**Chapter 13 Existing Assembly Occupancies**

13.1 General Requirements

13.1.1 Application

13.1.1.1

The requirements of this chapter shall apply to existing buildings or portions thereof currently occupied as assembly occupancies, unless otherwise specified by 13.1.1.4. (See 3.3.188.2 for definition of assembly occupancy.)

13.1.1.2 Administration

The provisions of Chapter 1, Administration, shall apply.

13.1.1.3 General

The provisions of Chapter 4, General, shall apply.

13.1.1.4

An existing building housing an assembly occupancy established prior to the effective date of this Code shall be permitted to be approved for continued use if it conforms to, or is made to conform to, the provisions of this Code to the extent that, in the opinion of the authority having jurisdiction, reasonable life safety against the hazards of fire, explosion, and panic is provided and maintained.

13.1.1.5

Additions to existing buildings shall conform to the requirements of 4.6.7.

13.1.1.6

Existing portions of buildings shall be upgraded if the addition results in an increase in the required minimum number of separate means of egress in accordance with 7.4.1.2.

13.1.1.7

Existing portions of the structure shall not be required to be modified, provided that both of the following criteria are met:

The new construction has not diminished the fire safety features of the facility.

The addition does not result in an increase in the required minimum number of separate means of egress in accordance with 7.4.1.2.

13.1.1.8

An assembly occupancy in which an occupant load increase results in an increase in the required minimum number of separate means of egress, in accordance with 7.4.1.2, shall meet the requirements for new construction.

13.1.2\* Classification of Occupancy

See 6.1.2.

13.1.3 Multiple Occupancies

13.1.3.1 General

Multiple occupancies shall be in accordance with 6.1.14.

13.1.3.2\* Simultaneous Occupancy

Exits shall be sufficient for simultaneous occupancy of both the assembly occupancy and other parts of the building, except where the authority having jurisdiction determines that the conditions are such that simultaneous occupancy will not occur.

13.1.3.3 Assembly and Mercantile Occupancies in Mall Buildings

13.1.3.3.1

The provisions of Chapter 13 shall apply to the assembly occupancy tenant space.

13.1.3.3.2

The provisions of 37.4.4 shall be permitted to be used outside the assembly occupancy tenant space.

13.1.4 Definitions

13.1.4.1 General

For definitions, see Chapter 3, Definitions.

13.1.4.2\* Special Definitions

A list of special terms used in this chapter follows:

Aisle Accessway. See 3.3.11.

Exhibit. See 3.3.77.

Exhibitor. See 3.3.78.

Exposition. See 3.3.84.

Exposition Facility. See 3.3.88.1.

Festival Seating. See 3.3.237.1.

Flow Time. See 3.3.115.

Fly Gallery. See 3.3.116.

Gridiron. See 3.3.126.

Legitimate Stage. See 3.3.262.1.

Life Safety Evaluation. See 3.3.158.

Multilevel Play Structure. See 3.3.271.5.

Pinrail. See 3.3.208.

Platform. See 3.3.209.

Proscenium Wall. See 3.3.287.2.

Regular Stage. See 3.3.262.2.

Smoke-Protected Assembly Seating. See 3.3.237.4.

Special Amusement Building. See 3.3.36.10.

Stage. See 3.3.262.

Temporary Platform. See 3.3.209.1.

13.1.5 Classification of Hazard of Contents

Contents of assembly occupancies shall be classified in accordance with the provisions of Section 6.2.

13.1.6 Minimum Construction Requirements

Assembly occupancies shall be limited to the building construction types specified in Table 13.1.6, based on the number of stories in height as defined in 4.6.3, unless otherwise permitted by the following (see 8.2.1):

This requirement shall not apply to outdoor grandstands of Type I or Type II construction.

This requirement shall not apply to outdoor grandstands of Type III, Type IV, or Type V construction that meet the requirements of 13.4.8.

This requirement shall not apply to grandstands of noncombustible construction supported by the floor in a building meeting the construction requirements of Table 13.1.6.

This requirement shall not apply to assembly occupancies within mall buildings in accordance with 37.4.4.

Table 13.1.6 Construction Type Limitations

Construction Type Sprinklereda Stories Below Stories in Heightb

1 2 3 4 ≥5

I (442)c, d Yes X X X X X X

No NP X X X X X3

I (332)c, d Yes X X X X X X

No NP X X X X X3

II (222)c, d Yes X X X X X X

No NP X X X X X3

II (111)c, d Yes X1 X X X X3 NP

No NP X X X3 NP NP

II (000) Yes X2 X X4 NP NP NP

No NP X3 NP NP NP NP

III (211) Yes X1 X X X X3 NP

No NP X X X4 NP NP

III (200) Yes X2 X X4 NP NP NP

No NP X3 NP NP NP NP

IV (2HH) Yes X1 X X X X3 NP

No NP X X X4 NP NP

V (111) Yes X1 X X X X3 NP

No NP X X X4 NP NP

V (000) Yes X2 X X4 NP NP NP

No NP X3 NP NP NP NP

X: Permitted for assembly of any occupant load.

X1: Permitted for assembly of any occupant load, but limited to one story below the level of exit discharge.

X2: Permitted for assembly limited to an occupant load of 1000 or less, and limited to one story below the level of exit discharge.

X3: Permitted for assembly limited to an occupant load of 1000 or less.

X4: Permitted for assembly limited to an occupant load of 300 or less.

NP: Not permitted.

aProtected by an approved automatic sprinkler system in accordance with Section 9.7 in the following locations:

(1) Throughout the story of the assembly occupancy

(2) Throughout all stories intervening between the story of the assembly occupancy and the level of exit discharge

(3) Throughout the level of exit discharge if there are any openings between the level of exit discharge and the exits serving the assembly occupancy

bSee 4.6.3.

cWhere every part of the structural framework of roofs in Type I or Type II construction is 20 ft (6100 mm) or more above the floor immediately below, omission of all fire protection of the structural members is permitted, including protection of trusses, roof framing, decking, and portions of columns above 20 ft (6100 mm).

dIn open-air fixed seating facilities, including stadia, omission of fire protection of structural members exposed to the outside atmosphere is permitted where substantiated by an approved engineering analysis.

13.1.7 Occupant Load

13.1.7.1\* General

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

13.1.7.1.1

In areas not in excess of 10,000 ft2 (930 m2), the occupant load shall not exceed one person in 5 ft2 (0.46 m2).

13.1.7.1.2

In areas in excess of 10,000 ft2 (930 m2), the occupant load shall not exceed one person in 7 ft2 (0.65 m2).

13.1.7.1.3

The authority having jurisdiction shall be permitted to establish the occupant load as the number of persons for which the existing means of egress is adequate, provided that measures are established to prevent occupancy by a greater number of persons.

13.1.7.2 Waiting Spaces

In theaters and other assembly occupancies where persons are admitted to the building at times when seats are not available, or when the permitted occupant load has been reached based on 13.1.7.1 and persons are allowed to wait in a lobby or similar space until seats or space is available, all of the following requirements shall apply:

Such use of a lobby or similar space shall not encroach upon the required clear width of exits.

The waiting spaces shall be restricted to areas other than the required means of egress.

Exits shall be provided for the waiting spaces on the basis of one person for each 3 ft2 (0.28 m2) of waiting space area.

Exits for waiting spaces shall be in addition to the exits specified for the main auditorium area and shall conform in construction and arrangement to the general rules for exits given in this chapter.

13.1.7.3 Life Safety Evaluation

Where the occupant load of an assembly occupancy exceeds 6000, a life safety evaluation shall be performed in accordance with 13.4.1.

13.1.7.4 Outdoor Facilities

In outdoor facilities, where approved by the authority having jurisdiction, the number of occupants who are each provided with not less than 15 ft2 (1.4 m2) of lawn surface shall be permitted to be excluded from the maximum occupant load of 6000 of 13.1.7.3 in determining the need for a life safety evaluation.

13.2 Means of Egress Requirements

13.2.1 General

All means of egress shall be in accordance with Chapter 7 and this chapter.

13.2.2 Means of Egress Components

13.2.2.1 Components Permitted

Components of means of egress shall be limited to the types described in 13.2.2.2 through 13.2.2.12.

13.2.2.2 Doors

13.2.2.2.1

Doors complying with 7.2.1 shall be permitted.

13.2.2.2.2

Assembly occupancies with occupant loads of 300 or less in malls (see 37.4.4.2.2) shall be permitted to have horizontal or vertical security grilles or doors complying with 7.2.1.4.1(3) on the main entrance/exits.

