCUPANCY

508.1 (Supp) General. Each portion of a building shall be individually classified in accordance with Section 302.1. Where a building contains more than one occupancy group, the building or portion thereof shall comply with the applicable provisions of Section 508.2, 508.3 or 508.4, or a combination of these sections.

Exceptions:

1. Occupancies separated in accordance with Section 509.
2. Where required by Table 415.3.2, areas of Group H-1, H-2 and H-3 occupancies shall be located in a separate and detached building or structure.
3. Live/Work Units in accordance with Section 419 are not considered separate occupancies.

The maximum total allowable area for buildings containing mixed occupancies shall be determined in accordance with the provisions of Section 506.4.1.

~~508.3~~ 508.2 (Supp) Nonseparated occupancies. Buildings or portions of buildings that comply with the provisions of this section shall be considered as nonseparated occupancies.

~~508.3.1~~ 508.2.1 (Supp) Occupancy classification. Nonseparated occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space except that the most restrictive applicable provisions of Section 403 and Chapter 9 shall apply to the building or portion thereof in which the nonseparated occupancies are located.

~~508.3.2~~ 508.2.2 (Supp) Allowable area and height. In each story, the building ~~allowable~~ area and height ~~of the building or portion thereof~~ shall be based on the most restrictive allowances for the occupancy groups under consideration for the type of construction of the building in accordance with Section 503.1.

~~508.3.3~~ 508.2.3 (Supp) Separation. No separation or partitioning is required between distinct occupancies.

Exceptions:

1. Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in accordance with Section ~~508.3.3~~ 508.4.
2. All Group R occupancies shall be separated from other occupancies in accordance with Section 508.4.4.

~~508.2~~ 508.3 (Supp) Accessory occupancies. Buildings or portions of buildings that comply with the provisions of this section shall be considered as accessory occupancies. Accessory occupancies are those occupancies that are ancillary to the main occupancy of the building or portion thereof. Accessory occupancies shall comply with the provisions of Sections ~~508.2.1~~ 508.3.1 through ~~508.2.5.3~~ 508.3.3.

~~**508.2.1 (Supp) Area limitations.** Aggregate accessory occupancies shall not occupy more than 10 percent of the area of the story in which they are located and shall not exceed the tabular values in Table 503, without area increases in accordance with Section 506 for such accessory occupancies.~~

~~508.2.2~~ 508.3.1 (Supp) Occupancy classification. Accessory occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space.

~~508.2.3~~ **508.3.2 (Supp) Allowable area and height.** In each story, the building ~~allowable~~ area and height ~~of the building~~ shall be based on the allowable area and height for the main occupancy in accordance with Section 503.1. Aggregate accessory occupancies shall not occupy more than 10 percent of the area of the story in which they are located and shall not exceed the tabular values in Table 503, without area increases in accordance with Section 506 for such accessory occupancies. The height of each accessory occupancy shall not exceed the tabular values in Table 503, without increases in accordance with Section 504 for such accessory occupancies. ~~The area of the accessory occupancies shall be in accordance with Section 508.2.1.~~

~~508.2.4~~ **508.3.3 (Supp) Separation of occupancies.** No separation is required between accessory occupancies and the main occupancy or each other.

Exceptions:

1. Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in accordance with Section 508.4.
2. ~~Incidental accessory occupancies required to be separated or protected by Section 508.2.5.~~
3. ~~3.~~ 2. Group R occupancies shall be separated from other accessory occupancies in accordance with Section 508.4.4.

~~**508.2.5 (Supp) Separation of incidental accessory occupancies.** The incidental accessory occupancies listed in Table 508.2.5 shall be separated from the remainder of the building or equipped with an automatic fire-extinguishing system, or both, in accordance with Table 508.2.5.~~

~~**Exception:** Incidental accessory occupancies within and serving a dwelling unit are not required to comply with this section.~~

~~**TABLE 508.2.5 (Supp)**~~
~~**INCIDENTAL ACCESSORY OCCUPANCIES**~~

~~ROOM OR AREA~~	~~SEPARATION AND/OR PROTECTION~~
~~Furnace room where any piece of equipment is over 400,000 Btu per hour input~~	~~1 hour or provide automatic fire-extinguishing system~~
~~Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower~~	~~1 hour or provide automatic fire-extinguishing system~~
~~Refrigerant machinery room~~	~~1 hour or provide automatic sprinkler system~~
~~Hydrogen cut-off rooms, not classified as Group H~~	~~1 hour in Group B, F, M, S and U occupancies. 2 hour in Group A, E, I and R occupancies.~~
~~Incinerator rooms~~	~~2 hours and automatic sprinkler System~~
~~Paint shops, not classified as Group H, located in occupancies other than Group F~~	~~2 hours; or 1 hour and provide automatic fire-extinguishing System~~
~~Laboratories and vocational shops, not classified as Group H, located in Group E or I 2 occupancies~~	~~1 hour or provide automatic fire-extinguishing system~~
~~Laundry rooms over 100 square feet~~	~~1 hour or provide automatic fire-extinguishing system~~
~~Group I 3 cells equipped with padded surfaces~~	~~1 hour~~
~~Group I 2 waste and linen collection rooms~~	~~1 hour~~
~~Waste and linen collection rooms over 100 square feet~~	~~1 hour or provide automatic fire-extinguishing system~~
~~Stationary storage battery systems having a liquid capacity of more than 100 gallons used for facility standby power, emergency power or uninterrupted power supplies~~	~~1 hour in Group B, F, M, S and U occupancies. 2 hour in Group A, E, I and R occupancies.~~

~~For SI: 1 square foot = 0.0929 m2, 1 pound per square inch = 6.9 kPa,~~
~~1 British thermal unit per hour = 0.293 watts, 1 horsepower = 746 watts,~~
~~1 gallon = 3.785 L~~

~~**508.2.5.1 (Supp) Fire resistance rated separation.** Where Table 508.2.5 specifies a fire-resistance rated separation, the incidental accessory occupancies shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both.~~

~~**508.2.5.2 (Supp) Nonfire-resistance rated separation and protection.** Where Table 508.2.5 permits an automatic fire extinguishing system without a fire barrier, the incidental accessory occupancies shall be separated from the remainder of the building by construction capable of resisting the passage of smoke. The walls shall extend from the~~

~~top of the foundation or floor/ceiling assembly below to the underside of the fire-resistance-rated floor/ceiling assembly above or fire-resistance-rated roof/ceiling assembly above or to the underside of the floor or roof sheathing, deck or slab above. Doors shall be self- or automatic closing upon detection of smoke in accordance with Section 715.4.7.3. Doors shall not have air transfer openings and shall not be undercut in excess of the clearance permitted in accordance with NFPA 80.~~

~~**508.2.5.3 (Supp) Protection.** Where an automatic fire-extinguishing system or an automatic sprinkler system is provided in accordance with Table 508.2.5, only the space occupied by the incidental accessory occupancy need be equipped with such a system.~~

508.4 (Supp) ~~Separated~~ Calculated occupancies. Buildings or portions of buildings that comply with the provisions of this section shall be considered as ~~separated~~ calculated occupancies.

TABLE 508.4 (Supp)
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

	A[d], E		I		R[c]		F-2, S-2[b,c], U[c]		B, F-1, M, S-1		H-1		H-2		H-3, H-4, H-5	
OCCUPANCY	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**
A[d], E	N	N	1	2	1	2	N	1	1	2	NP	NP	3	4	2	3[a]

(Portions of table not shown remain unchanged)

For SI: 1 square foot = 0.0929 m^2.
S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
N = No separation requirement.
NP = Not permitted.

a. For Group H-5 occupancies, see Section 903.2.4.2.
b. Areas used only for private or pleasure vehicles shall be allowed to reduce separation by 1 hour.
c. See Section 406.1.4.
~~d. Commercial kitchens need not be separated from the restaurant seating areas that they serve.~~

508.4.1 (Supp) Occupancy classification. ~~Separated~~ Calculated occupancies shall be individually classified in accordance with Section 302.1. Each ~~separated~~ space shall comply with this code based on the occupancy classification of that portion of the building.

508.4.2 (Supp) Allowable area. In each story, the building area shall be such that the sum of the ratios of the actual building area of each ~~separated~~ distinct occupancy divided by the allowable area of each ~~separated~~ distinct occupancy shall not exceed one.

508.4.3 (Supp) Allowable height. Each ~~separated~~ occupancy shall comply with the height limitations based on the type of construction of the building in accordance with Section 503.1.

Exception: Special provisions permitted by Section 509.

508.4.4 (Supp) Separation. Individual occupancies shall be separated from adjacent occupancies in accordance with Table 508.4. Where Table 508.4 does not require an occupancy separation, no partitioning is required between individual occupancies.

508.4.4.1 (Supp) Construction. Required separations shall be fire barriers constructed in accordance with Section 706 or horizontal assemblies constructed in accordance with Section 711, or both, so as to completely separate adjacent occupancies.

303.1 (Supp) (IFC 202) Assembly Group A. Assembly Group A occupancy includes, among others, the use of a building or structure, or a portion thereof, for the gathering of persons for purposes such as civic, social or religious functions; recreation, food or drink consumption; or awaiting transportation.

Exceptions:

1. A building or tenant space used for assembly purposes with an occupant load of less than 50 persons shall be classified as a Group B occupancy.

2. A room or space used for assembly purposes with an occupant load of less than 50 persons and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.
3. A room or space used for assembly purposes that is less than 750 square feet (70 m2) in area and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.
4. Assembly areas that are accessory to Group E occupancies are not considered separate occupancies except when applying the assembly occupancy requirements of Chapter 11.
5. Accessory religious educational rooms and religious auditoriums with occupant loads of less than 100 are not considered separate occupancies.

Assembly occupancies shall include the following:

A-1 Assembly uses, usually with fixed seating, intended for the production and viewing of the performing arts or motion pictures including, but not limited to:

Motion picture theaters
Symphony and concert halls
Television and radio studios admitting an audience
Theaters

A-2 Assembly uses intended for food and/or drink consumption including, but not limited to:

Banquet halls
Night clubs
Restaurants (including associated commercial kitchens)
Taverns and bars

A-3 Assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A including, but not limited to:

Amusement arcades
Art galleries
Bowling alleys
Places of religious worship
Community halls
Courtrooms
Dance halls (not including food or drink consumption)
Exhibition halls
Funeral parlors
Gymnasiums (without spectator seating)
Indoor swimming pools (without spectator seating)
Indoor tennis courts (without spectator seating)
Lecture halls
Libraries
Museums
Waiting areas in transportation terminals
Pool and billiard parlors

A-4 Assembly uses intended for viewing of indoor sporting events and activities with spectator seating including, but not limited to:

Arenas
Skating rinks
Swimming pools
Tennis courts

A-5 Assembly uses intended for participation in or viewing outdoor activities including, but not limited to:

Amusement park structures
Bleachers
Grandstands
Stadiums

2. Add new text as follows:

407.8 Laboratories and vocational shops. Laboratories and vocational shops shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system. Where sprinklered, such areas shall be separated from the remainder of the building by construction capable of resisting the passage of smoke. The walls shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the fire-resistance-rated floor/ceiling assembly above or fire-resistance-rated roof/ceiling assembly above or to the underside of the floor or roof sheathing, deck or slab above. Doors shall be self- or automatic closing upon detection of smoke in accordance with Section 715.4.7.3. Doors shall not have air transfer openings and shall not be undercut in excess of the clearance permitted in accordance with NFPA 80. Only the laboratory and vocational shop need be equipped with such sprinkler system.

407.9 Waste and linen collection rooms. Waste and linen collection rooms shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour.

408.9 Cells equipped with padded surfaces. Cells equipped with padded surfaces shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour.

[F] 416.5 Paint shops. Paint shops, not classified as Group H occupancies and located in other than Group F occupancies shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 2 hours or having a fire-resistance rating of not less than 1 hour where the area is equipped with an approved automatic sprinkler system. Only the paint shop need be equipped with such sprinkler system.

[F] 420.9 Separation. Hydrogen cut-off rooms, not classified as Group H occupancies shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour in Group B, F, M, S and U occupancies and not less than 2-hours in Group A, E, I and R occupancies.

SECTION 421
SPECIAL RISK AREAS

421.1 General. The special risk areas listed in this section shall be separated from the remainder of the building or equipped with an automatic fire-extinguishing system, or both, in accordance the provisions of this section.

Exception: Special risk areas within and serving a dwelling unit are not required to comply with this section.

Where this section specifies an automatic sprinkler system, only the special risk area need be equipped with such a system.

Where this section permits an automatic fire extinguishing system without a fire barrier or horizontal assembly, the special risk areas shall be separated from the remainder of the building by construction capable of resisting the passage of smoke. The walls shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the fire-resistance-rated floor/ceiling assembly above or fire-resistance-rated roof/ceiling assembly above or to the underside of the floor or roof sheathing, deck or slab above. Doors shall be self- or automatic closing upon detection of smoke in accordance with Section 715.4.7.3. Doors shall not have air transfer openings and shall not be undercut in excess of the clearance permitted in accordance with NFPA 80.

421.2 Furnace rooms. Furnace rooms where any piece of equipment is over 400,000 Btu per hour input shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.

421.3 Boiler rooms. Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.

421.4 Refrigerant machinery rooms. Refrigerant machinery rooms shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.

421.5 Incinerator rooms. Incinerator rooms shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 2 hours and such areas shall be protected with an approved automatic sprinkler system.

421.6 Laboratories and vocational shops. Laboratories and vocational shops, not classified as Group H occupancies, located in Group E occupancies shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.

421.7 Laundry rooms. Laundry rooms over 100 square feet in area shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.

421.8 Waste and linen collection rooms. Waste and linen collection rooms over 100 square feet in area shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.

421.8 Storage battery rooms. Rooms containing stationary storage battery systems having a liquid capacity of more than 100 gallons used for facility standby power, emergency power or uninterrupted power supplies shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour in Group B, F, M, S and U occupancies and not less than 2-hours in Group A, E, I and R occupancies.

3. Revise as follows:

407.2.1 (Supp) Spaces of unlimited area. Waiting areas and similar spaces constructed as required for corridors shall be permitted to be open to a corridor, only where all of the following criteria are met:

1. The spaces are not occupied for patient sleeping units, treatment rooms, ~~hazardous or~~ laboratories and vocational shops in accordance with Section 407.8, waste and linen collection rooms in accordance with Section 407.9 and special risk areas in accordance with Section 421.~~incidental accessory occupancies in accordance with Section 508.2~~.
2. The open space is protected by an automatic fire detection system installed in accordance with Section 907.
3. The corridors onto which the spaces open, in the same smoke compartment, are protected by an automatic fire detection system installed in accordance with Section 907, or the smoke compartment in which the spaces are located is equipped throughout with quick-response sprinklers in accordance with Section 903.3.2.
4. The space is arranged so as not to obstruct access to the required exits.

407.2.3 Mental health treatment areas. Areas wherein mental health patients who are not capable of self-preservation are housed, or group meeting or multipurpose therapeutic spaces other than laboratories and vocational shops in accordance with Section 407.8, waste and linen collection rooms in accordance with Section 407.9 and special risk areas in accordance with Section 421, ~~incidental use areas as defined in Section 508.2~~, under continuous supervision by facility staff, shall be permitted to be open to the corridor, where the following criteria are met:

1. Each area does not exceed 1,500 square feet (140 m2).
2. The area is located to permit supervision by the facility staff.
3. The area is arranged so as not to obstruct any access to the required exits.
4. The area is equipped with an automatic fire detection system installed in accordance with Section 907.2.
5. Not more than one such space is permitted in any one smoke compartment.
6. The walls and ceilings of the space are constructed as required for corridors.

706.3.6 Special risk areas ~~Incidental Accessory Occupancies~~. The fire barrier separating special risk areas ~~incidental accessory occupancies~~ from other spaces in the building shall have a fire-resistance rating of not less than that indicated in Section 421.~~Table 508.2~~.

706.5 Continuity. Fire barriers shall extend from the top of the floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above and shall be securely attached thereto. Such fire barriers shall be continuous through concealed spaces, such as the space above a suspended ceiling. The supporting construction for a fire barrier shall be protected to afford the required fire-resistance rating of the fire barrier supported, except for 1-hour fire barriers required by Sections 407.8, 407.9, 408.9, 416.5, 420.9 and 421 ~~Table 508.2~~ in buildings of Type IIB, IIIB and VB construction. Hollow vertical spaces within a fire barrier shall be fireblocked in accordance with Section 717.2 at every floor level.

Exceptions:

1. The maximum required fire-resistance rating for assemblies supporting fire barriers separating tank storage as provided for in Section 415.6.2.1 shall be 2 hours, but not less than required by Table 601 for the building construction type.
2. Shaft enclosures shall be permitted to terminate at a top enclosure complying with Section 707.12.

711.4 Continuity. Assemblies shall be continuous without openings, penetrations or joints except as permitted by this section and Sections 707.2, 712.4, 713 and 1020.1. Skylights and other penetrations through a fire resistance-rated roof deck or slab are permitted to be unprotected, provided that the structural integrity of the fire resistance-rated roof construction is maintained. Unprotected skylights shall not be permitted in roof construction required to be fire-resistance rated in accordance with Section 704.10. The supporting construction shall be protected to afford the required fire-resistance rating of the horizontal assembly supported.

Exception: In buildings of Type IIB, IIIB or VB construction, the construction supporting the horizontal assembly is not required to be fire-resistance-rated at the following:

1. Horizontal assemblies at the separations of special risk areas ~~incidental accessory occupancies~~ as specified by Section 421 ~~Table 508.2,~~ provided the required fire-resistance rating does not exceed 1-hour.
2. Horizontal assemblies at the separations of dwelling units and sleeping units as required by Section 419.3.
3. Horizontal assemblies at smoke barriers constructed in accordance with Section 709.

TABLE 903.2.13 (SUPP)(IBC [F] TABLE 903.2.13)
ADDITIONAL REQUIRED SUPPRESSION SYSTEMS

Section	Subject
~~508.2~~ 421	Special Risk Areas ~~Incidental Accessory Occupancies~~

(Portions of table not shown remain unchanged)

3410.6.18 (Supp) (IEBC [B] 1301.19) Incidental use. Evaluate the protection of special risk areas ~~Incidental Accessory Occupancies~~ in accordance with Section ~~508.2~~ 421. Do not include those where this code requires suppression throughout the building including covered mall buildings, high-rise buildings, public garages and unlimited area buildings. Assign the lowest score from Table 3410.6.18 for the building or fire area being evaluated. If there are no specific occupancy areas in the building or fire area being evaluated, the value shall be zero.

TABLE 3410.6.18 (Supp) (IEBC [B] TABLE 1301.19)
SPECIAL RISK AREA ~~INCIDENTAL ACCESSORY OCCUPANCY~~ VALUES[a]

(Portions of table not shown remain unchanged)

TABLE 3410.7 (IEBC[B] 1301.7)
SUMMARY SHEET BUILDING CODE

SAFETY PARAMETERS	FIRE SAFETY (FS)	MEANS OF EGRESS(ME)	GENERAL SAFETY (GS)
3410.6.18 (IEBC [B]1301.19) Special Risk Areas ~~Incidental Accessory Occupancy~~			

(Portions of table not shown remain unchanged)

IEBC 902.1 Compliance with the building code. Where the character or use of an existing building or part of an existing building is changed to one of the following special use or occupancy categories as defined in the International Building Code, the building shall comply with all of the applicable requirements of the International Building Code:

1. Covered mall buildings.
2. Atriums.

3. Motor vehicle-related occupancies.
4. Aircraft-related occupancies.
5. Motion picture projection rooms.
6. Stages and platforms.
7. Special amusement buildings.
8. Special risk areas ~~Incidental Accessory Occupancies~~.
9. Hazardous materials.

Reason: This proposal is intended to complete the restructuring of IBC mixed occupancy provisions. The 2006 Edition featured the relocation and reorganization of mixed occupancy requirements as well as improving the functionality of the "separated occupancy" design option. In fact, this proposal changes the title of that design option to "calculated occupancy." This is due to the fact that Table 508.4 does not necessarily require an occupancy separation based on similar risk; however, always requires that the risk be balanced through the performance of the sum of the ratios calculation. This proposal also clarifies that where Table 508.4 does not require an occupancy separation, no partition is required between the various occupancies under consideration. Additionally, a somewhat confusing and unnecessary commercial kitchen exception was deleted from Table 508.4 in favor of clarifying that the restaurant and associated kitchen are the same, Group A-2 occupancy in Section 303.1.

Perhaps the most significant feature of this proposal is that it eliminates the so-called "incidental use." Long a source of confusion by designers and code enforcement officials alike, many have erroneously associated the incidental use with mixed occupancies. In reality, they are areas that are typically associated with a given occupancy and which generally pose a greater level of risk to that occupancy. Incidental uses can occur in both single occupancy and mixed occupancy buildings. In fact, the only incidental uses in the IBC were those prescriptively listed in Table 508.2. Given this fairly explicit nature of the use conditions and the mitigating requirements, it was felt that these provisions were better located in Chapter 4—SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY. Accordingly, those provisions specifically associated with a use or occupancy condition currently contained in Chapter 4 were incorporated into the applicable section. A new Section 421—SPECIAL RISK AREAS, was created to accommodate those former incidental uses having no natural home in Chapter 4. Additionally, several related provisions that currently reference "incidental accessory occupancies" or Section 508.2 have been modified to be consistent with the new terminology and section references contained in this proposal.

Additionally, the three mixed occupancy methods or design options have been arranged in the order of likelihood of typical application. Clearly, the nonseparated occupancy method is the practical default design option and is therefore listed first. The next option of least resistance is the accessory occupancy method and is listed second. The calculated method is shown last. This arrangement represents the natural design hierarchy and also lends itself to instruction on the subject of mixed occupancies.

The modifications contained in this proposal complete the reformatting of IBC mixed occupancy provisions and will provide for the final clarification of these very important design requirements. This restructuring has occurred during the development of two editions of the IBC, but these final technical and editorial adjustments ensure that the 2009 mixed occupancy requirements will be technically comprehensive while being easily interpreted thereby promoting consistency in interpretation of these oft used provisions. Cumulatively, they represent a significant improvement in the *International Building Code*.

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

Analysis: The provisions found within this code change were all editorially revised to change the terms "incidental use(s) and "incidental use areas" to "incidental accessory occupancies" to be consistent with code change G149-06/07.

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

G152–07/08

508.1, 508.3, 508.3.1, 508.3.2, 508.3.3, 506.4.1.1

Proponent: Jason Thompson, PE, National Concrete Masonry Association NCMA, representing the Masonry Alliance for Codes and Standards (MACS)

1. Revises as follows:

508.1 (Supp) General. Each portion of a building shall be individually classified in accordance with Section 302.1. Where a building contains more than one occupancy group, the building or portion thereof shall comply with the applicable provisions of Section 508.2~~,~~ or ~~508.3 or~~ 508.4, or a combination of these sections.

