

31.2 Means of Egress Requirements.

31.2.1 General.

31.2.1.1 Means of egress from dwelling units to the outside of the building shall be in accordance with Chapter 7 and this chapter.

31.2.1.2 Means of escape within the dwelling unit shall comply with the provisions of Section 24.2 for one- and two-family dwellings.

31.2.2 Means of Egress Components.

31.2.2.1 General.

31.2.2.1.1 Components of means of egress shall be limited to the types described in 31.2.2.2 through 31.2.2.12.

31.2.2.1.2 In buildings using Option 4, exit enclosures shall have a minimum 1-hour fire resistance rating, and doors shall have a minimum 1-hour fire protection rating.

31.2.2.1.3 In non-high-rise buildings using Option 2, Option 3, or Option 4, exit stair doors shall be permitted to be 1¾ in. (44 mm) thick, solid-bonded wood-core doors that are self-closing and self-latching and in wood frames not less than ¾ in. (19 mm) thick.

31.2.2.2 Doors.

31.2.2.2.1 Doors complying with 7.2.1 shall be permitted.

31.2.2.2.2 Door-locking arrangements shall comply with 30.2.2.2.2.1, 30.2.2.2.2.2, 30.2.2.2.2.3, or 31.2.2.2.2.4.

31.2.2.2.2.1 No door in any means of egress shall be locked against egress when the building is occupied.

31.2.2.2.2.2 Delayed-egress locks complying with 7.2.1.6.1 shall be permitted, provided that not more than one such device is located in any one egress path.

31.2.2.2.2.3 Access-controlled egress doors complying with 7.2.1.6.2 shall be permitted.

31.2.2.2.2.4 Elevator lobby exit access door locking in accordance with 7.2.1.6.3 shall be permitted.

31.2.2.2.3 Revolving doors complying with 7.2.1.10 shall be permitted.

31.2.2.2.4 Horizontal-sliding doors, as permitted by 7.2.1.14, shall not be used across corridors.

31.2.2.2.5 Apartment occupancies protected throughout by an approved, supervised automatic sprinkler system shall be exempt from the re-entry provisions of 7.2.1.5.7 where the exit enclosure serves directly only one dwelling unit per floor, and such exit is a smokeproof enclosure in accordance with 7.2.3.

31.2.2.3 Stairs.

31.2.2.3.1 Stairs complying with 7.2.2 shall be permitted.

31.2.2.3.2 Within any individual dwelling unit, unless protected by an approved automatic sprinkler system in accordance with 31.3.5, stairs more than one story above or below the entrance floor level of the dwelling unit shall not be permitted.

31.2.2.3.3 Spiral stairs complying with 7.2.2.2.3 shall be permitted within a single dwelling unit.

31.2.2.3.4 Winders complying with 7.2.2.2.4 shall be permitted.

31.2.2.4 Smokeproof Enclosures. Smokeproof enclosures complying with 7.2.3 shall be permitted. (See also 31.2.11.1.)

Exhibit 001

7.2.6 shall be permitted.

31.2.2.8* Escalators. Escalators previously approved as a component in the means of egress shall be permitted to continue to be considered as in compliance.

31.2.2.9 Fire Escape Stairs. Fire escape stairs complying with 7.2.8 shall be permitted.

31.2.2.10 Fire Escape Ladders. Fire escape ladders complying with 7.2.9 shall be permitted.

31.2.2.11 Alternating Tread Devices. Alternating tread devices complying with 7.2.11 shall be permitted.

31.2.2.12 Areas of Refuge.

31.2.2.12.1 Areas of refuge complying with 7.2.12 shall be permitted, as modified by 31.2.2.12.2.

31.2.2.12.2* In buildings protected throughout by an approved, supervised automatic sprinkler system in accordance with 31.3.5, the two accessible rooms or spaces separated from each other by smoke-resistive partitions in accordance with the definition of area of refuge in 3.3.20 shall not be required.

