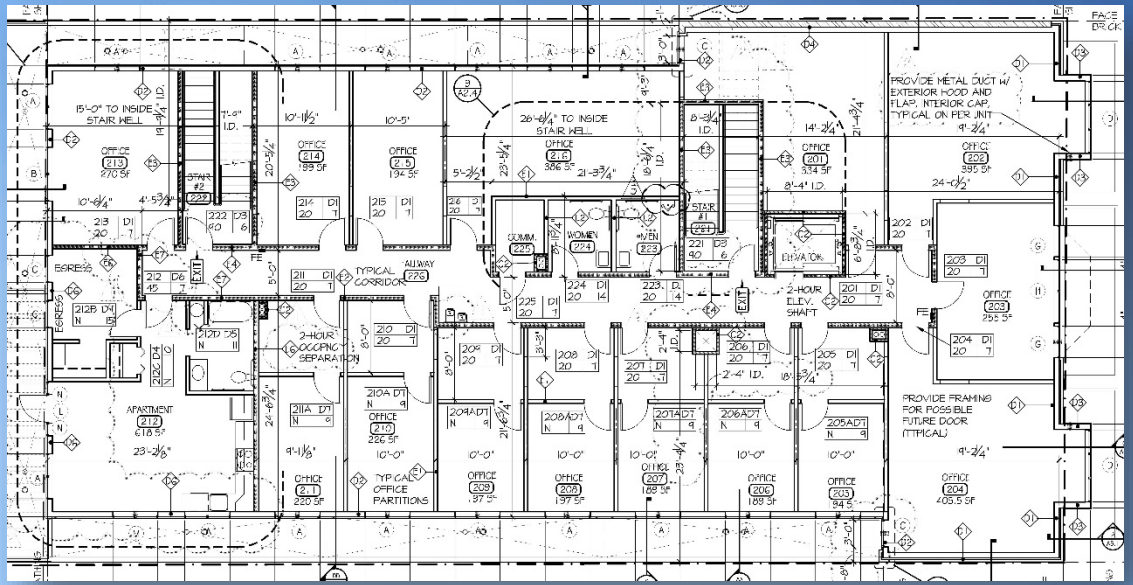
Significant Changes to the 2019 California Building Code

Fire Life Safety Provisions



Building Planning

CHAPTERS 3 THROUGH 6

Group I-2 & I-2.1

Group I-2 & I-2.1 Corridors

- The State Fire Marshal deletes IBC language identifying Group I-2 and I-2.1 public-use areas and group meeting rooms open to corridors as spaces similar to waiting rooms. Public-use areas do not indicate a use or function. Group meeting rooms are already regulated in Section 407.2.3. Spaces similar to waiting areas are identified in Chapter 10, Section 1020.6. This proposed amendment eliminates ambiguity and has no change in regulatory effect.
- **407.2.1 Waiting and similar areas.** Waiting areas, ~~public use areas or group meeting~~ *and similar* spaces constructed as required for corridors shall be permitted to be open to a corridor, only where all of the following criteria are met:
- …

Group I-2 & I-2.1 Corridors

407.2.1 Waiting and similar areas

Group I-2 & I-2.1 Means of Egress

- The State Fire Marshal relocates language requiring two exits from individual rooms in Group I-2 and I-2.1 occupancies to a new subsection. The IBC location for this requirement actually regulates care suites. The new language coordinates California Building Code requirements with the requirements of Chapter 18 of NFPA 101-2012, The Life Safety Code®. There is no change in regulatory effect.

- ***407.4.2.1 Two means of egress.*** *Any sleeping room of more than 1,000 square feet (93 m^2) shall have no fewer than two exit* access *doors from the sleeping* room *located in accordance with Section 1007. 1. Any room, other than sleeping rooms, with an area of more than 2,500 square feet (232 m^2) shall have no fewer than two exit* access *doors from the room located in accordance with Section 1007.1.*

Group I-2 & I-2.1 Means of Egress

- When would an operating room require two means of egress?

Group I-2 & I-2.1 Means of Egress

- The State Fire Marshal deleted means of egress requirements for a sleeping room from the means of egress requirements for a care suite containing sleeping rooms. The requirement for means of egress from a sleeping room is relocated to a new subsection 407.4.2.1. There is no change in regulatory effect.

- **407.4.4.5.2 Exit access.** Any ~~sleeping room, or any~~ *care suite* that contains sleeping rooms, of more than 1,000 square feet (93 m^2) shall have no fewer than two *exit access* doors from the *care suite* located in accordance with Section 1007.

Group I-2 & I-2.1 Suites

- A new definition for a non-patient care suite located in Group I-2 or I-2.1 occupancies used for administrative, business and professional offices is included in Chapter 2, Definitions.

- **202. *NON-PATIENT-CARE SUITE.*** *In Group I-2 or I-2.1 occupancies. a group of rooms or spaces within a suite for use as administrative, business and professional offices.*

Group I-2 & I-2.1 Suites

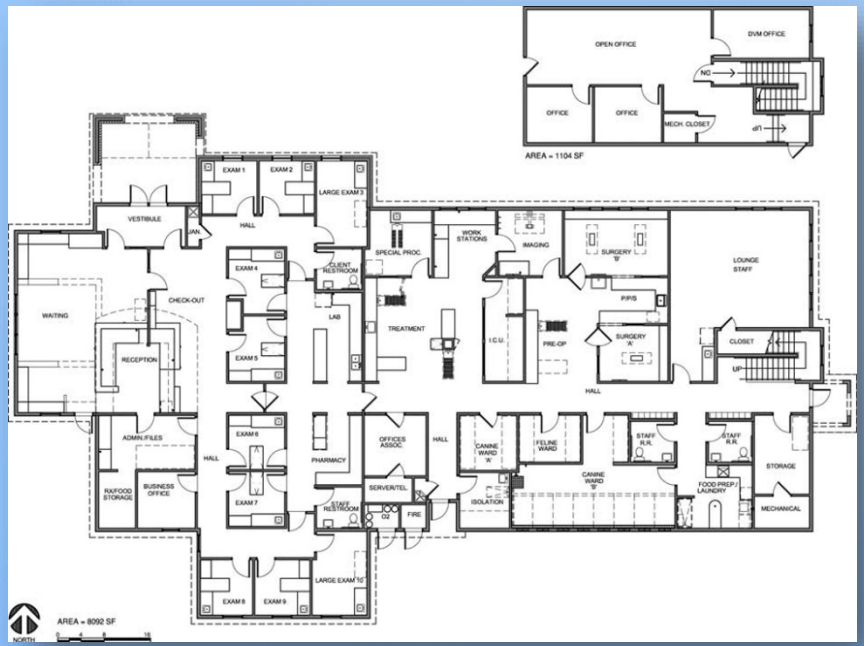
- Non-patient-care suites are now permitted in Group I-2 and I-2.1 occupancies. Non-patient-care suites are limited to administrative, business and professional offices that support health care facilities. They require a 1-hour fire-resistance rated fire barrier separation, are limited to 10,000 sq. ft. and must be protected by an automatic fire sprinkler system. A similar configuration was used successfully when the Uniform Building Code served as the basis for the California Building Code. Non-patient-care suites are permitted in Chapter 18 of NFPA 101-2012, The Life Safety Code®. Permitting non-patient-care suites will allow for non-patient office functions in Group I-2 and I-2.1 that comply with the less restrictive Group B means of egress requirements.

Group I-2 & I-2.1 Suites

- ***407.4.5 Group I-2 and I-2.1 non-patient-care suites.*** *The means of egress provisions for non-patient-care suites shall be in accordance with the primary use and occupancy of the suite.*
  - ***407.4.5.1 Separation.*** *Non-patient-care suites shall be separated from other portions ·of the building, including other suites. by not less than a one-hour fire barrier complying with Section 707. Each suite of rooms shall be separated from the remainder of the building by not fess than a one hour fire barrier.*
  - ***407.4.5.2 Area.*** *Non-patient-care suites of rooms shall have an area not greater than 10,000 square feet (929 m^2).*
  - ***407.4.5.3 Automatic sprinkler system protection.*** *Non-patient-care suites shall be located in fully sprinklered buildings.*

Group I-2 Smoke Compartments

- The SFM does not adopt IBC exceptions permitting larger floor areas for Group I-2 smoke compartments. The deletion of the exceptions coordinates the requirements of the CBC with the requirements of Chapter 18 of NFPA 101-2012, The Life Safety Code®. There is no change in regulatory effect.



