CHAPTER 11
CONSTRUCTION REQUIREMENTS FOR EXISTING BUILDINGS

User note:

About this chapter: Chapter 11 applies to existing buildings constructed prior to the adoption of the code and is intended to ensure a minimum degree of fire and life safety to persons occupying existing buildings by providing for alterations to such buildings that do not comply with the minimum requirements of the International Building Code®. The provisions address general fire safety features such as requirements for fire alarm systems in some existing buildings and general means of egress, and include a section dedicated to existing Group I-2 occupancies.

SECTION 1101
GENERAL

1101.1 Scope. The provisions of this chapter shall apply to existing buildings constructed prior to the adoption of this code. Unless specifically indicated in this chapter all work done on new and existing systems shall meet the requirements of the current adopted codes and standards.

1101.2 Intent. The intent of this chapter is to provide a minimum degree of fire and life safety to persons occupying existing buildings by providing minimum construction requirements where such existing buildings do not comply with the minimum requirements of the International Building Code.

1101.3 Permits. Permits shall be required as set forth in Sections 105.6 and 105.7 and the International Building Code.

1101.4 Owner notification. When a building is found to be in noncompliance with this chapter, the fire code official shall duly notify the owner of the building. Upon receipt of such notice, the owner shall, subject to the following time limits, take necessary actions to comply with the provisions of this chapter.

1101.4.1 Construction documents. Construction documents necessary to comply with this chapter shall be completed and submitted within a time schedule approved by the fire code official.

1101.4.2 Completion of work. Work necessary to comply with this chapter shall be completed within a time schedule approved by the fire code official.

1101.4.3 Extension of time. The fire code official is authorized to grant necessary extensions of time when it can be shown that the specified time periods are not physically practical or pose an undue hardship. The granting of an extension of time for compliance shall be based on the showing of good cause and subject to the filing of an acceptable systematic plan of correction with the fire code official.

SECTION 1102
DEFINITION

1102.1 Definition. The following term is defined in Chapter 2:
EXISTING.

SECTION 1103
FIRE SAFETY REQUIREMENTS FOR EXISTING BUILDINGS

1103.1 Required construction. Existing buildings shall comply with not less than the minimum provisions specified in Table 1103.1 and as further enumerated in Sections 1103.2 through 1103.9.

The provisions of this chapter shall not be construed to allow the elimination of fire protection systems or a reduction in the level of fire safety provided in buildings constructed in accordance with previously adopted codes.

A modification that increases the area protected by a fire protection system by 50 percent, or a fire alarm control panel replacement shall be considered a new installation. When the fire alarm control panel is replaced the entire fire alarm system shall be brought to the current performance and installation standards in accordance with Section 907.5. When fees for modifications exceed the fees for new systems, fees for new systems shall apply.

Exception: Group U occupancies.

TABLE 1103.1
OCCUPANCY AND USE REQUIREMENTS

<table>
<thead>
<tr>
<th>SECTION</th>
<th>USE</th>
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1103.1.1 Historic buildings. Facilities designated as historic buildings shall develop a fire protection plan in accordance with NFPA 914. The fire protection plans shall comply with the maintenance and availability provisions in Sections 404.3 and 404.4. When the fire alarm control panel is replaced the entire fire alarm system shall be brought to the current performance and installation standards in accordance with section 907.5.

1103.2 Emergency responder radio coverage in existing buildings. Existing buildings that do not have approved radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communication systems of the jurisdiction at the exterior of the building, shall be equipped with such coverage according to one of the following:

1. Where an existing wired communication system cannot be repaired or is being replaced, or where not approved in accordance with Section 510.1, Exception 1.

2. Within a time frame established by the adopting authority.

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

1103.3 Existing elevators. Existing elevators, escalators and moving walks shall comply with the requirements of Sections 1103.3.1 and 1103.3.2.
1103.3.1 Elevators, escalators and moving walks. Existing elevators, escalators and moving walks in Group I-2 Condition 2 occupancies shall comply with ASME A17.3. Elevator operation.

1103.3.2 Elevator emergency operation. Existing elevators with a travel distance of 25 feet (7620 mm) or more above or below the main floor or other level of a building and intended to serve the needs of emergency personnel for fire-fighting or rescue purposes shall be provided with emergency operation in accordance with ASME A17.3.

Exceptions:

1. Buildings without occupied floors located more than 55 feet (16 764 mm) above or 25 feet (7620 mm) below the lowest level of fire department vehicle access where protected at the elevator shaft openings with additional fire doors in accordance with Section 716.5 of the International Building Code and where all of the following conditions are met:
   1.1. The doors shall be provided with vision panels of approved fire protection-rated glazing so located as to furnish clear vision of the approach to the elevator. Such glazing shall not exceed 100 square inches (0.665 m²) in area.
   1.2. The doors shall be held open but be automatic-closing by activation of a fire alarm initiating device installed in accordance with the requirements of NFPA 72 as for Phase I Emergency Recall Operation, and shall be located at each floor served by the elevator; in the associated elevator machine room, control space, or control room; and in the elevator hoistway, where sprinklers are located in those hoistways.
   1.3. The doors, when closed, shall have signs visible from the approach area stating: WHEN THESE DOORS ARE CLOSED OR IN FIRE EMERGENCY, DO NOT USE ELEVATOR. USE EXIT STAIRWAYS.
   2. Buildings without occupied floors located more than 55 feet (16 764 mm) above or 25 feet (7620 mm) below the lowest level of fire department vehicle access where provided with automatic sprinkler systems installed in accordance with Section 903.3.1.1 or 903.3.1.2.
   3. Freight elevators in buildings provided with both automatic sprinkler systems installed in accordance with Section 903.3.1.1 or 903.3.1.2 and not less than one ASME 17.3-compliant elevator serving the same floors.

Elimination of previously installed Phase I emergency recall or Phase II emergency in-car systems shall not be permitted.

1103.3.2.1 Elevator emergency exit. Elevator cars with a total travel distance of 75 feet (22 860 mm) or more shall include a locked emergency exit that can be opened from outside the car. The key or combination to the lock shall be kept in the Fire Command Center.

1103.3.2.2 Emergency door release. Elevator doors shall provide a hoistway access escutcheon hole (drop-key hole) on the outside for emergency release. The key shall be kept in the Fire Command Center, or an approved location.

1103.4 Vertical openings. Interior vertical openings, including but not limited to stairways, elevator hoistways, service and utility shafts, that connect two or more stories of a building, shall be enclosed or protected as specified in Sections 1103.4.1 through 1103.4.10. Modification to existing smoke control system shall be in accordance with Sections 901.6.2.1 and 901.6.2.2.

1103.4.1 Group I-2 and I-3 occupancies. In Group I-2 and I-3 occupancies, interior vertical openings connecting two or more stories shall be protected with 1-hour fire-resistant construction.

Exceptions:

1. In Group I-2, unenclosed vertical openings not exceeding two connected stories and not concealed within the building construction shall be permitted as follows:
   1.1. The unenclosed vertical openings shall be separated from other unenclosed vertical openings serving other floors by a smoke barrier.
   1.2. The unenclosed vertical openings shall be separated from corridors by smoke partitions.
   1.3. The unenclosed vertical openings shall be separated from other fire or smoke compartments on the same floors by a smoke barrier.
   1.4. On other than the lowest level, the unenclosed vertical openings shall not serve as a required means of egress.

2. In Group I-2, atriums connecting three or more stories shall not require 1-hour fire-resistant construction where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3, and all of the following conditions are met:
   2.1. For other than existing approved atriums with a smoke control system, where the atrium was constructed and is maintained in accordance with the code in effect at the time the atrium was created, the atrium shall have a smoke control system that is in compliance with Section 909. Modification to existing smoke control system shall be in accordance with Sections 901.6.2.1 and 901.6.2.2.
   2.2. Glass walls forming a smoke partition or a glass-block wall assembly shall be permitted when in compliance with Condition 2.2.1 or 2.2.2.
      2.2.1. Glass walls forming a smoke partition shall be permitted where all of the following conditions are met:
         2.2.1.1. Automatic sprinklers are provided along both sides of the separation wall and doors, or on the room side only if there is not
a walkway or occupied space on the atrium side.

2.2.1.2. The sprinklers shall be not more than 12 inches (305 mm) away from the face of the glass and at intervals along the glass of not greater than 72 inches (1829 mm).

2.2.1.3. Windows in the glass wall shall be non-operating type.

2.2.1.4. The glass wall and windows shall be installed in a gasketed frame in a manner that the framing system deflection without breaking (loading) the glass before the sprinkler system operates.

2.2.1.5. The sprinkler system shall be designed so that the entire surface of the glass is wet upon activation of the sprinkler system with-out obstruction.

2.2.2. A fire barrier is not required where a glass-block wall assembly complying with Section 2110 of the International Building Code and having a 3/4-hour fire protection rating is provided.

2.3. Where doors are provided in the glass wall, they shall be either self-closing or automatic-closing and shall be constructed to resist the passage of smoke.

3. In Group I-3 occupancies, exit stairways or ramps and exit access stairways or ramps constructed in accordance with Section 408 in the International Building Code.

1103.4.2 Three to five stories. In other than Group I-2 and I-3 occupancies, interior vertical openings connecting three to five stories shall be protected by either 1-hour fire-resistance-rated construction or an automatic sprinkler system shall be installed throughout the building in accordance with Section 903.3.1.1 or 903.3.1.2.