13.2.2.2.3

Any door in a required means of egress from an area having an occupant load of 100 or more persons shall be permitted to be provided with a latch or lock only if the latch or lock is panic hardware or fire exit hardware complying with 7.2.1.7, unless otherwise permitted by one of the following:

This requirement shall not apply to delayed-egress locks as permitted in 13.2.2.2.5.

This requirement shall not apply to access-controlled egress doors as permitted in 13.2.2.2.6.

13.2.2.2.4

Locking devices complying with 7.2.1.5.5 shall be permitted to be used on a single door or a single pair of doors if both of the following conditions apply:

The door or pair of doors serve as the main exit from assembly occupancies having an occupant load not greater than 600.

Any latching devices on such a door(s) from an assembly occupancy having an occupant load of 100 or more are released by panic hardware or fire exit hardware.

13.2.2.2.5

Delayed-egress locks complying with 7.2.1.6.1 shall be permitted on doors other than main entrance/exit doors.

13.2.2.2.6

Doors in the means of egress shall be permitted to be equipped with an approved access control system complying with 7.2.1.6.2, and such doors shall not be locked from the egress side when the assembly occupancy is occupied. (See 7.2.1.1.3.)

13.2.2.2.7

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

13.2.2.2.8

Revolving doors complying with the requirements of 7.2.1.10 for new construction shall be permitted.

13.2.2.2.9

The provisions of 7.2.1.11.1.1 to permit turnstiles where revolving doors are permitted shall not apply.

13.2.2.2.10

No turnstiles or other devices that restrict the movement of persons shall be installed in any assembly occupancy in such a manner as to interfere with required means of egress facilities.

13.2.2.3 Stairs

13.2.2.3.1 General

Stairs complying with 7.2.2 shall be permitted, unless one of the following criteria applies:

\*Stairs serving seating that is designed to be repositioned shall not be required to comply with 7.2.2.3.1.

This requirement shall not apply to stages and platforms as permitted by 13.4.5.

The stairs connecting only a stage or platform and the immediately adjacent assembly seating shall be permitted to have a handrail in the center only or on one side only.

The stairs connecting only a stage or platform and the immediately adjacent assembly seating shall be permitted to omit the guards required by 7.1.8 where both of the following criteria are met:

The guard would restrict audience sight lines to the stage or platform.

The height between any part of the stair and the adjacent floor is not more than 42 in. (1065 mm).

13.2.2.3.2 Catwalk, Gallery, and Gridiron Stairs

13.2.2.3.2.1

Noncombustible grated stair treads and landing floors shall be permitted in means of egress from lighting and access catwalks, galleries, and gridirons.

13.2.2.3.2.2

Spiral stairs complying with 7.2.2.2.3 shall be permitted in means of egress from lighting and access catwalks, galleries, and gridirons.

13.2.2.4 Smokeproof Enclosures

Smokeproof enclosures complying with 7.2.3 shall be permitted.

13.2.2.5 Horizontal Exits

Horizontal exits complying with 7.2.4 shall be permitted.

13.2.2.6 Ramps

Ramps complying with 7.2.5 shall be permitted.

13.2.2.7 Exit Passageways

Exit passageways complying with 7.2.6 shall be permitted.

13.2.2.8 Escalators and Moving Walks

Escalators and moving walks complying with 7.2.7 shall be permitted.

13.2.2.9 Fire Escape Stairs

Fire escape stairs complying with 7.2.8 shall be permitted.

13.2.2.10 Fire Escape Ladders

13.2.2.10.1

Fire escape ladders complying with 7.2.9 shall be permitted.

13.2.2.10.2

For ladders serving catwalks, the three-person limitation in 7.2.9.1(3) shall be permitted to be increased to ten persons.

13.2.2.11 Alternating Tread Devices

Alternating tread devices complying with 7.2.11 shall be permitted.

13.2.2.12 Areas of Refuge

Areas of refuge complying with 7.2.12 shall be permitted.

13.2.3 Capacity of Means of Egress

13.2.3.1 General

The capacity of means of egress shall be in accordance with one of the following:

Section 7.3 for other than theater-type seating or smoke-protected assembly seating

13.2.3.2 for rooms with theater-type seating or similar seating arranged in rows

13.4.2 for smoke-protected assembly seating

13.2.3.2\* Theater-Type Seating

Minimum clear widths of aisles and other means of egress serving theater-type seating, or similar seating arranged in rows, shall be in accordance with Table 13.2.3.2.

Table 13.2.3.2 Capacity Factors

No. of Seats Clear Width per Seat Served

Stairs Passageways, Ramps, and Doorways

in. mm in. mm

Unlimited 0.3 AB 7.6 AB 0.22 C 5.6 C

13.2.3.3 Width Modifications

The minimum clear widths shown in Table 13.2.3.2 shall be modified in accordance with all of the following:

If risers exceed 7 in. in height, the stair width in Table 13.2.3.2 shall be multiplied by factor A, where A equals the following:

If risers exceed 178 mm in height, the stair width in Table 13.2.3.2 shall be multiplied by factor A, where A equals the following:

Stairs not having a handrail within a 30 in. (760 mm) horizontal distance shall be 25 percent wider than otherwise calculated; that is, their width shall be multiplied by factor B, where B equals the following:

B = 1.25

Ramps steeper than 1 in 10 slope where used in ascent shall have their width increased by 10 percent; that is, their width shall be multiplied by factor C, where C equals the following:

C = 1.10

13.2.3.4 Lighting and Access Catwalks

The requirements of 13.2.3.2 and 13.2.3.3 shall not apply to lighting and access catwalks as permitted by 13.4.5.9.

13.2.3.5 Bleachers Aisles

In seating composed entirely of bleachers for which the row-to-row dimension is 28 in. (710 mm) or less, and from which front egress is not limited, aisles shall not be required to exceed 66 in. (1675 mm) in width.

13.2.3.6 Main Entrance/Exit

13.2.3.6.1

Every assembly occupancy shall be provided with a main entrance/exit.

13.2.3.6.2

The main entrance/exit shall be of a width that accommodates one-half of the total occupant load.

13.2.3.6.3

The main entrance/exit shall be at the level of exit discharge or shall connect to a stairway or ramp leading to a street.

13.2.3.6.4 Reserved

13.2.3.6.5

Where the main entrance/exit from an assembly occupancy is through a lobby or foyer, the aggregate capacity of all exits from the lobby or foyer shall be permitted to provide the required capacity of the main entrance/exit, regardless of whether all such exits serve as entrances to the building.

13.2.3.6.6\*

In assembly occupancies where there is no well-defined main entrance/exit, exits shall be permitted to be distributed around the perimeter of the building, provided that the total exit width furnishes not less than 100 percent of the width needed to accommodate the permitted occupant load.

13.2.3.7 Other Exits

Each level of an assembly occupancy shall have access to the main entrance/exit and shall be provided with additional exits of a width to accommodate not less than one-half of the total occupant load served by that level.

13.2.3.7.1

Additional exits shall discharge in accordance with 13.2.7.

13.2.3.7.2

Additional exits shall be located as far apart as practicable and as far from the main entrance/exit as practicable.

13.2.3.7.3

Additional exits shall be accessible from a cross aisle or a side aisle.

13.2.3.7.4

In assembly occupancies where there is no well-defined main entrance/exit, exits shall be permitted to be distributed around the perimeter of the building, provided that the total exit width furnishes not less than 100 percent of the width required to accommodate the permitted occupant load.

13.2.4\* Number of Means of Egress

13.2.4.1

The number of means of egress shall be in accordance with Section 7.4, other than fenced outdoor assembly occupancies in accordance with 13.2.4.4, unless otherwise permitted by 13.2.4.2 or 13.2.4.3.

13.2.4.2

Assembly occupancies with occupant loads of 600 or fewer shall have two separate means of egress.

13.2.4.3

Assembly occupancies with occupant loads greater than 600 but fewer than 1000 shall have three separate means of egress.

13.2.4.4

A fenced outdoor assembly occupancy shall have not less than two widely separated means of egress from the enclosure, unless otherwise required by one of the following:

If more than 6000 persons are to be served by such means of egress, there shall be not less than three means of egress.

If more than 9000 persons are to be served by such means of egress, there shall be not less than four means of egress.

13.2.4.5

Balconies or mezzanines having an occupant load not exceeding 50 shall be permitted to be served by a single means of egress, and such means of egress shall be permitted to lead to the floor below.

13.2.4.6

Balconies or mezzanines having an occupant load exceeding 50, but not exceeding 100, shall have not less than two remote means of egress, but both such means of egress shall be permitted to lead to the floor below.

13.2.4.7

Balconies or mezzanines having an occupant load exceeding 100 shall have means of egress as described in 7.4.1.

