2007/2008 PROPOSED CHANGES TO THE INTERNATIONAL BUILDING CODE — FIRE SAFETY

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TENTATIVE ORDER OF DISCUSSION

2007/2008 PROPOSED CHANGES TO THE INTERNATIONAL BUILDING CODE

FIRE SAFETY

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

Proposed change numbers that are indented are those which are being heard out of numerical order. Indentation does **not** necessarily indicate that one change is related to another. Proposed changes may be grouped for purposes of discussion at the hearing at the discretion of the chair.

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FS1–07/08
702.1, 704.8.2, 706.7

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

Revise as follows:

SECTION 702
DEFINITIONS

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

FIRE PROTECTION RATING. The period of time that an opening protective ~~assembly~~ will maintain the ability to confine a fire as determined by tests prescribed in Section 715. Ratings are stated in hours or minutes.

704.8.2 (Supp) Protected openings. Where openings are required to be protected, fire doors and fire shutters shall comply with Section 715.4 and fire window assemblies shall comply with Section 715.5.

Exception: Opening protectives ~~assemblies~~ are not required where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 and the exterior openings are protected by a water curtain using automatic sprinklers approved for that use.

706.7(Supp) Openings. Openings in a fire barrier shall be protected in accordance with Section 715. Openings shall be limited to a maximum aggregate width of 25 percent of the length of the wall, and the maximum area of any single opening shall not exceed 156 square feet (15 m2). Openings in exit enclosures and exit passageways shall also comply with Sections 1020.1.1 and 1021.4, respectively.

Exceptions:
1. Openings shall not be limited to 156 square feet (15 m2) where adjoining floor areas are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Openings shall not be limited to 156 square feet (15 m2) or an aggregate width of 25 percent of the length of the wall where the opening protective is a fire door serving an exit enclosure.
3. Openings shall not be limited to 156 square feet (15 m2) or an aggregate width of 25 percent of the length of the wall where the opening protective ~~assembly~~ has been tested in accordance with ASTM E 119 or UL 263 and has a minimum fire-resistance rating not less than the fire-resistance rating of the wall.
4. Fire window assemblies permitted in atrium separation walls shall not be limited to a maximum aggregate width of 25 percent of length of the wall.

Reason: The changes are proposed for consistency with the use of “opening protective” elsewhere in the 2006 IBC and 2007 IBC Supplement (approximately 40 locations). Those noted above are the only instances of “opening protective assembly” in the 2006 IBC or 2007 IBC Supplement.

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

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

FS2–07/08

[F] 403.2, [F] 415.6.3.5.2, 508.2.5.2, 702.1, 704.9.1, 704.11, 706.5, 707.1, 707.2, 708.4, 709.4, 711.3.1, 711.3.2, 711.6, 712.4, 712.4.1, 712.4.1.2,713.1.173.4, 714.3, 716.6 (IMC [B] 607.6), 716.6.1 (IMC [B] 607.6.1), 716.6.2 (IMC [B] 607.6.2), 721.6.1, Table 721.6.2(1), [F] 903.2, [F] 903.3.1.1.1, 1207.1, 1207.2, 1207.3, 1502.1, 3410.6.3.2 (IEBC 1301.6.3.2); IFC 703.3, 914.3.1, 1504.3.2.5

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

THESE PROPOSALS ARE ON THE AGENDA OF THE IBC FIRE SAFETY, THE IBC STRUCTURAL AND THE IFC CODE DEVELOPMENT COMMITTEES AS 3 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES

PART I – IBC FIRE SAFETY

1. 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~~ floor assembly below to the underside of the ceiling that is a component of a fire-resistance-rated ~~floor/ceiling~~ floor assembly ~~above~~ or ~~fire-resistance-rated roof/ceiling~~ roof 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.

SECTION 702
DEFINITIONS

CEILING RADIATION DAMPER. A listed device installed in a ceiling membrane of a fire-resistance-rated ~~floor/ceiling~~ floor assembly or ~~roof/ceiling~~ roof assembly to limit automatically the radiative heat transfer through an air inlet/outlet opening.

DRAFTSTOP. A material, device or construction installed to restrict the movement of air within open spaces of concealed areas of building components such as crawl spaces, ~~floor/ceiling~~ floor assemblies, ~~roof/ceiling~~ roof assemblies and attics.

704.9.1 (Supp) Voids. The void created at the intersection of a ~~floor/ceiling~~ floor assembly and an exterior curtain wall assembly shall be protected in accordance with Section 713.4.

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 Table 602 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~~ roof 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~~ roof 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.

706.5 (Supp) Continuity. Fire barriers shall extend from the top of the ~~floor/ceiling~~ floor 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.

707.2 (Supp) Shaft enclosure required. Openings through a floor/ceiling assembly shall be protected by a shaft enclosure complying with this Section.

Exceptions:

1. A shaft enclosure is not required for openings totally within an individual residential dwelling unit and connecting four stories or less.
2. A shaft enclosure is not required in a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 for an escalator opening or stairway that is not a portion of the means of egress protected according to Item 2.1 or 2.2:
   2.1. Where the area of the floor opening between stories does not exceed twice the horizontal projected area of the escalator or stairway and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Groups B and M, this application is limited to openings that do not connect more than four stories.
   2.2. Where the opening is protected by approved power-operated automatic shutters at every penetrated floor. The shutters shall be of noncombustible construction and have a fire-resistance rating of not less than 1.5 hours. The shutter shall be so constructed as to close immediately upon the actuation of a smoke detector installed in accordance with Section 907.11 and shall completely shut off the well opening. Escalators shall cease operation when the shutter begins to close. The shutter shall operate at a speed of not more than 30 feet per minute (152.4 mm/s) and shall be equipped with a sensitive leading edge to arrest its progress where in contact with any obstacle, and to continue its progress on release there from.
3. A shaft enclosure is not required for penetrations by pipe, tube, conduit, wire, cable and vents protected in accordance with Section 712.4.
4. A shaft enclosure is not required for penetrations by ducts protected in accordance with Section 712.4. Grease ducts shall be protected in accordance with the *International Mechanical Code*.
5. In other than Group H occupancies, a shaft enclosure is not required for floor openings complying with the provisions for atriums in Section 404.
6. A shaft enclosure is not required for approved masonry chimneys where annular space protection is provided at each floor level in accordance with Section 717.2.5.
7. In other than Groups I-2 and I-3, a shaft enclosure is not required for a floor opening or an air transfer opening that complies with the following:
   7.1. Does not connect more than two stories.
   7.2. Is not part of the required means of egress system, except as permitted in Section 1020.1.
   7.3. Is not concealed within the building construction.
   7.4. Is not open to a corridor in Group I and R occupancies.

7.5. Is not open to a corridor on nonsprinklered floors in any occupancy.
7.6. Is separated from floor openings and air transfer openings serving other floors by construction conforming to required shaft enclosures.
7.7. Is limited to the same smoke compartment.

8. A shaft enclosure is not required for automobile ramps in open and enclosed parking garages constructed in accordance with Sections 406.3 and 406.4, respectively.
9. A shaft enclosure is not required for floor openings between a mezzanine and the floor below.
10. A shaft enclosure is not required for joints protected by a fire-resistant joint system in accordance with Section 713.
11. A shaft enclosure shall not be required for floor openings created by unenclosed stairs or ramps in accordance with Exception 8 or 9 in Section 1020.1.
12. Floor openings protected by floor fire doors in accordance with Section 711.8.
13. Where permitted by other sections of this code.
14. Elevators in open parking garages that serve only the parking garage are not required to be enclosed.

708.4 (Supp) Continuity. Fire partitions shall extend from the top of the foundation or ~~floor/ceiling~~ floor assembly below to the underside of the floor or roof sheathing, slab or deck above or to the underside of the ceiling that is a component of a fire-resistance-rated ~~floor/ceiling~~ floor assembly or ~~roof/ceiling~~ roof assembly above, and shall be securely attached thereto. If the partitions are not continuous to the sheathing, deck or slab, and where constructed of combustible construction, the space between the ceiling and the sheathing, deck or slab above shall be fireblocked or draftstopped in accordance with Sections 717.2 and 717.3 at the partition line. The supporting construction shall be protected to afford the required fire-resistance rating of the wall supported, except for walls separating tenant spaces in covered mall buildings, walls separating dwelling units, sleeping units and corridor walls, in buildings of Types IIB, IIIB, and VB construction.

Exceptions:

1. The wall need not be extended into the crawl space below where the floor above the crawl space has a minimum 1-hour fire-resistance rating.
2. Where the room-side fire-resistance-rated membrane of the corridor is carried through to the underside of the floor or roof sheathing, deck or slab of a fire-resistance-rated floor assembly or roof assembly above, the ceiling of the corridor shall be permitted to be protected by the use of ceiling materials as required for a 1-hour fireresistance-rated floor or roof system.
3. Where the corridor ceiling is constructed as required for the corridor walls, the walls shall be permitted to terminate at the upper membrane of such ceiling assembly.
4. The fire partition separating tenant spaces in a covered mall building, complying with Section 402.7.2, are not required to extend beyond the underside of a ceiling that is not part of a fire-resistance-rated assembly. A wall is not required in attic or ceiling spaces above tenant separation walls.
5. Fireblocking or draftstopping is not required at the partition line in Group R-2 buildings that do not exceed four stories above grade plane, provided the attic space is subdivided by draftstopping into areas not exceeding 3,000 square feet (279 m^2) or above every two dwelling units, whichever is smaller.
6. Fireblocking or draftstopping is not required at the partition line in buildings equipped with an automatic sprinkler system installed throughout in accordance with Section 903.3.1.1 or 903.3.1.2, provided that automatic sprinklers are installed in combustible floor/ceiling and roof/ceiling spaces.

709.4 Continuity. Smoke barriers shall form an effective membrane continuous from outside wall to outside wall and from the top of the foundation or ~~floor/ceiling~~ floor assembly below to the underside of the floor or roof sheathing, deck or slab above, including continuity through concealed spaces, such as those found above suspended ceilings, and interstitial structural and mechanical spaces. The supporting construction shall be protected to afford the required fire-resistance rating of the wall or floor supported in buildings of other than Type IIB, IIIB or VB construction.

Exception: Smoke-barrier walls are not required in interstitial spaces where such spaces are designed and constructed with ceilings that provide resistance to the passage of fire and smoke equivalent to that provided by the smoke-barrier walls.

711.3.1 Ceiling panels. Where the weight of lay-in ceiling panels, ~~used as part~~ that are components of fire-resistance-rated ~~floor/ceiling~~ floor assemblies or ~~roof/ceiling~~ roof assemblies, is not adequate to resist an upward force of 1 lb/ft.2 (48 Pa), wire or other approved devices shall be installed above the panels to prevent vertical displacement under such upward force.

711.3.2 (Supp) Access doors. Access doors shall be permitted in ceilings that are components of fire-resistance-rated ~~floor/ceiling~~ floor assemblies and ~~roof/ceiling~~ roof assemblies provided such doors are tested in accordance with ASTM E 119 or UL 263 as horizontal assemblies and labeled by an approved agency for such purpose.

711.6 Joints. Joints made in or between fire-resistance-rated horizontal assemblies shall comply with Section 713. The void created at the intersection of a ~~floor/ceiling~~ floor assembly and an exterior curtain wall assembly shall be protected in accordance with Section 713.4.

712.4 (Supp) Horizontal assemblies. Penetrations of a floor~~, floor/ceiling~~ assembly or the ceiling membrane that is a component of a ~~roof/ceiling~~ roof assembly not required to be enclosed in a shaft by Section 707.2 shall be protected in accordance with Sections 712.4.1 through 712.4.4.

712.4.1 (Supp) Fire-resistance rated assemblies. Penetrations of the fire-resistance rated floor~~, floor/ceiling~~ assembly or the ceiling membrane that is a component of a ~~roof/ceiling~~ fire-resistance-rated roof assembly shall comply with Sections 712.4.1.1 through 714.4.1.5. Penetrations in horizontal smoke barriers shall also comply with 712.5.

712.4.1.2 (Supp) Membrane penetrations. Penetrations of membranes that are ~~part~~ a component of a fire-resistance-rated horizontal assembly shall comply with Section 712.4.1.1.1 or 712.4.1.1.2. Where ~~floor/ceiling~~ floor assemblies are required to have a fire-resistance rating, recessed fixtures shall be installed such that the required fire resistance will not be reduced.

Exceptions:

1. Membrane penetrations by steel, ferrous or copper conduits, pipes, tubes or vents, or concrete or masonry items where the annular space is protected either in accordance with Section 712.4.1.1 or to prevent the free passage of flame and the products of combustion. The aggregate area of the openings through the membrane shall not exceed 100 square inches (64 500 mm^2) in any 100 square feet ($9.3m^2$) of ceiling area in assemblies tested without penetrations.
2. Ceiling membrane penetrations of maximum 2-hour fire-resistance-rated horizontal assemblies by steel electrical boxes that do not exceed 16 square inches (10 323 mm^2) in area, provided the aggregate area of such penetrations does not exceed 100 square inches (44 500 mm^2) in any 100 square feet ($9.29m^2$) of ceiling area, and the annular space between the ceiling membrane and the box does not exceed 1/8 inch (3.12 mm).
3. Membrane penetrations by electrical boxes of any size or type, which have been listed as part of an opening protective material system for use in horizontal fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing.
4. Membrane penetrations by listed electrical boxes of any material, provided such boxes have been tested for use in fire-resistance-rated assemblies and are installed in accordance with the instructions included in the listing. The annular space between the ceiling membrane and the box shall not exceed 1/8 inch (3.1 mm) unless listed otherwise.
5. The annular space created by the penetration of a fire sprinkler, provided it is covered by a metal eschutcheon plate.

713.1 (Supp) General. Joints installed in or between fire-resistance-rated walls, floor ~~or floor/ceiling~~ assemblies and roof~~s or roof/ceiling~~ assemblies shall be protected by an approved fire-resistant joint system designed to resist the passage of fire for a time period not less than the required fire-resistance rating of the wall, floor or roof in or between which it is installed. Fire-resistant joint systems shall be tested in accordance with Section 713.3. The void created at the intersection of a ~~floor/ceiling~~ floor assembly and an exterior curtain wall assembly shall be protected in accordance with Section 713.4.

Exception: Fire-resistant joint systems shall not be required for joints in all of the following locations:

1. Floors within a single dwelling unit.
2. Floors where the joint is protected by a shaft enclosure in accordance with Section 707.
3. Floors within atriums where the space adjacent to the atrium is included in the volume of the atrium for smoke control purposes.
4. Floors within malls.
5. Floors within open parking structures.
6. Mezzanine floors.
7. Walls that are permitted to have unprotected openings.
8. Roofs where openings are permitted.
9. Control joints not exceeding a maximum width of 0.625 inch (15.9 mm) and tested in accordance with ASTM E 119 or UL 263.

713.4 Exterior curtain wall/floor intersection. Where fire resistance-rated floor ~~or floor/ceiling~~ assemblies are required, voids created at the intersection of the exterior curtain wall assemblies and such floor assemblies shall be sealed with an approved material or system to prevent the interior spread of fire. Such material or systems shall be securely installed and capable of preventing the passage of flame and hot gases sufficient to ignite cotton waste where subjected either to ASTM E 119 or UL 263 time-temperature fire conditions under a minimum positive pressure differential of 0.01 inch (0.254 mm) of water column (2.5 Pa) or installed as tested in accordance with ASTM E 2307 for the time period at least equal to the fire-resistance rating of the floor assembly. Height and fire-resistance requirements for curtain wall spandrels shall comply with Section 704.9.

714.4 (Supp) Column protection. Where columns are required to be fire-resistance rated, the entire column, including its connections to beams or girders, shall be provided individual encasement protection on all sides for the full column length. Where the column extends through a ceiling, the fire resistance rating of the column shall be continuous from the top of the foundation or ~~floor/ceiling~~ floor assembly below through the ceiling space to the top of the column.

716.6 (IMC [B] 607.6) Horizontal assemblies. Penetrations by ducts and air transfer openings of a floor~~, floor/ceiling~~ assembly or the ceiling membrane of a ~~roof/ceiling~~ roof assembly shall be protected by a shaft enclosure that complies with Section 707 or shall comply with Sections 716.6.1 through 716.6.3.

716.6.1 (IMC [B] 607.6.1) (Supp) Through penetrations. In occupancies other than Groups I-2 and I-3, a duct constructed of approved materials in accordance with the *International Mechanical Code* that penetrates a fire-resistance-rated ~~floor/ceiling~~ floor assembly that connects not more than two stories is permitted without shaft enclosure protection, provided a listed fire damper is installed at the floor line or the duct is protected in accordance with Section 712.4. For air transfer openings, see Exception 7 to Section 707.2.

Exception: A duct is permitted to penetrate three floors or less without a fire damper at each floor, provided it meets all of the following requirements:

1. The duct shall be contained and located within the cavity of a wall and shall be constructed of steel not less than 0.019 inch (0.48 mm) (26 gage) in thickness.
2. The duct shall open into only one dwelling or sleeping unit and the duct system shall be continuous from the unit to the exterior of the building.
3. The duct shall not exceed 4-inch (102 mm) nominal diameter and the total area of such ducts shall not exceed 100 square inches (0.065 m2) in any 100 square feet (9.3 m2) of floor area.
4. The annular space around the duct is protected with materials that prevent the passage of flame and hot gases sufficient to ignite cotton waste where subjected to ASTM E 119 or UL 263 time-temperature conditions under a minimum positive pressure differential of 0.01 inch (2.49 Pa) of water at the location of the penetration for the time period equivalent to the fire-resistance rating of the construction penetrated.
5. Grille openings located in a ceiling of a fire-resistance- rated floor/ceiling or roof/ceiling assembly shall be protected with a listed ceiling radiation damper installed in accordance with Section 716.6.2.1.

716.6.2 (IMC [B] 607.6.2) Membrane penetrations. Ducts and air transfer openings constructed of approved materials in accordance with the *International Mechanical Code* that penetrate the ceiling membrane that is a component of a fire-resistance-rated ~~floor/ceiling~~ floor assembly or ~~roof/ceiling~~ roof assembly shall be protected with one of the following:

1. A shaft enclosure in accordance with Section 707.
2. A listed ceiling radiation damper installed at the ceiling line where a duct penetrates the ceiling that is a component of a fire-resistance-rated ~~floor/ceiling~~ floor assembly or ~~roof/ceiling~~ roof assembly.
3. A listed ceiling radiation damper installed at the ceiling line where a diffuser with no duct attached penetrates the ceiling that is a component of a fire-resistance-rated ~~floor/ceiling~~ floor assembly or ~~roof/ceiling~~ roof assembly.

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

TABLE 721.6.2(1)
TIME ASSIGNED TO WALLBOARD MEMBRANES[a,b,c,d]

(Portions of table not shown remain unchanged)

For SI: 1 inch = 25.4 mm.

a. These values apply only when membranes are installed on framing members which are spaced 16 inches o.c.
b. Gypsum wallboard installed over framing or furring shall be installed so that all edges are supported, except 5/8-inch Type X gypsum wallboard shall be permitted to be installed horizontally with the horizontal joints staggered 24 inches each side and unsupported but finished.
c. On wood frame ~~floor/ceiling~~ floor assemblies or ~~roof/ceiling~~ roof assemblies, gypsum board shall be installed with the long dimension perpendicular to framing members and shall have all joints finished.
d. The membrane on the unexposed side shall not be included in determining the fire resistance of the assembly. When dissimilar membranes are used on a wall assembly, the calculation shall be made from the least fire-resistant (weaker) side.
e. The time assigned is not a finished rating.

1207.1 Scope. This section shall apply to common interior walls, partitions and ~~floor/ceiling~~ floor assemblies between adjacent dwelling units or between dwelling units and adjacent public areas such as halls, corridors, stairs or service areas.

1207.2 Air-borne sound. Walls, partitions and ~~floor/ceiling~~ floor assemblies separating dwelling units from each other or from public or service areas shall have a sound transmission class (STC) of not less than 50 (45 if field tested) for air-borne noise when tested in accordance with ASTM E 90. Penetrations or openings in construction assemblies for piping; electrical devices; recessed cabinets; bathtubs; soffits; or heating, ventilating or exhaust ducts shall be sealed, lined, insulated or otherwise treated to maintain the required ratings. This requirement shall not apply to dwelling unit entrance doors; however, such doors shall be tight fitting to the frame and sill.

1207.3 Structure-borne sound. ~~Floor/ceiling~~ Floor assemblies between dwelling units or between a dwelling unit and a public or service area within the structure shall have an impact insulation class (IIC) rating of not less than 50 (45 if field tested) when tested in accordance with ASTM E 492.

3410.6.3.2 (IEBC 1301.6.3.2) ~~Floor/ceiling~~ Floor construction. A ~~floor/ceiling~~ floor assembly used to create compartments shall conform to Section 711 and shall have a fire-resistance rating of not less than 2 hours.

PART II – IBC STRUCTURAL

Revise definition as follows:

SECTION 1502
DEFINITIONS

ROOF ASSEMBLY. A system designed to provide weather protection and resistance to design loads. The system consists of a roof covering and roof deck or a single component serving as both the roof covering and the roof deck. A roof assembly includes the roof deck, vapor retarder, substrate or thermal barrier, insulation, vapor retarder and roof covering.

The definition of "Roof assembly" is limited in application to the provisions of Chapter 15.

PART III – IFC

Revise as follows:

703.3 Ceilings. The hanging and displaying of salable goods and other decorative materials from acoustical ceiling systems that are ~~part~~ component of a fire-resistance-rated ~~floor/ceiling~~ floor assembly or ~~roof/ceiling~~ roof assembly~~,~~ shall be prohibited.

914.3.1 (IBC [F] 403.2) Automatic sprinkler system. Buildings and structures shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 and a secondary water supply where required by Section 903.3.5.2.

Exception: An automatic sprinkler system shall not be required in spaces or areas of:

1. Open parking garages in accordance with Section 406.3 of the *International Building Code*.
2. Telecommunication equipment buildings used exclusively for telecommunications equipment, associated electrical power distribution equipment, batteries and standby engines, provided that those spaces or areas are equipped throughout with an automatic fire detection system in accordance with Section 907.2 and are separated from the remainder of the building by fire barriers consisting of not less than 1-hour fire-resistance-rated walls and 2-hour fire-resistance-rated ~~floor/ceiling~~ floor assemblies.

903.3.1.1.1 (IBC [F] 903.3.1.1.1) 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~~ floor assemblies or ~~roof/ceiling~~ roof assemblies having a fire-resistance rating of not less than 2 hours.
4. Rooms or areas that are of noncombustible construction with wholly noncombustible contents.
5. Fire service access elevator machine rooms and machinery spaces.

1504.3.2.5 Clear space. Spray booths shall be installed so that all parts of the booth are readily accessible for cleaning. A clear space of not less than 3 feet (914 mm) shall be maintained on all sides of the spray booth. This clear space shall be kept free of any storage or combustible construction.

Exceptions:

1. This requirement shall not prohibit locating a spray booth closer than 3 feet (914 mm) to or directly against an interior partition, wall or ~~floor/ceiling~~ floor assembly that has a fire-resistance rating of not less than 1 hour, provided the spray booth can be adequately maintained and cleaned.
2. This requirement shall not prohibit locating a spray booth closer than 3 feet (914 mm) to an exterior wall or a roof assembly, provided the wall or roof is constructed of noncombustible material and the spray booth can be adequately maintained and cleaned.

Reason: The purpose for this proposal is to harmonize the terms used to describe horizontal assemblies, which are fire-resistance-rated by virtue of the definition for "horizontal assembly" in Section 702.1. The terms in question are "floor assembly," "floor/ceiling assembly," "roof assembly" and "roof/ceiling assembly." None are currently defined in the IBC or IFC, except for "roof assembly" (see below), and this proposal does not propose definitions for them. Instead, "floor/ceiling assembly" and "roof/ceiling assembly" are replaced by "floor assembly" and "roof assembly."