31.2.3 Capacity of Means of Egress.

31.2.3.1 The capacity of means of egress shall be in accordance with Section 7.3.

31.2.3.2 Street floor exits shall be sufficient for the occupant load of the street floor plus the required capacity of stairs and ramps discharging onto the street floor.

31.2.4 Number of Exits. The minimum number of exits shall comply with 31.2.4.1, 31.2.4.2, 31.2.4.3, 31.2.4.4, or 31.2.4.5.

31.2.4.1 Every dwelling unit shall have access to not less than two separate exits remotely located from each other as required by 7.5.1. (See also Section 7.4.)

31.2.4.2 A single exit shall be permitted from a dwelling unit, provided that one of the following conditions is met:

- (1) The dwelling unit has an exit door opening directly to the street or yard at the finished ground level.
- (2) The dwelling unit has direct access to an outside stair that complies with 7.2.2 and serves not more than two units, both located on the same story.
- (3) The dwelling unit has direct access to an interior stair that serves only that unit and is separated from all other portions of the building by fire barriers having a minimum 1-hour fire resistance rating, with no opening therein.

31.2.4.3 A single exit shall be permitted in buildings where the total number of stories does not exceed four, provided that all of the following conditions are met:

- (1) The building is protected throughout by an approved, supervised automatic sprinkler system in accordance with 31.3.5.
- (2) The exit stairway does not serve more than one-half of a story below the level of exit discharge.
- (3) The travel distance from the entrance door of any dwelling unit to an exit does not exceed 35 ft (10.7 m).

Table 6.1.14.4.1(a) Required Separation of Occupancies (hours),[†] Part 1

Occupancy	Assembly ≤300	Assembly >300 to ≤1000	Assembly >1000	Educational	Day-Care >12 Clients	Day-Care Homes	Health Care	Ambulatory Health Care	Detention & Correctional	One- & Two-Family Dwellings	Lodging or Rooming Houses	Hotels & Dormitories
Assembly ≤ 300	—	0	0	2	2	1	2 [‡]	2	2 [‡]	2	2	2
Assembly >300 to ≤1000	—	0	2	2	2	2	2 [‡]	2	2 [‡]	2	2	2
Assembly >1000	—	—	2	2	2	2	2 [‡]	2	2 [‡]	2	2	2
Educational	—	—	—	2	2	2	2 [‡]	2	2 [‡]	2	2	2
Day-Care >12 Clients	—	—	—	—	2	1	2 [‡]	2	2 [‡]	2	2	2
Day-Care Homes	—	—	—	—	—	—	2 [‡]	2	2 [‡]	2	2	2
Health Care	—	—	—	—	—	—	—	2 [‡]	2 [‡]	2 [‡]	2 [‡]	2 [‡]
Ambulatory Health Care	—	—	—	—	—	—	—	—	2 [‡]	2	2	2
Detention & Correctional	—	—	—	—	—	—	—	—	—	2 [‡]	2 [‡]	2 [‡]
One- & Two-Family Dwellings	—	—	—	—	—	—	—	—	—	—	1	1
Lodging or Rooming Houses	—	—	—	—	—	—	—	—	—	—	—	1
Hotels & Dormitories	—	—	—	—	—	—	—	—	—	—	—	—

[†]Minimum Five Resistance Rating. The fire resistance rating is permitted to be reduced by 1 hour, but in no case to less than 1 hour, where the building is protected throughout by an approved automatic sprinkler system in accordance with 9.7.1.1(1) and supervised in accordance with 9.7.2.

[‡]The 1-hour reduction due to the presence of sprinklers in accordance with the single-dagger footnote is not permitted.

7.1.3.1 Exit Access Corridors. Corridors used as exit access and serving an area having an occupant load exceeding 30 shall be separated from other parts of the building by walls having not less than a 1-hour fire resistance rating in accordance with Section 8.3, unless otherwise permitted by the following:

- (1) This requirement shall not apply to existing buildings, provided that the occupancy classification does not change.
- (2) This requirement shall not apply where otherwise provided in Chapters 11 through 43.