13.2.4.8

A second means of egress shall not be required from lighting and access catwalks, galleries, and gridirons where a means of escape to a floor or a roof is provided. Ladders, alternating tread devices, or spiral stairs shall be permitted in such means of escape.

13.2.5 Arrangement of Means of Egress

13.2.5.1 General

13.2.5.1.1

Means of egress shall be arranged in accordance with Section 7.5.

13.2.5.1.2

A common path of travel shall be permitted for the first 20 ft (6100 mm) from any point where the common path serves any number of occupants, and for the first 75 ft (23 m) from any point where the common path serves not more than 50 occupants.

13.2.5.1.3

Dead-end corridors shall not exceed 20 ft (6100 mm).

13.2.5.2 Access Through Hazardous Areas

Means of egress shall not be permitted through kitchens, storerooms, restrooms, closets, platforms, stages, or hazardous areas as described in 13.3.2.

13.2.5.3 Reserved

13.2.5.4 General Requirements for Access and Egress Routes Within Assembly Areas

13.2.5.4.1

Festival seating, as defined in 3.3.237.1, shall be prohibited within a building, unless otherwise permitted by one of the following:

Festival seating shall be permitted in assembly occupancies having occupant loads of 250 or less.

Festival seating shall be permitted in assembly occupancies where occupant loads exceed 250, provided that an approved life safety evaluation has been performed. (See 13.4.1.)

13.2.5.4.2\*

Access and egress routes shall be maintained so that any individual is able to move without undue hindrance, on personal initiative and at any time, from an occupied position to the exits.

13.2.5.4.3\*

Access and egress routes shall be maintained so that crowd management, security, and emergency medical personnel are able to reach any individual at any time, without undue hindrance.

13.2.5.4.4\*

The width of aisle accessways and aisles shall provide sufficient egress capacity for the number of persons accommodated by the catchment area served by the aisle accessway or aisle in accordance with 13.2.3.2, or for smoke-protected assembly seating in accordance with 13.4.2.

13.2.5.4.5

Where aisle accessways or aisles converge to form a single path of egress travel, the required egress capacity of that path shall be not less than the combined required capacity of the converging aisle accessways and aisles.

13.2.5.4.6

Those portions of aisle accessways and aisles where egress is possible in either of two directions shall be uniform in required width, unless otherwise permitted by 13.2.5.4.7.

13.2.5.4.7

The requirement of 13.2.5.4.6 shall not apply to those portions of aisle accessways where the required width, not including the seat space described by 13.2.5.7.3, does not exceed 12 in. (305 mm).

13.2.5.4.8

In the case of side boundaries for aisle accessways or aisles, other than those for nonfixed seating at tables, the clear width shall be measured to boundary elements such as walls, guardrails, handrails, edges of seating, tables, and side edges of treads, and said measurement shall be made horizontally to the vertical projection of the elements, resulting in the smallest width measured perpendicularly to the line of travel.

13.2.5.5\* Aisle Accessways Serving Seating Not at Tables

13.2.5.5.1\*

The required clear width of aisle accesses between rows of seating shall be determined as follows:

Horizontal measurements shall be made, between vertical planes, from the back of one seat to the front of the most forward projection of the seat immediately behind it.

Where the entire row consists of automatic- or self-rising seats that comply with ASTM F 851, Standard Test Method for Self-Rising Seat Mechanisms, the measurement shall be permitted to be made with the seats in the up position.

13.2.5.5.2

The aisle accessway between rows of seating shall have a clear width of not less than 12 in. (305 mm), and this minimum shall be increased as a function of row length in accordance with 13.2.5.5.4 and 13.2.5.5.5.

13.2.5.5.3

If used by not more than four persons, no minimum clear width shall be required for the portion of an aisle accessway having a length not exceeding 6 ft (1830 mm), measured from the center of the seat farthest from the aisle.

13.2.5.5.4\*

Rows of seating served by aisles or doorways at both ends shall not exceed 100 seats per row.

13.2.5.5.4.1

The 12 in. (305 mm) minimum clear width of aisle accessway specified in 13.2.5.5.2 shall be increased by 0.3 in. (7.6 mm) for every seat over a total of 14 but shall not be required to exceed 22 in. (560 mm).

13.2.5.5.4.2

The requirement of 13.2.5.5.4.1 shall not apply to smoke-protected assembly seating as permitted by 13.4.2.7.

13.2.5.5.5

Rows of seating served by an aisle or doorway at one end only shall have a path of travel not exceeding 30 ft (9.1 m) in length from any seat to an aisle.

13.2.5.5.5.1

The 12 in. (305 mm) minimum clear width of aisle accessway specified in 13.2.5.5.2 shall be increased by 0.6 in. (15 mm) for every seat over a total of seven.

13.2.5.5.5.2

The requirements of 13.2.5.5.5 and 13.2.5.5.5.1 shall not apply to smoke-protected assembly seating as permitted by 13.4.2.8 and 13.4.2.9.

13.2.5.5.6

Rows of seating using tablet-arm chairs shall be permitted only if the clear width of aisle accessways complies with the requirements of 13.2.5.5 when measured under one of the following conditions:

The clear width is measured with the tablet arm in the usable position.

The clear width is measured with the tablet arm in the stored position where the tablet arm automatically returns to the stored position when raised manually to a vertical position in one motion and falls to the stored position by force of gravity.

13.2.5.5.7

The depth of seat boards shall be not less than 9 in. (230 mm) where the same level is not used for both seat boards and footboards.

13.2.5.5.8

Footboards, independent of seats, shall be provided so that there is no horizontal opening that allows the passage of a 1/2 in. (13 mm) diameter sphere.

13.2.5.6 Aisles Serving Seating Not at Tables

13.2.5.6.1 General

13.2.5.6.1.1

Aisles shall be provided so that the number of seats served by the nearest aisle is in accordance with 13.2.5.5.2 through 13.2.5.5.5, unless otherwise permitted by 13.2.5.6.1.2.

13.2.5.6.1.2

Aisles shall not be required in bleachers, provided that all of the following conditions are met:

Egress from the front row shall not be obstructed by a rail, a guard, or other obstruction.

The row spacing shall be 28 in. (710 mm) or less.

The rise per row, including the first row, shall be 6 in. (150 mm) or less.

The number of rows shall not exceed 16.

The seat spaces shall not be physically defined.

Seat boards that are also used as stepping surfaces for descent shall provide a walking surface with a width of not less than 12 in. (305 mm), and, where a depressed footboard exists, the gap between seat boards of adjacent rows shall not exceed 12 in. (305 mm), measured horizontally.

The leading edges of seat boards used as stepping surfaces shall be provided with a contrasting marking stripe so that the location of the leading edge is readily apparent, particularly where viewed in descent, and the following shall also apply:

The marking stripe shall be not less than 1 in. (25 mm) wide and shall not exceed 2 in. (51 mm) in width.

The marking stripe shall not be required where bleacher surfaces and environmental conditions, under all conditions of use, are such that the location of each leading edge is readily apparent, particularly when viewed in descent.

13.2.5.6.2 Dead-End Aisles

Dead-end aisles shall not exceed 20 ft (6100 mm) in length, unless otherwise permitted by one of the following:

A dead-end aisle shall be permitted to exceed 20 ft (6100 mm) in length where seats served by the dead-end aisle are not more than 24 seats from another aisle, measured along a row of seats having a clear width of not less than 12 in. (305 mm) plus 0.6 in. (15 mm) for each additional seat over a total of 7 in the row.

A 16-row, dead-end aisle shall be permitted in folding and telescopic seating and grandstands.

Aisle termination in accordance with 13.4.2.11 for smoke-protected assembly seating shall be permitted.

Bleacher aisles in accordance with 13.2.3.5 shall not be considered as dead-end aisles.

13.2.5.6.3\* Minimum Aisle Width

The minimum clear width of aisles shall be sufficient to provide egress capacity in accordance with 13.2.3.1 but shall be not less than the following:

42 in. (1065 mm) for stairs having seating on each side, except that the minimum clear width shall be permitted to be not less than 30 in. (760 mm) for catchment areas having not more than 60 seats

36 in. (915 mm) for stairs having seating on only one side, or 30 in. (760 mm) for catchment areas having not more than 60 seats

20 in. (510 mm) between a handrail and seating or between a guardrail and seating where the aisle is subdivided by a handrail

42 in. (1065 mm) for level or ramped aisles having seating on both sides, except that the minimum clear width shall be not less than 30 in. (760 mm) for catchment areas having not more than 60 seats

36 in. (915 mm) for level or ramped aisles having seating on only one side, or 30 in. (760 mm) for catchment areas having not more than 60 seats

23 in. (585 mm) between a handrail or a guardrail and seating where the aisle does not serve more than five rows on one side

13.2.5.6.4 Aisle Stairs and Aisle Ramps

13.2.5.6.4.1\*

The following shall apply to aisle stairs and aisle ramps:

Aisles having a gradient steeper than 1 in 20, but not steeper than 1 in 8, shall consist of an aisle ramp.