Exceptions:

1. Vertical opening protection is not required for Group R-3 occupancies.

2. Vertical opening protection is not required for open parking garages.

3. Vertical opening protection for escalators shall be in accordance with Section 1103.4.5, 1103.4.6 or 1103.4.7.

4. Exit access stairways and ramps shall be in accordance with Section 1103.4.8.

1103.4.4 Atriums and covered malls. In other than Group I-2 and I-3 occupancies, interior vertical openings in a covered mall building or a building with an atrium shall be protected by either 1-hour fire-resistance-rated construction or an automatic sprinkler system shall be installed throughout the building in accordance with Section 903.3.1.1 or 903.3.1.2.

Exceptions:

1. Vertical opening protection is not required for Group R-3 occupancies.

2. Vertical opening protection is not required for open parking garages.

1103.4.5 Escalators in Group B and M occupancies. In Group B and M occupancies escalators creating vertical openings connecting any number of stories shall be protected by either 1-hour fire-resistance-rated construction or an automatic sprinkler system in accordance with Section 903.3.1.1 installed throughout the building, with a draft curtain and closely spaced sprinklers around the escalator opening.

1103.4.6 Escalators connecting four or fewer stories. In other than Group B and M occupancies, escalators creating vertical openings connecting four or fewer stories shall be protected by either 1-hour fire-resistance-rated construction or an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 shall be installed throughout the building, and a draft curtain with closely spaced sprinklers shall be installed around the escalator opening.

1103.4.7 Escalators connecting more than four stories. In other than Group B and M occupancies, escalators creating vertical openings connecting five or more stories shall be protected by 1-hour fire-resistance-rated construction.

1103.4.8 Occupancies other than Group I-2 and I-3. In other than Group I-2 and I-3 occupancies, floor openings containing exit access stairways or ramps that do not comply with one of the conditions listed in this Section shall be protected by 1-hour fire-resistance-rated construction.

1. Exit access stairways and ramps that serve, or atmospherically communicate between, only two stories. Such interconnected stories shall not be open to other stories.

2. In Group R-1, R-2 or R-3 occupancies, exit access stairways and ramps connecting four stories or less serving and contained within an individual dwelling unit or sleeping unit or live/work unit.

3. Exit access stairways and ramps in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, where the area of the
vertical opening between stories does not exceed twice the horizontal projected area of the stairway or ramp, and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.

4. Exit access stairways and ramps within an atrium complying with the provisions of Section 404 of the International Building Code.

5. Exit access stairways and ramps in open parking garages that serve only the parking garage.

6. Exit access stairways and ramps serving open-air seating complying with the exit access travel distance requirements of Section 1029.7 of the International Building Code.

7. Exit access stairways and ramps serving the balcony, gallery or press box and the main assembly floor in occupancies such as theaters, places of religious worship, auditoriums and sports facilities.

1103.4.9 Waste and linen chutes. In Group I-2 occupancies, existing waste and linen chutes shall comply with Sections 1103.4.9.1 through 1103.4.9.5.

1103.4.9.1 Enclosure. Chutes shall be enclosed with 1-hour fire-resistance-rated construction. Opening protectives shall be in accordance with Section 716 of the International Building Code and have a fire protection rating of not less than 1 hour.

1103.4.9.2 Chute intakes. Chute intakes shall comply with Section 1103.4.9.2.1 or 1103.4.9.2.2.

1103.4.9.2.1 Chute intake direct from corridor. Where intake to chutes is direct from a corridor, the intake opening shall be equipped with a chute-intake door in accordance with Section 716 of the International Building Code and having a fire protection rating of not less than 1 hour.

1103.4.9.2.2 Chute intake via a chute-intake room. Where the intake to chutes is accessed through a chute-intake room, the room shall be enclosed with 1-hour fire-resistance-rated construction. Opening protectives for the intake room shall be in accordance with Section 716 of the International Building Code and have a fire protection rating of not less than 3/4 hour. Opening protective for the chute enclosure shall be in accordance with Section 1103.4.9.1.

1103.4.9.3 Automatic sprinkler system. Chutes shall be equipped with an approved automatic sprinkler system in accordance with Section 903.2.11.2.

1103.4.9.4 Chute discharge rooms. Chutes shall terminate in a dedicated chute discharge room. Such rooms shall be separated from the remainder of the building by not less than 1-hour fire-resistance-rated construction. Opening protectives shall be in accordance with Section 716 of the International Building Code and have a fire protection rating of not less than 1 hour.

1103.4.9.5 Chute discharge protection. Chute discharges shall be equipped with a self-closing or automatic-closing opening protective in accordance with Section 716 of the International Building Code and having a fire protection rating of not less than 1 hour.

1103.4.10 Flue-fed incinerators. Existing flue-fed incinerator rooms and associated flue shafts shall be protected with 1-hour fire-resistance-rated construction and shall not have other vertical openings connected with the space other than the associated flue. Opening protectives shall be in accordance with Section 716 of the International Building Code and have a fire protection rating of not less than 1 hour.

1103.5 Sprinkler systems. An automatic sprinkler system shall be provided in existing buildings in accordance with Sections 1103.5.1 through 1103.5.5.4

◆ 1103.5.1 Group A-2. Where alcoholic beverages are consumed in a Group A-2 occupancy having an occupant load of 300 or more, the fire area containing the Group A-2 occupancy shall be equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.

1103.5.2 Group I-2. In Group I-2, an automatic sprinkler system shall be provided in accordance with Section 1105.9.

1103.5.3 Group I-2 Condition 2. In addition to the requirements of Section 1103.5.2, existing buildings of Group I-2 Condition 2 occupancy shall be equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1. The automatic sprinkler system shall be installed as established by the adopting ordinance.

1103.5.4 Pyroxylin plastics. An automatic sprinkler system shall be provided throughout existing buildings where cellulose nitrate film or pyroxylin plastics are manufactured, stored or handled in quantities exceeding 100 pounds (45 kg). Vaults located within buildings for the storage of raw pyroxylin shall be protected with an approved automatic sprinkler system capable of discharging 1.66 gallons per minute per square foot (68 L/min/m²) over the area of the vault.

1103.5.5 Bret Tarver Sprinkler Ordinance. An approved automatic sprinkler system shall be installed throughout all levels of all new Group A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies of any size and throughout all Group R-3 occupancies including one-and two-family dwellings built under the International Residential Code, and Group U occupancies of more than 5,000 square feet.

The calculated area of Group R-3 occupancies shall include all livable space and the area of any attached garage and carports or areas located under living spaces.

Automatic sprinkler systems shall be installed in accordance with NFPA 13 for Group A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies. Automatic sprinkler systems shall be installed in accordance with NFPA 13R for residential occupancies up to and including four stories in height, in Groups R-1, R-2, R-4 occupancies and NFPA 13D for one and two family dwellings and mobile homes in Group R-3 and R-4 occupancies with six to ten licensed beds. Exceptions to or reductions in code requirements are not allowed for the installation of residential sprinkler systems installed in accordance with NFPA 13R and NFPA 13D unless specifically allowed by the International Building Code. Exceptions to or reductions in code requirements for...
NFPA 13 systems allowed in the *International Building Code* are allowed.

**Exceptions:**

1. Detached gazebos, temporary tents and ramadas for residential and public use.
2. Independent building of any construction or occupancy, other than Group E or H, of 700 square feet (65 m²) or less.
3. Detached noncombustible carports or parking canopies regardless of size, and detached noncombustible canopies used exclusively for automotive motor fuel dispensing station not exceeding 5,000 square feet (464 m²).
4. Factory-built buildings utilized as temporary office buildings similar to real estate leasing offices and construction offices.
5. Playground equipment, carwashes and small canopies for shade that are less than 5,000 square feet (464 m²) in area, and constructed of limited or noncombustible material and are more than 5 feet (1524 mm) from the nearest structure.

1103.5.5.1 Retrofit. Existing buildings are required to comply with the provisions of Sections 903.1.2 to 903.1.7.

1103.5.5.2 Retrofit in Group R-3 occupancies. One or more additions within any 3-year period are made to a Group R3 occupancy and comply with the following:

1. The aggregate of the additions exceeds 50 percent of the square footage of the house as of June 17, 2002.
2. The new total area of the building is greater than 5,000 square feet (464 m²).

The calculated area of Group R-3 occupancies shall include all livable space and the area of any attached garage, carports, aircraft hangar or basement.

1103.5.5.3 Building additions. Building additions in existing occupancies other than Group R-3 shall be protected by an *automatic* fire sprinkler system when:

1. Building additions that equal 50 percent or more of the existing building floor area, or exceed 10,000 square feet (929 m²), whichever is less.
2. Two or more building permits related to increased square footage are issued over any three consecutive years where:

   2.1. The aggregate of the additions exceeds 50 percent of the square footage of the building as of June 17, 2002.
   2.2. The new total area of the building is greater than 10,000 square feet (929 m²).
3. Are required to be protected in accordance with the *City of Phoenix Building Code* or *City of Phoenix Residential Code*.

1103.5.5.4 Building remodels. An *automatic* fire sprinkler system shall be installed when 50 percent or more of the roof structure is replaced or repaired or when the removal of existing fire-rated assemblies results in an increase of the original basic *fire area*.