Exceptions:

1. Occupancies separated in accordance with Section 509.
2. Where required by Table 415.3.2, areas of Group H-1, H-2 and H-3 occupancies shall be located in a separate and detached building or structure.
3. Live/Work Units in accordance with Section 419 are not considered separate occupancies.

2. Delete without substitution:

~~**508.3 (Supp) Nonseparated occupancies.** Buildings or portions of buildings that comply with the provisions of this section shall be considered as nonseparated occupancies.~~

~~**508.3.1 (Supp) Occupancy classification.** Nonseparated occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space except that the most restrictive applicable provisions of Section 403 and Chapter 9 shall apply to the building or portion thereof in which the nonseparated occupancies are located.~~

~~**508.3.2 (Supp) Allowable area and height.** The allowable area and height of the building or portion thereof shall be based on the most restrictive allowances for the occupancy groups under consideration for the type of construction of the building in accordance with Section 503.1.~~

~~**508.3.3 (Supp) Separation.** No separation is required between nonseparated occupancies.~~

~~**Exceptions:**~~

1. ~~Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in accordance with Section 508.3.3.~~
2. ~~All Group R occupancies shall be separated from other occupancies in accordance with Section 508.4.4.~~

(Renumber subsequent sections)

3. Revise as follows:

506.4.1.1 (Supp) Mixed occupancies. In buildings with mixed occupancies, ~~the allowable area per story (A_a) shall be based on the most restrictive provisions for each occupancy when the mixed occupancies are treated according to Section 508.3. When the occupancies are treated according to Section 508.4 as separated occupancies,~~ the maximum total building area shall be such that the sum of the ratios for each ~~such area on~~ a separated occupancy in all ~~floors~~ stories as calculated according to Section 508.3.2 shall not exceed 2 for two-story buildings and 3 for buildings three stories or higher.

Reason: The purpose of this code change proposal is to eliminate the nonseparated occupancies option for mixed occupancy buildings as specified in Section 508.3 of the 2007 Supplement to the 2006 International Building Code (IBC). The main reason is that the nonseparated occupancies option is basically incorporated into the present Table 508.4 which is used for the separated occupancies option specified in Section 508.4. A review of that table indicates that there are a significant number of "N"s in the various cells of the table. The "N" indicates that there is no fire-resistance rated occupancy separation required for that particular mixed occupancy combination. Therefore, that would result in a nonseparated occupancy condition. So it is not clear why there is still a nonseparated occupancies option when the new Table 508.4 contains both separated and nonseparated occupancy conditions.

Section 508.3 General is a completely new section in the 2006 IBC. It is basically a complete rewrite of previous Section 302.3 of the 2003 IBC. In that edition of the IBC, the separated and nonseparated occupancy options for mixed occupancy buildings were very clear. Table 302.3.2 for separated occupancies clearly specified a minimum fire-resistance rating required for every occupancy combination where mixed occupancies occurred under the separated occupancies option. The new Table 508.4, however, has eliminated many of the required fire-resistance ratings for mixed occupancy separations and has also reduced the vast number of those occupancy separation fire-resistance ratings as well. And all of this was done without any technical substantiation to justify such a dramatic change in the occupancy separation requirements under the separated occupancies option of the code.

A review of Table 508.4 will quickly reveal that there are many cases where occupancy separations are not required. The significant cases occur with the Group A and Group E occupancies where there is no occupancy separation required between a Group A and a Group E occupancy, nor is there an occupancy separation between any of the sub-occupancy classifications in the Group A occupancies, such as A-1, A-2, etc. Nor are there any occupancy separations required between any of the Group I sub-occupancy classifications or the Group R sub-occupancy classifications. Furthermore, no occupancy separations are required between Group B, F-2, M, and S-1 occupancies nor are any occupancy separations required between any of the Group H sub-occupancy classifications except for the H-1 which is not permitted to be in a building with any other occupancy classification. So what does that leave as far as requiring occupancy separations by the table that is supposed to specify required separation of occupancies?

We believe this proves our point that there is no need to have a nonseparated occupancies option with the current Table 508.3.3. Possibly another approach would be to revise Table 508.3.3 so that all of the Ns are replaced with a number to indicate that at least some degree of fire-resistance is required to separate occupancies under the separated occupancies option in Section 508.3.3. At least under the 2003 IBC it was clear as to the separated and nonseparated occupancies based on Table 302.3.2 of that edition of the IBC which specified a minimum fire-resistance rating for every occupancy combination unless the combination was not permitted. It is also interesting to note that the exception to current Section 508.3.2.3 Separation in the nonseparated occupancies option would still require Group H-2, H-3, H-4, and H-5 occupancies to be separated from all other occupancies in accordance with Section 508.3.3 Separated Occupancies, yet Table 508.3.3 would not require any occupancy separations between the H-3, H-4, and H-5 occupancies. We believe that Section 508 is definitely broken so we offer this at least as a partial fix.

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

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

G153–07/08
Table 508.2.5

Proponent: Rob Geislinger, Parker Fire District, CO, representing the Fire Marshals Association of Colorado (FMAC)

Revise table as follows:

TABLE 508.2.5 (Supp)
INCIDENTAL ACCESSORY OCCUPANCIES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Stationary storage battery systems having a liquid electrolyte capacity of more than 100 gallons, or a lithium-ion capacity of 1,000 pounds (454 Kg) used for facility standby power, emergency power or uninterrupted power supplies	1-hour in Group B, F, M, S and U occupancies. 2-hour in Group A, E, I and R occupancies

(Portions of table and footnotes not shown remain unchanged)

Reason: This change is necessary to complete the correlation between the IBC and IFC begun in G149. This change recognized that modern storage battery systems rely upon electrolytes other than typical lead-acid systems. The proposed language recognizes that lithium-ion batteries are measured by weight and not by volume.

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

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

G154–07/08
Table 508.2.5

Proponent: Rob Geislinger, Parker Fire District, CO, representing the Fire Marshals Association of Colorado (FMAC)

Revise table as follows:

TABLE 508.2.5 (Supp)
INCIDENTAL ACCESSORY OCCUPANCIES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Stationary storage battery systems having a liquid capacity of more than ~~100~~ 50 gallons used for facility standby power, emergency power or uninterrupted power supplies	1-hour in Group B, F, M, S and U occupancies. 2-hour in Group A, E, I and R occupancies

(Portions of table and footnotes not shown remain unchanged)

Reason: This change attempts to correlate the IBC and IFC. The provisions in IFC Section 608 apply to battery systems containing more than 50 gallons. This limit has existed since the 2000 edition of that Code. Without this change there are two thresholds for battery room provisions, one at 50 gallons (found in the IFC) and the second at 100 gallons (found in the IBC). Providing only one threshold will simplify enforcement.

Cost Impact: This will increase cost for battery system installations containing between 50 and 100 gallons of electrolyte.

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

G155–07/08
Table 508.2.5

Proponent: Greg Johnson, City of Saint Paul, MN

Revise table as follows:

TABLE 508.2.5 (Supp)
INCIDENTAL ACCESSORY OCCUPANCIES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Rooms containing fire pumps	2 hours; or 1 hour and provide automatic fire extinguishing system

(Portions of table and footnotes not shown remain unchanged)

Reason: The proposal correlates fire pump room construction requirements that already exist through the reference to NFPA 20 in IFC Section 913.2. The addition of this language in the IBC clarifies that a separation requirement exists for fire pump rooms and improves the ease of use of the document.

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

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

G156–07/08
508.2.5.1, 706.5

Proponent: William Clayton, City of Westminster, CO, representing himself

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

PART I – IBC GENERAL

Revise as follows:

508.2.5.1 (Supp) Fire-resistance rated separation. Where Table 508.2.5 specifies a fire-resistance rated separation, the incidental accessory occupancies shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both. Construction supporting one-hour fire-resistance-rated fire barriers or horizontal assemblies used for incidental accessory occupancy separations in buildings of Type IIB, IIIB, and VB construction are not required to be fire-resistance-rated unless required by other sections of this code.

PART II – IBC FIRE SAFETY

Revise as follows:

706.5 (Supp) Continuity. Fire barriers shall extend from the top of the floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above and shall be securely attached thereto. Such fire barriers shall be continuous through concealed spaces, such as the space above a suspended ceiling. The supporting construction for a fire barrier shall be protected to afford the required fire-resistance rating of the fire barrier supported., ~~except for 1-hour fire barriers required by Table 508.2 in buildings of Type IIB, IIIB and VB construction.~~ Hollow vertical spaces within a fire barrier shall be fireblocked in accordance with Section 717.2 at every floor level.

Exceptions:

1. The maximum required fire-resistance rating for assemblies supporting fire barriers separating tank storage as provided for in Section 415.6.2.1 shall be 2 hours, but not less than required by Table 601 for the building construction type.
2. Shaft enclosures shall be permitted to terminate at a top enclosure complying with Section 707.12.

3. Construction supporting one-hour fire-resistance-rated fire barriers used for incidental accessory occupancy separations as required by Table 508.2.5 in buildings of Type IIB, IIIB, and VB construction are not required to be fire-resistance-rated unless required by other sections of this code.

Reason: Section 508.2.5.1 sends the reader to sections 706 and 711 for the specific requirements for the fire-resistance rated fire-barrier and horizontal assemblies. When reading sections 706.5 it is not clear that the floor supporting the incidental use area walls is not required to be fire-resistance rated. Within our own group of code officials, design professionals, and plans examiners, we have had lively discussions revolving around this requirement. By placing this new wording in section 508.2.5.1 and revising Section 706.5, the intent and meaning is clear and we relieve any confusion. Section 706.5 currently does not read clearly and it includes an exception within the body of the code. I have removed the exception from the body and added it as the 3rd exception. By submitting this change I have eliminated any possible discrepancy. Both code changes mirror each other in wording and intent.

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

PART I – IBC GENERAL

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

PART II – IBC FIRE SAFETY

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

G157–07/08
508.2.5.2

Proponent: William Clayton, City of Westminster, CO, representing himself

Revise as follows:

508.2.5.2 (Supp) Nonfire-resistance rated separation and protection. Where Table 508.2.5 permits an automatic fire extinguishing system without a fire barrier, the incidental accessory occupancies shall be separated from the remainder of the building by construction capable of resisting the passage of smoke. The walls shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the fire-resistance-rated floor/ceiling assembly above or fire-resistance-rated roof/ceiling assembly above or to the underside of the floor or roof sheathing, deck or slab above. Doors shall be self- or automatic closing upon detection of smoke in accordance with Section 715.4.7.3~~.~~ and shall not be undercut in excess of the clearance permitted in accordance with NFPA 80. Walls surrounding the incidental accessory occupancy shall not have air transfer openings unless provided with smoke dampers in accordance with Section 710.7. ~~Doors shall not have air transfer openings and shall not be undercut in excess of the clearance permitted in accordance with NFPA 80~~.

Reason: Currently Section 508.2.5.1 prohibits air transfer openings to be installed in the door to an incidental use area. The code is silent regarding the protection of the wall when the incidental use area wall is allowed to be constructed to resist the passage of smoke rather than be constructed as a one-hour fire–resistance-rated assembly. Without adding this language, the wall could effectively have unlimited air transfer openings while the door is regulated to prohibit air transfer openings. As a Building Plans Examiner, I see this situation presented frequently. Currently the building designer and code official are left with no guidance as to the requirements. By adding the necessary language above, we can clarify the code and correct this over-sight. The addition of this language would define the level of protection needed to allow penetrations of the wall that separates an incidental use area from other portions of the building. Section 710.7 currently provides the charging statement to require dampers in similar smoke partitions. The exact specifications are then given in 716.3 as referenced in section 710.7. This is a logical path and uses language that already exists in the code for similar assemblies.

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

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

G158–07/08
508.2.4

Proponent: Maureen Traxler, City of Seattle, WA, representing The Washington Association of Building Officials Technical Code Development Committee

508.2.4 (Supp) Separation of occupancies. No separation is required between accessory occupancies and the main occupancy.

Exceptions:

1. Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in accordance with Section 508.4.
2. Incidental accessory occupancies required to be separated or protected by Section 508.2.5.
3. Group R occupancies shall be separated from ~~other~~ accessory occupancies in accordance with Section 508.4.4

Reason: This is intended as an editorial clarification. Exception 2 was added when G140-06/07 was approved. The word "other" creates an implication that the Group R occupancy is also an accessory occupancy. The intent of the provision is to require Group R occupancies to be separated from other occupancies in all cases, regardless of whether the R occupancy is classified as accessory or as the main occupancy.

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

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

G159–07/08
Table 508.4

Proponent: Tony Crimi, A.C. Consulting Solutions, Inc., representing the North American Insulation Manufacturer's Association (NAIMA); Jason Thompson, PE, National Concrete Masonry Association (NCMA), representing the Masonry Alliance for Codes and Standards (MACS)

Delete table and substitute as follows:

TABLE 508.4 (Supp)
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

OCCUPANCY	A[d], E		I		R[c]		F-2, S-2[b,c], U[c]		B, F-1, M, S-1		H-1		H-2		H-3, H-4, H-5	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS
A[d], E[d]	N	N	1	2	1	2	N	1	1	2	NP	NP	3	4	2	3[a]
I	--	--	N	N	1	NP	1	2	1	2	NP	NP	3	NP	2	NP
R[c]	--	--	--	--	N	N	1	2	1	2	NP	NP	3	NP	2	NP
F-2, S-2[b,c], U[c]	--	--	--	--	--	--	N	N	1	2	NP	NP	3	4	2	3[a]
B[b], F-1, M, S-1	--	--	--	--	--	--	--	--	N	N	NP	NP	2	3	1	2[a]
H-1	--	--	--	--	--	--	--	--	--	--	N	NP	NP	NP	NP	NP
H-2	--	--	--	--	--	--	--	--	--	--	--	--	N	NP	1	NP
H-3, H-4, H-5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	N	NP

For SI: 1 square foot = 0.0929 m^2.
S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
N = No separation requirement.
NP = Not permitted.
a. For Group H-5 occupancies, see Section 903.2.4.2.
b. Areas used only for private or pleasure vehicles shall be allowed to reduce separation by 1 hour.
c. See Section 406.1.4.
d. Commercial kitchens need not be separated from the restaurant seating areas that they serve.

TABLE 508.4 (Supp)
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)[a]

USE	A-1	A-2	A-3	A-4	A-5	B[b]	E	F-1	F-2	H-1	H-2	H-3	H-4	H-5	I-1	I-2	I-3	I-4	M[b]	R-1	R-2	R-3, R-4	S-1	S-2[c]	U
A-1	___	2	2	2	2	2	2	3	2	NP	4	3	2	4	2	2	2	2	2	2	2	2	3	2	1
A-2[e]	___	___	2	2	2	2	2	3	2	NP	4	3	2	4	2	2	2	2	2	2	2	2	3	2	1
A-3	___	___	___	2	2	2	2	3	2	NP	4	3	2	4	2	2	2	2	2	2	2	2	3	2	1
A-4	___	___	___	___	2	2	2	3	2	NP	4	3	2	4	2	2	2	2	2	2	2	2	3	2	1
A-5	___	___	___	___	___	2	2	3	2	NP	4	3	2	4	2	2	2	2	2	2	2	2	3	2	1
B[b]	___	___	___	___	___	___	2	3	2	NP	2	1	1	1	2	2	2	2	2	2	2	2	3	2	1
E	___	___	___	___	___	___	___	3	2	NP	4	3	2	3	2	2	2	2	2	2	2	2	3	2	1
F-1	___	___	___	___	___	___	___	___	3	NP	2	1	1	1	3	3	3	3	3	3	3	3	3	3	3
F-2	___	___	___	___	___	___	___	___	___	NP	2	1	1	1	2	2	2	2	2	2	2	2	3	2	1
H-1	___	___	___	___	___	___	___	___	___	___	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
H-2	___	___	___	___	___	___	___	___	___	___	___	1	2	2	4	4	4	4	2	4	4	4	2	2	1
H-3	___	___	___	___	___	___	___	___	___	___	___	___	1	1	4	3	3	3	1	3	3	3	1	1	1
H-4	___	___	___	___	___	___	___	___	___	___	___	___	___	1	4	4	4	4	1	4	4	4	1	1	1
H-5	___	___	___	___	___	___	___	___	___	___	___	___	___	___	4	4	4	3	1	4	4	4	1	1	3
I-1	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	2	2	2	2	2	2	2	4	3	2
I-2	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	2	2	2	2	2	2	3	2	1
I-3	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	2	2	2	2	2	3	2	1
I-4	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	2	2	2	2	3	2	1
M[b]	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	2	2	2	3	2	1
R-1	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	2	2	3	2	1
R-2	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	2	3	2	1
R-3, R-4	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	3	2[d]	1[d]
S-1	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	3	3
S-2[c]	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	1
U	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___

For SI: 1 square foot = 0.0929 m^2.

NP = Not permitted.

a. Except for Group H and I-2 occupancies, where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1, the fire-resistance ratings shall be reduced by 1 hour but to not less than 1 hour and to not less than that required for the floor construction according to the type of construction.

b. Occupancy separation need not be provided for storage areas within Groups B and M if the:

1. Area is less than 10 percent of the floor area;
2. Area is provided with an automatic fire-extinguishing system and is less than 3,000 square feet; or
3. Area is less than 1,000 square feet.

c. Areas used only for private or pleasure vehicles shall be allowed to reduce separation by 1 hour.

d. See Section 406.1.4 for private garages and carports.

e. Commercial kitchens need not be separated from the restaurant seating areas that they serve.

Reason: Crimi: To restore the separated uses (occupancies) concept previously prescribed in Section 302 of the 2003 IBC (and 2003 Supp) and clarify the distinction between separated uses and the non-separated use options.

During the 2006 cycle the separated uses section of the IBC was changed based on public proposal G32-04/05 on the basis that it presented no significant technical changes. To the contrary, there are dozens of reductions in fire resistance ratings resulting from these changes, without justification or supporting rationale. The result of this Code change is to reduce the level of protection provided by the IBC over any of the previous Legacy Codes.

This proposal aims to restore the previous Table 302.3.2 from the 2003 IBC, but retain the modified text of section 508 on Mixed Use & Occupancy. While the Code change was first accepted in the 2006 IBC, few jurisdictions have any history with the lack of fire resistance rated construction between occupancies which the 2006 IBC would now permit.

The occupancy separation Table has existed in the BOCA National Building Code for a very long time, and was incorporated into the first edition of the IBC. The concept of separation of major occupancies exists in Building regulations throughout the world. Certainly, those occupancy separations requirements used in the separated occupancies option have stood the test of time. There continues to be a critical need to separate adjacent occupancies of dissimilar use, with fire-resistance rated construction. This proposal would delete the current Table 508.3.3 in its entirety and substitute the previous Table 302.3.2 which was replaced in Code Change G32-04/05. The previous Table 302.3.2 had been is use for the three plus years it existed in the 2000 and 2003 editions of the IBC. Furthermore, the occupancy separation fire resistance ratings from this predecessor table were taken directly from the BOCA National Building Code, along with the entire concept of the non-separated and separated occupancies in mixed occupancy buildings.

The proponent of G32-04/05 original example utilized a Group B and Group F-1 in a building of Type IIB construction. One example used a ratio of 11% Group F-1 and 89% Group B. The calculations, without any area modifications, indicated that the allowable area for the Group F-1 would increase by 230 square feet over what would be allowed if the accessory use area provisions were used. Furthermore, the proponent points out that the overall allowable building area would decrease by 1150 square feet. However the proponent did not point out that using a similar approach with 11% Group B and 89% Group M and Type IIA construction, the Group B use may now be 1975 square feet larger than permitted by the accessory use area provisions and the overall building area may be increased by 1760 square feet. It should be noted that the IBC 2006 would permit these increases with no separation between the Group B and Group M occupancies and no additional requirements.

As currently published, the 2006 Code provisions in Section 508 blur the distinction between separated uses and the non-separated use options previously prescribed in Section 302.3.1. In some cases, the reductions in required fire resistance ratings are as large as 3 hours for given occupancy separations, while in others, the requirement to provide fire separations is removed altogether. In the published "Report of the Public Hearing on the 2003 editions of the International Building Code", the committee's published reason for recommending adoption of G32-04/05 is reported as follows: "The proposal does not have any significant technical changes from the current requirements." In reality, this code change proposals has lead to literally dozens of separate and distinct reductions in fire resistance rating requirements, in both sprinklered and unsprinklered occupancies, without justification or compensation of any kind.

The following is a Summary of changes to fire resistance ratings for occupancy separations between the 2006 IBC and the various Legacy Codes:

Comparison of 2006 IBC vs	IBC 2003[1]	BOCA 1996[2]	SBC 1997[3]	UBC 1997[4]
Reductions in FRR	85	49	56	37
Increases in FRR (Excluding cases "Not Permitted")	40	11	21	102
Total Changes	125	60	77	139

To illustrate some specific examples, this change has unilaterally reduced the fire separation between a mixed use office and a moderate hazard warehouse from the previously existing 3-hour minimum fire separation to zero, while providing no technical justification or compensating measures. Table 302.3.2 of the 2003 IBC, as well as the Exception to Section 302.2.3 (IBC 2003 Supplement), specified a minimum fire resistance for every occupancy separation and did not permit a fire resistance rating to be less than one hour, even when an automatic sprinkler system was provided. In contrast, the new Table 302.3.2 allows numerous instances where the fire resistance ratings are waived entirely. Further, while exception 1 of the old section 302.3.2 did not apply to Group H and I-2 areas, the revised Table in the new section 508 shows a reduction of 1-h in fire resistance rating between all I occupancies and for F-2, S-2, U, B, F-1, M, and S-1 without any justification or compensation. While it has been argued that a number of these separated use combinations are unrealistic, an equal number are very realistic and represent an unjustified reduction from current code requirements for fire-resistant construction. To unilaterally propose that a mixed use office and moderate hazard warehouse be reduced from the current 3-hour minimum fire separation to a zero separation is unjustifiable.

The adoption of this Code change in the 2006 IBC has had a significant detrimental impact on fire safety in buildings by arbitrarily reducing fire resistance ratings to levels significantly below most of the Legacy Codes, without providing any compensating safety measures. The full impact of this change has not yet been felt. This change needs to be corrected, and a selective process of review, consideration, and justification undertaken to determine which, if any, of these changes are desirable and justifiable.