In most cases, the replacements are technically sound. There are certain code provisions, however, that specify requirements for ceilings or ceiling membranes the horizontal assemblies rely on for their fire-resistance-ratings. In many of these cases, the current provisions specify "floor/ceiling assembly" or "roof/ceiling assembly" for the purpose of identifying those horizontal assemblies with such ceilings or ceiling membranes. These terms, however, are typically ineffective in accomplishing this purpose. As stated above, "floor/ceiling assembly" and "roof/ceiling assembly" are not defined by the IBC of IFC. Thus, they have no technical meaning except to the extent that a technical meaning can be derived from the ordinarily accepted meanings of "floor/ceiling" or "roof/ceiling" for which I am unable to find in the dictionaries at my disposal (refer to Section 201.4). "Floor/ceiling" and "roof/ceiling" could be interpreted as meaning "floor or ceiling" and "roof or ceiling," or "floor and ceiling" and "roof and ceiling," none of which serve the purpose for which these terms are currently used. These terms are archaic and should be replaced, which this proposal accomplishes.

The problems caused by these terms are not limited to the use of "floor/ceiling assembly" and "roof/ceiling assembly" as noted above. "Floor/ceiling assembly" and "floor assembly" are frequently specified alone, rather than together, in provisions for which there is no apparent reason for favoring one or the other. When "floor/ceiling assembly," but not "floor assembly," is specified, are floor assemblies exempt from the requirements but floor/ceiling assemblies are not? What about when "floor assembly," but not "floor/ceiling assembly" is specified? The situation is similar with "roof/ceiling assembly" and "roof assembly." The proposal eliminates this uncertainty.

Section 711.1 on horizontal assemblies states that "floor and roof assemblies required to have a fire-resistance-rating shall comply with this section" (i.e., horizontal assemblies). There are no comparable requirements in the IBC, however, for a floor/ceiling assembly or a roof/ceiling assembly. The requirements in Section 711 for horizontal assemblies ensure that fire-resistance-rated floor assemblies and roof assemblies provide fire containment (i.e., compartmentation) between stories by means of the requirements in Section 711 for continuity and the fire-resistance-rated protection of penetrations, joints and other openings. There are exceptions for roof assemblies and the fire-protection-rated protection of certain penetrations and openings (e.g., contained with the cavity of a wall, fire dampers at ducts connecting two stories, etc.), but the overall affect is that horizontal fire containment is achieved when the provisions for horizontal assemblies are met. This can not be said for floor/ceiling and roof/ceiling assemblies when there are no comparable provisions for them in the IBC.

There still remains the issue of those code provisions that specify requirements for ceilings or ceiling membranes the horizontal assemblies rely on for their fire-resistance-ratings. Replacing "floor/ceiling assembly" and "roof/ceiling assembly" with "floor assembly" and "roof assembly" does not solve the problem. This proposal solves the problem in these cases by inserting language specifying the ceilings or ceiling membranes that the horizontal assemblies rely on. This is typically done by specifying the "ceiling (or ceiling membrane) that is a component of a fire-resistance-rated floor assembly or roof assembly." Refer to IBC Sections 508.2.5.2, 708.4, 711.3.1, 711.3.2, 712.4, 712.4.1, 712.4.1.2 and 716.6.2, and IFC Section 703.3.

Section 1502.1 currently defines "roof assembly" for use in the provisions of Chapter 15. The use of "roof assembly" in this context is clearly distinct from its use elsewhere in the IBC and IFC. The proposal adds clarification to the listing of "roof assembly" in Sections 202 and 1502.1 to make the distinction clear.

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

PART I – IBC FIRE SAFETY

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

PART II – IFC

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

PART III – IEBC

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

FS3–07/08

702.1 (New), 702.1, 716.5 (IMC [B] 607.5), 716.5.4.1 (IMC [B] 607.5.4)

Proponent: Bob Eugene, Underwriters Laboratories Inc

1. Add new definition as follows:

SECTION 702
DEFINITIONS

CORRIDOR DAMPER. A listed device installed in ducts and air transfer openings which penetrate the ceiling of corridors when the ceiling is constructed as a fire partition. The device is designed to close automatically upon detection of heat and resist the passage of flame and smoke. A corridor damper is tested and rated for closure under elevated temperature airflow.

2. Revise as follows:

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

DAMPER. See "Ceiling radiation damper," "Combination fire/smoke damper," "Corridor damper," "Fire damper" and "Smoke damper."

716.5 (IMC [B] 607.5) (Supp) Where required. Fire dampers, smoke dampers, combination fire/smoke dampers, ~~and~~ ceiling radiation dampers and corridor dampers shall be provided at the locations prescribed in Sections 716.5.1 through 716.5.7. Where an assembly is required to have both fire dampers and smoke dampers, combination fire/smoke dampers or a fire damper and a smoke damper shall be required.

716.5.4.1 (IMC [B] 607.5.4)Corridors. A listed smoke damper designed to resist the passage of smoke shall be provided at each point a duct or air transfer opening penetrates a corridor enclosure required to have smoke and draft control doors in accordance with Section 715.4.3.

Exceptions:

1. Smoke dampers are not required where the building is equipped throughout with an approved smoke control system in accordance with Section 909, and smoke dampers are not necessary for the operation and control of the system.
2. Smoke dampers are not required in corridor penetrations where the duct is constructed of steel not less than 0.019 inch (0.48 mm) in thickness and there are no openings serving the corridor.
3. When the corridor ceiling is constructed as a fire partition as permitted in Section 708.4, Exception 3, ducts and air transfer openings through the ceiling assembly shall be protected with listed corridor dampers installed in accordance with their listings. Fire dampers are not required at these locations.

Reason: This proposal is intended to clarify the appropriate type of damper for installation where duct or air transfer openings penetrate the ceiling of a corridor when the ceiling is constructed as a fire partition as permitted in Section 708.4, Exception 3. Currently, Section 716.5.4.1, in conjunction with 716.5.4, would imply these penetrations should be protected with combination fire/smoke dampers, or fire dampers and smoke dampers. However, these devices are not designed and tested to be mounted in a fire partition installed in the horizontal orientation. The correct devices for this application are corridor dampers.

Corridor dampers are listed for both a fire resistance rating of 1 hr, and a Class I or II leakage rating as defined by the Standard UL 555S. Leakage ratings of corridor dampers are determined at an elevated temperature 250°F or 350°F. Corridor dampers have also demonstrated acceptable closure performance when subjected to 150 fpm velocity across the face of the damper during fire exposure.

Since corridor dampers resist the passage of both flame and smoke, separate fire dampers, as required in Section 716.5.4, are not required in this application.

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

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

FS4–07/08
702

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

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

PART I – IBC FIRE SAFETY

Revise definition as follows:

SECTION 702
DEFINITIONS

FIREBLOCKING. Building materials <u>or materials approved for use as fireblocking,</u> installed to resist the free passage of flame to other areas of the building through concealed spaces.

PART II – IRC BUILDING/ENERGY

Revise definition as follows:

FIREBLOCKING (Supp). Building materials or materials ~~labeled~~ <u>approved</u> for use as fireblocking, installed to resist the free passage of flame to other areas of the building through concealed spaces.

Reason: (IBC) This proposal is intended to create consistency between the definition and the actual requirements in the code. A companion proposal is being submitted to the IRC to create an identical definition for the building code. Sections 717.2.1 and 712.4.2.2 of the IBC (and other sections, as well as section R602.8) discuss what fireblocking materials are permitted. All fireblocking materials must be approved, either through being in a list or by direct approval by the authority having jurisdiction, but they do not necessarily have to be labeled.

(IRC) This proposal is intended to create consistency between the definition and the actual requirements in the code. A companion proposal is being submitted to the IBC to create an identical definition for the building code. Section R602.8 of the IRC (and sections 717.2.1 and 712.4.2.2 of the IBC and other sections) discuss what fireblocking materials are permitted. All fireblocking materials must be approved, either through being in a list or by direct approval by the authority having jurisdiction, but they do not necessarily have to be labeled.

Cost Impact: (IBC) The code change proposal will not increase the cost of construction.
(IRC) The code change proposal should not increase the cost of construction.

PART I – IBC FIRE SAFETY

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

PART II – IRC BUILDING/ENERGY

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

FS5–07/08

202 (New); IEBC 202 (New), Chapter 15 (New); IFC 202 (New), Chapter 45 (New); IFGC 202 (New), Chapter 8 (New); IMC 202; IRC 202; IWUIC 202

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

THESE PROPOSALS ARE ON THE AGENDA OF THE IBC GENERAL, THE IEBC, THE IFC, THE IFGC, THE IMC, THE IRC BUILDING/ENERGY CODE, AND THE IWUIC DEVELOPMENT COMMITTEES AS 7 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES.

PART I – IBC FIRE SAFETY

Add new definition as follows:

SECTION 202
DEFINITIONS

NONCOMBUSTIBLE MATERIAL. A material that, under the conditions anticipated, will not ignite or burn when subjected to fire or heat. Materials that pass ASTM E 136 are considered noncombustible materials.

PART II – IEBC

1. Add new definition as follows:

SECTION 202
DEFINITIONS

NONCOMBUSTIBLE MATERIAL. A material that, under the conditions anticipated, will not ignite or burn when subjected to fire or heat. Materials that pass ASTM E 136 are considered noncombustible materials.

2. Add standard to Chapter 15 as follows:

ASTM
E 136-04 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C

PART III – IFC

1. Add new definition as follows:

SECTION 202
DEFINITIONS

NONCOMBUSTIBLE MATERIAL. A material that, under the conditions anticipated, will not ignite or burn when subjected to fire or heat. Materials that pass ASTM E 136 are considered noncombustible materials.

2. Add standard to Chapter 45 as follows:

ASTM
E 136-04 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C

PART IV – IFGC

1. Add new definition as follows:

SECTION 202
DEFINITIONS

NONCOMBUSTIBLE MATERIAL. A material that, under the conditions anticipated, will not ignite or burn when subjected to fire or heat. Materials that pass ASTM E 136 are considered noncombustible materials.

2. Add standard to Chapter 8 as follows:

ASTM

E 136-04 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C

PART V – IMC

Delete definition and substitute as follows:

SECTION 202
DEFINITIONS

~~**NONCOMBUSTIBLE MATERIALS.** Materials that, when tested in accordance with ASTM E 136, have at least three of four specimens tested meeting all of the following criteria:~~

1. ~~The recorded temperature of the surface and interior thermocouples shall not at any time during the test rise more than 54ºF (30ºC) above the furnace temperature at the beginning of the test.~~
2. ~~There shall not be flaming from the specimen after the first 30 seconds.~~
3. ~~If the weight loss of the specimen during testing exceed 50 percent, the recorded temperature of the surface and interior thermocouples shall not at any time during the test rise above the furnace air temperature at the beginning of the test, and there shall not be flaming of the specimen~~.

NONCOMBUSTIBLE MATERIAL. A material that, under the conditions anticipated, will not ignite or burn when subjected to fire or heat. Materials that pass ASTM E 136 are considered noncombustible materials.

PART VI – IRC BUILDING/ENERGY

Delete definition and substitute as follows:

SECTION R202
DEFINITIONS

~~**NONCOMBUSTIBLE MATERIAL.** Materials that pass the test procedure for defining noncombustibility of elementary materials set forth in ASTM E 136.~~

NONCOMBUSTIBLE MATERIAL. A material that, under the conditions anticipated, will not ignite or burn when subjected to fire or heat. Materials that pass ASTM E 136 are considered noncombustible materials.

PART VII – IWUIC

SECTION 202
DEFINITIONS

Delete definition and substitute as follows:

~~**NONCOMBUSTIBLE.** As applied to building construction material means a material that, in the form in which it is used, is either one of the following:~~

1. ~~Material of which no part will ignite and burn when subjected to fire. Any material conforming to ASTM E 136 shall be considered noncombustible within the meaning of this section.~~
2. ~~Material having a structural base of noncombustible material as defined in Item 1 above, with a surfacing material not over 1/8 inch (3.2 mm) thick, which has a flame spread rating of 50 or less. Flame spread rating as used herein refers to rating obtained according to tests conducted as specified in ASTM E 84.~~

~~"Noncombustible" does not apply to surface finish materials. Material required to be noncombustible for reduced clearances to flues, heating appliances or other sources of high temperature shall refer to material conforming to Item 1. No material shall be classed as noncombustible that is subject to increase in combustibility or flame spread rating, beyond the limits herein established, through the effects of age, moisture or other atmospheric condition.~~

NONCOMBUSTIBLE MATERIAL. A material that, under the conditions anticipated, will not ignite or burn when subjected to fire or heat. Materials that pass ASTM E 136 are considered noncombustible materials.

Reason: There is a need for a consistent definition of "noncombustible material" in all ICC codes that use the term. The codes that use the term are IMC, IBC, IRC, IFC, IEBC, IWUIC and IFGC. It is also used in an appendix of the performance code, but a definition in that code is probably not necessary. Throughout the ICC code system, the concept of "noncombustible material" is based on two aspects: (a) it should not ignite or burn when subjected to fire or heat and (b) it should pass the ASTM E 136 conditions. Therefore, the definition proposed addresses both of these aspects and is identical for all codes.

In the case of three codes, IMC, IBC and IWUIC, there are additional requirements or issues associated with the use of the term noncombustible material. It is proposed that these should be addressed outside of the definitions, in the relevant chapters. Separate proposals will be made to the IMC, IBC and IWUIC to suggest how to address these requirements for noncombustible materials.

For information purposes, the following is included in the IBC:

703.4 Noncombustibility tests. The tests indicated in Sections 703.4.1 and 703.4.2 shall serve as criteria for acceptance of building materials as set forth in Sections 602.2, 602.3 and 602.4 in Type I, II, III and IV construction. The term "noncombustible" does not apply to the flame spread characteristics of interior finish or trim materials. A material shall not be classified as a noncombustible building construction material if it is subject to an increase in combustibility or flame spread beyond the limitations herein established through the effects of age, moisture or other atmospheric conditions.

703.4.1 Elementary materials. Materials required to be noncombustible shall be tested in accordance with ASTM E 136.

703.4.2 Composite materials. Materials having a structural base of noncombustible material as determined in accordance with Section 703.4.1 with a surfacing not more than 0.125 inch (3.18 mm) thick that has a flame spread index not greater than 50 when tested in accordance with ASTM E 84 or UL 723 shall be acceptable as noncombustible materials.

Also, for information purposes, the following definitions are used for the term in ASTM E 176 (ASTM terminology of fire standards) and in NFPA 101 and 5000.

ASTM E 176:
non-combustible, *adj* — not capable of undergoing combustion under specified conditions. (Contrast combustible.)
DISCUSSION—In fire testing, non-combustibility is often assessed by means of ASTM E 136 or ISO 1182.
NFPA 101 and NFPA 5000:
Noncombustible Material. A material that, in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors, when subjected to fire or heat. Materials that are reported as passing ASTM E 136, Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C, shall be considered noncombustible materials.

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

Analysis: A review of the standards proposed for inclusion in the code, ASTM E 136, 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 FIRE SAFETY

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

PART II – IEBC

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

PART III – IFC

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

PART IV – IFGC

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

PART V – IMC

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

PART VI – IRC BUILDING/ENERGY

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

PART VII – IWUIC

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

FS6–07/08
202 (New) [IFC 202 (New)]

Proponent: Bill McHugh, Firestop Contractors International Association

Add new definitions as follows:

COMPARTMENTATION. (IFC COMPARTMENTATION) Fire, smoke or fire-and smoke-resistance-rated construction separation of adjacent spaces to safeguard against the spread of fire, smoke, or fire and smoke or other hazards within a building and the spread of fire to or from buildings.

Reason: Fire and smoke resistance rated construction is referred to as compartmentation. The concept of compartmentation uses fire, smoke and other resistance rated construction to form cubes in buildings to protect against fire, smoke and other spread, allow occupant egress, fire department entry, provide occupant and fire department havens of safety. Effective Compartmentation, when properly designed installed, inspected and maintained, saves lives.

Compartmentation is used in the code in 405.4, 715.4.7.3, 3410.6.3, and related tables. Compartmentation is the word used to describe fire and smoke resistance rated horizontal assemblies and fire and/or smoke barriers, with protected openings and penetrations for fire safety, means of egress and general safety. Compartmentation is not currently defined in any chapter of the International Building Code.

The code must define key items used in construction, and that includes adding a definition for compartmentation into the building code. Since compartmentation is used in several chapters, the definition should be added to Chapter 2.

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

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

FS7–07/08
703.2.4 (New), Chapter 35 (New)

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

1. Add new text as follows:

703.2.4 Impact resistance. Fire-resistance rated wall assemblies required to have a fire-resistance rating of not less than 2 hours shall be tested in accordance with ASTM F2322 to achieve a Grade No. 4 or better.

2. Add standard to Chapter 35 as follows:

ASTM

F 2322-03	Standard Test Methods for Physical Assault on Vertical Fixed Barriers for Detention and Correctional Facilities

Reason: The purpose of this code change proposal is to require fire-resistance rated wall assemblies required by other provisions of the code to have not less than a 2-hour fire-resistance rating to be able to withstand a substantial physical impact. If such walls can withstand the prescribed impact based on ASTM F2332, then there is a very high probability that they will be in place and structurally intact in order to perform their intended function should an uncontrolled post flashover fire occur. A significant impact test should result in walls where maintenance and repairs would be minimal. So there would be less chance of the wall being "violated" when a fire occurs. In other words, the wall would be durable enough to function as intended for the life of the building while needing minimum maintenance to maintain the wall's integrity and fire-resistance rating.

The threshold of a minimum 2-hour fire-resistance rating for such walls was chosen because those walls are of fairly substantive construction and generally perform more critical functions than lesser fire-resistance rated walls. And they are intended to withstand a major fire exposure for a significant amount of time. Furthermore, in many applications it is likely that the 2-hour fire-resistance rated walls will be in buildings that are not protected throughout with an automatic sprinkler system. Thus, they have a greater potential for being exposed to an uncontrolled post-flashover fire for a long fire exposure period at very elevated temperatures. Of course, during such a fire there are many dynamic conditions which occur that may have an adverse impact on these walls. Falling ceilings, collapsing file cabinets and other furniture and furnishings, shifts in the structural supports for the walls as the elements expand from the fire exposure, and thermal stresses within the walls themselves may cause the walls to fail prematurely.

These walls are generally required to perform one or more of the following critical fire/life safety functions during an uncontrolled post flashover fire:

- Fire containment
- Life safety protection
- Property protection
- Structural integrity
- Restrict smoke spread

A review of the International Building Code (IBC) indicates that the following code provisions would require a minimum 2-hour fire-resistance rating for walls under the conditions prescribed:

Separation of incidental accessory occupancies including incinerator rooms, paint shops, hydrogen cut-off rooms, and parking garages Table 508.2.5
Occupancy separations in nonsprinklered buildings and for all Group H occupancies Table 508.4
Exterior bearing walls in Types I, III, and IV construction Table 601
Interior bearing walls in Type I construction Table 601
Exterior walls having a fire separation distance less than 5 feet for buildings containing Group F-1, M, S-1, and H occupancies Table 602
Fire walls Table 705.4
Fire area separations Table 706.3.9
Shaft enclosures connecting 4 or more stories Section 707.4
Smokeproof enclosures Section 909.20.2
Exit stair enclosures connecting 4 or more stories Section 1020.1
Horizontal exits Section 1022.2

Obviously, fire walls are critically important since they create separate buildings. So they must be structurally independent and remain standing even after collapse of the construction on either side which may be caused by a total burnout.

Exit stairway enclosures and elevator hoistway enclosures are essential for life safety as recognized in the NIST WTC Report Recommendation 18 in Chapter 9. It recommends that egress systems including stairs, elevators, and exits be designed to maintain their functional integrity and survivability under foreseeable building specific or large scale emergencies. The design, functional integrity and survivability of the egress and other life safety systems such as stairwells and elevator shafts should be enhanced by considering accidental structural loads such as those induced by overpressures, impacts, or major hurricanes and earthquakes, in addition to fire separation requirements. The stairwells and elevator shafts should have adequate structural integrity to withstand accidental structural loads and anticipated risks. This is a concept known as hardening of the shaft enclosures to assure that their structural integrity will be intact under very adverse fire conditions.

Smokeproof enclosures would also fall under the same category as exit stairway enclosures. But they are even more critical since they are required in high-rise buildings. Obviously, they also serve as a critical exit element in those buildings.

Other shaft enclosures are intended to protect against vertical fire and smoke spread in buildings 4 or more stories in height. This is a very important function in order to prevent a fire from involving multiple stories at the same time. The integrity of shaft enclosures is essential to providing adequate fire and life safety protection to these multistory buildings.

Interior bearing walls in buildings of Type I construction are critically important since these buildings are generally either very large in area and/or are high-rise buildings. The interior bearing walls act similarly to the structural frame and are even required to have the same fire-resistance ratings as the structural frame in accordance with Table 601. They are just as essential to the overall structural integrity of the building as the structural frame.

Horizontal exits perform a similar function to an exit stairway enclosure by providing refuge areas for people to evacuate into from the fire side of the horizontal exit. So they should obviously perform comparably to exit stairway enclosures in order to serve their intended function of protection in place, especially during a severe fire condition.

Exterior bearing walls in Types I, III, and IV construction are intended to be of substantial construction in order to protect against conflagrations. They must maintain their structural integrity to not only contain a total burnout in the building, but to also resist an exterior exposure fire while not collapsing. Certainly, exterior bearing walls are essential to the overall structural integrity of the building which are critically important for Type I construction as discussed above for interior bearing walls in Type I construction.

Exterior walls with a fire separation distance of less than 5 feet are required to have a minimum 2-hour fire-resistance rating for buildings containing Groups F-1, H, M, and S-1 occupancies. These are the higher fire load occupancies which require substantial protection to avoid building-to-building fire spread either from an adjacent building or from the building itself to adjacent buildings. In these cases where the fire separation distance is less than 5 feet, flames from an adjacent building can actually contact the exterior walls of the exposed buildings. Furthermore, unprotected openings are not permitted in nonsprinklered buildings with a fire separation distance less than 5 feet in order to further minimize the potential for building-to-building fire spread. So these walls need to maintain their integrity in order to stay in place for the duration of the fire as required by Section 704.6 Structural Stability.

Fire area separations are used to compartment a building so as not to exceed the thresholds for requiring an automatic sprinkler system. Thus, they are used to subdivide nonsprinklered buildings into manageable compartment sizes that the fire department can suppress within the boundaries of the compartment. The purpose of these walls is to prevent the fire from breaking out and spreading to adjacent compartments (fire areas) before the fire department can contain and control the fire. Under those conditions, it is very important that these fire area separation walls maintain their durability and integrity to assure their fire-resistance performance.

In general, occupancy separations are only required to have 2-hour or greater fire-resistance ratings in nonsprinklered buildings, as well as for all Group H occupancies. Occupancy separations are provided when the occupancy separation option in Section 508 is used. So it is important to assure that the occupancy separation walls will function as intended to prevent fire spread to the adjacent occupancies so separated. That is because in most cases these are very life safety sensitive occupancy separations involving Groups A, E, I, and R occupancies.

The incidental accessory occupancies requiring separation from any occupancy in which they are located by a minimum 2-hour fire-resistance rated wall are generally those occupancies that have a significantly higher fire load or potential fire exposure or pose an unusual life safety hazard to the main occupancy which may also be life safety sensitive.

We decided to utilize the ASTM F2332 Standard Test Methods for Physical Assault on Vertical Fixed Barriers for Detention and Correctional Facilities because it is a nationally recognized consensus standard that provides some measure or assessment of significant impact resistance. We have chosen to utilize the lowest category of impact resistance which is designated as Grade No. 4. It requires the wall to resist 100 impacts consisting of 50 impacts by a blunt impactor and 50 impacts by a sharp impactor. The impacting force is 200 foot-pounds for the blunt impactor and 100 foot-pounds for the sharp impactor. The Grade No. 4 performance level gives an indication that the wall may be able to withstand an assault with similar type devices such as a sledge hammer or a fireman's axe for a period of 10 minutes. Failure of the wall to resist the 100 impacts prescribed occurs if a hole is created through the entire wall which would allow a 5 in x 8 in x 8 in rigid box to pass through the wall using a 10 pound force to push it through the breach.