7.1.3.2 Exits.

7.1.3.2.1 Where this Code requires an exit to be separated from other parts of the building, the separating construction shall meet the requirements of Section 8.2 and the following:

- (1)*The separation shall have a minimum 1-hour fire resistance rating where the exit connects three or fewer stories.
- (2)*The separation shall have a minimum 2-hour fire resistance rating where the exit connects four or more stories, unless one of the following conditions exists:
 - (a) In existing non-high-rise buildings, existing exit stair enclosures shall have a minimum 1-hour fire resistance rating.
 - (b) In existing buildings protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 9.7, existing exit stair enclosures shall have a minimum 1-hour fire resistance rating.
 - (c) The minimum 1-hour enclosures in accordance with 28.2.2.1.2, 29.2.2.1.2, 30.2.2.1.2, and 31.2.2.1.2 shall be permitted as an alternative to the requirement of 7.1.3.2.1(2).
- (3) **Reserved.**
- (4) The minimum 2-hour fire resistance-rated separation required by 7.1.3.2.1(2) shall be constructed of an assembly

of noncombustible or limited-combustible materials and shall be supported by construction having a minimum 2-hour fire resistance rating, unless otherwise permitted by 7.1.3.2.1(6).

- (5)*Structural elements, or portions thereof, that support exit components and either penetrate into a fire resistance-rated assembly or are installed within a fire resistance-rated wall assembly shall be protected, as a minimum to the fire resistance rating required by 7.1.3.2.1(1) or (2).
- (6) In Type III, Type IV, and Type V construction, as defined in NFPA 220, *Standard on Types of Building Construction* (see 8.2.1.2), fire-retardant-treated wood enclosed in non-combustible or limited-combustible materials shall be permitted.
- (7) Openings in the separation shall be protected by fire door assemblies equipped with door closers complying with 7.2.1.8.
- (8)*Openings in exit enclosures shall be limited to door assemblies from normally occupied spaces and corridors and door assemblies for egress from the enclosure, unless one of the following conditions exists:
 - (a) Openings in exit passageways in mall buildings as provided in Chapters 36 and 37 shall be permitted.
 - (b) In buildings of Type I or Type II construction, as defined in NFPA 220, *Standard on Types of Building Construction* (see 8.2.1.2), existing fire protection-rated door assemblies to interstitial spaces shall be permitted, provided that such spaces meet all of the following criteria:
 - i. The space is used solely for distribution of pipes, ducts, and conduits.
 - ii. The space contains no storage.
 - iii. The space is separated from the exit enclosure in accordance with Section 8.3.

(3) The fire protection-rated glazing material is installed in approved existing frames.

8.3.3.11 Fire protection-rated glazing shall bear identification as described in 8.3.3.11.1 or 8.3.3.11.2 and shall be permanently affixed.

8.3.3.11.1 Fire protection-rated glazing used in doors shall bear a four-part identification in the form of D — H (or NH) — T (or NT) — XXX, with the component parts defined as follows:

- (1) D, which indicates that the glazing is to be used in fire door assemblies and that the glazing meets the fire protection requirements of NFPA 252, *Standard Methods of Fire Tests of Door Assemblies*
- (2) H, which indicates that the glazing meets the hose stream requirements of the test standard
- (3) NH, which indicates that the glazing does not meet the hose stream requirements of the test standard
- (4) T, which indicates that the glazing has a maximum transmitted temperature endpoint of not more than 450°F (250°C) above ambient at the end of 30 minutes of standard fire test exposure
- (5) NT, which indicates that the glazing does not have a temperature rise rating
- (6) XXX, which is the placeholder that specifies the fire protection rating period, in minutes

8.3.3.11.2 Fire protection-rated glazing used in fire resistance-rated walls and partitions shall bear the identification OH-XXX, which is defined as follows:

- (1) OH indicates that the glazing meets both the fire protection and the hose stream requirements of NFPA 257, *Standard on Fire Test for Window and Glass Block Assemblies*; ASTM E 2010, *Standard Test Method for Positive Pressure Fire Tests of Window Assemblies*; or ANSI/UL 9, *Standard for Fire Tests of Window Assemblies*; and is permitted to be used in openings.
- (2) XXX indicates the fire protection rating period, in minutes, that was tested.