1103.5.5.5 Change of occupancy within hazard level 1. An *automatic* fire sprinkler system shall be installed when a building, regardless of the building area, undergoes a change of occupancy within hazard level 1.

1103.5.5.6 Change of occupancy over 2,500 square feet (232 m²). An *automatic* fire sprinkler system shall be installed in any building 2,500 square feet (232 m²) or greater that undergoes a change of occupancy.

1103.5.5.7 Change of occupancy under 2,500 square feet (232 m²). An *automatic* fire sprinkler system shall be installed in any building 2,500 square feet (232 m²) or less that undergoes a change of occupancy to a higher hazard level as defined by Table 903.1.7.

**Exceptions:** An *automatic* fire sprinkler system is not required when:

1. The occupancy is 1,500 square feet (139 m²) or less; and
2. There are openings entirely above the adjoining ground level totaling at least 20 square feet (1.85 m²) in each 50 linear feet (15 240 mm) or fraction thereof, or exterior wall in the story on at least one side. Openings shall have a minimum dimension of not less than 30 inches (762 mm). Such openings shall be accessible to the fire department from the exterior and shall not be obstructed in a manner that firefighting or rescue cannot be accomplished from the exterior; and
3. The occupancy is not classified as Group H.

**TABLE 1103.5.5.5 HAZARD LEVEL**

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<thead>
<tr>
<th>HAZARD LEVEL</th>
<th>1997 UBC OCCUPANCY TYPE</th>
<th>2018 IFC OCCUPANCY TYPE</th>
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</table>

1. Business, Ambulatory Care Facility
2. Provided for guidance of equivalent occupancy types

1103.5.6 Sprinkler systems—partially sprinklered buildings. When existing nonsprinklered buildings of mixed occupancy are required to install sprinklers based on a change of occupancy classification, sprinklers shall be installed throughout the fire area that includes the new occupancy. The fire-resistance rating of fire barriers or horizontal assemblies separating sprinklered and nonsprinklered fire areas shall be a minimum of 2 hours. Fire department connection signage shall be in accordance with Section 912.

**Exception:** Group R-1, R-2, R-4 occupancies and multistory buildings.

1103.5.6.1 Change of occupancy to Group B or M under the Building Department Adaptive Reuse Interpretation. When an occupancy undergoes a change of occupancy to a Group B or M from a Group B or M an automatic fire sprinkler system shall be installed.

**Exceptions:**
1. The fire area containing the occupancy has a total area of 5,000 square feet (464.515m²) or less and,
2. The fire areas are separated by a minimum 2-hour fire resistance rated assemblies and,
3. The occupancy does not store, handle or use hazardous materials over the exempt amount and,
4. Only one control area is allowed for the building.

### 1103.5.6.2 Changes in commodity hazard
Changes of commodity to a higher hazard classification or storage configuration that exceeds the capabilities of the existing sprinkler system design shall require the sprinkler system to be modified. The sprinkler system shall be modified to provide an approved design in accordance with NFPA 13, or other applicable design standard, for the commodity present in the building or area. In existing nonsprinklered buildings storage above the ordinary hazard class shall require automatic fire sprinkler installation throughout the building.

### 1103.5.7 Installation of quick-response sprinklers in existing light hazard occupancy sprinkler systems being modified
When existing occupancies and sprinkler systems are being remodeled or renovated, existing standard-response sprinklers shall be replaced with quick-response sprinklers as follows:

1. When any tenant improvement, system repair or replacement is made to an existing fire area, existing standard-response sprinklers shall be replaced with quick-response sprinklers; and
2. When an existing system with standard-response sprinklers is being modified, the standard response sprinklers shall be replaced with quick response sprinklers throughout the tenant space, floor or suite. When 50 percent of the floor sprinklers are replaced, all sprinklers on the entire floor shall be replaced with quick-response sprinklers.

### 1103.6 Standpipes
Existing structures shall be equipped with standpipes installed in accordance with Section 905 where required in Sections 1103.6.1 and 1103.6.2. The fire code official is authorized to approve the installation of manual standpipe systems to achieve compliance with this section where the responding fire department is capable of providing the required hose flow at the highest standpipe outlet.

#### 1103.6.1 Existing multiple-story buildings
Existing buildings with occupied floors located more than 50 feet (15 240 mm) above the lowest level of fire department access or more than 50 feet (15 240 mm) below the highest level of fire department access shall be equipped with standpipes.

#### 1103.6.2 Existing helistops and heliports
Existing buildings with a rooftop helistop or heliport located more than 30 feet (9144 mm) above the lowest level of fire department access to the roof level on which the helistop or heliport is located shall be equipped with standpipes in accordance with Section 2007.5.

#### 1103.6.3 Pressure reducing valve settings
When a new or replacement fire pump serving an automatic standpipe is installed, existing standpipes shall be designed in accordance with NFPA 14 and the following requirements.

1. Pressure reducing valves shall be set to provide a minimum 250 gpm at 100-170 psi when installed inside a structure.
2. Standpipe outlets on the roof shall be designed to provide a minimum 500 gpm at 100 psi for the first standpipe and up to a total of 1,000 gpm at 100 psi for all standpipe water supplies.

### 1103.7 Fire alarm systems
An approved fire alarm system shall be installed in existing buildings and structures in accordance with Sections 1103.7.1 through 1103.7.6 and provide occupant notification in accordance with Section 907.5 unless other requirements are provided by other sections of this code.

**Exception:** Occupancies with an existing, previously approved fire alarm system.

When an existing building is required to install a fire alarm an approved automatic fire detection system shall be installed in accordance with the provisions of this code and NFPA 72. Where automatic sprinkler protection is provided in accordance with Section 1103.1.1.1 or 1103.1.2.1 and connected to the building fire alarm system automatic heat detection required by this section shall not be required.

#### 1103.7.1.1 Fire alarm devices
When an existing building is required to install a fire alarm, devices, combinations of devices, appliances and equipment shall be approved. The automatic fire detectors shall be smoke detectors, except an approved alternative type of detector shall be installed in spaces such as boiler rooms where, during normal operation, products of combustion are present in sufficient quantity to actuate a smoke detector system based on a change of occupancy classification, use or retroactive requirements per the building or fire code, fire alarm devices shall be installed throughout the area.

#### 1103.7.1.1.1 Occupancy requirements
A fire alarm system shall be installed in accordance with Sections 1103.7.2 through 1103.8.1.

**Exception:** Occupancies with an existing, previously approved fire alarm system in compliance with 907.5.2.1.

#### 1103.7.1.2 Visible alarms in existing facilities
Visual fire alarm devices shall be installed in public and common areas of existing facilities in accordance with Sections 907.5.2.3 through 907.5.2.3.4.

#### 1103.7.1.3 Visual alarms in Group I-1 and Group R-I
Shall be in accordance with Section 1103.7.2 and 1103.7.5.2. (1103.7.6.1.)

#### 1103.7.1.4 Changes in occupancy
When a building undergoes a change in occupancy classification, the fire alarm system shall comply with the requirements of Section 907.2 for that occupancy.

#### 1103.7.1.5 Building renovations
Buildings undergoing renovations, alterations or modifications consisting of structural renovations including the addition, removal or relocation of walls and partitions, shall have visual alarm devices installed in any new public or common area created by the renovations.
1103.7.1.1.6 Fire alarm panel replacement. Visual alarm devices shall be installed in public and common areas, including elevator lobbies, restrooms, and corridors of building core areas when an existing fire alarm control panel is replaced.

1103.7.1.1.7 Presignal system. Presignal systems shall not be installed unless approved by the fire code official. Where a presignal system is installed, 24-hour personnel supervision shall be provided at a location approved by the fire department, in order that the alarm signal can be actuated in the event of fire or other emergency.

1103.7.1.1.8 Protected areas in buildings with partial fire alarm systems. A minimum of 2 hours in nonautomatic sprinkler-protected or 1 hour in automatic sprinkler-protected fire-resistance-rated fire barriers or horizontal assemblies shall separate the fire alarm protected and nonprotected areas.

1103.7.1.2 Audible alarms. Audible alarm notification appliances shall be provided and emit a distinctive sound that is not to be used for any purpose other than that of a fire alarm. Group A, B, E, F, H, I, M, R, S and U occupancies shall meet Public Mode Audible Requirements of NFPA 72.

Exceptions:
1. Visible alarm notification appliances shall be allowed in lieu of audible alarm notification appliances in critical care areas of Group I-2 occupancies.
2. Where provided, audible notification appliances located in each occupant evacuation elevator lobby in accordance with Section 3008.10.1 of the International Building Code shall be connected to a separate notification zone for manual paging only.
3. Group I occupancies shall be allowed to use Private Mode Audible Requirements of NFPA 72 when approved. Registered design professionals shall specify on plans and in construction documents the specific mode for each area of the occupancy. When the private mode is specified, the designer shall provide written documentation for the use of this mode.

1103.7.1.2.1 Average sound pressure. The audible alarm notification appliances shall provide and be maintained to provide a sound pressure level of 15 decibels (dB) above the average ambient sound level or 5 dB above the maximum sound level having a duration of at least 60 seconds, whichever is greater, in every occupiable space within the building.