Bibliography & References:

[1] 2003 IBC, International Codes Council, Table 302.3.2
[2] 1996 BOCA National Building Code, BOCA
[3] 1997 Standard Building Code, SBCCI
[4] 1997 Uniform Building Code, ICBO

Thompson: This is a follow up to Code Change G32-04/05 which was approved as modified during a previous code development cycle. We are very concerned that that code change proposal was approved based on no significant technical changes being made by that Code Change Proposal. Yet the premise of the new table was that similar hazards may be lumped together and not separated from each other with fire resistance rated fire barriers or horizontal assemblies. This is obviously a significant technical change from the previous provisions of Section 302.3.2 Separated Uses and Table 302.3.2 Required Separation of Occupancies (Hours) in the 2003 IBC. In no case in the previous Table 302.3.2 is a fire resistance rating required to separate occupancies allowed to be less than one hour, even when a automatic sprinkler system is installed and the occupancy separation is allowed to be reduced by one hour. The Exception to Section 302.3.2 did not permit the rating to be reduced to less than one hour even where the sprinkler reduction was applied. However, the new Table 508.4 has virtually most of the table allowing no fire resistance

ratings for the separation requirements as designated by “N” throughout the table. Thus, there is no fire resistance rated separation required between those different occupancies in Table 508.4 where the letter “N” is shown. This looks more to us like the nonseparated uses option allowed by Section 508.3. So there appears to be an overlap and potential conflict between this revised Section 508.4 and current Section 508.3.

We believe that if a designer does not wish to utilize fire resistance rated occupancy separations where the building contains mixed occupancies, then the designer should utilize the nonseparated use option of Section 508.3. Revising Table 508.4 in the manner proposed virtually renders useless the separated occupancies option in Section 508.4.

This also begs the question as to how to determine where the separate occupancies are and where the fire areas are that are created by these separate occupancies in order to apply Section 508.4. If there are no fire resistance ratings provided, there can be no fire areas and there can be no separated occupancies. Please refer to the definition in Section 702.1 for “fire area.” It states the following: “The aggregate floor area enclosed and bounded by fire walls, fire barriers, exterior walls, or fire-resistance rated horizontal assemblies of a building.” The only time a fire area is created by Table 508.4 and Section 508.4 is if there is an actual number provided in the table to indicate the hourly rating. This is further exacerbated by Footnote b which allows a one hour reduction for Group S-2 Parking Garages used for private or pleasure vehicles. For the case of separating such occupancies from Groups B, F-1, M, and S-1 occupancies which are protected throughout with an automatic sprinkler system, the separation rating goes to “0”. Again, there would be no fire separation and thus no fire area created. It should also be noted that such a reduction was not allowed by the previous table.

It is also not clear to us how Section 508.4.1 Occupancy Classification applies to separated occupancies. The second sentence states: “Each separated space shall comply with this code…” But what defines a separated space in the case where Table 508.4 contains “N”? The note to the table indicates that “N” means there is no separation requirement. So how can a space be separated if there is no such requirement? A possible solution may be to utilize the concept in Section 508.2.5.2 Non-Fire-Resistance Rated Separation and Protection where a sprinkler trade-off of the fire-resistance rating specified in Table 508.2.5 Incidental Accessory Occupancies would still require a separation by “construction capable of resisting the passage of smoke.” At least there would be some degree of separation to provide some minimal protection from smoke movement from one occupancy to another. However, we do not believe that is an adequate solution for the separated occupancies option in this code.

To help address this problem and fix what is apparently a broken code section, we have proposed to delete the current Table 508.4 in its entirety and substitute the previous Table 302.3.2 which was replaced in Code Change G32-04/05. We were certainly able to utilize the previous Table 302.3.2 for the three plus years it existed in the 2000 and 2003 editions of the IBC. Furthermore, the predecessor table to that table was taken directly from the BOCA National Building Code as was the entire concept of the nonseparated and separated occupancies in mixed occupancy buildings. Apparently it had worked quite well under the BOCA code system so we see no reason why it can’t continue to work just as well under the IBC. Certainly, those occupancy separations when used in the separated occupancies option have evidently stood the test of time.

A review of the tabular summary included with this code change identifies 30 technical changes to the hourly fire-resistance ratings in the previous Table 302.3.2, not to mention several other equally significant changes proposed to water down the concept of separated uses. It could be argued that a number of these separated use combinations are unrealistic. However, an equal number, though, are very real and represent an unjustified reduction from current code requirements for fire-resistant construction. To unilaterally propose that a mixed use office and moderate hazard warehouse be reduced from the current 3-hour minimum fire separation to a zero separation is unjustifiable. Office employees have an expectation to be protected from the dissimilar risk posed to them by a warehousing operation with moderate to severe fuel loading. Likewise, no rationale has been supplied for the removal of any minimum fire separation between a moderate hazard factory generally with a much higher risk of ignition sources, and either those same office employees in an adjacent portion of the building or large quantities of highly combustible fuel loads associated with either the raw materials or finished products. In fact, no justification has been given for any of the rating reductions.

Another basic flaw in the approach taken by Code Change G32-04/05 is the seemingly innocent deletion of the exception to previous Section 302.3.2.1. That exception, which the proponent of G32-04/05 would lead you to believe, was simply inserted into the proposed new Table 508.4. But that is not the case which is obvious by looking at the numbers, or lack thereof, in the table. That exception contained two long-standing provisions that: 1) any reduction for sprinklers never be permitted to be reduced below the floor rating for the type of construction; and 2) the 1-hour sprinkler reduction never result in less than a one hour separation.

Finally, there is absolutely no good argument for removing all passive fire protection between H-3 and H-4 uses. Even though the IBC recognizes that these do not normally include the most flammable or most explosive of materials, the code requires a 1-hour separation so that a fire involving flammable solids of water-reactive materials does not adversely impact an immediately adjacent stockpile of highly toxic H-4 substances.

A very similar code change proposal G148-06/07 and G150-06/07 were discussed during the ICC Final Action Hearings held this past May in Rochester, NY due to several Public Comments having been submitted requesting approval. Basically, the Public Comments requested that what is now Table 508.4 be deleted and replaced with previous Table 302.3.2 in the 2003 IBC. The Public Comments were successful in overturning the Committee recommendation for disapproval but were unsuccessful in achieving the two-thirds majority vote required for approval by a vote of 100 for and 77 against. That strong support of the Class A voting members encouraged us to submit this code change proposal as a follow up to their actions requesting that this code change in essence be approved.

See table attached.

Separated Occupancy Groups	Required Occupancy Separation		Net Loss in Fire-Resistance (Hours)
	2003 IBC	2006 IBC	
A-1/all other A	2	0	-2
A-1/E	2	0	-2
A-1/F-1 or S-1	3	2	-1
A-1/F-2 or S-2	2	1	-1
A-2/all other A	2	0	-2
A-2/E	2	0	-2
A-2/F-1 or S-1	3	2	-1
A-2/F-2 or S-2	2	1	-1
A-3/all other A	2	0	-2
A-3/F-1 or S-1	3	2	-1
A-3/F-2 or S-2	2	1	-1
A-4/all other A	2	0	-2
A-4/E	2	0	-2
A-4/F-1 or S-1	3	2	-1
A-4/F-2 or S-2	2	1	-1
A-5/E	2	0	-2
A-5/F-1 or S-1	3	2	-1
A-5/F-2 or S-2	2	1	-1
B/F-1 or S-1	3	0	-3
B/M	2	0	-2
E/F-1 or S-1	3	2	-1
E/F-2 or S-2	2	1 (or zero)	-1
F-1/F-2 OR S-2	3	2	-1
F-1/S-1	3	0	-3
I-1/all other I	2	0	-2
I-1/F-1 OR S-2	3	2	-1
I-1/S-1	4	2	-2
I-2/all other I	2	0	-2
I-2/F-1 or S-1	3	2	-1
I-3/all other I	2	0	-2
I-3/F-1 or S-1	3	2	-1
I-4/all other I	2	0	-2
I-4/F-1 or S-1	3	2	-1
R/F-1 or S-1	3	2	-1

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

Analysis: A review of the standard proposed for inclusion in the code, ASTM E2174 and ASTM E2393, 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

G160–07/08
Table 508.4

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

Revise table as follows:

TABLE 508.4 (Supp)
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

OCCUPANCY	A[d], E		ǂ I-1, I-3, I-4		I-2		R[c]		F-2, S-2[b,d], U[d]		B, F-1, M, S-1		H-1		H-2		H-3, H-4, H-5	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS
A[d], E[d]	N	N	1	2	2	2	1	2	N	1	1	2	NP	NP	3	4	2	3[a]
ǂ I-1, I-3, I-4	—	—	N	N	2	2	1	NP	1	2	1	2	NP	NP	3	NP	2	NP
I-2	—	—	—	—	N	N	2	NP	2	2	2	2	NP	NP	3	NP	2	NP
R[c]	—	—	—	—	—	—	N	N	1	2	1	2	NP	NP	3	NP	2	NP
F-2, S-2[b,c] U[c]	—	—	—	—	—	—	—	—	N	N	1	2	NP	NP	3	4	2	3[a]
B, F-1, M, S-1	—	—	—	—	—	—	—	—	—	—	N	N	NP	NP	2	3	1	2[a]
H-1	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	NP	NP	NP	NP
H-2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	1	NP
H-3, H-4, H-5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP

For SI: 1 square foot = 0.0929 m^2.

S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
N = No separation requirement.
NP = Not permitted.

a. For Group H-5 occupancies, see Section 903.2.4.2.
b. Areas used only for private or pleasure vehicles shall be allowed to reduce separation by 1 hour.
c. See Section 406.1.4.
d. Commercial kitchens need not be separated from the restaurant seating areas that they serve.

Reason: This proposal will require Group I-2 occupancies to be separated by at least a two hour separation from the remainder of the building. Group I-2 occupancies contain patients who need assistance during evacuation and thus require longer evacuation time. The separation of a minimum of 2 hours will provide for horizontal movement and then vertical movement/evacuation if needed.

This provision will provide consistency in the IBC with Federal Regulations 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

G161–07/08
Table 508.4

Proponent: Larry Fluer, Larry Fluer, Inc., representing the Compressed Gas Association

Revise table as follows:

TABLE 508.4 (Supp)
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

	A[d], E		I		R[c]		F-2, S-2[b,c], U[c]		B, F-1, M, S-1		H-1		H-2		H-3, H-4, H-5	
OCCUPANCY	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**
A[d], E[d]	N	N	1	2	1	2	N	1	1	2	NP	NP	3	4	2	3[a]
I	--	--	N	N	1	NP	1	2	1	2	NP	NP	3	NP	2	NP
R[c]	--	--	--	--	N	N	1	2	1	2	NP	NP	3	NP	2	NP
F-2, S-2[b,c], U[d]	--	--	--	--	--	--	N	N	1	2	NP	NP	3	4	2	3[a]
B, F-1, M, S-1	--	--	--	--	--	--	--	--	N	N	NP	NP	2	3	1	2[a]
H-1	--	--	--	--	--	--	--	--	--	--	N	NP	NP	NP	NP	NP
H-2	--	--	--	--	--	--	--	--	--	--	--	--	N	NP	1	NP
H-3, H-4, H-5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1[e,f] ~~N~~	NP

For SI: 1 square foot = 0.0929 m^2.

S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
N = No separation requirement.
NP = Not permitted.

a. For Group H-5 occupancies, see Section 903.2.4.2.
b. Areas used only for private or pleasure vehicles shall be allowed to reduce separation by 1 hour.
c. See Section 406.1.4.
d. Commercial kitchens need not be separated from the restaurant seating areas that they serve.
e. Separation is not required between occupancies of the same classification.
f. For H-5 occupancies see Section 415.8.2.2.

Reason: There were a number of proposals made in the 2006/2007 code cycle to extensively revise Table 508.3.3. Several of the code changes have proposed completely rewriting the table to return it to a point that resembles the legacy code approach. The ICC membership appears to have accepted the current format for the table. There has been testimony offered by proponents of the table that have asked those with specific concerns to bring the concerns forward for resolution.

The Compressed Gas Association has voiced opposition to changes in the table that have been proposed subsequent to the current revised state that markedly increase requirements for separation that appear to be inconsistent with established practice. The Compressed Gas industry and its customer base routinely occupy buildings of mixed occupancy where gas storage rooms are constructed as a means to isolate materials determined to be mutually incompatible, and where occupancy separation provides a means to do so.

The legacy codes traditionally have required a one-hour separation between occupancies of H-3, H-4 and H-5 as a means to isolate physical hazard materials from those that present a health hazard. The H-5 occupancy (semiconductor manufacturing) utilizes a wide variety of compressed gases as well as a variety of other hazardous materials liquids and solids and one of the basic tenets of control has been the use of a minimum one-hour separation between the H-5 area and the hazardous materials storage rooms which are used to support the activity in the fabrication area.

Other industries that utilize the wide variety of hazardous materials indicated in IBC Sections 307.5 and 307.6 routinely separate these materials one from the other through the use of an occupancy separation. Examples of Section 307.5 materials include flammable and combustible liquids, oxidizers, flammable solids, and unstable reactives.

Health hazard materials, e.g., toxics and corrosives (H-4), especially those in storage, are normally separated from physical hazard materials (H-3) as a means to protect against exposure fires. Where these materials are required to be used in a process where incompatibles with a physical hazard are involved, the incompatible materials are required to be separated, and the more restrictive provisions governing construction are applied.

The requirements for the H-5 occupancy were established in the Uniform Codes in 1984, and the provisions were accepted into the BOCA National and SBCCI Standard Codes by 1987. A fire resistive separation has been required between the fabrication area and chemical storage rooms with the degree of fire resistance varying depending on the code, but generally patterned after the approach used for required separations for flammable and combustible liquids established in NFPA 30. In any case, the required separation could not be less than one-hour.

The requirements to separate health hazards from physical hazards within the array of materials knows as “high hazard” was first established in the Uniform Codes in 1988 and adopted by the BOCA National and SBCCI Standard Codes in 1993 and 1994 Editions respectively as those two codes evolved to resolve issues surrounding the storage and use of hazardous materials.

With recognition that a required one-hour separation has been established for 20 years (or more in the case of the H-5) these same requirements were adopted by NFPA and debated during the consensus process as NFPA 5000 evolved demonstrating that these requirements were subjected to wider view by members of industry and the public as that process evolved.

Footnote e has been added to avoid having the code user interpret that a separation is required between two different areas of the same occupancy. While this may appear obvious to some a question can be raised when multiple rooms or areas are constructed to serve operational needs. For example, an area that contains Class 2 oxidizers (H-3 materials) is located in an adjacent room containing flammable solids (also H-3 material) would not be required to have a fire resistive separation between the rooms. Without the footnote the code is subject to interpretation. On the other hand, Footnote f has been added to direct the user to Section 415.8.2.2 which does require a one hour separation between multiple fabrication areas each of which are in an H-5 occupancy. The required separation in this instance is based on the limitations imposed on ventilation systems, maximum quantities of HPM and other factors.

CGA is asking that the required mutual separation of one-hour between the H-3, H-4 and H-5 occupancies be returned to the established and accepted norm. Doing so will reconstitute the reasonable minimum safeguard for the required separation between these important occupancies.

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

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

G162–07/08
Table 508.4

Proponent: Martha (Marty) Gillis, Bureau Veritas North America, Inc., representing the Washington Association of Building Officials, Technical Code Development Committee

Revise table as follows:

TABLE 508.4 (Supp)
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

	A[d], E		I		R[e]		F-2, S-2 [b,e], U[e]		B, F-1, M, S-1		H-1		H-2		H-3, H-4, H-5	
OCCUPANCY	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**
A[d], E[d]	N	N	1	2	1	2	N	1	1	2	NP	NP	3	4	2	3[a]
I	—	—	N	N	1	NP	1	2	1	2	NP	NP	3	NP	2	NP
R[e]	—	—	—	—	N	N	1[c]	2[c]	1	2	NP	NP	3	NP	2	NP
F-2, S-2 [b,e], U[e]	—	—	—	—	—	—	N	N	1	2	NP	NP	3	4	2	3[a]
B, F-1, M, S-1	—	—	—	—	—	—	—	—	N	N	NP	NP	2	3	1	2[a]
H-1	—	—	—	—	—	—	—	—	—	—	N	NP	NP	NP	NP	NP
H-2	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	1	NP
H-3, H-4, H-5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP

For SI: 1 square foot = 0.0929 m^2.

S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
N = No separation requirement.
NP = Not permitted.

a. For Group H-5 occupancies, see Section 903.2.4.2
b. Areas used only for private or pleasure vehicles shall be allowed to reduce separation by 1 hour.
c. See Section 406.1.4
d. Commercial kitchens need not be separated from the restaurant seating area that they serve.

Reason: This proposal is, in part, editorial, needed for consistency, and provides clean up.

Presently whenever either U or R occupancies are paired with any other occupancy the user must cross reference 406.1.4 needlessly since 406.1.4 only applies to mixed occupancies containing only the pairing of R and U. This proposal therefore relocates footnote “c” to the center where R and U cross in order to express than Footnote “c” and Section 406.1.4 are only applicable to this particular mixed occupancy condition (R with U).

This proposal seeks to relocate footnote “c” to the applicable cells where U and R occupancies cross in the center of the table in order to provide efficient use of the table and add clarity.

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

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

G163–07/08
Table 508.4

Proponent: Don Davies, Salt Lake City Corporation, representing the Utah Chapter of ICC

Revise table as follows:

TABLE 508.4 (Supp)
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

(Portions of table not shown remain unchanged)

S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
N = No separation requirement.
NP = Not permitted.

a. For Group H-5 occupancies, see Section 903.2.4.2.
b. The required separation from areas used only for private or pleasure vehicles shall be ~~allowed to~~ reduced ~~separation~~ by 1 hour but to not less than one hour.
c. See Section 406.1.4.
d. Commercial kitchens need not be separated from the restaurant seating areas that they serve.

Reason: The code user is alerted in IBC Section 406.2.7 that there must be some type of occupancy separation between a garage and another occupancy which does not normally occur in the code. When one turns to Section 508.3 as directed they are directed to Section 508.3.2 as one of the options which allows nonseparated uses. In most instances the nonseparated option would be the preferred and likely used option. Even though vehicle fires have gone down and there is a good history of that there should be at least a minimal amount of protection to the adjoining uses as required in other areas of the code as required for private garages in Section 406.1.4 which have a few vehicles.

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

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

G164–07/08
509.4

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

Revise as follows:

509.4 Parking beneath Group R. Where a maximum one-story above grade plane Group S-2 parking garage, enclosed or open, or combination thereof, of Type I construction or open of Type IV construction, with grade entrance, is provided under a building of Group R, the number of stories to be used in determining the minimum type of construction shall be measured from the floor above such a parking area. The Group R building above the Group S-2 parking garage shall be considered a separate and distinct building from the Group S-2 parking garage for the purpose of determining the type of construction. The floor assembly between the parking garage and the Group R above shall comply with the type of construction required for the parking garage and shall also provide a fire-resistance rating not less than the mixed occupancy separation required in Section 508.3.3.

Reason: During the previous code cycle, the committee modified my code proposal G158-06/07 to delete reference to this section because this section did not specifically state that the Group R & Group S-2 buildings were considered as separate and distinct buildings. This change specifically will coordinate reference to them in Section 509.9. This change is intended to allow reference to this section in Section 509.9 and to allow multiple buildings to be positioned above a parking garage similar to Section 509.2 & 509.3 I consider this change to be primarily a clarification of the intent of the code. This proposal should be considered prior to my proposal to Section 509.9, which is resubmitted for consideration.

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

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

G165–07/08
509.7

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

Revise as follows:

509.7 Open parking garage beneath Groups A, I, B,M and R. Open parking garages constructed under Groups A, I, B,M and R shall not exceed the height and area limitations permitted under Section 406.3 and shall be considered separate and distinct buildings for the purpose of determining the type of construction. The height and area of the portion of the ~~building~~ structure above the open parking garage shall not exceed the limitations in Section 503 for the upper occupancy. The height, in both feet and stories, of the portion of the ~~building~~ structure above the open parking garage shall be measured from grade plane and shall include both the open parking garage and the portion of the ~~building~~ structure above the parking garage.

Reason: Code proposal G158-06/07 was modified to delete reference to this section during the final action process. During the previous code cycle, the committee modified and approved my code proposal G158-06/07 to delete reference to Section 509.4 because it did not specifically state that the Group R & Group S-2 buildings were considered as separate and distinct buildings. Currently Section 509.7. also does not include the language "separate and distinct". This change along with my code change proposal to Section 509.4 specifically will coordinate reference to them in Section 509.9. This change is intended to allow reference to this section in Section 509.9 and to allow multiple buildings to be positioned above a parking garage similar to Section 509.2 & 509.3.

The substitution of the word "structure" for "building" is simply to clarify the use of the terms in the context of this section.

I consider this change to be primarily a clarification of the intent of the code. This proposal should be considered prior to my proposal to Section 509.9, which is resubmitted for consideration.

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

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

G166–07/08
509.9

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

Revise as follows:

509.9 (Supp) Multiple buildings above an enclosed or open Group S-2 parking garage. Where two or more buildings are provided above the horizontal assembly separating a Group S-2 open or closed parking garage from the buildings above in accordance with the special provisions in Sections 509.2, ~~and~~ 509.3, 509.4 and 509.7, the buildings above the horizontal assembly shall be regarded as separate and distinct buildings and shall comply with all other provisions of this code as applicable to each separate and distinct building.

Reason: I originally submitted this new section during the last cycle. The committee approved the submittal with modifications by deleting reference to Section 509.4 on the grounds that this section specifically referenced a single building. The reference to Section 509.7 was later removed during the Final Action process. The significant difference between Section 509.2 & 509.3 from Section 509.4 & 509.7, is that the text for Sections 509.2 & 509.3 makes specific reference to the building above the parking garage as being "separate and distinct", whereas that reference is not currently made in Sections 509.4 & 509.7. This proposal needs to be considered after action on my accompanying proposals to Section 509.4 & 509.7 are accomplished, as the changes to those sections coordinate with the intent of the changes to this Section 509.9

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

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

G167–07/08
509.9

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

Revise as follows:

509.9 (Supp) Multiple buildings above or below ~~an enclosed or open~~ Group S-2 parking garages. Where two or more buildings are provided above the horizontal assembly separating a ~~Group S-2 open or closed parking garage~~ building below from the buildings above in accordance with the special provisions in Section~~s~~ 509.2, ~~and~~ 509.3 or 509.8, the buildings above the horizontal assembly shall be regarded as separate and distinct buildings and shall comply with all other provisions of this code as applicable to each separate and distinct building.

Reason: The current language applies to open and enclosed parking garages below horizontal assemblies in accordance with the provisions of Sections 509.2 and 509.3. Section 509.3 is limited to an open parking garage above the horizontal assembly and an enclosed parking garage below the horizontal assembly. Section 509.2, however, permits open or enclosed parking garages above or below the horizontal assembly. Section 509.8 has provisions similar to Section 509.3 except it is limited to an open parking garage above the horizontal assembly. The proposal revises Section 509.9 to more comprehensively account for the special provisions of Sections 509.2, 509.3 and 509.8 each of which permit multiple buildings above the horizontal assembly to be considered as separate and distinct buildings.