Group I-2 Smoke Compartments

- **407.5.1 Smoke compartment size.** Stories shall be divided into smoke compartments with an area of not more than 22,500 square feet (2092 m^2) in Group I-2 occupancies.

  ~~Exceptions:~~

  ~~1. A smoke compartment in Group I-2, Condition 2 is permitted to have an area of not more than 40,000 square feet (3716 m^2) provided that all patient sleeping rooms within that smoke compartment are configured for single patient occupancy and any suite within the smoke compartment complies with Section 407.4.4.~~

  ~~2. A smoke compartment in Group I-2, Condition 2 without patient sleeping rooms is permitted to have an area of not more than 40,000 square feet (3716 m^2).~~

Nursing Home Cooking Facilities

- Both the ICC and the State Fire Marshal continue to refine the requirements related to cooking in a *household model* nursing home.
- **407.2.6 Nursing home cooking facilities.** In Group I-2 occupancies, rooms or spaces that contain a cooking facility with domestic cooking appliances shall be permitted *in fully sprinklered buildings* where all of the following criteria are met:
    1. The number of care recipients housed in the smoke compartment is not greater than 30.
    2. The number of care recipients served by the cooking facility is not greater than 30.
    3. Only one cooking facility area is permitted in a smoke compartment.
    4. The types of domestic cooking appliances permitted shall be limited to ovens, cooktops, ranges, warmers and microwaves.

Nursing Home Cooking Facilities

- **Domestic cooking facility requirements continued:**

  ~~5. The corridor shall be a clearly identified space delineated by construction or floor pattern, material or color.~~

- **The State Fire Marshal prohibits cooking areas open to a corridor.**

  5. The space containing the domestic cooking facility shall be arranged so as not to obstruct access to the required exit.

  6. A domestic cooking hoods installed and constructed in accordance with the *California* Mechanical Code shall be provided over the cooktops and ranges.

Nursing Home Cooking Facilities

- The State Fire Marshal has adopted additional safety provisions consistent with the IBC.

7. Cooktops and ranges shall be protected in accordance with Section 904.13.

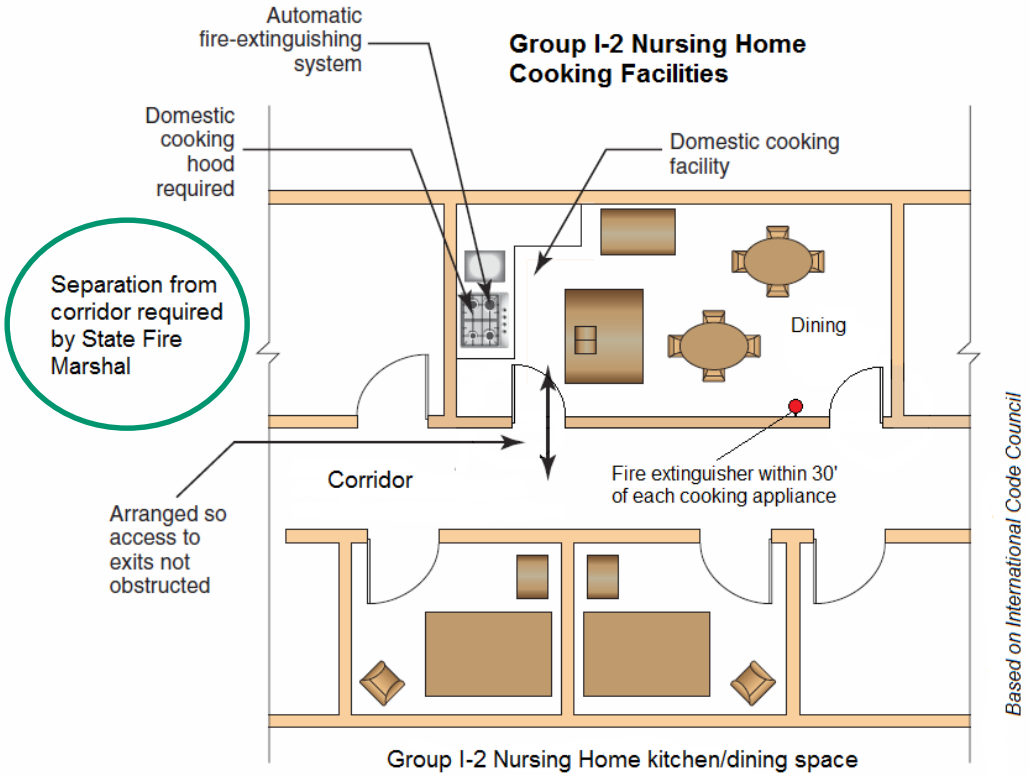
8. A shut-off for the fuel and electrical power supply to the cooking equipment shall be provided in a location that is accessible only to staff.

9. A timer shall be provided that automatically deactivates the cooking appliances within a period of not more than 120 minutes.

10. A portable fire extinguisher shall be provided. Installation shall be in accordance with Section 906, and the extinguisher shall be located within a 30-foot (9144 mm) distance of travel from each domestic cooking appliance.

Nursing Home Cooking Facilities

- Appliances limited to ovens, cooktops, ranges, warmers and microwaves
- Fuel and electrical supply to cooking equipment be provided with shut-off accessible only to staff
- Timer to deactivate cooking appliances within 2 hours



Nursing Home Cooking Facilities

- Both the ICC and the State Fire Marshal now require an automatic fire extinguishing system for domestic cooktops and ranges in accordance with UL 300A, *Outline of Investigation for Extinguishing System Units for Residential Range Top Cooking Surfaces* or cooktops and ranges tested to prevent ignition of cooking oil in accordance with UL 858, *Standard for Safety for Household Electric Ranges*.
- 904.13 Domestic cooking systems. Cooktops and ranges installed in the following occupancies shall be protected in accordance with Section 904.13.1:

  1. In Group *R-2.1* occupancies where domestic cooking facilities are installed in accordance with Section 420.8.
  2. In Group I-2 *and I-2.1* occupancies where domestic cooking facilities are installed in accordance with Section 407.2.6.
  3. In Group R-2 college dormitories where domestic cooking facilities are installed in accordance with Section 420.10.

Nursing Home Cooking Facilities

- **904.13.1 Protection from fire.** Cooktops and ranges shall be protected in accordance with Section 904.13.1.1 or 904.13.1.2.
- **904.13.1.1 Automatic fire-extinguishing system.** The domestic recirculating or exterior vented cooking hood provided over the cooktop or range shall be equipped with an approved automatic fire-extinguishing system complying with the following:

    1. The automatic fire-extinguishing system shall be of a type recognized for protection of domestic cooking equipment. Preengineered automatic fire-extinguishing systems shall be listed and labeled in accordance with UL 300A and installed in accordance with the manufacturer's instructions.
    2. Manual actuation of the fire-extinguishing system shall be provided in accordance with Section 904.12.1.
    3. Interconnection of the fuel and electric power supply shall be in accordance with Section 904.12.2.

Nursing Home Cooking Facilities

- UL 300A *Outline of Investigation for Extinguishing System Units for Residential Range Top Cooking Surfaces,* is not equivalent to UL 300 *Standard for Fire Testing of Fire Extinguishing Systems for Protection of Commercial Cooking Equipment. UL 300A* is specific to the protection of domestic range top equipment.

Gas fired range and cooktops must be protected by an extinguishing system.

Nursing Home Cooking Facilities

- **904.13.1.2 Ignition prevention.** Cooktops and ranges shall include burners that have been tested and listed to prevent ignition of cooking oil with burners turned on to their maximum heat settings and allowed to operate for 30 minutes.
- In lieu of providing an automatic fire extinguishing system, Section 904.13.1.2, ignition prevention, requires cooktops and ranges to meet specific heating limitations. These cooking appliances must have listed ignition resistant burners that do not allow cooking oils to ignite during testing.
- UL 858 *Standard for Safety for Household Electric Ranges* was revised June 18, 2015 to evaluate the ability of burners to not ignite cooking oil.