1103.7.1.2.2 Maximum sound pressure. The maximum sound pressure level for audible alarm notification appliances shall be 110 dB at the minimum hearing distance from the audible appliance. Where the average ambient noise is greater than 95 dB, visible alarm notification appliances shall be provided in accordance with NFPA 72 and audible alarm notification appliances shall not be required.

Exception: Group I occupancies shall be allowed to use Private Mode Audible Requirements of NFPA 72, when approved.

1103.7.1.2.3 Zones. Each floor shall be zoned separately and a zone shall not exceed 22,500 square feet (2090 m²). The length of any zone shall not exceed 300 feet (91 440 mm) in any direction.

Exception: Automatic sprinkler system zones shall not exceed the area permitted by NFPA 13. See Section 903.4.1 for sprinkler alarm monitoring requirements.

1103.7.1.2.4 Zoning indicator panel (fire alarm annunciator panel). A zoning indicator panel and the associated controls shall be provided in an approved location. The visual zone indication shall lock in until the system is reset and shall not be canceled by the operation of an audible alarm silencing switch.

1103.7.1.2.5 Location. In buildings greater than one story or 22,500 square feet (2090 m²), the fire alarm panel or a fire alarm annunciator panel shall be installed in a location that is visible from the lobby or area adjacent to the primary fire department response entrance. It shall be permissible to locate the fire alarm panel in a room immediately adjacent to this lobby provided the door to this room is accessible to the fire department, visible from the lobby and is provided with a permanent, visible placard noting the location of the fire alarm control panel.

Exception: A zone indicator panel is not required for single-story buildings protected by a fire alarm system where the initiating devices consist of automatic sprinklers supplied by a single sprinkler system.

1103.7.1 Group E. A fire alarm system shall be installed in existing Group E occupancies in accordance with Section 907.2.3.

Exceptions:
1. A manual fire alarm system is not required in a building with a maximum area of 1,000 square feet (93 m²) that contains a single classroom and is located no closer than 50 feet (15 240 mm) from another building.
2. A manual fire alarm system is not required in Group E occupancies with an occupant load less than 50.

1103.7.2 Group I-1. An automatic fire alarm system shall be installed in existing Group I-1 residential care/assisted living facilities in accordance with Section 907.2.6.1.

Exception: Where each sleeping room has a means of egress door opening directly to an exterior egress balcony that leads directly to the exits in accordance with Section 1019, and the building is not more than three stories in height.

1103.7.3 Group I-2. In Group I-2, an automatic fire alarm system shall be installed in accordance with Section 1105.10.

1103.7.4 Group I-3. An automatic and manual fire alarm system shall be installed in existing Group I-3 occupancies in accordance with Section 907.2.6.3.
1103.7.5 Group R-1. A fire alarm system and smoke alarms shall be installed in existing Group R-1 occupancies in accordance with Sections 1103.7.5.1 through 1103.7.5.2.1.

1103.7.5.1 Group R-1 hotel and motel manual fire alarm system. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in existing Group R-1 hotels and motels more than three stories or with more than 20 sleeping units.

Exceptions:
1. Buildings less than two stories in height where all sleeping units, attics and crawl spaces are separated by 1-hour fire-resistance-rated construction and each sleeping unit has direct access to a public way, egress court or yard.
2. Manual fire alarm boxes are not required throughout the building when the following conditions are met:
   2.1. The building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2; and
   2.2. The notification appliances will activate upon sprinkler water flow; and
2.3. Not less than one manual fire alarm box is installed at an approved normally accessible location.

1103.7.5.1.1 Group R-1 hotel and motel automatic smoke detection system. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be installed in existing Group R-1 hotels and motels throughout all interior corridors serving sleeping rooms not equipped with an approved, supervised automatic sprinkler system installed in accordance with Section 903.

Exception: An automatic smoke detection system is not required in buildings that do not have interior corridors serving sleeping units and where each sleeping unit has a means of egress door opening directly to an exit or to an exterior exit access that leads directly to an exit.

1103.7.5.2 Group R-1 boarding and rooming houses manual fire alarm system. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in existing Group R-1 boarding and rooming houses.

Exception: Buildings less than two stories in height where single-station smoke alarms meeting or exceeding the requirements of Section 907.2.10.1 where all sleeping units, attics and crawl spaces are separated by 1-hour fire-resistance-rated construction and each sleeping unit has direct access to a public way, egress court or yard.

1103.7.5.2.1 Group R-1 boarding and rooming houses automatic smoke detection system. An automatic smoke detection system that activates the occupant notification system in accordance with Section 907.5 shall be installed in existing Group R-1 boarding and rooming houses throughout all interior corridors serving sleeping units not equipped with an approved, supervised sprinkler system installed in accordance with Section 903.

Exception: Buildings equipped with single-station smoke alarms meeting or exceeding the requirements of Section 907.2.11.1 and where the fire alarm system includes at least one manual fire alarm box per floor arranged to initiate the alarm.

1103.7.6 Group R-2. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in existing Group R-2 occupancies more than three stories in height or with more than 16 dwelling or sleeping units.

Exceptions:
1. Where each living unit is separated from other contiguous living units by fire barriers having a fire-resistance rating of not less than ¾ hour, and where each living unit has either its own independent exit or its own independent stairway or ramp discharging at grade.
2. A separate fire alarm system is not required in buildings that are equipped throughout with an approved supervised automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2 and having a local alarm to notify all occupants.
3. A fire alarm system is not required in buildings that do not have interior corridors serving dwelling units and are protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, provided that dwelling units either have a means of egress door opening directly to an exterior exit access that leads directly to the exits or are served by open ended corridors designed in accordance with Section 1027.6, Exception 3.
4. A fire alarm system is not required in buildings that do not have interior corridors serving dwelling units, do not exceed three stories in height and comply with both of the following:
   4.1. Each dwelling unit is separated from other contiguous dwelling units by fire barriers having a fire-resistance rating of not less than ¾ hour.
   4.2. Each dwelling unit is provided with hard-wired, interconnected smoke alarms as required for new construction in Section 907.2.10.

1103.8 Single and multiple-station smoke alarms. Single and multiple-station smoke alarms shall be installed in existing Group I-1 and R occupancies in accordance with Sections 1103.8.1 through 1103.8.3.

1103.8.1 Where required. Existing Group I-1 and R occupancies shall be provided with single-station smoke alarms in accordance with Section 907.2.10, interconnection and power sources shall be in accordance with Sections 1103.8.2 and 1103.8.3, respectively.

Exceptions:
1. Where the code that was in effect at the time of construction required smoke alarms and smoke alarms
complying with those requirements are already provided.
2. Where smoke alarms have been installed in occupancies and dwellings that were not required to have them at the time of construction, additional smoke alarms shall not be required provided that the existing smoke alarms comply with requirements that were in effect at the time of installation.
3. Where smoke detectors connected to a fire alarm system have been installed as a substitute for smoke alarms.

1103.8.2 Interconnection. Where more than one smoke alarm is required to be installed within an individual dwelling or sleeping unit, the smoke alarms shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms in the individual unit. Physical interconnection of smoke alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm. The alarm shall be clearly audible in all bedrooms over background noise levels with all intervening doors closed.

Exceptions:
1. Interconnection is not required in buildings that are not undergoing alterations, repairs or construction of any kind.
2. Smoke alarms in existing areas are not required to be interconnected where alterations or repairs do not result in the removal of interior wall or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available that could provide access for interconnection without the removal of interior finishes.

1103.8.3 Power source. Single-station smoke alarms shall receive their primary power from the building wiring provided that such wiring is served from a commercial source and shall be equipped with a battery backup. Smoke alarms with integral strobes that are not equipped with battery backup shall be connected to an emergency electrical system. Smoke alarms shall emit a signal when the batteries are low. Wiring shall be permanent and without a disconnecting switch other than as required for overcurrent protection.

Exceptions:
1. Smoke alarms are permitted to be solely battery operated in existing buildings where construction is not taking place.
2. Smoke alarms are permitted to be solely battery operated in buildings that are not served from a commercial power source.
3. Smoke alarms are permitted to be solely battery operated in existing areas of buildings undergoing alterations or repairs that do not result in the removal of interior walls or ceiling finishes exposing the structure, unless there is an attic, crawl space or basement available that could provide access for building wiring without the removal of interior finishes.

1103.9 Carbon monoxide alarms. Carbon monoxide alarms shall be installed in existing dwelling units and sleeping units where those units include any of the conditions identified in Sections 915.1.2 through 915.1.6. The carbon monoxide alarms shall be installed in the locations specified in Section 915.2 and the installation shall be in accordance with Section 915.4.

Exceptions:
1. Carbon monoxide alarms are permitted to be solely battery operated where the code that was in effect at the time of construction did not require carbon monoxide detectors to be provided.
2. Carbon monoxide alarms are permitted to be solely battery operated in dwelling units that are not served from a commercial power source.
3. A carbon monoxide detection system in accordance with Section 915.5 shall be an acceptable alternative to carbon monoxide alarms.

1103.10 Medical gases. Medical gases stored and transferred in health-care related facilities shall be in accordance with Chapter 53.

SECTION 1104
MEANS OF EGRESS FOR EXISTING BUILDINGS

1104.1 General. Means of egress in existing buildings shall comply with the minimum egress requirements where specified in Table 1104.25 as further enumerated in Sections 1104.2 through 1104.25, and the building code that applied at the time of construction. Where the provisions of this chapter conflict with the building code that applied at the time of construction, the most restrictive provision shall apply. Existing buildings that were not required to comply with a building code at the time of construction shall comply with the minimum egress requirements where specified in Table 1104.25 as further enumerated in Sections 1104.2 through 1104.25.

