Florida Fire Prevention Code

Fifth Edition

Effective December 31, 2014

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State Fire Marshal

Based on

NFPA *1*, *Fire Code*™, 2012 edition

NFPA *101*®, *Life Safety Code*®, 2012 edition

Chapter 10 General Safety Requirements

10.1 Fundamental Requirements.

10.1.1 Every new and existing building or structure shall be constructed, arranged, equipped, maintained, and operated in accordance with this *Code* so as to provide a reasonable level of life safety, property protection, and public welfare from the actual and potential hazards created by fire, explosion, and other hazardous conditions.

10.1.2* ***Life Safety Code.*** Every new and existing building shall comply with this *Code* and NFPA *101*, *Life Safety Code*.

10.1.3 Building Code. Where a building code has been adopted, all new construction shall comply with this *Code* and the building code.

10.1.4 Structural Hazards.

10.1.4.1 Where structural elements have visible damage, the AHJ shall be permitted to require a technical analysis prepared in accordance with Section 1.15 to determine if repairs are necessary to restore structural integrity.

10.1.4.2 Where the technical analysis recommends repairs to the structure, such repairs shall be made.

10.1.5 Any person who deliberately, or through negligence, sets fire to or causes the burning of any combustible material in such a manner as to endanger the safety of any person or property shall be deemed to be in violation of this *Code*.

10.1.6 The AHJ shall have the authority to prohibit any or all open flames or other sources of ignition where circumstances make such conditions hazardous.

10.1.7 Listed and Labeled. Listed and labeled equipment, devices, and materials shall be installed and used in accordance with the listing limitations and the manufacturers' instructions.

10.2 Owner/Occupant Responsibilities.

10.2.1 The owner, operator, or occupant shall be responsible for compliance with this *Code*.

10.2.2 The owner, operator, or occupant of a building shall notify the AHJ prior to a change of occupancy as specified in 4.5.7 and 10.3.4.

10.2.3 The AHJ shall be permitted to require the owner, operator, or occupant to provide tests or test reports, without expense to the AHJ, as proof of compliance with the intent of this *Code*.

10.2.4 The owner, operator, or occupant of a building that is deemed unsafe by the AHJ shall abate, through corrective action approved by the AHJ, the condition causing the building to be unsafe either by repair, rehabilitation, demolition, or other corrective action approved by the AHJ.

10.2.5 The owner, operator, or occupant, or any person in control of a building or premises shall keep records of all maintenance, inspections, and testing of fire protection systems, fire alarm systems, smoke control systems, emergency evacuation and relocation drills, emergency plans, emergency power, elevators, and other equipment as required by the AHJ.

10.2.6 All records required to be kept shall be maintained until their useful life has been served, as required by law, or as required by the AHJ.

10.3 Occupancy.

10.3.1 No new construction or existing building shall be occupied in whole or in part in violation of the provisions of this *Code*.

10.3.2 Existing buildings that are occupied at the time of adoption of this *Code* shall remain in use provided that the following conditions are met:

(1) The occupancy classification remains the same.
(2) No condition deemed hazardous to life or property exists that would constitute an imminent danger.

10.3.3* Buildings or portions of buildings, except for routine maintenance or repair, shall not be occupied during construction, repair, or alteration without the approval of the AHJ if required means of egress are impaired or required fire protection systems are out of service.

10.3.4 Change of Use or Occupancy Classification.

10.3.4.1 In any building or structure, whether or not a physical alteration is needed, a change from one use or occupancy classification to another shall comply with 4.6.7 of NFPA *101*. [***101***:4.6.11]

10.3.4.2 Occupancy classifications and subclassifications, as defined, shall be in accordance with Chapter 6.

10.4 Maintenance, Inspection, and Testing. Also see 4.5.8.

10.4.1 Whenever or wherever any device, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature is required for compliance with the provisions of this *Code*, such device, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or other feature shall thereafter be continuously maintained. Maintenance shall be provided in accordance with applicable NFPA requirements or requirements developed as part of a performance-based design, or as directed by the AHJ. [***101***:4.6.12.1]

10.4.2 No existing life safety feature shall be removed or reduced where such feature is a requirement for new construction. [***101***:4.6.12.2]

10.4.3* Existing life safety features obvious to the public, if not required by the *Code*, shall be either maintained or removed. [***101***:4.6.12.3]

10.4.4 Any device, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature requiring periodic testing, inspection, or operation to ensure its maintenance shall be tested, inspected, or operated as specified elsewhere in this *Code* or as directed by the AHJ. [***101***:4.6.12.4]

10.4.5 Maintenance, inspection, and testing shall be performed under the supervision of a responsible person who shall ensure that testing, inspection, and maintenance are made at specified intervals in accordance with applicable NFPA standards or as directed by the AHJ. [***101***:4.6.12.5]

10.5 Building Evacuation.

10.5.1 Persons shall not fail to leave a building when notified to do so or when directed by the AHJ as a result of a known or perceived emergency.

10.5.2* Persons shall not fail to leave any overcrowded premises when ordered to do so by the AHJ.

Table 13.8 Other Required Fire Protection Systems

Type of System	NFPA Standard
Low-, medium-, and high-expansion foam systems	NFPA 11, *Standard for Low-, Medium-, and High-Expansion Foam*
Carbon dioxide systems	NFPA 12, *Standard on Carbon Dioxide Extinguishing Systems*
Halon 1301 systems	NFPA 12A, *Standard on Halon 1301 Fire Extinguishing Systems*
Sprinklers in one- and two-family dwellings and manufactured homes	NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*
Sprinklers in residential occupancies up to and including four stories in height	NFPA 13R, *Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height*
Water spray systems	NFPA 15, *Standard for Water Spray Fixed Systems for Fire Protection*
Deluge foam-water sprinkler, foam-water spray systems, and closed-head foam-water sprinkler systems	NFPA 16, *Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems*
Dry chemical extinguishing systems	NFPA 17, *Standard for Dry Chemical Extinguishing Systems*
Wet chemical extinguishing systems	NFPA 17A, *Standard for Wet Chemical Extinguishing Systems*
Water mist systems	NFPA 750, *Standard on Water Mist Fire Protection Systems*
Clean agent fire-extinguishing systems	NFPA 2001, *Standard on Clean Agent Fire Extinguishing Systems*
Aerosol extinguishing systems	NFPA 2010, *Standard for Fixed Aerosol Fire Extinguishing Systems*

13.9.2 The requirements of 13.9.1 shall not apply where NFPA standards, other adopted standards, or the adopted code allow the use of non-listed fire protection or suppression equipment.

Chapter 14 Means of Egress

14.1 Application. Means of egress in new and existing buildings shall comply with this *Code* and NFPA *101*, *Life Safety Code*.

14.2 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 12.7, 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 of NFPA *101*. [***101***:7.1.3.1]

14.3 Exits.

14.3.1 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 of NFPA *101* 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 specified in 14.3.1(1), other than an existing separation, shall be supported by construction having not less than a 1-hour fire resistance rating.

(3)* 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 13.3, 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 of NFPA *101* shall be permitted as an alternative to the requirement of 14.3.1(3).

(4) Reserved.

(5) The minimum 2-hour fire resistance–rated separation required by 14.3.1(3) 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 14.3.1(7).

(6)* 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 14.3.1(1) or 14.3.1(3).

(7) 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 of* NFPA *101)*, fire-retardant-treated wood enclosed in noncombustible or limited-combustible materials shall be permitted.

(8) Openings in the separation shall be protected by fire door assemblies equipped with door closers complying with 14.5.4.

(9)* 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 of NFPA *101* 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 of NFPA 101)*, 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 12.7.

(c) Existing openings to mechanical equipment spaces protected by approved existing fire protection–rated door assemblies shall be permitted, provided that the following criteria are met:
i. The space is used solely for non-fuel-fired mechanical equipment.
ii. The space contains no storage of combustible materials.
iii. The building is protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 13.3.

(10) Penetrations into, and openings through, an exit enclosure assembly shall be limited to the following:
(a) Door assemblies permitted by 14.3.1(9)
(b)* Electrical conduit serving the stairway
(c) Required exit doors
(d) Ductwork and equipment necessary for independent stair pressurization
(e) Water or steam piping necessary for the heating or cooling of the exit enclosure
(f) Sprinkler piping
(g) Standpipes
(h) Existing penetrations protected in accordance with 12.7.5
(i) Penetrations for fire alarm circuits, where the circuits are installed in metal conduit and the penetrations are protected in accordance with 12.7.5

(11) Penetrations or communicating openings shall be prohibited between adjacent exit enclosures.

(12) Membrane penetrations shall be permitted on the exit access side of the exit enclosure and shall be protected in accordance with 12.7.5.6.

[***101***:7.1.3.2.1]

14.3.2 An exit enclosure shall provide a continuous protected path of travel to an exit discharge. [***101***:7.1.3.2.2]

14.3.3* An exit enclosure shall not be used for any purpose that has the potential to interfere with its use as an exit and, if so designated, as an area of refuge. *(See also 14.6.3.)* [***101***:7.1.3.2.3]

14.4 Means of Egress Reliability.

14.4.1* General. Means of egress shall be continuously maintained free of all obstructions or impediments to full instant use in the case of fire or other emergency. [***101***:7.1.10.1]

14.4.2 Furnishings and Decorations in Means of Egress.

14.4.2.1 No furnishings, decorations, or other objects shall obstruct exits or their access thereto, egress therefrom, or visibility thereof. [***101***:7.1.10.2.1]

14.4.2.2 No obstruction by railings, barriers, or gates shall divide the means of egress into sections appurtenant to individual rooms, apartments, or other occupied spaces. Where the AHJ finds the required path of travel to be obstructed by furniture or other movable objects, the authority shall be permitted to require that such objects be secured out of the way or shall be permitted to require that railings or other permanent barriers be installed to protect the path of travel against encroachment. [***101***:7.1.10.2.2]

14.4.2.3 Mirrors shall not be placed on exit door leaves. Mirrors shall not be placed in or adjacent to any exit in such a manner as to confuse the direction of egress. [***101***:7.1.10.2.3]

14.4.2.4 Every door opening and every principal entrance that is required to serve as an exit shall be designed and constructed so that the path of egress travel is obvious and direct. Windows that, because of their physical configuration or design and the materials used in their construction, have the potential to be mistaken for door openings shall be made inaccessible to the occupants by barriers or railings. [***101***:7.2.1.1.2]

14.4.3 Impediments to Egress. Any device or alarm installed to restrict the improper use of a means of egress shall be designed and installed so that it cannot, even in case of failure, impede or prevent emergency use of such means of egress unless otherwise provided in 14.5.3 and Chapters 18, 19, 22, and 23 of NFPA *101*. [***101***:7.1.9]

F L F L F **14.4.4** There shall be no storage above any component of the means of egress unless it is on a separate floor, mezzanine, or engineered and approved platform constructed in accordance with the Florida Building Code.

14.5 Door Openings.

14.5.1 Swing and Force to Open.

14.5.1.1* Swinging-Type Door Assembly Requirement. Any door assembly in a means of egress shall be of the side-hinged or pivoted-swinging type, and shall be installed to be capable of swinging from any position to the full required width of the opening in which it is installed, unless otherwise specified as follows:

(1) Door assemblies in dwelling units, as provided in Chapter 24 of NFPA *101*, shall be permitted.

(2) Door assemblies in residential board and care occupancies, as provided in Chapters 32 and 33 of NFPA *101*, shall be permitted.

(3) Where permitted in Chapters 11 through 43 of NFPA *101*, horizontal-sliding or vertical-rolling security grilles or door assemblies that are part of the required means of egress shall be permitted, provided that all of the following criteria are met:
(a) Such grilles or door assemblies shall remain secured in the fully open position during the period of occupancy by the general public.
(b) On or adjacent to the grille or door opening, there shall be a readily visible, durable sign in letters not less than 1 in. (25 mm) high on a contrasting background that reads as follows: THIS DOOR TO REMAIN OPEN WHEN THE BUILDING IS OCCUPIED.
(c) Door leaves or grilles shall not be brought to the closed position when the space is occupied.
(d) Door leaves or grilles shall be operable from within the space without the use of any special knowledge or effort.
(e) Where two or more means of egress are required, not more than half of the means of egress shall be equipped with horizontal-sliding or vertical-rolling grilles or door assemblies.

(4) Horizontal-sliding door assemblies shall be permitted under any of the following conditions:

(a) Horizontal-sliding door assemblies in detention and correctional occupancies, as provided in Chapters 22 and 23 of NFPA *101*, shall be permitted.
(b) Horizontal-sliding door assemblies complying with 7.2.1.14 of NFPA *101* shall be permitted.
(c) Unless prohibited by Chapters 11 through 43 of NFPA *101*, horizontal-sliding door assemblies serving a room or area with an occupant load of fewer than 10 shall be permitted, provided that all of the following criteria are met:
   i. The area served by the door assembly has no high hazard contents.
   ii. The door assembly is readily operable from either side without special knowledge or effort.
   iii. The force required to operate the door assembly in the direction of door leaf travel is not more than 30 lbf (133 N) to set the door leaf in motion and is not more than 15 lbf (67 N) to close the door assembly or open it to the minimum required width.
   iv. The door assembly complies with any required fire protection rating, and, where rated, is self-closing or automatic-closing by means of smoke detection in accordance with 14.5.4 and is installed in accordance with NFPA 80, *Standard for Fire Doors and Other Opening Protectives*.
   v. Corridor door assemblies required to be self-latching shall have a latch or other mechanism that ensures that the door leaf will not rebound into a partially open position if forcefully closed.
(d) Where private garages, business areas, industrial areas, and storage areas with an occupant load not exceeding 10 contain only low or ordinary hazard contents, door openings to such areas and private garages shall be permitted to be horizontal-sliding door assemblies.
(5) Where private garages, business areas, industrial areas, and storage areas with an occupant load not exceeding 10 contain only low or ordinary hazard contents, door openings to such areas and private garages shall be permitted to be vertical-rolling door assemblies.
(6) Revolving door assemblies complying with 7.2.1.10 of NFPA *101* shall be permitted.
(7) Existing fusible link–operated horizontal-sliding or vertical-rolling fire door assemblies shall be permitted to be used as provided in Chapters 39, 40, and 42 of NFPA *101*. [***101***:7.2.1.4.1]

14.5.1.2 Door Leaf Swing Direction. Door leaves required to be of the side-hinged or pivoted-swinging type shall swing in the direction of egress travel under any of the following conditions:
(1) Where serving a room or area with an occupant load of 50 or more, except under the following conditions:
   (a) Door leaves in horizontal exits shall not be required to swing in the direction of egress travel where permitted by 7.2.4.3.8.1 or 7.2.4.3.8.2 of NFPA *101*.
   (b) Door leaves in smoke barriers shall not be required to swing in the direction of egress travel in existing health care occupancies, as provided in Chapter 19 of NFPA *101*.
(2) Where the door assembly is used in an exit enclosure, unless the door opening serves an individual living unit that opens directly into an exit enclosure
(3) Where the door opening serves a high hazard contents area

[***101***:7.2.1.4.2]

14.5.1.3 Door Leaf Encroachment.

14.5.1.3.1* During its swing, any door leaf in a means of egress shall leave not less than one-half of the required width of an aisle, a corridor, a passageway, or a landing unobstructed and shall project not more than 7 in. (180 mm) into the required width of an aisle, a corridor, a passageway, or a landing, when fully open, unless both of the following conditions are met:
(1) The door opening provides access to a stair in an existing building.
(2) The door opening meets the requirement that limits projection to not more than 7 in. (180 mm) into the required width of the stair landing when the door leaf is fully open.

[***101***:7.2.1.4.3.1]

14.5.1.3.2 Surface-mounted latch release hardware on the door leaf shall be exempt from being included in the maximum 7 in. (180 mm) projection requirement of 14.5.1.3.1, provided that both of the following criteria are met:
(1) The hardware is mounted to the side of the door leaf that faces the aisle, corridor, passageway, or landing when the door leaf is in the open position.
(2) The hardware is mounted not less than 34 in. (865 mm), and not more than 48 in. (1220 mm), above the floor.