Nursing Home Cooking Facilities

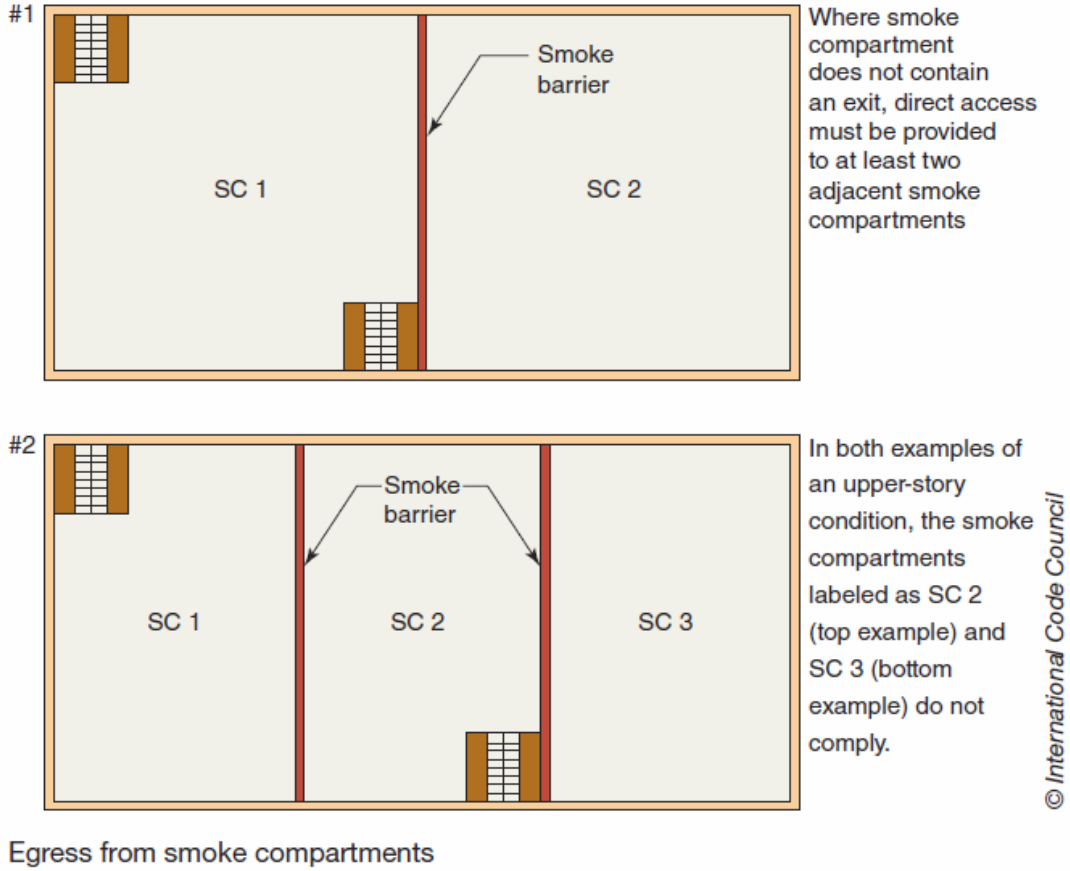
An electric range must comply with UL858 Paragraph 60A.

As of April 2019, all electric ranges sold must comply.

Independent egress

- **407.5.4 Independent egress.** A means of egress shall be provided from each smoke compartment created by smoke barriers without having to return through the smoke compartment from which means of egress originated. Smoke compartments that do not contain an exit shall be provided with direct access to not less than two adjacent smoke compartments.
- The State Fire Marshal now adopts IBC provisions for independent egress.
- Where there is no exit directly from a smoke compartment, the resulting condition creates a potential for a “dead-end smoke compartment.” The new text is consistent with NFPA 101-2012, The Life Safety Code®, Section 18.2.4.4 requirements in regard to the recognition of two alternative approaches to the design of the means of egress from a smoke compartment. Each compartment must be provided with a minimum of one direct exit, or direct access to at least two smoke compartments.

Independent egress



Allowable Types of Construction

- Group I-2 and I-2.1 buildings of Type III-B and V-B are not permitted. Table 504.3, Allowable Height in Feet, incorrectly indicated these types of construction as permitted. The Table is corrected to indicate these types of construction are not permitted (NP). Table 504.4, Allowable Stories and Table 506.2, Allowable Area are correct.

TABLE 504.3

ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE [a, i]

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
I-2, I-2.1	NS [d, f, e]	UL	160	65	55	65	NP	65	50	NP
	S (without area increase)	UL	180	85						
	S (with area increase)	UL	160	65						

Accessory Occupancies

- **508.2 Accessory occupancies.**
- …
- **508.2.4 Separation of occupancies.** No separation is required between accessory occupancies and the main occupancy.
- **Exceptions:**
- …
- *3. Group I-2 and I-2.1 shall be separated from all other occupancies in accordance with Section 508.4. No separation* is *required between Group B, E, R-2 sleeping units and S-2 occupancies accessory to Group I-2 and I-2.1.*

Accessory Occupancies

- The State Fire Marshal revised the language of Section 508.2.4, Exception 3. However, the intent of the exception has not changed.
- More than any other occupancy, Exception 3 probably impacts the arrangement and construction of porte-cocheres (Group S-2 occupancies).
- Porte-cocheres need not be separated from Group I-2 or I-2.1 occupancies when the aggregate of all accessory occupancies does not exceed 10% of the floor area of the story in which they are located.

Accessory Occupancies

As an accessory occupancy, a porte-cochere is considered as part of the building and is required to be protected by an automatic sprinkler system.

Nonseparated Occupancies

- Where one of the occupancies involved is a Group I-2, Condition 2 hospital use, 2018 IBC, Section 508.3.1 now contains additional limitations in mixed-occupancy buildings regulated under the nonseparated occupancy provisions.

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Nonseparated Occupancies

- The State Fire Marshal does not classify Group I-2 occupancies into conditions.
- A State Fire Marshal amendment to the California Building Code requires Group I-2 and Group I-2.1 occupancies be separated occupancies.
- The new **Section 508.3.1.2 Group I-2, Condition 2 occupancies**, is not applicable in California.

Fire Protection of Roof Members

- **Table 601, Note b.**
- Where every portion of roof construction is at least 20 feet above any floor below, all portions of roof construction, including primary structural frame members such as girders and beams, are selectively exempted from fire-resistance requirements of Table 601.

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Fire Protection of Roof Members

- **Table 601, Note b.**

TABLE 601 Fire-Resistance Rating Requirements for Building Elements

Building Element	Type I A	Type I B	Type II A	Type II B	Type III A	Type III B	Type IV HT	Type V A	Type V B
Primary structural frame[f]	3[a,b]	2[a,b]	1[b]	0	1[b]	0	HT	1[b]	0
Roof construction and associated secondary members	1½[b]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	HT	1[b,c]	0

b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

(No changes to other portions of Table 601 and notes.)

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Fire Protection of Roof Members

- **Table 601, Note b.**
- As they relate to roof construction, footnotes b *and b.1 and b.2* have historically modified the base requirements in the table by selectively eliminating the requirement for protecting roof structural members where the roof construction is at least 20 feet above the floor below.
- The scope of the footnote includes structural frame elements and now specifically mentions its application to primary structural frame members. The revised footnote makes it very clear that all portions of the roof construction are exempt from fire-resistance requirements based on Table 601.