1104.2 Elevators, escalators and moving walks. Elevators, escalators and moving walks shall not be used as a component of a required means of egress.

Exceptions:
1. Elevators used as an accessible means of egress where allowed by Section 1009.4.
2. Previously approved elevators, escalators and moving walks in existing buildings.

1104.3 Exit sign illumination. Exit signs shall be internally or externally illuminated. The face of an exit sign illuminated from an external source shall have an intensity of not less than 5 footcandles (54 lux). Internally illuminated signs shall provide equivalent luminance and be listed for the purpose.

Exception: Approved self-luminous signs that provide evenly illuminated letters shall have a minimum luminance of 0.06 foot-lamberts (0.21 cd/m²).

1104.4 Power source. Where emergency illumination is required in Section 1104.5, exit signs shall be visible under emergency illumination conditions.

Exception: Approved signs that provide continuous illumination independent of external power sources are not required to be connected to an emergency electrical system.
1104.5 **Illumination emergency power.** Where means of egress illumination in provided, the power supply for means of egress illumination shall normally be provided by the premises’ electrical supply. In the event of power supply failure, illumination shall be automatically provided from an emergency system for the following occupancies where such occupancies require two or more means of egress:

1. **Group A** having 50 or more occupants.
   
   **Exception:** Assembly occupancies used exclusively as a place of worship and having an occupant load of less than 300.

2. **Group B** buildings three or more stories in height, buildings with 100 or more occupants above or below a level of exit discharge serving the occupants or buildings with 1,000 or more total occupants.

3. **Group E** in interior, exit access and exit stairways and ramps, corridors, windowless areas with student occupancy, shops and laboratories.

4. **Group F** having more than 100 occupants.
   
   **Exception:** Buildings used only during daylight hours and that are provided with windows for natural light in accordance with the International Building Code.

5. **Group I.**

6. **Group M.**
   
   **Exception:** Buildings less than 3,000 square feet (279 m²) in gross sales area on one story only, excluding mezzanines.

7. **Group R-1.**
   
   **Exception:** Where each sleeping unit has direct access to the outside of the building at grade.

8. **Group R-2.**
   
   **Exception:** Where each dwelling unit or sleeping unit has direct access to the outside of the building at grade.

9. **Group R-4.**
   
   **Exception:** Where each sleeping unit has direct access to the outside of the building at ground level.

1104.5.1 **Emergency power duration and installation.** Emergency power for means of egress illumination shall be provided in accordance with Section 1203. In other than Group I-2, emergency power shall be provided for not less than 60 minutes for systems requiring emergency power. In Group I-2, the essential electrical system shall comply with Sections 1105.5.1 and 1105.5.2.

1104.6 **Guards.** Guards complying with this section shall be provided at the open sides of means of egress that are more than 30 inches (762 mm) above the floor or grade below.

1104.6.1 **Height of guards.** Guards shall form a protective barrier not less than 42 inches (1067 mm) high.

   **Exceptions:**

1. Existing guards on the open side of stairs shall be not less than 30 inches (760 mm) high.

2. Existing guards within dwelling units shall be not less than 36 inches (910 mm) high.

3. Existing guards in assembly seating areas.

1104.6.2 **Opening limitations.** Open guards shall have balusters or ornamental patterns such that a 6-inch-diameter (152 mm) sphere cannot pass through any opening up to a height of 34 inches (864 mm).

   **Exceptions:**

1. At elevated walking surfaces for access to, and use of, electrical, mechanical or plumbing systems or equipment, guards shall have balusters or be of solid materials such that a sphere with a diameter of 21 inches (533 mm) cannot pass through any opening.

2. In occupancies in Group I-3, F, H or S, the clear distance between intermediate rails measured at right angles to the rails shall not exceed 21 inches (533 mm).

3. **Approved existing open guards.**

1104.7 **Size of doors.** The required capacity of each door opening shall be sufficient for the occupant load thereof and shall provide a minimum clear opening width 28 inches (711 mm). Where this section requires a minimum clear opening width of 28 inches (711 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 28 inches (711 mm). The minimum clear opening height of doorways shall be 80 inches (2032 mm).

   **Exceptions:**

1. The minimum and maximum width shall not apply to door openings that are not part of the required means of egress in occupancies in Group R-2 and R-3 units that are not required to be an Accessible Type A unit or Type B unit.

2. Door openings to storage closets less than 10 square feet (0.93 m²) in area shall not be limited by the minimum clear opening width.

3. The width of door leaves in revolving doors that comply with Section 1010.1.4.1 shall not be limited.

4. The maximum width of door leaves in poweroperated doors that comply with Section 1010.1.4.2 shall not be limited.

5. Door openings within a dwelling unit shall have a minimum clear opening height of 78 inches (1981 mm).

6. In dwelling and sleeping units that are not required to be Accessible units, Type A units or Type B units, exterior door openings, other than the required exit door, shall have a minimum clear opening height of 76 inches (1930 mm).

7. **Exit access doors** serving a room not larger than 70 square feet (6.5 m²) shall have a minimum door leaf width of 24 inches (610 mm).

8. The minimum clear opening width shall not apply to doors for nonaccessible showers or sauna compartments.

9. The minimum clear opening width shall not apply to the doors for nonaccessible toilet stalls.

10. Door closers and door stops shall be permitted to be 78 inches (1980 mm) minimum above the floor.
1104.7.1 Group I-2. In Group I-2 occupancies, means of egress doors where used for the movement of beds shall provide a minimum clear opening width of 411/2 inches (1054 mm). Doors serving as means of egress doors and not used for movement of beds shall provide a minimum clear opening width of 32 inches (813 mm).

1104.7.2 Ambulatory care. In ambulatory care facilities, doors serving as means of egress from patient treatment rooms shall provide a minimum clear opening width of 32 inches (813 mm).

1104.7.3 Group R-3 and R-4. In Group R-3 or R-4 occupancies a key locking device on the main entrance door in state licensed facilities classified and designated as “directed care” shall be allowed when the following stipulations are complied with:

1. The facility’s State license states “Directed Care,” and
2. Each employee has a key on their person at all times they are in the facility that will open the door from the inside. Failure to maintain compliance with these requirements shall require immediate removal of the key locking device and replacement with an approved locking device that does not require a key or special knowledge to open the door from the inside.

1104.8 Opening force for doors. The opening force for interior side-swinging doors without closers shall not exceed a 5 pound (22 N) force. The opening forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position. For other side-swinging, sliding and folding doors, the door latch shall release when subjected to a force of not more than 15 pounds (66 N). The door shall be set in motion when subjected to a force not exceeding 30 pounds (133 N). The door shall swing to a full open position when subjected to a force of not more than 50 pounds (222 N). Forces shall be applied to the latch side.

1104.8 Opening force for doors. The opening force for interior side-swinging doors without closers shall not exceed a 5 pound (22 N) force. The opening forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position. For other side-swinging, sliding and folding doors, the door latch shall release when subjected to a force of not more than 15 pounds (66 N). The door shall be set in motion when subjected to a force not exceeding 30 pounds (133 N). The door shall swing to a full open position when subjected to a force of not more than 50 pounds (222 N). Forces shall be applied to the latch side.

1104.9 Revolving doors. Revolving doors shall comply with the following:

1. A revolving door is permitted to be used without an adjacent swinging door for street-floor elevator lobbies provided a stairway, escalator or door from other parts of the building does not discharge through the lobby and the lobby does not have any occupancy or use other than as a means of travel between elevators and a street.
2. Existing revolving doors where the number of revolving doors does not exceed the number of swinging doors within 20 feet (6096 mm).

<table>
<thead>
<tr>
<th>INSIDE DIAMETER (feet-inches)</th>
<th>POWER-DRIVEN-TYPE SPEED CONTROL (rpm)</th>
<th>MANUAL-TYPE SPEED CONTROL (rpm)</th>
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<tr>
<td>6-6</td>
<td>11</td>
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<tr>
<td>10-0</td>
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<td>8</td>
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</tbody>
</table>

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

1104.9.1 Egress component. A revolving door used as a component of a means of egress shall comply with Section 1104.9 and all of the following conditions:

1. Revolving doors shall not be given credit for more than 50 percent of the required egress capacity.
2. Each revolving door shall be credited with not more than a 50-person capacity.
3. Revolving doors shall be capable of being collapsed when a force of not more than 130 pounds (578 N) is applied within 3 inches (76 mm) of the outer edge of a wing.

1104.10 Stair dimensions for existing stairways. Existing stairways in buildings shall be permitted to remain if the rise does not exceed 8 1/4 inches (210 mm) and the run is not less than 9 inches (229 mm). Existing stairways can be rebuilt.

Exception: Other stairways approved by the fire code official.

1104.10.1 Dimensions for replacement stairways. The replacement of an existing stairway in a structure shall not be required to comply with the new stairway requirements of Section 1011 where the existing space and construction will not allow a reduction in pitch or slope.

1104.11 Winders. Existing winders shall be allowed to remain in use if they have a minimum tread depth of 6 inches (152 mm) and a minimum tread depth of 9 inches (229 mm) at a point 12 inches (305 mm) from the narrowest edge.