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

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

G168–07/08
509.9

Proponent: Maureen Traxler, City of Seattle, WA, representing the Department of Planning and Development

Revise as follows:

509.9 (Supp) Multiple buildings above an enclosed or open Group S-2 parking garage. Where two or more buildings are provided above the horizontal assembly separating a Group S-2 open or closed parking garage from the buildings above in accordance with the special provisions in Sections 509.2 and 509.3, the buildings above the horizontal assembly shall be regarded as separate and distinct buildings from each other and shall comply with all other provisions of this code as applicable to each separate and distinct building.

Reason: Section 509.9 was added to the code by item G158-06/07. It addresses one interpretation issue, but raises another question. The intent behind G158-06/07 was to clarify that the buildings above the horizontal separation are separate, but the language also seems to say that those upper buildings are to be considered as separate from the building below the horizontal separation. Section 509.2 clearly states that the horizontal separation "shall be considered as a separate and distinct building for the purpose of determining area limitations, continuity of fire walls, limitation of number of stories and type of construction". The effect of the horizontal separation in Section 509.3 is even more limited— the garage below the separation "shall be classified as a separate and distinct building for the purpose of determining the type of construction".

This proposal removes the inconsistency between the new Section 509.9 and Sections 509.2 and 509.3 by stating that the buildings above the horizontal separation are separate from each other, and allowing Section 509.2 and 509.3 to answer the question of whether they are separate from the building below the separation.

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

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

G169–07/08
Table 601

Proponent: Mike Ennis, SPRI, Inc.

Revise table as follows:

TABLE 601 (Supp)
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours

	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
BUILDING ELEMENT	**A[h]**	**B**	**A[d]**	**B**	**A[d]**	**B**	**HT**	**A[d]**	**B**
Roof construction Including supporting beams and joists[h]	1½[b]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	HT	1[b,c]	0

(Portions of table not shown remain unchanged)

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.
b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.
c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.
d. An approved automatic sprinkler system in accordance with Section 903.3.1.1 shall be allowed to be substituted for 1-hour fire-resistance-rated construction, provided such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with Section 506.3 or an allowable height increase in accordance with Section 504.2. The 1-hour substitution for the fire resistance of exterior walls shall not be permitted.
e. Not less than the fire-resistance rating required by other sections of this code.
f. Not less than the fire-resistance rating based on fire separation distance
g. Not less than the fire-resistance rating as referenced in Section 714.5
h. The requirements of this table for roof construction are not applicable to above deck components.

Reason: Note “b” has in some instances been interpreted to apply to above deck components, thus raising the cost of construction. For example, nail-base products that are composed of foam plastic insulation with an OSB sheet laminated to one side to act as a nail base for roofing shingles, tile, etc. are being required to be manufactured with fire-retardant-treated plywood instead of the OSB because of a misinterpretation of Note “b”. These products are installed on top of the roof deck and are not part of the structural assembly.

Providing this clarification will allow for the use of more cost effective construction materials and still meet the intent of the building code.

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

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

G170–07/08
Table 601

Proponent: Gerard Hathaway, New York State Department of State Building Codes Division, NY, representing ICC 300 Development Committee

Revise as follows:

TABLE 601 (Supp)
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)

BUILDING ELEMENT[h]	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A[d]	B	A[d]	B	HT	A[d]	B

(Portions of table not shown remain unchanged)

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.
b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.
c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.
d. An approved automatic sprinkler system in accordance with Section 903.3.1.1 shall be allowed to be substituted for 1-hour fire-resistance-rated construction, provided such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with Section 506.3 or an allowable height increase in accordance with Section 504.2. The 1-hour substitution for the fire resistance of exterior walls shall not be permitted.
e. Not less than the fire-resistance rating required by other sections of this code.
f. Not less than the fire-resistance rating based on fire separation distance (see Table 602).
g. Not less than the fire-resistance rating as referenced in Section 714.5
h. Bleachers and grandstands shall comply with Section 1025.1.1.

Reason: Bleachers, Grandstands and Folding and Telescopic Seating are addressed in ICC 300. The purpose of the proposed scoping change is to clarify that bleachers and grandstands are limited to items that are separate, independent structures from the buildings. They may be located within buildings or combined with spaces constructed under or over (e.g. concessions booths, toilets, roofs). The ICC 300 is not intended to be utilized for single row seating that is supported directly by the floor system. See also the proposals to Section 1002.1 and 1025.1.1.

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

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

G171–07/08
Table 601

Proponent: Susan Lamont, Arup Fire

Revise table as follows:

TABLE 601 (Supp)
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)

(Portions of table not shown remain unchanged)

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet (6,096 mm) or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members. Where it can be shown by calculation that structural stability will be maintained for the duration of an approved credible worst case fire scenario the prescribed value of 20 feet (6,096 mm) can be decreased as appropriate in any occupancy classification.
c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.
d. An approved automatic sprinkler system in accordance with Section 903.3.1.1 shall be allowed to be substituted for 1-hour fire-resistance-rated construction, provided such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with Section 506.3 or an allowable height increase in accordance with Section 504.2. The 1-hour substitution for the fire resistance of exterior walls shall not be permitted.
e. Not less than the fire-resistance rating required by other sections of this code.
f. Not less than the fire-resistance rating based on fire separation distance (see Table 602).
g. Not less that the fire-resistance rating as referenced in Section 714.5.

Reason: To enhance the current recommendation which already recognizes that a fire in a tall space can have limited impact on structural elements remote from the fire.

To allow the structural design and fire load in a tall space to be treated on a case by case basis allowing for greater innovation and value engineering of structure in tall spaces which are often the focal point of an architectural design.

The 20 ft rule is prescriptive and may be conservative or non-conservative in any particular case. By permitting a performance based approach the concept of the structure at high level being cooler than near ground can be maintained but checked on a case by case basis in any occupancy.

Performance based tools are available to calculate credible design fires, the heat exposure from the fires to the structure and the resulting stability of the structural member (see Bibliography list for some examples).

Bibliography:

BS EN 1991-1-2:2002 Eurocode 1: Actions on structures — Part 1-2: General actions — Actions on structures exposed to fire, British Standards Institution.
BS EN 1993-1-2:2005 Eurocode 3: Design of steel structures — Part 1-2: General rules — Structural fire design, British Standards Institution.
BS5950:Part 8:1990 Code of practice for fire resistant design.
Buchanan, A.H, Structural Design for Fire Safety, Wiley, 2001:
Drysdale, D.D. (1998), "An Introduction to Fire Dynamics" 2nd Edition.
Milke J.A. Analytical methods for determining the fire resistance of steel members, Chapter 4-9, SFPE handbook of fire protection engineering, 3rd Edition, 2002.
Pettersson O., Magnusson SE, and Thor J. (1976), "Fire Engineering design of steel structures", Swedish Institute of Steel Construction.

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

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

G172–07/08
Table 602

Proponent: Sarah A. Rice, CBO, Schirmer Engineering Corporation

Revise table as follows:

TABLE 602
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE[a, e]

FIRE SEPARATION DISTANCE = X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP H[f]	OCCUPANCY GROUP F-1, M, S-1[g]	OCCUPANCY GROUP A, B, E, F-2, I, R, S-2[g], U[b]

(Portions of table not shown remain unchanged)

For SI: 1 foot = 304.8 mm.
a. Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.
b. For special requirements for Group U occupancies see Section 406.1.2
c. See Section 705.1.1 for party walls.
d. Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.
e. The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.
f. For special requirements for Group H occupancies see Section 415.3
g. For special requirements for Group S aircraft hangers see Section 412.2.1

Reason: Similar to footnote b which references the special provisions applying to fire separation and fire-resistance rating for Group U exterior walls, these footnotes would provide reference to the other two provisions in Chapter 4 where there are unique separation or fire-resistance requirements based on distance to property line. The additional footnotes are proposed for consistency and for clarity for the code users. With respect to Group H occupancies there are additional separation requirements that are greater than those of Table 602. For aircraft hangers, there is a greater fire resistance rating imposed than required by Table 602.

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

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

G173–07/08

Table 602(2) (New), 602.1, Table 601, Table 602, 402.7.1, 406.3.7, 704.5, 704.11, 714.5, 2103.2, 3103.3

Proponent: Greg Lake, Sacramento Metropolitan Fire District, representing the California Fire Chiefs Association (Cal Chiefs)

1. Add new table as follows:

TABLE 602(2)
FOR BUILDINGS ASSIGNED TO SEISMIC DESIGN CATEGORY D, E, or F
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE[a, e]

FIRE SEPARATION DISTANCE = X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP H	OCCUPANCY GROUP F-1, M, S-1	OCCUPANCY GROUP A, B, E, F-2, I, R[b], S-2, U[b]
X < 5[c]	I, III, IV	3	3	3
	II, V	3	3	2[f]
5 ≤ X < 10	I, III IV	3	3	2
	II, V	2	1	1
10 ≤ X < 20	I, III, IV	2	2	2[d]
	II, V	1	1	1[d]
20 ≤ X < 30	I, III, IV	1	1	1[d]
	II, V	1	0	0
X ≥ 30	All	0	0	0

For SI: 1 foot = 304.8 mm.

a. Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.
b. For special requirements for Group U occupancies see Section 406.1.2.
c. See Section 705.1.1 for party walls.
d. Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.
e. The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.
f. The fire-resistance rating shall be permitted to be 1 hour for Group R occupancies.

2. Revise as follows:

602.1 (Supp) General. Buildings and structures erected or to be erected, altered or extended in height or area shall be classified in one of the five construction types defined in Sections 602.2 through 602.5. The building elements shall have a fire-resistance rating not less than that specified in Table 601 and exterior walls shall have a fire resistance rating not less than that specified in Tables 602(1) and 602(2). Where required to have a fire-resistance rating by Table 601, building elements shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air transfer openings in building elements shall not be required unless required by other provisions of this code.

TABLE 601 (Supp)
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)

	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
BUILDING ELEMENT	**A**	**B**	**A[d]**	**B**	**A[d]**	**B**	**HT**	**A[d]**	**B**
Nonbearing walls and partitions Exterior	See Tables 602(1) and 602(2)								

(Portions of table not shown remain unchanged)

a. Roof supports: Fire-resistance ratings of structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.
b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.
c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.
d. An approved automatic sprinkler system in accordance with Section 903.3.1.1 shall be allowed to be substituted for 1-hour fire-resistance-rated construction, provided such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with Section 506.3 or an allowable height increase in accordance with Section 504.2. The 1-hour substitution for the fire resistance of exterior walls shall not be permitted.
e. Not less than the fire-resistance rating required by other sections of this code.
f. Not less than the fire-resistance rating based on fire separation distance (see Table 602(1) and 602(2)).
g. Not less than the fire-resistance rating as referenced in Section 714.5

TABLE 602(1)
FOR BUILDINGS ASSIGNED TO SEISMIC DESIGN CATEGORY A, B, or C
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE[a, e]

(Portions of table and footnotes not shown remain unchanged)

402.7.1 (Supp) Attached garage. An attached garage for the storage of passenger vehicles having a capacity of not more than nine persons and open parking garages shall be considered as a separate building where it is separated from the covered mall building by not less than 2-hour fire barriers constructed in accordance with Section 706 or horizontal assemblies constructed in accordance with Section 711, or both.

Exception: Where an open parking garage or enclosed parking garage is separated from the covered mall building or anchor building a distance greater than 10 feet (3048 mm), the provisions of Tables 602(1) and 602(2) shall apply. Pedestrian walkways and tunnels which attach the open parking garage or enclosed parking garage to the covered mall building or anchor building shall be constructed in accordance with Section 3104.

406.3.7 Fire separation distance. Exterior walls and openings in exterior walls shall comply with Tables 601, ~~and~~ 602(1) and 602(2). The distance to an adjacent lot line shall be determined in accordance with Tables 602(1) and 602(2) and Section 704.

704.5 Fire-resistance ratings. Exterior walls shall be fire-resistance rated in accordance with Tables 601, ~~and~~ 602(1) and 602(2). The fire-resistance rating of exterior walls with a fire separation distance of greater than 5 feet (1524 mm) shall be rated for exposure to fire from the inside. The fire-resistance rating of exterior walls with a fire separation distance of 5 feet (1524 mm)or less shall be rated for exposure to fire from both sides.

704.11 Parapets. Parapets shall be provided on exterior walls of buildings.

Exceptions: A parapet need not be provided on an exterior wall where any of the following conditions exist:

1. The wall is not required to be fire-resistance rated in accordance with Tables 602(1) and 602(2) because of fire separation distance.
2. The building has an area of not more than 1,000 square feet (93 m2) on any floor.
3. Walls that terminate at roofs of not less than 2-hour fire-resistance-rated construction or where the roof, including the deck or slab and supporting construction, is constructed entirely of noncombustible materials.

4. One-hour fire-resistance-rated exterior walls that terminate at the underside of the roof sheathing, deck or slab, provided:
   4.1. Where the roof/ceiling framing elements are parallel to the walls, such framing and elements supporting such framing shall not be of less than 1-hour fire-resistance-rated construction for a width of 4 feet (1220 mm) for Groups R and U and 10 feet (3048 mm) for other occupancies, measured from the interior side of the wall.
   4.2. Where roof/ceiling framing elements are not parallel to the wall, the entire span of such framing and elements supporting such framing shall not be of less than 1-hour fire-resistance-rated construction.
   4.3. Openings in the roof shall not be located within 5 feet (1524 mm) of the 1-hour fire-resistance-rated exterior wall for Groups R and U and 10 feet (3048 mm) for other occupancies, measured from the interior side of the wall.
   4.4. The entire building shall be provided with not less than a Class B roof covering.
5. In Groups R-2 and R-3 where the entire building is provided with a Class C roof covering, the exterior wall shall be permitted to terminate at the underside of the roof sheathing or deck in Type III, IV and V construction, provided:
   5.1. The roof sheathing or deck is constructed of approved noncombustible materials or of fire-retardant-treated wood for a distance of 4 feet (1220 mm); or
   5.2. The roof is protected with 0.625-inch (16 mm) Type X gypsum board directly beneath the underside of the roof sheathing or deck, supported by a minimum of nominal 2-inch (51 mm) ledgers attached to the sides of the roof framing members for a minimum distance of 4 feet (1220 mm).
6. Where the wall is permitted to have at least 25 percent of the exterior wall areas containing unprotected openings based on fire separation distance as determined in accordance with Section 704.8.

714.5 Exterior structural members. Load-bearing structural members located within the exterior walls or on the outside of a building or structure shall be provided with the highest fire-resistance rating as determined in accordance with the following:

1. As required by Table 601 for the type of building element based on the type of construction of the building;
2. As required by Table 601 for exterior bearing walls based on the type of construction; and
3. As required by Tables 602(1) and 602(2) for exterior walls based on the fire separation distance.

2103.2 (Supp) Clay or shale masonry units. Clay or shale masonry units shall conform to the following standards: ASTM C 34 for structural clay load-bearing wall tile; ASTM C 56 for structural clay nonload-bearing wall tile; ASTM C 62 for building brick (solid masonry units made from clay or shale); ASTM C 1088 for solid units of thin veneer brick; ASTM C 126 for ceramic-glazed structural clay facing tile, facing brick and solid masonry units; ASTM C 212 for structural clay facing tile; ASTM C 216 for facing brick (solid masonry units made from clay or shale); ASTM C 652 for hollow brick (hollow masonry units made from clay or shale); and ASTM C 1405 for glazed brick (single-fired solid brick units).

Exception: Structural clay tile for nonstructural use in fireproofing of structural members and in wall furring shall not be required to meet the compressive strength specifications. The fire-resistance rating shall be determined in accordance with ASTM E 119 or UL 263 and shall comply with the requirements of Tables 602(1) and 602(2).

3103.3 Location. Temporary structures shall be located in accordance with the requirements of Tables 602(1) and 602(2) based on the fire-resistance rating of the exterior walls for the proposed type of construction.

Reason: We have submitted this code change proposal as a follow up to the Public Comment we submitted to Code Change Proposal G166-06/07 during the last code development cycle requesting approval. Although we were successful in getting the Committee's recommendation for disapproval overturned, we failed to get the two-thirds majority vote needed for approval by the narrow margin of 81 to 49. One of the main reasons this code change was recommended for disapproval was because the Committee said it lacked technical justification for requiring increased fire-resistance construction of exterior walls in more seismically active areas. Unfortunately, such statistical information is very difficult to come by and one needs to rely, at best, on anecdotal information of fires that have occurred after significant seismic events. We certainly know from experience that more fires occur than normal after a significant seismic event and the subsequent after shocks. And we know that as a result of a significant seismic event the fire service will be facing extreme challenges to provide emergency services and respond to such fires. One of our major concerns in such situations is to prevent building to building fire spread since we know there is a high likelihood that water supplies will be interrupted and access to buildings may even be significantly reduced or not available at all to within reasonable distances. Let alone the fact that response times will greatly increase because of the demand on services and because of obstructions that will have occurred as a result of the seismic event. Therefore, we believe it is very prudent to provide increased fire-resistance ratings for exterior walls of buildings relatively close to each other or to adjacent property lines in seismically active areas.

This code change proposal addresses the significant potential for exterior fire spread from building to building in areas of the country that are subject to significant seismic events. It has been well documented in recent earthquakes in California and elsewhere that fires follow major earthquakes. Probably the most well-known earthquakes in this regard occurred in San Francisco in 1906, Loma Prieta, CA in 1989, and in Kobe,

Japan in 1995. The 1906 San Francisco earthquake caused hundreds of fires which destroyed thousands of buildings within the city creating a virtual wasteland. It is somewhat ironic that last year was the 100th anniversary of that most dramatic and tragic earthquake. We've learned a lot since then about how to build buildings and how to protect them from fire. However, current Table 602 is inadequate to protect against a major conflagration, especially in densely built-up areas when the next significant earthquake strikes.

The fire resistance ratings in proposed Table 602(2) are generally modeled after the fire-resistance ratings and separation distances for the various types of construction and occupancies contained in the 1997 ICBO Uniform Building Code (UBC). However, we reduced the 4-hour ratings in the UBC to 3-hours to be consistent with the highest ratings currently in Table 601 and 602. The UBC is the legacy code that was adopted and used throughout most of the states that have buildings assigned to Seismic Design Category D, E, or F. We limited the scope of the table to those seismic design categories to parallel Section 903.3.5.2 Secondary Water Supply. That section requires a secondary on-site water supply for high-rise buildings assigned to Seismic Design Category C, D, E, or F. If a secondary on-site water supply is necessary for high-rise buildings in these seismic design categories, it is also appropriate to require higher fire-resistance ratings for exterior walls for buildings assigned to Seismic Design Category D, E or F.

The basic philosophy for the fire-resistance ratings in this table is that the closer a building is to a property line or an adjacent building, the more fire-resistance should be provided to protect against potential exposure fires or to prevent a fire within a building from becoming an exposure fire to an adjacent building. Of course, this is similar to the concept in current Table 602 where the closer a building is to an adjacent building or property line, the more severe the potential fire exposure will be. But in the case of buildings assigned to Seismic Design Category D, E, or F, there is a major concern that fires may burn out of control since the fire department may not be able to respond to every fire in a timely manner. Their access may be disrupted by earthquake damage caused to roadways, bridges, and buildings that collapse across roadways blocking their access throughout their area of coverage. The fire department will also be spread very thin having to respond to many incidents virtually simultaneously or within close proximity to each other so they may find it extremely difficult, if not impossible, to respond to each and every fire incident. Thus, it can be expected that many fires will go uncontrolled and will need to be contained as long as possible within the structures in which they originate or be resisted by structures adjacent to those that have caught on fire in order to prevent building to building fire spread.

This is the reason for requiring 3-hour fire rated walls for virtually all types of construction for all occupancy groups that are located within 5 feet of an adjacent property line or building. Exterior walls with 3-hour fire-resistance ratings are generally more substantial in construction. Therefore, there is a greater likelihood that they will also remain in place after the seismic event and be able to withstand fires that occur subsequent to the seismic event.

Another significant problem with earthquakes is that the water supplies are often disrupted as the water mains are ruptured and/or electric power is interrupted so there may not be pumps available to pump the water that might be available in the public water systems. Therefore, automatic sprinkler systems may not have water supplies available to deal with a fire that occurs in those buildings that are protected with sprinklers. Also, the fire department may not have adequate water to combat a fire within a building, thus having to fall back and protect adjacent structures from the fire within the building that is burning out of control. Therefore, it is very important that exterior walls of buildings assigned to Seismic Design Category D, E or F have generally higher degrees of fire-resistance than otherwise required by current Table 602.

There are two key points to this code change proposal from the fire service perspective that we see value in. The first is that virtually all exterior walls of most occupancies, regardless of construction type, are required to have a minimum 3-hour fire-resistance rating where the fire separation distance is less than 5 feet. However, in some cases the fire-resistance rating is allowed to be reduced to 1-hour. Currently, the International Building Code (IBC) only requires a fire-resistance rating of 3-hours for Group H occupancies. Fire-resistance ratings of exterior walls are allowed to be as low as 1-hour for most other occupancies. We believe this is totally inadequate for such a minimal fire separation distance.

The second key point is that this table differs from current Table 602 in that the fire separation distance from 10 feet to 30 feet has been broken down into two ranges of fire separation distances from 10 feet to 20 feet and from 20 feet to 30 feet. We believe this is a very important differentiation so that buildings between 10 feet and 20 feet from a property line or an adjacent building exposure will have a higher degree of fire-resistance required for their exterior walls as compared to the current code which treats a fire separation distance of 10 feet the same as 30 feet. This proposed new Table 602(2) will require all exterior walls located between 10 feet and 20 feet fire separation distance to have not less than a 1-hour fire-resistance rating, whereas the IBC does not require a fire-resistance rating for Types IIB and VB construction for other than Group H occupancies. All other exterior wall ratings are only required to be 1-hour fire-resistance rated except for Group H occupancies which require a minimum 2-hour fire-resistance rating. This code change proposal will specify a minimum 2-hour fire-resistance for all occupancy classifications in construction Types I, III, and IV. Then from the 20 foot to 30 foot fire separation distance range the table basically mimics that of current Table 602 for the 10 foot to 30 foot range.

We believe this approach is more realistic for protecting exterior walls of buildings from adjacent exposures of other buildings nearby, especially after a significant seismic event. Having these greater fire-resistance ratings for exterior walls for the fire separation distances less than 20 feet will greatly assist the fire service in preventing building to building fire spread after a major seismic event since our resources will be taxed to the maximum and water supplies will be very limited if not totally unavailable. We believe that providing the additional fire-resistive protection for the exterior walls will help minimize building to building fire spread during a significant seismic event.