8.3.4 Opening Protectives.

8.3.4.1 Every opening in a fire barrier shall be protected to limit the spread of fire and restrict the movement of smoke from one side of the fire barrier to the other.

8.3.4.2* The fire protection rating for opening protectives in fire barriers, fire-rated smoke barriers, and fire-rated smoke partitions shall be in accordance with Table 8.3.4.2, except as otherwise permitted in 8.3.4.3 or 8.3.4.4.

8.3.4.3 Existing fire door assemblies having a minimum ¾-hour fire protection rating shall be permitted to continue to be used in vertical openings and in exit enclosures in lieu of the minimum 1-hour fire protection rating required by Table 8.3.4.2.

8.3.4.4 Where a 20-minute fire protection-rated door is required in existing buildings, an existing 1¾ in. (44 mm) solid-bonded wood-core door, an existing steel-clad (tin-clad) wood door, or an existing solid-core steel door with positive latch and closer shall be permitted, unless otherwise specified by Chapters 11 through 43.

8.3.5 Penetrations. The provisions of 8.3.5 shall govern the materials and methods of construction used to protect through-penetrations and membrane penetrations in fire walls, fire barrier walls, and fire resistance-rated horizontal assemblies. The provisions of 8.3.5 shall not apply to approved

Table 8.3.4.2 Minimum Fire Protection Ratings for Opening Protectives in Fire Resistance-Rated Assemblies

Component	Walls and Partitions (hr)	Fire Door Assemblies (hr)	Fire Window Assemblies (hr)
Elevator hoistways	2	1½	NP
	1	1	NP
Vertical shafts (including stairways, exits, and refuse chutes)	2	1½	NP
	1	1	NP
	½	⅓	NP
Fire barriers	3	3	NP
	2	1½	NP
	1	¾	¾
	½	⅓*	⅓
Horizontal exits	2	1½	NP
Horizontal exits served by bridges between buildings	2	¾	¾
Exit access corridors†	1	⅓	¾
	½	⅓	⅓
Smoke barriers†	1	⅓	¾
Smoke partitions†, ‡	½	⅓	⅓

NP: Not permitted.

† Fire doors are not required to have a hose stream test per NFPA 252, *Standard Methods of Fire Tests of Door Assemblies*; ASTM E 2074, *Standard Test Method for Fire Tests of Door Assemblies, Including Positive Pressure Testing of Side-Hinged and Pivoted Swinging Door Assemblies*; ANSI/UL 10B, *Standard for Fire Tests of Door Assemblies*; or ANSI/UL 10C, *Standard for Positive Pressure Fire Tests of Door Assemblies*.

‡ For residential board and care, see 32.2.3.1 and 33.2.3.1.

existing materials and methods of construction used to protect existing through-penetrations and existing membrane penetrations in fire walls, fire barrier walls, or fire resistance-rated horizontal assemblies, unless otherwise required by Chapters 11 through 43.

8.3.5.1* Firestop Systems and Devices Required. Penetrations for cables, cable trays, conduits, pipes, tubes, combustion vents and exhaust vents, wires, and similar items to accommodate electrical, mechanical, plumbing, and communications systems that pass through a wall, floor, or floor/ceiling assembly constructed as a fire barrier shall be protected by a firestop system or device. The firestop system or device shall be tested in accordance with ASTM E 814, *Standard Test Method for Fire Tests of Through Penetration Fire Stops*, or ANSI/UL 1479, *Standard for Fire Tests of Through-Penetration Firestops*, at a minimum positive pressure differential of 0.01 in. water column (2.5 N/m²) between the exposed and the unexposed surface of the test assembly.