[***101***:7.2.1.4.3.2]

14.5.1.4 Screen Door Assemblies and Storm Door Assemblies. Screen door assemblies and storm door assemblies used in a means of egress shall be subject to the requirements for direction of swing that are applicable to other door assemblies used in a means of egress. [***101***:7.2.1.4.4]

14.5.1.5 Door Leaf Operating Forces.

14.5.1.5.1 The forces required to fully open any door leaf manually in a means of egress shall not exceed 15 lbf (67 N) to release the latch, 30 lbf (133 N) to set the leaf in motion, and 15 lbf (67 N) to open the leaf to the minimum required width, unless otherwise specified as follows:
(1) The opening forces for interior side-hinged or pivoted-swinging door leaves without closers shall not exceed 5 lbf (22 N).
(2) The opening forces for existing door leaves in existing buildings shall not exceed 50 lbf (222 N) applied to the latch stile.
(3) The opening forces for horizontal-sliding door leaves in detention and correctional occupancies shall be as provided in Chapters 22 and 23 of NFPA *101*.
(4) The opening forces for power-operated door leaves shall be as provided in 7.2.1.9 of NFPA *101*. [***101***:7.2.1.4.5.1]

14.5.1.5.2 The forces specified in 14.5.1.5 shall be applied to the latch stile. [***101***:7.2.1.4.5.2]

14.5.2 Locks, Latches, and Alarm Devices.

14.5.2.1 Door leaves shall be arranged to be opened readily from the egress side whenever the building is occupied. [***101***:7.2.1.5.1]

14.5.2.2* The requirement of 14.5.2.1 shall not apply to door leaves of listed fire door assemblies after exposure to elevated temperature in accordance with the listing, based on laboratory fire test procedures. [***101***:7.2.1.5.2]

14.5.2.3 Locks, if provided, shall not require the use of a key, a tool, or special knowledge or effort for operation from the egress side. [***101***:7.2.1.5.3]

14.5.2.4 The requirements of 14.5.2.1 and 14.5.2.3 shall not apply where otherwise provided in Chapters 18 through 23 of NFPA *101*. [***101***:7.2.1.5.4]

14.5.2.5 Key-Operated Locks.

14.5.2.5.1 Exterior door assemblies shall be permitted to have key-operated locks from the egress side, provided that all of the following criteria are met:

(1) This alternative is permitted in Chapters 11 through 43 of NFPA *101* for the specific occupancy.
(2) A readily visible, durable sign in letters not less than 1 in. (25 mm) high on a contrasting background that reads as follows is located on or adjacent to the door: THIS DOOR TO REMAIN UNLOCKED WHEN THE BUILDING IS OCCUPIED
(3) The locking device is of a type that is readily distinguishable as locked.
(4) A key is immediately available to any occupant inside the building when it is locked. [***101***:7.2.1.5.5.1]

14.5.2.5.2 The alternative provisions of 14.5.2.5.1 shall be permitted to be revoked by the AHJ for cause. [***101***:7.2.1.5.5.2]

14.5.2.6 Electrically Controlled Egress Door Assemblies. Door assemblies in the means of egress shall be permitted to be electrically locked if equipped with approved, listed hardware that incorporates a built-in switch, provided that all of the following conditions are met:

(1) The hardware for occupant release of the lock is affixed to the door leaf.
(2) The hardware has an obvious method of operation that is readily operated in the direction of egress.
(3) The hardware is capable of being operated with one hand in the direction of egress.
(4) Operation of the hardware interrupts the power supply directly to the electric lock and unlocks the door assembly in the direction of egress.
(5) Loss of power to the hardware automatically unlocks the door assembly in the direction of egress.
(6) Hardware for new installations is listed in accordance with ANSI/UL 294.

[***101***:7.2.1.5.6]

14.5.2.7 Where permitted in Chapters 11 through 43 of NFPA *101*, key operation shall be permitted, provided that the key cannot be removed when the door leaf is locked from the side from which egress is to be made. [***101***:7.2.1.5.7]

14.5.2.8* Every door assembly in a stair enclosure serving more than four stories, unless permitted by 14.5.2.8.2, shall meet one of the following conditions:

(1) Re-entry from the stair enclosure to the interior of the building shall be provided.
(2) An automatic release that is actuated with the initiation of the building fire alarm system shall be provided to unlock all stair enclosure door assemblies to allow re-entry.
(3) Selected re-entry shall be provided in accordance with 14.5.2.8.1. [***101***:7.2.1.5.8]

14.5.2.8.1 Door assemblies on stair enclosures shall be permitted to be equipped with hardware that prevents re-entry into the interior of the building, provided that the following criteria are met:

(1) There shall be not less than two levels where it is possible to leave the stair enclosure to access another exit.
(2) There shall be not more than four stories intervening between stories where it is possible to leave the stair enclosure to access another exit.
(3) Re-entry shall be possible on the top story or next-to-top story served by the stair enclosure, and such story shall allow access to another exit.
(4) Door assemblies allowing re-entry shall be identified as such on the stair side of the door leaf.
(5) Door assemblies not allowing re-entry shall be provided with a sign on the stair side indicating the location of the nearest door opening, in each direction of travel, that allows re-entry or exit. [***101***:7.2.1.5.8.1]

14.5.2.8.2 The requirements of 14.5.2.8, except as provided in 14.5.2.8.3, shall not apply to the following:

(1) Existing installations in buildings that are not high-rise buildings as permitted in Chapters 11 through 43 of NFPA *101*.
(2) Existing installations in high-rise buildings as permitted in Chapters 11 through 43 of NFPA *101* where the occupancy is within a building protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 13.3.
(3) Existing approved stairwell re-entry installations as permitted by Chapters 11 through 43 of NFPA *101*.
(4) Stair enclosures serving a building permitted to have a single exit in accordance with Chapters 11 through 43 of NFPA *101*.
(5) Stair enclosures in health care occupancies where otherwise provided in Chapter 18 of NFPA *101*.
(6) Stair enclosures in detention and correctional occupancies where otherwise provided in Chapter 22 of NFPA *101*. [***101***:7.2.1.5.8.2]

14.5.2.8.3 When the provisions of 14.5.2.8.2 are used, signage on the stair door leaves shall be required as follows:

(1) Door assemblies allowing re-entry shall be identified as such on the stair side of the door leaf.
(2) Door assemblies not allowing re-entry shall be provided with a sign on the stair side indicating the location of the nearest door opening, in each direction of travel, that allows re-entry or exit.

[***101***:7.2.1.5.8.3]

14.5.2.9 If a stair enclosure allows access to the roof of the building, the door to the roof either shall be kept locked or shall allow re-entry from the roof. [***101***:7.2.1.5.9]

14.5.2.10* A latch or other fastening device on a door leaf shall be provided with a releasing device that has an obvious method of operation and that is readily operated under all lighting conditions. [***101***:7.2.1.5.10]

14.5.2.10.1 The releasing mechanism for any latch shall be located as follows:

(1) Not less than 34 in. (865 mm) above the finished floor for other than existing installations
(2) Not more than 48 in. (1220 mm) above the finished floor

[***101***:7.2.1.5.10.1]

14.5.2.10.2 The releasing mechanism shall open the door leaf with not more than one releasing operation, unless otherwise specified in 14.5.2.10.3 and 14.5.2.10.4 or 14.5.2.10.6. [***101***:7.2.1.5.10.2]

14.5.2.10.3* Egress door assemblies from individual living units and guest rooms of residential occupancies shall be permitted to be provided with devices, including automatic latching devices, that require not more than one additional releasing operation, provided that such device is operable from the inside without the use of a key or tool and is mounted at a height not exceeding 48 in. (1220 mm) above the finished floor. [***101***:7.2.1.5.10.3]

14.5.2.10.4 Existing security devices permitted by 14.5.2.10.3 shall be permitted to have two additional releasing operations. [***101***:7.2.1.5.10.4]

14.5.2.10.5 Existing security devices permitted by 14.5.2.10.3, other than automatic latching devices, shall be located not more than 60 in. (1525 mm) above the finished floor. [***101***:7.2.1.5.10.5]

14.5.2.10.6 Two releasing operations shall be permitted for existing hardware on a door leaf serving an area having an occupant load not exceeding three, provided that releasing does not require simultaneous operations. [***101***:7.2.1.5.10.6]

14.5.2.11 Where pairs of door leaves are required in a means of egress, one of the following criteria shall be met:

(1) Each leaf of the pair shall be provided with a releasing device that does not depend on the release of one leaf before the other.

(2) Approved automatic flush bolts shall be used and arranged such that the following criteria are met:
   (a) The door leaf equipped with the automatic flush bolts shall have no doorknob or surface-mounted hardware.
   (b) Unlatching of any leaf shall not require more than one operation. [***101***:7.2.1.5.11]

14.5.2.12* Devices shall not be installed in connection with any door assembly on which panic hardware or fire exit hardware is required where such devices prevent or are intended to prevent the free use of the leaf for purposes of egress, unless otherwise provided in 14.5.3. [***101***:7.2.1.5.12]

14.5.3* Special Locking Arrangements.

14.5.3.1 Delayed-Egress Locking Systems.

14.5.3.1.1 Approved, listed, delayed-egress locking systems shall be permitted to be installed on door assemblies serving low and ordinary hazard contents in buildings protected throughout by an approved, supervised automatic fire detection system in accordance with Section 13.7 or an approved, supervised automatic sprinkler system in accordance with Section 13.3, and where permitted in Chapters 11 through 43 of NFPA *101*, provided that the following criteria are met:

(1) The door leaves shall unlock upon actuation of one of the following:
   (a) Approved, supervised automatic sprinkler system in accordance with Section 13.3
   (b) Not more than one heat detector of an approved, supervised automatic fire detection system in accordance with Section 13.7
   (c) Not more than two smoke detectors of an approved, supervised automatic fire detection system in accordance with Section 13.7

(2) The door leaves shall unlock upon loss of power controlling the lock or locking mechanism.

(3)* An irreversible process shall release the lock within 15 seconds, or 30 seconds where approved by the AHJ, upon application of a force to the release device required in 14.5.2.10 under all of the following conditions:
   (a) The force shall not be required to exceed 15 lbf (67 N).
   (b) The force shall not be required to be continuously applied for more than 3 seconds.
   (c) The initiation of the release process shall activate an audible signal in the vicinity of the door opening.
   (d) Once the lock has been released by the application of force to the releasing device, relocking shall be by manual means only.

(4)* A readily visible, durable sign in letters not less than 1 in. (25 mm) high and not less than $^1/_8$ in. (3.2 mm) in stroke width on a contrasting background that reads as follows shall be located on the door adjacent to the release device:

(5) The egress side of doors equipped with delayed-egress locks shall be provided with emergency lighting in accordance with Section 14.13.

PUSH UNTIL ALARM SOUNDS
DOOR CAN BE OPENED IN 15 SECONDS

[***101***:7.2.1.6.1.1]

14.5.3.1.2 The provisions of 14.5.3.2 for access-controlled egress door assemblies shall not apply to door assemblies with delayed-egress locking systems. [***101***:7.2.1.6.1.2]

14.5.3.2* Access-Controlled Egress Door Assemblies. Where permitted in Chapters 11 through 43 of NFPA *101*, door assemblies in the means of egress shall be permitted to be equipped with an approved entrance and egress access control system, provided that all of the following criteria are met:

(1) A sensor shall be provided on the egress side, arranged to unlock the door leaf in the direction of egress upon detection of an approaching occupant.

(2) Door leaves shall automatically unlock in the direction of egress upon loss of power to the sensor or to the part of the access control system that locks the door leaves.

(3) Door locks shall be arranged to unlock in the direction of egress from a manual release device complying with all of the following criteria:
   (a) The manual release device shall be located on the egress side, 40 in. to 48 in. (1015 mm to 1220 mm) vertically above the floor, and within 60 in. (1525 mm) of the secured door openings.
   (b) The manual release device shall be readily accessible and clearly identified by a sign that reads as follows: PUSH TO EXIT.
   (c) When operated, the manual release device shall result in direct interruption of power to the lock — independent of the locking system electronics — and the lock shall remain unlocked for not less than 30 seconds.

(4) Activation of the building fire-protective signaling system, if provided, shall automatically unlock the door leaves in the direction of egress, and the door leaves shall remain unlocked until the fire-protective signaling system has been manually reset.

(5) The activation of manual fire alarm boxes that activate the building fire-protective signaling system specified in 14.5.3.2(4) shall not be required to unlock the door leaves.

(6) Activation of the building automatic sprinkler or fire detection system, if provided, shall automatically unlock the door leaves in the direction of egress, and the door leaves shall remain unlocked until the fire-protective signaling system has been manually reset.

(7) The egress side of access-controlled egress doors, other than existing access-controlled egress doors, shall be provided with emergency lighting in accordance with Section 14.13.

[*101*:7.2.1.6.2]

14.5.3.3 Elevator Lobby Exit Access Door Assemblies Locking. Where permitted in Chapters 11 through 43 of NFPA *101*, door assemblies separating the elevator lobby from the exit access required by 14.9.1.6.1 shall be permitted to be electronically locked, provided that all the following criteria are met:

(1) The lock is listed in accordance with ANSI/UL 294, *Standard for Access Control System Units*.

(2) The building is protected throughout by a fire alarm system in accordance with Section 13.7.

(3) The building is protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 13.3.

(4) Waterflow in the sprinkler system required by 14.5.3.3(3) is arranged to initiate the building fire alarm system.

(5) The elevator lobby is protected by an approved, supervised smoke detection system in accordance with Section 13.7.

(6) Detection of smoke by the detection system required by 14.5.3.3(5) is arranged to initiate the building fire alarm system and notify building occupants.

(7) Initiation of the building fire alarm system by other than manual fire alarm boxes unlocks the elevator lobby door assembly.

(8) Loss of power to the elevator lobby electronic lock system unlocks the elevator lobby door assemblies.

(9) Once unlocked, the elevator lobby door assemblies remain unlocked until the building fire alarm system has been manually reset.

(10) Where the elevator lobby door assemblies remain latched after being unlocked, latch-releasing hardware in accordance with 14.5.2.10 is affixed to the door leaves.

(11) A two-way communication system is provided for communication between the elevator lobby and a central control point that is constantly staffed.

(12) The central control point staff required by 14.5.3.3(11) is capable, trained, and authorized to provide emergency assistance.

(13) The provisions of 14.5.3.1 for delayed-egress locking systems are not applied to the elevator lobby door assemblies.

(14)* The provisions of 14.5.3.2 for access-controlled egress door assemblies are not applied to the elevator lobby door assemblies. [*101*:7.2.1.6.3]

14.5.3.4 Panic Hardware and Fire Exit Hardware.

14.5.3.4.1 Where a door assembly is required to be equipped with panic or fire exit hardware, such hardware shall meet all of the following criteria:

(1) It shall consist of a cross bar or a push pad, the actuating portion of which extends across not less than one-half of the width of the door leaf.

(2) It shall be mounted as follows:

(a) New installations shall be not less than 34 in. (865 mm), nor more than 48 in. (1220 mm), above the floor.

(b) Existing installations shall be not less than 30 in. (760 mm), nor more than 48 in. (1220 mm), above the floor.

(3) It shall be constructed so that a horizontal force not to exceed 15 lbf (66 N) actuates the cross bar or push pad and latches. [*101*:7.2.1.7.1]

14.5.3.4.2 Only approved panic hardware shall be used on door assemblies that are not fire-rated door assemblies. Only approved fire exit hardware shall be used on fire-rated door assemblies. New panic hardware and new fire exit hardware shall comply with ANSI/UL 305 and ANSI/BHMA A156.3. [*101*:7.2.1.7.2]

14.5.3.4.3 Required panic hardware and fire exit hardware, in other than detention and correctional occupancies as otherwise provided in Chapters 22 and 23 of NFPA *101*, shall not be equipped with any locking device, set screw, or other arrangement that prevents the release of the latch when pressure is applied to the releasing device. [*101*:7.2.1.7.3]

14.5.3.4.4 Devices that hold the latch in the retracted position shall be prohibited on fire exit hardware, unless such devices are listed and approved for such a purpose. [*101*:7.2.1.7.4]

14.5.4 Self-Closing Devices.

14.5.4.1* A door leaf normally required to be kept closed shall not be secured in the open position at any time and shall be self-closing or automatic-closing in accordance with 14.5.4.2, unless otherwise permitted by 14.5.4.3. [*101*:7.2.1.8.1]

14.5.4.2 In any building of low or ordinary hazard contents, as defined in 3.3.144.2 and 3.3.144.3, or where approved by the AHJ, doors shall be permitted to be automatic-closing, provided that all of the following criteria are met:

(1) Upon release of the hold-open mechanism, the leaf becomes self-closing.

(2) The release device is designed so that the leaf instantly releases manually and, upon release, becomes self-closing, or the leaf can be readily closed.

(3) The automatic releasing mechanism or medium is activated by the operation of approved smoke detectors installed in accordance with the requirements for smoke detectors for door leaf release service in *NFPA 72*.

(4) Upon loss of power to the hold-open device, the hold-open mechanism is released and the door leaf becomes self-closing.