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

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

G174–07/08
602.1

Proponent: Susan Lamont, Arup Fire

Revise as follows:

602.1 (Supp) General. Buildings and structures erected or to be erected, altered or extended in height or area shall be classified in one of the five construction types defined in Sections 602.2 through 602.5. The building elements shall have a fire-resistance rating not less than that specified in Table 601 and exterior walls shall have a fire resistance rating not less than that specified in Table 602. Where required to have a fire-resistance rating by Table 601, building elements shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air

transfer openings in building elements shall not be required unless required by other provisions of this code. Alternatively and where approved the structural frame shall be permitted to be analyzed as an assembly, acting as a whole or part, through global structural analysis to have a fire resistance rating that is at least equivalent to that specified in Table 601.

When a whole or part of an assembly is assessed in a global structural analysis for fire, a series of credible worst case fires scenarios, the relevant heat transfer calculations, the relevant failure modes during fire exposure, the relevant loads, the temperature-dependent material properties and member stiffness as well as the effects of thermal expansions shall be taken in to account. The impact of structural deformations on compartmentation shall also be considered by the design. The calculations should be carried out using the ASTM E-119 time-temperature curve or an approved design fire that takes into account credible fire loads, compartment dimensions, properties of wall linings and the percentage of unprotected openings.

Reason: The purpose of the code change is to include new text such that performance based design of structural steel frames can be proposed on projects. This means that the IBC would allow performance based design for fire resistance similarly to other international codes for example in the UK, Europe and Australia. Also to recognize that the performance of structural members in a real fire can be very different to the fire resistance of single members i.e. a beam, column or slab acting in isolation of the rest of the frame in a standard furnace.

This is important because savings in structural fire protection can be made when structures are robustly designed but also weaknesses in the structural frame which can exist when thermal expansion forces act on a structure during a fire can be identified and designed against. This is particularly important in innovative structural design and iconic buildings which are generally much taller or have longer spans and cannot be adequately tested in standard furnace tests. The methodology however is applicable to any structure.

The recommendations in the IBC for fire resistance are based on single element tests in a standard furnace. Although this approach is an essential requirement of the regulatory system and enables engineers, manufacturers and building officials to compare the relative performance of different structural components and materials for a range of fire resistance periods it does not represent the real response of structures in real fires. The fire is not necessarily representative of many credible worst case fires and the forces induced in single elements in a furnace can be very different to those induced as a result of restrained thermal expansion and alternative load paths in a highly redundant frame.

As the understanding of the science of fire develops, and its resulting effect on materials and structure, more advanced validated tools are becoming available for engineers for use in the design process.

It is becoming increasingly clear through research and performance based design projects that designing structures with the single aim of protecting structural materials to meet the code requirements for hourly fire resistance, may result in intrinsic weaknesses within the structural stability system. Alternatively it can mean ignoring intrinsic strengths. Passive fire protection simply delays the heating of steel members it does not eliminate it thus protected steel members still get hot and expand. This expansion allows floors to reach high deflections which can be beneficial because alternative load paths exist such as catenary action in beams or tensile membrane action in slabs. However expansion also generates forces and moments which the primary structure, particularly the columns have to resist and were never designed or tested to resist.

The sole aim of structural fire engineering proposed in the code change is to quantify the response of the proposed “cold temperature” structural design, in realistic fire scenarios, in order to determine if this response is acceptable. Strengths and weaknesses can then be clearly identified and addressed within the design, as appropriate.

In the investigation of the WTC collapse NIST set out a series of recommendations to be considered in code development. One of these (recommendation 9) specifically addresses the need to calculate structural fire response in design of tall or innovative buildings.

Research into the fire response of structures has been developing for many years ever since the first standard furnace test over 100 years ago. The understanding of the whole frame response to fire has however increased rapidly in the last 15 years with the Broadgate Fire (a multi- storey composite steel frame caught fire at night during construction when most of the steel frame was unprotected and remained standing after a severe post-flashover fire) in the UK, the detailed analysis of the Cardington 8-storey composite steel frame fire tests in the UK and Europe, similar tests and research in New Zealand and Australia, and onwards to the analysis of the WTC collapse on 9-11 by NIST and others, and currently the recent Torre Windsor fire in Madrid, Spain.

The Cardington Frame tests enabled engineers to measure temperatures and deflections in a whole series of compartment fire tests where the steel beams were left unprotected on a real composite steel frame and temperatures in the compartment exceeded 1000C for up to an hour. The tests and subsequent modeling of the tests showed that alternative load carrying mechanisms develop in fire when the composite slab and beams deflect as a result of thermal expansion and thermal bowing. These mechanisms allow the gravity and live loads to be supported in catenary action in the beams and tensile membrane action in the slab. For the 9m span beams which formed the Cardington Frame failure of the structure was not observed even in the largest post-flashover compartment fires.

Recent research is now considering longer spans (up to 21m) and different steel members such as trusses or deep beams with many penetrations in the web which typically heat more quickly than hot-rolled beam sections. As at Cardington there are alternative load paths but the much larger deflections as a consequence of the longer spans, need to be addressed and sometimes simply protecting the member in accordance with prescriptive rules is not necessarily the best solution.

Arup Fire already use finite element analysis techniques validated for fire by the Cardington Large Building Test Frame program, and more recently used to quantify the WTC collapse sequence, in design.

The references and standards listed in the Bibliography below outlines the background and the basis of the performance based design methodology proposed, the reasons why it is important for design and appropriate validation for software.

The contents of the references can be summarized as follows;

A four step approach is required for a global structural fire analysis as follows:

a. determine reasonable design basis fire scenarios

b. quantify the heat transfer from these fires to representative structural elements

c. quantify the mechanical response of the elements for the entire duration of the fire

d. determine appropriate passive fire protection and/or structural detailing based on this response

The fire size is the main input to a structural fire analysis. The Design Fires proposed should address (a) the quantity of fuel available (b) the quantity of ventilation through the glazed façade, c) compartment dimensions and d) properties of the wall linings.

Heat transfer analyses provide the temperature variation with time along the length and through each section of all structural materials during the fire exposure. It is from this data using a fully validated non-linear finite element analysis package that the mechanical response of the structure to the fire can be quantified.

The software used for heat transfer and structural analysis needs to be validated against full scale test data for example the Cardington frame fire tests.

The design approach is important to calculate the structural response of buildings to fire because current prescriptive rules ignore the forces generated in building elements by thermal expansion therefore design teams can either over design members or ignore inherent weaknesses. Many of the innovative structures developed by design teams with long spans for example cannot be adequately tested in a standard furnace.

This approach is described in British Standards, Eurocodes and design guides in Australia, New Zealand and around the world. It is most widely used in the UK and Europe because the fundamental research was conducted there but the methodology can be applied to performance based design in any country.

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Cost Impact: The code change proposal will not increase the cost of construction unless the structural design is such that it is particularly susceptible to fire in which case changes to the design may be necessary. In most cases these changes can be offset by savings in passive fire protection to secondary members which have been shown by the performance based analysis to be redundant.

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

G175–07/08
602.3

Proponent: Sarah A. Rice, CBO, Schirmer Engineering Corporation

Revise as follows:

602.3 Type III. Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code.

Exception: Fire-retardant-treated wood framing complying with Section 2303.2 shall be permitted within exterior wall assemblies of a 2-hour rating or less provided the exposed outer and inner faces of such walls are noncombustible.

Reason: The existing provisions of this section have led to two distinct interpretations. The first is the FRTW can be used in the framing of exterior walls and remain exposed on the surface. The second is that FRTW framing is allowed within the wall assembly provided the surfaces are of noncombustible materials. We believe that the proper interpretation is that the FRTW must be within the wall assembly and not exposed on the wall surfaces. We understand the source of this exception in the IBC was the legacy Uniform Building Code. The UBC stipulated that the FRTW had to be "within" the assembly with language similar to the proposal. The format change clarifies that this is an exception to the general requirement that exterior walls of Type III be noncombustible materials.

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

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

G176–07/08
603.1, Table 601

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

1. Revise as follows:

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

1. Fire-retardant-treated wood shall be permitted in:
   1.1. Nonbearing partitions where the required fire-resistance rating is 2 hours or less.
   1.2. Nonbearing exterior walls where no fire rating is required.
   1.3. Roof construction~~,~~ and floor construction including girders, trusses, framing and decking.

   Exception: In buildings of Type IA construction exceeding two stories above grade plane, fire retardant-treated wood is not permitted in roof construction when the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).

(Item 2 through 25 remain unchanged)

TABLE 601 (Supp)
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A[d]	B	A[d]	B	HT	A[d]	B
Floor construction Including supporting beams and joists	2	2	1[c]	0	1[c]	0	HT	1[c]	0

(Portions of table and footnotes not shown remain unchanged)

Reason: Add FRTW and heavy timber to the materials allowed in floor construction.

Whether a material is combustible or noncombustible should be a secondary consideration in building construction. Of primary importance is how it will structurally and how it will perform in a fire. In some instances, the code currently requires noncombustible materials. The material can be protected or not protected. Although FRTW and heavy timber are combustible materials they offer protection against fire: FRTW because it has been pressure treated to modify how it responds to fire. As with a noncombustible material a fire cannot be started with FRTW. Heavy timber offers protection because of the required minimum sizes. In an exposed unprotected fire scenario wood can actually remain in place supporting design loads longer than some noncombustible materials.

Both noncombustible materials and combustibles are tested using the same ASTM Standard, E119. A one-hour rating is not material specific.

Therefore, it can be expected that a noncombustible assembly or fire-retardant-treated wood assembly, whether protected or unprotected, will perform equally as well preventing the spread of fire or maintaining the fire resistance rating assigned or both.

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

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

G177–07/08
603.1

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

Revise as follows:

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

1. Fire-retardant-treated wood shall be permitted in:
   1.1. Nonbearing partitions where the required fire-resistance rating is 2 hours or less.
   1.2. Nonbearing exterior walls where no fire rating is required.
   1.3. Roof construction~~,~~ and floor construction including girders, trusses, framing and decking.

   Exception: In buildings of Type IA construction exceeding two stories above grade plane, fire retardant-treated wood is not permitted in roof construction when the vertical distance from the upper floor to the roof is less than 20 feet (6096 mm).

(Items 2 through 25 remain unchanged)

Reason: Add FRTW to the materials allowed in floor construction.

Whether a material is combustible or noncombustible should be a secondary consideration in building construction. Of primary importance is how it will perform in a fire. In some instances, the code currently requires noncombustible materials. The material can be protected or not protected. Although FRTW is a combustible material it has been pressure treated to modify how it responds to fire. As with a noncombustible material a fire cannot be started with FRTW. In an exposed unprotected fire scenario wood can actually remain in place supporting design loads longer than some noncombustible materials.

Both noncombustible materials and combustibles are tested using the same ASTM Standard, E119. A one-hour rating is not material specific.

Therefore, it can be expected that a noncombustible assembly or fire-retardant-treated wood assembly, whether protected or unprotected, will perform equally as well preventing the spread of fire or maintaining the fire resistance rating assigned or both.

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

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

G178–07/08
1202; IRC R202;

Proponent: Daniel J. Walker, PE, Thomas Associates, Inc., representing the National Sunroom Association

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

PART I – IBC GENERAL

Revise as follows:

SECTION 1202
DEFINITIONS

SUNROOM ~~ADDITION~~. A one-story ~~addition~~ structure ~~added~~ attached to a~~n existing~~ building with a glazing area in excess of 40 percent of the gross area of the structure's exterior walls and roof.

Reason: The definition of a Sunroom is inconsistent in the IBC when compared to the IRC and IECC. This proposal seeks to unify the definition in all three codes. This revised definition is necessary because sunrooms are often constructed as a part of a building during the initial construction, not only as additions to existing buildings.

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

PART II – IRC BUILDING/ENERGY

Revise as follows:

SECTION R202
GENERAL DEFINITIONS

SUNROOM. A one-story structure attached to a ~~dwelling~~ building with a glazing area in excess of 40 percent of the gross area of the structure's exterior walls and roof.

Reason: The definition of a Sunroom is currently inconsistent in the IRC, IBC and IECC. This proposal seeks to unify the definition in all three codes. This revised definition deletes the term "dwelling" and replaces it with "building" because, in the IECC, the term "building" includes dwellings and other types of structures where sunrooms are used. The change is a clarification since sunrooms can be utilized as common areas in buildings that have multiple dwelling units, restaurant dining areas, etc.

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

PART I – IBC GENERAL

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

PART II – IRC BUILDING/ENERGY

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

G179–07/08
1203.2.1; IRC R806.1

Proponent: Matthew Dobson, Vinyl Siding Institute

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

PART I – IBC GENERAL

1203.2.1 (Supp) Openings into attic. Exterior openings into the attic space of any building intended for human occupancy shall be protected to prevent the entry of birds, squirrels, rodents, snakes and other similar creatures. Openings for ventilation having a least dimension of ~~$^{1}/_{8}$~~ $^{1}/_{16}$ inch (~~3.2~~ 1.6 mm) minimum and $^{1}/_{4}$ inch (6.4 mm) maximum shall be permitted. Openings for ventilation having a least dimension larger than $^{1}/_{4}$ inch (6.4 mm) shall be provided with corrosion resistant wire cloth screening, hardware cloth, perforated vinyl or similar material with openings having a least dimension of ~~$^{1}/_{8}$~~ $^{1}/_{16}$ inch (~~3.2~~ 1.6 mm) minimum and $^{1}/_{4}$ inch (6.4 mm) maximum ~~openings~~. Where combustion air is obtained from an attic area, it shall be in accordance with Chapter 7 of the *International Mechanical Code*.

PART II – IRC BUILDING/ENERGY

R806.1 (Supp) Ventilation required. Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain or snow. Ventilation openings shall have a least dimension of 1/16 inch (1.6 mm) minimum and 1/4 inch (6.4 mm) maximum. Ventilation openings having a least dimension larger than 1/4 inch (6.4 mm) shall be provided with corrosion-resistant wire cloth screening, hardware cloth, or similar material with openings having a least dimension of ~~$^{1}/_{8}$~~ $^{1}/_{16}$ inch (~~3.2~~ 1.6 mm) minimum and 1/4 inch (6.4 mm) maximum ~~openings~~.

Reason: Soffit and opening sizes have changed and become more innovative, products like hidden vents and other have helped to improve the architectural ability of these exterior attic openings. This change does not change the venting requirement but reflects minimum requirements that are now being used effectively in the market place. It is also more consistent with current language in the IRC.

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

PART I – IBC GENERAL

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

PART II – IRC BUILDING/ENERGY

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

G180–07/08
1207.2.1 (New), Chapter 35 (New); IRC AK102.1 (New), AK104 (New)

Proponent: Jason Thompson, PE, National Concrete Masonry Association, representing the Masonry Alliance for Codes and Standards (MACS); Phil Samblanet, The Masonry Society

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

PART I – IBC GENERAL

1. Add new text as follows:

1207.2.1 Masonry. The sound transmission class of concrete masonry and clay masonry assemblies shall be calculated in accordance with TMS 0302 or determined through testing in accordance with ASTM 90.

2. Add standard to Chapter 35 as follows:

The Masonry Society
TMS 0302-07 Standard Method for Determining the Sound Transmission Class Rating for Masonry Walls

PART II – IRC BUILDING/ENERGY

1. Add new text as follows:

AK102.1.1 Masonry. The sound transmission class of concrete masonry and clay masonry assemblies shall be calculated in accordance with TMS 0302 or determined through testing in accordance with ASTM 90.

2. Add standard to Section AK104 as follows:

The Masonry Society
TMS 0302-07 Standard Method for Determining the Sound Transmission Class Rating for Masonry Walls

Reason: The Masonry Society (TMS) has recently updated and published a new standardized method for calculating the sound transmission class (STC) for various concrete and clay masonry wall assemblies. The resulting STC values are derived from laboratory testing of masonry assemblies in accordance with ASTM E 90. Introducing the reference to TMS 0302 will provide users with quicker alternatives to complying with the IBC and IRC requirements for STC ratings.

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

Analysis: A review of the standard proposed for inclusion in the code, TMS 0302-07, 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.

PART I – IBC GENERAL

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

PART II – IRC BUILDING/ENERGY

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

G181–07/08
1210.2, IPC [B] 419.3

Proponent: Jud Collins, JULYCO, representing himself

1. Revise IBC as follows:

1210.2 Walls. Walls within 2 feet (610 mm) of urinals and water closets shall have a smooth, hard, nonabsorbent surface, to a height of 4 feet (1219 mm) above the floor, and except for structural elements, the materials used in such walls shall be of a type that is not adversely affected by moisture. Where two or more urinals are located such that a partition is required, the smooth, readily cleanable, nonabsorbent material shall only be required to the partition on each side of the urinals.

Exceptions:

1. Dwelling units and sleeping units.
2. Toilet rooms that are not accessible to the public and which have not more than one water closet.

Accessories such as grab bars, towel bars, paper dispensers and soap dishes, provided on or within walls, shall be installed and sealed to protect structural elements from moisture.

2. Revise IPC as follows:

IPC [B] 419.3 Surrounding material. Wall and floor space to a point 2 feet (610 mm) in front of a urinal lip and 4 feet (1219 mm) above the floor and at least 2 feet (610 mm) to each side of the urinal shall be waterproofed with a smooth, readily cleanable, nonabsorbent material. Where two or more urinals are located such that a partition is required, the smooth, readily cleanable, nonabsorbent material shall only be required to the partition on each side of the urinals.

Reason: It is not practical to require waterproofing beyond the partition that is only 15 inches from the centerline of the urinal.

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

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

G182–07/08
1210.2; IPC 310.5

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

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

PART I – IBC GENERAL

Revise as follows:

1210.2 Walls and partitions. Walls and partitions within 2 feet (610 mm) of urinals and water closets shall have a smooth, hard, nonabsorbent surface, to a height of 4 feet (1219 mm) above the floor, and except for structural elements, the materials used in such walls shall be of a type that is not adversely affected by moisture.

Exceptions:

1. Dwelling units and sleeping units.
2. Toilet rooms that are not accessible to the public and which have not more than one water closet.

Accessories such as grab bars, towel bars, paper dispensers and soap dishes, provided on or within walls, shall be installed and sealed to protect structural elements from moisture.

PART II – IPC

310.5 Urinal partitions. Each urinal utilized by the public or employees shall occupy a separate area with walls or partitions to provide privacy. ~~The construction of such walls or partitions shall incorporate waterproof, smooth, readily cleanable and nonabsorbent finish surfaces.~~ The walls or partitions shall begin at a height not more than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. The walls or partitions shall extend from the wall surface at each side of the urinal a minimum of 18 inches (457 mm) or to a point not less than 6 inches (152 mm) beyond the outermost front lip of the urinal measured from the finished back wall surface, whichever is greater.

Exceptions:

1. Urinal partitions shall not be required in a single occupant or unisex toilet room with a lockable door.
2. Toilet rooms located in day care and child care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.

Reason: **Part I:** To provide consistency with terminology in the IBC and the IPC for walls separating water closets and urinals.

Part II: This change provides consistency between the IPC and the IBC for the walls and partitions surrounding urinals and water closets. As currently written the provisions for these surfaces in the IBC and IPC conflict with each other. The IBC requires a, "smooth, hard, nonabsorbent surface…that is not adversely affected by moisture". IPC Section 310.5 requires a, "waterproof, smooth, readily cleanable and nonabsorbent finish surfaces." The walls (partitions) only for the urinals (not the water closets) would also be required to be "readily cleanable".

To eliminate this inconsistency, the text of the second sentence is stricken. In addition, it is not necessary for the IPC contain the provisions needed for these surfaces. IPC Section 310.3 (shown below) already requires that, "the interior finish surfaces of toilet rooms shall comply with the International Building Code." IBC Section 1210.2 states (with the proposed modification): "Walls and partitions within 2 feet (610 mm) of urinals and water closets shall have a smooth, hard, nonabsorbent surface, to a height of 4 feet (1219 mm) above the floor, and except for structural elements, the materials used in such walls shall be of a type that is not adversely affected by moisture." Please note that Section IPC Section 310.3 also applies to the partitions for water closet compartment surfaces covered by Section 310.4. As there is no need for this repetitive text to be contained within Section 310.4 for water closets, there should no need to include it in Section 310.5 for urinals.

(IPC) 310.3 Interior finish. Interior finish surfaces of toilet rooms shall comply with the International Building Code.

It is also understood by the Proponent that the IBC General Code Committee has jurisdiction over wall surfaces, not the Plumbing Code Committee. With the modification to IBC Section 1210.2, and the proposed change for the IPC, the concerns of both Code Committees for these walls are addressed. .

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

PART I – IBC GENERAL

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

PART II – IPC

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

G183–07/08

1301.1.1, 202 (New); IECC 404.2 (New), 202 (New)

Proponent: Dave Collins, AIA, The Preview Group, Inc., representing the AIA Codes Committee

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

PART I – IBC GENERAL

1. Revise as follows:

1301.1.1 Criteria. Buildings shall be designed and constructed in accordance with the *International Energy Conservation Code*. The energy use of all structures shall be 50% less than the average building site energy intensity per square foot as determined by the building occupancy and location in the U.S. Department of Energy's Energy Information Administration (EIA) 2003 Commercial Building Energy Consumption Survey (CBECS). Where a building occupancy is used for an activity that does not align closely the activities listed, the code official is authorized to determine the activity that the building occupancy most nearly resembles:

US DOE EIA	Occupancy
Education	(E)
Food Sales	(B)
Food Services	(A-2)
Health Care	
Inpatient	(I-2)
Outpatient	(B)
Lodging	(R-1, R-2, R-3, R-4, I-4)
Mercantile	(M)
Retail (Other Than Mall)	(M)
Enclosed and Strip Malls	(See Section 402)
Office	(B)
Public Assembly	(A-1, A-3, A-4)
Public Order and Safety	(B, I-3)
Religious Worship	(A-3)
Service	
Warehouse and Storage	(S-1.S-2)
Other	(F-1, F-2, H)
Vacant	(U)

2. Add new definition as follows:

SECTION 202
DEFINITIONS

SITE ENERGY INTENSITY. Site energy intensity is the energy use in a building and facilities on the site expressed in kBtu's used per year per area of total useful area of a building – ($kBtu/ft^2/yr$).