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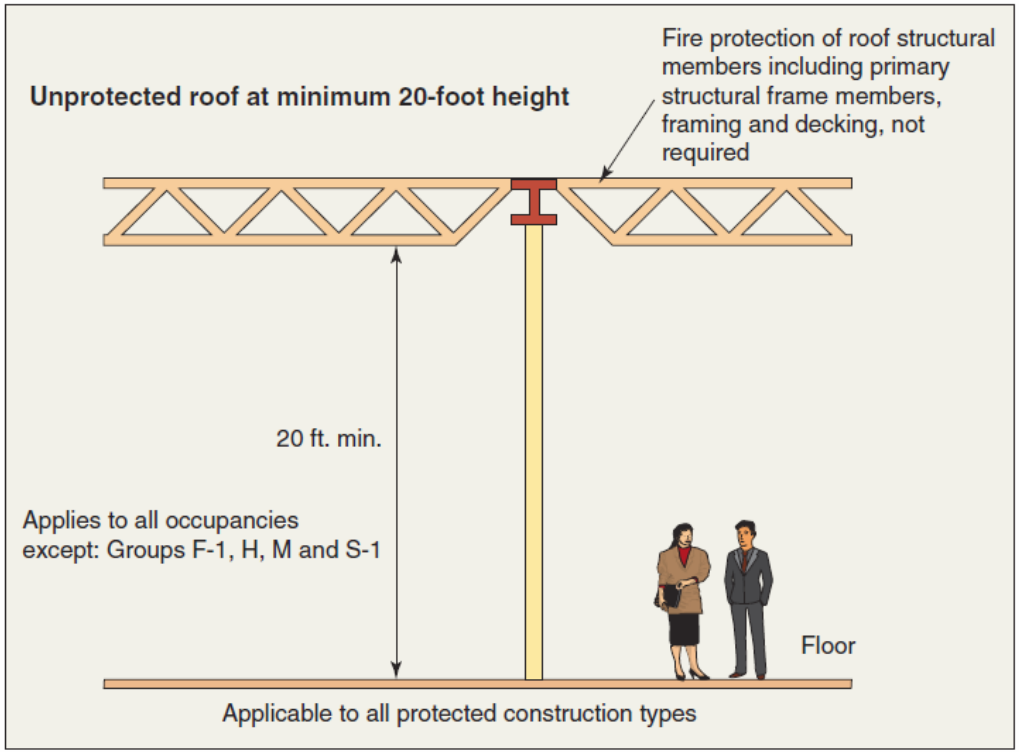
Fire Protection of Roof Members

- Table 601, Note b.

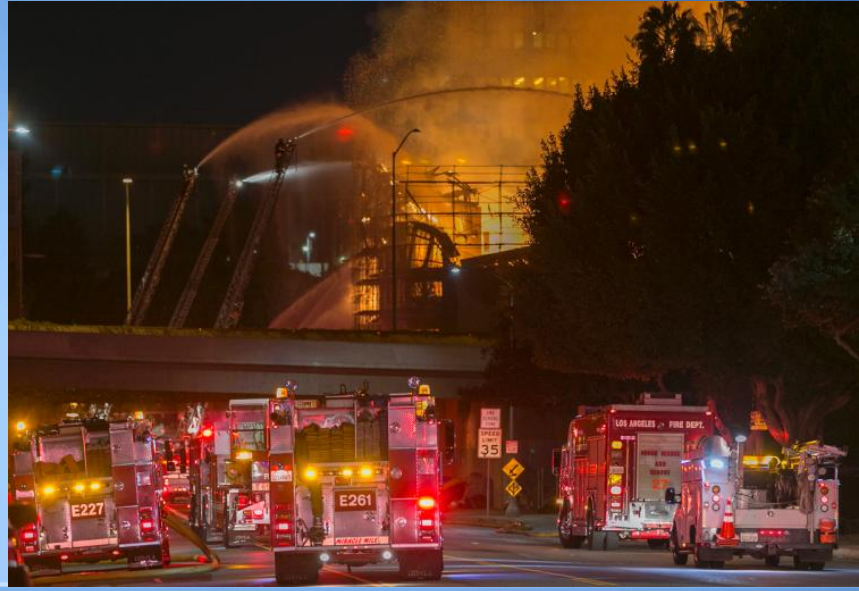


Unprotected roof allowance

Fire Protection of Roof Members

- **Table 601, Note *b.1.***
- b. *1. Except in Group A, E, F-1, H, I, L, M, R-1, R-2, R-2.1 and S-1 occupancies, high-rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal,* fire protection of structural members in roof construction shall not be required, including protection of primary structural frame members, roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.

- **So just where does this apply? Group B, F-2, S-2 and U occupancies.**



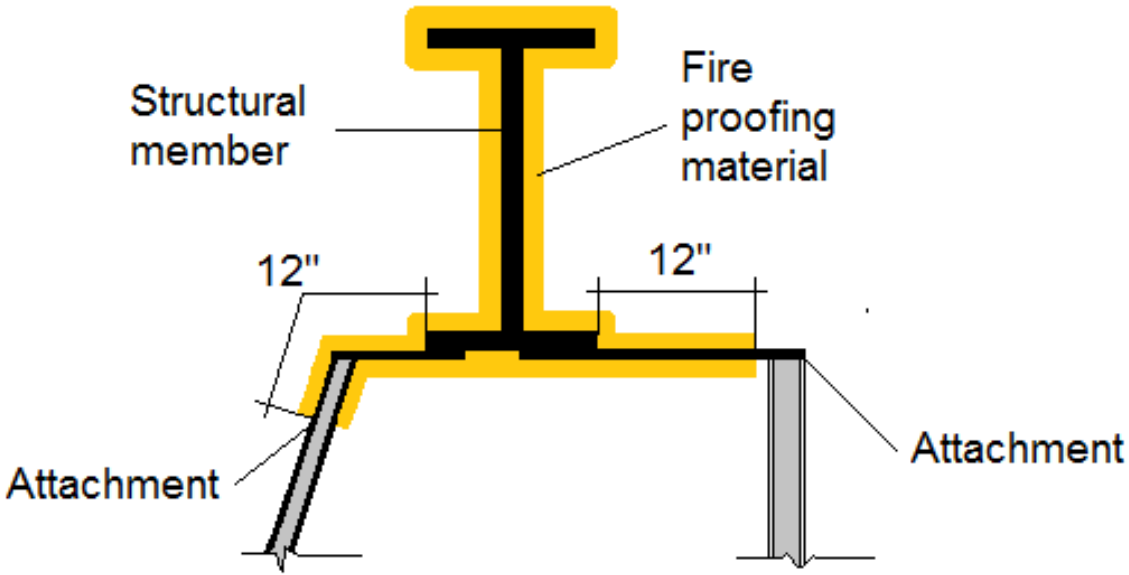
Fire Protection

CHAPTERS 7 THROUGH 9

Attachments to Structural Members

- Described by Underwriters Laboratory as bridging, protection of secondary members attached to protected structural steel is now clearly identified as a requirement.
- ***704.6.1 Secondary attachments to structural members.*** *Where primary and secondary structural steel members require fire protection, secondary attachments to those structural members shall be protected with the same fire resistive material and thickness as required tor the structural member. The protection shall extend away from the structural member a distance of not less than 12 inches, or shall be applied to the entire length when the attachment is less than 12 inches long. When an attachment is hollow and the ends are open, the fire resistive material and thickness shall be applied to both exterior and interior of the hollow steel attachment.*

Attachments to Structural Members



704.6.1 Protection of secondary attachments

Smoke Barriers

- Amended language in Section 709.5.1 clarifies that in Group I-2 occupancies, where swinging doors protecting smoke barriers are installed across a corridor, such doors shall be opposite swinging pairs.
- What? you say. Yes, this provision was once in the code and has remained in effect in the Life Safety Code® and is now restored in the California Building Code.
- AKA: Dual egress or double egress

Smoke Barriers

- **2007 CBC:**
- **709.5 Openings.**
- In Group I-2, where doors are installed across corridors, a pair of opposite-swinging doors without a center mullion *or horizontal sliding doors that comply with Section 1008.1.3.3 shall be installed*.

Oops. Requirement that cross corridor doors be opposite-swinging last mentioned in the 2006 IBC/2007 CBC.

Smoke Barriers

- **709.5.1 Group I-2, *I-2.1, R-2.1* and ambulatory care facilities.** In Group I-2, *I-2.1, R-2.1* and ambulatory care facilities, where doors are installed across a corridor, the doors shall be automatic closing by smoke detection in accordance with Section 716.5.9.3 and shall have a vision panel with fire-protection-rated glazing materials in fire-protection-rated frames, the area of which shall not exceed that tested. *In Group I-2, where swinging doors are installed across a corridor, such doors shall be opposite swinging doors.*

Requirement last seen in 2006 IBC/2007 CBC reinstated.

Corridor Doors

- Revised text in Section 716.5.3, Exception 2 affirms that in fully sprinklered Group I-2 and I-2.1 occupancies, corridor doors are not required to be 20 minute rated. However such doors shall comply with Section 407.3.1 which does require that corridor doors provide an effective barrier to limit the transfer of smoke and shall be equipped with positive latching.

Corridor Doors

- **716.5.3 Door assemblies in corridors and smoke barriers.** *Fire door* assemblies required to have a minimum *fire protection* rating of 20 minutes where located in *corridor* walls or *smoke barrier* walls having a *fire-resistance rating* in accordance with Table 716.1(2) shall be tested in accordance with NFPA 252 or UL 10C without the hose stream test.