8.3.5.1.1 The requirements of 8.3.5.1 shall not apply where otherwise permitted by any one of the following:

- (1) Where penetrations are tested and installed as part of an assembly tested and rated in accordance with NFPA 251, *Standard Methods of Tests of Fire Resistance of Building Construction and Materials*; ASTM E 119, *Standard Test Methods for Fire Tests of Building Construction and Materials*; or ANSI/UL 263, *Standard for Fire Tests of Building Construction and Materials*

30.5.2.2 Unvented fuel-fired heaters, other than gas space heaters in compliance with NFPA 54, *National Fuel Gas Code*, shall not be used.

30.5.3 Elevators, Escalators, and Conveyors. Elevators, escalators, and conveyors shall comply with the provisions of Section 9.4.

30.5.4 Rubbish Chutes, Incinerators, and Laundry Chutes. Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 9.5.

30.6 Reserved.

30.7 Operating Features.

30.7.1 Emergency Instructions for Residents of Apartment Buildings. Emergency instructions shall be provided annually to each dwelling unit to indicate the location of alarms, egress paths, and actions to be taken, both in response to a fire in the dwelling unit and in response to the sounding of the alarm system.

30.7.2 Contents and Furnishings.

30.7.2.1 Contents and furnishings shall not be required to comply with Section 10.3.

30.7.2.2 Furnishings or decorations of an explosive or highly flammable character shall not be used outside of dwelling units.

30.7.2.3 Fire-retardant coatings shall be maintained to retain the effectiveness of the treatment under service conditions encountered in actual use.

Chapter 31 Existing Apartment Buildings

31.1* General Requirements.

31.1.1 Application.

31.1.1.1 The requirements of this chapter shall apply to existing buildings or portions thereof currently occupied as apartment occupancies. In addition, the building shall meet the requirements of one of the following options:

- (1) Option 1, buildings without fire suppression or detection systems
- (2) Option 2, buildings provided with a complete approved automatic fire detection and notification system in accordance with 31.3.4.4
- (3) Option 3, buildings provided with approved automatic sprinkler protection in selected areas, as described in 31.3.5.9
- (4) Option 4, buildings protected throughout by an approved automatic sprinkler system

31.1.1.2 The term *apartment building*, wherever used in this Code, shall include an apartment house, a tenement, a garden apartment, or any other structure meeting the definition of apartment building.

31.1.2 Multiple Occupancies.

31.1.2.1 Multiple occupancies shall be in accordance with 6.1.14.

31.1.2.2 No dwelling unit of an apartment building shall have its sole means of egress pass through any nonresidential occupancy in the same building, unless otherwise permitted by 31.1.2.2.1 or 31.1.2.2.2.

31.1.2.2.1 In buildings that are protected by an automatic sprinkler system in accordance with Section 9.7, dwelling units of an apartment building shall be permitted to have their sole means of egress pass through a nonresidential occupancy in the same building, provided that the following criteria are met:

- (1) The dwelling unit of the apartment building shall comply with Chapter 31.
- (2) The sole means of egress from the dwelling unit of the apartment building shall not pass through a high hazard contents area, as defined in 6.2.2.4.

31.1.2.2.2 In buildings that are not protected by an automatic sprinkler system in accordance with Section 9.7, dwelling units of an apartment building shall be permitted to have their sole means of egress pass through a nonresidential occupancy in the same building, provided that the following criteria are met:

- (1) The sole means of egress from the dwelling unit of the apartment building to the exterior shall be separated from the remainder of the building by fire barriers having a minimum 1-hour fire resistance rating.
- (2) The dwelling unit of the apartment building shall comply with Chapter 31.
- (3) The sole means of egress from the dwelling unit of the apartment building shall not pass through a high hazard contents area, as defined in 6.2.2.4.