In conclusion, we believe that the requirement for an impact test such as ASTM F2322 will help to assure a reasonable degree of durability and dependability for fire-resistance rated wall assemblies required to have a minimum 2-hour fire-resistance rating. This will help to assure that they will be intact and in place to perform their intended functions during an uncontrolled post-flashover fire condition. Since the ASTM E119 Fire-Resistance Test does not have a comparable test for determining the physical integrity and resistance to impact of walls under non-fire conditions, this code change proposal should provide for a means to measure that performance and complement the fire testing criteria for fire-resistance in ASTM E119.

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

Analysis: A review of the standards proposed for inclusion in the code, ASTM F 2322, 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

FS8–07/08
703.3

Proponent: Susan Lamont, Arup Fire

Revise as follows:

703.3 (Supp) Alternative methods for determining fire resistance. The application of any of the alternative methods listed in this section shall be based on the fire exposure and acceptance criteria specified in ASTM E 119 or UL 263 or a credible worst case design based fire exposure and acceptance criteria as agreed with the building official. The required fire resistance of a building element, component or assemblies shall be permitted to be established by any of the following methods or procedures:

1. Fire-resistance designs documented in approved sources.
2. Prescriptive designs of fire-resistance-rated building elements, component or assemblies as prescribed in Section 720.
3. Calculations in accordance with Section 721.
4. Engineering analysis based on a comparison of building element, component or assemblies designs having fire-resistance ratings as determined by the test procedures set forth in ASTM E 119 or UL 263.
5. Alternative protection methods as allowed by Section 104.11.
6. Global structural analysis of a whole frame or assembly including: exposure to a series of credible worst case design fires, the relevant heat transfer calculations to the structural members, the relevant loads, the relevant failure modes during fire exposure, the temperature-dependent material properties and member stiffness as well as the effects of thermal expansion. The impact of deformations on compartmentation shall also be taken into account.

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

FS9–07/08
703.4, 703.4.1, 703.4.2, 703.4.3 through 703.4.6 (New)

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

1. Revise as follows:

703.4 Noncombustibility ~~tests~~. The ~~tests~~ requirements indicated in Sections 703.4.1 and 703.4.2 shall serve as criteria for acceptance of building materials as set forth in Sections 602.2, 602.3 and 602.4 in Type I, II, III and IV construction~~.~~ ~~The term "noncombustible" does not apply to the flame spread characteristics of interior finish or trim materials. A material shall not be classified as a noncombustible building construction material if it is subject to an increase in combustibility or flame spread beyond the limitations herein established through the effects of age, moisture or other atmospheric conditions.~~ except as shown in 703.4.3 through 703.4.6.

703.4.1 Elementary materials. Materials required to be noncombustible shall be tested in accordance with ASTM E 136. Any material conforming to ASTM E 136 shall be considered noncombustible within the meaning of this section.

703.4.2 (Supp) Composite materials. Materials having a structural base of noncombustible material as determined in accordance with Section 703.4.1 with a surfacing materials not more than 0.125 inch (3.18 mm) thick that has a flame spread index not greater than ~~50~~ 25when tested in accordance with ASTM E 84 or UL 723 shall be acceptable ~~as noncombustible materials~~ for use when noncombustible materials are required.

2. Add new text as follows:

703.4.3 Gypsum board. Gypsum board shall be acceptable for use when noncombustible materials are required.

703.4.4 Interior finish and interior trim. Interior finish or interior trim materials required to be noncombustible materials shall comply with section 703.4.1.

703.4.5 Aging. Material shall not be considered as noncombustible that is subject to increase in combustibility or flame spread index, beyond the limits herein established, through the effects of age, moisture or other atmospheric condition.

703.4.6 Decking. Decking materials required to be noncombustible materials shall comply with Section 703.4.1.

Reason: This proposal makes three changes. The first change is to separate the requirements for interior finish and for increase in combustibility as separate sections to set them out in a more classic code type of language. In this way, the definition of noncombustible material is consistent throughout the ICC family of codes and the use of the corresponding materials is regulated by each code appropriately.

The second change requires the surfacing material of a noncombustible substrate to have a flame spread index of no more than 25 and not one of no more than 50. It also adds gypsum board as a specifically acceptable material for use where noncombustible materials are required, as it is the material for which the 50 flame spread index clause was created. The concept of allowing a 50 flame spread index for a surface layer in a composite material is really associated with the concept of "limited combustible materials", which is used in the NFPA family of codes but not in the ICC family of codes. Clearly a material that exhibits a flame spread index of 50 is not a noncombustible material, since it can burn quite readily.

The NFPA definition of limited combustible material (where NFPA 255 is equivalent to ASTM E 84) is:

"Limited-Combustible (Material). Refers to a building construction material not complying with the definition of noncombustible material that, in the form in which it is used, has a potential heat value not exceeding 3500 Btu/lb (8141 kJ/kg), where tested in accordance with NFPA 259, Standard Test Method for Potential Heat of Building Materials, and includes either of the following: (1) materials having a structural base of noncombustible material, with a surfacing not exceeding a thickness of in. (3.2 mm) that has a flame spread index not greater than 50; and (2) materials, in the form and thickness used, having neither a flame spread index greater than 25 nor evidence of continued progressive combustion, and of such composition that surfaces that would be exposed by cutting through the material on any plane would have neither a flame spread index greater than 25 nor evidence of continued progressive combustion, when tested in accordance with NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials, or ASTM E 84, Standard Test Method of Surface Burning Characteristics of Building Materials."

The third change is to make it clear that materials that are acceptable for use as non combustible materials but have a surface layer that is combustible, including gypsum board, should not be used as decking materials.

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

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

FS10–07/08
703.6

Proponent: Ron Nickson, National Multi Housing Council (NMHC)

Revise as follows:

703.6 Marking and identification. Fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions or any other wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling. Such identification shall:

1. Be located above any decorative ceiling, in concealed spaces or other approved location;
2. Be repeated at intervals not exceeding 30 feet (914 mm) measured horizontally along the wall or partition; And
3. Include lettering not less than 0.5 inch (12.7 mm) in height, incorporating the suggested wording: "FIRE AND/OR SMOKE BARRIER – PROTECT ALL OPENINGS", or other approved wording.

Exception: Walls in Group R-2 occupancies that do not have a removable decorative ceiling allowing access to the concealed space.

Reason: To provide a reasonable exception for R-2 occupancies. The new section 703.6 would required the marking in a location that is not accessible in the typical apartment building in which the walls and ceilings are covered with either ½" of 5/8" Type C fire rated drywall installed as part of the code required fire rated assembly between dwelling units under the requirements of Section 420. The fire rated walls in these R-2 use areas are also not seldom altered after original construction of the residential building, unlike the potential constant changes in other types of commercial buildings that may provide for inexperienced workmen accessible to workmen that might inadvertently damage damaging the wall and thus create an issue with the ability of the wall to work as designed.

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

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

FS11–07/08
703.6

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

Delete without substitution as follows:

~~**703.6 (Supp) Marking and identification.** Fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions or any other wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling. Such identification shall:~~

~~1. Be located above any decorative ceiling, in concealed spaces or other approved location;~~
~~2. Be repeated at intervals not exceeding 30 feet (914 mm) measured horizontally along the wall or partition; and~~
~~3. Include lettering not less than 0.5 inch (12.7 mm) in height, incorporating the suggested wording: "FIRE AND/OR SMOKE BARRIER – PROTECT ALL OPENINGS", or other approved wording.~~

Reason: This proposal seeks to remove the provision requiring marking of fire rated assemblies that was added by a successful public comment at the Rochester Final Hearings. As approved, this new section will require markings on the following walls:

- Interior and exterior sides of exterior walls (where the walls are required to have a fire-resistance rating).
- All walls separating residential dwelling units from adjacent units or corridors.
- All walls separating hotel guest rooms from adjacent rooms or corridors.

As written, this new section also requires the markings of ceilings, and possibly floors, where these assemblies are part of a smoke barrier.

Some of the testimony on this issue noted that these markings would be hidden behind decorative ceilings, however, the approved language requires these markings at all rated positions, and only provides additional information as to where to locate the markings when decorative ceilings are provided.

Representatives from several jurisdictions last cycle indicated that they already require this; however, the text approved requires markings in far more locations, and in far more visible locations, than other local amendments and enforcement levels.

There is no evidence that providing these markings, will provide any reduction in the problem of trades creating openings and failing to properly seal them. If anything, this change will likely lead to a false sense of protection; someone seeing this marking, and not already understanding the complexity of fire rated assemblies, firestopping products and installation methods, will simply fill the opening with whatever material they have on hand.

BOMA has submitted a separate code change to address the concerns raised by the proponent of this change in a different manner; a proposed revision to IFC section 509.1 (and correlative change to IBC 911.1) would add, for buildings with fire command centers, information regarding the location of these rated wall assemblies to the schematic building plans that are already required to be provided.

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

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

FS12–07/08

703.5, 715.3 through 715.3.3 (New), 715.4.6.3, 715.4.6.3.1, 715.5.8, 715.5.8.1

Proponent: Donn Harter, Fire & Safety Glazing Council, representing American Glass Association; William O'Keeffe, SAFTIFIRST

1. Revise as follows:

703.5 (Supp) Fire-resistance-rated glazing. Fire-resistance-rated glazing, when tested in accordance with ASTM E 119 or UL 263 and complying with the requirements of Section 706, shall be permitted. Fire-resistance-rated glazing shall bear a label or other identification showing the name of the manufacturer, the test standard and the identifier "~~W~~ R-XXX," where the "XXX" is the fire-resistance rating in minutes. Such label or identification shall be issued by an approved agency and shall be permanently affixed to the glazing.

2. Add new text as follows:

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

715.3.1 R-Rated glazing. Fire-resistance rated glazing determined in accordance with ASTM E119 shall be classified as R-Rated glazing.

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

715.3.3 Identification. Glazing classified in accordance with 715.3 shall be identified by a designation of R-xxx or P-xxx, in accordance with Sections 703.5, 715.4.6.3.1, and 715.5.8.1.

(Renumber subsequent sections)

3. Revise as follows:

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

715.4.6.3.1 (Supp) Identification. For fire protection-rated glazing, the label shall bear the following ~~four-part~~ identification: "~~D – H or NH – T or NT~~ P – XXX." "~~D~~ P" indicates that the glazing ~~shall be used in fire door assemblies and that the glazing~~ meets the fire protection requirements of NFPA 252 for use in fire door assemblies. ~~"H" shall indicate that the glazing meets the hose stream requirements of NFPA 252.~~ ~~"NH" shall indicate that the glazing does not meet the hose stream requirements of the test. "T" shall indicate that the glazing meets the temperature requirements of Section 715.4.4.1. "NT" shall indicate that the glazing does not meet the temperature requirements of Section 715.4.4.1.~~ For fire-resistance-rated glazing, the label shall bear the following identification: "R -XXX." "R" indicates the glazing meets the fire resistance requirements of ASTM E119. The placeholder "XXX" shall specify the fire ~~protection~~ rating period, in minutes

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

715.5.8.1 (Supp) Identification. For fire protection-rated glazing, the label shall bear the following ~~two-part~~ identification: "~~OH~~P – XXX." "~~OH~~P" indicates that the glazing meets ~~both~~ the fire protection ~~and the hose stream~~ requirements of NFPA 257 or UL 9 ~~and is permitted to be used~~ for use in fire window assemblies ~~openings~~. For fire-resistance-rated glazing, the label shall bear the following identification: "R -XXX." "R" indicates the glazing meets the fire resistance requirements of ASTM E119. "XXX" represents the fire ~~protection~~ rating period, in minutes, that was tested.

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

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

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

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

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

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

The following letter further addresses the labeling issues and burdens on glazing contractors.

(O'Keeffe) The current labeling system of W-xxx to designate fire-resistance rated glazing tested to ASTM E 119, and D-T or NT, H or NH – xxx, and OH-xxx is cumbersome and confusing, and is resulting in misapplications of fire protection rated glazing in the field, where fire resistance rated glazing is required.

Proponent is a manufacturer of both fire protection-rated, and fire resistance-rated glazing. Under the current labeling system, proponent is required to mark its glazing products according to their end use, i.e., W-xxx for wall assembly, D-NT-X or NH-xx for use in door assemblies, or OH-xx for use in window assemblies. Unfortunately, most of the glazing orders proponent receives from glazing contractors do not specify the end use for the glazing, simply the size and quantity. Therefore, proponent is unable to determine how to mark the glazing for as required according to end use. Attached as Exhibit A is a chart of all the potential labeling combinations manufacturers can apply to the glazing under the current system, which number over 100.

As a result of the problems proponent (and other manufacturers) are having in attempting to comply with the current glazing marking requirements, one listing agency has authorized the use of strip labeling, to be placed on the shipping container that the individual glazing panels are shipped in. See Exhibit B. That strip labeling allows the manufacturer to check all the applicable end-uses: D-T NT H NH –xx and OH-xx, leaving the distributors or glazing contractors to figure out which label to apply for the end-use. As a practical matter, the distributors and the glazing contractors are the least familiar with the code, and the most likely to misapply this complicated labeling system.

Although this solution addresses the pragmatic problems manufacturers have in complying with the marking requirements, it does not help code enforcers in making sure the proper glazing is being used for the application. The only information the code enforcer needs to know, is the glazing tested to the fire protection rating test standards, which means the size and area limitations of 715 apply, or is it tested to the fire-resistance rating test standard, in which case it is not subject to the size and area limits of section 715.

This problem is compounded by the fact that the listing agencies list uses of fire protection rated glazing for applications that are not permitted by code, and the current marking of those applications does nothing to help code enforcers spot the improper use of fire protection rated glazing in applications where fire resistance rated glazing is required.

As a specific example, listing agencies are currently listing fire protection products tested for 60-and 90-minutes pursuant to NFPA 252 and 257 for use in 60-and 90 minute sidelites transoms and borrowed lights, none of which are permitted by code. Fire resistance rated glazing products, on the other hand, which have been tested to ASTM E119, are permitted in those 60-and 90-minute applications. IBC 715.5.7, Table 715.5, NFPA 80 (2006) 6.3.3.3, 6.3.3.4. Under the current marking system, both fire protection and fire resistance-rated glazing products would be marked identically, i.e., D-H-OH-60, D-H-OH-90. How is the code enforcer supposed to tell which is the fire-resistance-rated product, which is permitted, and which is the fire-protection-rated product, which is not permitted?

The proposed code change would eliminate that confusion by requiring the labeling of the fire-protection rated products as P-60 or P-90, and the fire-resistance rated products as R-60 and R-90, so the code enforcer knows which product is accepted for applications permitting fire-resistance-rated products, but prohibiting fire-protection rated products.

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

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

FS13–07/08

703.5, 715.3 through 715.3.3 (New), 715.4.6.3, 715.4.6.3.1, 715.4.6.3.1.1 (New), 715.5.8, 715.5.8.1 (New)

Proponent: William O'Keeffe, SAFTIFIRST

1. Revise as follows:

703.5 (Supp) Fire-resistance-rated glazing. Fire-resistance-rated glazing, when tested in accordance with ASTM E 119 or UL 263 and complying with the requirements of Section 706, shall be permitted. Fire-resistance-rated glazing shall bear a label or other identification showing the name of the manufacturer, the test standard and the identifier "~~W~~ R-XXX," where the "XXX" is the fire-resistance rating in minutes. Such label or identification shall be issued by an approved agency and shall be permanently affixed to the glazing.

2. Add new text as follows:

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

715.3.1 R-Rated glazing. Fire-resistance rated glazing determined in accordance with ASTM E119 shall be classified as R-Rated glazing.

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

715.3.3 Identification. Glazing classified in accordance with 715.3 shall be identified by a designation of R-xxx or P-xxx, in accordance with sections 703.5, 715.4.6.3.1, and 715.5.8.1.

(Renumber subsequent sections)

3. Revise as follows:

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

715.4.6.3.1 (Supp) Identification. For fire protection-rated glazing, the label shall bear the following ~~four-part~~ identification: "P ~~D – H or NH – T or NT –~~ XXX." "P ~~D~~" indicates that the glazing ~~shall be used in fire door assemblies and~~ that the glazing meets the fire protection requirements of NFPA 252 for use in fire door assemblies. ~~"H" shall indicate that the glazing meets the hose stream requirements of NFPA 252. "NH" shall indicate that the glazing does not meet the hose stream requirements of the test. "T" shall indicate that the glazing meets the temperature requirements of Section 715.4.4.1. "NT" shall indicate that the glazing does not meet the temperature requirements of Section 715.4.4.1.~~ For fire-resistance-rated glazing, the label shall bear the following identification: "R -XXX." "R" indicates the glazing meets the fire resistance requirements of ASTM E119.The placeholder "XXX" shall specify the fire ~~protection~~ rating period, in minutes.

715.4.6.3.1.1 Identification of test exceptions. The label shall include identification of exceptions to the provisions of the test standard.

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

715.5.8.1 (Supp) Identification. For fire protection-rated glazing, the label shall bear the following ~~two-part~~ identification: "~~OH~~ P – XXX." "~~OH~~ P" indicates that the glazing meets ~~both~~ the fire protection ~~and the hose stream~~ requirements of NFPA 257 or UL 9 ~~and is permitted to be~~ for use~~d~~ in fire window ~~openings~~ assemblies. For fire-resistance-rated glazing, the label shall bear the following identification: "R -XXX." "R" indicates the glazing meets the fire resistance requirements of ASTM E119. "XXX" represents the fire ~~protection~~ rating period, in minutes, that was tested.

715.5.8.1.1 Identification of test exceptions. The label shall include identification of exceptions to the provisions of the test standard.

Reason: The current labeling system of W-xxx to designate fire-resistance rated glazing tested to ASTM E 119, and D-T or NT, H or NH – xxx, and OH-xxx is cumbersome and confusing, and is resulting in misapplications of fire protection rated glazing in the field, where fire resistance rated glazing is required.

Proponent is a manufacturer of both fire protection-rated, and fire resistance-rated glazing. Under the current labeling system, proponent is required to mark its glazing products according to their end use, i.e., W-xxx for wall assembly, D-NT-X or NH-xx for use in door assemblies, or OH-xx for use in window assemblies. Unfortunately, most of the glazing orders proponent receives from glazing contractors do not specify the end use for the glazing, simply the size and quantity. Therefore, proponent is unable to determine how to mark the glazing for as required according to end use.

As a result of the problems proponent (and other manufacturers) are having in attempting to comply with the current glazing marking requirements, one listing agency has authorized the use of strip labeling, to be placed on the shipping container that the individual glazing panels are shipped in. That strip labeling allows the manufacturer to check all the applicable end-uses: D-T NT H NH –xx and OH-xx, leaving the distributors or glazing contractors to figure out which label to apply for the end-use. As a practical matter, the distributors and the glazing contractors are the least familiar with the code, and the most likely to misapply this complicated labeling system.

Although this solution addresses the pragmatic problems manufacturers have in complying with the marking requirements, it does not help code enforcers in making sure the proper glazing is being used for the application. The only information the code enforcer needs to know, is the glazing tested to the fire protection rating test standards, which means the size and area limitations of 715 apply, or is it tested to the fire-resistance rating test standard, in which case it is not subject to the size and area limits of section 715.

This problem is compounded by the fact that the listing agencies list uses of fire protection rated glazing for applications that are not permitted by code, and the current marking of those applications does nothing to help code enforcers spot the improper use of fire protection rated glazing in applications where fire resistance rated glazing is required.

As a specific example, listing agencies are currently listing fire protection products tested for 60-and 90-minutes pursuant to NFPA 252 and 257 for use in 60-and 90 minute sidelites transoms and borrowed lights, none of which are permitted by code. Fire resistance rated glazing products, on the other hand, which have been tested to ASTM E119, are permitted in those 60-and 90-minute applications. IBC 715.5.7, Table 715.5, NFPA 80 (2006) 6.3.3.3, 6.3.3.4. Under the current marking system, both fire protection and fire resistance-rated glazing products would be marked identically, i.e., D-H-OH-60, D-H-OH-90. How is the code enforcer supposed to tell which is the fire-resistance-rated product, which is permitted, and which is the fire-protection-rated product, which is not permitted?

The proposed code change would eliminate that confusion by requiring the labeling of the fire-protection rated products as P-60 or P-90, and the fire-resistance rated products as R-60 and R-90, so the code enforcer knows which product is accepted for applications permitting fire-resistance-rated products, but prohibiting fire-protection rated products.

This proposal also provides in new subsections 715.4.6.3.1.1 and 715.5.8.1.1 for the marking of products tested and listed by approved agencies with exceptions to specific test standard requirements. For example, the testing and listing agencies test and list 20-minute glazing products to NFPA 252 and 257 without hose stream. It is the current practice of the listing and labeling agencies to specifically mark on the glazing label that the product is "tested without hose stream." These code changes will make it a code requirement that test exceptions be marked on the label. This code change addresses the committee's stated concern last cycle that the marking requirements be provided by code, and not left to the testing and labeling agency practice.

Cost Impact: This will reduce the cost of labeling, because it provides for labeling performance, which the manufacturer and fabricator can do, who typically do not know where the glazing is going to be installed. The existing labeling system is confusing and impractical, and is leading to additional costs of relabeling in the field.

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

FS14–07/08
704.2

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

Revise as follows:

704.2 Projections. Cornices, eave overhangs, exterior balconies and similar projections extending beyond the ~~floor area~~ exterior wall shall conform to the requirements of this section and Section 1406. Exterior egress balconies and exterior exit stairways shall also comply with Sections 1014.5 and 1023.1, respectively. Projections shall not extend beyond the distance determined by the following ~~two~~ three methods, whichever results in the lesser projection:

1. A point one-third the distance from the exterior face of the wall to the lot line where protected openings or a combination of protected and unprotected openings are required in the exterior wall. ~~from an assumed vertical plane located where protected openings are required in accordance with Section 704.8.~~
2. A point one-half the distance from the exterior face of the wall to the lot line where all openings in the exterior wall are permitted to be unprotected or the building is equipped throughout with an automatic sprinkler system installed under the provisions of Section 704.8.2. (Supp)
3. ~~2~~3. More than 12 inches (305 mm) into areas where openings are prohibited.

Buildings on the same lot and considered as portions of one building in accordance with Section 704.3 are not required to comply with this section.

Reason: The provision for projections in Section 704.2 is language from a legacy code that had definite measurements for when openings were required to be protected and when they were prohibited based on occupancy and construction type. With Section 704.8 and Table 704.8, the absolute measurement that was used in the previous legacy code is no longer present. This makes it very difficult to apply and has created inconsistency in application. There is different terminology between the IBC and the legacy code that does not allow the user to adequately apply this section.

The legacy code said "Projections beyond the exterior wall shall comply with Section 705 and shall not extend beyond:" This was very clear that the projections started at the exterior surface of the exterior wall.

The IBC states, "Cornices, eave overhangs, exterior balconies and similar projections extending beyond the floor area shall conform to the requirements of this section and Section 1406." This is very misleading and confusing. The term floor area is defined in Section 1002 which says the floor area is the "area within the inside perimeter of the exterior walls of the building." Using this definition, projections need to be measured from the inside perimeter of the exterior wall, making everything that is outside of the inside perimeter of the exterior walls a projection, including the exterior wall itself. We understand that the definition of floor area also includes usable space without walls under the horizontal projection of the floor or roof above, but the term "projection" in that definition already indicates that the floor or roof above is a projection. These floors and roofs should already be regulated as projections, not the area of usable space under them. We're not sure how you would have a projection from a space without exterior walls that is already under a projection.

The legacy code also stated that the assumed vertical plane for protection of openings was when they were "first" required to be protected. There was a table that had definite measurements that were constant based upon occupancy and construction type. IBC Table 704.8 does not have a provision where you can definitely apply this assumed vertical plane. Utilizing the provisions of Equation 7-2 in Section 704.8 for a non-sprinklered M occupancy of IIIB construction 7 feet from the lot line if the combination of protected and unprotected was less than or equal to 1, there would be some required protected openings in the wall. But looking at the Table 704.8, protected openings could be required at 10 feet from the lot line using the same equation. Does one measure the distance from wall and its location in relation to the lot line or from the point at 10 feet where some protected openings would have been required? Or from some other assumed vertical plane?