(5) The release by means of smoke detection of one door leaf in a stair enclosure results in closing all door leaves serving that stair. [*101*:7.2.1.8.2]

14.5.4.3 The elevator car doors and the associated hoistway enclosure doors at the floor level designated for recall in accordance with the requirements of 11.3.1 shall be permitted to remain open during Phase I Emergency Recall Operation. [*101*:7.2.1.8.3]

14.6 Enclosure and Protection of Stairs.

14.6.1 Enclosures.

14.6.1.1 All inside stairs serving as an exit or exit component shall be enclosed in accordance with Section 14.3. [*101*:7.2.2.5.1.1]

14.6.1.2 Inside stairs, other than those serving as an exit or exit component, shall be protected in accordance with Section 8.6 of NFPA *101*. [*101*:7.2.2.5.1.2]

14.6.1.3 In existing buildings, where a two-story exit enclosure connects the story of exit discharge with an adjacent story, the exit shall be permitted to be enclosed only on the story of exit discharge, provided that not less than 50 percent of the number and capacity of exits on the story of exit discharge are independent of such enclosures. [*101*:7.2.2.5.1.3]

14.6.2* Exposures.

14.6.2.1 Where nonrated walls or unprotected openings enclose the exterior of a stairway, other than an existing stairway, and the walls or openings are exposed by other parts of the building at an angle of less than 180 degrees, the building enclosure walls within 10 ft (3050 mm) horizontally of the nonrated wall or unprotected opening shall be constructed as required for stairway enclosures, including opening protectives. [***101***:7.2.2.5.2.1]

14.6.2.2 Construction shall extend vertically from the ground to a point 10 ft (3050 mm) above the topmost landing of the stairs or to the roofline, whichever is lower. [***101***:7.2.2.5.2.2]

14.6.2.3 The fire resistance rating of the separation extending 10 ft (3050 mm) from the stairs shall not be required to exceed 1 hour where openings have not less than a ¾-hour fire protection rating. [***101***:7.2.2.5.2.3]

14.6.3* Usable Space. Enclosed, usable spaces, within exit enclosures shall be prohibited, including under stairs, unless otherwise permitted by 14.6.3.2. [***101***:7.2.2.5.3]

14.6.3.1 Open space within the exit enclosure shall not be used for any purpose that has the potential to interfere with egress. [***101***:7.2.2.5.3.1]

14.6.3.2 Enclosed, usable space shall be permitted under stairs, provided that both of the following criteria are met:

(1) The space shall be separated from the stair enclosure by the same fire resistance as the exit enclosure.
(2) Entrance to the enclosed, usable space shall not be from within the stair enclosure. *(See also 14.3.3.)* [***101***:7.2.2.5.3.2]

14.7* Exit Passageways.

14.7.1* General. Exit passageways used as exit components shall conform to the general requirements of Section 7.1 of NFPA *101* and to the special requirements of Section 14.7. [***101***:7.2.6.1]

14.7.2 Enclosure. An exit passageway shall be separated from other parts of the building as specified in Section 14.3, and the following alternatives shall be permitted:

(1) Fire windows in accordance with 12.7.3 shall be permitted to be installed in the separation in a building protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 13.3.
(2) Existing fixed wired glass panels in steel sash shall be permitted to be continued in use in the separation in buildings protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 13.3. [***101***:7.2.6.2]

14.7.3 Stair Discharge. An exit passageway that serves as a discharge from a stair enclosure shall have not less than the same fire resistance rating and opening protective fire protection rating as those required for the stair enclosure. [***101***:7.2.6.3]

14.7.4 Width.

14.7.4.1 The width of an exit passageway shall be sized to accommodate the aggregate required capacity of all exits that discharge through it, unless one of the following conditions applies:

(1)* Where an exit passageway serves occupants of the level of exit discharge as well as other stories, the capacity shall not be required to be aggregated.
(2) As provided in Chapters 36 and 37 of NFPA *101*, an exit passageway in a mall building shall be permitted to accommodate occupant loads independently from the mall and the tenant spaces. *(See 36.2.2.7.2 and 37.2.2.7.2 of NFPA 101.)* [***101***:7.2.6.4.1]

14.7.4.2 In new construction, the minimum width of any exit passageway into which an exit stair discharges, or that serves as a horizontal transfer within an exit stair system, shall meet the following criteria:

(1) The minimum width of the exit passageway shall be not less than two-thirds of the width of the exit stair.
(2) Where stairs are credited with egress capacity in accordance with 14.8.3.2, the exit passageway width shall be sized to accommodate the same capacity as the stair, with such capacity determined by use of the capacity factors in Table 14.8.3.1.

[***101***:7.2.6.4.2]

14.8 Capacity of Means of Egress.

14.8.1 Occupant Load.

14.8.1.1 Sufficient Capacity.

14.8.1.1.1 The total capacity of the means of egress for any story, balcony, tier, or other occupied space shall be sufficient for the occupant load thereof. [***101***:7.3.1.1.1]

14.8.1.1.2 For other than existing means of egress, where more than one means of egress is required, the means of egress shall be of such width and capacity that the loss of any one means of egress leaves available not less than 50 percent of the required capacity. [***101***:7.3.1.1.2]

14.8.1.2* Occupant Load Factor. The occupant load in any building or portion thereof shall be not less than the number of persons determined by dividing the floor area assigned to that use by the occupant load factor for that use as specified in Table 14.8.1.2, Figure 14.8.1.2(a), and Figure 14.8.1.2(b). Where both gross and net area figures are given for the same occupancy, calculations shall be made by applying the gross area figure to the gross area of the portion of the building devoted to the use for which the gross area figure is specified and by applying the net area figure to the net area of the portion of the building devoted to the use for which the net area figure is specified. [***101***:7.3.1.2]

14.8.1.3 Occupant Load Increases.

14.8.1.3.1 The occupant load in any building or portion thereof shall be permitted to be increased from the occupant load established for the given use in accordance with 14.8.1.2 where all other requirements of this *Code* are also met, based on such increased occupant load. [***101***:7.3.1.3.1]

14.8.1.3.2 The AHJ shall be permitted to require an approved aisle, seating, or fixed equipment diagram to substantiate any increase in occupant load and shall be permitted to require that such a diagram be posted in an approved location. [***101***:7.3.1.3.2]

Table 14.8.1.2 Occupant Load Factor

Use	(ft^2 per person)[a]	(m^2 per person)[b]
Assembly Use		
Concentrated use, without fixed seating	7 net	0.65 net
Less concentrated use, without fixed seating	15 net	1.4 net
Bench-type seating	1 person/18 linear in.	1 person/455 linear mm
Fixed seating	Number of fixed seats	Number of fixed seats
Waiting spaces	*See 12.1.7.2 and 13.1.7.2 of NFPA 101*	*See 12.1.7.2 and 13.1.7.2 of NFPA 101*
Kitchens	100	9.3
Library stack areas	100	9.3
Library reading rooms	50 net	4.6 net
Swimming pools	50 (water surface)	4.6 (water surface)
Swimming pool decks	30	2.8
Exercise rooms with equipment	50	4.6
Exercise rooms without equipment	15	1.4
Stages	15 net	1.4 net
Lighting and access catwalks, galleries, gridirons	100 net	9.3 net
Casinos and similar gaming areas	11	1
Skating rinks	50	4.6
Educational Use		
Classrooms	20 net	1.9 net
Shops, laboratories, vocational rooms	50 net	4.6 net
Day-Care Use	35 net	3.3 net
Health Care Use		
Inpatient treatment departments	240	22.3
Sleeping departments	120	11.1
Ambulatory health care	100	9.3
Detention and Correctional Use	120	11.1
Residential Use		
Hotels and dormitories	200	18.6
Apartment buildings	200	18.6
Board and care, large	200	18.6
Industrial Use		
General and high-hazard industrial	100	9.3
Special-purpose industrial	NA	NA
Business Use (other than below)	100	9.3
Air traffic control tower observation levels	40	3.7
Storage Use		
In storage occupancies	NA	NA
In mercantile occupancies	300	27.9
In other than storage and mercantile occupancies	500	46.5
Mercantile Use		
Sales area on street	30	2.8
Sales area on two or more street floors[c]	40	3.7
Sales area on floor below street floor[c]	30	2.8
Sales area on floors above street floor[c]	60	5.6
Floors or portions of floors used only for offices	See business use.	See business use.
Floors or portions of floors used only for storage, receiving, and shipping, and not open to general public	300	27.9
Mall buildings[d]	Per factors applicable to use of space[e]	Per factors applicable to use of space[e]

NA: Not applicable. The occupant load is the maximum probable number of occupants present at any time.

[a]All factors are expressed in gross area unless marked "net."

[b]For the purpose of determining occupant load in mercantile occupancies where, due to differences in the finished ground level of streets on different sides, two or more floors directly accessible from streets (not including alleys or similar back streets) exist, each such floor is permitted to be considered a street floor. The occupant load factor is one person for each 40 ft^2 (3.7 m^2) of gross floor area of sales space.

[c]For the purpose of determining occupant load in mercantile occupancies with no street floor, as defined in 3.3.234, but with access directly from the street by stairs or escalators, the floor at the point of entrance to the mercantile occupancy is considered the street floor.

[d]For any food court or other assembly use areas located in the mall that are not included as a portion of the gross leasable area of the mall building, the occupant load is calculated based on the occupant load factor for that use as specified in Table 14.8.1.2. The remaining mall area is not required to be assigned an occupant load.

[e]The portions of the mall that are considered a pedestrian way and not used as gross leasable area are not required to be assessed an occupant load based on Table 14.8.1.2. However, means of egress from a mall pedestrian way are required to be provided for an occupant load determined by dividing the gross leasable area of the mall building (not including anchor stores) by the appropriate lowest whole number occupant load factor from Figure 14.8.1.2(a) or Figure 14.8.1.2(b).

Each individual tenant space is required to have means of egress to the outside or to the mall based on occupant loads calculated by using the appropriate occupant load factor from Table 14.8.1.2.

Each individual anchor store is required to have means of egress independent of the mall.

[***101***: Table 7.3.1.2]

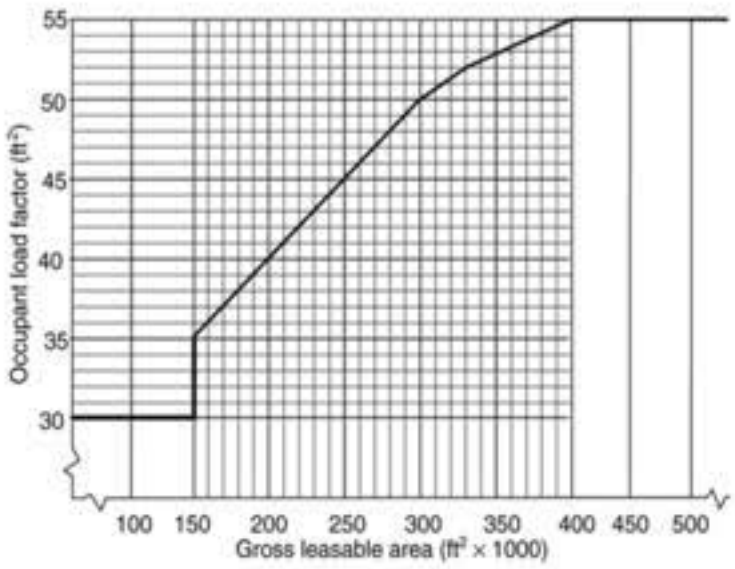

FIGURE 14.8.1.2(a) Mall Building Occupant Load Factors (U.S. Customary Units). [*101*:Figure 7.3.1.2(a)]

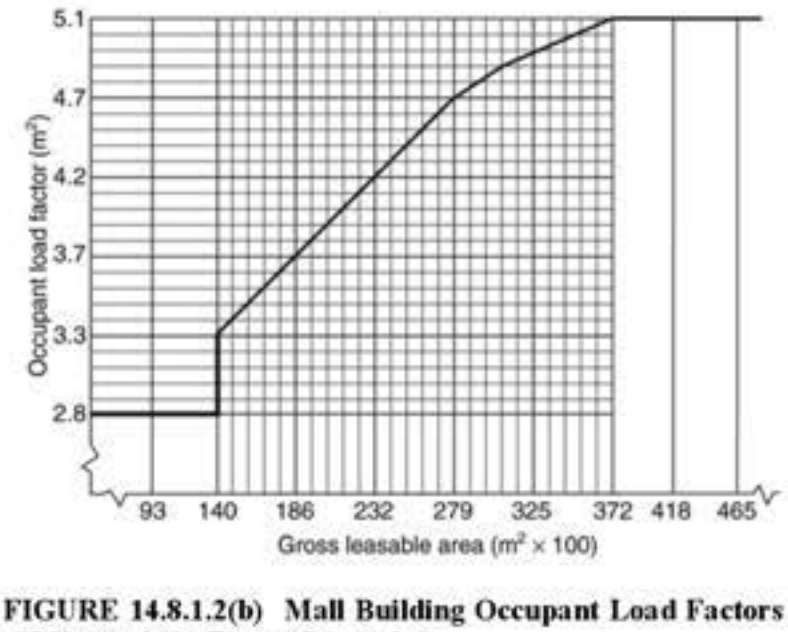

FIGURE 14.8.1.2(b) Mall Building Occupant Load Factors (SI Units). [*101*:Figure 7.3.1.2(b)]

14.8.1.4 Exits Serving More than One Story. Where an exit serves more than one story, only the occupant load of each story considered individually shall be used in computing the required capacity of the exit at that story, provided that the required egress capacity of the exit is not decreased in the direction of egress travel. [*101*:7.3.1.4]

14.8.1.5 Capacity from a Point of Convergence. Where means of egress from a story above and a story below converge at an intermediate story, the capacity of the means of egress from the point of convergence shall be not less than the sum of the required capacity of the two means of egress. [*101*:7.3.1.5]

14.8.1.6 Egress Capacity from Balconies and Mezzanines. Where any required egress capacity from a balcony or mezzanine passes through the room below, that required capacity shall be added to the required egress capacity of the room below. [*101*:7.3.1.6]

14.8.2 Measurement of Means of Egress.

14.8.2.1 The width of means of egress shall be measured in the clear at the narrowest point of the egress component under consideration, unless otherwise provided in 14.8.2.2 or 14.8.2.3. [*101*:7.3.2.1]

14.8.2.2 Projections within the means of egress of not more than 4½ in. (114 mm) on each side shall be permitted at a height of 38 in. (965 mm) and below. In the case of stair and landing handrails forming part of a guard, in accordance with 7.2.2.4.4.3 of NFPA *101* , such projections shall be permitted at a height of 42 in. (1065 mm) and below. [*101*:7.3.2.2]

14.8.2.3 In health care and ambulatory health care occupancies, projections shall be permitted in corridors in accordance with Chapters 18 through 21 of NFPA *101*. [*101*:7.3.2.3]

14.8.3 Egress Capacity.

14.8.3.1 Egress capacity for approved components of means of egress shall be based on the capacity factors shown in Table 14.8.3.1, unless otherwise provided in 14.8.3.2. [*101*:7.3.3.1]

Table 14.8.3.1 Capacity Factors

Area	Stairways (width per person)		Level Components and Ramps (width per person)	
	in.	mm	in.	mm
Board and care	0.4	10	0.2	5
Health care, sprinklered	0.3	7.6	0.2	5
Health care, nonsprinklered	0.6	15	0.5	13
High hazard contents	0.7	18	0.4	10
All others	0.3	7.6	0.2	5

[*101*: Table 7.3.3.1]

14.8.3.2* For stairways wider than 44 in. (1120 mm) and subject to the 0.3 in. (7.6 mm) width per person capacity factor, the capacity shall be permitted to be increased using the following equation:

$$C = 146.7 + \left(\frac{Wn - 44}{0.218}\right)$$

where:

C = capacity, in persons, rounded to the nearest integer

Wn = nominal width of the stair as permitted by 14.8.3.2 (in.) [*101*:7.3.3.2]

14.8.3.3 The required capacity of a corridor shall be the occupant load that utilizes the corridor for exit access divided by the required number of exits to which the corridor connects, but the corridor capacity shall be not less than the required capacity of the exit to which the corridor leads. [*101*:7.3.3.3]

14.8.3.4 Minimum Width.

14.8.3.4.1 The width of any means of egress, unless otherwise provided in 14.8.3.4.1.1 through 14.8.3.4.1.3, shall be as follows:

(1) Not less than that required for a given egress component in this chapter or Chapter 7 or Chapters 11 through 43 of NFPA *101*

(2) Not less than 36 in. (915 mm) where another part of this chapter and Chapters 11 through 43 of NFPA *101* do not specify a minimum width. [***101***:7.3.4.1]

14.8.3.4.1.1* The width of exit access that is formed by furniture and movable partitions, that serves not more than six people, and that has a length not exceeding 50 ft (15 m) shall meet both of the following criteria:

(1) The width shall be not less than 18 in. (455 mm), at and below a height of 38 in. (965 mm), and not less than 28 in. (710 mm) above a height of 38 in. (965 mm).