Aisles having a gradient steeper than 1 in 8 shall consist of an aisle stair.

13.2.5.6.4.2

The limitation on height between landings in Table 7.2.2.2.1.1(a) and Table 7.2.2.2.1.1(b) shall not apply to aisle stairs and landings.

13.2.5.6.4.3

The limitation on height between landings in Table 7.2.5.2(a) and Table 7.2.5.2(b) shall not apply to aisle ramps and landings.

13.2.5.6.5 Aisle Stair Treads

Aisle stair treads shall meet all of the following criteria:

There shall be no variation in the depth of adjacent treads that exceeds 3/16 in. (4.8 mm), unless otherwise permitted by 13.2.5.6.5(2), (5), or (6).

Construction-caused nonuniformities in tread depth shall be permitted, provided that both of the following criteria are met:

The nonuniformity does not exceed 3/8 in. (10 mm).

The aisle tread depth is 22 in. (560 mm) or greater.

\*Tread depth shall be not less than 11 in. (280 mm).

All treads shall extend the full width of the aisle.

\*In aisle stairs where a single intermediate tread is provided halfway between seating platforms, such intermediate treads shall be permitted to be of a relatively smaller but uniform depth but shall be not less than 13 in. (330 mm).

All of the following shall apply to grandstands, bleachers, and folding and telescopic seating:

Steps shall not be required to be provided in aisles to overcome differences in level unless the gradient exceeds 1 unit of rise in 10 units of run.

Where the rise of the seating platform exceeds 11 in. (280 mm), an intermediate step shall be provided for the full width of the aisle and shall be proportioned to provide two steps of equal rise per platform.

Where the rise of the seating platform exceeds 18 in. (455 mm), two intermediate steps for the full width of the aisle shall be provided and proportioned to provide three steps of equal rise per platform that are uniform and not less than 9 in. (230 mm).

The full length of the nose of each step in the aisle, as required by 13.2.5.6.5(6) (c), shall be conspicuously marked.

13.2.5.6.6 Aisle Stair Risers

Aisle stair risers shall meet the following criteria:

Riser heights shall be not less than 4 in. (100 mm) in aisle stairs, unless aisle stairs are those in folding and telescopic seating.

The riser height of aisle stairs in folding and telescopic seating shall be permitted to be not less than 31/2 in. (90 mm).

Riser heights shall not exceed 8 in. (205 mm), unless otherwise permitted by 13.2.5.6.6(4) or (5).

The riser height of aisle stairs in folding and telescopic seating shall be permitted to be not more than 11 in. (280 mm).

Where the gradient of an aisle is steeper than 8 in. (205 mm) in rise in 11 in. (280 mm) of run for the purpose of maintaining necessary sight lines in the adjoining seating area, the riser height shall be permitted to exceed 8 in. (205 mm) but shall not exceed 11 in. (280 mm).

Riser heights shall be designed to be uniform in each aisle, and the construction-caused nonuniformities shall not exceed 3/16 in. (4.8 mm) between adjacent risers, unless the conditions of 13.2.5.6.6(7) or (8) are met.

Riser height shall be permitted to be nonuniform where both of the following criteria are met:

The uniformity shall be only for the purpose of accommodating changes in gradient necessary to maintain sight lines within a seating area, in which case the riser height shall be permitted to exceed 3/16 in. (4.8 mm) in any flight.

Where nonuniformities exceed 3/16 in. (4.8 mm) between adjacent risers, the exact location of such non-uniformities shall be indicated by a distinctive marking stripe on each tread at the nosing or leading edge adjacent to the nonuniform risers.

Construction-caused nonuniformities in riser height shall be permitted to exceed 3/16 in. (4.8 mm) where all of the following criteria are met:

The riser height shall be designed to be nonuniform.

The construction-caused nonuniformities shall not exceed 3/8 in. (10 mm) where the aisle tread depth is less than 22 in. (560 mm).

The construction-caused nonuniformities shall not exceed 3/4 in. (19 mm) where the aisle tread depth is 22 in. (560 mm) or greater.

Where nonuniformities exceed 3/16 in. (4.8 mm) between adjacent risers, the exact location of such non-uniformities shall be indicated by a distinctive marking stripe on each tread at the nosing or leading edge adjacent to the nonuniform risers.

13.2.5.6.7 Aisle Stair Profile

Aisle stairs shall comply with all of the following:

Aisle risers shall be vertical or sloped under the tread projection at an angle not to exceed 30 degrees from vertical.

Tread projection not exceeding 11/2 in. (38 mm) shall be permitted.

Tread projection shall be uniform in each aisle, except as otherwise permitted by 13.2.5.6.7(4).

Construction-caused projection nonuniformities not exceeding 1/4 in. (6.4 mm) shall be permitted.

13.2.5.6.8\* Aisle Handrails

13.2.5.6.8.1

Ramped aisles having a gradient exceeding 1 in 12 and aisle stairs shall be provided with handrails at one side or along the centerline and shall also be in accordance with 7.2.2.4.4.1, 7.2.2.4.4.5, and 7.2.2.4.4.6.

13.2.5.6.8.2

Where seating exists on both sides of the aisle, the handrails shall be noncontinuous with gaps or breaks at intervals not exceeding five rows to facilitate access to seating and to allow crossing from one side of the aisle to the other.

13.2.5.6.8.3

The gaps or breaks permitted by 13.2.5.6.8.2 shall have a clear width of not less than 22 in. (560 mm) and shall not exceed 36 in. (915 mm), measured horizontally, and the handrail shall have rounded terminations or bends.

13.2.5.6.8.4

Where handrails are provided in the middle of aisle stairs, an additional intermediate rail shall be located approximately 12 in. (305 mm) below the main handrail.

13.2.5.6.8.5

Handrails shall not be required where otherwise permitted by one of the following:

Handrails shall not be required for ramped aisles having a gradient not steeper than 1 in 8 and having seating on both sides.

The requirement for a handrail shall be satisfied by the use of a guard provided with a rail that complies with the graspability requirements for handrails and is located at a consistent height between 34 in. and 42 in. (865 mm and 1065 mm), measured as follows:

Vertically from the top of the rail to the leading edge (nosing) of stair treads

Vertically from the top of the rail to the adjacent walking surface in the case of a ramp

Handrails shall not be required where risers do not exceed 7 in. (180 mm) in height.

13.2.5.6.9\* Aisle Marking

13.2.5.6.9.1

A contrasting marking stripe shall be provided on each tread at the nosing or leading edge so that the location of such tread is readily apparent, particularly when viewed in descent.

13.2.5.6.9.2

The marking stripe shall be not less than 1 in. (25 mm) wide and shall not exceed 2 in. (51 mm) in width.

13.2.5.6.9.3

The marking stripe shall not be required where tread surfaces and environmental conditions, under all conditions of use, are such that the location of each tread is readily apparent, particularly when viewed in descent.

13.2.5.7\* Aisle Accessways Serving Seating at Tables

13.2.5.7.1

The required clear width of an aisle accessway shall be not less than 12 in. (305 mm) where measured in accordance with 13.2.5.7.3 and shall be increased as a function of length in accordance with 13.2.5.7.4, unless otherwise permitted by 13.2.5.7.2.

13.2.5.7.2\*

If used by not more than four persons, no minimum clear width shall be required for the portion of an aisle accessway having a length not exceeding 6 ft (1830 mm) and located farthest from an aisle.

13.2.5.7.3\*

Where nonfixed seating is located between a table and an aisle accessway or aisle, the measurement of required clear width of the aisle accessway or aisle shall be made to a line 19 in. (485 mm), measured perpendicularly to the edge of the table, away from the edge of said table.

13.2.5.7.4\*

The minimum required clear width of an aisle accessway, measured in accordance with 13.2.5.4.8 and 13.2.5.7.3, shall be increased beyond the 12 in. (305 mm) requirement of 13.2.5.7.1 by 1/2 in. (13 mm) for each additional 12 in. (305 mm) or fraction thereof beyond 12 ft (3660 mm) of aisle accessway length, where measured from the center of the seat farthest from an aisle.

13.2.5.7.5

The path of travel along the aisle accessway shall not exceed 36 ft (11 m) from any seat to the closest aisle or egress doorway.