The intent of this code change is to set a definite line where one can measure this distance from. Without it, this section of the code will continue to be misapplied and inconsistently enforced. There are widely varying interpretation of how to apply Section 704.2 to Section 704.8, none of which has adequately come close to explaining how these two sections interact with each other.

- The first amendment changes the term "floor area" to "exterior wall" so it's clear where one measures from.
- The second change simply makes it clear that the measurement is taken from the exterior surface of the wall sets the actual wall location as the assumed vertical plane for walls with protected openings or a combination of protected and unprotected openings. It also deletes the reference to Section 704.8, which we contend is a major part of the problem.
- The third change is recognizing walls that are permitted to have all openings unprotected and the benefits of have a fire sprinkler system. It also makes it clear that the measurement is taken from the exterior surface of the wall and sets the location of the wall as the vertical plane. We felt that if all openings could be unprotected or a sprinkler system was installed, a greater projection distance could be allowed. That is not recognized as a factor in the current language of Section 704.2.
- The fourth changes makes it clear that buildings on the same lot and considered as one building are exempt from this section.

It is important to note that although the closer to the lot line the building gets the projections also get closer to the lot line incrementally, the projection decrease in distance in the same manner

Simply stated, you can put a square peg in a round hole. If you really look at the current provisions of Section 704.2 and how to apply it to Section 704.8, it doesn't flow very well, is based on two very different code philosophies and requirements, and is very difficult if not impossible, to determine the assumed imaginary line.

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

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

FS15–07/08

704.2, Table 704.2

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

1. Revise as follows:

704.2 Projections. Cornices, eave overhangs, exterior balconies and similar projections extending beyond the ~~floor area~~ exterior wall shall conform to the requirements of this section and Section 1406. Exterior egress balconies and exterior exit stairways shall also comply with Sections 1014.5 and 1023.1, respectively. Projections shall not extend beyond the distance determined by the following two methods, whichever results in the lesser projection:

1. A point one-third the distance to the lot line from an assumed vertical plane ~~located where protected openings are required~~ in accordance with ~~Section 704.8~~ Table 704.2.
2. More than 12 inches (305 mm) into areas where openings are prohibited.

For the purposes of determining allowable projections from buildings, the assumed vertical plane shall be measured at right angles from the lot line or, for buildings on the same lot, an imaginary line in accordance with Section 704.3. Buildings on the same lot and considered as portions of one building in accordance with Section 704.3 are not required to comply with this Section. The assumed vertical plane shall be parallel with the lot line or imaginary line.

2. Add new table as follows:

TABLE 704.2
ASSUMED VERTICAL PLANE (feet)[a]

GROUP	TYPE I, II[b]	TYPE III, IV, V[b]
A, B, E, F-2, I, R, S-2, U	3	5[c]
M, S-1, F-1	5	10
H	15	20[d]

a. Unprotected openings are prohibited less than 5 feet of a lot line and protected openings are prohibited less than 3 feet of a lot line.
b. Based on type of construction in Chapter 6.
c. I-2 occupancies are not permitted in Type VB construction.
d. H-1 occupancies are not permitted in Type VB construction.

Reason: The provision for projections in Section 704.2 is language from a legacy code that had definite measurements for when openings were required to be protected and when they were prohibited based on occupancy and construction type. With Section 704.8 and Table 704.8, the absolute measurement that was used in the previous legacy code is no longer present. This makes it very difficult to apply and has created inconsistency in application. There is different terminology between the IBC and the legacy code that does not allow the user to adequately apply this section.

The legacy code said "Projections beyond the exterior wall shall comply with Section 705 and shall not extend beyond:" This was very clear that the projections started at the exterior surface of the exterior wall.

The IBC states, "Cornices, eave overhangs, exterior balconies and similar projections extending beyond the floor area shall conform to the requirements of this section and Section 1406." This is very misleading and confusing. The term floor area is defined in Section 1002 which says the floor area is the "area within the inside perimeter of the exterior walls of the building." Using this definition, projections need to be measured from the inside perimeter of the exterior wall, making everything that is outside of the inside perimeter of the exterior walls a projection, including the exterior wall itself.

The legacy code also stated that the assumed vertical plane for protection of openings was when they were "first" required to be protected. IBC Table 704.8 does not have a provision where you can definitely apply this assumed vertical plane. Utilizing the provisions of Equation 7-2 in Section 704.8 for a non-sprinklered M occupancy of IIIB construction 7 feet from the lot line if the combination of protected and unprotected was less than or equal to 1, there would be some required protected openings in the wall. But looking at the Table 704.8, protected openings could be required at 10 feet from the lot line using the same equation. Does one measure the distance from wall and its location in relation to the lot line or from the point at 10 feet where openings would have been required if they would have used the same equation? Or from some other assumed vertical plane?

The philosophy of this code change is to line up with the recent code changes that have occurred with the Table 508.3.3, Table 602 and other sections of the code that have based their merit on similar and dissimilar risks as well as similar fuel loads of occupancies. We have taken the approach of using Table 508.3.3, Table 602 and Table 705.4 to develop this language. As you can see, we tried to fit the occupancies and their exterior wall fire rating from Table 602 into this new table. We have also tried to mirror Table 704.8 and the distances for opening protection.

By putting some actual measurements into the code, we believe that this will vastly improve the application and consistency in which projections are regulated.

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

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

FS16–07/08
704.5

Proponent: Gregory Lake, Sacramento Metropolitan Fire District, representing California Fire Chief's Association (Cal Chiefs)

Revise as follows:

704.5 Fire-resistance ratings. Exterior walls shall be fire-resistance rated in accordance with Tables 601 and 602 and this section. The required fire-resistance rating of exterior walls with a fire separation distance of greater than ~~5 feet (1524 mm)~~ 10 feet (3048 mm) shall be rated for exposure to fire from the inside. The required fire-resistance rating of exterior walls with a fire separation distance of ~~5 feet (1524 mm) or~~ less than or equal to 10 feet (3048 mm) shall be rated for exposure to fire from both sides.

Reason: This code change proposal is a follow up to our previous Code Change FS20-06/07 which was recommended for disapproval by the Committee. We submitted a Public Comment for approval for discussion during the ICC Final Action Hearings in Rochester, N.Y. We were successful in overturning the Committee's recommendation for disapproval but failed to achieve the necessary 2/3 majority vote for approval by the narrow margin of 111 to 66. Because of the strong interest expressed by the Class A voting members at the hearings, we decided to resubmit this code change proposal for the Committee's consideration. However, in order to make the code change proposal more acceptable to the Committee, we deleted one of the provisions that required all exterior barring walls to have the fire resistance rating based on fire exposures to both the exterior face and the interior face. In other words, we revised the previous code change proposal to only increase the fire separation distance from 5 feet to

10 feet for the purpose of requiring such exterior walls within that fire separation distance to have their fire resistance rating determined by the fire exposures conducted on both sides of the wall. Thus, any exterior wall required to have a fire resistance rating which has a fire separation distance of more than 10 feet would only be required to have its fire resistance rating determine by fire exposure from the inside. We believe this to be the more critical element of our original code change in order to better prevent building to building fire spread where buildings are in close proximity to each other.

This code change addresses concerns about the provisions of Section 704.5 that permit the fire resistance rating of an exterior wall with a fire separation distance greater than 5 feet to be determine based on fire exposure only to the inside face of the wall. The concerns are based the provisions of Section 704.8, item 2, which permit an exterior wall that is not required to have a fire resistance rating to have unlimited unprotected openings. Since Table 602 permits non-fire resistance rated exterior walls in buildings of Types IIB and VB construction in all occupancy groups except H where the fire separation distance is 10 feet or greater, the potential exists for buildings with walls rated from the inside only to be exposed to significant levels of radiant heat. The radiant heat exposure will likely cause walls with combustible components to ignite and burn from the outside, and walls with noncombustible structural components to be reduced in strength. Regardless of the construction of the wall, the degradation caused to the wall may result in collapse and/or fire penetration of the wall by the fire before the time of the required fire-resistance rating has elapsed based on the fire-resistance rating being determined by interior fire exposure only.

To illustrate the impact of the provision of Section 704.5 of concern, assume two buildings of Group S-1 occupancy and Type VB construction are erected on either side of a property line. One building has a fire separation distance of 10 feet. Based on these parameters, Table 602 does not require a fire resistance rating for the exterior wall since it is set back 10 feet. Therefore, unlimited unprotected openings are permitted in the wall. The second building has a fire separation distance of 5.01 feet; therefore, Table 602 requires the exterior wall to have a fire resistance rating of 1 hour and unprotected openings are restricted to 10% of the wall area. However, Section 704.5 indicates that since the wall has a fire separation distance of greater than 5 feet, the fire-resistance rating of the wall only needs to be established for exposure to fire from the inside.

The opening limitations of the IBC, which were originally developed for the BOCA National Building Code (NBC), are intended to limit the radiant heat from a fire in an exposing building so that the radiant heat striking an exposed building does not exceed 12.5 kW/m^2. It is generally accepted that wood-based products can withstand exposure to this level of radiation in the presence of a pilot flame without igniting. If radiant heat levels exceed this amount, ignition is likely since “pilot flames” in the form of flying brands are likely to be present. Auto-ignition (without a flame present) of wood-based products generally occurs at radiation levels of 35 to 45 kW/m^2 after exposure for about 20 to 25 seconds.

During the development of the IBC, it was decided that if an exterior wall had no required fire-resistance rating, unlimited unprotected openings would be permitted. Since Table 602 does not require exterior walls of buildings (other than Group H) of Types IIB and VB construction to be fire-resistance rated where the fire separation distance is 10 feet or greater, 100% unprotected openings are permitted. Therefore, fires in these buildings are likely to expose adjacent buildings to considerably more radiant heat than 12.5 kW/m^2.

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

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

FS17–07/08
702.1, 704.5

Proponent: Dennis Richardson, Bureau Veritas North America Inc.; Laura Blau, Orange County Fire Authority on behalf of California Fire Chiefs Association, representing themselves

1. Add new definition as follows:

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

AREAS OF INTERRUPTED WATER SUPPLY. Regions or areas where the water supply available for fire suppression is subject to extended periods of failure due to natural disaster or other factors, as determined by the building official to meet any of the following conditions:

1. Areas, regions or geologic features where the .2 second spectral response acceleration in Figure 1613.5 (1) is 150% or greater; or alluvial valleys located between or adjacent to geologic features or areas where the .2 second spectral response acceleration in Figure 1613.5 (1) is 150% or greater.
2. Flood hazard areas defined in Section 1612.3.
3. Hurricane-prone regions defined in Section 1609.2.
4. Areas where the water system is not deemed to be operational or reliable in the event of an emergency as determined by the authority having jurisdiction.

2. Revise as follows:

704.5 Fire-resistance ratings. Exterior walls shall be fire-resistance rated in accordance with Tables 601 and 602. 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. In areas of interrupted water supply, the fire-resistance rating of exterior walls with a fire separation distance of greater than 10 feet (3048 mm) shall be rated for exposure to fire from the inside and the fire-resistance rating of exterior walls with a fire separation distance of 10 feet (3048 mm) or less shall be rated for exposure to fire from both sides.

Reason: The purpose of this code change is to reduce the reliance of firefighters, and the community on adequate water supply to help prevent conflagration where the water supply may be interrupted by natural disaster or water system operation issues in the event of an emergency. Section 704.5 one of many provisions found in the code where it is assumed in times of emergency the water supply will be available and reliable for fire suppression activities. In many parts of the country that assumption may not be an acceptable risk. In areas or regions where buildings may remain without reliable water supply after a natural disaster it is an unacceptable risk to firefighters and communities to assume five feet from a property line is sufficient distance where exterior walls do not need to be rated for exposure from the outside. This provision assumes adequate water supply will be available for emergency responders to protect exposures from adjacent properties and/or assumes sprinkler systems will be operational in adjacent buildings to prevent fire exposure. History has shown that fire after a disaster can be more destructive to life and property than the disaster itself.

Cost Impact: This provision will increase the cost of construction in certain geographic areas or regions as defined.

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

FS18–07/08
Table 704.8, 704.8.2

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

Revise as follows:

TABLE 704.8 (Supp)
MAXIMUM AREA OF EXTERIOR WALL OPENINGS BASED ON FIRE SEPARATION DISTANCE AND DEGREE OF OPENING PROTECTION

FIRE SEPARATION DISTANCE (feet)	DEGREE OF OPENING PROTECTION	ALLOWABLE AREA[a]
0 to less than 3 [b, c, h]	Unprotected, Nonsprinklered (UP, NS)	Not Permitted
	Unprotected, sprinklered (UP, S) [i]	Not Permitted
	Protected (P)	Not Permitted
3 to less than 5[d, e]	Unprotected, Nonsprinklered (UP, NS)	Not Permitted
	Unprotected, sprinklered (UP, S) [i]	15%
	Protected (P)	15%
5 to less than 10[e, f]	Unprotected, Nonsprinklered (UP, NS)	10% [h]
	Unprotected, sprinklered (UP, S) [i]	25%
	Protected (P)	25%
10 to less than 15[e, f, g]	Unprotected, Nonsprinklered (UP, NS)	15% [h]
	Unprotected, sprinklered (UP, S) [i]	45%
	Protected (P)	45%
15 to less than 20[f, g]	Unprotected, Nonsprinklered (UP, NS)	25%
	Unprotected, sprinklered (UP, S) [i]	75%
	Protected (P)	75%
20 to less than 25[f, g]	Unprotected, Nonsprinklered (UP, NS)	45%
	Unprotected, sprinklered (UP, S) [i]	No Limit
	Protected (P)	No Limit
25 to less than 30[f, g]	Unprotected, Nonsprinklered (UP, NS)	70%
	Unprotected, sprinklered (UP, S) [i]	No Limit
	Protected (P)	No Limit
30 or greater	Unprotected, Nonsprinklered (UP, NS)	No Limit
	Unprotected, sprinklered (UP, S) [i]	Not Required
	Protected (P)	Not Required

For SI: 1 foot = 304.8 mm.
UP, NS = Unprotected openings in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
UP, S = Unprotected openings in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
P = Openings protected with an opening protective assembly in accordance with Section 704.8.2.
a. Values indicated are the percentage of the area of the exterior wall, per story.
b. For the requirements for fire walls of buildings with differing heights, see Section 705.6.1.

c. For openings in a fire wall for buildings on the same lot, see Section 705.8.
d. The maximum percentage of unprotected and protected openings shall be 25 percent for Group R-3 occupancies.
e. Unprotected openings shall not be permitted for openings with a fire separation distance of less than 15 feet for Group H-2 and H-3 occupancies.
f. The area of unprotected and protected openings shall not be limited for Group R-3 occupancies, with a fire separation distance of 5 feet or greater.
g. The area of openings in an open parking structure with a fire separation distance of 10 feet or greater shall not be limited.
h. Includes buildings accessory to Group R-3.
i. Not applicable to Group H-1, H-2 and H-3 occupancies.

704.8.2 (Supp) Protected openings. Where openings are required to be protected, fire doors~~~~ assemblies and fire shutters shall comply with Section 715.4 and fire window assemblies shall comply with Section 715.5.

Exception: Opening protective assemblies are not required where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 and the exterior openings are protected by a water curtain using automatic sprinklers approved for that use.

Reason: The purpose for the proposal is to restore the original intent of Section 704.8 on opening protection at exterior walls that was inadvertently changed by Proposal FS24-06/07-AMPC1. In Section 704.8.2, "fire doors and fire shutters" is changed to "fire door assemblies and fire shutters." The original language modified by Proposal FS24-06/07 was in Section 704.12, which specified "fire door or shutter assemblies." The change will restore the concept that fire door assemblies, not fire doors, complying with Section 715.4 provide opening protection. The change will also bring consistency with Section 715.4, which specifies "fire door and fire shutter assemblies."

In Table 704.8, footnotes are changed to correct an inadvertent error in Proposal FS24-06/07-AMPC1. Footnote (h) is deleted at the column for allowable area and the row for unprotected, nonsprinklered degree of opening protection at fire separation distances of 5 feet to less than10 feet and 10 feet to less than 15 feet. Footnote (h) is added at the column for fire separation distance and the row for fire separation distances of 0 feet to 3 feet.

Table 704.8 in this proposal is identical in format to the 2007 IBC Supplement. The same table is also provided below but in the same format as the 2006 IBC to enable better understanding by the proponent and, hopefully, the readers of this proposal. In that table, Footnote (h) is deleted at the unprotected, nonsprinklered row for fire separation distances of 5 feet to less than10 feet and 10 feet to less than 15 feet. Footnote (h) is added at the column for fire separation distances of 0 feet to less than 3 feet so that it applies to all degrees of opening protection.

Footnote (h) in the 2007 IBC Supplement applies to buildings accessory to Group R-3. In the 2006 IBC, this was Footnote (j), which was referenced at the column for fire separation distances of 0 feet to less than 3 feet so that it applies to all degrees of opening protection. In Proposal FS24-06/07-AMPC1, it was Footnote (g), which was referenced at the same locations as in the 2007 IBC supplement. The proposal adjusts the footnotes to agree with the 2006 IBC.

TABLE 704.8 (Supp)
MAXIMUM AREA OF EXTERIOR WALL OPENINGS BASED ON FIRE SEPARATION DISTANCE AND DEGREE OF OPENING PROTECTION[a]

	FIRE SEPARATION DISTANCE (feet) [a]							
DEGREE OF OPENING PROTECTION	**0 to less than 3[b, c, h]**	**3 to less than 5 [d, e]**	**5 to less than 10[e,f]**	**10 to less than 15[e, f, g]**	**15 to less than 20[f, g]**	**20 to less than 25[f, g]**	**25 to less than 30[f, g]**	**30 or greater**
Unprotected, Nonsprinklered (UP, NS)	Not Permitted	Not Permitted [c]	10% [h]	15% [h]	25%	45%	70%	No Limit
Unprotected, sprinklered (UP, S) [i]	Not Permitted	15%	25%	45%	75%	No Limit	No Limit	Not Required
Protected (P)	Not Permitted	15%	25%	45%	75%	No Limit	No Limit	Not Required

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

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

FS19–07/08
704.8.6

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

Revise as follows:

704.8.6 (Supp) Vertical exposure. For buildings ~~on the same lot~~ with a fire separation distance of less than 15 feet, opening protectives having a fire protection rating of not less than 3/4 hour shall be provided in every opening that is less than 15 feet (4572 mm) vertically above the roof of an adjacent building or structure ~~based on assuming an~~

~~imaginary line between them~~. ~~The~~ For buildings on the same lot, opening protectives are required where the fire separation distance between the imaginary line as determined by Section 704.3 and the adjacent building or structure is less than 15 feet (4572 mm).

Exceptions:

1. Opening protectives are not required where the roof construction of the adjacent building or structure has a fire-resistance rating of not less than 1 hour for a minimum distance of 10 feet (3048 mm) from the exterior wall facing the imaginary line and the entire length and span of the supporting elements for the fire-resistance-rated roof assembly has a fire-resistance rating of not less than 1 hour.
2. Buildings on the same lot and considered as portions of one building in accordance with Section 704.3 are not required to comply with Section 704.8.6.

Reason: The purpose of this submittal is clean up inconsistent provisions between buildings on the same lot with and imaginary line for fire separation distance and the lack of the same provision for buildings on adjacent lots with real property lines. The purpose of assuming an imaginary line between buildings on the same lot is to mirror the fire separation distance of those buildings with actual property lines and determining opening and wall protection. Currently, the provisions of buildings on the same lot with an imaginary line have more restrictive requirements than those buildings with a real line.

If one is concerned about fire spread from one building to another, should the provisions be the same for a real lot line as opposed to an imaginary one? Yes, we believe so. The probability of a fire spreading from one building to another via openings and fire separation distance to other buildings is the same regardless of real or imaginary lines.

The first sentence of this section has been amended to include all buildings with a fire separation of less than 15 feet. The provision for buildings on the same lot has been moved to the last sentence with a reference to Section 704.3 that contains the provision for an imaginary line.

Based on the current code language, we can only assume that a recorded property line somehow adds an additional level of protection over and above an imaginary one.

Cost Impact: The code change proposal will increase the cost of construction. Added cost of protected openings or rated roof.

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

FS20–07/08

704.8.6, 711.3.3, 711.4, 721.5.2.3, 410.4, 414.2.4, 509.5, 509.6, 805.1.1, 805.1.2, 909.20.2; IFC 2703.8.3.4

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

THESE PROPOSALS ARE ON THE AGENDA OF THE IBC GENERAL, THE IBC FIRE SAFETY AND THE IFC CODE DEVELOPMENT COMMITTEES AS 3 SEPARATE CODE CHANGES. SEE THE TENTATIVE HEARING ORDERS FOR THESE COMMITTEES

PART I – IBC GENERAL

Revise as follows:

410.4 Platform construction. Permanent platforms shall be constructed of materials as required for the type of construction of the building in which the permanent platform is located. Permanent platforms are permitted to be constructed of fire-retardant-treated wood for Type I, II, and IV construction where the platforms are not more than 30 inches (762 mm) above the main floor, and not more than one-third of the room floor area and not more than 3,000 square feet (279m^2) in area. Where the space beneath the permanent platform is used for storage or any other purpose other than equipment, wiring or plumbing, the floor ~~construction~~ assembly shall not be less than 1-hour fire-resistance-rated construction. Where the space beneath the permanent platform is used only for equipment, wiring or plumbing, the underside of the permanent platform need not be protected.

414.2.4 Fire-resistance-rating requirements. The required fire-resistance rating for fire barriers shall be in accordance with Table 414.2.2. The floor ~~construction~~ assembly of the control area and the construction supporting the floor of the control area shall have a minimum 2-hour fire-resistance rating.

Exception: The floor ~~construction~~ assembly of the control area and the construction supporting the floor of the control area are allowed to be 1-hour fire-resistance rated in buildings of Type IIA, IIIA and VA construction, provided that both of the following conditions exist:

1. The building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, and
2. The building is three stories or less above grade plane.

509.5 Group R-1 and R-2 buildings of Type IIIA construction. The height limitation for buildings of Type IIIA construction in Groups R-1 and R-2 shall be increased to six stories and 75 feet (22 860 mm) where the first-floor ~~construction~~ assembly above the basement has a fire-resistance rating of not less than 3 hours and the floor area is subdivided by 2-hour fire-resistance-rated fire walls into areas of not more than 3,000 square feet (279 m^2).

509.6 Group R-1 and R-2 buildings of Type IIA construction. The height limitation for buildings of Type IIA construction in Groups R-1 and R-2 shall be increased to nine stories and 100 feet (30 480 mm) where the building is separated by not less than 50 feet (15 240 mm) from any other building on the lot and from lot lines, the exits are segregated in an area enclosed by a 2-hour fire-resistance-rated fire wall and the first-floor ~~construction~~ assembly has a fire-resistance rating of not less than 1 1/2 hours.

PART II – IBC FIRE SAFETY

Revise as follows:

704.8.6 (Supp) Vertical exposure. For buildings on the same lot, opening protectives having a fire protection rating of not less than 3/4 hour shall be provided in every opening that is less than 15 feet (4572 mm) vertically above the roof of an adjacent building or structure based on assuming an imaginary line between them. The opening protectives are required where the fire separation distance between the imaginary line and the adjacent building or structure is less than 15 feet (4572 mm).

Exceptions:

1. Opening protectives are not required where the roof ~~construction~~ assembly of the adjacent building or structure has a fire-resistance rating of not less than 1 hour for a minimum distance of 10 feet (3048 mm) from the exterior wall facing the imaginary line and the entire length and span of the supporting elements for the fire-resistance-rated roof assembly has a fire-resistance rating of not less than 1 hour.
2. Buildings on the same lot and considered as portions of one building in accordance with Section 704.3 are not required to comply with Section 704.8.6.