  Exceptions:

  …

  2. Corridor door assemblies in occupancies of Group I-2 *and I-2.1 in fully sprinklered buildings* shall be in accordance with Section 407.3.1.

Corridor Smoke Dampers

- The IBC requires corridors in Group I-2 and I-2.1 occupancies be constructed as smoke partitions.
- In accordance with Section 407.3.1, it is the intent of the California State Fire Marshal to provide one-hour fire partitions at such corridors. Text is revised to clarify that duct penetrations in Group I-2 and I-2.1 corridor separations shall be protected by smoke dampers. This revision is in addition to other provisions in Chapter 7 that require fire dampers.

Corridor Smoke Dampers

- The new text clarifies that it is the intent of the State Fire Marshal to protect Group I-2 and I-2.1 corridor duct penetrations in accordance with the requirements for fire partitions and addresses opening requirements specific to Group I-2 and I-2.1 corridor doors.

Corridor Smoke Dampers

- **717.5.4.1 Corridors.**
- **…**
- *[SFM) For Group A, E, H, I, L and R occupancies, high·rise buildings, and other applications listed in Section 1.11 regulated by the Office of the State Fire Marshal, a listed smoke damper designed to resist the passage of smoke shall also be provided at each point a duct or air transfer opening penetrates a fire resistance rated corridor enclosure required to have smoke and draft doors in accordance with Section 716.2.2.1 or doors that provide an effective barrier to limit the transfer of smoke in accordance with Section 407.3.1.*

Interior Finishes

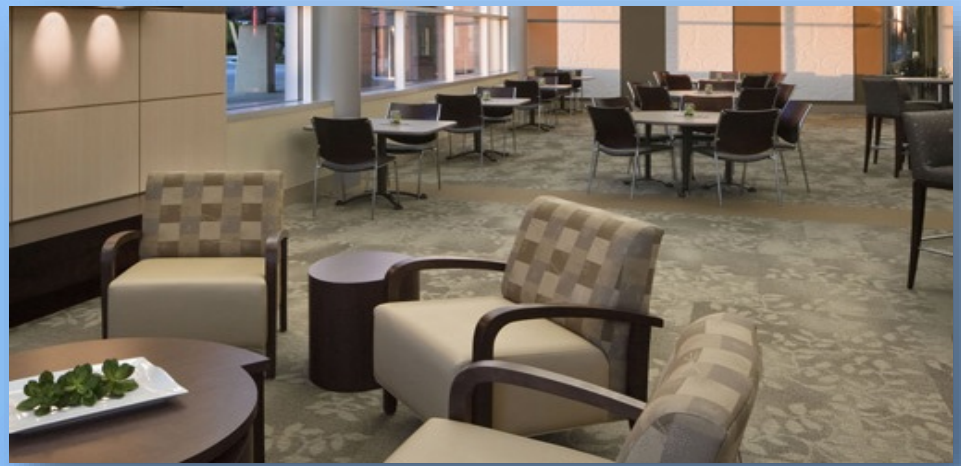
- When the personal liberties of occupants are restrained, the State Fire Marshal has amended several subsections of Section 804, Floor Finishes,

Interior Finishes

- **804.1 General.** Interior floor finish and floor covering materials shall comply with Sections 804.2 through 804.4.2.

  Exception: *In areas except groups I-2 with detention and I-3,* floor finishes and coverings of a traditional type, such as wood, vinyl, linoleum or terrazzo, and resilient floor covering materials that are not comprised of fibers.

- What does the exception mean? In most occupancies, only carpet is regulated. Not the case with detention facilities.



Interior Finishes

- Where inmates and patients are restrained, floor coverings other than those considered to be noncombustible are now permitted.

Interior Finishes

- **804.4.1 Test requirement.** In all occupancies, interior floor *finish and interior floor* covering materials shall comply with the requirements of *ASTM Standard E 648, and having a specific optical density* smoke *rating not to exceed 450* per *ASTM E662. For Group I-3 occupancies and Group I-2* areas *where patients are restrained,* see *Section 804.4.3.*

Interior Finishes

- **804.4.2 Minimum critical radiant flux.** In all occupancies, interior floor finish and floor covering materials in enclosures for stairways and ramps, exit passageways, corridors and rooms or spaces not separated from corridors by partitions extending from the floor to the underside of the ceiling shall withstand a minimum critical radiant flux. The minimum critical radiant flux shall be not less than Class I in Groups I-2, *I-3 areas where restraint* is *not used and R-2.1* and not less than Class II in Groups A, B, E, H, *I-2.1,* I- 4 , M, R-1, R-2, *R-2.2* and S.

  Exception: Where a building Is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, Class II materials are permitted in any area where Class I materials are required, and materials complying with *ASTM Standard E648, and having* a *specific optical density smoke rating not to exceed 450 per ASTM E662 are permitted in any area where* Class *II materials are required.* .

- *For Group I-3 areas occupied by inmates or Group I-2* areas *where patients are restrained,* see *Section 804.4.3.*

- This is only about carpeting.

Interior Finishes

- ***804.4.3 Group I-2 and Group I-3 floor surfaces.*** *Interior floor finish and floor coverings occupied by inmates or patients whose personal liberties are restrained shall be noncombustible.*

  Exception: Carpet or other floor covering materials may be used in areas protected by an automatic sprinkler system *installed throughout in accordance with Section 903.3.1.1. Carpet or other floor coverings shall comply with the requirements* of *ASTM Standard E648; the minimum critical radiant flux shall be not less than* Class I *and the specific optical density smoke rating shall not exceed 450 per ASTM E662. Carpeting and carpet padding shall be tested as a unit in accordance with floor covering radiant panel test meeting class 1 and has a critical radiant flux limit of not less than 0.45 watt per centimeter square. The carpeting and padding shall be identified by a hang-tag or other suitable method* as *to manufacturer and style and shall indicate the classification of the material based on the limits set forth above.*

Fire Alarm

- A California State Fire Marshal amendment prohibits using a pre-signal feature in a Group I-2, I-2.1 or R-2.1 occupancy.

- **907.5.1 Pre-signal feature.** A pre-signal feature shall not be installed unless *approved* by the *fire code official.* Where a pre-signal feature is provided, a signal shall be annunciated at a constantly attended location *approved* by the *fire code official,* so that occupant notification can be activated in the event of fire or other emergency.

  Exception: *A pre-signal feature shall not be permitted to* be *installed in a Group I-2, I-2.1 or R-2.1 occupancy.*

Fire Alarm

- Just what is a pre-signal feature?
- **NFPA 72**
- **23.8.1.1.2** A presignal feature shall meet the following conditions:

  (1) The initial fire alarm signals sound only in department offices, control rooms, fire brigade stations, or other constantly attended central locations.

  (2) Where there is a connection to a remote location, the transmission of the fire alarm signal to the supervising station activates upon the initial alarm signal.

  (3) Subsequent system operation is by either of the following means:

    (a) Human action that activates the general fire alarm

    (b) A feature that allows the control equipment to delay the general alarm by more than 1 minute after the start of the alarm processing

Fire Alarm

- In high-rise buildings *and Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access*, Section 907.2.13 requires an emergency voice/alarm communication system in accordance with Section 907.5.2.2.
- A State Fire Marshal amendment to Section 907.5.2.2 coordinates requirements of that section with provisions identified in Section 907.2.13, Exception 5.
- The amended provisions further clarify when in Group I-2 and I-2.1 occupancies, an emergency voice/communication system is not required to sound an alarm and what method is to be used to alert staff and occupants when the emergency voice/communication system is permitted to not sound an alarm.

Fire Alarm

- **907.5.2.2 Emergency voice/alarm communication systems.**
- **…**
- In high-rise buildings *and Group I-2 occupancies having occupied floors located more than 75 feet above the lowest level of fire department vehicle access*, the system shall operate on a minimum of the alarming floor, the floor above and the floor below. Speakers shall be provided throughout the building by paging zones. At a minimum, paging zones shall be provided as follows:
    1. Elevator groups.
    2. Interior exit stairways.
    3. Each floor.
    4. Areas of refuge as defined in Chapter 2.