13.2.5.8 Aisles Serving Seating at Tables

13.2.5.8.1\*

Aisles that contain steps or that are ramped, such as aisles serving dinner theater—style configurations, shall comply with the requirements of 13.2.5.6.

13.2.5.8.2\*

The width of aisles serving seating at tables shall be not less than 44 in. (1120 mm) where serving an occupant load exceeding 50, and 36 in. (915 mm) where serving an occupant load of 50 or fewer.

13.2.5.8.3\*

Where nonfixed seating is located between a table and an aisle, the measurement of required clear width of the aisle shall be made to a line 19 in. (485 mm), measured perpendicularly to the edge of the table, away from the edge of said table.

13.2.5.9 Approval of Layouts

13.2.5.9.1

Where required by the authority having jurisdiction, plans drawn to scale showing the arrangement of furnishings or equipment shall be submitted to the authority by the building owner, manager, or authorized agent to substantiate conformance with the provisions of 13.2.5.

13.2.5.9.2

The layout plans shall constitute the only acceptable arrangement, unless one of the following criteria is met:

The plans are revised.

Additional plans are submitted and approved.

Temporary deviations from the specifications of the approved plans are used, provided that the occupant load is not increased and the intent of 13.2.5.9 is maintained.

13.2.6 Travel Distance to Exits

13.2.6.1

Travel distance shall be measured in accordance with Section 7.6.

13.2.6.2

Exits shall be arranged so that the total length of travel from any point to reach an exit shall not exceed 200 ft (61 m) in any assembly occupancy, unless otherwise permitted by one of the following:

The travel distance shall not exceed 250 ft (76 m) in assembly occupancies protected throughout by an approved automatic sprinkler system in accordance with Section 9.7.

The travel distance requirement shall not apply to smoke-protected assembly seating as permitted by 13.4.2.12, 13.4.2.13, and 13.4.2.14.

13.2.7 Discharge From Exits

13.2.7.1

Exit discharge shall comply with Section 7.7.

13.2.7.2

The level of exit discharge shall be measured at the point of principal entrance to the building.

13.2.7.3

Where the principal entrance to an assembly occupancy is via a terrace, either raised or depressed, such terrace shall be permitted to be considered to be the first story in height for the purposes of Table 13.1.6 where all of the following criteria are met:

The terrace is at least as long, measured parallel to the building, as the total width of the exit(s) it serves but not less than 60 in. (1525 mm) long.

The terrace is at least as wide, measured perpendicularly to the building, as the exit(s) it serves but not less than 60 in. (1525 mm) wide.

Required stairs leading from the terrace to the finished ground level are protected in accordance with 7.2.2.6.3 or are not less than 10 ft (3050 mm) from the building.

13.2.8 Illumination of Means of Egress

Means of egress, other than for private party tents not exceeding 1200 ft2 (112 m2), shall be illuminated in accordance with Section 7.8.

13.2.9 Emergency Lighting

13.2.9.1

Emergency lighting, other than that permitted by 13.2.9.3, shall be provided in accordance with Section 7.9.

13.2.9.2

Private party tents not exceeding 1200 ft2 (112 m2) shall not be required to have emergency lighting.

13.2.9.3

Assembly occupancies with an occupant load not exceeding 300 and used exclusively for a place of worship shall not be required to have emergency lighting.

13.2.10 Marking of Means of Egress

13.2.10.1

Means of egress shall be provided with signs in accordance with Section 7.10.

13.2.10.2

Exit markings shall not be required on the seating side of vomitories from seating areas where exit marking is provided in the concourse and where such marking is readily apparent from the vomitories.

13.2.10.3

Evacuation diagrams in accordance with 7.10.8.5 shall be provided.

13.2.11 Special Means of Egress Features

13.2.11.1 Guards and Railings: Boxes, Balconies, and Galleries

Boxes, balconies, and galleries shall meet the following criteria:

The fasciae of boxes, balconies, and galleries shall rise not less than 26 in. (660 mm) above the adjacent floor or shall have substantial railings not less than 26 in. (660 mm) above the adjacent floor.

The height of the rail above footrests on the adjacent floor immediately in front of a row of seats shall be not less than 26 in. (660 mm), and the following also shall apply:

Railings at the ends of aisles shall be not less than 36 in. (915 mm) high for the full width of the aisle.

Railings at the end of aisles shall be not less than 36 in. (915 mm) high at the ends of aisles where steps occur.

Aisle accessways adjacent to orchestra pits and vomitories, and all cross aisles, shall be provided with railings not less than 26 in. (660 mm) above the adjacent floor.

The requirement of 13.2.11.1(3) shall not apply where the backs of seats located at the front of the aisle project 24 in. (610 mm) or more above the adjacent floor of the aisle.

Guardrails shall not be required on the audience side of stages, raised platforms, and other raised floor areas such as runways, ramps, and side stages used for entertainment or presentations.

Permanent guardrails shall not be required at vertical openings in the performance area of stages.

Guardrails shall not be required where the side of an elevated walking surface is required to be open for the normal functioning of special lighting or for access and use of other special equipment.

13.2.11.2 Lockups

Lockups in assembly occupancies, other than approved existing lockups, shall comply with the requirements of 23.4.5.

13.3 Protection

13.3.1 Protection of Vertical Openings

Any vertical opening shall be enclosed or protected in accordance with Section 8.6, unless otherwise permitted by one of the following:

\*Stairs or ramps shall be permitted to be unenclosed between balconies or mezzanines and main assembly areas located below, provided that the balcony or mezzanine is open to the main assembly area.

Exit access stairs from lighting and access catwalks, galleries, and gridirons shall not be required to be enclosed.

Assembly occupancies protected by an approved, supervised automatic sprinkler system in accordance with Section 9.7 shall be permitted to have unprotected vertical openings between any two adjacent floors, provided that such openings are separated from unprotected vertical openings serving other floors by a barrier complying with 8.6.5.

Assembly occupancies protected by an approved, supervised automatic sprinkler system in accordance with Section 9.7 shall be permitted to have convenience stair openings in accordance with 8.6.9.2.

Use of the following alternative materials shall be permitted where assemblies constructed of such materials are in good repair and free of any condition that would diminish their original fire resistance characteristics:

Existing wood lath and plaster

Existing 1/2 in. (13 mm) gypsum wallboard

Existing installations of 1/4 in. (6.3 mm) thick wired glass that are, or are rendered, inoperative and fixed in the closed position

Other existing materials having similar fire resistance capabilities

13.3.2 Protection From Hazards

13.3.2.1 Service Equipment, Hazardous Operations or Processes, and Storage Facilities

13.3.2.1.1

Rooms containing high-pressure boilers, refrigerating machinery of other than the domestic refrigerator type, large transformers, or other service equipment subject to explosion shall meet both of the following requirements:

Such rooms shall not be located directly under or abutting required exits.

Such rooms shall be separated from other parts of the building by fire barriers in accordance with Section 8.3 that have a minimum 1-hour fire resistance rating or shall be protected by automatic extinguishing systems in accordance with Section 8.7.

13.3.2.1.2

Rooms or spaces for the storage, processing, or use of materials specified in 13.3.2.1.2(1) through (3) shall be protected in accordance with the following:

Separation from the remainder of the building by fire barriers having a minimum 1-hour fire resistance rating or protection of such rooms by automatic extinguishing systems as specified in Section 8.7 in the following areas:

Boiler and furnace rooms, unless otherwise protected by one of the following:

The requirement of 13.3.2.1.2(1)(a) shall not apply to rooms enclosing furnaces, heating and air-handling equipment, or compressor equipment with a total aggregate input rating less than 200,000 Btu (211 MJ), provided that such rooms are not used for storage.

The requirement of 13.3.2.1.2(1) (a) shall not apply to attic locations of the rooms addressed in 13.3.2.1.2(1) (a)i, provided that such rooms comply with the draftstopping requirements of 8.6.11.

Rooms or spaces used for the storage of combustible supplies in quantities deemed hazardous by the authority having jurisdiction

Rooms or spaces used for the storage of hazardous materials or flammable or combustible liquids in quantities deemed hazardous by recognized standards

Separation from the remainder of the building by fire barriers having a minimum 1-hour fire resistance rating and protection of such rooms by automatic extinguishing systems as specified in Section 8.7 in the following areas:

Laundries

Maintenance shops, including woodworking and painting areas

Rooms or spaces used for processing or use of combustible supplies deemed hazardous by the authority having jurisdiction

Rooms or spaces used for processing or use of hazardous materials or flammable or combustible liquids in quantities deemed hazardous by recognized standards

Protection as permitted in accordance with 9.7.1.2 where automatic extinguishing is used to meet the requirements of 13.3.2.1.2(1) or (2)

13.3.2.2 Cooking Equipment

Cooking equipment shall be protected in accordance with 9.2.3, unless the cooking equipment is one of the following types:

Outdoor equipment

Portable equipment not flue-connected

Equipment used only for food warming

13.3.3 Interior Finish

13.3.3.1 General

Interior finish shall be in accordance with Section 10.2.