1104.12 Curved stairways. Existing curved stairways shall be allowed to continue in use, provided that the minimum depth of tread is 10 inches (254 mm) and the smallest radius shall be not less than twice the width of the stairway.
1104.13 **Stairway handrails.** Stairways shall have handrails on at least one side. Handrails shall be located so that all portions of the stairway width required for egress capacity are within 44 inches (1118 mm) of a handrail.  

**Exception:** Aisle stairs provided with a center handrail are not required to have additional handrails.

1104.13.1 **Height.** Handrail height, measured above stair tread nosings, shall be uniform, not less than 30 inches (762 mm) and not more than 42 inches (1067 mm).

1104.14 **Slope of ramps.** Ramp runs utilized as part of a means of egress shall have a running slope not steeper than one-unit vertical in 10 units horizontal (10-percent slope). The slope of other ramps shall not be steeper than one unit vertical in eight units horizontal (12.5-percent slope).

1104.15 **Width of ramps.** Existing ramps are permitted to have a minimum width of 30 inches (762 mm) but not less than the width required for the number of occupants served as determined by Section 1005.1. In Group I-2, ramps serving as a means of egress and used for the movement of patients in beds shall comply with Section 1105.6.3.

1104.16 **Fire escape stairways.** Fire escape stairways shall comply with Sections 1104.16.1 through 1104.16.7.

1104.16.1 **Existing means of egress.** Fire escape stairways shall be permitted in existing buildings but shall not constitute more than 50 percent of the required exit capacity.

1104.16.2 **Opening protectives.** Doors and windows within 10 feet (3048 mm) of fire escape stairways shall be protected with 3/4-hour opening protectives.

**Exception:** Opening protectives shall not be required in buildings equipped throughout with an approved automatic sprinkler system.

1104.16.3 **Dimensions.** Fire escape stairways shall meet the minimum width, capacity, riser height and tread depth as specified in Section 1104.10.

1104.16.4 **Access.** Access to a fire escape stairway from a corridor shall not be through an intervening room. Access to a fire escape stairway shall be from a door or window meeting the criteria of Section 1005.1. Access to a fire escape stairway shall be directly to a balcony, landing or platform. These shall be no higher than the floor or window sill level and no lower than 8 inches (203 mm) below the floor level or 18 inches (457 mm) below the window sill.

1104.16.5 **Materials and strength.** Components of fire escape stairways shall be constructed of noncombustible materials. Fire escape stairways and balconies shall support the dead load plus a live load of not less than 100 pounds per square foot (4.78 kN/m²). Fire escape stairs and balconies shall be provided with a top and intermediate handrail on each side.

1104.16.5.1 **Examination.** Fire escape stairways and balconies shall be examined for structural adequacy and safety in accordance with Section 1104.16.5 by a registered design professional or others acceptable to the fire code official every five years, or as required by the fire code official. An inspection report shall be submitted to the fire code official after such examination.

1104.16.6 **Termination.** The lowest balcony shall not be more than 18 feet (5486 mm) from the ground. Fire escape stairs shall extend to the ground or be provided with counterbalanced stairs reaching the ground.

**Exception:** For fire escape stairways serving 10 or fewer occupants, an approved fire escape ladder is allowed to serve as the termination.

1104.16.7 **Maintenance.** Fire escape stairways shall be kept clear and unobstructed at all times and shall be maintained in good working order.

1104.17 **Corridor construction.** Corridors serving an occupant load greater than 30 and the openings therein shall provide an effective barrier to resist the movement of smoke. Transoms, louver, doors and other openings shall be kept closed or be self closing. In Group I-2, corridors in areas housing patient sleeping or care rooms shall comply with Section 1105.5.

**Exceptions:**

1. **Corridors** in occupancies other than in Group H, that are equipped throughout with an approved automatic sprinkler.

2. **Corridors** in occupancies in Group E where each room utilized for instruction or assembly has not less than one half of the required means of egress doors opening directly to the exterior of the building at ground level.

3. **Corridors** that are in accordance with the International Building Code.

1104.17.1 **Corridor openings.** Openings in corridor walls shall comply with the requirements of the International Building Code.

**Exceptions:**

1. Where 20-minute fire door assemblies are required, solid wood doors not less than 1.75 inches (44 mm) thick or insulated steel doors are allowed.

2. Openings protected with fixed wire glass set in steel frames.

3. Openings covered with 0.5-inch (12.7 mm) gypsum wallboard or 0.75-inch (19.1 mm) plywood on the room side.

4. Opening protection is not required where the building is equipped throughout with an approved automatic sprinkler system.

1104.18 **Dead-ends.** Where more than one exit or exit access doorway is required, the exit access shall be arranged such that dead ends do not exceed the limits specified in Table 1104.18. In Group I-2, in smoke compartments containing patient sleeping rooms and treatment rooms, dead end corridors shall be in accordance with Section 1105.5.6.

**Exceptions:**

1. A dead-end corridor shall not be limited in length where the length of the dead-end corridor is less than 2.5 times the least width of the dead-end corridor.

2. In existing buildings, existing dead-end corridors shall be permitted to comply with lengths established in Section 805.6 of the International Existing Building Code. Any newly constructed dead-end corridors within an existing building shall be limited...
1104.19 Exit access travel distance. Exits shall be located so that the maximum length of exit access travel, measured from the most remote point to an approved exit along the natural and unobstructed path of egress travel, does not exceed the distances given in Table 1104.18.

1104.20 Common path of egress travel. The common path of egress travel shall not exceed the distances given in Table 1104.18.

1104.21 Stairway discharge identification. An interior exit stairway or ramp that continues below its level of exit discharge shall be arranged and marked to make the direction of egress to a public way readily identifiable.

Exception: Stairways that continue one-half story beyond their levels of exit discharge need not be provided with barriers where the exit discharge is obvious.

1104.22 Exterior stairway protection. Exterior exit stairways shall be separated from the interior of the building as required in Section 1027.6. Openings shall be limited to those necessary for egress from normally occupied spaces.

Exceptions:

1. Separation from the interior of the building is not required for buildings that are two stories or less above grade where the level of exit discharge serving such occupancies is the first story above grade.

2. Separation from the interior of the building is not required where the exterior stairway is served by an exterior balcony that connects two remote exterior stairways or other approved exits, with a perimeter that is not less than 50 percent open. To be considered open, the opening shall not less than 50 percent of the height of the enclosing wall, with the top of the opening not less than 7 feet (2134 mm) above the top of the balcony.

3. Separation from the interior of the building is not required for an exterior stairway located in a building or structure that is permitted to have unenclosed interior stairways in accordance with Section 1023.

4. Separation from the interior of the building is not required for exterior stairways connected to open ended corridors, provided that:

   4.1. The open-ended corridors comply with Section 1020.

   4.2. The open-ended corridors are connected on each end to an exterior stairway complying with Section 1027.

   4.3. At any location in an open-ended corridor where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3 m²) or an exterior stairway shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or toxic gases.

**TABLE 1104.18**

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<thead>
<tr>
<th>OCCUPANCY</th>
<th>COMMON PATH OF EGRESS TRAVEL LIMIT</th>
<th>DEAD-END LIMIT</th>
<th>EGRESS ACCESS TRAVEL DISTANCE LIMIT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unsprinklered (feet)</td>
<td>Sprinklered (feet)</td>
<td>Unsprinklered (feet)</td>
</tr>
<tr>
<td>Group A</td>
<td>20/75^a</td>
<td>20/75^a</td>
<td>20^a</td>
</tr>
<tr>
<td>Group B^f</td>
<td>75^f</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Group E</td>
<td>75</td>
<td>75</td>
<td>20</td>
</tr>
<tr>
<td>Group F-1, S-1^d,f</td>
<td>75^f</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Group F-2, S-2^d,f</td>
<td>75^f</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Group H-1</td>
<td>25</td>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td>Group H-2</td>
<td>50</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Group H-3</td>
<td>50</td>
<td>100</td>
<td>20</td>
</tr>
<tr>
<td>Group H-4</td>
<td>75</td>
<td>75</td>
<td>20</td>
</tr>
<tr>
<td>Group H-5</td>
<td>75</td>
<td>75</td>
<td>20</td>
</tr>
<tr>
<td>Group I-1</td>
<td>75</td>
<td>75</td>
<td>20</td>
</tr>
<tr>
<td>Group I-2 (Health care)</td>
<td>Notes d, e, f</td>
<td>Notes d, e, f</td>
<td>Note e</td>
</tr>
<tr>
<td>Group I-3</td>
<td>100</td>
<td>100</td>
<td>NR</td>
</tr>
</tbody>
</table>
### Table: Detention and correctional — Use Conditions II, III, IV, V

<table>
<thead>
<tr>
<th>Group</th>
<th>Minimum Clear Width (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-4 (Day care centers)</td>
<td>NR NR 20 20 200 250</td>
</tr>
<tr>
<td>M (Covered or open mall)</td>
<td>75 100 50 50 200 400</td>
</tr>
<tr>
<td>M (Mercantile)</td>
<td>75 100 50 50 200 250</td>
</tr>
<tr>
<td>R-1 (Hotels)</td>
<td>75 75 50 50 200 250</td>
</tr>
<tr>
<td>R-2 (Apartments)</td>
<td>75 125 50 50 200 250</td>
</tr>
<tr>
<td>R-3 (One and two-family)</td>
<td>NR NR NR NR NR NR</td>
</tr>
<tr>
<td>R-4 (Residential care/assisted living)</td>
<td>NR NR NR NR NR NR</td>
</tr>
<tr>
<td>U</td>
<td>75 100 20 50 300 400</td>
</tr>
</tbody>
</table>

NR = No Requirements.