(2) A width of not less than 36 in. (915 mm) for new exit access, and not less than 28 in. (710 mm) for existing exit access, shall be capable of being provided without moving permanent walls. [***101***:7.3.4.1.1]

14.8.3.4.1.2 In existing buildings, the width of exit access shall be permitted to be not less than 28 in. (710 mm). [***101***:7.3.4.1.2]

14.8.3.4.1.3 The requirement of 14.8.3.4.1 shall not apply to the following:

(1) Doors as otherwise provided for in 7.2.1.2 of NFPA *101*

(2) Aisles and aisle accessways in assembly occupancies as otherwise provided in Chapters 12 and 13 of NFPA *101*

(3) Industrial equipment access as otherwise provided in 40.2.5.2 of NFPA *101* [***101***:7.3.4.1.3]

14.8.3.4.2 Where a single exit access leads to an exit, its capacity in terms of width shall be not less than the required capacity of the exit to which it leads. [***101***:7.3.4.2]

14.8.3.4.3 Where more than one exit access leads to an exit, each shall have a width adequate for the number of persons it accommodates. [***101***:7.3.4.3]

14.9 Number of Means of Egress.

14.9.1 General.

14.9.1.1 The number of means of egress from any balcony, mezzanine, story, or portion thereof shall be not less than two, except under one of the following conditions:

(1) A single means of egress shall be permitted where permitted in Chapters 11 through 43 of NFPA *101*.

(2) A single means of egress shall be permitted for a mezzanine or balcony and the common path of travel limitations of Chapters 11 through 43 of NFPA *101* are met. [***101***:7.4.1.1]

14.9.1.2 The number of means of egress from any story or portion thereof, other than for existing buildings as permitted in Chapters 11 through 43 of NFPA *101*, shall be as follows:

(1) Occupant load more than 500 but not more than 1000 — not less than 3

(2) Occupant load more than 1000 — not less than 4 [***101***:7.4.1.2]

14.9.1.3 Accessible means of egress in accordance with 14.10.4 that do not utilize elevators shall be permitted to serve as any or all of the required minimum number of means of egress. [***101***:7.4.1.3]

14.9.1.4 The occupant load of each story considered individually shall be required to be used in computing the number of means of egress at each story, provided that the required number of means of egress is not decreased in the direction of egress travel. [***101***:7.4.1.4]

14.9.1.5 Doors other than the hoistway door, the elevator car door, and doors that are readily openable from the car side without a key, a tool, special knowledge, or special effort, shall be prohibited at the point of access to an elevator car. [***101***:7.4.1.5]

14.9.1.6 Elevator Landing and Lobby Exit Access.

14.9.1.6.1 Each elevator landing and lobby shall have access to at least one exit. [***101***:7.4.1.6.1]

14.9.1.6.2 The elevator landing and lobby exit access required by 14.9.1.6.1 shall not require the use of a key, a tool, special knowledge, or special effort, unless permitted by 14.9.1.6.3. [***101***:7.4.1.6.2]

14.9.1.6.3 Doors separating the elevator lobby from the exit access required by 14.9.1.6.1 shall be permitted to be electronically locked in accordance with 14.5.3.3. [***101***:7.4.1.6.3]

14.10 Arrangement of Means of Egress.

14.10.1 General.

14.10.1.1 Exits shall be located and exit access shall be arranged so that exits are readily accessible at all times. [***101***:7.5.1.1]

14.10.1.1.1* Where exits are not immediately accessible from an open floor area, continuous passageways, aisles, or corridors leading directly to every exit shall be maintained and shall be arranged to provide access for each occupant to not less than two exits by separate ways of travel, unless otherwise provided in 14.10.1.1.3 and 14.10.1.1.4. [***101***:7.5.1.1.1]

14.10.1.1.2 Exit access corridors shall provide access to not less than two approved exits, unless otherwise provided in 14.10.1.1.3 and 14.10.1.1.4. [***101***:7.5.1.1.2]

14.10.1.1.3 The requirements of 14.10.1.1.1 and 14.10.1.1.2 shall not apply where a single exit is permitted in Chapters 11 through 43 of NFPA *101*. [***101***:7.5.1.1.3]

14.10.1.1.4 Where common paths of travel are permitted for an occupancy in Chapters 11 through 43 of NFPA *101*, such common paths of travel shall be permitted but shall not exceed the limit specified. [***101***:7.5.1.1.4]

14.10.1.2 Corridors shall provide exit access without passing through any intervening rooms other than corridors, lobbies, and other spaces permitted to be open to the corridor, unless otherwise provided in 14.10.1.2.1 and 14.10.1.2.2. [***101***:7.5.1.2]

14.10.1.2.1 Approved existing corridors that require passage through a room to access an exit shall be permitted to continue to be used, provided that the following criteria are met:

(1) The path of travel is marked in accordance with Section 14.14.

(2) Doors to such rooms comply with 7.2.1 of NFPA *101*.

(3) Such arrangement is not prohibited by the applicable occupancy chapter in NFPA *101*. [***101***:7.5.1.2.1]

14.10.1.2.2 Corridors that are not required to be fire resistance rated shall be permitted to discharge into open floor plan areas. [***101***:7.5.1.2.2]

14.10.1.3 Remoteness shall be provided in accordance with 14.10.1.3.1 through 14.10.1.3.7. [*101*:7.5.1.3]

14.10.1.3.1 Where more than one exit, exit access, or exit discharge is required from a building or portion thereof, such exits, exit accesses, or exit discharges shall be remotely located from each other and be arranged to minimize the possibility that more than one has the potential to be blocked by any one fire or other emergency condition. [*101*:7.5.1.3.1]

14.10.1.3.2* Where two exits, exit accesses, or exit discharges are required, they shall be located at a distance from one another not less than one-half the length of the maximum overall diagonal dimension of the building or area to be served, measured in a straight line between the nearest edge of the exits, exit accesses, or exit discharges, unless otherwise provided in 14.10.1.3.3 through 14.10.1.3.5. [*101*:7.5.1.3.2]

14.10.1.3.3 In buildings protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 13.3, the minimum separation distance between two exits, exit accesses, or exit discharges, measured in accordance with 14.10.1.3.2, shall be not less than one-third the length of the maximum overall diagonal dimension of the building or area to be served. [*101*:7.5.1.3.3]

14.10.1.3.4* In other than high-rise buildings, where exit enclosures are provided as the required exits specified in 14.10.1.3.2 or 14.10.1.3.3 and are interconnected by not less than a 1-hour fire resistance–rated corridor, exit separation shall be measured along the shortest line of travel within the corridor [*101*:7.5.1.3.4]

14.10.1.3.5 In existing buildings, where more than one exit, exit access, or exit discharge is required, such exits, exit accesses, or exit discharges shall be exempt from the diagonal measurement separation distance criteria of 14.10.1.3.2 and 14.10.1.3.3, provided that such exits, exit accesses, or exit discharges are remotely located in accordance with 14.10.1.3.1. [*101*:7.5.1.3.5]

14.10.1.3.6 In other than existing buildings, where more than two exits, exit accesses, or exit discharges are required, at least two of the required exits, exit accesses, or exit discharges shall be arranged to comply with the minimum separation distance requirement. [*101*:7.5.1.3.6]

14.10.1.3.7 The balance of the exits, exit accesses, or exit discharges specified in 14.10.1.3.6 shall be located so that, if one becomes blocked, the others are available. [*101*:7.5.1.3.7]

14.10.1.4 Interlocking or scissor stairs shall comply with 14.10.1.4.1 and 14.10.1.4.2. [*101*:7.5.1.4]

14.10.1.4.1 New interlocking or scissor stairs shall be permitted to be considered only as a single exit. [*101*:7.5.1.4.1]

14.10.1.4.2* Existing interlocking or scissor stairs shall be permitted to be considered separate exits, provided that they meet all of the following criteria:

(1) They are enclosed in accordance with Section 14.3.
(2) They are separated from each other by 2-hour fire resistance–rated noncombustible construction.
(3) No protected or unprotected penetrations or communicating openings exist between the stair enclosures. [*101*:7.5.1.4.2]

14.10.1.5* Exit access shall be arranged so that there are no dead ends in corridors, unless permitted by, and limited to the lengths specified in, Chapters 11 through 43 of NFPA *101*. [*101*:7.5.1.5]

14.10.1.6 Exit access from rooms or spaces shall be permitted to be through adjoining or intervening rooms or areas, provided that such rooms or areas are accessory to the area served. Foyers, lobbies, and reception rooms constructed as required for corridors shall not be construed as intervening rooms. Exit access shall be arranged so that it is not necessary to pass through any area identified under Protection from Hazards in Chapters 11 through 43 of NFPA *101*. [*101*:7.5.1.6]

14.10.2 Impediments to Egress. See also 7.1.9 of NFPA *101*, and 14.5.2. [*101*:7.5.2]

14.10.2.1* Access to an exit shall not be through kitchens, storerooms other than as provided in Chapters 36 and 37 of NFPA *101*, restrooms, workrooms, closets, bedrooms or similar spaces, or other rooms or spaces subject to locking, unless passage through such rooms or spaces is permitted for the occupancy by Chapters 18, 19, 22, or 23 of NFPA *101*. [*101*:7.5.2.1]

14.10.2.2* Exit access and exit doors shall be designed and arranged to be clearly recognizable. [*101*:7.5.2.2]

14.10.2.2.1 Hangings or draperies shall not be placed over exit doors or located so that they conceal or obscure any exit, unless otherwise provided in 14.10.2.2.2. [*101*:7.5.2.2.1]

14.10.2.2.2 Curtains shall be permitted across means of egress openings in tent walls, provided that all of the following criteria are met:

(1) They are distinctly marked in contrast to the tent wall so as to be recognizable as means of egress.
(2) They are installed across an opening that is at least 6 ft (1830 mm) in width.
(3) They are hung from slide rings or equivalent hardware so as to be readily moved to the side to create an unobstructed opening in the tent wall that is of the minimum width required for door openings. [*101*:7.5.2.2.2]

14.10.3 Exterior Ways of Exit Access.

14.10.3.1 Exit access shall be permitted to be by means of any exterior balcony, porch, gallery, or roof that conforms to the requirements of this chapter and Chapter 7 of NFPA *101*. [*101*:7.5.3.1]

14.10.3.2 The long side of the balcony, porch, gallery, or similar space shall be at least 50 percent open and shall be arranged to restrict the accumulation of smoke. [*101*:7.5.3.2]

14.10.3.3 Exterior exit access balconies shall be separated from the interior of the building by walls and opening protectives as required for corridors, unless the exterior exit access balcony is served by at least two remote stairs that can be accessed without any occupant traveling past an unprotected opening to reach one of the stairs, or unless dead ends on the exterior exit access do not exceed 20 ft (6100 mm). [*101*:7.5.3.3]

14.10.3.4 Exterior exit access shall be arranged so that there are no dead ends in excess of those permitted for dead-end corridors in Chapters 11 through 43 of NFPA *101*. [*101*:7.5.3.4]

14.10.4 Accessible Means of Egress.

14.10.4.1* Areas accessible to people with severe mobility impairment, other than in existing buildings, shall have not less than two accessible means of egress, unless otherwise provided in 14.10.4.1.2 through 14.10.4.1.4. [*101*:7.5.4.1]

14.10.4.1.1 Access within the allowable travel distance shall be provided to not less than one accessible area of refuge or one accessible exit providing an accessible route to an exit discharge. [*101*:7.5.4.1.1]

14.10.4.1.2 A single accessible means of egress shall be permitted from buildings or areas of buildings permitted to have a single exit. [*101*:7.5.4.1.2]

14.10.4.1.3 Accessible means of egress shall not be required in health care occupancies protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 13.3. [*101*:7.5.4.1.3]

14.10.4.1.4 Exit access travel along the accessible means of egress shall be permitted to be common for the distances permitted as common paths of travel. [*101*:7.5.4.1.4]

14.10.4.2 Where two accessible means of egress are required, the exits serving such means of egress shall be located at a distance from one another not less than one-half the length of the maximum overall diagonal dimension of the building or area to be served. This distance shall be measured in a straight line between the nearest edge of the exit doors or exit access doors, unless otherwise provided in 14.10.4.2.1 through 14.10.4.2.3. [*101*:7.5.4.2]

14.10.4.2.1 Where exit enclosures are provided as the required exits specified in 14.10.4.2 and are interconnected by not less than a 1-hour fire resistance–rated corridor, exit separation shall be permitted to be measured along the line of travel within the corridor. [*101*:7.5.4.2.1]

14.10.4.2.2 The requirement of 14.10.4.2 shall not apply to buildings protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 13.3. [*101*:7.5.4.2.2]

14.10.4.2.3 The requirement of 14.10.4.2 shall not apply where the physical arrangement of means of egress prevents the possibility that access to both accessible means of egress will be blocked by any one fire or other emergency condition as approved by the AHJ. [*101*:7.5.4.2.3]

14.10.4.3 Each required accessible means of egress shall be continuous from each accessible occupied area to a public way or area of refuge in accordance with 7.2.12.2.2 of NFPA *101*. [*101*:7.5.4.3]

14.10.4.4 Where an exit stair is used in an accessible means of egress, it shall comply with 7.2.12 of NFPA *101* and either shall incorporate an area of refuge within an enlarged story-level landing or shall be accessed from an area of refuge. [*101*:7.5.4.4]

14.10.4.5 To be considered part of an accessible means of egress, an elevator shall be in accordance with 7.2.12.2.4 of NFPA *101*. [*101*:7.5.4.5]

14.10.4.6 To be considered part of an accessible means of egress, a smoke barrier in accordance with Section 12.9 with not less than a 1-hour fire resistance rating, or a horizontal exit in accordance with 7.2.4 of NFPA *101*, shall discharge to an area of refuge in accordance with 7.2.12 of NFPA *101*. [*101*:7.5.4.6]

14.10.4.7 Accessible stories that are four or more stories above or below a story of exit discharge shall have not less than one elevator complying with 14.10.4.5, except as modified in 14.10.4.8. [*101*:7.5.4.7]

14.10.4.8 Where elevators are required by 14.10.4.7, the smokeproof enclosure required by 7.2.12.2.4 of NFPA *101* shall not be required in buildings protected throughout by an approved, supervised automatic sprinkler system in accordance with NFPA 13. [*101*:7.5.4.8]

14.10.4.9 An area of refuge used as part of a required accessible means of egress shall be in accordance with 7.2.12 of NFPA *101*. [*101*:7.5.4.9]

14.11 Discharge from Exits.

14.11.1* Exit Termination. Exits shall terminate directly, at a public way or at an exterior exit discharge, unless otherwise provided in 14.11.1.2 through 14.11.1.4. [*101*:7.7.1]

14.11.1.1 Yards, courts, open spaces, or other portions of the exit discharge shall be of required width and size to provide all occupants with a safe access to a public way. [*101*:7.7.1.1]

14.11.1.2 The requirement of 14.11.1 shall not apply to interior exit discharge as otherwise provided in 14.11.2. [*101*:7.7.1.2]

14.11.1.3 The requirement of 14.11.1 shall not apply to rooftop exit discharge as otherwise provided in 14.11.6. [*101*:7.7.1.3]

14.11.1.4 Means of egress shall be permitted to terminate in an exterior area of refuge for detention and correctional occupancies as otherwise provided in Chapters 22 and 23 of NFPA *101*. [*101*:7.7.1.4]

14.11.2 Exit Discharge Through Interior Building Areas. Exits shall be permitted to discharge through interior building areas, provided that all of the following are met:

(1) Not more than 50 percent of the required number of exits, and not more than 50 percent of the required egress capacity, shall discharge through areas on any level of discharge, except as otherwise permitted by one of the following:
   (a) One hundred percent of the exits shall be permitted to discharge through areas on any level of discharge in detention and correctional occupancies as otherwise provided in Chapters 22 and 23.
   (b) In existing buildings, the 50 percent limit on egress capacity shall not apply if the 50 percent limit on the required number of exits is met.

(2) Each level of discharge shall discharge directly outside at the finished ground level or discharge directly outside and provide access to the finished ground level by outside stairs or outside ramps.

(3) The interior exit discharge shall lead to a free and unobstructed way to the exterior of the building, and such way shall be readily visible and identifiable from the point of discharge from the exit.

(4) The interior exit discharge shall be protected by one of the following methods:
   (a) The level of discharge shall be protected throughout by an approved automatic sprinkler system in accordance with Section 13.3, or the portion of the level of discharge used for interior exit discharge shall be protected by an approved automatic sprinkler system in accordance with Section 13.3 and shall be separated from the nonsprinklered portion of the floor by fire barriers with a fire resistance rating meeting the requirements for the enclosure of exits. *(See 14.3.1.)*
   (b) The interior exit discharge area shall be in a vestibule or foyer that meets all of the following criteria:
      i. The depth from the exterior of the building shall be not more than 10 ft (3050 mm), and the length shall be not more than 30 ft (9.1 m).

ii. The foyer shall be separated from the remainder of the level of discharge by construction providing protection not less than the equivalent of wired glass in steel frames or 45 minutes fire-resistive construction.
iii. The foyer shall serve only as means of egress and shall include an exit directly to the outside.