13.3.3.2 Corridors, Lobbies, and Enclosed Stairways

Interior wall and ceiling finish materials complying with Section 10.2 shall be Class A or Class B in all corridors and lobbies and shall be Class A in enclosed stairways.

13.3.3.3 Assembly Areas

Interior wall and ceiling finish materials complying with Section 10.2 shall be Class A or Class B in general assembly areas having occupant loads of more than 300 and shall be Class A, Class B, or Class C in assembly areas having occupant loads of 300 or fewer.

13.3.3.4 Screens

Screens on which pictures are projected shall comply with requirements of Class A or Class B interior finish in accordance with Section 10.2.

13.3.3.5 Interior Floor Finish

(No requirements.)

13.3.4 Detection, Alarm, and Communications Systems

13.3.4.1 General

13.3.4.1.1

Assembly occupancies with occupant loads of more than 300 and all theaters with more than one audience-viewing room shall be provided with an approved fire alarm system in accordance with 9.6.1 and 13.3.4, unless otherwise permitted by 13.3.4.1.2, 13.3.4.1.3, or 13.3.4.1.4.

13.3.4.1.2

Assembly occupancies that are a part of a multiple occupancy protected as a mixed occupancy (see 6.1.14) shall be permitted to be served by a common fire alarm system, provided that the individual requirements of each occupancy are met.

13.3.4.1.3

Voice communication or public address systems complying with 13.3.4.3.6 shall not be required to comply with 9.6.1.

13.3.4.1.4

The requirement of 13.3.4.1.1 shall not apply to assembly occupancies where, in the judgment of the authority having jurisdiction, adequate alternative provisions exist or are provided for the discovery of a fire and for alerting the occupants promptly.

13.3.4.2 Initiation

13.3.4.2.1

Initiation of the required fire alarm system shall be by both of the following means, and the system shall be provided with an emergency power source:

Manual means in accordance with 9.6.2.1(1), unless otherwise permitted by one of the following:

The requirement of 13.3.4.2.1(1) shall not apply where initiation is by means of an approved automatic fire detection system in accordance with 9.6.2.1(2) that provides fire detection throughout the building.

The requirement of 13.3.4.2.1(1) shall not apply where initiation is by means of an approved automatic sprinkler system in accordance with 9.6.2.1(3) that provides fire detection and protection throughout the building.

Where automatic sprinklers are provided, initiation of the fire alarm system by sprinkler system waterflow, even where manual fire alarm boxes are provided in accordance with 13.3.4.2.1(1)

13.3.4.2.2

The initiating device shall be capable of transmitting an alarm to a receiving station, located within the building, that is constantly attended when the assembly occupancy is occupied.

13.3.4.2.3\*

In assembly occupancies with occupant loads of more than 300, automatic detection shall be provided in all hazardous areas that are not normally occupied, unless such areas are protected throughout by an approved automatic sprinkler system in accordance with Section 9.7.

13.3.4.3 Notification

The required fire alarm system shall activate an audible alarm in a constantly attended receiving station within the building when occupied for purposes of initiating emergency action.

13.3.4.3.1

Positive alarm sequence in accordance with 9.6.3.4 shall be permitted.

13.3.4.3.2

A presignal system in accordance with 9.6.3.3 shall be permitted.

13.3.4.3.3

Occupant notification shall be by means of voice announcements in accordance with 9.6.3.9 initiated by the person in the constantly attended receiving station.

13.3.4.3.4 Reserved

13.3.4.3.5 Reserved

13.3.4.3.6

The announcement shall be permitted to be made via a voice communication or public address system in accordance with 9.6.3.9.2.

13.3.4.3.7

Where the authority having jurisdiction determines that a constantly attended receiving station is impractical, automatically transmitted evacuation or relocation instructions shall be provided in accordance with NFPA 72, National Fire Alarm and Signaling Code.

13.3.5 Extinguishment Requirements

See also 13.1.6, 13.2.6, and 13.3.2.

13.3.5.1

Where the occupant load exceeds 100, the following assembly occupancies shall be protected throughout by an approved, supervised automatic sprinkler system in accordance with 9.7.1.1(1):

Dance halls

Discotheques

Nightclubs

Assembly occupancies with festival seating

13.3.5.2

Any assembly occupancy used or capable of being used for exhibition or display purposes shall be protected throughout by an approved automatic sprinkler system in accordance with Section 9.7 where the exhibition or display area exceeds 15,000 ft2 (1400 m2).

13.3.5.3

The sprinklers specified by 13.3.5.2 shall not be required where otherwise permitted in the following locations:

Locations in stadia and arenas as follows:

Over the floor areas used for contest, performance, or entertainment

Over the seating areas

Over open-air concourses where an approved engineering analysis substantiates the ineffectiveness of the sprinkler protection due to building height and combustible loading

Locations in unenclosed stadia and arenas as follows:

Press boxes of less than 1000 ft2 (93 m2)

Storage facilities of less than 1000 ft2 (93 m2) if enclosed with not less than 1-hour fire resistance—rated construction

Enclosed areas underneath grandstands that comply with 13.4.8.5

13.3.5.4

Where another provision of this chapter requires an automatic sprinkler system, the sprinkler system shall be installed in accordance with 9.7.1.1(1).

13.3.6 Corridors

(No requirements.)

13.4 Special Provisions

13.4.1 Life Safety Evaluation

13.4.1.1\*

Where a life safety evaluation is required by other provisions of the Code, it shall comply with all of the following:

The life safety evaluation shall be performed by persons acceptable to the authority having jurisdiction.

The life safety evaluation shall include a written assessment of safety measures for conditions listed in 13.4.1.2.

The life safety evaluation shall be approved annually by the authority having jurisdiction and shall be updated for special or unusual conditions.

13.4.1.2

Life safety evaluations shall include an assessment of all of the following conditions and the related appropriate safety measures:

Nature of the events and the participants and attendees

Access and egress movement, including crowd density problems

Medical emergencies

Fire hazards

Permanent and temporary structural systems

Severe weather conditions

Earthquakes

Civil or other disturbances

Hazardous materials incidents within and near the facility

Relationships among facility management, event participants, emergency response agencies, and others having a role in the events accommodated in the facility

13.4.1.3\*

Life safety evaluations shall include assessments of both building systems and management features upon which reliance is placed for the safety of facility occupants, and such assessments shall consider scenarios appropriate to the facility.

13.4.2\* Smoke-Protected Assembly Seating

13.4.2.1

To be considered smoke protected, an assembly seating facility shall comply with both of the following:

All enclosed areas with walls and ceilings in buildings or structures containing smoke-protected assembly seating shall be protected with an approved automatic sprinkler system in accordance with Section 9.7, unless otherwise permitted by one of the following:

The requirement of 13.4.2.1(1) shall not apply to the floor area used for contest, performance, or entertainment, provided that the roof construction is more than 50 ft (15 m) above the floor level and use is restricted to low fire hazard uses.

\*Sprinklers shall not be required to be located over the floor area used for contest, performance, or entertainment and over the seating areas where an approved engineering analysis substantiates the ineffectiveness of the sprinkler protection due to building height and combustible loading.

All means of egress serving a smoke-protected assembly seating area shall be provided with smoke-actuated ventilation facilities or natural ventilation designed to maintain the level of smoke at not less than 6 ft (1830 m) above the floor of the means of egress.

13.4.2.2

To use the provisions of smoke-protected assembly seating, a facility shall be subject to a life safety evaluation in accordance with 13.4.1.

13.4.2.3

Minimum clear widths of aisles and other means of egress serving smoke-protected assembly seating shall be in accordance with Table 13.4.2.3.

Table 13.4.2.3 Capacity Factors for Smoke-Protected Assembly Seating

Number of Seats Clear Width per Seat Served

Stairs Passageways, Ramps, and Doorways

in. mm in. mm

2,000 0.300 AB 7.6 AB 0.220 C 5.6 C

5,000 0.200 AB 5.1 AB 0.150 C 3.8 C

10,000 0.130 AB 3.3 AB 0.100 C 2.5 C

15,000 0.096 AB 2.4 AB 0.070 C 1.8 C

20,000 0.076 AB 1.9 AB 0.056 C 1.4 C

≥25,000 0.060 AB 1.5 AB 0.044 C 1.1 C

13.4.2.4 Outdoor Smoke-Protected Assembly Seating

13.4.2.4.1

Where smoke-protected assembly seating and its means of egress are located wholly outdoors, capacity shall be permitted to be provided in accordance with Table 13.4.2.4.1 and the provision of 13.4.2.4.2 shall apply.