711.3.3 Unusable space. In 1-hour fire-resistance-rated floor ~~construction~~ assembly, the ceiling membrane is not required to be installed over unusable crawl spaces. In 1-hour fire-resistance-rated roof ~~construction~~ assembly, the floor membrane is not required to be installed where unusable attic space occurs above.

711.4 (Supp) 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~~ assembly is maintained. Unprotected skylights shall not be permitted in roof ~~construction~~ assembly required to be fire-resistance rated in accordance with Section 704.10. The supporting construction shall 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 incidental uses as specified by 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.

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

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

805.1.1 Subfloor construction. Floor sleepers, bucks and nailing blocks shall not be constructed of combustible materials, unless the space between the fire-resistance-rated floor ~~construction~~ assembly and the flooring is either solidly filled with approved noncombustible materials or fireblocked in accordance with Section 717, and provided that such open spaces shall not extend under or through permanent partitions or walls.

805.1.2Wood finish flooring. Wood finish flooring is permitted to be attached directly to the embedded or fireblocked wood sleepers and shall be permitted where cemented directly to the top surface of approved fire-resistance-rated floor ~~construction~~ assembly or directly to a wood subfloor attached to sleepers as provided for in Section 805.1.1.

909.20.2 Construction. The smokeproof enclosure shall be separated from the remainder of the building by not less than a 2-hour fire barrier without openings other than the required means of egress doors. The vestibule shall be separated from the stairway by not less than a 2-hour fire barrier. The open exterior balcony shall be constructed in accordance with the fire-resistance-rating requirements for floor ~~construction~~ assembly.

PART III – IFC

Revise as follows:

2703.8.3.4 Fire-resistance rating requirements. The required fire-resistance rating for fire barriers shall be in accordance with Table 2703.8.3.2. The floor ~~construction~~ assembly of the control area and the construction supporting the floor of the control area shall have a minimum 2-hour fire-resistance rating.

Exception: The floor ~~construction~~ assembly of the control area and the construction supporting the floor of the control area is allowed to be 1-hour fire-resistance rated in buildings of Type IIA, IIIA and VA construction, provided that both of the following conditions exist:

1. The building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1; and
2. The building is three stories or less in height.

Reason: Section 711.1 on horizontal assemblies states that "floor and roof assemblies required to have a fire-resistance-rating shall comply with this section" (i.e., horizontal assemblies). There are no comparable requirements in the IBC, however, for floor construction or roof construction. The requirements in Section 711 for horizontal assemblies ensure that fire-resistance-rated floor assemblies and roof assemblies provide fire containment (i.e., compartmentation) between stories by means of the requirements in Section 711 for continuity and the fire-resistance-rated protection of penetrations, joints and other openings. There are exceptions for roof assemblies and the fire-protection-rated protection of certain penetrations and openings (e.g., contained with the cavity of a wall, fire dampers at ducts connecting two stories, etc.), but the overall affect is that horizontal fire containment is achieved when the provisions for horizontal assemblies are met.

Fire-resistance-rated floor construction and roof construction, by virtue of their listings in Table 601 on fire-resistance rating requirements for building elements, provide fire endurance in the same manner that the structural frame, bearing walls and other structural building elements are required to be fire-resistance-rated due to their listings in Table 601. This fire endurance maintains structural integrity during a fire event but it does not provide fire containment in the manner that is provided by fire barriers and horizontal assemblies.

The code sections in this proposal currently specify requirements for fire-resistance-rated floor or roof construction or reference fire-resistance-rated floor or roof construction for related purposes. The intent of these provisions, however, is judged to specify or reference fire-resistance-rated floor assemblies or roof assemblies for the purpose of providing fire containment in addition to the fire endurance provided by being listed in Table 601. The proposal changes floor construction to floor assembly(ies) and roof construction to roof assembly(ies) in the necessary code sections consistent with the judgment that fire containment in addition to fire endurance is intended.

Certain provisions of the IBC apply specifically to the listings in Table 601 and are not affected by this proposal. They are Sections 602.4.3, 1406.3 and 3104.3 (Exception #2).

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

PART III – IFC

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

FS21–07/08
705.1

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

Revise as follows:

705.1 General. Each portion of a building separated by one or more fire walls that comply with the provisions of ~~this section~~ Section 705 shall be considered a separate building. ~~The extent and location of such fire walls shall provide a complete separation.~~ Where a fire wall also separates occupancies that are required to be separated by a fire barrier wall, the most restrictive requirements of each separation shall apply.

Reason: A fire wall complying with Section 705 establishes the equivalent of separate buildings on either side of the fire wall. In case of a fire in one of the buildings thus established, the structural integrity of the fire wall is ensured by compliance with the requirements of Section 705.2 on structural integrity so that it can serve its intended function of protecting the building and its occupants not subjected to the fire from the building that is subjected to the fire. Section 705.1, however, imposes an additional requirement on the fire wall to provide a complete separation. This implies that the buildings on either side of the fire wall are also required to be completely separated from each other, for example, by a continuous air space between the buildings. The requirement for a complete separation potentially conflicts with the requirement for structural integrity. Structural integrity ensures that the fire wall is designed and constructed so that the building subjected to the fire is able to collapse without causing the fire wall to collapse for the duration of time indicated by the fire wall's required fire-resistance rating. Without structural integrity of the fire wall, fire could spread to the adjacent building or collapse of the building subjected to the fire could lead to partial collapse of the building not subjected to the fire. The additional requirement for a complete separation will not improve the performance of the fire wall over that of the requirement for structural integrity.

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

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

FS22–07/08
705.1.1, 402.7.3, 402.7.3.1, 402.7.3.2 (New), 402.7.3.3 (New)

Proponent: Sarah A. Rice, Schirmer Engineering Corporation

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

PART I – IBC FIRE SAFETY

Revise as follows:

705.1.1 Party walls. Any wall located on a lot line between adjacent buildings, which is used or adapted for joint service between the two buildings, shall be constructed as a firewall in accordance with Section 705. Party walls shall be constructed without openings and shall create separate buildings.

> **Exception:** Openings in a party wall separating an anchor building and a covered mall building shall be in accordance with Section 402.7.3.1.

PART II – IBC GENERAL

Revise as follows:

402.7.3 Anchor building separation. An anchor building shall be separated from the covered mall building by fire walls or party walls complying with Section 705.

> **Exception:** Anchor buildings of not more than three stories above grade plane that have an occupancy classification the same as that permitted for tenants of the covered mall building shall be separated by 2-hour fire-resistive fire barriers complying with Section 706.

402.7.3.1 Openings between anchor building and mall in Types I and II construction. Except for the separation between Group R-1 sleeping units and the mall, openings ~~between~~ in the wall separating anchor buildings of Type ~~IA, IB, IIA and IIB~~ I or II construction and the mall need not be protected.

402.7.3.2 Openings between anchor building and mall in Types III, IV or V construction. Openings in the wall separating anchor buildings of Type III, IV or V construction and the mall shall be protected in accordance with provisions of Chapter 7 based upon the type of wall.

402.7.3.3 Openings between anchor building and covered mall buildings, other than in the mall. Openings in the wall separating anchor buildings construction and the covered mall building, in other than the mall, shall be protected in accordance with provisions of Chapter 7 based upon the type of wall.

Reason: It is becoming more common for the owner of an anchor building that is attached to a covered mall building to purchase the land upon which it sits. Once this occurs a "lot line" is created between the anchor building and the covered mall building and the fire wall that is constructed is regulated by Section 705.1.1 which prohibits the wall from having any openings.

Without openings the anchor store could not function in concert with the covered mall building as they have historically done so. The revisions proposed seek to coordinate how openings in the walls separating anchor buildings and covered mall buildings are to be addressed.

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

PART I – IBC FIRE SAFETY

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

PART II – IBC GENERAL

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

FS23–07/08

705.2, 705.2.1 (New), Table 715.4

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

1. Add new text as follows:

705.2 Structural stability. Fire walls shall have sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall for the duration of time indicated by the required fire-resistance rating.

705.2.1 Openings. Openings in a fire wall shall be protected in such a manner that, under fire conditions, collapse of construction on either side will not cause loss of the protection from the opening protectives for the duration of time indicated by their fire-protection or fire-resistance ratings.

2. Revise table as follows:

TABLE 715.4
FIRE DOOR AND FIRE SHUTTER FIRE PROTECTION RATINGS

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

a. Two doors, each with a fire protection rating of 1 ½ hours, installed on opposite sides of the same opening in a firewall, shall be deemed equivalent in fire protection rating to one 3-hour fire door.

b. Two doors, each with a fire protection rating of 1 hour, installed on opposite sides of the same opening in a fire wall, shall be deemed equivalent in fire protection rating to one 1-1/2 hour fire door.

~~b~~ c. For testing requirements, see Section 715.4.3.

Reason: Compliance with the requirements of Section 705.2 on structural integrity ensures that a fire wall can serve its intended function of protecting the building on one side of the fire wall that is not subjected to a fire from the building on the opposite side that is subjected to a fire, provided openings are not located in the fire wall. Section 705.8 on openings requires compliance with Section 715.4 on fire door and fire shutter assemblies. Section 715.4 does not specifically address how an opening in a fire wall protected by a fire door assembly will perform in a manner equivalent to that required for the fire wall assembly: allow collapse of the construction on either side without collapse of the fire wall. With the current provisions of Section 715.4, it is possible to design the fire wall in such a manner that double fire-resistance-rated walls are used to provide structural stability but a single fire door assembly is used to protect a doorway through both walls. The proposed language will prevent this from happening.

The proposed changes to Table 715.4 expand the option of using double 90-minute fire door assemblies for the protection of doorways in 3-hour fire walls to the use of double 60-minute fire door assemblies for the protection of doorways in 2-hour fire walls.

Note that Section 705.8 on openings through fire walls that requires compliance with Section 715.4 on fire door and fire shutter assemblies effectively prevents the installation of fire-protection-rated window assemblies in fire walls. Installation of a fire-resistance-rated window assembly, however, is permitted by Section 715.2 on fire-resistance-rated glazing in opening protectives. Installation of a fire-resistance-rated door assembly is possible provided an assembly listed for that purpose is installed in accordance with its listing and the manufacturer's installation instructions. Section 705.11 prohibits ducts and air transfer openings from penetrating fire walls.

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

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

FS24–07/08

705.2, Chapter 35 (New)

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

1. Revise as follows:

705.2 Structural stability. Fire walls shall have sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall for the duration of time indicated by the required fire-resistance rating.

Exception: Fire walls designed and constructed in accordance with NFPA 221.

2. Add standard to Chapter 35 as follows:

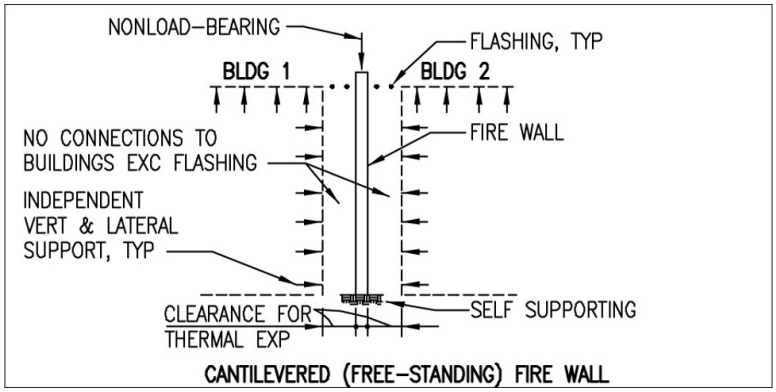
NFPA

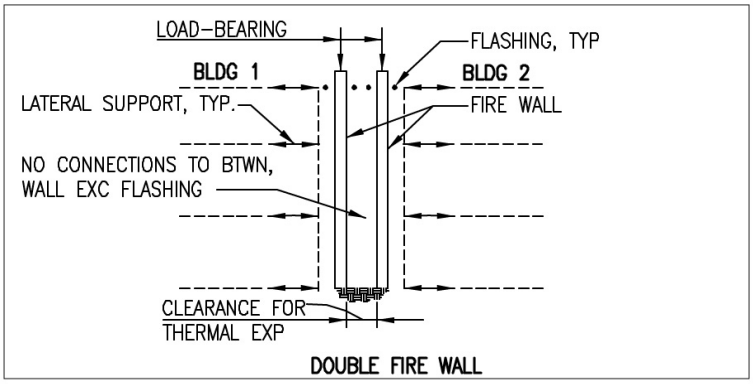
221-06 Standard for High Challenge Fire Walls, Fire Walls and Fire Barrier Walls

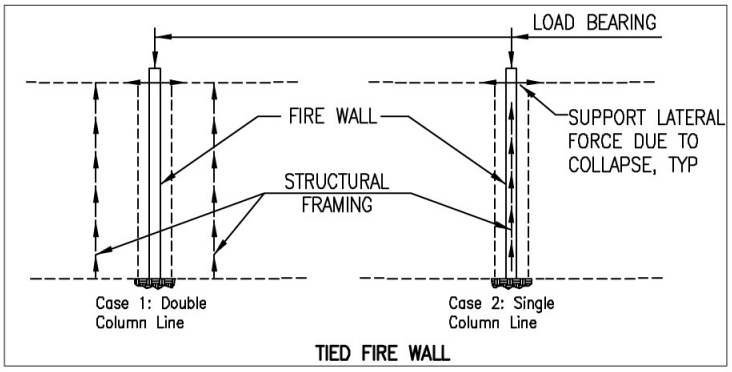
Reason: The requirement for the structural stability of fire walls is performance-based. Fire walls are required to possess sufficient structural stability under fire conditions to allow collapse of construction on either side with collapse of the wall for a specified time period. This typically requires a design by a registered design professional, especially when concrete or masonry walls are utilized for the purpose. Many design professionals, however, are uncertain how to proceed in meeting this requirement. For light-frame construction consisting of wood stud walls or cold-formed steel stud walls, a design solution is available that is widely accepted and well documented. The IBC Commentary describes and illustrates this solution in Section 705.1 of the manual. The Commentary, however, is silent on design solutions utilizing heavier types of construction, such as concrete and masonry walls.

This proposal solves the dilemma by specifying design and construction in accordance with NFPA 221 as an exception to the basic requirement. NFPA 221 specifies requirements for the design and construction of fire walls, as well as high challenge fire walls and fire barriers walls that are not the subject of this proposal. The standard specifies requirements for three methods of designing and constructing fire walls: cantilevered fire walls, double fire walls and tied fire walls. The diagrams below illustrate these methods.

NFPA 221 specifies general requirements for fire walls. None of the requirements in the three methods, however, would be strictly met by the design solution presented in the IBC Commentary for light-frame construction. Because of the wide acceptance of this design solution, however, requiring fire walls of light-frame construction to comply with NFPA 221 would not be warranted. Consequently, this proposal retains the option of utilizing the design solution for light-frame construction and, at the same time, provides design methods for heavier types of construction.







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

Analysis: A review of the standards proposed for inclusion in the code, NFPA 221, 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

FS25–07/08
705.3.1 (New)

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

Add new text as follows:

705.3 Materials. Fire walls shall be of any approved noncombustible materials.

Exception: Buildings of Type V construction.

705.3.1 Sources of ignition. Where fire walls are constructed of combustible materials in buildings of Type V construction, potential sources of ignition of the combustible materials such as, but not limited to, gas vents, dryer vents, hot water piping, and electrical wiring, receptacles, switches, equipment and other electrical components, shall not be permitted to be installed within the interior of the fire wall assembly.

Reason: 705.3.1 The purpose of this code change proposal is to prohibit the installation of potential ignition sources within the wall cavities of fire walls constructed of combustible materials where allowed Type V construction by the Exception to Section 705.3. Although a combustible fire wall may be tested to achieve the minimum required fire resistance rating specified in Table 705.4 for the appropriate application, the combustible framing elements and combustible materials used to construct the fire wall would still be subjected to burning if they become ignited by an ignition source located within the fire wall cavity. This would not be the case for noncombustible constructed fire walls since there are no combustible materials to ignite even though the wall cavities of such fire walls may contain potential ignition sources. Since fire walls are intended to create separate buildings and are structurally independent of the buildings on either side of the fire wall that the fire wall creates, it follows that they should not be subject to burning and subsequent collapse caused by a fire originating within the fire wall. So that it follows that wherever combustible construction elements are used in a fire wall, ignition sources should be prohibited so that the structural integrity and fire resistance rating of the fire wall will not be compromised. Since the fire resistance test based on ASTM E119 does not have an ignition resistance component for combustible wall construction, it is incumbent upon the building code to set limits on the potential for the internal ignition of those combustible components and the subsequent derogation of the fire wall which is required to be structurally independent so as to completely separate the adjacent buildings under fire conditions. However, if a fire occurs within the fire wall, it will not be able to perform its intended function. Therefore, potential ignition sources should be prohibited within the framing cavities of combustible fire walls.

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

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

FS26–07/08
705.4

Proponent: Jerry R. Tepe, FAIA, JRT-AIA Architect, representing American Institute of Architects

Revise as follows:

TABLE 705.4
FIRE WALL FIRE-RESISTANCE RATINGS

(Portions of table not shown remain unchanged)

~~a. Walls shall be not less than 2-hour fire-resistance rated where separating buildings of Type II or V construction.~~
a. In Type II or V construction, walls are permitted to have a 2 hour fire-resistance-rating.
b. For Group H-1, H-2 or H-3 buildings, also see Sections 415.4 and 415.5.

Reason: Footnote a is confusing and often not understood. Revised wording makes the intent of the footnote clearer.

Cost Impact: The code change proposal will not increase the cost of construction. Correct interpretation of the code will save costs.

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

FS27–07/08
705.5

Proponent: David W Prescott, Town of Gilbert, AZ, representing Trend Homes, Inc

Revise as follows:

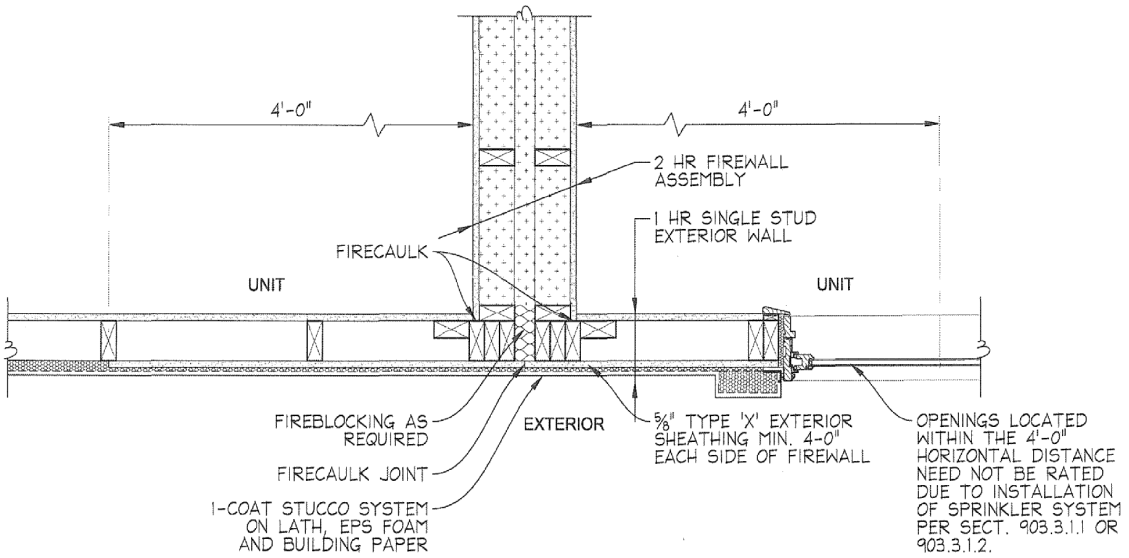
705.5 Horizontal continuity. Fire walls shall be continuous from exterior wall to exterior wall and shall extend at least 18 inches (457 mm) beyond the exterior surface of exterior walls.

Exceptions:

1. Fire walls shall be permitted to terminate at the interior surface of combustible exterior sheathing or siding provided the exterior wall has a fire-resistance rating of at least 1 hour for a horizontal distance of at least 4 feet (1220 mm) on both sides of the fire wall. Openings within such exterior walls shall be protected by opening protectives having a fire protection rating of not less than ¾ hour.
2. Fire walls shall be permitted to terminate at the interior surface of noncombustible exterior sheathing, exterior siding or other noncombustible exterior finishes provided the sheathing, siding, or other exterior noncombustible finish extends a horizontal distance of at least 4 feet (1220 mm) on both sides of the fire wall.
3. Fire walls shall be permitted to terminate at the interior surface of noncombustible exterior sheathing <u>that extends a distance not less than four feet each side of the fire wall, and openings do not have to be protected</u> where the building on each side of the fire wall is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

Reason: Exception 3 needs to the clarified. When using sprinkling systems on each side of an interior Fire Wall, Exception 3 does not explain how much noncombustible exterior sheathing is required on each side of the Fire Wall. With a sprinkling system in place per Section 903.1.1 or 903.1.2 there is no need to extend the noncombustible exterior sheathing the entire length of a building, and there is no need to protect openings. Without the additional language, Exception 3 is ambiguous. A detail of the proposed change is attached.

The ambiguity of Exception 3 leads some local building officials to ask for noncombustible materials the entire length of buildings since the Exception does not specify the distance required for the noncombustible materials. The intent of the Exception is to allow a certain Fire Wall when proper sprinkler systems are installed. The intent of the Exception is missed when sprinkler systems are installed on each side of the Fire Wall but the builder still has to apply noncombustible sheathing the entire length of the building



2 Hour Firewall Termination at Noncombustible Sheathing

Scale: 1" = 1'-0"

Cost Impact: The code change will not increase the cost of construction since the change would allow the application of four feet of noncombustible sheathing on each side of a Fire Wall, instead of the application of noncombustible sheathing the entire length of a building.

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

FS28–07/08
705.5

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

Revise as follows:

705.5 Horizontal continuity. Fire walls shall be continuous from exterior wall to exterior wall and shall extend at least 18 inches (457 mm) beyond the exterior surface of exterior walls.

Exceptions:

1. Fire walls shall be permitted to terminate at the interior surface of combustible exterior sheathing or siding provided the exterior wall has a fire-resistance rating of at least 1 hour for a horizontal distance of at least 4 feet (1220 mm) on both sides of the fire wall. Openings within such exterior walls shall be protected by opening protectives having a fire protection rating of not less than 3/4 hour.
2. Fire walls shall be permitted to terminate at the interior surface of noncombustible exterior sheathing, exterior siding or other noncombustible exterior finishes provided the sheathing, siding, or other exterior noncombustible finish extends a horizontal distance of at least 4 feet (1220 mm) on both sides of the fire wall.
3. ~~Fire walls shall be permitted to terminate at the interior surface of noncombustible exterior sheathing where the building on each side of the fire wall is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.~~

Reason: We are proposing to delete Exception 3 to the requirements for Section 705.5 Horizontal Continuity which addresses how fire walls are required to terminate where they intersect and an exterior wall. Exception 3 is not necessary and in reality would never be used because of Exception 2. Both Exceptions are virtually identical regarding how the fire wall can terminate at the interior surface of noncombustible exterior sheathing instead of having to penetrate through the exterior wall and extend at least 18 inches beyond the exterior surface of the exterior wall as required by the charging paragraph. The main difference between Exception 2 and Exception 3 is that Exception 2 limits the width of the noncombustible exterior sheathing to at least 4 feet on both sides of the fire wall whereas Exception 3 specifies no limit. Furthermore, Exception 2 also allows the fire wall to terminate at the interior surface of other types of noncombustible exterior wall materials such as exterior siding or exterior finishes. And finally Exception 3 requires that buildings on both sides of the fire wall also be protected by an automatic sprinkler system where as Exception 2 does not. Therefore it follows that Exception 3 would never be used because it is more restrictive than Exception 2.

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

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

FS29–07/08
705.6

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

Revise as follows:

705.6 (Supp) Vertical continuity. Fire walls shall extend from the foundation to a termination point at least 30 inches (762 mm) above both adjacent roofs.