PART II – IECC

1. Add new text as follows:

404.2 Site energy intensity criteria. The energy use of all structures shall be 50% less than the average building site energy intensity per square foot as determined by the building occupancy and location in the U.S. Department of Energy's Energy Information Administration (EIA) 2003 Commercial Building Energy Consumption Survey (CBECS). Where a building occupancy is used for an activity that does not align closely the activities listed, the code official is authorized to determine the activity that the building occupancy most nearly resembles:

US DOE EIA	Occupancy
Education	(E)
Food Sales	(B)
Food Services	(A-2)
Health Care	
Inpatient	(I-2)
Outpatient	(B)
Lodging	(R-1, R-2, R-3, R-4, I-4)
Mercantile	(M)
Retail (Other Than Mall)	(M)
Enclosed and Strip Malls	(See Section 402)
Office	(B)
Public Assembly	(A-1, A-3, A-4)
Public Order and Safety	(B, I-3)
Religious Worship	(A-3)
Service	
Warehouse and Storage	(S-1.S-2)
Other	(F-1, F-2, H)
Vacant	(U)

2. Add new definition as follows:

SECTION 202
GENERAL DEFINITIONS

SITE ENERGY INTENSITY. Site energy intensity is the energy use in a building and facilities on the site expressed in kBtu's used per year per area of total useful area of a building – (kBtu/ft^2/yr).

Reason: The United States leads the world in per capita consumption of energy. Buildings are fully 48% of the consumption of energy nationwide. The US Department of Energy has compiled data showing how the energy is being used by various types of buildings. The following table shows the distribution of the samples as of 2003.

Table A1. Summary Table for All Buildings (Including Malls), 2003

	Number of Buildings (thousand)	Total Floor Space (million square feet)	Mean Square Feet per Building (thousand)	Median Square Feet per Building (thousand)
All Buildings	4,859	71,658	14.7	5.0
Building Floorspace (Square Feet)				
1,001 to 5,000	2,586	6,922	2.7	2.4
5,001 to 10,000	948	7,033	7.4	7.2
10,001 to 25,000	810	12,659	15.6	15.0
25,001 to 50,000	261	9,382	36.0	35.0
50,001 to 100,000	147	10,291	70.2	67.0
100,001 to 200,000	74	10,217	138.6	130.0
200,001 to 500,000	26	7,494	287.6	260.0
Over 500,000	8	7,660	937.6	700.0
Principal Building Activity				
Education	386	9,874	25.6	7.0
Food Sales	226	1,255	5.6	2.8
Food Service	297	1,654	5.6	3.5
Health Care	129	3,163	24.6	6.0
Inpatient	8	1,905	241.4	106.0
Outpatient	121	1,258	10.4	6.0
Lodging	142	5,096	35.8	12.5
Mercantile	657	11,192	17.0	6.9
Retail (Other Than Mall)	443	4,317	9.7	4.8
Enclosed and Strip Malls	213	6,875	32.2	12.3
Office	824	12,208	14.8	4.0
Public Assembly	277	3,939	14.2	6.7
Public Order and Safety	71	1,090	15.5	5.0
Religious Worship	370	3,754	10.1	6.0
Service	622	4,050	6.5	2.8
Warehouse and Storage	597	10,078	16.9	5.2
Other	79	1,738	21.9	4.6
Vacant	182	2,567	14.1	3.7
Year Constructed				
Before 1920	333	3,784	11.4	4.9
1920 to 1945	536	6,985	13.0	4.0
1946 to 1959	573	7,262	12.7	4.0
1960 to 1969	600	8,641	14.4	5.0
1970 to 1979	784	12,275	15.6	5.8
1980 to 1989	768	12,468	16.2	4.2
1990 to 1999	917	13,981	15.2	5.0
2000 to 2003	347	6,262	18.1	5.6

As a first step toward improvement of energy consumption in buildings, we can begin to reduce the energy consumption in new construction and renovations as they are being undertaken, making a significant impact on their long-term consumption of energy. This is a welfare issue affecting the health and productivity of our society. By making significant reductions in the use of energy in buildings the codes will have an enduring affect on our economy and the depletion of valuable resources.

Awareness of the impact of building energy use and the need to address this is a rising concern among various communities. Codes and standards are being developed and adopted locally to include various types of guideline systems for sustainable design such as LEED, Green Globes, EnergyStar, and others. While these are an important aspect of improved building design, they do not yet address the threshold of energy consumption and improved energy efficiency that we believe is critical. By incorporating a maximum energy use criteria, the ICC family of codes will set a precedent for communities to follow, making measurable change.

Standards such as ASHRAE 90.1 and the proposed standard for high performance buildings ASHRAE/USGBC/IESNA SPC 189, *Standard for High-Performance Green Buildings Except Low-Rise Residential Buildings*, both will include criteria that are similar to this proposal. While these standards may be available in the near future, it is imperative that the codes make a statement as to how the subject should be addressed now.

Use of the CBECS data to establish energy consumption criteria addresses two very important aspects of this issue. Defining the energy target at the outset of the design process gives the design team a clear, achievable target. This target will allow the design team to focus its effort on achieving the target through a range of design strategies without reference to other model designs. Having the criteria based on reductions in real

world, actual energy use for each occupancy type in a given region provides a second identifiable achievement. The code is not seeking reductions in the theoretical energy consumption determined through design efforts. Using CEBECS data to determine the criteria will lead to reductions in what buildings really use.

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

PART I – IBC GENERAL

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

PART II – IECC

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

G184–07/08
[P] 2902.6 (New) (IPC 310.5)

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

Add new text as follows:

[P] 2902.6 (IPC 310.5) Urinal partitions. Each urinal utilized by the public or employees shall occupy a separate area with walls or partitions to provide privacy. The construction of such walls or partitions shall incorporate waterproof, smooth, readily cleanable and nonabsorbent finish surfaces. The walls or partitions shall begin at a height not more than 12 inches (305 mm) from and extend not less than 60 inches (1524 mm) above the finished floor surface. The walls or partitions shall extend from the wall surface at each side of the urinal a minimum of 18 inches (457 mm) or to a point not less than 6 inches (152 mm) beyond the outermost front lip of the urinal measured from the finished back wall surface, whichever is greater.

Exceptions:

1. Urinal partitions shall not be required in a single occupant or unisex toilet room with a lockable door.
2. Toilet rooms located in day care and child care facilities and containing two or more urinals shall be permitted to have one urinal without partitions.

Reason: This new section is an exact duplication of Section 310.5, IPC. This requirement was recently added to the IPC. The specification of and design of urinal partitions is traditionally accomplished by an architect, whom typically is not as familiar with the IPC. Locating these provisions in the building code is reasonable since plumbing engineers typically would not be concerned with these provisions and typically would not inform the architect of such requirements. Architects are accustomed to reviewing Chapter 29 for plumbing fixture counts, so this is a reasonable location to include this requirement in the code.

This proposal is similar to my other proposal adding Section 2902.6 for water closet compartments.

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

Analysis: Requirements for walls surrounding urinals are in IBC 1210.2 and IPC [B] 419.3.

The proposed language is exiting in Section 310.5 of the IPC. The maintenance of the technical content of the text to be placed in the IBC by this proposal rests with the IPC Code Development Committee. The need for and duplication of the language within the IBC is a matter to be determined by the IBC General Code Development Committee.

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

G185–07/08
[P] 2902.6 (New) (IPC 310.4)

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

Add new text as follows:

[P] 2902.6 (IPC 310.4) Water closet compartment. Each water closet utilized by the public or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixtures to ensure privacy.

Exceptions:

1. Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.
2. Toilet rooms located in a day care and child care facilities and containing two or more water closets shall be permitted to have one water closet without an enclosing compartment.

Reason: This new section is an exact duplication of Section 310.4, IPC. The specification of and design of toilet stall partitions is traditionally accomplished by an architect, whom typically is not as familiar with the IPC. Locating these provisions in the building code is reasonable since Plumbing engineers typically would not be concerned with these provisions and typically would not inform the architect of such requirements. Architects are accustomed to reviewing Chapter 29 for plumbing fixture counts, so this is a reasonable location to include this requirement in the code.

This proposal is similar to my other proposal adding Section 2902.7 for urinal partitions. It was the realization that the IPC now requires urinal partitions that drove the decision to also include this section on water closet compartments.

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

Analysis: The Requirements for walls surrounding water closets are in IBC1210.2.

The proposed language is exiting in Section 310.5 of the IPC. The maintenance of the technical content of the text to be placed in the IBC by this proposal rests with the IPC Code Development Committee. The need for and duplication of the language within the IBC is a matter to be determined by the IBC General Code Development Committee.

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

G186–07/08
3001.2, Chapter 35 (New)

Proponent: Ed Donoghue, Edward Donoghue Associates Inc. (EADAI), representing the National Elevator Industry, Inc. (NEII)

1. Revise as follows:

3001.2 Referenced standards. Except as otherwise provided for in this code, the design, construction, installation, alteration, repair and maintenance of elevators and conveying systems and their components shall conform to ~~ASME A17.1,~~ ASME A90.1, ASME B20.1, ALI ALCTV, and ASCE 24 for construction in flood hazard areas established in Section 1612.3 and either ASME A17.1/CSA B44 or ASME A17.7/CSA B44.7.

2. Add standard to Chapter 35 as follows:

ASME

ASME A17.7- 2007/CSA B44.7-07 Performance Based Safety Code for Elevators and Escalators

Reason: ASME and CSA have a new performance elevator code that is considered equivalent to ASME A17.1/CSA B44 and should be recognized as such in the *International Building Code*.

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

Analysis: A review of the standard proposed for inclusion in the code, ASME A17.7/CSA B44, 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.

ASME A17.1/CSA B44-2007 is part of the code change proposal for automatic updates.

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

G187–07/08
3002.1.3 (New)

Proponent: Gregory J. Cahanin, Cahanin Fire and Code Consulting, representing the Smoke Safety Council

Add new text as follows:

3002.1.3 Water intrusion. Hoistway equipment shall be protected from the effects of water intrusion from openings into the hoistway. Protection shall be by the restriction of water flow into the shaft or by the protection of elevator electrical and mechanical equipment.

Reason: Elevators are used during Phase II recall for firefighter staging and rescue. There are not currently provisions in the Code or ASME A17.1 that address the negative effects of water upon Phase II use of the elevators.

Water entering elevator shafts from fire sprinkler operation on a floor can flow down the shaft disabling elevator door and operational components. Phase II elevator use by emergency personnel relies upon the availability of the elevators through the fire event with fire sprinklers operating on upper floors.

Other provisions of this Code and ASME A17.1 help to insure that the elevators will be available for rescue and fire department access. Lobby provisions in the Code help to keep fire products out of the shaft so that emergency responders can effectively use elevators and provide for emergency power. Water flowing into a hoistway will negatively impact electrical components, putting emergency responders in harms way. The allowance for protection of key components in the shaft by sealing or protecting them from water which moves into the shaft is a design option. Restriction of water flow into hoistways can be accomplished using several approaches: A combination of sealed elevator lobby doors, sloped floors, floor drains and sealed elevator shaft walls can be used. Elevators mounted on the exterior of buildings have seals that are used on lobby doors and elevators separated at each floor by an exterior elevator lobby can be used. The NIST publication *Feasibility of Fire Evacuation by Elevators at FAA Control Towers* also provides insight into possible design solutions

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

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

G188–07/08
3002.4

Proponent: Ed Donoghue, Edward Donoghue Associates Inc. (EADAI), representing the National Elevator Industry, Inc. (NEII)

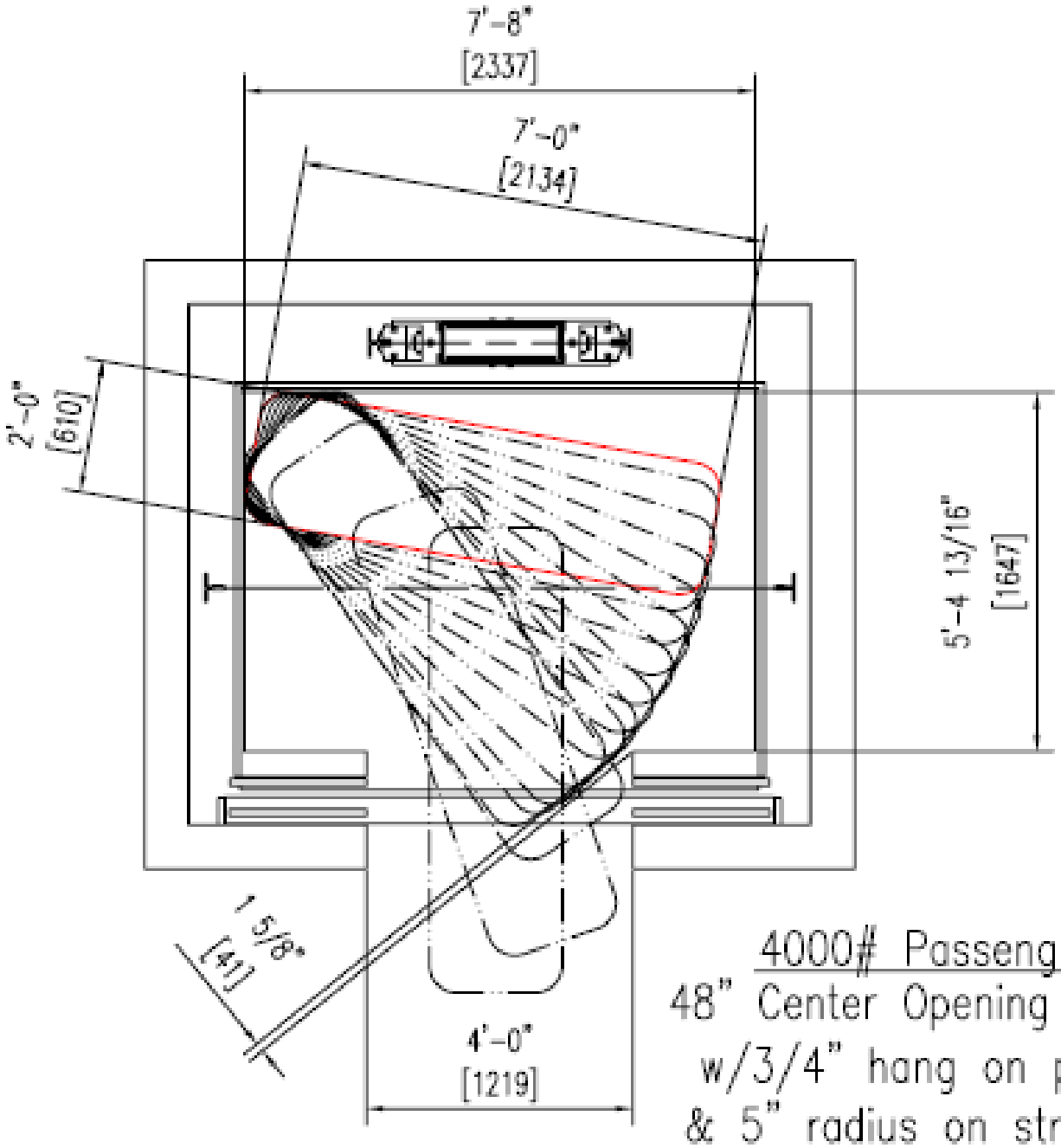
Revise as follows:

3002.4 (Supp) Elevator car to accommodate ambulance stretcher. Where elevators are provided in buildings four or more stories above grade plane or four or more stories below grade plane, at least one elevator shall be provided for fire department emergency access to all floors. The elevator car shall be of such a size and arrangement to accommodate a 24-inch by 84-inch (610 mm by 2134 mm) <u>with not less than 5 inch (127mm) radius corners,</u> ambulance stretcher in the horizontal, open position and shall be identified by the international symbol for emergency medical services (star of life). The symbol shall not be less than 3 inches (76 mm) high and shall be placed inside on both sides of the hoistway door frame.

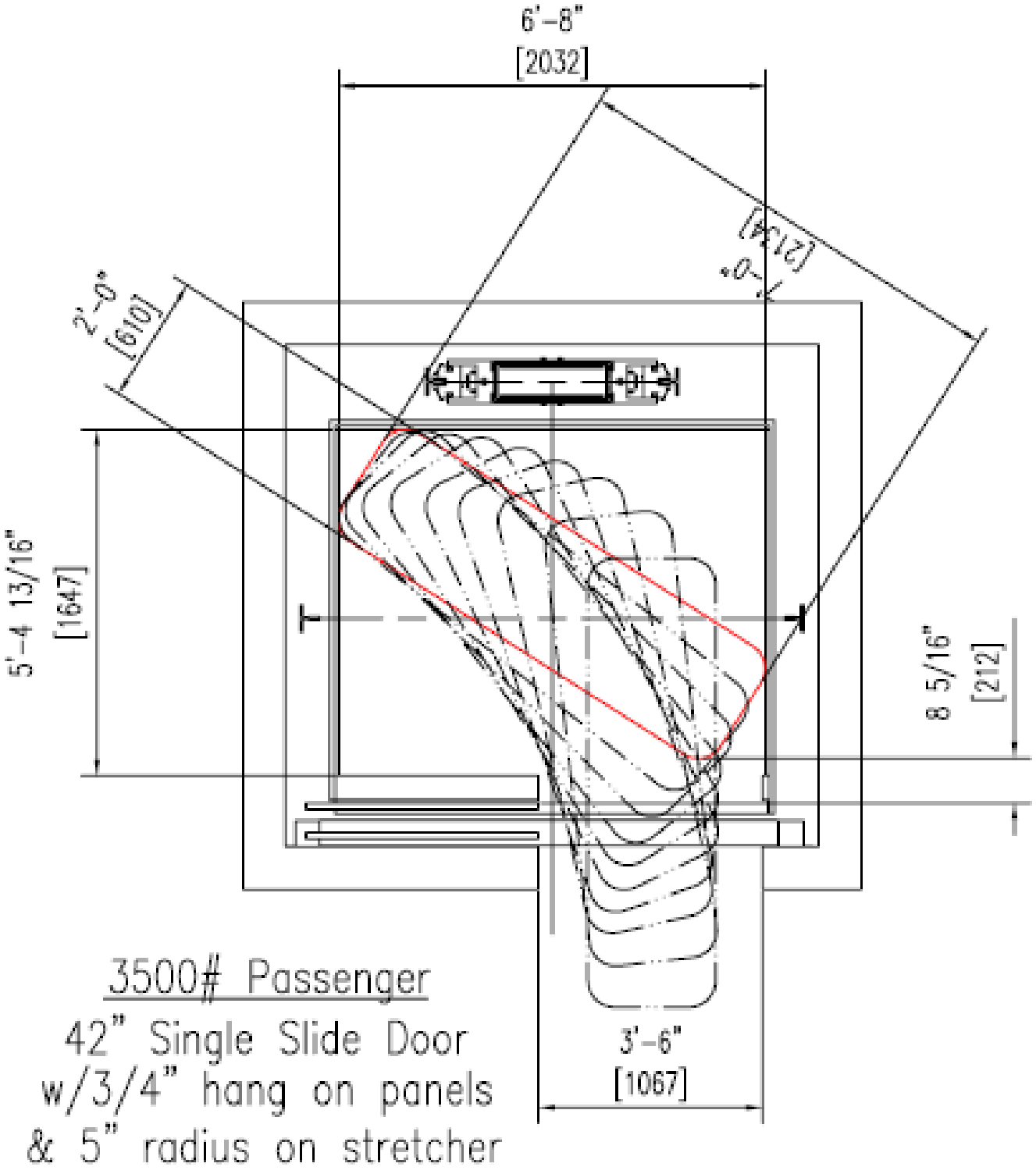
Reason: All ambulance stretchers found to date, are made from tubular metal, formed with radius or chamfered corners. Adding this change reflects actual stretcher size and will allow the industry to better meet the requirement with more flexibility and appropriately sized cars, while still meeting the size requirement desired by the IBC. This change will also have added benefit of providing direction to the stretcher suppliers to aid in standardizing their products. None of the vendors researched to date offer a 24 inch by 84 inch ambulance stretcher, Stryker, the largest stretcher manufacturer, has a standard stretcher of 23 inches by 83 inches, with a combination of radius and chamfered corners. Further the only standard for ambulance stretchers found was a European Specification, EN 1865:2000. Section 4.1.5 Frame states “All corners of the frame shall be radiused for greater safety.”

See the following figures.

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



4000# Passenger
48" Center Opening Doors
w/3/4" hang on panels
& 5" radius on stretcher



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

G189–07/08
3004.1

Proponent: Masoud Sabounchi, Advanced Consulting Engineers, Inc., representing the Colorado Chapter ICC

Revise as follows:

3004.1 Vents required. Hoistways of elevators and dumbwaiters penetrating more than three stories shall be provided with a means for venting smoke and hot gases to the outer air in case of fire.

Exceptions:

1. In occupancies of other than Groups R-1, R-2, I-1, I-2 and similar occupancies with overnight sleeping quarters, venting of hoistways is not required where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
2. Sidewalk elevator hoistways are not required to be vented.
3. Elevators contained within and serving parking garages only.
4. Elevators within individual residential dwelling units.

Reason: As noted in the IBC Commentary "Ventilation of hoistways is required to prevent the accumulation and spread of hot smoke and gases from a fire to the upper stories of a building."

Parking garages have vehicle ramps that are open to all garage level. Since ramps are open to each other, migration of smoke and hot gases from garage level to another garage level would be via the open ramps. Due to lack of pressure build up during a fire on a garage level where smoke and hot gases travel thru the ramps, elevator shafts would not transfer smoke from one garage level to another garage level.

Floors within residential dwelling units are permitted to be open to each other per IBC Section 707.2 exception 1. Justification is as noted above.

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

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

G190–07/08
3004.3

Proponent: Ed Donoghue, Edward Donoghue Associates Inc. (EADAI)

Revise as follows:

3004.3 (Supp) Area of vents. Except as provided for in Section 3004.3.1, the area of the vents shall not be less than $3^1/_2$ percent of the area of the hoistway nor less than 3 square feet (0.28 m^2) for each elevator car, and not less than $3^1/_2$ percent nor less than 0.5 square feet (0.047 m^2) for each dumbwaiter car in the hoistway, whichever is greater. Of the total required vent area, not less than one-third shall be permanently open. Closed portions of the required vent area shall consist of openings glazed with annealed glass not greater than 0.125 inch (3.2 mm) in thickness.

Exception: The total required vent area shall not be required to be permanently open where all the vent openings automatically open upon detection of smoke in the elevator lobbies or hoistway, upon power failure and upon activation of a manual override control. The manual override control shall be capable of opening and closing the vents and shall be located in an approved location.

Reason: The manual override control should be able to both open and close the vents. As currently written the section only seems to require that such manual controls open the vents

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

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

G191–07/08
3004.3

Proponent: Tim Nogler, Washington State, representing Washington State Building Code Council

Revise as follows:

3004.3 (Supp) Area of vents. Except as provided for in Section 3004.3.1, the area of the vents shall not be less than $3^1/_2$ percent of the area of the hoistway nor less than 3 square feet (0.28 m^2) for each elevator car, and not less than $3^1/_2$ percent nor less than 0.5 square feet (0.047 m^2) for each dumbwaiter car in the hoistway, whichever is greater. ~~Of the total required vent area, not less than one-third shall be permanently open. Closed portions of the required vent area shall consist of openings glazed with annealed glass not greater than 0.125 inch (3.2 mm) in thickness.~~ The total required vent area shall be equipped with dampers that remain closed until automatically opened when smoke is detected in the elevator lobby or hoistway. The dampers shall open upon power failure.