31.1.2.3 Multiple dwelling units shall be permitted to be located above a nonresidential occupancy only where one of the following conditions exists:

- (1) Where the dwelling units of the residential occupancy and exits therefrom are separated from the nonresidential occupancy by construction having a minimum 1-hour fire resistance rating
- (2) Where the nonresidential occupancy is protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 9.7
- (3) Where not more than two dwelling units are located above a nonresidential occupancy that is protected by an automatic fire detection system in accordance with Section 9.6

31.1.3 Special Definitions.

31.1.3.1 General. Special terms applicable to this chapter are defined in Chapter 3. Where necessary, other terms are defined in the text.

31.1.3.2 Apartment Building. See 3.3.32.3.

31.1.4 Classification of Occupancy. See 6.1.8 and 31.1.3.

31.1.5 Classification of Hazard of Contents. The contents of residential occupancies shall be classified as ordinary hazard in accordance with 6.2.2.

31.1.6 Minimum Construction Requirements. (No special requirements.)

31.1.7 Occupant Load. The occupant load, in number of persons for whom means of egress and other provisions are required, shall be determined on the basis of the occupant load factors of Table 7.3.1.2 that are characteristic of the use of the space or shall be determined as the maximum probable population of the space under consideration, whichever is greater.



31.3.2 Protection from Hazards.

31.3.2.1 Hazardous Areas. Any hazardous area shall be protected in accordance with Section 8.7.

31.3.2.1.1 The areas described in Table 31.3.2.1.1 shall be protected as indicated.

Table 31.3.2.1.1 Hazardous Area Protection

Hazardous Area Description	Separation/Protection [†]
Boiler and fuel-fired heater rooms serving more than a single dwelling unit	1 hour or sprinklers
Employee locker rooms	1 hour or sprinklers
Gift or retail shops >100 ft ² (>9.3 m ²)	1 hour or sprinklers [‡]
Bulk laundries	1 hour or sprinklers
Laundries >100 ft ² (>9.3 m ²) outside of dwelling units	1 hour or sprinklers [‡]
Maintenance shops	1 hour or sprinklers
Rooms or spaces used for storage of combustible supplies and equipment in quantities deemed hazardous by the authority having jurisdiction	1 hour or sprinklers
Trash collection rooms	1 hour or sprinklers

[†]Minimum fire resistance rating.

[‡]Where sprinklers are provided, the separation specified in 8.7.1.2 and 31.3.2.1.2 is not required.

31.3.2.1.2 Where sprinkler protection without fire-rated separation is used, areas shall be separated from other spaces by smoke partitions complying with Section 8.4.

31.3.2.2 Reserved.

31.3.3 Interior Finish.

31.3.3.1 General. Interior finish shall be in accordance with Section 10.2.

31.3.3.2 Interior Wall and Ceiling Finish. Interior wall and ceiling finish materials complying with 10.2 shall be permitted as follows:

- (1) Exit enclosures — Class A or Class B
- (2) Lobbies and corridors — Class A or Class B
- (3) Other spaces — Class A, Class B, or Class C

31.3.3.3 Interior Floor Finish. In buildings utilizing Option 1 or Option 2, newly installed interior floor finish in exits and exit access corridors shall be not less than Class II in accordance with 10.2.7.

31.3.4 Detection, Alarm, and Communications Systems.

31.3.4.1 General.

31.3.4.1.1 Apartment buildings four or more stories in height or with more than 11 dwelling units, other than those meeting the requirements of 31.3.4.1.2, shall be provided with a fire alarm system in accordance with Section 9.6, except as modified by 31.3.4.2 through 31.3.4.6.