(5) The entire area on the level of discharge shall be separated from areas below by construction having a fire resistance rating not less than that required for the exit enclosure, unless otherwise provided in 14.11.2(6).
(6) Levels below the level of discharge in an atrium shall be permitted to be open to the level of discharge where such level of discharge is protected in accordance with 8.6.7 of NFPA *101*.

[***101***:7.7.2]

14.11.3 Arrangement and Marking of Exit Discharge.

14.11.3.1 Where more than one exit discharge is required, exit discharges shall be arranged to meet the remoteness criteria of 14.10.1.3. [***101***:7.7.3.1]

14.11.3.2 The exit discharge shall be arranged and marked to make clear the direction of egress travel from the exit discharge to a public way. [***101***:7.7.3.2]

14.11.3.3 Stairs and ramps shall be arranged so as to make clear the direction of egress travel from the exit discharge to a public way. [***101***:7.7.3.3]

14.11.3.4* Stairs and ramps that continue more than one-half story beyond the level of discharge shall be provided with an approved means to prevent or dissuade occupants from traveling past the level of discharge during emergency building evacuation. [***101***:7.7.3.4]

14.11.4 Components of Exit Discharge. Doors, stairs, ramps, corridors, exit passageways, bridges, balconies, escalators, moving walks, and other components of an exit discharge shall comply with the detailed requirements of this chapter for such components. [***101***:7.7.4]

14.11.5 Signs. See 10.12.3. [***101***:7.7.5]

14.11.6 Discharge to Roofs. Where approved by the AHJ, exits shall be permitted to discharge to roofs or other sections of the building or an adjoining building where all of the following criteria are met:

(1) The roof/ceiling assembly construction has a fire resistance rating not less than that required for the exit enclosure.
(2) A continuous and safe means of egress from the roof is available. [***101***:7.7.6]

14.12 Illumination of Means of Egress.

14.12.1 General.

14.12.1.1* Illumination of means of egress shall be provided in accordance with Section 14.12 for every building and structure where required in Chapters 11 through 43 of NFPA *101*. For the purposes of this requirement, exit access shall include only designated stairs, aisles, corridors, ramps, escalators, and passageways leading to an exit. For the purposes of this requirement, exit discharge shall include only designated stairs, aisles, corridors, ramps, escalators, walkways, and exit passageways leading to a public way. [***101***:7.8.1.1]

14.12.1.2 Illumination of means of egress shall be continuous during the time that the conditions of occupancy require that the means of egress be available for use, unless otherwise provided in 14.12.1.2.2. [***101***:7.8.1.2]

14.12.1.2.1 Artificial lighting shall be employed at such locations and for such periods of time as are necessary to maintain the illumination to the minimum criteria values herein specified. [***101***:7.8.1.2.1]

14.12.1.2.2 Unless prohibited by Chapters 11 through 43 of NFPA *101*, automatic, motion sensor–type lighting switches shall be permitted within the means of egress, provided that the switch controllers comply with all of the following:

(1) The switch controllers are listed.
(2) The switch controllers are equipped for fail-safe operation and evaluated for this purpose.
(3) The illumination timers are set for a minimum 15-minute duration.
(4) The motion sensor is activated by any occupant movement in the area served by the lighting units.
(5) The switch controller is activated by activation of the building fire alarm system, if provided.

[***101***:7.8.1.2.2]

14.12.1.2.3* Energy-saving sensors, switches, timers, or controllers shall be approved and shall not compromise the continuity of illumination of the means of egress required by 14.12.1.2. [***101***:7.8.1.2.3]

14.12.1.3* The floors and other walking surfaces within an exit and within the portions of the exit access and exit discharge designated in 14.12.1.1 shall be illuminated as follows:

(1) During conditions of stair use, the minimum illumination for new stairs shall be at least 10 ft-candle (108 lux), measured at the walking surfaces.
(2) The minimum illumination for floors and walking surfaces, other than new stairs during conditions of stair use, shall be to values of at least 1 ft-candle (10.8 lux), measured at the floor.
(3) In assembly occupancies, the illumination of the walking surfaces of exit access shall be at least 0.2 ft-candle (2.2 lux) during periods of performances or projections involving directed light.
(4)* The minimum illumination requirements shall not apply where operations or processes require low lighting levels. [***101***:7.8.1.3]

14.12.1.4* Required illumination shall be arranged so that the failure of any single lighting unit does not result in an illumination level of less than 0.2 ft-candle (2.2 lux) in any designated area. [***101***:7.8.1.4]

14.12.1.5 The equipment or units installed to meet the requirements of Section 14.14 also shall be permitted to serve the function of illumination of means of egress, provided that all requirements of Section 14.12 for such illumination are met. [***101***:7.8.1.5]

14.12.2 Sources of Illumination.

14.12.2.1* Illumination of means of egress shall be from a source considered reliable by the AHJ. [***101***:7.8.2.1]

14.12.2.2 Battery-operated electric lights and other types of portable lamps or lanterns shall not be used for primary illumination of means of egress. Battery-operated electric lights shall be permitted to be used as an emergency source to the extent permitted under Section 14.13. [***101***:7.8.2.2]

14.13 Emergency Lighting.

14.13.1 General.

14.13.1.1* Emergency lighting facilities for means of egress shall be provided in accordance with Section 14.13 for the following:

(1) Buildings or structures where required in Chapters 11 through 43 of NFPA *101*

(2) Underground and limited access structures as addressed in Section 11.7 of NFPA *101*

(3) High-rise buildings as required by NFPA *101*

(4) Doors equipped with delayed-egress locks

(5) Stair shaft and vestibule of smokeproof enclosures, for which the following also apply:

(a) The stair shaft and vestibule shall be permitted to include a standby generator that is installed for the smokeproof enclosure mechanical ventilation equipment.

(b) The standby generator shall be permitted to be used for the stair shaft and vestibule emergency lighting power supply.

(6) New access-controlled egress doors in accordance with 14.5.3.2 [***101***:7.9.1.1]

14.13.1.2 For the purposes of 14.13.1.1, exit access shall include only designated stairs, aisles, corridors, ramps, escalators, and passageways leading to an exit. For the purposes of 14.13.1.1, exit discharge shall include only designated stairs, ramps, aisles, walkways, and escalators leading to a public way. [***101***:7.9.1.2]

14.13.1.3 Where maintenance of illumination depends on changing from one energy source to another, a delay of not more than 10 seconds shall be permitted. [***101***:7.9.1.3]

14.13.2 Periodic Testing of Emergency Lighting Equipment.

14.13.2.1 Required emergency lighting systems shall be tested in accordance with one of the three options offered by 14.13.2.1.1, 14.13.2.1.2, or 14.13.2.1.3. [***101***:7.9.3.1]

14.13.2.1.1 Testing of required emergency lighting systems shall be permitted to be conducted as follows:

(1) Functional testing shall be conducted monthly with a minimum of 3 weeks and a maximum of 5 weeks between tests, for not less than 30 seconds, except as otherwise permitted by 14.13.2.1.1(2).

(2) The test interval shall be permitted to be extended beyond 30 days with the approval of the AHJ.

(3) Functional testing shall be conducted annually for a minimum of 1½ hours if the emergency lighting system is battery powered.

(4) The emergency lighting equipment shall be fully operational for the duration of the tests required by 14.13.2.1.1(1) and 14.13.2.1.1(3).

(5) Written records of visual inspections and tests shall be kept by the owner for inspection by the AHJ. [***101***:7.9.3.1.1]

14.13.2.1.2 Testing of required emergency lighting systems shall be permitted to be conducted as follows:

(1) Self-testing/self-diagnostic battery-operated emergency lighting equipment shall be provided.

(2) Not less than once every 30 days, self-testing/self-diagnostic battery-operated emergency lighting equipment shall automatically perform a test with a duration of a minimum of 30 seconds and a diagnostic routine.

(3) Self-testing/self-diagnostic battery-operated emergency lighting equipment shall indicate failures by a status indicator.

(4) A visual inspection shall be performed at intervals not exceeding 30 days.

(5) Functional testing shall be conducted annually for a minimum of 1½ hours.

(6) Self-testing/self-diagnostic battery-operated emergency lighting equipment shall be fully operational for the duration of the 1½ hour test.

(7) Written records of visual inspections and tests shall be kept by the owner for inspection by the AHJ. [***101***:7.9.3.1.2]

14.13.2.1.3 Testing of required emergency lighting systems shall be permitted to be conducted as follows:

(1) Computer-based, self-testing/self-diagnostic battery-operated emergency lighting equipment shall be provided.

(2) Not less than once every 30 days, emergency lighting equipment shall automatically perform a test with a duration of a minimum of 30 seconds and a diagnostic routine.

(3) The emergency lighting equipment shall automatically perform annually a test for a minimum of 1½ hours.

(4) The emergency lighting equipment shall be fully operational for the duration of the tests required by 14.13.2.1.3(2) and 14.13.2.1.3(3).

(5) The computer-based system shall be capable of providing a report of the history of tests and failures at all times. [***101***:7.9.3.1.3]

14.14 Marking of Means of Egress.

14.14.1 General.

14.14.1.1 Where Required. Means of egress shall be marked in accordance with Section 14.14 where required in Chapters 11 through 43 of NFPA *101*. [***101***:7.10.1.1]

14.14.1.2 Exits.

14.14.1.2.1* Exits, other than main exterior exit doors that obviously and clearly are identifiable as exits, shall be marked by an approved sign that is readily visible from any direction of exit access. [***101***:7.10.1.2.1]

14.14.1.2.2* Horizontal components of the egress path within an exit enclosure shall be marked by approved exit or directional exit signs where the continuation of the egress path is not obvious. [***101***:7.10.1.2.2]

14.14.1.3 Exit Stair Door Tactile Signage. Tactile signage shall be provided to meet the following criteria, unless otherwise provided in 14.14.1.4:

(1) Tactile signage shall be located at each exit door requiring an exit sign.

(2) Tactile signage shall read as follows: EXIT

(3) Tactile signage shall comply with ICC/ANSI A117.1, *American National Standard for Accessible and Usable Buildings and Facilities*. [***101***:7.10.1.3]

14.14.1.4 Existing Exemption. The requirements of 14.14.1.3 shall not apply to existing buildings, provided that the occupancy classification does not change. [***101***:7.10.1.4]

14.14.1.5 Exit Access.

14.14.1.5.1 Access to exits shall be marked by approved, readily visible signs in all cases where the exit or way to reach the exit is not readily apparent to the occupants. [***101***:7.10.1.5.1]

14.14.1.5.2* New sign placement shall be such that no point in an exit access corridor is in excess of the rated viewing distance or 100 ft (30 m), whichever is less, from the nearest sign. [***101***:7.10.1.5.2]

14.14.1.6* Floor Proximity Exit Signs. Where floor proximity exit signs are required in Chapters 11 through 43 of NFPA *101*, such signs shall comply with 14.14.3, 14.14.4, 14.14.5, and 14.14.6 for externally illuminated signs and 14.14.7 for internally illuminated signs. Such signs shall be located near the floor level in addition to those signs required for doors or corridors. The bottom of the sign shall be not less than 6 in. (150 mm), but not more than 18 in. (455 mm), above the floor. For exit doors, the sign shall be mounted on the door or adjacent to the door, with the nearest edge of the sign within 4 in. (100 mm) of the door frame. [***101***:7.10.1.6]

14.14.1.7* Floor Proximity Egress Path Marking. Where floor proximity egress path marking is required in Chapters 11 through 43 of NFPA *101*, an approved floor proximity egress path marking system that is internally illuminated shall be installed within 18 in. (455 mm) of the floor. Floor proximity egress path marking systems shall be listed in accordance with ANSI/UL 1994, *Standard for Luminous Egress Path Marking Systems*. The system shall provide a visible delineation of the path of travel along the designated exit access and shall be essentially continuous, except as interrupted by doorways, hallways, corridors, or other such architectural features. The system shall operate continuously or at any time the building fire alarm system is activated. The activation, duration, and continuity of operation of the system shall be in accordance with 7.9.2 of NFPA *101*. The system shall be maintained in accordance with the product manufacturing listing. [***101***:7.10.1.7]

14.14.1.8* Visibility. Every sign required in Section 14.14 shall be located and of such size, distinctive color, and design that it is readily visible and shall provide contrast with decorations, interior finish, or other signs. No decorations, furnishings, or equipment that impairs visibility of a sign shall be permitted. No brightly illuminated sign (for other than exit purposes), display, or object in or near the line of vision of the required exit sign that could detract attention from the exit sign shall be permitted. [***101***:7.10.1.8]

14.14.1.9 Mounting Location. The bottom of new egress markings shall be located at a vertical distance of not more than 6 ft 8 in. (2030 mm) above the top edge of the egress opening intended for designation by that marking. Egress markings shall be located at a horizontal distance of not more than the required width of the egress opening, as measured from the edge of the egress opening intended for designation by that marking to the nearest edge of the marking. [***101***:7.10.1.9]

14.14.2 Directional Signs.

14.14.2.1* A sign complying with 14.14.3 with a directional indicator showing the direction of travel shall be placed in every location where the direction of travel to reach the nearest exit is not apparent. [***101***:7.10.2.1]

14.14.2.2 Directional exit signs shall be provided within horizontal components of the egress path within exit enclosures as required by 14.14.1.2.2. [***101***:7.10.2.2]

14.14.3* Sign Legend.

14.14.3.1 Signs required by 14.14.1 and 14.14.2 shall read as follows in plainly legible letters, or other appropriate wording shall be used:

EXIT

[***101***:7.10.3.1]

14.14.3.2* Where approved by the AHJ, pictograms in compliance with NFPA 170, *Standard for Fire Safety and Emergency Symbols*, shall be permitted. [***101***:7.10.3.2]

14.14.4* Power Source. Where emergency lighting facilities are required by the applicable provisions of Chapters 11 through 43 of NFPA *101* for individual occupancies, the signs, other than approved self-luminous signs and listed photoluminescent signs in accordance with 14.14.7.2, shall be illuminated by the emergency lighting facilities. The level of illumination of the signs shall be in accordance with 14.14.6.3 or 14.14.7 for the required emergency lighting duration as specified in 7.9.2.1 of NFPA *101*. However, the level of illumination shall be permitted to decline to 60 percent at the end of the emergency lighting duration. [***101***:7.10.4]

14.14.5 Illumination of Signs.

14.14.5.1* General. Every sign required by 14.14.1.2, 14.14.1.5, or 14.14.8.1, other than where operations or processes require low lighting levels, shall be suitably illuminated by a reliable light source. Externally and internally illuminated signs shall be legible in both the normal and emergency lighting mode. [***101***:7.10.5.1]

14.14.5.2* Continuous Illumination.

14.14.5.2.1 Every sign required to be illuminated by 14.14.6.3, 14.14.7, and 14.14.8.1 shall be continuously illuminated as required under the provisions of Section 14.12, unless otherwise provided in 14.14.5.2.2. [***101***:7.10.5.2.1]

14.14.5.2.2* Illumination for signs shall be permitted to flash on and off upon activation of the fire alarm system. [***101***:7.10.5.2.2]

14.14.6 Externally Illuminated Signs.

14.14.6.1* Size of Signs.

14.14.6.1.1 Externally illuminated signs required by 14.14.1 and 14.14.2, other than approved existing signs, unless otherwise provided in 14.14.6.1.2, shall read EXIT or shall use other appropriate wording in plainly legible letters sized as follows:

(1) For new signs, the letters shall be not less than 6 in. (150 mm) high, with the principal strokes of letters not less than ¾ in. (19 mm) wide.
(2) For existing signs, the required wording shall be permitted to be in plainly legible letters not less than 4 in. (100 mm) high.
(3) The word EXIT shall be in letters of a width not less than 2 in. (51 mm), except the letter I, and the minimum spacing between letters shall be not less than $\frac{3}{8}$ in. (9.5 mm).
(4) Sign legend elements larger than the minimum established in 14.14.6.1.1(1) through 14.14.6.1.1(3) shall use letter widths, strokes, and spacing in proportion to their height. [***101***:7.10.6.1.1]

14.14.6.1.2 The requirements of 14.14.6.1.1 shall not apply to marking required by 14.14.1.3 and 14.14.1.7. [***101***:7.10.6.1.2]

14.14.6.2* Size and Location of Directional Indicator.