> ~~**Exception:** The total required vent area shall not be required to be permanently open where all the vent openings automatically open upon detection of smoke in the elevator lobbies or hoistway, upon power failure and upon activation of a manual override control. The manual override control shall be located in an approved location~~

Reason: The purpose of this code change is to add a new requirement, requiring the total vent area to be equipped with dampers. The proposal also eliminates the requirement for a manual override. The new requirement adds clarity to the code, provides a more effective system, and saves energy. The vent openings are provided to release smoke in the event of a fire. The current code requires that one third of the vent area be permanently open. This creates an open path for uncontrolled heat loss or gain during the normal operation of the elevator. The exception in the current code provides an alternative to permanent openings, however the language is unclear, stating that the vent openings must open. By specifying a damper the code would define a method to automatically open the vents. This mechanical means is safer and more practical than glazed openings, and limits heat loss or gain during normal operation of the elevator. The manual override has proven ineffective as an operational procedure. Locating the override switch and opening the vents is not a standard practice for fire departments, and the override is unnecessary as the dampers open automatically. This proposed revision is in effect in the state of Washington.

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

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

G192–07/08
3005.2.3 (New)

Proponent: Ed Donoghue, Edward Donoghue Associates Inc. (EADAI)

Add new text as follows:

3005.2.3 Water intrusion. When escalator landings are open to the exterior, the landing shall be sloped away from the escalator at a minimum of 1 percent.

Reason: The purpose of this code change is to prevent water from running into an escalator during rainstorms. The minimum slope is a number used in the plumbing code associated with the slope of floors in indoor locations for drains.

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

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

G193–07/08
3007, 403.10, [F] 903.3.1.1.1 (IFC 903.3.1.1.1)

Proponent: Ed Donoghue, Edward Donoghue Associates Inc. (EADAI)

Revise as follows:

SECTION 3007 (Supp)
~~FIRE SERVICE ACCESS~~ ROBUST FIRE SERVICE ELEVATOR

3007.1 (Supp) General. Where required by Section 403.10, every floor of the building shall be served by a ~~fire service access~~ robust fire service elevator. Except as modified in this section, the ~~fire service access~~ robust fire service elevator shall be installed in accordance with this chapter and ASME A17.1.

3007.2 (Supp) Hoistway enclosures protection. The ~~fire service access~~ robust fire service elevator shall be located in a shaft enclosure complying with Section 707.

3007.3 (Supp) ~~Fire service access~~ Robust fire service elevator lobby. The ~~fire service access~~ robust fire service elevator shall open into a ~~fire service access~~ robust fire service elevator lobby in accordance with Sections 3007.3.1 through 3007.3.3.

Exception: Where a ~~fire service access~~ robust fire service elevator has two entrances onto a floor, the second entrance shall be permitted to open into an elevator lobby in accordance with Section 707.14.1.

3007.3.1 (Supp) Access. The ~~fire service access~~ robust fire service elevator lobby shall have direct access to an exit enclosure.

3007.3.2 (Supp) Lobby enclosure. The ~~fire service access~~ robust fire service elevator lobby shall be enclosed with a smoke barrier having a minimum 1-hour fire-resistance rating, except that lobby doorways shall comply with Section 3007.3.3.

Exception: Enclosed ~~fire service access~~ robust fire service elevator lobbies are not required at the street floor.

3007.3.3 (Supp) Lobby doorways. Each ~~fire service access~~ robust fire service elevator lobby shall be provided with a doorway that is protected with a 3/4-hour fire door assembly complying with Section 715.4.

3007.4 (Supp) Standpipe hose connection. A Class I standpipe hose connection in accordance with Section 905 shall be provided in the exit enclosure having direct access from the ~~fire service access~~ robust fire service elevator lobby.

3007.5 (Supp) Elevator system monitoring. The ~~fire service access~~ robust fire service elevator shall be continuously monitored at the fire command center by a standard emergency service Interface system meeting the requirements of NFPA 72.

3007.6 (Supp) Electrical power. The following features serving each ~~fire service access~~ robust fire service elevator shall be supplied by both normal power and Type 60/Class 2/Level 1 standby power:

1. Elevator equipment.
2. Elevator machine room ventilation and cooling equipment.
3. Elevator controller cooling equipment.

3007.6.1 (Supp) Protection of wiring or cables. Wires or cables that provide normal and standby power, control signals, communication with the car, lighting, heating, air conditioning, ventilation and fire-detecting systems to ~~fire service access~~ robust fire service elevators shall be protected by construction having a minimum 1-hour fire-resistance rating or shall be circuit integrity cable having a minimum 1-hour fire-resistance rating.

403.10 (Supp) ~~Fire service access~~ Robust fire service elevator. In buildings with an occupied floor more than 120 feet (36 576 mm) above the lowest level of fire department vehicle access, a minimum of one ~~fire service access~~ robust fire service elevator shall be provided in accordance with Section 3007.

[F] 903.3.1.1.1 (IFC 903.1.1.1) 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~~ robust fire service elevator machine rooms and machinery spaces.

Reason: This particular change is intended to change the terminology from "Fire Service Access Elevator" as used in Section 3007 and related referenced sections to "Robust Fire Service Elevator". The basis for this change is related to the fact that elevators in all buildings have some level of fire service access associated with them with the requirements for Phase I recall and Phase II emergency operation. Therefore the current terminology does not highlight the enhanced features that the requirements in Section 3007 provide.

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 following link provides a summary of the cases reviewed for the fire service elevator hazard analysis (PROVIDE LINK).

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:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF

G194–07/08
3007.2

Proponent: Greg Lake, Sacramento Metropolitan Fire District, representing the California Fire Chiefs Association (Cal Chiefs)

Revise as follows:

3007.2 (Supp) Hoistway enclosures protection. The fire service access elevator shall be located in a shaft enclosure complying with Section 707. The fire-resistance rating of the fire service access elevator hoistway enclosure walls shall be determined by meeting the conditions of acceptance specified in ASTM E119 with the hose stream test conducted at the end of the fire test for the original test specimen to determine the integrity of the wall.

Reason: Cal Chiefs has decided to submit this code change proposal as a result of discussions which occurred during the Public Hearings held at the ICC Final Action Hearings on Code Change Proposals G70-06/07 submitted by the Masonry Alliance for Codes and Standards (MACS) and G73-06/07 submitted by the Ad Hoc Committee on Terrorism Resistant Buildings to address the issue of the physical integrity of elevator hoistway

and exit stairway shaft enclosures in super high rise buildings (those buildings greater than 420 in height). Both code changes received significant debate but were subsequently disapproved. However, the Class A voting membership was able to successfully overturn the Committee's recommendation for disapproval of Code Change G70-06/07 but was unsuccessful in achieving the necessary two-thirds majority vote for approval of the code change. We believe that code change had merit so we reviewed it and revised it to better clarify it and make it more enforceable in our opinion based on this code change submittal.

It is clear in the NIST Final Report of the National Construction Safety Team on the collapse of the World Trade Center Towers which can be found on the NIST website at www.NIST.gov that there is a need to provide a means for determining minimum structural integrity criteria for the means of egress in very tall buildings which may include elevator hoistways for elevators that may be used for emergency access by emergency responders, or as a method of emergency evacuation, especially for people with disabilities. Recommendation 18 in Chapter 9 of the NIST Report stated the following:

> "NIST recommends that egress systems (i.e. stairs, elevators, exits) should be designed … (2) to maintain their functional integrity and survivability under foreseeable building-specific or large-scale emergencies…"

Item B in this recommendation further states:

> "The design, functional integrity, and survivability of the egress and other life safety systems, (e.g., stairwell and elevator shafts…) should be enhanced by considering accidental structural loads such as those induced by overpressures (e.g., gas explosions), impacts, or major hurricanes and earthquakes, in addition to fire separation requirements… The stairwells and elevators shafts… should have adequate structural integrity to withstand accidental structural loads and anticipated risks."

In other words, the exit stairway shaft enclosures should be "hardened" beyond what they may be today based on the fire tests currently prescribed in ASTM E119.

We believe that the most direct and effective approach at this time based on the use of nationally recognized standards to determine the structural integrity of the exit stairway shaft enclosure walls is to specify that when the fire-resistance rating for the wall assembly is determined in accordance with ASTM E119, that it is based on the hose stream test portion of the test being conducted at the end of the fire-resistance test for the original test specimen. That is one of three options prescribed in ASTM E119 for when the hose stream test is to be applied. Another option for applying the hose stream test for wall assemblies having a fire-resistance rating of 1-hour or more is to test a second test specimen for one-half the duration of the fire-resistance rating determined by the original test specimen but for not more than 1-hour and then apply the hose stream test. So for a 2-hour fire-resistance rated wall which would be required for these shaft enclosures, the hose stream test under that option would be applied after a 1-hour fire-resistance test has been conducted on a duplicate test specimen of the original 2-hour fire-resistance rated wall assembly. It is obvious to us that if we specify the hose stream test to be conducted at the end of the fire-resistance test for the original test specimen, the wall must be substantially more robust and "hardened" in order to withstand the "impact, erosion, and cooling effects of a hose stream" as specified in Section 11.1 of ASTM E119. The purpose of the hose stream test is also explained in Appendix X5 Commentary to ASTM E119. Section X5.9 Integrity states: "In this hose stream test, the ability of the construction to resist disintegration under adverse conditions is examined."

As representatives of the fire service, we are very concerned that the elevator hoistway enclosures in these very tall buildings be sufficiently "hardened" to assure that they will withstand various impacts and stresses that may occur during an uncontrolled fire. This is especially important since we may be utilizing the elevators to assist in evacuation of the occupants of the building. In the NIST Report it was estimated that the evacuation of a fully occupied World Trade Center Tower would have taken approximately 4 hours. And, of course, we may need to deal with evacuation of disabled occupants utilizing these elevators as well. Also, the responding fire department may also utilize these elevators to gain access to the fire floor since the stairways may not be practical. It was also noted in the NIST Report that it was estimated that the fire department response using the stairways to gain access to the 58th floor of a hypothetical 60 story building for fire fighting operations and rescue purposes would require at least 90 minutes provided the fire department personnel were not carrying any equipment or breathing apparatus but could take as much as 120 minutes if the emergency responders were in fact carrying equipment and breathing apparatus.

Since the fire service will be relying on the fire service access elevator to move their man power and equipment up into the building to the fire floor immediately below the fire floor in these high rise buildings, it is essential that they have adequate structural integrity to withstand an uncontrolled fire exposure which may subject the hoistway enclosure walls to unusual stresses and physical impacts by falling objects and debris, etc. We need some very firm assurances that the hoistway enclosure integrity will be maintained so that we can reasonably safely use the elevator for our emergency fire fighting purposes. Based on our understanding of how the hose stream test is applied ASTM E119 and our observation of its application to different fire-resistance rated 2-hour assemblies, we would feel much better utilizing fire service access elevators in a hoistway enclosure protected as prescribed by this code change proposal.

In conclusion, Cal Chiefs strongly supports the need to "harden" the elevator hoistway enclosures in these super high rise buildings in order to provide adequate fire and life safety for not only the occupants of the building but also for the responding fire department and other emergency personnel who may be using those elevators to gain access to the fire floor, as well as to assist in evacuation of the occupants. We believe that this code change proposal will provide that additional degree of integrity for "hardening" these elevator hoistway enclosures.

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

Analysis: The 2007 Supplement includes a new section 3007, Fire Service Access Elevators. The requirement is scoped in Section 403.10.

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

G195–07/08

3007.3 (New), 3007.6

Proponent: Ed Donoghue, Edward Donoghue Associates Inc. (EADAI)

1. Add new text as follows:

3007.3 (Supp) Hoistway lighting. The entire hoistway shall be illuminated at not less than 1 foot-candle (11 lux) at each hoistway entrance when firefighters' emergency operation is active.

(Renumber subsequent sections)

2. Revise as follows:

3007.6 (Supp) Electrical power. The following features serving each fire service access elevator shall be supplied by both normal power and Type 60/Class 2/Level 1 standby power:

1. Elevator equipment.
2. Elevator hoistway lighting
3. ~~2.~~ Elevator machine room ventilation and cooling equipment.
4. ~~3.~~ Elevator controller cooling equipment.

Reason: The focus of this proposal was upon providing illumination to assist fire fighters as they to advance up into the building. The prescribed procedure before leaving the designated level (DL), is to shine a light up into the hoistway to try and detect smoke, flame or water above them. They will repeat this step every 5 floors until they safely arrive at their staging floor, which is two floors below the lowest reported floor in alarm. By having hoistway lighting this will make their life safety maneuver much more effective.

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 increase the cost of construction.

Analysis: The 2007 Supplement includes a new section 3007, Fire Service Access Elevators. The requirement is scoped in Section 403.10.

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

G196–07/08

3007.3.3, 3007.3.3.1 (New)

Proponent: Gregory J. Cahanin, Cahanin Fire and Code Consulting, representing the Smoke Safety Council

Revise as follows:

3007.3.3 Lobby doorways. Each fire service access elevator lobby shall be provided with a doorway that is protected with a $^{3}/_{4}$-hour fire door assembly complying with Section 715.4.

3007.3.3.1 Fire doors. Fire door assemblies shall meet the requirements for a smoke and draft control door assembly tested in accordance with UL 1784 without an artificial bottom seal installed across the full width of the bottom of the door assembly during the test. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot [ft3/(min × ft2)](0.015424 m3/ s × m2) of door opening at 0.10 inch (24.9 Pa)of water column for both the ambient temperature and elevated temperature tests. Louvers shall be prohibited. Installation of smoke doors shall be in accordance with NFPA 105.

Reason: This revision to lobby doorways as a part of the newly approved Fire Service Access Elevator requirements brings consistency with the door specification requirements found in the code. While the 715.4 reference now in this new section will lead many to believe that 715.4.3.1 is to be applied; the language of 715.4 states that doors conforming to 715.4.1, 715.4.2 or 715.4.3 are approved.

Provisions added to the IBC in the last cycle establish a Fire Service Access Elevator that will operate through a fire event for the use of firefighters and occupants that are rescued from upper floors due to mobility impairments or by virtue of being trapped by the fire on upper floors. Sections 715.4.3.1 in the code provide more complete prescriptive requirements for the doors behind which occupants and firefighters may seek refuge.

Doors which are utilized to protect occupants and rescue personnel for extended periods of time will be challenged by smoke spread on a fire floor that is impacted by the size of the fire, the presence or absence of building ventilation on the fire floor, stack effect, and wind load upon the building. The UL 1784 test allows for testing with or without an artificial bottom seal, with the use of duct tape being the typical mode of providing an artificial bottom seal during testing. Doors which have been tested to UL 1784 without taping of the bottom of the door and passed the leakage requirements mirror possible smoke impact that will be experienced during a fire better provide for the safety of firefighters and occupants staying in the Fire Service Access Elevator lobby for extended periods of time.

Cost Impact: There is no cost impact.

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

G197–07/08
3007.3.4 (New)

Proponent: Ken Kraus, Los Angeles Fire Department, CA

Add new text as follows:

3007.3.4 Lobby size. Each fire service access elevator lobby shall be a minimum of 150 square feet (14 m^2) in area. The lobby shall increase in size by 50 square feet (4.65 m^2) for each additional elevator car served.

Reason: The purpose of this change is to enhance the efficacy of provisions recently added to the IBC as G63-06/07.

Stipulating a minimum size for the fire service elevator lobby is essential to ensure the effectiveness of the intended use. Areas used as a basis for firefighting emergency operations must be able to accommodate; multiple fire attack teams, tactical equipment, practical use of the associated standpipe, and do not conform to standard occupancy factor calculations.

A minimum size is also necessary to; ensure the effective utilization of the associated exit enclosure.

Without this change, design constraints, egress configuration limitations and other factors could dictate or limit the size of the lobby rendering it potentially useless.

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

Analysis: The 2007 Supplement includes a new section 3007, Fire Service Access Elevators. The requirement is scoped in Section 403.10.

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

G198–07/08
3007.5 (New)

Proponent: Ed Donoghue, Edward Donoghue Associates Inc. (EADAI)

Add new text as follows:

3007.5 Alternative machine room ventilation. Where machine rooms are ventilated utilizing supply air from outside the machine room, an alternative ventilation supply shall be provided in accordance with Section 3007.5.1 and 3007.5.2.

3007.5.1 System response. Upon activation of a smoke damper located in the supply duct in accordance with Section 3007.5.2 the supply intake for the machine room ventilation system shall transfer to a secondary supply intake remote from the primary supply intake. Upon activation of the smoke damper located in the secondary supply duct in accordance with Section 3007.5.2 the system shall shut down and the air within the machine room shall be re-circulated.

3007.5.2 Smoke dampers. Smoke dampers shall be located downstream of any filters in the primary and secondary air intake for the machine room ventilation. Installation of smoke dampers shall be in accordance with Section 716.

(Renumber subsequent sections)

Reason: It is imperative that the elevator system serving the Robust Fire Service Elevators (RFSE) remain operational for as long as possible. One method to insure this is to provide an environment conducive to continued mechanical/electrical operation of the elevator equipment located in the elevator machine rooms, control rooms and control spaces.

This proposal adds a second backup air supply provided from an alternate source, and in the event both external sources are contaminated as evidenced by activation of smoke dampers in both the primary supply as well as the secondary supply ducts, the air in the machine room will be recirculated with no make up air added.

Failure to maintain extended operational reliability to the elevators (RFSE) used by the Fire Service could result in sudden unanticipated failure resulting in both Firefighters (potentially along with disabled building occupants) trapped in stalled elevator cabs. This would necessitate rescue by other fire fighters thereby diminishing resources available to fight the fire.

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 increase the cost of construction.

Analysis: The 2007 Supplement includes a new section 3007, Fire Service Access Elevators. The requirement is scoped in Section 403.10.

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

G199–07/08

3007.6.1

Proponent: Ed Donoghue, Edward Donoghue Associates Inc. (EADAI)

Revise as follows:

3007.6.1 (Supp) Protection of wiring or cables. Wires or cables that provide normal and standby power, control signals, communication with the car, lighting, heating, air conditioning, ventilation and fire-detecting systems to fire service access elevators shall be protected by construction having a minimum ~~1~~ 2-hour fire-resistance rating or shall be circuit integrity cable having a minimum ~~1~~ 2-hour fire-resistance rating.

Exception: Wire and cables inside 2 hour fire-resistance rated machine rooms and hoistways shall not require fire-resistance rating.

Reason: The safety of the firefighters during their firefighting operations is dependent upon the life safety support systems (listed above) being maintained during the critical first 2 hours of their efforts. Locating, surrounding and extinguishing the fire, as well as removing those lives in jeopardy, will take time. Those activities cannot be run while looking at their watches to determine if that “hour” is nearly up. If they have not gotten the fire under control by 2 hours into the effort, then it is probably time to evacuate. Providing the 2 hour protection will provide the necessary safety factor for fire fighters to undertake fire fighting and rescue operations without increased concern for system failure.

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.
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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 increase the cost of construction.

Analysis: The 2007 Supplement includes a new section 3007, Fire Service Access Elevators. The requirement is scoped in Section 403.10.

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

G200–07/08
3007.7 (New)

Proponent: Ed Donoghue, Edward Donoghue Associates Inc. (EADAI)

Add new text as follows:

3007.7 Protection from water. The fire service access elevator lobby and hoistway shall be protected from the intrusion of water from sprinklers in accordance with Sections 3007.7.1 through Section 3007.7.5.

3007.7.1 Lobby entrance. The floor outside the entrance to the fire service access elevator lobby shall be sloped in order to prevent water from entering the lobby at a minimum of 1 percent toward a drain outside of the lobby with the capacity to drain the discharge water from not less than two sprinklers discharging simultaneously.

3007.7.2 Hoistway entrance. The Fire Service access elevator hoistway entrance shall be protected from the intrusion of water in accordance with Section 3007.7.2.1 and 3007.7.2.2

3007.7.2.1 Drains. Water shall be diverted from entering the hoistway through the hoistway entrance using one of the following methods.

1. A trench drain placed in the floor at the hoistway entrance; or
2. The lobby floor is sloped in order to prevent water from entering the hoistway away from the hoistway entrance at a minimum of 1 percent and leading to a drain.

Floor drains and trench drains shall have the capacity to drain the discharge water from not less than two sprinklers that are closest to the hoistway and discharging simultaneously.

3007.7.2.2 Gasketed barriers. Gasketed barriers, designed to act as water doors, shall be designed and installed to separate the hoistway entrance from the lobby when a sprinkler in the lobby has activated. The barriers shall be designed such that a fire fighter can view and access the lobby area.

3007.7.3 Hoistway walls. Walls forming the fire service access elevator hoistway shall be protected from the intrusion of water by one of the following methods.

1. Trench drains placed in the floor around the perimeter**;**
2. Floors sloped away from the hoistway walls at a minimum of 1 percent and leading to drains; or
3. Curbs or dams above a floor to a height of 4 inches (102 mm) minimum.

Floor drains and trench drains shall have the capacity to drain the discharge water from not less than two sprinklers discharging simultaneously.

3007.7.4 Tripping hazards. Any drains or gaskets shall be arranged such that the tops are substantially flush with the floor surface elevation to avoid tripping hazards.

3007.8 Water protection. Sprinklers shall be prohibited in fire service access elevators hoistways and machine rooms.

Exception: Sprinklers installed in the elevator pit not greater than 2 feet (610 mm) above the pit floor.

Reason: This particular proposal focuses on keeping water from fire sprinklers from disabling the elevators the firefighters will use. With current building designs, sprinkler water that accumulates on the floor tends to drain through the elevator hoistways and stairwells. In order to keep the elevators operational, the electric circuits on the car and in the hoistway must be kept dry. The Hazard Analysis considered outdoor elevator equipment, but concluded that the best way to do this is to prevent the water from entering the hoistway in the first place. This is done by directing the water to drains designed for that purpose.

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 increase the cost of construction.

Analysis: The 2007 Supplement includes a new section 3007, Fire Service Access Elevators. The requirement is scoped in Section 403.10.

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

G201–07/08

3101.1, 3110 (New), Chapter 35 (New)

Proponent: Joseph R. Hetzel, PE, Thomas Associates, Inc., representing the Door & Access Systems Manufacturers Association

1. Revise as follows:

3101.1 Scope. The provisions of this chapter shall govern special building construction including membrane structures, temporary structures, pedestrian walkways and tunnels, automatic vehicular gates, awnings and canopies, marquees, signs, and towers and antennas.

2. Add new text as follows:

SECTION 3110
AUTOMATIC VEHICULAR GATES

3110.1 General. Automatic vehicular gates shall comply with the requirements of this section and other applicable sections of this code.