Fire Alarm

- **907.5.2.2 Emergency voice/alarm communication systems.**

- ~~**Exception:** In Group I-2, *I-2.1 and R-2.1* occupancies, the alarm shall sound in a constantly attended area and a general occupant notification shall be broadcast over the overhead page.~~

- **Exception:** In Group I-2 *and I-2.1* occupancies, *where in accordance with Section 907.5.2.5, audible fire alarm notification devices are not provided, upon receipt of an alarm at a constantly attended location, a general occupant notification shall be broadcast over the public-address system.*

Fire Alarm

- Audible Alarm
- *Audible appliances shall be used in nonpatient areas.*

- Visual Alarm
- *Visible appliances are allowed to be used in lieu of audible appliances in patient occupied areas.*

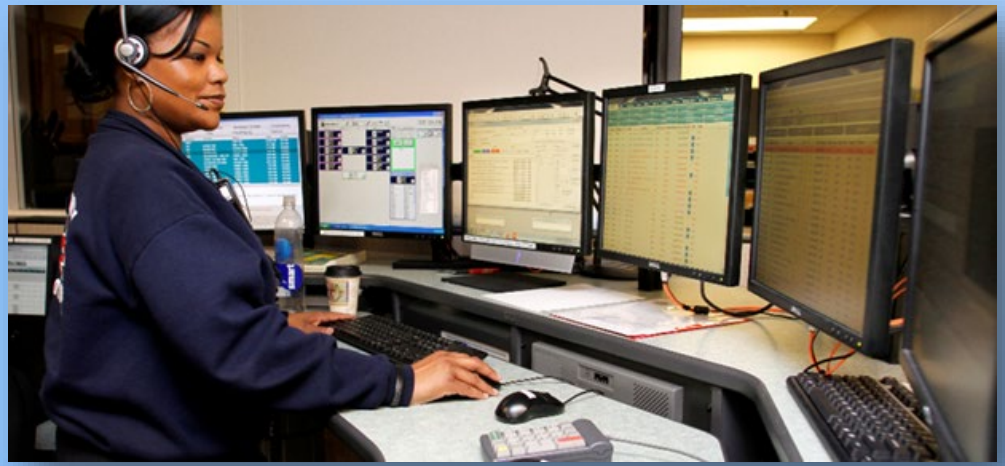
Section 907.5.2.5

Fire Alarm

- Just so there is no misunderstanding, Section 907.5.2 is amended to clearly indicate that when audible alarms are not provided in patient areas of Group I-2 and I-2.1 occupancies (not just those that are high rises or greater than 75 feet above the lowest level of fire department vehicle access) there must be another method provided for the notification of staff.

Fire Alarm

- ***907.5.2.5 Groups I-2 and I-2.1.*** *Audible appliances shall be used in nonpatient* areas. *Visible appliances are allowed to* be *used in lieu of audible appliances in patient occupied areas. Audible appliances located in patient areas shall be only chimes or similar sounding appliances for alerting staff.*
- *Where audible fire alarm notification devices are not provided, upon receipt of an alarm at a constantly attended location, a general occupant notification shall be broadcast over the public-address system.*



Connecting the Dots

- The California Electrical Code, Section 517.32 (D) requires that hospital communications systems, when used for issuing instructions during emergency conditions, shall be connected to the life safety branch of the essential electrical system.

Smoke Barriers

- Section 909.5.3 is amended to indicate that openings in smoke barriers must be protected by automatic closing devices. This revision is consistent with IBC and IFC requirements.

- **909.5.3 Opening protection.** Openings in *smoke barriers* shall be protected by ~~*self-closing devices*~~ automatic closing devices actuated by the required controls for the mechanical smoke control system. Door openings shall be protected by *fire door assemblies* complying with Section 716.

- This requirement complicates the layout of smoke barrier walls. Doors other than cross corridor doors should be avoided. Previous editions of the code permitted such doors to be self-closing when a sign was added to the door.

Smoke Barriers

- An amendment to Section 909.5.3.1 coordinates provisions with identical requirements located in CBC Section 709.5.1. When swinging smoke barrier doors are installed across a corridor, they shall be opposite swinging.
- Why two identical provisions? One requirement originates in the Building Code and is not repeated in the Fire Code. One requirement originates in the Fire Code and is repeated in the Building Code.
- **909.5.3.1 Group I-2, *I-2.1, R-2.1,* and ambulatory care facilities.** In Group I-2, *I-2.1, R-2.1,* and *ambulatory care facilities,* where doors are installed across a *corridor,* the doors shall be automatic-closing by smoke detection in accordance with Section 716.2 .6 .~ §and shall have a vision panel with fire-protection-rated glazing materials in fire protection-rated frames, the area ·of which shall not exceed that tested. *In Group I-2, where swinging doors are installed across a corridor, such doors shall be opposite swinging pairs.*

Means of Egress

CHAPTER 10

Group I-2 & I-2.1 Number of Exits & Exit Access Doorways

- Exception 2 of Section 1006.2.1 is amended to clearly indicate that Section 407.4 includes special means of egress provisions regarding the number of exits and exit access doorways in Group I-2 and I-2.1 rooms and care suites. This coordinates requirements with Section 407.4 and NFPA 101, The Life Safety Code®.
- **1006.2.1 Egress based on occupant load and common path of egress travel distance.**
- **Exceptions:**

  2. *Rooms and* care suites in Group I-2 *and I-2.1* occupancies complying with Section 407.4.

Group I-2 & I-2.1 Number of Exits & Exit Access Doorways

- Footnote d of Table 1006.2.1 is amended to also indicate that Section 407.4 includes special means of egress provisions regarding the number of exits and exit access doorways in Group I-2 and I-2.1 rooms and care suites.

  d. For the travel distance limitations *and number of exit and exit access requirements for rooms and spaces* in Group I-2 *or I-2.1*, see Section 407.4.

Illumination of the Exit Discharge

- Getting closer to what we have come to expect:
- The IBC now includes illumination provisions specific to the exit discharge portion of the means of egress. In addition, new language also recognizes an allowance for the use of safe dispersal areas and the necessary illumination where such areas are provided.
- **1008.2.3 Exit discharge.** Illumination shall be provided along the path of travel for the exit discharge from each exit to the public way.

  Exception: Illumination shall not be required where the path of the exit discharge meets both of the following requirements:

  1. The path of exit discharge is illuminated from the exit to a safe dispersal area complying with Section 1028.5.

  2. A dispersal area shall be illuminated to a level not less than 1 foot candle (11 lux) at the walking surface.

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Illumination of the Exit Discharge

- Section 1008.1 already mandates illumination throughout the means of egress. Although the exit discharge is considered as a portion of the means of egress, the new provisions clearly specify that the required illumination must also be provided for the entire exit discharge path to the public way. There are conditions under which the exit discharge could be extensive and the use of a safe dispersal area would be an acceptable alternative.