14.14.6.2.1 Directional indicators, unless otherwise provided in 14.14.6.2.2, shall comply with the following:

(1) The directional indicator shall be located outside of the EXIT legend, not less than $^{3}/_{8}$ in. (9.5 mm) from any letter.
(2) The directional indicator shall be of a chevron type, as shown in Figure 14.14.6.2.1.
(3) The directional indicator shall be identifiable as a directional indicator at a distance of 40 ft (12 m).
(4) A directional indicator larger than the minimum established for compliance with 14.14.6.2.1(3) shall be proportionately increased in height, width, and stroke.
(5) The directional indicator shall be located at the end of the sign for the direction indicated. [*101*:7.10.6.2.1]

FIGURE 14.14.6.2.1 Chevron-Type Indicator. [*101*:Figure 7.10.6.2.1]

14.14.6.2.2 The requirements of 14.14.6.2.1 shall not apply to approved existing signs. [*101*:7.10.6.2.2]

14.14.6.3* Level of Illumination. Externally illuminated signs shall be illuminated by not less than 5 ft-candles (54 lux) at the illuminated surface and shall have a contrast ratio of not less than 0.5. [*101*:7.10.6.3]

14.14.7 Internally Illuminated Signs.

14.14.7.1 Listing. Internally illuminated signs shall be listed in accordance with ANSI/UL 924, *Standard for Emergency Lighting and Power Equipment*, unless they meet one of the following criteria:

(1) They are approved existing signs.
(2) They are existing signs having the required wording in legible letters not less than 4 in. (100 mm) high.
(3) They are signs that are in accordance with 14.14.1.3 and 14.14.1.6. [*101*:7.10.7.1]

14.14.7.2* Photoluminescent Signs. The face of a photoluminescent sign shall be continually illuminated while the building is occupied. The illumination levels on the face of the photoluminescent sign shall be in accordance with its listing. The charging illumination shall be a reliable light source as determined by the AHJ. The charging light source shall be of a type specified in the product markings. [*101*:7.10.7.2]

14.14.8 Special Signs.

14.14.8.1 Sign Illumination.

14.14.8.1.1 Where required by other provisions of this *Code*, special signs shall be illuminated in accordance with 14.14.5, 14.14.6.3, and 14.14.7. [*101*:7.10.8.1.1]

14.14.8.1.2 Where emergency lighting facilities are required by the applicable provisions of Chapters 11 through 43 of NFPA *101*, the required illumination of special signs shall additionally be provided under emergency lighting conditions. [*101*:7.10.8.1.2]

14.14.8.2 Characters. Special signs, where required by other provisions of this *Code*, shall comply with the visual character requirements of ICC/ANSI A117.1, *American National Standard for Accessible and Usable Buildings and Facilities*. [*101*:7.10.8.2]

14.14.8.3* No Exit.

14.14.8.3.1 Any door, passage, or stairway that is neither an exit nor a way of exit access and that is located or arranged so that it is likely to be mistaken for an exit shall be identified by a sign that reads as follows:

NO
EXIT

[*101*:7.10.8.3.1]

14.14.8.3.2 The NO EXIT sign shall have the word NO in letters 2 in. (51 mm) high, with a stroke width of $^{3}/_{8}$ in. (9.5 mm), and the word EXIT in letters 1 in. (25 mm) high, with the word EXIT below the word NO, unless such sign is an approved existing sign. [*101*:7.10.8.3.2]

14.15 Secondary Means of Escape.

14.15.1 Secondary means of escape shall comply with NFPA *101*.

14.15.2 Where approved on secondary means of escape, security bars, grates, grilles, or similar devices shall be equipped with approved release mechanisms that are releasable from the inside without the use of a tool, a key, special knowledge, or force greater than that which it takes for normal operation of the door or window.

Chapter 15 Fire Department Service Delivery Concurrency Evaluation

15.1 Application.

15.1.1 The AHJ shall be permitted to require a proposed development in the jurisdiction undergo a fire department service delivery concurrency evaluation.

15.1.1.1 Proposed developments that would increase the fire department's service population by less than 1 percent or increase the fire department's total protected building square footage by less than 1 percent shall not be subject to a fire department service delivery concurrency evaluation.

15.2 Level of Service Objectives.

15.2.1 The fire department shall provide the developer with the current level of service standards for fire protection, emergency medical, prevention, and other operational services provided by the fire department.

15.2.2 The level of service for the proposed development shall not be less than the fire department's current level of service for fire protection, emergency medical, prevention, and other operational services.

15.2.2.1 The AHJ shall be permitted to approve a reduced level of service for the proposed development if a service mitigation plan has been adopted by the jurisdiction.

CITY OF ORLANDO

PERMITTING SERVICES

FIRE INSPECTION CHECKLIST

Applicable Base Codes

- ☐ Florida Fire Prevention Code, 2010 Edition
- ☐ NFPA 1, Uniform Fire Code, Florida 2010 Edition
- ☐ NFPA 101, Life Safety Code, Florida 2010 Edition
- ☐ NFPA 13, 2007 edition
- ☐ NFPA 72, 2007 edition
- ☐ City of Orlando Fire Code, Chapter 24

Fire Safety During Construction (NFPA 1/NFPA 241)

- ☐ Fire department access is provided.
  - A. Stabilized all-weather capable surface.
  - B. Clear width through fences, gates, arid roadways.
  - C. Turnarounds are provided for dead-ends >150'.
- ☐ Fire extinguishers are provided.
- ☐ Fire hydrants and water distribution prior to combustibles on site.
- ☐ LSC-compliant stairs with lighting when above the first floor.
- ☐ Temporary standpipe with FDC when building reaches 50' in height.
- ☐ FD access door to building within 50' of FD access road; 150' around perimeter (450' for AS building).

Building Fire Final

- ☐ Confirm shop drawings are approved; permit **on** jobsite.
- ☐ General Building Features:
  - ☐ Verify:
    - ☐ Fire department access is provided to the building.
    - ☐ Lock boxes are installed at the primary point of building access.
    - ☐ Building is addressed properly with signage.
    - ☐ All hydrants, valves, FDCs, and appurtenances have proper clearance / striping/signage.
    - ☐ Underground mains and hydrants are installed, approved, and in service.
    - ☐ Fire extinguishers are provided in accordance with the plans.
    - ☐ Distance of hydrant to standpipe FDC **<** 100'.

.....To operate a permitting agency that is customer service oriented while protecting public safety through clear, consistent code application while ensuring Orlando's economic competitiveness.

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PHONE 407.246.2271•FAX 407.246.2882

Visit our web site at: www.cityoforlando.net/permits

- ☐ Hydrant> 50' from building it serves.
- ☐ Number of hydrants within 300'/SOO distance from most remote area.

☐ Collect Contractors' paperwork for all Fire permits after approval.

☐ Fire Alarm System (NFPA 72)
- ☐ Confirm the shop drawings are approved.
- ☐ Verify panel is online and clear.
- ☐ Call dispatch (321.235.5200) with your location and status.
- ☐ For new flow switches and tamper switches, verify operation.
- ☐ Verify that City dispatch has received an alarm signal.
- ☐ Place the alarm system in "Test Mode" to prevent further signals to dispatch.
- ☐ Conduct Fire Alarm Operations Test.

☐ Sprinkler System (NFPA 13)
- ☐ Confirm the shop drawings are approved.
- ☐ Verify:
  - ☐ Sprinkler system fire permit is cleared.
  - ☐ Sprinklers are installed properly as shown on approved plans.
  - ☐ All escutcheon plates are installed properly.
  - ☐ Hydraulic nameplates are installed on each riser.

☐ Building Life Safety Systems (NFPA 101)
- ☐ Confirm the plans are approved.
- ☐ Verify:
  - ☐ Travel distances/common paths are in accordance with NFPA 101.
  - ☐ Changes in the level in the means of egress by ramp/stair.
  - ☐ Trip hazards.
  - ☐ Handrails/Guardrails for elevation changes.
  - ☐ Obstructions to clear width of doors/corridors/exits.
  - ☐ Exit signs are visible arid legible within 100' of all points in exit access.
  - ☐ Exit signs at each exit.
  - ☐ Exit tactile signage provided at each exit.
  - ☐ Exit stair identification sign provided for buildings **>** 4 stories.
  - ☐ Exit stair construction is rated, continuous, arid enclosed.
  - ☐ Exit stairs/ramps contain handrails and guardrails.
  - ☐ Exit stair tactile and stair identification signage is provided.
  - ☐ Panic hardware is provided on exit doors from an Assembly, Educational, and Day-Care.
  - ☐ All fire-rated doors are auto-closing, latching, and listed.
  - ☐ Door opening forces (30 lbf to start; 15 lbf to open).
  - ☐ Exit discharge to public way.
  - ☐ Fire rated construction has listed assemblies.
  - ☐ Fire command center is 1 hr. rated; controls and status indicators.
  - ☐ Emergency generator system meets NFPA 110.
  - ☐ Automatic transfer to emergency power **<** 10 seconds.

- ☐ Emergency lighting is provided in the means of egress.
- ☐ Illumination at floor level of egress path is at least 1 ft-candle; max contrast 40:1, no less than 0.2 ft-candle with outage.
- ☐ Illumination outside the building extends to the public way.
- ☐ Occupant content signs have been placed near the main exit and each area in Assembly occupancies; must match approved p1 axis.
- ☐ Access control systems meet LSC.
- ☐ Elevator lobbies have a means of egress.
- ☐ Finish materials meet LSC.
- ☐ Furniture layout meets plan for all assemblies.

Fire Alarm Operational Test (NFPA 72)

- ☐ Confirm shop drawings are approved; permit on jobsite.
- ☐ Compare permit to label on the back sheet of approved plans.
- ☐ Verify panel is online and clear.
- ☐ Verify device types and locations match approved plans:
  - ☐ End-of-line resistors.
  - ☐ Circuitry components, conductors, junction boxes (low-voltage ELE permit req.).
  - ☐ Power supply and alarm panels.
  - ☐ Notification appliances:
    - ☐ Strobes.
    - ☐ Horns.
    - ☐ Speakers.
    - ☐ Initiation devices:
      - ☐ Manual pull stations.
      - ☐ Smoke detectors.
      - ☐ Heat detectors.
      - ☐ Beam smoke detectors.
      - ☐ Sprinkler flow switches.
      - ☐ Flame detectors.
- ☐ Verify:
  - ☐ Date on batteries within 3 years.
  - ☐ Zone map is available.
  - ☐ Control panel legend and signage.
  - ☐ Phone numbers emergency contact persons.
  - ☐ Account numbers.

- ☐ Call dispatch (321.235.5200) with your location and status.

- ☐ Conduct operational test:
  - ☐ Test initiation devices and verify response by City dispatch.
  - ☐ Place system in "Test Mode" with the central station.
  - ☐ Test all initiation devices (10% for recert.) for appropriate signals and description
  - ☐ Verify:
    - ☐ Operation of trouble and ground faults on initiation and notification loops (200 sec to trigger and restore).
    - ☐ Supervisory tamper switches on control valves operate.
    - ☐ Sound level using dB meter exceeds 15 dB over ambient.
    - ☐ Visual notification devices produce at least 75 candela except in corridors.
    - ☐ Visual notification device within 15' of end of corridors.
    - ☐ Shut down of AHU on local smoke detection activation.
    - ☐ Monitoring of new subsystems to building fire alarm system (90 sec.).
    - ☐ Monitoring of fire pump arid emergency generator supervision.
    - ☐ Access control systems release in the means of egress.
    - ☐ Fire-rated doors on auto-closers or door hold-opens close release.
    - ☐ Operation of elevator recall upon activation of elevator lobby, machine room, or shaft smoke detector.
    - ☐ Access control devices release on egress components.
    - ☐ Smoke damper detectors activation closes damper.
    - ☐ Voice evacuation is audible/intelligible.
    - ☐ Interface with audio/visual effects shunts to eliminate confusion.
    - ☐ Elevator recall service.
- ☐ Call dispatch to clear the test location.
- ☐ Collect Fire Alarm Pre-Test Chart (supplied at pre-construction meeting).
- ☐ Witness the contractor tagging the equipment.
- ☐ Contractor's NFPA 72 Record of Completion forms collected at BLD Fire Final.

Operational Test - Kitchen Hood Dry/Wet Chemical Agent Suppression System (NFPA 17/17A)

- ☐ Confirm shop drawings are approved; permit on jobsite.
- ☐ Compare permit to label on the back sheet of approved plans.
- ☐ Verify appliance types and locations match approved plans.
- ☐ Verify proper nozzle installation (height, orientation, placement).
- ☐ Perform manual pull station test:
  - ☐ Activate the gas or electric supply of the cooking equipment.
  - ☐ Activate the exhaust and supply fans.
  - ☐ Pull the manual alarm station.

- ☐ Verify:
  - ☐ The agent (or test gas) discharges from the nozzles.
  - ☐ The gas or electric source is interrupted.
  - ☐ Supply fan stops and exhaust fan operates.
  - ☐ Activation of building fire alarm.
  - ☐ Activation of local (audible or visual) notification device.
- ☐ Perform link test:
  - ☐ Deactivate supply and exhaust fans.
  - ☐ Ready fusible link or heat detector above systems with single nozzle.
  - ☐ Ready suppression system.
  - ☐ Manually break fusible link or trigger heat detector.
  - ☐ Verify:
    - ☐ The agent (or test gas) discharges from the nozzles.
    - ☐ The gas or electric source is interrupted.
    - ☐ Exhaust fan activates.
    - ☐ Activation of building fire alarm.
    - ☐ Activation of local (audible or visual) notification device.
- ☐ Contractor's system certification forms collected at BLD Final.
- ☐ Witness the contractor tagging the equipment.

Operational Test — Alternate Gaseous Suppression Agent
(NFPA 12/NFPA 2001)

- ☐ Plans; Permit.
- ☐ Enclosure.
- ☐ Nozzles.
- ☐ Agent release/storage.
- ☐ Fire alarm pre-signal/notification.
- ☐ Communication with building FACP.

Operational Test — Fire Pumps (NFPA 20)

- ☐ Confirm shop drawings are approved; permit on jobsite.
- ☐ General Inspection:
  - ☐ Pump manufacturer, engine manufacturer, controller manufacturer, and transfer switch manufacturer (or their respective representatives) shall be present during the test.
  - ☐ A copy of the fire pump acceptance test data paperwork must be received prior to fire pump inspection request.
  - ☐ All electrical wiring to the fire pump motor, including controllers, emergency power supply, and jockey pump must be completed, inspected, and approved.

- ☐ The manufacturer shall provide a certified pump test characteristic curve for comparison to acceptance test results.
- ☐ The fire pump shall be operated for at least 1 hour cumulative time during the acceptance testing.
- ☐ The fire pump or controlling equipment shall not experience overheating, excessive vibration, or over-current during the acceptance testing.
- ☐ Alarm conditions shall annunciate locally and through the building fire alarm system for fire pump, controller, and control valves (phase or power loss, phase reversal, pump running, transfer switch in emergency).
- ☐ The fire pump must have a nameplate, suction and discharge gauges, and a suitable means to discharge and calibrate flow during a flow test (exterior test header with hose outlets as specified by NFPA 20, Table 5.25).
- ☐ The fire pump must have a pump bypass configuration.
- ☐ Reducers on the pump suction must be eccentric.
- ☐ Elbows installed in the parallel plane of a horizontal split-case pump shall be placed at least 10 supply pipe diameters in distance from the pump suction.
- ☐ A check valve is required in each fire and jockey pump discharge assembly.
- ☐ All flow meters arid gauges must be calibrated within the past 12 months.
- ☐ The jockey pump must stop at the fire pump churn pressure plus the minimum City static supply.
- ☐ The jockey pump must start at the jockey pump stop pressure — 10 psi.
- ☐ The fire pump must start at the jockey pump stop pressure— 5 psi.
- ☐ The fire pump will return to normal state at the rated pressure plus the minimum City static. A timed automatic shutoff is permitted once the pump returns to normal state and a runtime of 10-minutes for electric, 30-minutes for engine driven is complete.
- ☐ Contractor's Certification paperwork collected at BLD Fire Final.

☐ **Fire Pump Protection and Enclosure**

- ☐ The fire pump must be separated by 2-hour fire rated construction from all areas of the building (1-hour if the building is not a high-rise and fully sprinkler protected) or separated from the structure by at least 50 feet.
- ☐ The fire pump must be secured against unauthorized personnel.
- ☐ The enclosure must reliably maintain at least 40°F, but not exceed 120°F.
- ☐ The fire pump room must have emergency lighting.
- ☐ The fire pump room must have ventilation.
- ☐ The fire pump room must have drainage and an elevated pad at least 12" high for all electrical components.
- ☐ An entrance must be at least 24" wide and 6'-6" high for access.
- ☐ All electrical equipment must have at least 30" clear in front.
- ☐ Diesel-driven fire pumps must have a fuel tank capacity based on 1 gallon per bhp of the pump plus an additional 10%.

☐ **Flow Test**

- ☐ Start the pump (simultaneously testing alternate power or batteries).
- ☐ Regulate flow vary discharge obtaining at least the churn, 100% capacity, 150% capacity flow points. (Do not allow suction side to drop below 2Opsi. The system should not be failed for not achieving 150% of the capacity. However, the system should minimally exceed the highest demand of the fire protection system. Most pumps are sized to accomplish this between 90% and 150% capacity.)
- ☐ Record the following information for each flow point:
  - ☐ Pump RPM.
  - ☐ Suction pressure.
  - ☐ Discharge pressure.
  - ☐ umber and sizes of hose nozzles (obtain the GPM via pitot or flow meter).
  - ☐ mperes.
  - ☐ Volts.