31.3.4.1.2 A fire alarm system shall not be required where each dwelling unit is separated from other contiguous dwelling units by fire barriers (see Section 8.3) having a minimum ½-hour fire resistance rating, and where each dwelling unit has either its own independent exit or its own independent stairway or ramp discharging at the finished ground level.

31.3.4.2 Initiation.

31.3.4.2.1 Initiation of the required fire alarm system shall be by manual means in accordance with 9.6.2, unless the building complies with 31.3.4.2.2.

31.3.4.2.2 Initiation of the required fire alarm system by manual means shall not be required in buildings four or fewer stories in height, containing not more than 16 dwelling units, and protected throughout by an approved, supervised automatic sprinkler system installed in accordance with 31.3.5.3.

31.3.4.2.3 In buildings using Option 2, the required fire alarm system shall be initiated by the automatic fire detection system in addition to the manual initiation means of 31.3.4.2.1.

31.3.4.2.4 In buildings using Option 3, the required fire alarm system shall be initiated upon operation of the automatic sprinkler system in addition to the manual initiation means of 31.3.4.2.1.

31.3.4.2.5 In buildings using Option 4, the required fire alarm system shall be initiated upon operation of the automatic sprinkler system in addition to the manual initiation means of 31.3.4.2.1.

31.3.4.3 Notification.

31.3.4.3.1 Occupant notification shall be provided automatically in accordance with Section 9.6, and the following shall also apply:

- (1) Visible signals shall be installed in units designed for the hearing impaired.
- (2) Positive alarm sequence in accordance with 9.6.3.4 shall be permitted.
- (3) Existing approved presignal systems shall be permitted in accordance with 9.6.3.3.

31.3.4.3.2 An annunciator panel, whose location shall be approved by the authority having jurisdiction, connected with the required fire alarm system shall be provided, unless the building meets the requirements of 31.3.4.3.3 or 31.3.4.3.4.

31.3.4.3.3 Annunciation shall not be required in buildings two or fewer stories in height and having not more than 50 rooms.

31.3.4.3.4 Annunciation shall not be required in buildings four or fewer stories in height containing not more than 16 dwelling units and protected throughout by an approved, supervised automatic sprinkler system installed in accordance with 31.3.5.3.

31.3.4.3.5 Fire department notification shall be accomplished in accordance with 9.6.4.

31.3.4.4 Detection.

31.3.4.4.1* In buildings using Option 2, a complete automatic fire detection system in accordance with 9.6.1.3 and 31.3.4.4.2 shall be required.

31.3.4.4.2 Automatic fire detection devices shall be installed as follows:

- (1) Smoke detectors shall be installed in all common areas and work spaces outside the living unit, such as exit stairs, egress corridors, lobbies, storage rooms, equipment rooms, and other tenantless spaces in environments that are suitable for proper smoke detector operation.
- (2) Heat detectors shall be located within each room of the living unit.

31.3.4.5 Smoke Alarms.

31.3.4.5.1* In buildings other than those equipped throughout with an existing, complete automatic smoke detection system, smoke alarms shall be installed in accordance with 9.6.2.10, as modified by 31.3.4.5.2, outside every sleeping area in the immediate vicinity of the bedrooms and on all levels of the dwelling unit, including basements.

31.3.4.5.2 Smoke alarms required by 31.3.4.5.1 shall not be required to be provided with a secondary (standby) power source.

31.3.4.5.3 In buildings other than those equipped throughout with an existing, complete automatic smoke detection system or a complete, supervised automatic sprinkler system in accordance with 31.3.5, smoke alarms shall be installed in every sleeping area in accordance with 9.6.2.10, as modified by 31.3.4.5.4.

31.3.4.5.4 Smoke alarms required by 31.3.4.5.3 shall be permitted to be battery powered.

31.3.4.6* Protection of Fire Alarm System. The provision of 9.6.1.8.1.3 shall not apply to the smoke detection required at each fire alarm control unit by 9.6.1.8.1(1).