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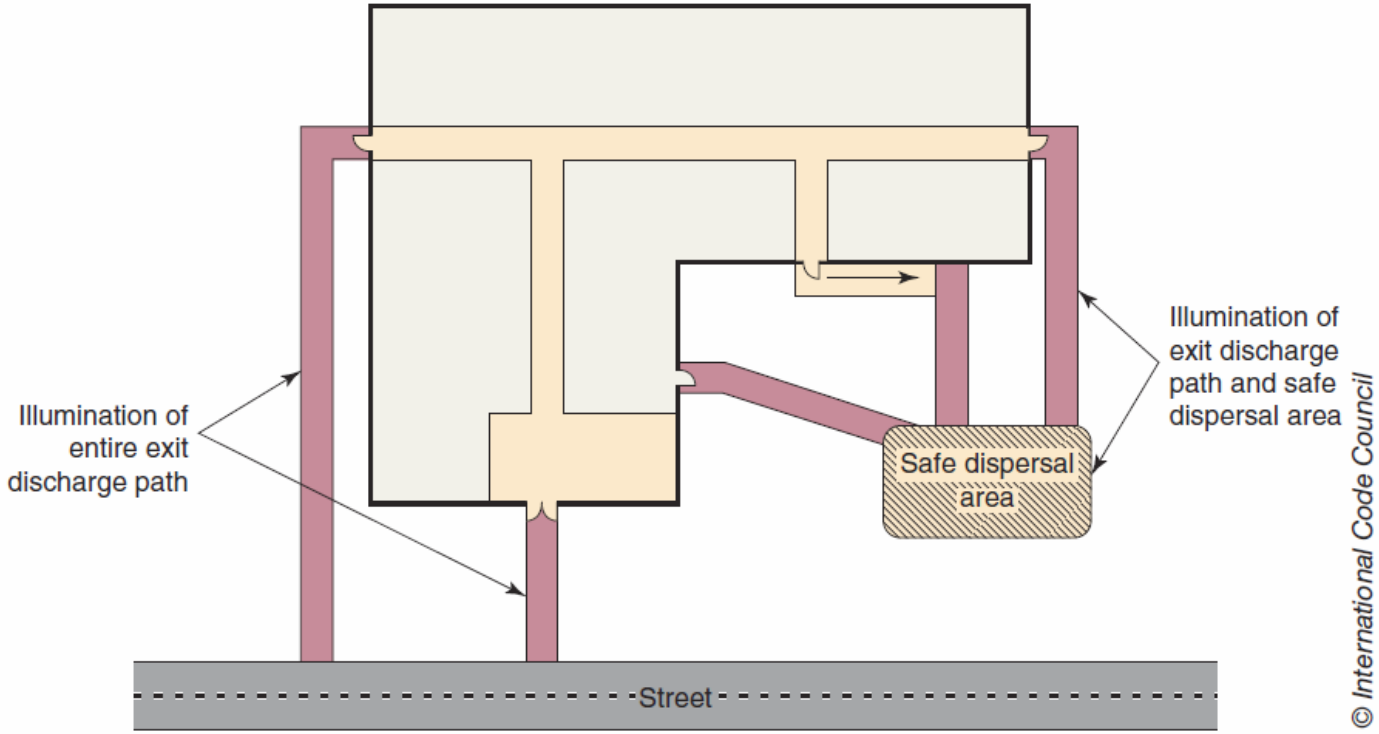
Illumination of the Exit Discharge



Exterior egress illumination

Illumination of the Exit Discharge

- Not quite there yet:
- IBC Section 1008.2.3 does not require that emergency illumination be provided for the exit discharge path or the safe dispersal area. The IBC requires exterior emergency illumination only at exterior landings at exit doors as stated in Section 1008.3.2.
- NFPA 101-2012, The Life Safety Code® requires emergency lighting for the exit discharge only for designated stairs, ramps, aisles, walkways, and escalators leading to a public way. Additional information in the NFPA 101 Annex further clarifies that emergency lighting provided outside the building should extend to either a public way or a distance away from the building that is considered safe; whichever is closest to the building being evacuated.

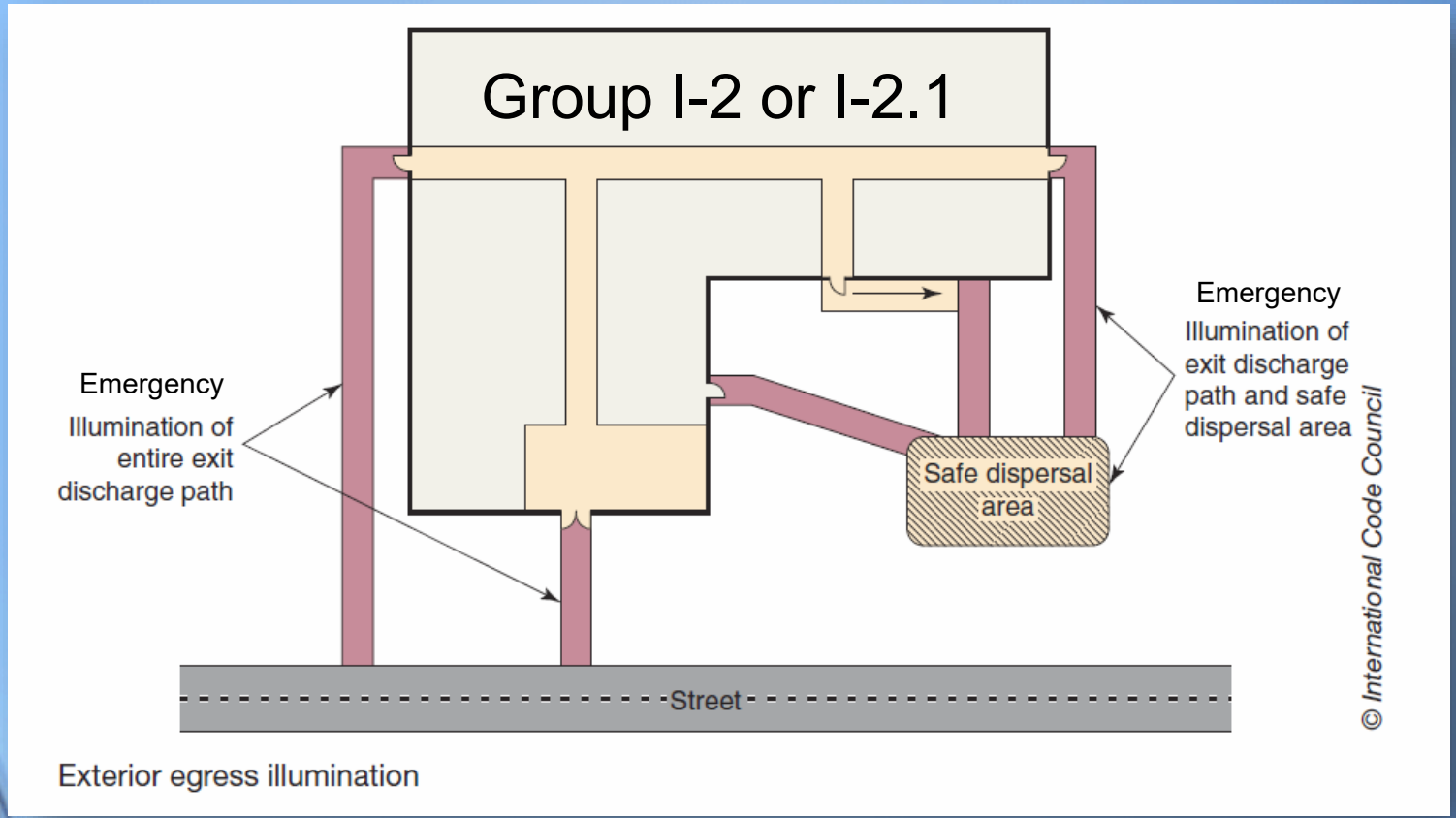
Illumination of the Exit Discharge

- The State Fire Marshal amends Section 1008.3.2 to require egress illumination of the exit discharge serving Group I-2 and I-2.1 occupancies and that such illumination shall be on emergency power. This is consistent with NFPA 101, The Life Safety Code®.

- **1008.3.2 Buildings.** In the event of power supply failure in buildings that require two or more *means of egress,* an emergency electrical system shall automatically illuminate all of the following areas:
- …
- *6. Group I-2 and I-2.1 exit discharge stairways. ramps, aisles, walkways and escalators leading to a public way or to a safe dispersal area in accordance with Section 1028.5.*

Illumination of Exit Discharge

- State Fire Marshal amendment requires emergency illumination of the exit discharge for Group I-2 and I-2.1 occupancies.



Illumination of Exit Discharge

- After a power failure, HID lamps such as Metal Halide and High Pressure Sodium may take too long to reestablish minimum lighting levels. A review should include confirmation that outdoor lighting fixtures used for emergency egress illumination are a type that do not require a *restrike time* that exceeds 10 seconds.

Group I-2 Emergency Illumination

- In Group I-2 occupancies, the required minimum illumination level of 0.2 footcandle must now be available upon failure of a single lamp in a multi-lamp lighting unit.
- **1008.3.5 Illumination level under emergency power.**

  …
- In Group I-2 occupancies, failure of a single lamp in a luminaire shall not reduce the illumination level to less than 0.2 foot-candle (2.2 lux).
- **1008.2.2 Group I-2.** In Group I-2 occupancies where two or more exits are required, on the exterior landings required by Section 1010.1.6, means of egress illumination levels for the exit discharge shall be provided such that failure of a single lamp in a luminaire shall not reduce the illumination level on that landing to less than 1 foot-candle (11 lux).

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Group I-2 Emergency Illumination

- In a Group I-2, the evaluation of an emergency lighting system must consider that one of the lamps has failed, rather than both lamps in a luminaire with two lamps.