- ☐ Plot pump characteristic curve

P pump = P discharge – P supply

1.1.1 Flow Test Point (% Rated Capacity)	Min Total Head (% Rated P)	Max Total Head (% Rated P)
0	100	140 (or shutoff)
100	100	140 (or shutoff)
150	65	140 (or shutoff)

☐ **Electric-Driven Fire Pumps**

- ☐ Loads Start Test – Start the pump and bring up to the rated speed under discharge equal to the peak load.
- ☐ Phase Reversal Test – Test for phase reversal under normal and alternate power supplies.

☐ **Controller Acceptance Test**

- ☐ Perform at least 6 automatic and 6 manual operations during the acceptance testing.
- ☐ Operate the driver at full speed for at least 5 minutes per operation.
- ☐ Automatic operations must include testing from all provided starting features (pressure switches or remote starting signal).
- ☐ Divide operations between both sets of batteries for engine-driven pumps.
- ☐ Start fire pump from each power source for electric-driven pumps.
- ☐ Half of the operations must be performed with the fire pump connected to the alternate source. (Switch over to the alternate source must occur within 10 seconds with the peak flow established within 20 to 30 seconds.)

Building (Commercial Fence) Fire Final (NFPA I)

- ☐ Confirm the shop drawings are approved; permit on jobsite.
- ☐ Call dispatch (321.235.5200) with address of electric gate. Give phone number for return call.
- ☐ Dispatch will send emergency vehicle for test.
- ☐ Receive confirmation optical sensor operation on automatic gate.

Underground Main – Visual (NFPA 24)

- ☐ Confirm the shop drawings are approved; permit on jobsite.
- ☐ Verify:
  - ☐ Materials are consistent with approved plans and can resist 200-psi hydro.
  - ☐ All metallic joints and restraints are corrosion resistant.
  - ☐ All pipes and joints are properly restrained.
  - ☐ Depth of cover is at least 30”, 36” under driveways, and 48” under railroads.
  - ☐ Hydrants:
    - ☐ Are connected to at least a 6” main.
    - ☐ Are no closer than 50’ from the building of service.
    - ☐ Are within 100’ of the fire department connection.
    - ☐ Are installed within 5’ of a fire department access road.
    - ☐ Have a center hose outlet not less than 18” ABOVE FINAL GRADE.
    - ☐ Do not have obstructions within 7’-6” of side ports and 4’ to the rear.
  - ☐ Backflow prevention devices are consistent with the approved plans.
  - ☐ Control valves:
    - ☐ Are consistent with the approved plans.
    - ☐ Contain electronic supervision if a fire alarm system is installed.
    - ☐ Include a post-indicating valve from every connection to a building.
    - ☐ Are not provided in the path of a fire department connection.

Underground Main – Flush (NFPA 24)

- ☐ Confirm the shop drawings are approved; permit on jobsite.
- ☐ Provide a suitable location for discharge of water.
- ☐ Restrain all piping to prevent damage.
- ☐ Open valves to generate flow according to the following table:

❑ Nominal Pipe Size (in.)	❑ Flow Rate (gpm)
❑ 4	❑ 390
❑ 6	❑ 880
❑ 8	❑ 1560
❑ 10	❑ 2440
❑ 12	❑ 3520

- ☐ Continue flushing operation until foreign matter is cleared.
- ☐ Close the control valves.

Underground Main – Hydro (NFPA 24)

- ☐ Confirm the shop drawings are approved; permit on jobsite.
- ☐ Backfill the trench between joints to prevent movement.
- ☐ Verify that the contractor has maintained pressure of 200 psi for at least 2 hours.
- ☐ No loss of pressure allowed.
- ☐ Relieve all pressure and observe gauge for proper operation.
- ☐ Contractor certification paperwork collected at BLD Final.

Hydrant Flow Test (NFPA 291)

- ☐ Confirm the shop drawings are approved; permit on jobsite.
- ☐ Verify all appropriate inspections have occurred prior to hydrant flow request.
- ☐ Provide a suitable location for discharge of water.
- ☐ Verify location of hydrants is consistent with approved plans.
- ☐ Flush the system to prevent damage to instruments by foreign matter.
- ☐ Select the “test” hydrant. The test hydrant should be the closest to the building, or the location of test relevance.
- ☐ Attach pressure gauge to the test hydrant.
- ☐ Open the test hydrant and take the static pressure reading (reading is no flow condition, $\mathbf{P}_1$).
- ☐ Select the “flow” hydrant(s):
  - ☐ Should be downstream of test hydrant.

- ☐ May require multiple outlets on hydrants and/or multiple hydrants flowing to produce at least a 25% pressure drop.
- ☐ If multiple (looped) supply is provided, the source is the larger of the supply mains.

☐ Determine flow hydrant parameters. Measure diameter of hydrant outlet (**D**) in inches.

☐ Feel hydrant barrel to determine the orifice coefficient (c_d) (0.9 – rounded, 0.8 square, 0.7 projected).

- ☐ Open flow hydrant(s) and outlet(s).
- ☐ Use pitot gauge to obtain pitot pressure (**P**) in psi. Take residual pressure reading (flow condition, $\mathbf{P}_2$) off test hydrant while flowing.

☐ Calculate the flow (**Q**) in GPM based on pitot gauge reading in accordance with:

$$Q=29.83(C_d)\ D^2\sqrt{P}$$

OR

☐ If using a flow meter, verify that the flow meter is calibrated for the correct hydrant discharge orifice ($\mathbf{C}_a$) and record the flow (**Q**).

☐ Plot static pressure ($\mathbf{P}_1$), residual pressure ($\mathbf{P}_2$), and flow value (**Q**) on flow test chart.

☐ Determine the available flow at 20 psi at test hydrant (this will be a baseline for other hydrants on the site).

☐ Conduct single hydrant flow test on remainder of hydrants:

- ☐ Attach pressure gauge to one side outlet.
- ☐ Attach flow meter to other side outlet if available.
- ☐ Record static pressure from hydrant.
- ☐ Open hydrant and record residual pressure.
- ☐ Record flow meter or use pitot to calculate flow discharge using equation above
- ☐ Plot the values on a flow test chart.
- ☐ Determine the available flow at 20 psi for each hydrant.
- ☐ Close the hydrant and remove gauges.

☐ Collect flow test charts; Contractor paperwork to be collected at BLD Fire Final.

☐ Verify the hydrant is properly painted in accordance with NFPA 291:

- ☐ Barrel painted bright yellow for private; silver for public.
- ☐ Bonnet painted either green (1000 – 1499 GPM) or light blue (1500+ GPM).
- ☐ Tag private hydrants and record GPS coordinates.

Fuel Tank Inspection (NFPA 30)

☐ Confirm the shop drawings are approved; permit on jobsite.

☐ Verify the location of the tank is in accordance with the approved plans.

☐ For underground tanks, verify cover depth is at least 2' nominally or 3' under traffic.

☐ Verify the tank is secured to prevent movement.

☐ Verify the tank has a manufacturer's approved listing mark.

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- ☐ Conduct a hydrostatic pressure test for 1 hour:
  - ☐ Horizontal above-ground – (3 to 5 psig).
  - ☐ Vertical above-ground – (1.5 to 2.5 psig).
  - ☐ Single-wall underground tanks (3 to 5 psig).
- ☐ Verify above-ground tanks contain spill control (remote impounding, curb, dike, etc.).
- ☐ Verify the foundation for tanks is made from concrete, masonry, piling, or steel:
  - ☐ Steel structures and exposed pilings require 2-hour fire rating.

Above-ground Hydro – Sprinkler (NFPA 13)

- ☐ Confirm the shop drawings are approved; permit on jobsite.
- ☐ Verify that the contractor has maintained pressure of 200 psi or 50 psi above the system pressure (churn pressure available for fire pumps) for at least 2 hours.
- ☐ Determine the applicable sprinkler standard (NFPA 13, 13R or 13D).
- ☐ Verify location and materials are consistent with the approved plans:
  - ☐ Piping
    - ☐ Risers.
    - ☐ Cross mains.
    - ☐ Branch lines.
  - ☐ Fittings
  - ☐ Valves
  - ☐ Gauges
  - ☐ Sprinklers
    - ☐ Types.
    - ☐ Temperatures; RTI.
    - ☐ Spacing.
  - ☐ Corrosion Prevention
- ☐ Verify piping exposed to temperatures below 40°F nominal is protected against freezing (dry heads, dry-pipe system, heat trace on mains, ethylene-glycol).
- ☐ Verify piping is restrained properly in accordance with the following chart:

Pipe Diameter (in.)	1	1 ½	1 ½	2	2 ½	3	4+
Steel pipe (except threaded lightwall)	12’	12’	15’	15’	15’	15’	15’
Threaded lightwall	12’	12’	12’	12’	12’	12’	15’
Copper tube	8’	8’	10’	12’	12’	12’	15’
CPVC	6’	6’-6”	7’	8’	9’	10’	N/A

- ☐ Verify hangers are provided in other locations:
  - ☐ Every segment of a branch line.
  - ☐ Within 36' of an end sprinkler for 1" pipe.
  - ☐ Within 48" of an end sprinkler for 1 ¼" pipe.
  - ☐ Within 60" of an end sprinkler for 1 ½" or larger pipe.
  - ☐ Within 12" of an end sprinkler where the maximum pressure exceeds 100 psi at the sprinkler head (generally if connected to a fire pump).
- ☐ For dry pipe and pre-action systems, an air pressure leakage test at 40 psi is conducted for 24 hours.
  - ☐ Maximum leakage allowed is 1 ½ psi.
  - ☐ Hydrostatic pressure lest at 200 psi or 50 psi above system pressure required if connected to a FDC.
- ☐ Relieve all pressure and observe gauge for operation; gauge at lowest point on system.

Operation Test – Sprinkler/Standpipe (NFPA 13/14)

- ☐ Confirm the shop drawings are approved; permit on job site.
- ☐ For sprinkler systems:
  - ☐ Verify that all alarm and supervisory devices are monitored:
    - ☐ Water Flow switches.
    - ☐ Pressure switches.
    - ☐ Control valve supervisory switches.
    - ☐ Alarm valves.
    - ☐ Local notification (for systems > 20 heads).
  - ☐ Verify operation of system:
    - ☐ Flow from inspector's test connection – alarm in less than 5 min. and water.
    - ☐ Delivered from dry pipe within 60 sec. (for dry pipe systems more than 750 gallons).
    - ☐ Trip each pressure switch.
    - ☐ Open main drain valve and record static and residual pressure.
  - ☐ Obstructions to sprinkler discharge eliminated.
  - ☐ Sprinkler distance to ceiling.
  - ☐ Hydraulic nameplates on each system riser.
  - ☐ Contractor's NFPA 13 system certification paperwork collected at BLD Final.

- ☐ For Standpipes
  - ☐ Verify fire hose valves are accessible and located as approved, intermediate landings.
  - ☐ Verify each standpipe control valve is supervised and work properly.

- ☐ Verify a suitable means for discharge is provided (3" drain riser or exterior access for flow test and drain).
- ☐ Verify two 2-1/2" outlets are provided at the most remote riser.
- ☐ Verify each additional riser has a 2 ½ riser at the roof if access is not provided, or an outlet at the top of the stairs that access the roof.
- ☐ Verify pressure reducing hose valves inlet and outlet pressures static; residual; flow using approved device.
- ☐ Verify through flow test:
  - ☐ 500 gpm @ 100 psi at the roof manifold from the most remote riser.
  - ☐ 250 gpm @ 100 psi for two next remote risers up to 1000 GPM for combined system.
- ☐ Hydraulic nameplates on each system riser.
- ☐ Contractor's NFPA 14 system certification paperwork collected at BLD final.

This document is intended to be a guide and may not contain all requirements needed to obtain permits and approval from the City of Orlando.

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CITY OF ORLANDO

PERMITTING SERVICES

FIRE PLANS REVIEW CHECKLIST

(*Note: *Compliance with the information on this document does not guarantee compliance with the State of Florida Fire and Building Codes, nor does it guarantee issuance of a permit.)

Building New Construction Plan Review

Applicable Base Codes

- ☐ Florida Fire Prevention Code, 2010 Edition
- ☐ NFPA 1, Uniform Fire Code, Florida 2010 Edition
- ☐ NFPA 101, Life Safety Code, Florida 2010 Edition
- ☐ NFPA 13, 2007 edition
- ☐ NFPA 72, 2007 edition
- ☐ City of Orlando Fire Code, Chapter 24

☐ **General Review**

- ☐ Drawings signed and sealed.
- ☐ Fire Department Site Access – See Fire Site Plan Review Checklist.
- ☐ Underground Main Design Documents – See Fire UG Main Plan Review Checklist.
- ☐ Fire Sprinkler Design Documents – See Suppression Plan Review Checklist for BLD permits.
- ☐ Fire Alarm Design Documents – See Fire Alarm Review Checklist.
- ☐ Fire Extinguishers.
- ☐ Special Hazards Suppression System.
- ☐ Lock Box at Main Entrance.

☐ **Life Safety Code (NFPA 101)**

- ☐ Occupant Load; Signage.
- ☐ Number of Exits: Remoteness: Arrangement: Capacity; Rating.
- ☐ Changes in Elevation – Ramps.
- ☐ Exit Doors – Delay egress; Access Control; Hold Open Devices.
- ☐ Doors, Rating, Panic Hardware, Width.
- ☐ Travel Distance.
- ☐ Common Path of Travel.
- ☐ Dead End Corridors.
- ☐ Stair Details-riser, run.
- ☐ Handrails.
- ☐ Guards.
- ☐ Stair Rating and Fire Doors.
- ☐ Stair Discharge to Public Way.
- ☐ Exterior Stairs – Separation, Protection.
- ☐ Aisles.

- ☐ Corridor Rating and Fire Doors.
- ☐ Corridor Width: Doors Opening Into.
- ☐ Emergency Lighting.
- ☐ Exit Signs.
- ☐ Vertical Openings: Atriums, Escalators.
- ☐ Protection from Hazardous Areas.

- ☐ Smoke Detectors Required?
- ☐ Fire Alarm System Required?
- ☐ Sprinkler System Required?
- ☐ High Rise Building.
- ☐ Stair Pressurization.

Fire Site Plan Review

☐ **Fire Department Access**

- ☐ Drawings signed and sealed.
- ☐ FD access 20' clear width, 13'-6" height.
- ☐ Coordination with hydrants and FDC.
- ☐ Turnarounds for dead ends 150' or more in length.
- ☐ Cul-de-sac min. inside diameter 36' and the min. outside diameter 60'.
- ☐ FD access min. right hand turn radius 25'.
- ☐ If the building set back more than 150' from the paved FD access, provide a fire Lane.
- ☐ If the building over 30' in height and setback more than 50' from the paved FD access, provide a fire lane.
- ☐ Gates provide sufficient access width (20') and height (13'-6").
- ☐ Automatic fence installed on 24-hour occupied structures; optical sensors.
- ☐ Fence obstruction to hydrants, hose lay distance, FDC, egress path.

Fire Underground Main Plan Review

☐ **Underground Mains (NFPA 24)**

- ☐ Engineer design documents are signed and sealed.
- ☐ Shop drawings have only minor changes from engineered documents.
- ☐ Hydrants – distance to FDC, curb face, structures.
- ☐ Hydrants – clearance 7'6" front/sides and 4; rear.
- ☐ Color coding statement for hydrants.
- ☐ Point of connection clearly marked and shown as private from this point onward.
- ☐ Plans must state UG main installed and tested per NFPA 24, 200 psi.
- ☐ Dead-end mains pipe size and distance.
- ☐ Pipe not installed under buildings.
- ☐ Cover depth minimum of 30".
- ☐ Pipe size, diameter, and type.
- ☐ DR 14 for fire service only, DR 18 for combination use only if provided documents state that pipe will withstand testing for 200 psi.
- ☐ Details of joints, restraint, thrust blocks, and hydrants.
- ☐ Corrosion protection on buried metallic parts.
- ☐ Electronic supervision of backflow control valves.
- ☐ Sectional valves every 6 hydrants.
- ☐ Water supply analysis for large, complex systems.

Building - Additional/Alteration Plan Review

☐ **General Review**

- ☐ Drawings signed and sealed.
- ☐ Key Plan indicating scope of work and existing systems.
- ☐ Substantial Improvement; Change of Use.
- ☐ Fire Department Site Access – See Fire Site Plan Review Checklist.
- ☐ Underground Main Design Documents – See Fire UG Main Plan Review Checklist.
- ☐ Fire Sprinkler Design Documents – See Suppression Plan Review Checklist for BLD permits.
- ☐ Fire Alarm Design Documents – See Fire Alarm Review Checklist.
- ☐ Fire Extinguishers.
- ☐ Existing Systems Shown.
- ☐ Special Hazards Suppression System.
- ☐ Lock Box at Main Entrance.