For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m².

a. See Section 1029.9.5 for dead-end aisles in Group A occupancies.

b. This dimension is for the total travel distance, assuming incremental portions have fully utilized their allowable maximums. For travel distance within the room, and from the room exit access door to the exit, see the appropriate occupancy chapter.

c. See Section 412.7 of the International Building Code for special requirements on spacing of doors in aircraft hangars.

d. Separation of exit access doors within a care recipient sleeping room, or any suite that includes care recipient sleeping rooms, shall comply with Section 1105.5.6.

e. In smoke compartments containing care recipient sleeping rooms and treatment rooms, dead-end corridors shall comply with Section 1105.6.5.

f. In Group I-2, Condition 2, care recipient sleeping rooms or any suite that includes care recipient sleeping rooms shall comply with Section 1105.7.

g. Where the building, or portion of the building, is limited to one story and the height from the finished floor to the bottom of the ceiling or roof slab or deck is 24 feet or more, the exit access travel distance is increased to 400 feet.

h. Where a tenant space in Group B, S and U occupancies has an occupant load of not more than 30, the length of a common path of egress travel shall not be more than 100 feet.

i. For covered and open malls, the exit access travel distance is increased to 400 feet.

### 1104.23 Minimum aisle width

The minimum clear width of aisles shall comply with the following:

1. Forty-two inches (1067 mm) for stepped aisle having seating on each side.

   **Exception:** Thirty-six inches (914 mm) where the stepped aisle serves fewer than 50 seats.

2. Thirty-six inches (914 mm) for stepped aisles having seating on only one side.

   **Exceptions:**
   1. Thirty inches (760 mm) for catchment areas serving not more than 60 seats.
   2. Twenty-three inches (584 mm) between a stepped aisle handrail and seating when a stepped aisle does not serve more than five rows on one side.
   3. Twenty inches (508 mm) between a stepped aisle handrail or guard and seating where the aisle is subdivided by a mid-aisle handrail.
   4. Forty-two inches (1067 mm) for level or ramped aisles having seating on both sides.

5. Thirty-six inches (914 mm) for level or ramped aisles having seating on only one side.

   **Exception:** Thirty inches (760 mm) for catchment areas serving not more than 60 seats and not serving as part of an accessible route.

6. In Group I-2 where aisles are used for movement of patients in beds, aisles shall comply with Section 1105.6.7.

### 1104.24 Stairway floor number signs

Existing stairways shall be marked in accordance with Section 1023.9.

### 1104.25 Egress path markings

Existing high-rise buildings of Group A, B, E, I, M and R-1 occupancies shall be provided with luminous egress path markings in accordance with Section 1025. It shall be up to owners to install egress path markings. In the event of a power outage any liability for injury would fall upon the owner. All existing facilities shall have egress paths marked by January 1, 2023.

**Exception:** Open, unenclosed stairwells in historic buildings designated as historic under a state or local historic preservation program.

### SECTION 1105 CONSTRUCTION REQUIREMENTS FOR EXISTING GROUP I-2

### 1105.1 General

Existing Group I-2 shall meet all of the following requirements:
1. The minimum fire safety requirements in Section 1103.
2. The minimum mean of egress requirements in Section 1104.
3. The additional egress and construction requirements in Section 1105.

Where the provisions of this chapter conflict with the construction requirements that applied at the time of construction, the most restrictive provision shall apply.

### 1105.2 Applicability
The provisions of Sections 1105.3 through 1105.8, 1105.10 and 1105.11 shall apply to the existing Group I-2 fire area.

### 1105.3 Construction
Group I-2, Condition 2 shall not be located on a floor level higher than the floor level limitation in Table 1105.3 based on the type of construction.

#### TABLE 1105.2
FLOOR LEVEL LIMITATIONS FOR GROUP I-2 CONDITION 2

<table>
<thead>
<tr>
<th>CONSTRUCTION TYPE</th>
<th>AUTOMATIC SPRINKLER SYSTEM</th>
<th>ALLOWABLE FLOOR LEVEL*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>IA</td>
<td>Note b</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>Note c</td>
<td>P</td>
</tr>
<tr>
<td>IB</td>
<td>Note b</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>Note c</td>
<td>P</td>
</tr>
<tr>
<td>IIA</td>
<td>Note b</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>Note c</td>
<td>P</td>
</tr>
<tr>
<td>IIB</td>
<td>Note b</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>Note c</td>
<td>NP</td>
</tr>
<tr>
<td>IIIA</td>
<td>Note b</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>Note c</td>
<td>P</td>
</tr>
<tr>
<td>IIIB</td>
<td>Note b</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>Note c</td>
<td>NP</td>
</tr>
<tr>
<td>IV</td>
<td>Note b</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>Note c</td>
<td>NP</td>
</tr>
<tr>
<td>VA</td>
<td>Note b</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>Note c</td>
<td>NP</td>
</tr>
<tr>
<td>VB</td>
<td>Note b</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>Note c</td>
<td>NP</td>
</tr>
</tbody>
</table>

P = Permitted; NP = Not permitted.

- a. Floor level shall be counted based on the number of stories above grade.
- b. The building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
- c. The building is equipped with an automatic sprinkler system in accordance with Section 1105.8.

#### 1105.4 Incidental uses in existing Group I-2
Incidental uses associated with and located within existing single-occupancy or mixed-occupancy Group I-2 buildings and that generally pose a greater level of risk to such occupancies shall comply with the provisions of Sections 1105.4.1 through 1105.4.3.2.1. Incidental uses in Group I-2 occupancies are limited to those listed in Table 1105.4.

1105.4.1 Occupancy classification. Incidental uses shall not be individually classified in accordance with Section 302.1 of the International Building Code. Incidental uses shall be included in the building occupancies within which they are located.

1105.4.2 Area limitations. Incidental uses shall not occupy more than 10 percent of the building area of the story in which they are located.

1105.4.3 Separation and protection. The incidental uses listed in Table 1105.4 shall be separated from the remainder of the building or equipped with an automatic sprinkler system, or both, in accordance with the provisions of that table.

1105.4.3.1 Separation. Where Table 1105.4 specifies a fire-resistance-rated separation, the incidental uses shall be separated from the remainder of the building in accordance with Section 509.4.1 of the International Building Code.

1105.4.3.2 Protection. Where Table 1105.4 permits an automatic sprinkler system without a fire-resistance rated separation, the incidental uses shall be separated from the remainder of the building by construction capable of resisting the passage of smoke in accordance with Section 509.4.2 of the International Building Code.

1105.4.3.2.1 Protection limitation. Except as otherwise specified in Table 1105.4 for certain incidental uses, where an automatic sprinkler system is provided in accordance with Table 1105.4, only the space occupied by the incidental use need be equipped with such a system.
1105.5 Corridor construction. In Group I-2, in areas housing patient sleeping or care rooms, corridor walls and the opening protectives therein shall provide a barrier designed to resist the passage of smoke in accordance with Sections 1105.5.1 through 1105.5.7.

1105.5.1 Materials. The walls shall be of materials permitted by the building type of construction.

1105.5.2 Fire-resistance rating. Unless required elsewhere in this code, corridor walls are not required to have a fire-resistance rating. Corridor walls that were installed as fire-resistance-rated assemblies in accordance with the applicable codes under which the building was constructed, remodeled or altered shall be maintained unless modified in accordance with the International Existing Building Code.

### TABLE 1105.3
#### RESIDENTIAL USES IN EXISTING GROUP I-2 OCCUPANCIES

<table>
<thead>
<tr>
<th>ROOM OR AREA</th>
<th>SEPARATION AND/OR PROTECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furnace room where any piece of equipment is over 400,000 Btu per hour input</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>Refrigerant machinery room</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>Hydrogen fuel gas rooms, not classified as Group H</td>
<td>2 hours</td>
</tr>
<tr>
<td>Incinerator rooms</td>
<td>2 hours and provide automatic sprinkler system</td>
</tr>
<tr>
<td>Paint shops not classified as Group H</td>
<td>2 hours; or 1 hour and provide automatic sprinkler system</td>
</tr>
<tr>
<td>Laboratories and vocational shops, not classified as Group H</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>Laundry rooms over 100 square feet</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>Patient rooms equipped with padded surfaces</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>Physical plant maintenance shops</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>Waste and linen collection rooms with containers with total volume of 10 cubic feet or greater</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>Storage rooms greater than 100 square feet</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA, or more than 1,000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterruptable power supplies</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

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

1105.5.3 Corridor wall continuity. Corridor walls shall extend from the top of the foundation or floor below to one of the following:

1. The underside of the floor or roof sheathing, deck or slab above.
2. The underside of a ceiling above where the ceiling membrane is constructed to limit the passage of smoke.
3. The underside of a lay-in ceiling system where the ceiling system is constructed to limit the passage of smoke and where the ceiling tiles weigh not less than 1 pound per square foot (4.88 kg/m²) of tile.