Emergency lighting unit

Size of Doors

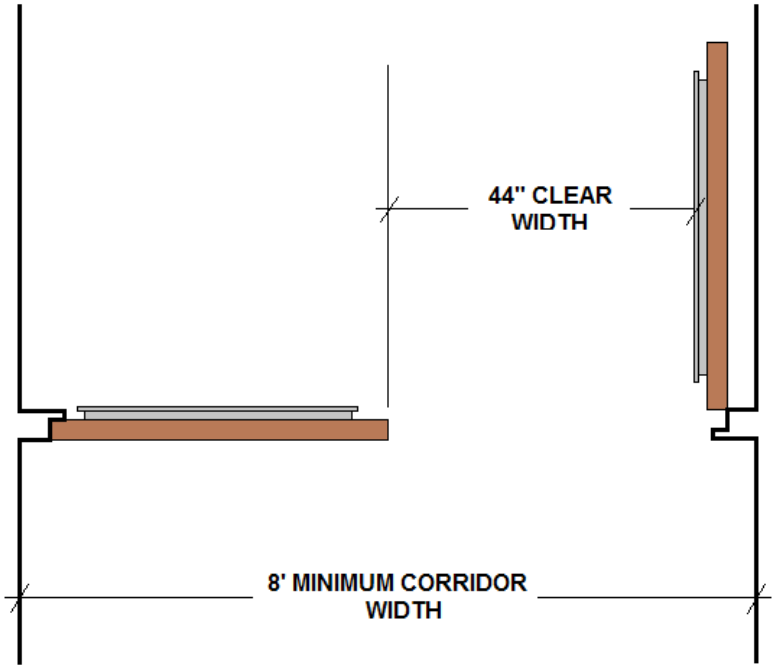
- A State Fire Marshal amendment to Sec. 1010.1.1.1, reinstates exception 2 which was accidentally omitted from the 2016 CBC. (Exception 2 *was* included in the 2016 CFC). The exception prohibits any projections into the clear width of Group I-2 or I-2.1 door openings used for the movement of beds and stretchers.
- **1010.1.1.1 Projections into clear width.** There shall not be projections into the required clear opening width lower than 34 inches (864 mm) above the floor or ground. Projections into the clear opening width between 34 inches (864 mm) and 80 inches (2032 mm) above the floor or ground shall not exceed 4 inches (102 mm).

  Exceptions:

  …

  2. In a Group I-2 or I-2.1 occupancy, there shall be no projections into the clear width of doors used for the movement of beds and stretcher patients in the means *of egress.*

Size of Doors



CBC (CFC) 1010.1.1.1, Exception 2

Corridor Construction

- A State Fire Marshal amendment coordinates references to revised sections in CBC Section 407. There are no changes to requirements. However, if you never noticed before, those things within suites that look like corridors are considered to be corridors but they need not be fire rated.
- **1020 CORRIDORS**
- **1020.1 Construction.** *Corridors* shall be fire-resistance rated in accordance with Table 1020.1. The *corridor* walls required to be fire-resistance rated shall comply with Section 708 for *fire partitions.*
- *…*
- *6. A fire-resistance rating is not required for corridors within suites in a Group I-2 or I-2.1 constructed in accordance with Section 407.4.4 or 407.4.5.*

Corridor Construction

Nonrated corridor within a suite

Stairway & Passageway Penetrations

- **1023 INTERIOR EXIT STAIRWAYS AND RAMPS**
- **1023.5 Penetrations.** Penetrations into or through interior exit stairways and ramps are prohibited except for the following:

  1. Equipment and ductwork necessary for independent ventilation or pressurization.
  2. ~~sprinkler piping, standpipes~~ Fire protection systems.
  3. Security systems.
  4. Two-way communication systems.
  5. Electrical raceway for fire department communication systems.
  6. Electrical raceway serving the interior exit stairway and ramp and terminating at a steel box not exceeding 16 square inches (0.010 m^2).

  ...

Stairway & Passageway Penetrations

- A State Fire Marshal amendment to Section 1024.6, Item 1, Penetrations in Exit Passageways, corrects what appears to be an error of omission. Permitted penetrations include equipment and ductwork for both ventilation and pressurization. This is consistent with identical provisions for interior exit stairways and ramps in Section 1023.5, Item 1.

Stairway & Passageway Penetrations

- **1024 EXIT PASSAGEWAYS**
- **1024.6 Penetrations.** Penetrations into or through an exit passageway are prohibited except for the following:

    1. Equipment and ductwork necessary for independent *ventilation* or pressurization.
    2. ~~sprinkler piping, standpipes~~ Fire protection systems.
    3. Security systems.
    4. Two-way communication systems.
    5. Electrical raceway for fire department communication systems.
    6. Electrical raceway serving the interior exit stairway and ramp and terminating at a steel box not exceeding 16 square inches (0.010 m²).

    …

Stairway & Passageway Penetrations

- Building security systems, including cameras, pose a concern to the integrity of the fire-resistive enclosure due to the penetration of the enclosure walls. However, if properly protected, a limited number of penetrations for security systems should not result in an unacceptable level of safety. Such penetrations are now acceptable and sometimes be required.

OK:

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Stairway & Passageway Penetrations

- The specified penetrations now also include those related to two-way communication systems that are required in areas of refuge for accessibility purposes. The inclusion of these items now clearly allows for these systems to be provided in the exit enclosure to provide for safety and security of the building while still maintaining the integrity of the enclosure.

OK:

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Building Services, Special Devices, and Special Conditions

CHAPTERS 27 THROUGH 33

Elevators

- **Automatic sprinklers and elevator shunt trip.**
- The presence and operation of automatic sprinklers in elevator hoist-ways and equipment rooms is a major concern requiring complex interfaces with fire alarm systems that provide for the operation of elevator shutdown (shunt trip) prior to activation of fire sprinklers.
- The operation of automatic sprinklers located in elevator hoist-ways and equipment rooms and the function of elevator shutdown compromises the operation of elevators by fire fighters during emergency recall.
- This concern has resulted in the exemption of sprinkler requirements for hoist-ways and equipment rooms associated with high rise fire service access elevators and occupant evacuation elevators.

Elevators

- **Protecting elevators without automatic sprinklers.**
- In buildings where automatic sprinkler protection would otherwise be required, CBC Sec. 903.3.1.1.1 permits the substitution of smoke detectors for automatic sprinklers in elevator hoist-ways and equipment rooms.
- The 2019 CBC does not extend this provision to Group I-2, I-2.1 or I-3 occupancies. There is however an effort to amend the 2019 CBC to include Group I occupancies.

Elevators

- *3005.4.1 Automatic sprinkler system. Automatic sprinklers shall not be required to be installed in the elevator hoist-way, elevator machine room, elevator machinery space, elevator control space, and elevator control room where all the following are met:*

  …

- *6. No materials unrelated to the elevator equipment are permitted to be stored in the elevator machine rooms, machinery spaces, control rooms, control spaces, or elevators hoist-ways. An approved sign shall be permanently displayed in the area where the installation of fire sprinklers was exempted per this section in a conspicuous location with a minimum of 1 1/2 inch letters on a contrasting background, stating:*

  NO COMBUSTIBLE STORAGE

  PERMITTED IN THIS ROOM

  By Order of the Fire Marshal [or name of fire authority]

Elevators

- The State Fire Marshal amendment to item 6 now acknowledges there may be some storage permitted when it is associated with the operation and maintenance of the elevator.

Permitted in control room

Referenced Standards

CHAPTER 35

Referenced Standards

- The State Fire Marshal requires a more current waterflow test when used as a basis for sprinkler system design.
- **NFPA 13-2016, Section 23.2.1.1*** Where a waterflow test is used for the purposes of system design, the test shall be conducted no more than ~~12~~ *6* months prior to working plan submittal unless otherwise approved by the authority having jurisdiction.
- **NFPA 13-2016, Section A.23.2.1.1** advises that alternative means of determining available water supplies should be considered where drought or other concerns are present.

Referenced Standards

- The State Fire Marshal prohibits the use of a positive alarm sequence feature for patient room smoke detectors.
- What is a positive alarm sequence feature?
- A positive alarm sequence feature permits acknowledging and silencing an alarm within 15 seconds and further delaying or resetting the alarm within an additional 3 minutes.

- **NFPA 72·2016, 23.8.1.2.1.1** The positive alarm sequence operation shall comply with the following:
- …

(7) Operation of a patient room smoke detector in Group I-2, and R-2.1 occupancies shall not include a positive alarm sequence feature.

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