Table 13.4.2.4.1 Capacity Factors for Outdoor Smoke-Protected Assembly Seating

Feature Clear Width per Seat Served

Stairs Passageways, Ramps, and Doorways

in. mm in. mm

Outdoor smoke-protected assembly seating 0.08 AB 2.0 AB 0.06 C 1.5 C

13.4.2.4.2

Where the number of seats in outdoor smoke-protected assembly seating exceeds 20,000, the capacity factors of Table 13.4.2.3 shall be permitted to be used.

13.4.2.5

Where using Table 13.4.2.3, the number of seats specified shall be within a single assembly space, and interpolation shall be permitted between the specific values shown. A single seating space shall be permitted to have multiple levels, floors, or mezzanines.

13.4.2.6

The minimum clear widths shown in Table 13.4.2.3 and Table 13.4.2.4.1 shall be modified in accordance with all of the following:

If risers exceed 7 in. in height, the stair width in Table 13.4.2.3 and Table 13.4.2.4.1 shall be multiplied by factor A, where A equals the following:

If risers exceed 178 mm in height, the stair width in Table 13.4.2.3 and Table 13.4.2.4.1 shall be multiplied by factor A, where A equals the following:

Stairs not having a handrail within a 30 in. (760 mm) horizontal distance shall be 25 percent wider than otherwise calculated; that is, their width shall be multiplied by factor B, where B equals the following:

B = 1.25

Ramps steeper than 1 in 10 slope used in ascent shall have their width increased by 10 percent; that is, their width shall be multiplied by factor C, where C equals the following:

C = 1.10

13.4.2.7

Where smoke-protected assembly seating conforms to the requirements of 13.4.2, for rows of seats served by aisles or doorways at both ends, the number of seats per row shall not exceed 100, and the clear width of not less than 12 in. (305 mm) for aisle accessways shall be increased by 0.3 in. (7.6 mm) for every additional seat beyond the number stipulated in Table 13.4.2.7; however, the minimum clear width shall not be required to exceed 22 in. (560 mm).

Table 13.4.2.7 Smoke-Protected Assembly Seating Aisle Accessways

Total Number of Seats in the Space Number of Seats per Row Permitted to Have a Clear Width Aisle Accessway of Not Less than 12 in. (305 mm)

Aisle or Doorway at Both Ends of Row Aisle or Doorway at One End of Row

<4,000 14 7

4,000—6,999 15 7

7,000—9,999 16 8

10,000—12,999 17 8

13,000—15,999 18 9

16,000—18,999 19 9

19,000—21,999 20 10

≥22,000 21 11

13.4.2.8

Where smoke-protected assembly seating conforms to the requirements of 13.4.2, for rows of seats served by an aisle or doorway at one end only, the aisle accessway clear width of not less than 12 in. (305 mm) shall be increased by 0.6 in. (15 mm) for every additional seat beyond the number stipulated in Table 13.4.2.7; however, the minimum clear width shall not be required to exceed 22 in. (560 mm).

13.4.2.9

Smoke-protected assembly seating conforming with the requirements of 13.4.2 shall be permitted to have a common path of travel of 50 ft (15 m) from any seat to a point where a person has a choice of two directions of egress travel.

13.4.2.10

Aisle accessways shall be permitted to serve as one or both of the required exit accesses addressed in 12.4.2.9, provided that the aisle accessway has a minimum width of 12 in. (305 mm) plus 0.3 in. (7.6 mm) for every additional seat over a total of 7 in a row.

13.4.2.11

Where smoke-protected assembly seating conforms to the requirements of 13.4.2, the dead ends in aisle stairs shall not exceed a distance of 21 rows, unless both of the following criteria are met:

The seats served by the dead-end aisle are not more than 40 seats from another aisle.

The 40-seat distance is measured along a row of seats having an aisle accessway with a clear width of not less than 12 in. (305 mm) plus 0.3 in. (7.6 mm) for each additional seat above 7 in the row.

13.4.2.12

Where smoke-protected assembly seating conforms to the requirements of 13.4.2, the travel distance from each seat to the nearest entrance to an egress vomitory or egress concourse shall not exceed 400 ft (122 m).

13.4.2.13

Where smoke-protected assembly seating conforms to the requirements of 13.4.2, the travel distance from the entrance to the vomitory or from the egress concourse to an approved egress stair, ramp, or walk at the building exterior shall not exceed 200 ft (61 m).

13.4.2.14

The travel distance requirements of 13.4.2.12 and 13.4.2.13 shall not apply to outdoor assembly seating facilities of Type I or Type II construction where all portions of the means of egress are essentially open to the outside.

13.4.3 Limited Access or Underground Buildings

Limited access or underground buildings shall comply with Section 11.7.

13.4.4 High-Rise Buildings

Existing high-rise buildings that house assembly occupancies in high-rise portions of the building shall have the highest level of the assembly occupancy and all levels below protected by an approved, supervised automatic sprinkler system in accordance with Section 9.7. (See also 13.1.6.)

13.4.5 Stages and Platforms

See 3.3.262 and 3.3.209.

13.4.5.1 Materials and Design

13.4.5.1.1 Reserved

13.4.5.1.2

Stage stairs shall be permitted to be of combustible materials, regardless of building construction type.

13.4.5.2 Platform Construction. (Reserved)

13.4.5.3 Stage Construction. (Reserved)

13.4.5.4 Accessory Rooms. (Reserved)

13.4.5.5 Ventilators

Regular stages in excess of 1000 ft2 (93 m2) and legitimate stages shall be provided with emergency ventilation to provide a means of removing smoke and combustion gases directly to the outside in the event of a fire, and such ventilation shall be achieved by one or a combination of the methods specified in 13.4.5.5.1 through 13.4.5.5.3.

13.4.5.5.1 Smoke Control

13.4.5.5.1.1

A means complying with Section 9.3 shall be provided to maintain the smoke level at not less than 6 ft (1830 mm) above the highest level of assembly seating or above the top of the proscenium opening where a proscenium wall and opening protection are provided.

13.4.5.5.1.2 Reserved

13.4.5.5.1.3

The smoke control system shall be activated independently by each of the following:

Activation of the sprinkler system in the stage area

Activation of smoke detectors over the stage area

Activation by manually operated switch at an approved location

13.4.5.5.1.4

The emergency ventilation system shall be supplied by both normal and standby power.

13.4.5.5.1.5

The fan(s) power wiring and ducts shall be located and properly protected to ensure a minimum of 20 minutes of operation in the event of activation.

13.4.5.5.2 Roof Vents

13.4.5.5.2.1

Two or more vents shall be located near the center of and above the highest part of the stage area.

13.4.5.5.2.2

The vents shall be raised above the roof and shall provide a net free vent area equal to 5 percent of the stage area.

13.4.5.5.2.3

Vents shall be constructed to open automatically by approved heat-activated devices, and supplemental means shall be provided for manual operation and periodic testing of the ventilator from the stage floor.

13.4.5.5.2.4

Vents shall be labeled.

13.4.5.5.2.5

Existing roof vents that are not labeled shall be permitted where they open by spring action or force of gravity sufficient to overcome the effects of neglect, rust, dirt, frost, snow, or expansion by heat or warping of the framework, and the following requirements also shall apply:

Glass, if used in vents, shall be protected against falling onto the stage.

A wire screen, if used under the glass, shall be placed so that, if clogged, it does not reduce the required venting area, interfere with the operating mechanism, or obstruct the distribution of water from an automatic sprinkler.

Vents shall be arranged to open automatically by the use of fusible links.

The fusible links and operating cable shall hold each door closed against a minimum 30 lb (133 N) counter-force that shall be exerted on each door through its entire arc of travel and for not less than 115 degrees.

Vents shall be provided with manual control.

Springs, where employed to actuate vent doors, shall be capable of maintaining full required tension.

Springs shall not be stressed more than 50 percent of their rated capacity and shall not be located directly in the airstream nor exposed to the outside.

A fusible link shall be placed in the cable control system on the underside of the vent at or above the roofline, or as approved by the building official.

The fusible link shall be located so as not to be affected by the operation of an automatic sprinkler system.