1105.5.4 Openings in corridor walls. Openings in corridor walls shall provide protection in accordance with Sections 1105.5.4.1 through 1105.5.4.3.

1105.5.4.1 Windows. Windows in corridor walls shall be sealed to limit the passage of smoke, or the window shall be automatic-closing upon detection of smoke, or the window opening shall be protected by an automatic closing device that closes upon detection of smoke.

**Exception:** In smoke compartments not containing patient sleeping rooms, pass-through windows or similar openings shall be permitted in accordance with Section 1105.5.4.3.

1105.5.4.2 Doors. Doors in corridor walls shall comply with Sections 1105.5.4.2.1 through 1105.5.4.2.3.

1105.5.4.2.1 Louvers. Doors in corridor walls shall not include louvers, transfer grills or similar openings.

**Exception:** Doors shall be permitted to have louvers, transfer grills or similar openings at toilet rooms or bathrooms; storage rooms that do not contain storage of flammable or combustible material; and storage rooms that are not required to be separated as incidental uses.

1105.5.4.2.2 Corridor doors. Doors in corridor walls shall limit the transfer of smoke by complying with the following:

1. Doors shall be constructed of not less than 1 3/4 inch-thick (44 mm) solid bonded-core wood or capable of resisting fire not less than 1/2 hour.

**Exception:** Corridor doors in buildings equipped throughout with an automatic sprinkler system.

2. Frames for side-hinged swinging doors shall have stops on the sides and top to limit transfer of smoke.
3. Where provided, vision panels in doors shall be a fixed glass window assembly installed to limit the passage of smoke. Existing wired glass panels 4. Door undercuts shall not exceed 1 inch (25 mm).

5. Doors shall be positive latching with devices that resist not less than 5 pounds (22.2 N). Roller latches are prohibited.

6. Mail slots or similar openings shall be permitted in accordance with Section 1105.5.4.3.

1105.5.4.2.3 Dutch doors. Where provided, dutch doors shall comply with Section 1105.5.4.2.2. In addition, dutch doors shall be equipped with latching devices on either the top or bottom leaf to allow leaves to latch together. The space between the leaves shall be protected with devices such as astragals to limit the passage of smoke.

1105.5.4.2.4 Self or automatic-closing doors. Where self or automatic-closing doors are required, closers shall be maintained in operational condition.

1105.5.4.3 Openings in corridor walls and doors. In other than smoke compartments containing patient sleeping rooms, mail slots, pass-through windows or similar openings shall not be required to be protected where the aggregate area of the openings between the corridor and a room is not greater than 80 square inches (51613 mm²) and are located with the top edge of any opening not higher than 48 inches above the floor.

1105.5.5 Penetrations. The space around penetrating items shall be filled with an approved material to limit the passage of smoke.

1105.5.6 Joints. Joints shall be filled with an approved material to limit the passage of smoke.

1105.5.7 Ducts and air transfer openings. The space around a duct penetrating a smoke partition shall be filled with an approved material to limit the passage of smoke. Air transfer openings in smoke partitions shall be provided with a smoke damper complying with Section 717.3.2.2 of the International Building Code.

Exception: Where the installation of a smoke damper will interfere with the operation of a required smoke control system in accordance with Section 909, approved alternative protection shall be utilized.

1105.6 Means of egress. In addition to the means of egress requirements in Section 1104, Group I-2 facilities shall meet the means of egress requirements in Sections 1105.6.1 through 1105.6.7.

1105.6.1 Size of door. Means of egress doors used for the movement of patients in beds shall provide a minimum clear width of 411/2 inches (1054 mm). The height of the door opening shall be not less than 80 inches (2032 mm).

Exceptions:

1. Door closers and door stops shall be permitted to be 78 inches (1981 mm) minimum above the floor.

2. In Group I-2, Condition 1, existing means of egress doors used for the movement of patients in beds that provide a minimum clear width of 32 inches (813 mm) shall be permitted to remain.

1105.6.2 Group I-2 occupancies. In Group I-2, where a door serves as an opening protective in a fire barrier, smoke barrier or fire wall and where the door is equipped with a hold-open device, such door shall automatically close upon any of the following conditions:

1. Actuation of smoke detectors initiating the hold open device.

2. Activation of the fire alarm system within the zone.

3. Activation of an automatic sprinkler system within the zone.

1105.6.3 Ramps. In areas where ramps are used for movement of patients in beds, the clear width of the ramp shall be not less than 48 inches (1219 mm).

1105.6.4 Corridor width. In areas where corridors are used for movement of patients in beds, the clear width of the corridor shall be not less than 48 inches (1219 mm).

1105.6.5 Dead-end corridors. In smoke compartments containing patient sleeping rooms and treatment rooms, dead-end corridors shall not exceed 30 feet (9144 mm) unless approved by the fire code official.

1105.6.6 Separation of exit access doors. Patient sleeping rooms, or any suite that includes patient sleeping rooms, of more than 1,000 square feet (92.9 m²) shall have not less than two exit access doors placed a distance apart equal to not less than one-third of the length of the maximum overall diagonal dimension of the patient sleeping room or suite to be served, measured in a straight line between exit access doors.

1105.6.7 Aisles. In areas where aisles are used for movement of patients in beds, the clear width of the aisle shall be not less than 48 inches (1219 mm).

1105.7 Smoke compartments. Smoke compartments shall be provided in existing Group I-2, Condition 2, in accordance with Sections 1105.7.1 through 1105.7.6.

1105.7.1 Design. Smoke barriers shall be provided to subdivide each story used for patients sleeping with an occupant load of more than 30 patients into not fewer than two smoke compartments.

1105.7.1.1 Refuge areas. Refuge areas shall be provided within each smoke compartment. The size of the refuge area shall accommodate the occupants and care recipients from the adjoining smoke compartment. Where a smoke compartment is adjoined by two or more smoke compartments, the minimum area of the refuge area shall accommodate the largest occupant load of the adjoining compartments. The size of the refuge area shall provide the following:

1. Not less than 30 net square feet (2.8 m²) for each care recipient confined to a bed or stretcher.

2. Not less than 15 square feet (1.4 m²) for each resident in a Group I-2 using mobility assistance devices.

3. Not less than 6 square feet (0.56 m²) for each occupant not addressed in Items 1 and 2. Areas of spaces permitted to be included in the calculation of
the refuge area are *corridors*, sleeping areas, treatment rooms, lounge or dining areas and other low-hazard areas.

**1105.7.2 Smoke barriers.** Smoke barriers shall be constructed in accordance with Section 709 of the *International Building Code*.

*Exceptions:*
1. Existing smoke barriers are permitted to remain where the existing smoke barrier has a minimum fire-resistance rating of 1/2 hour.
2. Smoke barriers shall be permitted to terminate at an atrium enclosure in accordance with Section 404.6 of the *International Building Code*.

**1105.7.3 Opening protectives.** Openings in smoke barriers shall be protected in accordance with Section 716 of the *International Building Code*. Opening protectives shall have a minimum fire protection rating of 1/3 hour.

*Exceptions:*
1. Existing wired glass vision panels in doors shall be permitted to remain.
2. Existing non labeled protection plates shall be permitted to remain.

**1105.7.4 Penetrations.** Penetrations of smoke barriers shall comply with the *International Building Code*.

*Exception: Approved existing materials and methods of construction.*

**1105.7.5 Joints.** Joints made in or between smoke barriers shall comply with the *International Building Code*.

*Exception: Approved existing materials and methods of construction.*

**1105.7.6 Duct and air transfer openings.** Penetrations in a smoke barrier by duct and air transfer openings shall comply with Section 717 of the *International Building Code*.

*Exception: Where existing duct and air transfer openings in smoke barriers exist without smoke dampers, they shall be permitted to remain. Any changes to existing smoke dampers shall be submitted for review and approved in accordance with Section 717 of the *International Building Code*.*

**1105.8 Group I-2 care suites.** Care suites in existing Group I-2, Condition 2 occupancies shall comply with Sections 407.4.4 through 407.4.4.6.2 of the *International Building Code*.

**1105.9 Group I-2 automatic sprinkler system.** An automatic sprinkler system installed in accordance with Section 903.3.1.1 shall be provided throughout the floor containing the Group I-2 fire area. The sprinkler system shall be provided throughout the floor where the Group I-2 occupancy is located, on all floors between the Group I-2 occupancy fire area and the level of exit discharge, the level of exit discharge, and all floors below the level of exit discharge.

*Exception: Floors classified as an open parking garage are not required to be sprinklered.*

**1105.10 Group I-2 automatic fire alarm system.** An automatic fire alarm system shall be installed in existing Group I2 occupancies in accordance with Section 907.2.6.2.
FIGURE 1104.24
PRIMARY STAIRWELL SIGNAGE

Notes:

1. The sign face shall be 12” x 14” and fabricated from .080 aluminum sheet with 1 ½ inch radius corners.

2. Font style used is Handel Gothic BT Capital fonts.

3. The sign face shall have a white 3M diamond grade reflective sheeting (DG3 4090 Series or equivalent) applied as a background to the aluminum plate.

4. Lettering / graphics shall be high performance, non-reflective, cuttable vinyl (WM 7725 Series) inverse cut to allow white reflective background to show through.

5. All sign imaging shall be in compliance with the reflective sheeting manufacturer’s match component systems.

6. To form a graffiti barrier 3mm 1160 protection overlay film may be applied over sign.