☐ **Life Safety Code (NFPA 101)**

- ☐ Occupant Load; Signage.
- ☐ Changes in Elevation – Ramps.
- ☐ Number of Exits: Remoteness: Arrangement; Capacity; Rating.
- ☐ Exit Doors – Delay egress; Access Control; Hold Open Devices.

- ☐ Doors, Rating, Panic Hardware, Width.
- ☐ Travel Distance.
- ☐ Common Path of Travel.
- ☐ Dead End Corridors.
- ☐ Stair Details-rise and run.
- ☐ Handrails.
- ☐ Guards.
- ☐ Stair Rating and Fire Doors.
- ☐ Stair Discharge to Public Way.
- ☐ Exterior Stairs – Separation, protection.
- ☐ Aisles.
- ☐ Corridor Rating and Fire Doors.
- ☐ Corridor width: Doors Opening Into.
- ☐ Emergency Lighting.
- ☐ Exit Signs.
- ☐ Vertical Openings: Atriums, Escalators.
- ☐ Protection from Hazardous Areas.
- ☐ Smoke Detectors Required?
- ☐ Fire Alarm System Required?
- ☐ Sprinkler System Required?
- ☐ High-Rise Building.
- ☐ Stair Pressurization.

Fire Alarm Systems Plan Review

☐ **Fire Alarm Plan**

- ☐ Check for proper License and Insurance.
- ☐ Shop drawings not sealed by engineer.
- ☐ Reference to NFPA 72 and 70.
- ☐ Location of FACP or annunciator panel clearly accessible/visible from entry.
- ☐ Smoke detector located at panel.
- ☐ Point to Point wiring, EOL device shown.
- ☐ Proper spacing/coverage/location of spot detectors (heat & smoke).
- ☐ Proper spacing/coverage/location of beam detectors.
- ☐ Proper location of duct detectors.
- ☐ Proper spacing and location of pull stations.
- ☐ Proper location of detectors associated with door holders.
- ☐ Proper location of detectors associated with stair pressurization.
- ☐ Proper spacing/coverage/location of notification appliances.
- ☐ Add condition that audible notification be checked during inspection.
- ☐ Sprinkler flow switches monitored.
- ☐ Sprinkler tamper switches monitored.

- ☐ Fire pump monitored.
- ☐ Battery calculations.
- ☐ Device legend.
- ☐ Fla. Accessibility notification requirements met.
- ☐ Emergency forces notification.
- ☐ Elevator control room, shaft, and recall.
- ☐ Special systems, VESDA, etc.
- ☐ Apartment smoke detectors, every floor-bedrooms-sleeping area (hallway).
- ☐ Show smoke evacuation sequence of operation.
- ☐ Fire Department lock box at main entrance.

Building – Fire Suppression Plan Review

1. **General**

A. If the new structure is greater than 5000 sq ft in area, do the drawings contain an automatic fire sprinkler system (City of Orlando Fire Code)?

❏ Yes ❏ No

B. If there are over 49 heads in scope of work, are the sprinkler design drawings signed and sealed by Florida registered engineer?

❏ Yes ❏ No

C. Is the applicable code (NFPA 13, 13R, 13D, 14, 20) and edition correct and shown on the drawing?

❏ Yes ❏ No

D. Site drawing indicating point of service from City main included?

❏ Yes ❏ No

E. Have details of hangers, valves, sprinkler arrangement been provided?

❏ Yes ❏ No

2. **System Type**

❏ Wet Pipe ❏ Dry Pipe ❏ Deluge ❏ Pre-action

A. Where the pipe cannot be maintained about 40^{o}F, have adequate freeze protection
provisions been included (NFPA 13)?

❑ Yes ❑ No

B. Is the type of system appropriate for the specified application (NFPA 13)?
❑ Yes ❑ No

C. Are dry-type valve rooms heated and lighted (NFPA 13)?
❑ Yes ❑ No

D. Does the system have an electronically monitored alarm valve or water flow device (NFPA 13)?
❑ Yes ❑ No

3. **Hazard Classification**

❑ Light ❑ Ordinary I ❑ Ordinary II ❑ Extra ❑ Storage

A. Does the hazard classification correspond to the potential fuel load (NFPA 13)?
❑ Yes ❑ No

B . Is the design density consistent with NFPA 13 classifications (NFPA 13)?
❑ Yes ❑ No

C. Are the sprinkler zones less than the maximum permitted (NFPA 13)?
❑ Yes ❑ No

4. **Hydraulic Calculations**

A. Are hydraulic calculations included?
❑ Yes ❑ No

B. Is the date of flow test within 1 year?
❑ Yes ❑ No

C. Is hydraulic nodal information shown on drawings?
❑ Yes ❑ No

D. Is the calculated zone the most hydraulically demanding?

❏ Yes ❏ No

E. Does the zone contain the correct number of heads (NFPA 13)?
❏ Yes ❏ No

F. Do the Calculations use the correct C Factor (NFPA 13)?
❏ Yes ❏ No

G. Does the supply curve exceed the system demand?
❏ Yes ❏ No

5. **Sprinklers:**

A. Are quick response (QR) sprinklers used on light hazard occupancy (NFPA 13)?
❏ Yes ❏ No

B. If applicable, does the dry system have uprights or return bends with pendants (NFPA 13)?
❏ Yes ❏ No

C. Is the distance between sprinklers less than or equal to 15 ft (NFPA 13)?
❏ Yes ❏ No

D. Is the area of coverage per sprinkler less than the maximum permitted (NFPA 13)?
❏ Yes ❏ No

E. Are the sprinklers less than 7'-6" from a wall unless by small room exception allowing up to 9' (NFPA 13)?
❏ Yes ❏ No

F. Do obstructions have additional heads for coverage?
❏ Yes ❏ No

G. Do the soffits that require which obstruct discharge have adequate coverage?
❏ Yes ❏ No

H. Have provisions been made to drain all parts of the system (NFPA 13)?

❑ Yes ❑ No

I. If there are elevator shafts or chutes, are they sprinkler protected (NFPA 13)?
❑ Yes ❑ No

J. Are all concealed spaced sprinkler protected unless excluded by NFPA 13?
❑ Yes ❑ No

K. If there are vaults, are they protected in accordance with NFPA 232?
❑ Yes ❑ No

L. If there are commercial hoods, are they protected in accordance with NFPA 96?
❑ Yes ❑ No

6. **Standpipes/Mains**

A. If the building exceeds 2 stories and more than 50' in height, or exceeds 30' to the highest occupied floor, is a Class III system installed (City of Orlando Fire Code)?
❑ Yes ❑ No

B. Does the standpipe have 2-1/2" hose valves with 1-1/2" reducers (NFPA 14)?
❑ Yes ❑ No

C. Does each Class III standpipe systems contain at least two FDC's on opposite sides of the building (City of Orlando Fire Code)?
❑ Yes ❑ No

D. Is the FDC located within 100' of the nearest hydrant (NFPA 14)?
❑ Yes ❑ No

E. Does each FDC have a check valve inside the building (NFPA 13)?
❑ Yes ❑ No

F. If a standpipe is required, do the fire hose valves provide coverage within 100' of hose and 30' of spray (NFPA 14)?
❑ Yes ❑ No

E. Are the fire hose valves located at the intermediate landings of the stairs (NFPA

14)?
❏ Yes ❏ No

F. If a combination standpipe is used in a high-rise, does each floor have separate control valve and flow switch (NFPA 13)?
❏ Yes ❏ No

G. Is the dedicated standpipe riser at least 4" and combination risers at least 6" in diameter (NFPA 14)?
❏ Yes ❏ No

J. Does the most remote riser have two a 2-1/2" outlet on the roof (NFPA 14)?
❏ Yes ❏ No

K. Do stairs with access to the roof have an outlet at the highest landing, and stairs without roof access have roof outlets (NFPA 14)?
❏ Yes ❏ No

L. Do the calculations indicate at least 100 psi at the roof manifold of the most remote riser (NFPA 14)?
❏ Yes ❏ No

M. Does the system have pressure-reducing valves for fire hose connections if the pressure exceeds 175 psi (NFPA 14)?
❏ Yes ❏ No

N. Does the supply curve exceed the demand when flowing 1000 gpm (NFPA 14)?
❏ Yes ❏ No

7. **Fire Pumps**

A. Do the drawings indicate installation in compliance with NFPA 20?
❏ Yes ❏ No

B . Does the fire pump room contain adequate drainage (NFPA 20)?
❏ Yes ❏ No

C. Does the fire pump room have adequate emergency lighting (NFPA 20)?

❏ Yes ❏ No

D. If electric driven, does the fire pump have a reliable power source (City of Orlando Fire Code)?
❏ Yes ❏ No

E. If diesel driven, does the fire pump have sufficient fuel, battery, and exhaust capacity?
❏ Yes ❏ No

F. Does the drawing show a fire pump bypass (NFPA 20)?
❏ Yes ❏ No

G. Is the fire pump room separated by 2-hour rated construction (NFPA 20)?
❏ Yes ❏ No

Fire Suppression Plan Review

1. **General**

A. Are the shop drawings on the contractor's title block?
❏ Yes ❏ No

B. Do the drawings meet the engineer design documents?
❏ Yes ❏ No

C. Is the applicable code (NFPA 13, 13R, 13D, 14, 20) and edition correct and shown on the drawing?
❏ Yes ❏ No

D. Site drawing indicating point of service from City main included?
❏ Yes ❏ No

E. Do the drawings show dimensions and diameter of each pipe?
❏ Yes ❏ No

F. Do the drawings show risers locations and dimensions?
❏ Yes ❏ No

G. Have details of hangers, valves, sprinkler arrangement been provided?

❏ Yes ❏ No

2. **System Type**

❏ Wet Pipe ❏ Dry Pipe ❏ Deluge ❏ Pre-action

A. Where the pipe cannot be maintained above 40°F, have adequate freeze protection provisions been included (NFPA 13)?
❏ Yes ❏ No

B. Is the type of system appropriate for the specified application (NFPA 13)?
❏ Yes ❏ No

C. Are dry-type valve rooms heated and lighted (NFPA 13)?
❏ Yes ❏ No

D. Does the system have an electronically monitored alarm valve or water flow device (NFPA 13)?
❏ Yes ❏ No

3. **Hazard Classification**

❏ Light ❏ Ordinary I ❏ Ordinary II ❏ Extra ❏ High-Pile Storage

A. Does the hazard classification correspond to the potential fuel load (NFPA 13)?
❏ Yes ❏ No

B. Is the design density consistent with NFPA 13 classifications (NFPA 13)?
❏ Yes ❏ No

C. Are the sprinkler zones less than the maximum permitted (NFPA 13)?
❏ Yes ❏ No

4. **Hydraulic Calculations**

A. Are hydraulic calculations included?

❑ Yes ❑ No

B. Is the date of flow test within 1 year?
❑ Yes ❑ No

C. Is hydraulic nodal information shown on drawings?
❑ Yes ❑ No

D. Is the calculated zone the most hydraulically demanding (NFPA 13)?
❑ Yes ❑ No

E. Does the zone contain the correct number of heads (NFPA 13)?
❑ Yes ❑ No

F. Do the calculations use the correct C Factor (NFPA 13)?
❑ Yes ❑ No

G. Does the supply curve exceed the system demand?
❑ Yes ❑ No

5. **Sprinklers**

A. Are quick response (QR) sprinklers used on light hazard occupancy (NFPA 13)?
❑ Yes ❑ No

B. If applicable, does the dry system have uprights or return bends with pendants (NFPA 13)?
❑ Yes ❑ No

C. Is the distance between sprinklers less than or equal to 15 ft (NFPA 13)?
❑ Yes ❑ No

D. Is the area of coverage per sprinkler less than the maximum permitted (NFPA 13)?
❑ Yes ❑ No

E. Are the sprinklers less than 7'-6" from a wall unless by small room exception allowing up to 9' (NFPA 13)?
❑ Yes ❑ No

E. Do obstructions such as columns and beams have additional heads for coverage?
❏ Yes ❏ No

G. Do the soffits that require which obstruct discharge have adequate coverage?
❏ Yes ❏ No

H. Have provisions been made to drain all parts of the system (NFPA 13)?
❏ Yes ❏ No

I. If there are elevator shafts or chutes, are they sprinkler protected (NFPA 13)?
❏ Yes ❏ No

J. Are all concealed spaced sprinkler protected unless excluded by NFPA 13?
❏ Yes ❏ No

K. If there are vaults, are they protected in accordance with NFPA 323?
❏ Yes ❏ No

L. If there are commercial hoods, are they protected in accordance with NFPA 96?
❏ Yes ❏ No

6. **Standpipes/Mains**

A. If the building exceeds 2 stories and more than 50' in height, or exceeds 30' to the highest occupiable floor, is a Class III system installed (City of Orlando Fire Code)?
❏ Yes ❏ No

B. Does the standpipe have 2-1/2" hose valves with 1-1/2" reducers (NFPA 14)?
❏ Yes ❏ No

C. Does each Class III standpipe system contains at least two FDC's on opposite sides of the building (City of Orlando Fire Code)?
❏ Yes ❏ No

D. Is the FDC located within 100' of the nearest hydrant (NFPA 14)?
❏ Yes ❏ No

E. Does each FDC have a check valve inside the building (NFPA 13)?
❏ Yes ❏ No

F. If a standpipe is required, do the fire hose valves provide coverage within 100' of hose and 30' of spray (NFPA 14)?
❏ Yes ❏ No

G. Are the fire hose valves located at the intermediate landings of the stairs (NFPA 14)?
❏ Yes ❏ No

H. If a combination standpipe is used in a high-rise, does each floor have separate control valve and flow switch (NFPA 13)?
❏ Yes ❏ No

I. Is the dedicated standpipe riser at least 4" and combination risers at least 6" in diameter (NFPA 14)?
❏ Yes ❏ No

J. Does the most remote riser have two a 2- ½" outlet on the roof (NFPA 14)?
❏ Yes ❏ No

K. Do stairs with access to the roof have an outlet at the highest landing, and stairs without roof access have roof outlets (NFPA 14)?
❏ Yes ❏ No

L. Do the calculations indicate at least 100 psi at the roof manifold of the most remote riser (NFPA 14)?
❏ Yes ❏ No

M. Does the system have pressure-reducing valves for fire hose connections if the pressure exceeds 175 psi (NFPA 14)?
❏ Yes ❏ No

N. Does the supply curve exceed the demand when flowing 1000 gpm (NFPA 14)?
❏ Yes ❏ No

7. **Fire Pumps**

A. Do the drawings indicate installation in compliance with NFPA 20?
❏ Yes ❏ No

B. If electric driven, does the fire pump have a reliable power source (City of Orlando Fire Code)?
❏ Yes ❏ No

C. Does the drawing show a fire pump bypass (NFPA 20)?
❏ Yes ❏ No

D. Is the fire pump room separated by 2-hour rated construction (NFPA 20)?
❏ Yes ❏ No

E. Does the fire pump suction have an eccentric reducer (NFPA 20)?
❏ Yes ❏ No

F. Are elbows parallel to horizontal fire pumps at least a distance of 10 times the intake diameter from the pump suction (NFPA 20)?
❏ Yes ❏ No

8. Equipment Submittals

A. Are the products listed or approved for the application (NFPA 13)?
❏ Yes ❏ No

B. Do the sprinklers cut sheets correspond with the hydraulic calculations and drawings and do they provide the adequate coverage?
❏ Yes ❏ No

C. Are the correct temperatures and orientation specified for each sprinkler?
❏ Yes ❏ No

D. Are all control valves and flow indicating devices electronically monitored in accordance with NFPA 72 (City of Orlando Fire Code)?
❏ Yes ❏ No

This document is intended to be a guide and may not contain all requirements needed to obtain permits and approval from the City of Orlando.

.....To operate a permitting agency that is customer service oriented while protecting public safety through clear, consistent code application while ensuring Orlando's economic competitiveness.

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MOST COMMON REASONS FOR DISAPPROVAL

1. Incomplete summary of codes, including missing code references and incorrect editions listed.
2. Sprinkler and fire alarm design documents, including hydraulic calculations, missing from submitted building permit plans when required.
3. Fire extinguisher locations missing from plans.
4. Insufficient remoteness of exits.
5. Point of service location on site plan not clearly shown.
6. ISO and necessary fire calculations not provided.
7. Incorrect spacing of sprinkler heads.
8. Incorrect spacing of fire alarm notification devices.
9. Incorrect or missing door ratings in fire-rated missing assemblies.
10. Incorrect locking devices on doors.
11. Lack of necessary egress from elevator lobbies.
12. Hold open devices shown without corresponding smoke detectors.
13. Incorrect color coding of fire hydrants.

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