31.3.5 Extinguishment Requirements.

31.3.5.1 Reserved.

31.3.5.2 Reserved.

31.3.5.3* Where an automatic sprinkler system is installed, either for total or partial building coverage, the system shall be installed in accordance with Section 9.7, as modified by 31.3.5.4 and 31.3.5.5. In buildings four or fewer stories above grade plane, systems in accordance with NFPA 13R, *Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height*, shall be permitted.

31.3.5.4 In individual dwelling units, sprinkler installation shall not be required in closets not exceeding 24 ft² (2.2 m²) and in bathrooms not exceeding 55 ft² (5.1 m²). Closets that contain equipment such as washers, dryers, furnaces, or water heaters shall be sprinklered, regardless of size.

31.3.5.5 The draft stop and closely spaced sprinkler requirements of NFPA 13, *Standard for the Installation of Sprinkler Systems*, shall not be required for convenience openings complying with 8.6.8.2 where the convenience opening is within the dwelling unit.

31.3.5.6 Reserved.

31.3.5.7 Reserved.

31.3.5.8 Reserved.

31.3.5.9 Buildings using Option 3 shall be provided with automatic sprinkler protection installed in accordance with 31.3.5.9.1 through 31.3.5.9.4.

31.3.5.9.1 Automatic sprinklers shall be installed in the corridor, along the corridor ceiling, utilizing the maximum spacing requirements of the standards referenced by Section 9.7.

31.3.5.9.2 An automatic sprinkler shall be installed within every dwelling unit that has a door opening to the corridor, with such sprinkler positioned over the center of the door, unless the door to the dwelling unit has not less than a 20-minute fire protection rating and is self-closing.

31.3.5.9.3 The workmanship and materials of the sprinkler installation specified in 31.3.5.9 shall meet the requirements of Section 9.7.

31.3.5.9.4 Where Option 3 is being used to permit the use of 1¾ in. (44 mm) thick, solid-bonded wood-core doors in accordance with 31.2.2.1.3, sprinklers shall be provided within the exit enclosures in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems*.

31.3.5.10 Buildings using Option 4 shall be protected throughout by an approved automatic sprinkler system in accordance with 31.3.5.3 and meeting the requirements of Section 9.7 for supervision for buildings seven or more stories in height.

31.3.5.11* Where sprinklers are being used as an option to any requirement in this Code, the sprinklers shall be installed throughout the space in accordance with the requirements of that option.

31.3.5.12 High-Rise Building Sprinklers.

31.3.5.12.1 All high-rise buildings, other than those meeting 31.3.5.12.2 or 31.3.5.12.3 shall be protected throughout by an approved, supervised automatic sprinkler system in accordance with 31.3.5.3.

31.3.5.12.2 An automatic sprinkler system shall not be required where every dwelling unit has exterior exit access in accordance with 7.5.3.

31.3.5.12.3* An automatic sprinkler system shall not be required in buildings having an approved, engineered life safety system in accordance with 31.3.5.12.4.

31.3.5.12.4 Where required by 31.3.5.12.3, an engineered life safety system shall be developed by a registered professional engineer experienced in fire and life safety system design, shall be approved by the authority having jurisdiction, and shall include any or all of the following:

- (1) Partial automatic sprinkler protection
- (2) Smoke detection systems
- (3) Smoke control systems
- (4) Compartmentation
- (5) Other approved systems

31.3.5.13 Portable fire extinguishers in accordance with 9.7.4.1 shall be provided in hazardous areas addressed by 31.3.2.1, unless the building is protected throughout with an approved, supervised automatic sprinkler system in accordance with 31.3.5.3.

31.3.6 Corridors.

31.3.6.1* Walls. Exit access corridor walls shall consist of fire barriers in accordance with Section 8.3 having a minimum ½-hour fire resistance rating.

31.3.6.2 Doors.

31.3.6.2.1 Doors that open onto exit access corridors, other than those complying with 8.3.4 or in buildings meeting the