Exceptions:

1. Stepped buildings in accordance with Section 705.6.1.
2. Two-hour fire-resistance-rated walls shall be permitted to terminate at the underside of the roof sheathing, deck or slab provided:
   2.1. The lower roof assembly within 4 feet (1220 mm) of the wall has not less than a 1-hour fire-resistance rating and the entire length and span of supporting elements for the rated roof assembly has a fire-resistance rating of not less than 1 hour.
   2.2. Openings in the roof shall not be located within 4 feet (1220 mm) of the fire wall.
   2.3. Each building shall be provided with not less than a Class B roof covering.

3. Walls shall be permitted to terminate at the underside of noncombustible roof sheathing, deck, or slabs where both buildings are provided with not less than a Class B roof covering. Openings in the roof shall not be located within 4 feet (1220 mm) of the fire wall.
4. In buildings of Type III, IV and V construction, walls shall be permitted to terminate at the underside of combustible roof sheathing or decks provided:
   4.1. There are no openings in the roof within 4 feet (1220 mm) of the fire wall,
   4.2. The roof is covered with a minimum Class B roof covering, and
   4.3. The roof sheathing or deck is constructed of fire-retardant-treated wood for a distance of 4 feet (1220 mm) on both sides of the wall or the roof is protected with 5/8 inch (15.9 mm) Type X gypsum board directly beneath the underside of the roof sheathing or deck, supported by a minimum of 2-inch (51 mm) nominal ledgers attached to the sides of the roof framing members for a minimum distance of 4 feet (1220 mm) on both sides of the fire wall.
5. In buildings designed in accordance with Section 509.2, fire walls located above the 3 hour ~~fire rated~~ horizontal ~~separation~~ assembly required by Section 509.2 item 1 shall be permitted to extend from the top of this horizontal ~~separation~~ assembly.

Reason: The changes are proposed for consistency with the changes approved by Proposal G153-06/07-AMPC1. Note that "fire-rated" and "horizontal separation" have no technical meaning and there are no instances of their use in the 2006 IBC. "Fire-resistance rating (rated)" and "fire-protection rating (rated)" are both defined in Section 702.1 and "fire-resistance-rated" would be the technically correct replacement for "fire-rated." Neither term, however, is necessary because "horizontal assembly" is defined in Section 702.1 as a "fire-resistance-rated floor or roof assembly of materials designed to restrict the spread of fire in which continuity is maintained." The technical provisions of Section 711 for horizontal assemblies effectively establish them as fire containment assemblies between stories and other areas.

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

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

FS30–07/08
705.6

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

Revise as follows:

705.6 (Supp) Vertical continuity. Fire walls shall extend from the foundation to a termination point at least 30 inches (762 mm) above both adjacent roofs.

Exceptions:

1. Stepped buildings in accordance with Section 705.6.1.
2. Two-hour fire-resistance-rated walls shall be permitted to terminate at the underside of the roof sheathing, deck or slab provided:
   2.1. The lower roof assembly within 4 feet (1220 mm) of the wall has not less than a 1-hour fire-resistance rating and the entire length and span of supporting elements for the rated roof assembly has a fire-resistance rating of not less than 1 hour.
   2.2. Openings in the roof shall not be located within 4 feet (1220 mm) of the fire wall.
   2.3. Each building shall be provided with not less than a Class B roof covering.
3. Walls shall be permitted to terminate at the underside of noncombustible roof sheathing, deck, or slabs where both buildings are provided with not less than a Class B roof covering. Openings in the roof shall not be located within 4 feet (1220 mm) of the fire wall.
4. In buildings of Type III, IV and V construction, walls shall be permitted to terminate at the underside of combustible roof sheathing or decks provided:
   4.1. There are no openings in the roof within 4 feet (1220 mm) of the fire wall,
   4.2. The roof is covered with a minimum Class B roof covering, and
   4.3. The roof sheathing or deck is constructed of fire-retardant-treated wood for a distance of 4 feet (1220 mm) on both sides of the wall or the roof is protected with 5/8 inch (15.9 mm) Type X gypsum board directly beneath the underside of the roof sheathing or deck, supported by a minimum of 2-inch (51 mm) nominal ledgers attached to the sides of the roof framing members for a minimum distance of 4 feet (1220 mm) on both sides of the fire wall.
5. ~~In buildings designed in accordance with Section 509.2,~~ Fire walls located above the ~~3 hour fire rated~~ horizontal ~~separation~~ assembly ~~required by Section 509.2 item 1~~ shall be permitted to extend from the top of this horizontal ~~separation.~~ assembly at any of the following:

5.1. Buildings designed in accordance with Section 509.2, Item 1;
5.2. Buildings designed in accordance with Section 509.3, Item 4; and
5.3. Buildings designed in accordance with Section 509.8, Item 1.

Reason: Item #5 of Section 705.6 was changed by Proposal FS32-06/07-AM. The proposal modified the language to be more consistent with Section 509.2. The design condition addressed by Item #5, however, is not limited to Section 509.2. It also occurs in Sections 509.3 and 509.8. The proposal changes Item #5 to also include references to these sections.

Changes are also proposed for consistency with the changes approved by Proposal G153-06/07-AMPC1. Note that "fire-rated" and "horizontal separation" have no technical meaning and there are no instances of their use in the fire safety provisions of the 2006 IBC. "Fire-resistance rating (rated)" and "fire-protection rating (rated)" are both defined in Section 702.1 and "fire-resistance-rated" would be the technically correct replacement for "fire-rated." Neither term, however, is necessary because "horizontal assembly" is defined in Section 702.1 as a "fire-resistance-rated floor or roof assembly of materials designed to restrict the spread of fire in which continuity is maintained." The technical provisions of Section 711 for horizontal assemblies effectively establish them as fire containment assemblies between stories and other areas. Note that "horizontal separation" is used in 8 sections of the 2006 IBC but, in all cases, they refer to distances, not fire-resistance ratings.

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

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

FS31–07/08
705.6

Proponent: Patrick Vandergriff, Vandergrigg Code Consulting Services representing Fairfield Residential, LLC

Revise as follows:

705.6 Vertical continuity. Fire walls shall extend from the foundation to a termination point at least 30 inches (762 mm) above both adjacent roofs.

Exceptions:

1. Stepped buildings in accordance with Section 705.6.1.
2. Two-hour fire-resistance-rated walls shall be permitted to terminate at the underside of the roof sheathing, deck or slab provided:
   2.1. The lower roof assembly within 4 feet (1220 mm) of the wall has not less than a 1-hour fire-resistance rating and the entire length and span of supporting elements for the rated roof assembly has a fire-resistance rating of not less than 1 hour.
   2.2. Openings in the roof shall not be located within 4 feet (1220 mm) of the fire wall.
   2.3. Each building shall be provided with not less than a Class B roof covering.
3. Walls shall be permitted to terminate at the underside of noncombustible roof sheathing, deck, or slabs where both buildings are provided with not less than a Class B roof covering. Openings in the roof shall not be located within 4 feet (1220 mm) of the fire wall.
4. In buildings of Type III, IV and V construction, walls shall be permitted to terminate at the underside of combustible roof sheathing or decks provided:
   4.1. There are no openings in the roof within 4 feet (1220 mm) of the fire wall,
   4.2. The roof is covered with a minimum Class B roof covering, and
   4.3. The roof sheathing or deck is constructed of fire-retardant-treated wood for a distance of 4 feet (1220 mm) on both sides of the wall or the roof is protected with 5/8 inch (15.9 mm) Type X gypsum board directly beneath the underside of the roof sheathing or deck, supported by a minimum of 2-inch (51 mm) nominal ledgers attached to the sides of the roof framing members for a minimum distance of 4 feet (1220 mm) on both sides of the fire wall.
5. In buildings designed in accordance with Section 509.2, fire walls located above the 3 hour fire rated horizontal separation required by Section 509.2 item 1 shall be permitted to extend from the top of this horizontal separation.
6. Floor ceiling assemblies that attach to or penetrate a fire wall in accordance with one of the following conditions:
   6.1. Where the fire resistive rating of all floor ceiling assemblies and all supporting elements is protected to a level that is equal to or greater than the fire resistive rating of the wall; or
   6.2. Where the design demonstrates that the material will shear free from the wall under fire conditions and will not compromise the continuity of the fire wall or the fire resistive time period prescribed by this code.

Reason: The provision for continuity of fire walls has had a wide variety of interpretations depending upon the jurisdiction. Some jurisdictions have taken the requirement to indicate that there can be no penetration of a fire wall by floor ceiling assemblies for any from of building, when, in fact, the code only says that continuity has to be maintained in the event of the collapse of the building on one side of the wall. The variation of interpretation has made some buildings more difficult to design by creating practical difficulties in achieving seismic compliance in buildings that would otherwise be constructed utilizing simplified seismic design procedures.

The above proposal clearly establishes that there are methods of maintaining fire wall continuity where bearing would be allowed as long as the continuity of the fire wall is not compromised. This is done in two ways:

1. There is certainly no reason where the continuity issue will come into play if the entire structure is going to stand for the time period prescribed for the fire wall itself.
2. It clearly will provide that the wall penetrations are an option as long as the designer can demonstrate that the building could collapse on one side of the wall without interfering in the continuity of the fire wall for the time prescribed. This insures much greater latitude for the designer, especially when designing in seismically active areas of the country.

Additionally, it is clear that far more wide spread devastation occurs during earthquake events and that fire is a secondary action that comes about during seismic events. The use of these options within the code will allow for more buildings to be constructed in a conventional manner, using simplified design procedures and avoiding irregularly shaped issues as well as issues of discontinuity.

Cost Impact: The code change proposal will not increase the cost of construction. In many jurisdictions the change in language will provide for cost savings while providing seismically safer buildings

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

FS32–07/08
705.6.2 (New)

Proponent: Gene Boecker, Code Consultants, Inc.

Add new text as follows:

705.6.2 Structural frame. The wall shall not be supported on the structural frame in buildings of combustible construction. The fire wall shall not be supported on the structural frame of non-combustible construction unless such supporting frame and all members, which under fire conditions provide lateral support for the frame, have a fire resistive rating equal to or greater than that required for the fire wall.

Reason: The current provisions for fire wall construction require the fire wall to have structural integrity and extend from the foundation through (or to) the roof. The structural criteria were not found in two of the three legacy codes. The text, however, did no incorporate all of the allowances in that legacy section. This proposal adds text that was missing.

When a fire wall is to be constructed, as currently written, the wall must have not only sufficient structural integrity during a fire, it must do so with the least lateral support possible. This makes sense and allows the fire wall to effectively divide the structure into two separate “buildings” for the purposes of the code. There is nothing in the code that requires that this be limited to buildings not higher than 5 stories. However, that is the practical result of the current language. Because the fire wall must be essentially free-standing under its own weight the wall height is limited by the capabilities of the materials that can be used. Masonry walls have a practical limitation of 3 to 5 stories, depending on construction techniques and specific materials. Concrete with its reinforcing steel can be higher but not without significant lateral support – currently not allowed.

By adding the text, it will be possible to retain the intent of the code – that the fire wall remain intact for at least as long as its rating, regardless of which side of the wall the fire originates. By requiring the supporting frame and lateral supports to have the same rating as the wall, the integrity can be retained while allowing the wall to have support for higher structures.

Cost Impact: The code change proposal will not increase the cost of construction. Possibly a decrease due to the ability to use the provision.

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

FS33–07/08
706.3.9

Proponent: Sana Touma, City of Mansfield, TX, representing North Texas Chapter ICC

Revise as follows:

706.3.9. (Supp) ~~Single-occupancy~~ Fire areas. The fire barriers or horizontal assemblies, or both, separating ~~a single occupancy~~ occupancies into different fire areas shall have a fire-resistance rating of not less than that indicated in Table 706.3.9 for a single occupancy and the most restrictive value indicated in Table 706.3.9 shall apply to the entire building or portion thereof for a mixed occupancy.

Reason: The purpose of this code change is to address and to clearly define the minimum value of fire barriers separating mixed occupancies fire areas.

The term "Fire Area" with respect to IBC application serves to define the boundaries for sprinkler system and fire protection requirements onset in chapter 9 based on the square footage and occupant load of the fire areas. Section 706.3.9 provides an option to reduce single occupancy fire areas by providing fire barriers as indicated in Table 706.3.9. Mixed occupancy fire areas separation is unclear. The designer's may have an option of using separated occupancies Section 508.3.3 and Table 508.3.3 however this Table does not provide fire barrier separation values for all occupancies. This clarification is needed specifically in non-sprinklered existing buildings which undergoes a change in use which may result in an increase of occupant load or placing the use in a different occupancy group and to eliminate interpretations which may prohibit or incorrectly establish the value of the fire barrier separating mixed occupancies fire areas.

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

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

FS34–07/08
706.3.9

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

Revise as follows:

706.3.9. (Supp) ~~Single-occupancy~~ Fire areas. The fire barriers or horizontal assemblies, or both, separating a single occupancy into different fire areas shall have a fire-resistance rating of not less than that indicated in Table 706.3.9. The fire barriers or horizontal assemblies, or both, separating fire areas of mixed occupancies shall have a fire-resistance rating of not less than the highest value indicated in Table 706.3.9 for the occupancies under consideration.

Reason: Section 901.7 essentially states that when a building is divided by fire areas, that such fire areas be separated by fire barriers having a fire-resistance rating determined in accordance with Section 706.3.9. Section 706.3.9 addresses only the single occupancy design condition. Obviously, fire area provisions apply to mixed occupancy buildings as well. The added second sentence prescribes the logical fire-resistance rating requirements for mixed occupancies. This proposal will increase consistency in the application of fire area provisions by addressing a design condition, about which, the IBC is currently silent.

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

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

FS35–07/08
706.5

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

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. Supporting construction for 1-hour fire barriers required by Table 508.2 in buildings of Type IIB, IIIB, and VB construction is not required to be fire-resistance rated unless required by other sections of this code.

Reason: Section 508.2.2.1 sends the reader to Section 706.5 for the requirements for the fire-resistance rated incidental use area walls. 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. This mirrors the wording in a companion change I have submitted to Section 508.2.2.1, regarding the protection of the floors in the incidental use areas and removes the associated confusion with the current wording. Fires typically do not tend to burn downward and the floor should not be required to be fire-resistance rated unless stipulated for other reasons within the code such as for a horizontal fire barrier between occupancy types. I believe this change will simplify the process and understanding for the code user.

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

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

FS36–07/08
706.5

Proponent: Lee J. Kranz, City of Bellevue, representing The Washington Association of Building Officials (WABO), Technical Code Development Committee

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. Supporting construction for fire resistance rated nonbearing shaft walls are not required to be protected to afford the required fire resistance rating of the shaft wall being supported.
4. Supporting construction for 1-hour fire barriers required by Table 508.2 in buildings of Type IIB, IIIB, and VB construction is not required to be fire-resistance rated.

Reason: Shafts in any form are a potential conduit for smoke and fire to migrate throughout a building. The requirement to provide rated shaft walls (fire barrier walls) in multistory buildings has significant value in terms of compartmentalizing smoke and fire to its area of origin. Rated stair shaft walls also allow for additional time to safely egress from a burning building. Openings into shafts must be protected to maintain the required fire resistance rating.

Shaft walls do not require structural stability, as is required for fire walls. Due to the common practice of platform framing of these walls, the requirement in section 706.5 to support rated shaft walls with equivalent rated construction does not contribute in a significant way to preventing structural collapse of the shaft.

Shafts extending through four or more floors must be of not less than 2 hour fire-resistance rated construction. Other shafts must be of not less than 1 hour fire-resistance rated construction. For those projects where the fire-resistance rating of the shaft exceeds the fire-resistance rating of the building based on the type of construction the current requirement to protect all structural elements that support rated shaft walls creates significant design challenges with potentially huge economic impacts. For example, in a 5 story, type II-B office building, floors and bearing walls are typically nonrated but would require 2 hour rated floors and walls to support a shaft extending through 4 or more floors. The concept of the shaft rating dictating the type of construction requirement is contrary good logic.

The exception for fire-resistance rated incidental use area separations is currently located in the body of the scoping text of Section 706.5. This text has been relocated to become exception #3 of Section 706.5.

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

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

FS37–07/08
706.5, 706.5.1 (New)

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

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.~~

706.5.1 Supporting Construction. 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.

706.9 Joints. Joints made in or between fire barriers, and joints made at the intersection of fire barriers with underside of the floor or roof sheathing, slab or deck above shall comply with Section 713.

Reason: The purpose of this proposed Code change is to simplify section 706.5 and clarify that the fire-resistant joint installed at the intersection of the top of a rated vertical fire barrier and a horizontal roof, floor, or roof slab is required in order to provide the continuity of fire barriers.

As currently written, the Code requirement mixes three different concepts in section 706.5, and then further complicates the issue by adding an exception for certain incidental use areas, making it difficult to discern the requirements. The existing section mixes the notion of "continuity" with that of establishing the fire resistance rating of the supporting construction. In doing so, it clouds the issue of the required rating for the joint located at the top of the fire barrier wall.

With the revisions introduced into the 2006 IBC to the application of fire barriers, the requirement to provide continuity at the top of fire barrier walls has been made more confusing. The 2003 IBC contained the same language in 706.9 regarding "joints made in or between fire barriers". However, by limiting the definition of fire barriers to walls, the previous requirement to protect joints at the intersection of vertical fire barriers and horizontal construction has been subverted. The revised definition of a Fire Barrier in 702.1 does make it clear that fire barriers are required to maintain continuity, but section 706 requires clarification.

This proposed changes separates the requirements for the continuity of the vertical fire barrier from the requirement for the fire resistance ratings of the supporting construction. The fire-resistant joint located at the intersection of the top of a vertical fire barrier wall and the bottom of a fire resistance rated or non-fire resistance rated horizontal roof assembly, floor assembly, or roof slab is a vertical extension of the fire barrier wall and is therefore required to have a fire resistance rating equal to that of the wall assembly. This issue is distinct from whether or not the supporting construction is required to have a fire resistance rating or not. It is directly analogues to the horizontal condition where the fire resistant joint is considered an extension of the rated horizontal assembly. This principle is historically well established in the model Codes, and is similar to the way in which exterior curtain wall and floor intersections are handled in section 713.4.

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

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

FS38–07/08
707.1

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

Revise as follows:

707.1 General. The provisions of this section shall apply to ~~vertical~~ shafts ~~where such shafts are~~ required to protect openings and penetrations through floor/ceiling and roof/ceiling assemblies. Shaft enclosures shall be constructed as fire barriers in accordance with Section 706 or horizontal assemblies in accordance with Section 711, or both.

Reason: The revision clarifies that shafts may be installed horizontally, as well as vertically, and removes other unnecessary wording. No change intended to code requirements.

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

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

FS39–07/08
707.2

Proponent: Sarah A. Rice, Schirmer Engineering Corporation

Revise as follows:

707.2 (Supp) Shaft enclosure required. Openings through a floor/ceiling assembly shall be protected by a shaft enclosure complying with this Section.

Exceptions:

1. A shaft enclosure is not required for openings totally within an individual residential dwelling unit and connecting four stories or less.
2. A shaft enclosure is not required ~~in a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 for an escalator opening or~~ for floor openings containing stairways that ~~is~~ are not ~~a portion~~ part of the required means of egress system or escalators, when the opening is protected in accordance with ~~according to~~ Item 2.1, ~~or~~ 2.2, or 2.3:
   2.1. Where the area of the floor opening between stories does not exceed twice the horizontal projected area of the escalator or stairway and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Groups B and M, this application is limited to openings that do not connect more than four stories.
   2.2. Where the opening is protected by approved power-operated automatic shutters at every penetrated floor. The shutters shall be of noncombustible construction and have a fire-resistance rating of not less than 1.5 hours. The shutter shall be so constructed as to close immediately upon the actuation of a smoke detector installed in accordance with Section 907.11 and shall completely shut off the well opening. Escalators shall cease operation when the shutter begins to close. The shutter shall operate at a speed of not more than 30 feet per minute (152.4 mm/s) and shall be equipped with a sensitive leading edge to arrest its progress where in contact with any obstacle, and to continue its progress on release there from.
   2.3. The building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
3. A shaft enclosure is not required for penetrations by pipe, tube, conduit, wire, cable and vents protected in accordance with Section 712.4.
4. A shaft enclosure is not required for penetrations by ducts protected in accordance with Section 712.4. Grease ducts shall be protected in accordance with the *International Mechanical Code*.
5. In other than Group H occupancies, a shaft enclosure is not required for floor openings complying with the provisions for atriums in Section 404.
6. A shaft enclosure is not required for approved masonry chimneys where annular space protection is provided at each floor level in accordance with Section 717.2.5.

7. In other than Groups I-2 and I-3, a shaft enclosure is not required for a floor opening or an air transfer opening that complies with the following:
   7.1. Does not connect more than two stories.
   7.2. Is not part of the required means of egress system, except as permitted in Section 1020.1.
   7.3. Is not concealed within the building construction.
   7.4. Is not open to a corridor in Group I and R occupancies.
   7.5. Is not open to a corridor on nonsprinklered floors in any occupancy.
   7.6. Is separated from floor openings and air transfer openings serving other floors by construction conforming to required shaft enclosures.
   7.7. Is limited to the same smoke compartment.
8. A shaft enclosure is not required for automobile ramps in open and enclosed parking garages constructed in accordance with Sections 406.3 and 406.4, respectively.
9. A shaft enclosure is not required for floor openings between a mezzanine and the floor below.
10. A shaft enclosure is not required for joints protected by a fire-resistant joint system in accordance with Section 713.
11. A shaft enclosure shall not be required for floor openings created by unenclosed stairs or ramps in accordance with Exception 8 or 9 in Section 1020.1.
12. Floor openings protected by floor fire doors in accordance with Section 711.8.
13. Where permitted by other sections of this code.
14. Elevators in open parking garages that serve only the parking garage are not required to be enclosed.

Reason: The proposed language is intended to clarify the intent of the exception regarding which types of stairways are allowed to unenclosed with they meet all 3 of the parameters outlined in the exception. The proposed language is similar to that found in Exception No. 7.2 which reads "7.2 Is not part of the required means of egress system, except as permitted in Section 1020.1.

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

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

FS40–07/08
707.2

Proponent: Lori Lee Graham, City of Portland, OR

Revise as follows:

707.2 (Supp) Shaft enclosure required. Openings through a floor/ceiling assembly shall be protected by a shaft enclosure complying with this Section.

Exceptions:

1. through 6. (No change to current text)
7. In other than Groups I-2 and I-3, a shaft enclosure is not required for a floor opening or an air transfer opening that complies with the following:
   7.1. Does not connect more than two stories.
   7.2. Is not part of the required means of egress system, except as permitted in Section 1020.1.
   7.3. Is not concealed within the ~~building~~ construction <u>of a wall or a floor/ceiling assembly</u>.
   7.4. Is not open to a corridor in Group I and R occupancies.
   7.5. Is not open to a corridor on nonsprinklered floors in any occupancy.
   7.6. Is separated from floor openings and air transfer openings serving other floors by construction conforming to required shaft enclosures.
   7.7. Is limited to the same smoke compartment.

(Exceptions not shown remain unchanged)

Reason: Item 7.3 of this exception prohibits the use of the exception if the opening is "concealed within the building construction". Interpretation of this item has varied with respect to whether the exception would allow an elevator to connect 2 stories without being in a shaft. The difference in interpretation of what is "concealed within the construction of the building". In most places in the code when something is concealed, it is usually referring to cavities within an assembly or beneath a floor or in an attic. But other places of the code talk about concealed spaces and the reference is to a small closet or storage area.

We believe that it is appropriate to clarify which type of concealed space this exception is addressing. As currently written, it could be interpreted that an elevator would not be allowed to utilize the exception. The concern about limiting this exception to not allow concealed spaces is that if a fire is occurring in the concealed space, it won't be observable. An elevator, even within a unrated hoistway is readily observable, it is not 'concealed' in the construction.