3110.2 Definitions. The following words and terms shall, for the purposes of this section and as used elsewhere in this code, have the meaning shown herein.

VEHICULAR GATE. A gate that is intended for use at a vehicular entrance or exit to a drive, parking lot or similar location, and that is not generally intended for use by pedestrian traffic.

3110.3 Vehicular gates intended for automation. Vehicular access gates intended for automation shall be designed, constructed and installed to comply with the requirements of ASTM F 2200.

3110.4 Vehicular gate openers. Vehicular gate openers, when provided, shall be listed in accordance with UL 325.

3. Add standards to Chapter 35 as follows:

ASTM

F 2200-05	Standard Specification for Automated Vehicular Gate Construction

UL

325-02	Door, Drapery, Gate, Louver, and Window Operators and Systems, with revisions through February, 2006

Reason: The purpose of the proposed code change is to provide requirements for automatic vehicular gates, which are not currently addressed in the Code. A set of companion changes was submitted for the International Fire Code, to harmonize that code with the IBC with respect to automated vehicular gates.

The current Code provisions are inadequate because public safety needs are not addressed regarding automatic operation of vehicular gates. Protection is needed from potential entrapment of individuals between an automatically moving gate and a stationary object, or surface, in close proximity to such gate. Gates intended for automation require specific design, construction and installation to accommodate entrapment protection to minimize or eliminate certain excessive gate gaps, openings and protrusions identified as contributing to the hazard of entrapments that have historically caused numerous serious injuries and deaths.

The Code will be improved by including provisions referencing UL 325 and ASTM F 2200. UL 325 is an ANSI recognized safety standard containing provisions governing gate openers. Gate openers listed to the requirements of UL 325 provide the public with assurance that safety requirements have been met for such openers. ASTM F 2200 is a consensus document containing provisions governing the construction of vehicular gates intended for automation, and has been harmonized with the applicable provisions of UL 325.

Death and injury data does exist associated with automated vehicular gates. A previous related proposal on the topic, submitted in 2002 by the Consumer Product Safety Commission and designated as E34-02, pointed out the following information compiled by the CPSC from 1985 to that time:

1. Reports of 32 deaths relating to automatically operated vehicular gates were received, many as a result of entrapment between a moving gate and a stationary object.
2. Data from the National Electronic Injury Surveillance System estimated that approximately 2,000 people are treated annually in hospital emergency rooms due to injuries in such gates. Many of these injuries have been identified as serious, involving amputation, broken arms and broken legs.

Cost Impact: The code change proposal will increase the cost of construction**.** However, the resulting safety benefits will outweigh the increased cost.

Analysis: A review of the standard proposed for inclusion in the code, ASTM F2200, 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

G202–07/08
3105.2

Proponent: Juli Case, Industrial Fabrics Association International

Revise definition as follows:

3105.2 Definition. The following term shall, for the purposes of this section and as used elsewhere in this code, have the meaning shown herein.

RETRACTABLE AWNING. A retractable awning is a cover with a frame that ~~retracts~~ rolls or folds against a building or other structure to which it is entirely supported.

Reason: To clarify the code.
To use the word 'retract' within the definition of a retractable awning is redundant and does not describe the mechanisms used to retract the awning.
Members of the Industrial Fabrics Association International, including the Lightweight Structures Association; the Professional Awning Manufacturers Association; the Tent Rental Division; and the Banner, Flag & Graphics Association, worked jointly on assessing terminology. Participants reflected backgrounds in engineering, architecture, end product manufacturing and component suppliers.
The change reflected in the proposed definition is already being used in the membrane structure industry, having been published in the *Fabric Architecture* and *Industrial Fabric Products Review* magazines, published on the Professional Awning Manufacturers Association website, and used by the IFAI International Achievement Awards program.

Bibliography:
"By Any Other Name," *Industrial Fabric Products Review*, volume 91, Number 1, January 2006.
"Standardized Industry Definitions" *Fabric Architecture*, Volume 18, No. 2, March/April 2006
"A Defining Moment for Fabric Structures," *InTents*, volume 12, number 1, February/March 2005
"Defining the Basics," *InTents*, Volume 13, Number 1, February/March 2006
Professional Awning Manufacturers Association website, http://www.awninginfo.com
IFAI International Achievement Awards 2006 entry brochure

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

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

G203–07/08
1613.3, 3401.4 (New) (IEBC [B] 301.2), 3401.4.1 (New) (IEBC [B] 301.2.1), 3401.4.2 (New) (IEBC [B] 301.2.2), 3403 (New) (IEBC [B] 302), 3404 (New) (IEBC [B] 303), 3405 (New) (IEBC [B] 304)

Proponent: David Bonowitz, S.E, David Bonowitz, SE, representing the National Council of Structural Engineers Associations Existing Buildings

THESE PROPOSALS ARE ON THE AGENDA OF THE IBC STRUCTURAL AND THE IBC MEANS OF EGRESS CODE DEVELOPMENT COMMITTEES AS 2 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

PART I – IBC STRUCTURAL

1. Revise as follows:

1613.3 Existing buildings. Additions, alterations, ~~modification~~, repairs or change of occupancy of existing buildings shall be in accordance with ~~Sections 3403.2.3 and 3406.4~~ Chapter 34.

2. Add new text as follows:

3401.4 (IEBC 301.2) Building materials. Building materials shall comply with the requirements of this section.

3401.4.1 (IEBC 301.2.1) Existing materials. Materials already in use in a building in conformance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the code official to be detrimental to life, health or safety.

3401.4.2 (IEBC 301.2.2) New and replacement materials. Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for repairs and alterations, provided no hazard to life, health or property is created. Hazardous materials shall not be used where the code for new construction would not permit their use in buildings of similar occupancy, purpose and location.

3. Delete section it its entirety and substitute follows:

~~**SECTION 3403 (IEBC 302)**~~
~~**ADDITIONS, ALTERATIONS OR REPAIRS**~~

SECTION 3403 (IEBC 302)
ADDITIONS

3403.1 (IEBC 302.1) General. Additions to any building or structure shall comply with the requirements of the code for new construction. Alterations to the existing building or structure shall be made to ensure that the existing building or structure together with the addition are no less conforming with the provisions of this code than the existing building or structure was prior to the addition. An existing building together with its additions shall comply with the height and area provisions of Chapter 5.

3403.2 (IEBC 302.2) Flood hazard areas. For buildings and structures in flood hazard areas established in Section 1612.3, any addition that constitutes substantial improvement of the existing structure, as defined in Section 1612.2, shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design.

3403.3 (IEBC 302.3) Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an addition and its related alterations cause an increase in design gravity load of more than 5 percent shall be strengthened, supplemented, replaced, or otherwise altered as needed to carry the increased load required by this code for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased shall be considered an altered element subject to the requirements of Section 3404.3. Any existing element that will form part of the lateral load path for any part of the addition shall be considered an existing lateral load-carrying structural element subject to the requirements of Section 3403.4.

3403.3.1 (IEBC 302.3.1) Design live load. Where the addition does not result in increased design live load, existing gravity load-carrying structural elements shall be permitted to be evaluated and designed for live loads approved prior to the addition. If the approved live load is less than that required by Section 1607, the area designed for the non-conforming live load shall be posted with placards of approved design indicating the approved live load. Where the addition does result in increased design live load, the live load required by Section 1607 shall be used.

3403.4 (IEBC 302.4) Existing structural elements carrying lateral load. Where the addition is structurally independent of the existing structure, existing lateral load-carrying structural elements shall be permitted to remain unaltered. Where the addition is not structurally independent of the existing structure, the existing structure and its addition acting together as a single structure shall be shown to meet the requirements of Sections 1609 and 1613.

> **Exception:** Any existing lateral load-carrying structural element whose demand-capacity ratio with the addition considered is no more than 10 percent greater than its demand-capacity ratio with the addition ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces per Sections 1609 and 1613. For purposes of this Exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces, and capacities shall account for the cumulative effects of additions and alterations since original construction.

SECTION 3404 (IEBC 303)
ALTERATIONS

3404.1 (IEBC 303.1) General. Except as provided by Section 3401.4 or this section, alterations to any building or structure shall comply with the requirements of the code for new construction. Alterations shall be such that the existing building or structure is no less conforming with the provisions of this code than the existing building or structure was prior to the alteration.

3404.2 (IEBC 303.2) Flood hazard areas. For buildings and structures in flood hazard areas established in Section 1612.3, any alteration that constitutes substantial improvement of the existing structure, as defined in Section 1612.2, shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design.

3404.3 (IEBC 303.3) Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an alteration causes an increase in design gravity load of more than 5 percent shall be strengthened, supplemented, replaced, or otherwise altered as needed to carry the increased gravity load required by

this code for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the alteration shall be shown to have the capacity to resist the applicable design gravity loads required by this code for new structures.

3404.3.1 (IEBC 303.3.1) Design live load. Where the alteration does not result in increased design live load, existing gravity load-carrying structural elements shall be permitted to be evaluated and designed for live loads approved prior to the alteration. If the approved live load is less than that required by Section 1607, the area designed for the non-conforming live load shall be posted with placards of approved design indicating the approved live load. Where the alteration does result in increased design live load, the live load required by Section 1607 shall be used.

3404.4 (IEBC 303.4) Existing structural elements carrying lateral load. Except as permitted by Section 3404.5, where the alteration increases design lateral loads per Section 1609 or Section 1613, or where the alteration results in a structural irregularity as defined in ASCE 7, or where the alteration decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall be shown to meet the requirements of Sections 1609 and 1613.

> **Exception:** Any existing lateral load-carrying structural element whose demand-capacity ratio with the alteration considered is no more than 10 percent greater than its demand-capacity ratio with the alteration ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces per Sections 1609 and 1613. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces, and capacities shall account for the cumulative effects of additions and alterations since original construction.

3404.5 (IEBC 303.5) Voluntary seismic improvements. Alterations to existing structural elements or additions of new structural elements that are not otherwise required by this chapter and are initiated for the purpose of improving the performance of the seismic force-resisting system of an existing structure or the performance of seismic bracing or anchorage of existing nonstructural elements shall be permitted, provided that an engineering analysis is submitted demonstrating the following:

1. The design strength of existing structural elements required to resist seismic forces is not reduced.
2. The seismic force to required existing structural elements is not increased beyond their design strength.
3. New structural elements are detailed and connected to the existing structural elements as required by Chapter 16.
4. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by Chapter 16.
5. The alterations do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.
6. The alterations do not result in the creation of an unsafe condition.

SECTION 3405 (IEBC 304)
REPAIRS

3405.1 (IEBC 304.1) General. Buildings and structures, and parts thereof, shall be repaired in conformance with Section 3401.2. Work on non-damaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to the requirements for alterations in this chapter.

3405.2 (IEBC 304.2) Flood hazard areas. For buildings and structures in flood hazard areas established in Section 1612.3, any repair that constitutes substantial improvement of the existing structure, as defined in Section 1612.2, shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design.

(Renumber subsequent sections)

PART II – IBC MEANS OF EGRESS

Add exceptions to proposed new Section 3404.1 (see above) as follows:

Exceptions:

1. An existing stairway shall not be required to comply with the requirements of Section 1009 where the existing space and construction does not allow a reduction in pitch or slope.
2. Handrails otherwise required to comply with Section 1009.10 shall not be required to comply with the requirements of Section 1012.5 regarding full extension of the handrails where such extensions would be hazardous due to plan configuration.

Reason: The proposal is entirely editorial (with one exception regarding clarification of wind design triggers, described below) and is intended to clarify and correct inconsistencies in section 3403 by breaking it into separate sections, defining certain terms, and removing obsolete, unnecessary, and unenforceable provisions. The proposal does not change the intended scope of the section or the intended outcome of the work. That is, the basic philosophy of Chapter 34, which requires upgrades beyond the intended scope of work in rare cases only, is maintained.

The proposal does the following:

- Adds a section on permitted materials to replace unenforceable and incomplete provisions in current 3403.2 and 3403.3 and to incorporate the new provision from the 07 supplement in current section 3403.1.1.
- Separates 3403 into separate sections for Additions, Alterations, and Repairs in order to clarify different requirements and facilitate future code changes.
- Clarifies that the structural trigger for evaluation of wind loading should be a 10% trigger (as it is for earthquake loading), not the 5% trigger implied from the current non-specific language in section 3403.2.

The following table documents the proposed change in section numbering in order to facilitate review:

2006 IBC section	Proposed section(s)
3403.1 Existing buildings or structures	3403.1, 3404.1
3403.1.1 Existing approved materials (added with 07 supplement)	3401.4.1
3403.1.2 Flood hazard areas (3403.1.1 prior to 07 supplement)	3403.2, 3404.2, 3405.2
3403.2 Structural	3403.3, 3404.3 3401.4.1, 3405.1 (these replace the last sentence of 3403.2)
3403.2.1 Existing live load	3403.3.1
3403.2.2 Live load reduction	3403.3.1
3403.2.3 Seismic	3403.4, 3404.4
3403.2.3.1 Additions to existing buildings	3403.4
3403.2.3.2 Alterations	3404.4
3403.2.3.2 Alterations – Exception	3404.5
3403.3 Nonstructural	3401.4
3403.4 Stairways (including 3403.4.1, added with 07 supplement)	Exceptions to 3404.1

Overall, the proposal is necessary and justified because of obsolete and inconsistent provisions. Examples:

- Current provisions are difficult to enforce because they use implicit, not explicit, wording. That is, they say only what is not allowed but are not clear as to what is required as an allowed alternative. Section 3403.1, for example, says an alteration may not cause the existing building to be in violation. What if the intended alteration – removal of a doorway, for example – *would* cause a violation? The implication is that additional or compensating work must be performed to maintain the same level of compliance as the existing condition. But that implication is contradicted by the final sentence of 3403.1, which limits the extent of triggered work. The result is an unclear provision with an unintended limitation on building alterations and an unclear scope of required work. Similar examples exist with respect to the structural and seismic triggers in 3403.2.
- The scope of current section 3403.2 is unclear. There's a separate subsection regarding seismic design, but no similar subsection for wind. Is wind excluded, or is wind presumed to be covered by current 3403.2, with a 5% trigger?
- Current section 3403.2 is non-rational in that it requires full compliance of the entire structure if even a single existing element is overstressed or weakened. Full compliance is often impossible to achieve. The proposed wording allows an element-by-element check, which was probably the unstated intent of the current provision.
- Existing wording is incomplete, incorrect, or unenforceable. For example, section 3403 is supposed to cover additions, alterations, and repairs, but there is only one sentence about repairs (the last sentence of 3403.2), and it is unenforceable. References are made to ASCE 7 that should more properly be made to Chapter 16. 3403.2.3 purports to cover change of occupancy, in contradiction to 3406. See below for other examples.

Each of the various changes is justified and explained separately:

Proposed 3401.4: Replaces incomplete and unenforceable language in 3403.2 and 3403.3 and states more clearly the intent of the chapter to allow existing materials except in certain conditions. Since these requirements cover a basic code philosophy that should apply to change of occupancy and to historic buildings as well as to additions, alterations, and repairs, these should be moved from current 3403 to a more general section covering the entire chapter. Existing materials and new materials are treated separately for clarity. Wording for existing materials already in place is from current 3403.1.1, added with the 07 supplement. Wording for new materials is borrowed from IEBC 501.2 and 502.1.

Section 3403 for Additions only: Portions of current 3403.1 relevant to additions are retained, largely unchanged.

- Some requirements are changed from implicit to explicit.
- "No less conforming" language is borrowed from IEBC 501.3.
- No change to the Flood provision.
- Current 3403.2 (which per 1613.3 is not intended to apply to seismic force resisting systems) and 3403.2.3 are reorganized to apply to different parts of the structural system: gravity and lateral. The provision for the gravity system, proposed 3403.3, retains the current 5% trigger. The lateral system provision, 3403.4, retains the distinction between independent and non-independent additions, retains the 10% element trigger, and clarifies that wind loads must be considered as well as seismic (as intended by current 3403.2).
- The two conditions in current 3403.2.3.1 are rewritten as an exception to proposed 3403.4. To eliminate a loophole by which a 9% increase in load would be allowed even with a simultaneous 9% decrease in capacity, the provision is written in terms of demand-capacity ratio to reflect the actual intent of a trigger based on 10% total change.
- Current 3403.2.1 and 3403.2.2 are combined into 3403.3.1 with no change in intent, but with an explicit requirement added for cases previously covered by unenforceable "public safety not endangered thereby" clause, such as conversion of office space into an exit corridor to serve the addition. Also, the current 3403.2.2 uses the term "live load reduction" incorrectly; "non-conforming live load" is proposed instead. ("Live load reduction" is a structural provision – 1607.9 – that has to do with the probability of uniform loading. It is not what is intended by this provision.)
- References to ASCE 7 are changed to refer to Chapter 16. This is the more appropriate reference because Chapter 16 makes (or could make) certain changes to ASCE 7 that should be considered.

Section 3404 for Alterations only: Portions of current 3403.1 relevant to alterations are retained, largely unchanged.

- Reference to proposed 3401.4 allows the use of like materials.
- Some requirements are changed from implicit to explicit.
- "No less conforming" language is borrowed from IEBC 501.3.
- No change to the Flood provision.

- Current 3403.2 and 3403.2.3 are reorganized similar to Additions.
- Current 3403.2.1 and 3403.2.2 are combined and corrected as for Additions.
- Current 3403.4 and 3403.4.1 regarding stairway alterations are relocated as exceptions to the general requirement of 3404.1.
- References to ASCE 7 are changed to refer to Chapter 16, as for Additions.

Section 3405 for Repairs only: Separated to distinguish from other work scopes.
- Proposed 3405.1 cites 3401.2, which gives the owner's requirement to maintain the building and the code official's authority to require repairs, as an explicit provision.
- Because of the split into separate sections for repair and alteration, proposed 3405.1 now clarifies that work undertaken for purposes of repair is not intended to invoke the upgrade triggers for voluntary alterations.
- No change to the Flood provision.
- As in current Chapter 34, repairs do not trigger any upgrades.

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

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

G204–07/08
3401.4 (New)

Proponent: David Bonowitz, SE, representing the National Council of Structural Engineers Associations Existing Buildings Committee

Add new text as follows:

3401.4 Alternative compliance. Work performed in accordance with the *International Existing Building Code* shall be deemed to comply with the provisions of this chapter.

Reason: To allow an approach to existing buildings that is already part of the I-codes family.

The IEBC takes a more comprehensive approach to existing buildings than IBC chapter 34. In particular, the Work Area method in IEBC chapters 4-12 uses a more specific and clearer set of upgrade triggers and design criteria than does current IBC section 3403, and it adopts current reference standards such as *ASCE 31* for the seismic evaluation of existing buildings and allows the ICC's *Guidelines for the Seismic Retrofit of Existing Buildings* (IEBC Appendix A). Also, by allowing these reference standards, the IBC would be in greater compliance with FEMA rules in 44CFR 206.226(d), which note that repairs using criteria for new construction are often unreasonable and generally less acceptable than repairs based on criteria developed for existing buildings. The IEBC has been through two full code cycles and is adopted in part or in full by jurisdictions across the country. It is a reasonable and valuable alternative to Chapter 34.

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

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

G205–07/08
3402 (IEBC 202), 3403.2 (IEBC [B] 302.2)

Proponent: Gary R. Searer, PE, SE, Wiss, Janney, Elstner Associates, Inc., representing himself

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

1. Add new text as follows:

SECTION 3402 (IEBC 202)
DEFINITIONS

DANGEROUS. Any building or structure or portion thereof that meets any of the conditions described below shall be deemed dangerous:

1. The building or structure has collapsed, partially collapsed, moved off its foundation, or lacks the support of any portion of ground necessary to support it.
2. There exists a significant risk of collapse, detachment, or dislodgment of any portion, member, appurtenance, or ornamentation of the building or structure under typical day-to-day service loads.

2. Revise as follows:

3403.2 (IEBC [B] 302.2) Structural. Additions or alterations to an existing structure shall not increase the force in any structural element by more than 5 percent, unless the increased forces on the element are still in compliance with the code for new structures, nor shall the strength of any structural element be decreased to less than that required by this code for new structures. Where repairs are made to structural elements of an existing building, and uncovered structural elements are found dangerous, such dangerous conditions shall be mitigated or made safe to the satisfaction of the code official. ~~to be unsound or otherwise structurally deficient, such elements shall be made to conform to the requirements for new structures.~~

Reason: The existing wording of Section 3403.2 contains two undefined terms ("unsound" and "structurally deficient") one of which is not particularly meaningful and one of which that can have multiple common meanings to engineers. This proposal replaces these two undefined terms with a term from the IEBC in an attempt to clarify the intent and meaning of this Section and to bring the Section into better alignment with the IEBC.

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

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

G206–07/08

3403 (IEBC [B] 302), 3403.1.1(IEBC [B] 302.1.1), 3403.2 (IEBC [B] 302.2), 3404 (New) (IEBC [B] 303 (New)

Proponent: David Bonowitz, SE, representing the National Council of Structural Engineers Associations Existing Buildings Committee

THIS PROPOSAL IS ON THE AGENDA OF THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE. SEE THE TENTATIVE HEARING ORDER FOR THE IBC STRUCTURAL CODE DEVELOPMENT COMMITTEE.

1. Revise as follows:

SECTION 3403 (IEBC [B] 302)
ADDITIONS~~,~~ AND ALTERATIONS ~~OR REPAIRS~~

3403.1.1 (IEBC [B] 302.1.1) Flood hazard areas. For buildings and structures in flood hazard areas established in Section 1612.3, any additions~~,~~ or alterations ~~or repairs~~ that constitute substantial improvement of the existing structure, as defined in Section 1612.2, shall comply with the flood design requirements for new construction, and all aspects of the existing structure shall be brought into compliance with the requirements for new construction for flood design.

3403.2 (IEBC [B] 302.2) Structural. Additions or alterations to an existing structure shall not increase the force in any structural element by more than 5 percent, unless the increased forces on the element are still in compliance with the code for new structures, nor shall the strength of any structural element be decreased to less than that required by this code for new structures. ~~Where repairs are made to structural elements of an existing building, and uncovered structural elements are found to be unsound or otherwise structurally deficient, such elements shall be made to conform to the requirements for new structures.~~

2. Add new text as follows:

SECTION 3404 (IEBC [B] 303)
REPAIRS

3404.1 General. Buildings and structures, and parts thereof, shall be repaired in conformance with this section and with Section 3401.2. Work on non-damaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall not be subject to the requirements for alterations in this chapter. Routine maintenance required by section 3401.2, ordinary repairs exempt from permit per Section 105.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for repairs in this section.

3404.1.1 Dangerous conditions. Regardless of the extent of structural or nonstructural damage, the code official shall have the authority to require the elimination of conditions deemed dangerous.