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

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

FS41–07/08
707.2

Proponent: Masoud Sabounchi, PE, CBO, Advanced Counseling Engineers, Inc., representing Colorado Chapter ICC

Revise as follows:

707.2 (Supp) Shaft enclosure required. Openings through a floor/ceiling assembly shall be protected by a shaft enclosure complying with this Section.

Exceptions:

1. A shaft enclosure is not required for openings totally within an individual residential dwelling unit and connecting four stories or less.
2. A shaft enclosure is not required in a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 for an escalator opening or stairway that is not a portion of the means of egress protected according to Item 2.1 or 2.2:
   2.1. Where the area of the floor opening between stories does not exceed twice the horizontal projected area of the escalator or stairway and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Groups B and M, this application is limited to openings that do not connect more than four stories.
   2.2. Where the opening is protected by approved power-operated automatic shutters at every penetrated floor. The shutters shall be of noncombustible construction and have a fire-resistance rating of not less than 1.5 hours. The shutter shall be so constructed as to close immediately upon the actuation of a smoke detector installed in accordance with Section 907.11 and shall completely shut off the well opening. Escalators shall cease operation when the shutter begins to close. The shutter shall operate at a speed of not more than 30 feet per minute (152.4 mm/s) and shall be equipped with a sensitive leading edge to arrest its progress where in contact with any obstacle, and to continue its progress on release there from.
3. A shaft enclosure is not required for penetrations by pipe, tube, conduit, wire, cable and vents protected in accordance with Section 712.4.
4. A shaft enclosure is not required for penetrations by ducts protected in accordance with Section 712.4. Grease ducts shall be protected in accordance with the *International Mechanical Code*.
5. In other than Group H occupancies, a shaft enclosure is not required for floor openings complying with the provisions for atriums in Section 404.
6. A shaft enclosure is not required for approved masonry chimneys where annular space protection is provided at each floor level in accordance with Section 717.2.5.
7. In other than Groups I-2 and I-3, a shaft enclosure is not required for a floor opening or an air transfer opening that complies with the following:
   7.1. Does not connect more than two stories.
   7.2. Is not part of the required means of egress system, except as permitted in Section 1020.1.
   7.3. Is not concealed within the building construction.
   7.4. Is not open to a corridor in Group I and R occupancies.
   7.5. Is not open to a corridor on nonsprinklered floors in any occupancy.
   7.6. Is separated from floor openings and air transfer openings serving other floors by construction conforming to required shaft enclosures.
   7.7. Is limited to the same smoke compartment.
8. A shaft enclosure is not required for automobile ramps in open and enclosed parking garages constructed in accordance with Sections 406.3 and 406.4, respectively.
9. A shaft enclosure is not required for floor openings between a mezzanine and the floor below.

10. A shaft enclosure is not required for joints protected by a fire-resistant joint system in accordance with Section 713.
11. A shaft enclosure shall not be required for floor openings created by unenclosed stairs or ramps in accordance with Exception 8 or 9 in Section 1020.1.
12. Floor openings protected by floor fire doors in accordance with Section 711.8.
13. Where permitted by other sections of this code.
14. Elevator~~s~~ hoistways in open or enclosed parking garages that serve only the parking garage are not required to be of fire resistance rated construction ~~enclosed~~.
15. In open or enclosed parking garages a shaft enclosure is not required to enclose mechanical exhaust or supply duct systems when such duct system is contained within and serves only the parking garage.

Reason: IBC Section 707.2 Exception 8 does not require a shaft enclosure at automobile ramps in open or enclosed parking garages. Section 716.5.3 exceptions 1.4 and 3 do not require fire or smoke dampers at supply or exhaust ducts of shafts enclosures serving parking garages. Size of openings for exhaust and supply shafts is not limited. Providing a fire resistance shaft enclosure for mechanical exhaust and supply ducts, or the elevator hoistways in garages where ramps are open at all levels does not provide additional protection. This proposal is for elevator and mechanical supply and exhaust enclosures contained within and serving the garage only.

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

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

FS42–07/08
707.2

Proponent: Lawrence Suggars, South Salt Lake City, UT, representing Utah Chapter of ICC

Revise as follows:

707.2 (Supp) Shaft enclosure required. Openings through a floor/ceiling assembly shall be protected by a shaft enclosure complying with this Section.

Exceptions:

1. A shaft enclosure is not required for openings totally within an individual residential dwelling unit and connecting four stories or less.
2. A shaft enclosure is not required in a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 for an escalator opening or stairway that is not a portion of the means of egress protected according to Item 2.1 or 2.2:
   2.1. Where the area of the floor opening between stories does not exceed twice the horizontal projected area of the escalator or stairway and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Groups B and M, this application is limited to openings that do not connect more than four stories.
   2.2. Where the opening is protected by approved power-operated automatic shutters at every penetrated floor. The shutters shall be of noncombustible construction and have a fire-resistance rating of not less than 1.5 hours. The shutter shall be so constructed as to close immediately upon the actuation of a smoke detector installed in accordance with Section 907.11 and shall completely shut off the well opening. Escalators shall cease operation when the shutter begins to close. The shutter shall operate at a speed of not more than 30 feet per minute (152.4 mm/s) and shall be equipped with a sensitive leading edge to arrest its progress where in contact with any obstacle, and to continue its progress on release there from.
3. A shaft enclosure is not required for penetrations by pipe, tube, conduit, wire, cable and vents protected in accordance with Section 712.4.
4. A shaft enclosure is not required for penetrations by ducts protected in accordance with Section 712.4. Grease ducts shall be protected in accordance with the *International Mechanical Code*.
5. In other than Group H occupancies, a shaft enclosure is not required for floor openings complying with the provisions for atriums in Section 404.
6. A shaft enclosure is not required for approved masonry chimneys where annular space protection is provided at each floor level in accordance with Section 717.2.5.
7. In other than Groups I-2 and I-3, a shaft enclosure is not required for a floor opening or an air transfer opening that complies with the following:

7.1. Does not connect more than two stories.
7.2. Is not part of the required means of egress system, except as permitted in Section 1020.1.
7.3. Is not concealed within the building construction.
7.4. Is not open to a corridor in Group I and R occupancies.
7.5. Is not open to a corridor on nonsprinklered floors in any occupancy.
7.6. Is separated from floor openings and air transfer openings serving other floors by construction conforming to required shaft enclosures.
7.7. Is limited to the same smoke compartment.

8. A shaft enclosure is not required for automobile ramps in open and enclosed parking garages constructed in accordance with Sections 406.3 and 406.4, respectively.
9. A shaft enclosure is not required for floor openings between a mezzanine and the floor below.
10. A shaft enclosure is not required for joints protected by a fire-resistant joint system in accordance with Section 713.
11. A shaft enclosure shall not be required for floor openings created by unenclosed stairs or ramps in accordance with Exception 8 or 9 in Section 1020.1.
12. Floor openings protected by floor fire doors in accordance with Section 711.8.
13. Where permitted by other sections of this code.
14. Elevators in open parking garages that serve only the parking garage are not required to be enclosed.
15. In other than Groups H and I, a shaft enclosure is not required for a floor opening created by an elevator that complies with the following:
    15.1. Is contained within a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
    15.2. Is contained within a maximum two story building, without a basement, that has a minimum of two means of egress provided from each floor.

Reason: In section IBC 707.2 exception 11 (by reference to exception 8 and 9 in Section 1020.1), in other than H and I occupancies when a building is equipped throughout with a sprinkler system in accordance with the provisions of 903.3.1.1 stairways are exempted from the shaft requirements with provisions. The elevator in this similar application, and further limited to a two story building, will present no more of a hazard to the occupants than the open stairways.

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

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

FS43–07/08
707.4

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

Revise as follows:

707.4 Fire-resistance rating. Shaft enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more, and not less than 1 hour where connecting less than four stories. The number of stories connected by the shaft enclosure shall include any basements but not any mezzanines. Shaft enclosures shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours. Shaft enclosures shall meet the requirements of Section 703.2.1.

Reason: This revision clarifies that shafts are intended to be symmetrical assemblies, or are to be assigned the rating of the least fire-resistance rated side. If one follows the code path, this level of protection is already required, but it is not completely clear. This revision does not require the exterior side of shafts on exterior walls to be rated, as both Section 703.2.1 and 707.6 refer to Section 704.5, which regulates exterior walls/shafts based on proximity to property lines. No change is intended to code requirements.

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

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

FS44–07/08
707.4

Proponent: Tim Pate, City & County of Broomfield, CO, representing Colorado Chapter ICC

Revise as follows:

707.4 Fire-resistance rating. Shaft enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more, and not less than 1 hour where connecting less than four stories. The number of stories connected by the shaft enclosure shall include any basements but not any mezzanines. Shaft enclosures shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours.

Exception: Shaft enclosures that meet the requirements in Section 403.3.2 in High Rise Buildings.

Reason: This added language will help the Code user know to check section 403.3.2 for this allowable reduction of shaft rating down to 1 hour if meeting the specific requirements if designing a high rise building.

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

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

FS45–07/08
707.13.1, Chapter 35 (New)

Proponent: Tony Crimi, AC Consulting Solutions Inc, representing North American Insulation Manufacturers' Association (NAIMA)

1. Revise as follows:

707.13 Refuse and laundry chutes. Refuse and laundry chutes, access and termination rooms and incinerator rooms hall meet the requirements of Sections 707.13.1 through 707.13.6.

Exception: Chutes serving and contained within a single dwelling unit.

707.13.1 Refuse and laundry chute enclosures. A shaft enclosure containing a refuse or laundry chute shall not be used for any other purpose and shall be enclosed in accordance with Section 707.4. Openings into the shaft, including those from access rooms and termination rooms, shall be protected in accordance with this section and Section 715. Openings into chutes shall not be located in corridors. Doors shall be self- or automatic closing upon the actuation of a smoke detector in accordance with Section 715.4.7.3, except that heat-activated closing devices shall be permitted between the shaft and the termination room.

Exception: The shaft enclosure provisions of this section shall not be required where a refuse or laundry chute is protected with a listed and labeled material, system, product, or method of construction specifically evaluated for such purpose, in accordance with ASTM E 2336. Such system shall be installed in accordance with the listing and the manufacturer's installation instructions. Penetration shall be protected with a through-penetration firestop system tested and listed in accordance with ASTM E 814 or UL 1479 and having an "F" and "T" rating equal to the fire-resistance rating of the assembly being penetrated. The surface of the refuse or laundry chute shall be protected from the point at which it originates, including all access openings, to the termination room.

2. Add standard to Chapter 35 as follows:

ASTM

E 2336-04	Standard Test Methods for Fire Resistive Grease Duct Enclosure Systems

Reason: To introduce an alternative method for protection of refuse or laundry chute enclosures using the ASTM E2336 test Standard for fire resistive grease duct enclosures.

There are alternative methods available for providing fire resistance for refuse and laundry chute enclosures beyond the existing shaft enclosure provisions. ASTM E 2336 is entitled *Standard Test Methods For Fire Resistive Grease Duct Enclosure Systems,* and is currently referenced in the IMC. The Standard is based on the methodology that has been widely used throughout the United States for the evaluation of Grease Duct enclosures for over 10 years.

There are parallels between the level of hazard and performance required for refuse and laundry chutes as compared to Grease ducts and grease duct enclosures. The ASTM E2336 standard evaluates these enclosure materials and the duct enclosure systems using the following test methods: noncombustibility, full scale fire resistance , durability, internal fire, and fire-engulfment with a through-penetration fire stop.

The test method prescribes an ASTM E119 fire exposure for both a fire engulfment and a fire resistance wall test. The fire resistance test illustrates the ability of the enclosure material to resist the effects of fire when applied in a vertical application (i.e. as a wall assembly tested in accordance with ASTM E119).

A durability test is included for the materials, which is intended to simulate the effects of long-term exposure of typical in-service conditions on the thermal transmission qualities of the enclosure materials when subjected to a modified version of Test Method C 518.

In addition, an internal fire test uses two standardized fire exposures occurring inside the protected duct itself. Both tests illustrate the enclosure material's ability to resist thermal transmission of heat to the unexposed side in a horizontal application. The first standardized fire exposure is intended to simulate long term exposure of the enclosure material to a standardized service condition. The test simulates an internal fire within the duct by maintaining a minimum 500°F (260°C) average interior temperature for at least 4 h. The second standardized fire exposure is intended to simulate a sudden rise in the exposure conditions within the duct or chute. Within 15 min after the end of the 4-h period, increase the average interior temperature in the duct is increased to 2000°F (1093°C). This exposure is then maintained for 30 minutes.

A fire-engulfment test uses a standardized fire exposure, the time temperature curve of Test Methods E 119, to simulate a fire occurring on the outside of the grease duct, and demonstrates the ability of the grease duct enclosure system to remain intact without a through opening. The fire-engulfment test also tests the fastening methods used to secure the enclosure material to the grease duct and the supporting system. The fire-engulfment test also provides a means to test a through-penetration fire stop to determine its compatibility with the duct enclosure system. The fire-engulfment and vertical fire resistance tests are followed by the application of a standardized hose stream test.

Enclosure systems which meet the ASTM E2336 criteria demonstrate the ability to resist the passage of flames and hot gases during a standardized fire resistance test and a standardized internal fire test, as well as an ability to resist transmission of heat through the duct and the enclosure material(s). The ability of a fire stop to meet the requirements of Test Method E 814 when used with the duct/chute enclosure system is also evaluated. This portion of the evaluation can be used to protect the areas in which the refuse or laundry chutes penetrate access rooms and termination rooms.

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, ASTM E2336, 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

FS46–07/08
707.14.1

Proponent: Gregory Lake, Sacramento Metropolitan Fire District, representing California Fire Chief's Association (Cal Chiefs)

Revise as follows:

707.14.1 (Supp) Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than ~~three~~ two stories. The lobby shall separate the elevator shaft enclosure doors from each floor by fire partitions equal to the fire-resistance rating of the corridor and the required opening protection Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. Enclosed elevator lobbies are not required at the street floor, provided the entire street floor is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to have enclosed elevator lobbies.
3. Where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall be tested in accordance with UL 1784 without an artificial bottom seal.
4. In other than Group I-2 and I-3, and buildings having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 707.14.2.

Reason: Currently this Section triggers the requirement for enclosed elevator lobbies when the elevator shaft enclosure connects more than three stories. The purpose of this code change proposal is to reduce the threshold to where the elevator shaft enclosure connects more than two stories. This is generally consistent with Section 707 Shaft Enclosures which requires shaft enclosures for openings that pass through a floor/ceiling assembly but allows specific exceptions for two consecutive stories to be interconnected with floor openings without a shaft enclosure. Thus, for those cases smoke will able to fairly readily migrate from one story to the next. In that case it seems reasonable that it would not be critical to require the elevator lobby to protect elevator hoist way enclosures from smoke migration. However, we believe that once the elevator shaft interconnects three or more stories, it should be protected against smoke movement through the shaft so as to prevent smoke spread from floor to floor. It has been well documented that smoke spreads readily throughout the building via the elevator shafts even though the elevator hoist way doors are protected with fire protection rated fire doors. The fact is that such doors are very loose fitting and even though they pass the fire test, they will allow significant quantities of smoke to pass around the edges of the door. Since stack effect occurs in multi-story buildings, the natural tendency for smoke is to migrate toward the elevator shafts and then move either upward or downward depending upon where the origin of smoke is in relationship to the neutral pressure plane within the building and then spread out of the shafts accordingly.

Therefore, we believe that it is important to provide protection for the elevator shaft hoist way doors against the movement of smoke from floor to floor once the elevator intercommunicates more than two stories.

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

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

FS47–07/08
707.14.1

Proponent: Frank Hertzog, Smoke Safety Council

Revise as follows:

707.14.1 (Supp) Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby shall separate the elevator shaft enclosure doors from each floor by fire partitions equal to the fire-resistance rating of the corridor and the required opening protection. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. Enclosed elevator lobbies are not required at the street floor, provided the entire street floor is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to have enclosed elevator lobbies.
3. Where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall be tested in accordance with UL 1784 without an artificial bottom seal.
4. In other than Group I-2 and I-3, <u>and any occupancy where the elevator opens into a fire rated corridor</u>, and buildings having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 707.14.2.

Reason: This amendment correlates Section 707.14.1, Exception 4 with the initial charging language in Section 707.14.1 which states that the enclosed elevator lobby prescribed "(The lobby) shall separate the elevator shaft enclosure doors from each floor by fire partitions equal to the fire-resistance rating of the corridor and the required opening protection." and with Table 1017.1. Table 1017.1 prescribes where these fire rated corridors are required in buildings without sprinklers as well as in occupancies where buildings are equipped with sprinklers. This table reflects the fact that fire risk varies by occupancy and that certain occupancies, even with sprinklers systems installed, are required to have fire rated corridors because they present greater risk of loss from fire and smoke than the other occupancies that are not required to have fire rated corridors if sprinkler systems are installed.

These occupancies (I-1, I-3, R, H-1, H-2, H-3, H-4, H-5) require the added protection from both fire and smoke when they exceed the floor height stated in the Section 707.14.1 charging language ("…where an elevator shaft enclosure connects more than three stories"). For example, Section 707.14.1 with Exception 4, as it presently reads, would allow the construction of a six story H (hazardous) occupancy without the requirement to provide any separation of the elevator shaft from the corridors into which the elevator opens. In this example, as substantial smoke can be generated even in sprinklered fires, this would allow smoke migration via the elevator shaft to hinder efforts of occupants to evacuate as well as fire fighter efforts to locate occupants and discover the seat of the fire. Since as much as 65% of smoke migration can occur via the elevator shaft, this presents a recognized hazard.

This change correlates the language throughout Section 707.14.1 and Table 1017.1 with the intent to provide the fire and smoke protection that this section prescribes for buildings with elevator shafts. As the building code prescribes the minimum level of fire and life safety protection, this change clarifies the minimum protection required for the occupancies with greater fire risk that require fire rated corridors per Table 1017.1.

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

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

FS48–07/08
707.14.1

Proponent: John Williams, Washington State Department of Health, Construction Review Services, representing Washington Association of Building Officials, Technical Code Development Committee

Revise as follows:

707.14.1 (Supp) Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby shall separate the elevator shaft enclosure doors from each floor by fire partitions equal to the required fire-resistance rating of the corridor per Section 1017 and the required opening protection. Where corridors are not provided, or, are not required to be of fire-resistance rated construction by other sections of this code, the elevator shaft enclosure doors shall be separated from each floor by smoke partitions. Doors in such smoke partitions shall meet the requirements of 710.5.2 and 710.5.3. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. Enclosed elevator lobbies are not required at the street floor, provided the entire street floor is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to have enclosed elevator lobbies.
3. Where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall be tested in accordance with UL 1784 without an artificial bottom seal.
4. In other than Group I-2 and I-3, and buildings having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 707.14.2.

Reason: The purpose of this code change is to clarify the intent of the current code. Existing code language requires that elevator lobbies be constructed as fire partitions “equal to the fire resistance rating of the corridor”. Elevators often open onto “open plan” office scenarios where there are no corridors. Furthermore, the code allows unrated corridors in I-2 occupancies (per 407.3); certain sprinklered occupancies; and other locations per Section 1017.1. Relating the term fire partitions to unrated corridors or nonexistent corridors leads to confusion. This change clarifies the code by giving the reviewer/designer direction on how to deal with these two conditions. A smoke partition is required in both cases to prevent the migration of smoke. The additional language regarding doors is provided so as to provide an approach similar to exception 3.

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

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

FS49–07/08
707.14.1

Proponent: Gregory Lake, Sacramento Metropolitan Fire District, representing California Fire Chief's Association (Cal Chiefs)

Revise as follows:

707.14.1 (Supp) Elevator lobby. An enclosed elevator lobby shall be provided at each ~~floor~~ story where an elevator shaft enclosure connects more than three stories. The lobby enclosure shall separate the elevator shaft enclosure doors from each ~~floor~~ story by fire partitions ~~equal to the fire-resistance rating of the corridor and the required opening protection.~~ In addition to the requirements in Section 708 for fire partitions, doors protecting openings in the elevator lobby enclosure walls shall also comply with Section 715.4.3 as required for corridor walls and penetrations of the elevator lobby enclosure by ducts and air transfer openings shall be protected as required for corridors in accordance with Section 716.5.4.1. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. Enclosed elevator lobbies are not required at the street floor, provided the entire street floor is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to have enclosed elevator lobbies.
3. Where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall be tested in accordance with UL 1784 without an artificial bottom seal.
4. In other than Group I-2 and I-3, and buildings having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 707.14.2.

Reason: The purpose of this code change proposal is to clarify the requirements for the construction of the elevator lobby enclosure when it is required by this section. Currently the code is not entirely clear as to how to apply the construction requirements for elevator lobby enclosures since it requires the elevator lobby enclosures to be "fire partitions equal to the fire resistance rating of the corridor and the required opening protection." This causes problems especially when the building may be sprinklered and the corridor is not required to have a fire resistance rating by Table 1017.1 or because of one of the Exceptions to Section 1017.1. The condition where the corridor may not have a fire resistance rating because the building is protected with an automatic sprinkler system is currently addressed by Exception 5 which allows the elevator lobby enclosure to be constructed as a smoke partition.

Therefore, we believe the key issue is how the opening protection is to be accomplished for the elevator lobby enclosure when the fire partition has a one hour fire resistance rating as required for corridors in nonsprinklered buildings. We believe it is more clear to provide the specific reference to the Sections that incorporate additional specific protection requirements for door openings and duct and air transfer openings in corridor walls to protect against the passage of smoke which is critical in elevator lobby enclosures. So we provided a specific reference for door opening protectives to Section 715.4.3 Door Assemblies in Corridors and Smoke Barriers which specifies the requirement for smoke leakage testing for smoke and draft control doors as required for corridors. We have also provided a specific reference to Section 716.5.4.1 for Ducts and Air Transfer Openings in the elevator enclosures walls which specifies a requirement for a smoke damper in corridor walls at such openings.

In summary, it is our opinion that this is an editorial change without technical revisions with clarifications to make the application and use of this Section more user friendly and easier to enforce.

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

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

FS50–07/08
707.14.1

Proponent: Thomas Kinsman, T. A. Kinsman Consulting Company, representing himself

Revise as follows:

707.14.1 (Supp) Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby shall separate the elevator shaft enclosure doors from each floor by fire partitions equal to the fire-resistance rating of the corridor and the required opening protection~~. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.~~ The means of egress from the elevator lobby shall comply with Chapter 10.

Exceptions:

1. Enclosed elevator lobbies are not required at the street floor, provided the entire street floor is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to have enclosed elevator lobbies.
3. Where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall be tested in accordance with UL 1784 without an artificial bottom seal.
4. In other than Group I-2 and I-3, and buildings having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 707.14.2.

Reason: The intent of this proposal is to only clarify what is believed to be the intent of the current language, which is to provide conforming egress from elevator lobbies. The reference to Chapter 10 is important to ensure that lobby doors are not inappropriately locked, that they don't create dead end corridors, and that two means of egress are provided when otherwise required. In some instances the current language has been interpreted to permit only one means of egress on large lobbies. The revised language makes a general reference to Chapter 10 and strikes the reference to "other provision of the code".

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

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

FS51–07/08
707.14.1

Proponent: John Woestman, The Kellen Company, representing Door Safety Council

Revise as follows:

707.14.1 (Supp) Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby shall separate the elevator shaft enclosure doors from each floor by fire partitions equal to the fire-resistance rating of the corridor and the required opening protection. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. Enclosed elevator lobbies are not required at the street floor, provided the entire street floor is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to have enclosed elevator lobbies.

3. Where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall be tested in accordance with UL 1784 ~~without an artificial bottom seal~~.
4. In other than Group I-2 and I-3, and buildings having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 707.14.2.

Reason: The prescribed test protocol of UL 1784 requires the application of an artificial bottom seal. It is not an optional part of the test.

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

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

FS52–07/08
707.14.1

Proponent: Bob Eugene, Underwriters Laboratories Inc.

Revise as follows:

707.14.1 (Supp) Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby shall separate the elevator shaft enclosure doors from each floor by fire partitions equal to the fire-resistance rating of the corridor and the required opening protection. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. Enclosed elevator lobbies are not required at the street floor, provided the entire street floor is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to have enclosed elevator lobbies.
3. Where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall ~~be~~ meet the requirements for a smoke and draft control door assembly tested in accordance with UL 1784 without an artificial bottom seal. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot (0.01524 $m^3/(s\ m^2)$) of door opening at 0.10 inch (24.9 Pa) of water for both the ambient temperature test and the elevated temperature exposure test. Installation of smoke doors shall be in accordance with NFPA 105.
4. In other than Group I-2 and I-3, and buildings having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 707.14.2.

Reason: The requirements for smoke and draft control doors are covered in Sections 707.14.1, 710.5.2 and 715.4.3.1 of the International Building Code (IBC). These three sections use somewhat different language. As such, the intent of this proposal is to harmonize the language of Section 707.14.1 with the language of Section 715.4.3.1 recently Approved under FS106-06/07, to the extent appropriate. A separate proposal was submitted for Section 710.5.2.

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

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

FS53–07/08
707.14.1

Proponent: Gregory Lake, Sacramento Metropolitan Fire District, representing California Fire Chief's Association (Cal Chiefs)

Revise as follows:

707.14.1 (Supp) Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby shall separate the elevator shaft enclosure doors from each floor by fire partitions equal to the fire-resistance rating of the corridor and the required opening protection Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. Enclosed elevator lobbies are not required at the street floor, provided the entire street floor is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to have enclosed elevator lobbies.
3. Where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall be tested in accordance with UL 1784 without an artificial bottom seal.
4. ~~In other than Group I-2 and I-3, and buildings having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, enclosed~~ Enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. This exception shall not apply to the following:
   4.1. I-2 buildings,
   4.2. Group I-3 buildings,
   4.3. Buildings having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, and
   4.4. Buildings in Seismic Design Category D, E, or F.
5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 707.14.2.

Reason: This proposed code change accomplishes two things. First, it reformats this very complicated Exception to make it easier to understand and apply. Second, it provides an additional criterion for when the Exception does not apply for buildings determined to be in seismic design category D, E, or F.

As we have begun to review the code to become more familiar with it so that we can begin to enforce it with our recent adoption to become effective on January 1, 2008, we have struggled with how to interpret and properly apply Exception 4 which actually starts out as a double negative. We believe the reformatting we have proposed clarifies that the Exception is not intended to apply to Group I-2 and Group I-3 buildings, as well as high rise buildings that comply with Section 403. So we do not believe that the proposed reformatting makes any technical changes.

But we also realize that this Section also in essence allows for the omission of elevator lobbies when they would otherwise be required if the buildings are protected throughout with an NFPA 13 or an NFPA 13R automatic sprinkler system. We have serious concerns about the application of that Exception especially in our part of the country where we are subject to rather severe earthquakes. We know that we can expect a loss of water supplies not only to buildings but to fire hydrants as well for extended periods of time, thus rendering the automatic sprinkler system inoperable and denying us adequate water supplies to fight the multiple fires that will occur after a significant seismic event. Since migration through elevator shafts has been well documented, we believe that a sprinkler exception should not be applied to those cases where the building has been determined to be in a seismic design category D, E, or F. These seismic design categories are also similar to those specified in Section 903.3.5.2 Secondary Water Supply. That Section requires an onsite water supply for high rise buildings that are in seismic design categories C, D, E, or F. We have chosen to delete the reference to seismic design category C because it has an impact on some other parts of the country where earthquakes may not be as severe or as frequent as they are in California and other regions of the west coast.

By implementing this code change we will be able to continue to enforce the requirement for elevator lobbies which has been in our legacy code, the ICBO Uniform Building Code (UBC), for many years. Our experience has found that the elevator lobby enclosures do help to minimize the spread of smoke from floor to floor via elevator shafts, thus helping the fire department to do their job much more effectively and to minimize smoke exposure to occupants on floors remote from the fire floor and to minimize property damage and subsequent clean up and removal of residual smoke from the building. We believe this is important to fire and life safety feature which provides basic smoke protection and should not be traded off for an automatic sprinkler system, especially in locations where a significant seismic event could render the sprinkler system totally inoperable. Therefore, we respectfully request the Committee approve this code change proposal.

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

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

FS54–07/08
707.14.1

Proponent: David Frable, US General Services Administration

Revise as follows:

707.14.1 (Supp) Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby shall separate the elevator shaft enclosure doors from each floor by fire partitions equal to the fire-resistance rating of the corridor and the required opening protection. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. Enclosed elevator lobbies are not required at the street floor, provided the entire street floor is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to have enclosed elevator lobbies.
3. Where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall be tested in accordance with UL 1784 without an artificial bottom seal.
4. In other than Group I-2 and I-3, and buildings having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
5. Group B occupancies with an occupied floor not more than 420 feet in height above the lowest level of fire department vehicle access that are protected throughout by an automatic fire sprinkler system designed and installed in accordance with Section 903.3.1.1 and maintained in accordance with Section 903.5 are not required to be provided with enclosed elevator lobbies.

~~5~~ 6. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

~~6~~ 7. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 707.14.2.

Reason: The purpose of this code change is to acknowledge that Group B occupancies with an occupied floor not more than 420 feet in height above the lowest level of fire department vehicle access that protected by an operational automatic fire sprinkler system provide an acceptable level of safety for building occupants and therefore do not warrant the need for enclosed elevator lobbies.

During the 2006/2007 ICC Code Development Hearings in Orlando, the Fire Safety Code Committee approved a similar code change proposal (FS54-06/07) that acknowledged that Group B occupancies of any height that are protected by an operational automatic fire sprinkler system provided an acceptable level of safety for building occupants and therefore did not warrant the need for enclosed elevator lobbies for the following reasons:

1. The proposal ties the exception to a specific occupancy which has a good fire record.
2. The NIST analysis is new technical data that shows a justification for this proposal.
3. The NIST study did address smoke flow in both winter and summer for this low hazard occupancy. When combined with the excellent fire safety record for high-rise buildings, both sprinklered and unsprinklered, this exception appears justified and will help to eliminate this contentious issue which has come before the committee for several years.

However, at the Final Action Hearings of the ICC in May 2007, the ICC membership voted to overturn the Fire Safety Code Committee's recommendation and disapproved the subject code change. At the Hearings, no new technical information was provided to discount any of the Fire Safety Committee's aforementioned rationale for approval as submitted other than several opponents were concerned that it would apply to high-rise office buildings of any height; even those super high-rise office buildings greater than 420 feet in height, where the potential for stack effect in certain areas of the country may be greater and result in the vertical smoke migration through the elevator hoistways.

Therefore, to address this concern, we have limited exception 5 to only apply to Group B occupancies with an occupied floor not more than 420 feet in height above the lowest level of fire department vehicle access.

In addition, the previous research conducted by the National Institute of Standards and Technology (NIST) with consultation by Dr. John Klote, has shown that sprinklered fires do not represent a significant hazard to the building occupants because the automatic sprinklers activated and extinguished the fire prior to releasing a significant energy or mass. Little or no smoke or gases entered the hoistways, and none reached remote locations in any building regardless of height or other conditions examined[1]. Therefore, it can be concluded that smoke spread in shafts and elevator hoistways is not a problem in Group B occupancies protected throughout with an operational fire sprinkler system since the fire sprinklers both control the burning rate (and thus limit smoke production) and maintain near ambient temperature which limits the buoyancy forces that drive smoke to the shafts where stack affect may cause smoke spread to other floors. It is also widely accepted that operating fire sprinklers will prevent room flashover and full floor fires, and will limit the size of room fires[2]. This conclusion can also be substantiated from a paper presented by Dr. John Klote at the Elevator Symposium on Emergency Use of Elevators in March 2004 and in an article titled "Is There A Need to Enclose Elevator Lobbies In Tall Buildings?", written by Richard Bukowski in the August 2005 *Building Safety Journal*.

In addition, all high-rise fires where smoke spread has been a problem have either been in unsprinklered buildings or partially sprinklered buildings. A recent comprehensive analysis in 2005 of high-rise fires by NFPA identified that no fatalities had occurred for more than a decade in any U.S. high-rise occupancy (> 10 story) other than the 6 fatalities in the unsprinklered Cook County Office Building (2003); the 1 fatality in the

unsprinklered First Interstate Bank Building (1991); and 3 firefighter fatalities in the partially sprinklered (unsprinklered on floor of fire origin and several floors above) Meridan Plaza Building (1991). The Murrah Federal Building (1995) and the World Trade Center (1993 & 2001) bombings were excluded from this analysis.

The recently issued NFPA 2005 report on sprinkler reliability also indicated that automatic fire sprinklers successfully operating in reported structural fires was an exemplary 93%. In addition, NFPA also reported that two-thirds of the reported automatic fire sprinkler system failures were because the automatic fire sprinkler systems were shut off.[3] Since the IBC requires the supervision of the automatic fire sprinkler system, one can conclude that the successful operation of an automatic fire sprinkler system designed and installed in compliance with the IBC requirements could be reasonably estimated at 98%. NFPA also reported that the percentage of successfully operating automatic fire sprinkler systems is probably higher since a large percentage of small fire extinguished by fire sprinklers are not reported. Therefore, for an automatic fire sprinkler system designed and installed in accordance with the IBC requirements, the successful operation of an automatic fire sprinkler system could be reasonably estimated at 98% or more.

Please also keep in mind that the purpose of the International Building Code is to provide minimum requirements to safeguard occupants of buildings from fire and other hazards attributed to the built environment that are based on sound technical documentation. Also keep in mind that fatalities are very rare in office buildings, even rarer in high-rise office buildings, and surpassingly rare in high-rise office buildings protected with an operational fire sprinkler system.

Last but not least, it should be noted that a similar proposal regarding the enclosure of elevator lobbies was also addressed by the National Fire Protection Association (NFPA) 101 Technical Committee on Industrial, Storage, and Miscellaneous (e.g., High-rise) Occupancies. The NFPA Technical Committee did not approve the proposal to separate elevator hoistways with smoke barriers in sprinkler high-rise buildings based on a lack of technical substantiation. In addition, on June 9, 2005 the NFPA membership approved the 2006 edition of NFPA 101 and supported the Technical Committee's decision to not include a requirement to separate elevator hoistways with smoke barriers in sprinkler high-rise buildings.

Based on all these points stated above, we strongly believe that it is reasonable to state that Group B occupancies that are not more than 420 feet in height, and protected throughout with automatic fire sprinkler system is not a rationale alternative to enclosed elevator lobbies and that automatic fire sprinklers are not an effective method for slowing or stopping the spread of smoke throughout a building protected throughout with an operational automatic fire sprinkler system. In addition, we believe the current requirement for enclosing elevator lobbies in Group B occupancies not more than 420 feet in height, protected throughout by an operational automatic fire sprinkler system has not been based on sound technical documentation and will significantly increase building construction and maintenance costs without increasing the overall safety to the building occupants.

References:

Klote, J.H., Analysis of the Consequences of Smoke Migration through Elevator Shafts, Use of Elevators in Fires and Other Emergencies Workshop. Proceedings. Co-Sponsored 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 International Association of Fire Fighters (IAFF). March 2-4, 2004, Atlanta, GA, Guide on Methods for Evaluating Potential for Room Flashover, NFPA 555 2000 ed., Nat Fire Prot Assn, Quincy, MA.

Bukowski, R. W., Is There A Need to Enclose Elevator Lobbies In Tall Buildings?, Building Safety Journal, 26-31 pp, August 2005.

Rohr, K.D and Hall, J.R., Jr., U.S. Experience With Sprinklers and Other Fire Extinguishing Equipment, August 2005.

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

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

FS55–07/08
707.14.1

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

Revise as follows:

707.14.1 (Supp) Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby shall separate the elevator shaft enclosure doors from each floor by fire partitions equal to the fire-resistance rating of the corridor and the required opening protection. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. Enclosed elevator lobbies are not required at the street floor, provided the entire street floor is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to have enclosed elevator lobbies.
3. Where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall be tested in accordance with UL 1784 without an artificial bottom seal.
4. In other than Group I-2 and I-3, and buildings having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
5. <u>In other than Group I-2 and I-3, enclosed elevator lobbies are not required where the corridor(s) has a fire resistance rating and the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.</u>

~~5.~~ 6 Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

~~6.~~ 7. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 707.14.2.

Reason: The proposed exception is based upon recent work conducted by the ICC Code Technology Committee's, Balanced Fire Protection Features Study Group (CTC BFPF). During the last year the Study Groups investigated many of the fire safety related areas in the building code, including the concept of compartmentation. The SG looked at what added level of protection compartmention (fire rated and nonfire-rated) would provide to occupants in a fire incident. While the SG is still many areas, it was generally agreed that there is data to indicate that compartmenting a floor within a building may add a heighten level of protection by inhibiting the rapid spread of a fire incident.

The intent of the rated lobby is to protect against the uncontrolled spread of smoke via the elevator shaft. As the majority of fires (and thus smoke) start within a room or space, not in a corridor, a fire rated corridors should be recognized as already provide this level of compartmentation as it will keep much of the smoke within the compartment. A rated elevator lobby on floors that already provide a barrier to prevent this is redundant. Add to the compartmentation a sprinkler system and the level of protection is further heightened.

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

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

FS56–07/08
707.14.1

Proponent: Gregory Lake, Sacramento Metropolitan Fire District, representing California Fire Chief's Association (Cal Chiefs)

Revise as follows:

707.14.1 (Supp) Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby shall separate the elevator shaft enclosure doors from each floor by fire partitions equal to the fire-resistance rating of the corridor and the required opening protection Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. Enclosed elevator lobbies are not required at the street floor, provided the entire street floor is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to have enclosed elevator lobbies.
3. Where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall be tested in accordance with UL 1784 without an artificial bottom seal.
4. In other than Group I-2 and I-3, and buildings having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2. In addition to the requirements in Section 710 for smoke partitions, doors protecting openings in the smoke partitions shall also comply with Sections 710.5.2, 710.5.3, and 715.4.7 and duct penetrations of the smoke partitions shall be protected as required for corridors in accordance with Section 716.5.4.1.
6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 707.14.2.

Reason: This code change clarifies requirements where smoke partitions are used in lieu of fire partitions to separate the elevator lobby from each floor when the building is equipped with an automatic sprinkler system. Current code language requires additional requirements for door openings in smoke partitions for specific uses in Section 710.5.2 and 710.5.3. However, they only apply where "required elsewhere in the code". There are currently no specific requirements that specify those door components for an effective barrier to limit the spread of smoke from an elevator lobby shaft into a floor when an automatic sprinkler system is installed. Furthermore, Section 710.7 does not require a smoke damper to protect duct penetrations of smoke partitions, although it does require smoke dampers to protect air transfer openings. This code change will incorporate the needed smoke spread protection requirements for these door and duct openings in smoke partitions regardless of the installation of an automatic sprinkler system. We believe these additional protection features for the door openings and duct openings in these elevator lobby enclosure walls

constructed of smoke partitions are essential to maintaining the primary function of the enclosures to limit the spread of smoke from floor to floor via the elevator shaft. Even in a sprinklered building we believe it is important that the doors in the smoke partitions be self-closing and latching to prevent smoke migration out of the elevator lobby or into the elevator lobby and to provide a smoke damper for duct openings in order to prevent smoke migration through the duct. Without these additional protection features, significant quantities of smoke may still be able to move throughout the building via the elevator shafts even with the installation of smoke partitions for the elevator lobby enclosures in sprinklered buildings.

It should also be noted that Exception 5 would be allowed to be applied to high rise buildings. For those buildings we believe this additional clarification on openings in smoke partitions is essential since the stack effect will be significantly more prevalent. It has been well documented that the stack effect in high rise buildings can cause significant smoke spread to floors remote from the fire floor via the elevator shafts where the elevator hoist way doors are so loose fitting that smoke can pass around their edges and migrate into the elevator shaft and then out again on floors remote from the fire floor. For these additional protection features for the doors and ducts penetrating these smoke partitions we believe the costs associated with them are insignificant compared to the benefit provided.

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

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

FS57–07/08
707.14.1

Proponent: Gregory Lake, Sacramento Metropolitan Fire District, representing California Fire Chief's Association (Cal Chiefs)

Revise as follows:

707.14.1 (Supp) Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby shall separate the elevator shaft enclosure doors from each floor by fire partitions equal to the fire-resistance rating of the corridor and the required opening protection Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. Enclosed elevator lobbies are not required at the street floor, provided the entire street floor is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to have enclosed elevator lobbies.
3. Where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall be tested in accordance with UL 1784 without an artificial bottom seal.
4. In other than Group I-2 and I-3, and buildings having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
6. <u>Where approved, e</u>nclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 707.14.2.

Reason: We're proposing this code change because of our concerns about the application of Exception 6 which allows the elimination of enclosed elevator lobbies where the elevator hoistway is pressurized in accordance with the provisions in Section 707.14.2. Although we did not have a similar exception to the requirements in our legacy code, the ICBO Uniform Building Code (UBC), which we have been enforcing until very recently, we have certainly been exposed to many alternate methods for code compliance utilizing elevator hoistway pressurization in lieu of the elevator lobby enclosure requirement of the UBC. Our experience has indicated that each project is unique and requires an engineering evaluation to determine the appropriate measures that need to be taken to assure that the elevator hoistway pressurization system will work effectively and not cause other problems such as significantly increasing the resistance to the operation of the elevator hoistway doors or the movement of elevators in the hoistway as a result of the piston effect.

Therefore, we have added the words "Where approved" to the beginning of Exception 6 which then means that when this exception is applied, it must be evaluated on a case by case basis and subsequently approved by the code enforcement official. It is our understanding that the current provisions in Section 707.14.2 are based on local code amendment adopted by the city of Portland, OR which allows for elevator hoistway pressurization in lieu of elevator lobbies which they have had in effect for some time. We acknowledge that those criteria may have worked well in Portland but that does not mean that they will work well elsewhere throughout the country and even in California. We know that such conditions as outdoor air temperature, stack effect, and wind can cause pressure differentials within the building to change over time and by location within the building, as well as by the pressure difference that may result between the pressure in the elevator hoistway and the pressure in the building versus the outside air pressure. The multiplicity of design considerations make it quite difficult to engineer an elevator hoistway pressurization system that will function under any weather conditions at any time of the year regardless of the outside temperature.

Because of our experience in California, the California State Fire Marshal incorporated this very amendment into our state adoption of the 2006 International Building Code (IBC). Since this exception will most likely be applied to nonsprinklered mid-rise buildings and to sprinklered high-rise buildings, there will be a significant difference in the buoyancy effects of the smoke and the stack effects which require specific analysis on a case by case basis. Therefore, we believe this code change should be approved in order to allow the enforcing authority the ability to specifically approve the application of Exception 6.

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

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

FS58–07/08
707.14.1

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

Revise as follows:

707.14.1 (Supp) Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby shall separate the elevator shaft enclosure doors from each floor by fire partitions equal to the fire-resistance rating of the corridor and the required opening protection. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. Enclosed elevator lobbies are not required at the street floor, provided the entire street floor is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to have enclosed elevator lobbies.
3. Where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall be tested in accordance with UL 1784 without an artificial bottom seal.
4. In other than Group I-2 and I-3, and buildings having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 707.14.2.
7. <u>Enclosed elevator lobbies are not required in open parking garages in accordance with Section 406.3</u>

Reason: The current code language requires elevator lobbies to be provided, where applicable, in open parking garages. Considering that the primary purpose of an elevator lobby is to inhibit the spread of smoke via the elevator hoistway, it is impractical to require an elevator lobby in an open structure that will allow smoke to dissipate outside of the building.

Although elevator lobbies are different from areas of refuge, they are similar. It is appropriate to consider that Section 1007.4 excludes elevators from being accessed from an area of refuge in an open parking garage.

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

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

FS59–07/08
707.14.1

Proponent: Thomas Kinsman, T. A. Kinsman Consulting Company, representing himself

Revise as follows:

707.14.1 (Supp) Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby shall separate the elevator shaft enclosure doors from each floor by fire partitions equal to the fire-resistance rating of the corridor and the required opening protection. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. Enclosed elevator lobbies are not required at the street floor, provided the entire street floor is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to have enclosed elevator lobbies.
3. Where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall be tested in accordance with UL 1784 without an artificial bottom seal.
4. In other than Group I-2 and I-3, and buildings having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 707.14.2.
7. Enclosed elevator lobbies are not required where the elevator opens to an exterior exit balcony or similar space open to the exterior.

Reason: The purpose of the code change is to permit elevators without lobbies where elevators open into exterior conditions. The intent of this section in the code is to restrict the migration of smoke between floors via the elevator shaft. In cases where the elevator opens to exterior condition gravity effect is reduced and smoke will directly vent to the outside. To provide a lobby in such a situation is wasteful with no real benefit to the intent of the section.

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

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

FS60–07/08
707.14.1, 707.14.1.1 (New)

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

Add new text as follows:

707.14.1 (Supp) Elevator lobby. An enclosed elevator lobby shall be provided at each floor where an elevator shaft enclosure connects more than three stories. The lobby shall separate the elevator shaft enclosure doors from each floor by fire partitions equal to the fire-resistance rating of the corridor and the required opening protection. Elevator lobbies shall have at least one means of egress complying with Chapter 10 and other provisions within this code.

Exceptions:

1. Enclosed elevator lobbies are not required at the street floor, provided the entire street floor is equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.

2. Elevators not required to be located in a shaft in accordance with Section 707.2 are not required to have enclosed elevator lobbies.
3. Where additional doors are provided at the hoistway opening in accordance with Section 3002.6. Such doors shall be tested in accordance with UL 1784 without an artificial bottom seal.
4. In other than Group I-2 and I-3, and buildings having occupied floors located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, enclosed elevator lobbies are not required where the building is protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
5. Smoke partitions shall be permitted in lieu of fire partitions to separate the elevator lobby at each floor where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.
6. Enclosed elevator lobbies are not required where the elevator hoistway is pressurized in accordance with Section 707.14.2.

707.14.1.1 Areas of refuge. Areas of refuge shall be provided as required in Section 1007.

Reason: This proposal clarifies that, regardless of Section 707.14's exceptions for elevator lobbies, areas of refuge are governed by Section 1007. This clarification is needed because lobbies have significant consequences for building design. If, as frequently happens, the designer mistakenly interprets Section 707.14 as eliminating all requirements for lobbies at elevators, it is extremely difficult to add them to the building design later.

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

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

FS61–07/08
707.14.2

Proponent: Norman A. Koplon, representing himself

Revise as follows:

707.14.2.1 (Supp) Pressurization requirements. Elevator hoistways shall be pressurized to maintain a minimum positive pressure of 0.04 inches of water (9.96 Pa) ~~and a maximum positive pressure of 0.06 inches of water (14.94 Pa)~~ with respect to adjacent occupied space on all floors. This pressure shall be measured at the midpoint of each hoistway door, with all elevator cars at the floor of recall and all hoistway doors on the floor of recall open and all other hoistway doors closed. The opening and closing of hoistway doors at each level must be demonstrated during this test. The supply air intake shall be from an outside, uncontaminated source located a minimum distance of 20 feet (6096 mm) from any air exhaust system or outlet.

Reason: The maximum positive pressure of .06 inches of water has been deleted but regulated by the "opening and closing demonstration."

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

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

FS62–07/08
707.14.2.1

Proponent: Jesse J. Beitel, Hughes Associates, Inc.

Revise as follows:

707.14.2.1 (Supp) Pressurization requirements. Elevator hoistways shall be pressurized to maintain a minimum positive pressure of 0.04 inches of water (9.96 Pa) and a maximum positive pressure of 0.06 inches of water (14.94 Pa) above the maximum stack effect pressure with respect to adjacent occupied space on all floors. This pressure shall be measured at the midpoint of each hoistway door, with all elevator cars at the floor of recall and all hoistway doors on the floor of recall open and all other hoistway doors closed. The opening and closing of hoistway doors at each level must be demonstrated during this test. The supply air intake shall be from an outside, uncontaminated source located a minimum distance of 20 feet (6096 mm) from any air exhaust system or outlet.