Remote, manual, or electric controls shall provide for both opening and closing of the vent doors for periodic testing and shall be located at a point on stage designated by the authority having jurisdiction.

Where remote control vents are electrical, power failure shall not affect instant operation of the vent in the event of fire.

Hand winches shall be permitted to be employed to facilitate operation of manually controlled vents.

13.4.5.5.3 Other Means

Approved, alternate means of removing smoke and combustion gases shall be permitted.

13.4.5.6 Proscenium Walls. (Reserved)

13.4.5.7 Proscenium Opening Protection

13.4.5.7.1

On every legitimate stage, the main proscenium opening used for viewing performances shall be provided with proscenium opening protection as follows:

The proscenium opening protection shall comply with 12.4.5.7.

Asbestos shall be permitted in lieu of a listed fabric.

Manual curtains of any size shall be permitted.

13.4.5.7.2

In lieu of the protection required by 13.4.5.7.1(1), all the following shall be provided:

A noncombustible opaque fabric curtain shall be arranged so that it closes automatically.

An automatic, fixed waterspray deluge system shall be located on the auditorium side of the proscenium opening and shall be arranged so that the entire face of the curtain will be wetted, and all of the following requirements also shall apply:

The system shall be activated by a combination of rate-of-rise and fixed-temperature detectors located on the ceiling of the stage.

Detectors shall be spaced in accordance with their listing.

The water supply shall be controlled by a deluge valve and shall be sufficient to keep the curtain completely wet for 30 minutes or until the valve is closed by fire department personnel.

The curtain shall be automatically operated in case of fire by a combination of rate-of-rise and fixed-temperature detectors that also activates the deluge spray system.

Stage sprinklers and vents shall be automatically operated by fusible elements in case of fire.

Operation of the stage sprinkler system or spray deluge valve shall automatically activate the emergency ventilating system and close the curtain.

The curtain, vents, and spray deluge system valve shall also be capable of manual operation.

13.4.5.7.3

Proscenium opening protection provided by other than a fire curtain in accordance with 12.4.5.7 [see 13.4.5.7.1(1)] shall activate upon automatic detection of a fire and upon manual activation.

13.4.5.8 Gridirons, Fly Galleries, and Pinrails. (Reserved)

13.4.5.9 Catwalks

The clear width of lighting and access catwalks and the means of egress from galleries and gridirons shall be not less than 22 in. (560 mm).

13.4.5.10 Fire Protection

Every stage shall be protected by an approved automatic sprinkler system in compliance with Section 9.7.

13.4.5.10.1

Protection shall be provided throughout the stage and in storerooms, workshops, permanent dressing rooms, and other accessory spaces contiguous to stages.

13.4.5.10.2

Sprinklers shall not be required for stages 1000 ft2 (93 m2) or less in area where both of the following criteria are met:

Curtains, scenery, or other combustible hangings are not retractable vertically.

Combustible hangings are limited to borders, legs, a single main curtain, and a single backdrop.

13.4.5.10.3

Sprinklers shall not be required under stage areas less than 48 in. (1220 mm) in clear height that are used exclusively for chair or table storage and lined on the inside with 5/8 in. (16 mm) Type X gypsum wallboard or the approved equivalent.

13.4.5.11 Flame-Retardant Requirements

13.4.5.11.1

Combustible scenery of cloth, film, vegetation (dry), and similar materials shall comply with one of the following:

They shall meet the flame propagation performance criteria contained in NFPA 701, Standard Methods of Fire Tests for Flame Propagation of Textiles and Films

They shall exhibit a heat release rate not exceeding 100 kW when tested in accordance with NFPA 289, Standard Method of Fire Test for Individual Fuel Packages, using the 20 kW ignition source

13.4.5.11.2

Foamed plastics (see definition of cellular or foamed plastic in 3.3.41) shall be permitted to be used if they exhibit a heat release rate not exceeding 100 kW when tested in accordance with NFPA 289, Standard Method of Fire Test for Individual Fuel Packages, using the 20 kW ignition source or by specific approval of the authority having jurisdiction.

13.4.5.11.3

Scenery and stage properties not separated from the audience by proscenium opening protection shall be of noncombustible materials, limited-combustible materials, or fire-retardant-treated wood.

13.4.5.11.4

In theaters, motion picture theaters, and television stage settings, with or without horizontal projections, and in simulated caves and caverns of foamed plastic, any single fuel package shall have a heat release rate not to exceed 100 kW where tested in accordance with one of the following:

ANSI/UL 1975, Standard for Fire Tests for Foamed Plastics Used for Decorative Purposes

NFPA 289, Standard Method of Fire Test for Individual Fuel Pack-ages, using the 20 kW ignition source

13.4.5.12\* Standpipes

13.4.5.12.1

Stages over 1000 ft2 (93 m2) in area shall be equipped with 11/2 in. (38 mm) hose lines for first aid fire fighting at each side of the stage.

13.4.5.12.2

Hose connections shall be in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems, unless Class II or Class III standpipes in accordance with NFPA 14, Standard for the Installation of Standpipe and Hose Systems, are used.

13.4.6 Projection Rooms

13.4.6.1

Projection rooms shall comply with 13.4.6.2 through 13.4.6.10.

13.4.6.2

Where cellulose nitrate film is used, the projection room shall comply with NFPA 40, Standard for the Storage and Handling of Cellulose Nitrate Film.

13.4.6.3

Film or video projectors or spotlights utilizing light sources that produce particulate matter or toxic gases, or light sources that produce hazardous radiation, without protective shielding shall be located within a projection room complying with 13.3.2.1.2.

13.4.6.4

Every projection room shall be of permanent construction consistent with the building construction type in which the projection room is located and shall comply with the following:

Openings shall not be required to be protected.

The room shall have a floor area of not less than 80 ft2 (7.4 m2) for a single machine and not less than 40 ft' (3.7 m2) for each additional machine.

Each motion picture projector, floodlight, spotlight, or similar piece of equipment shall have a clear working space of not less than 30 in. (760 mm) on each side and at its rear, but only one such space shall be required between adjacent projectors.

13.4.6.5

The projection room and the rooms appurtenant to it shall have a ceiling height of not less than 7 ft 6 in. (2285 mm).

13.4.6.6

Each projection room for safety film shall have not less than one out-swinging, self-closing door not less than 30 in. (760 mm) wide and 6 ft 8 in. (2030 mm) high.

13.4.6.7

The aggregate of ports and openings for projection equipment shall not exceed 25 percent of the area of the wall between the projection room and the auditorium, and all openings shall be provided with glass or other approved material so as to completely close the opening.

13.4.6.8

Projection room ventilation shall comply with 13.4.6.8.1 and 13.4.6.8.2.

13.4.6.8.1 Supply Air

13.4.6.8.1.1

Each projection room shall be provided with adequate air supply inlets arranged to provide well-distributed air throughout the room.

13.4.6.8.1.2

Air inlet ducts shall provide an amount of air equivalent to the amount of air being exhausted by projection equipment.

13.4.6.8.1.3

Air shall be permitted to be taken from the outside; from adjacent spaces within the building, provided that the volume and infiltration rate is sufficient; or from the building air-conditioning system, provided that it is arranged to supply sufficient air whether or not other systems are in operation.

13.4.6.8.2 Exhaust Air

13.4.6.8.2.1

Projection booths shall be permitted to be exhausted through the lamp exhaust system.

13.4.6.8.2.2

The lamp exhaust system shall be positively interconnected with the lamp so that the lamp cannot operate unless there is sufficient airflow required for the lamp.

13.4.6.8.2.3

Exhaust air ducts shall terminate at the exterior of the building in such a location that the exhaust air cannot be readily recirculated into any air supply system.

13.4.6.8.2.4

The projection room ventilation system shall be permitted also to serve appurtenant rooms, such as the generator room and the rewind room.

13.4.6.9

Each projection machine shall be provided with an exhaust duct that draws air from each lamp and exhausts it directly to the outside of the building.

13.4.6.9.1

The lamp exhaust shall be permitted to exhaust air from the projection room to provide room air circulation.

13.4.6.9.2

Lamp exhaust ducts shall be of rigid materials, except for a flexible connector approved for the purpose.

13.4.6.9.3

The projection lamp and projection room exhaust systems shall be permitted to be combined but shall not be interconnected with any other exhaust system or return-air system within the buildings.

13.4.6.9.4

Specifications for electric arc and xenon projection equipment shall comply with 13.4.6.9.4.1 and 13.4.6.9.4.2.

13.4.6.9.4.1 Electric Arc Projection Equipment

The exhaust capacity shall be 200 ft3/min (0.09 m3/s) for each lamp connected to the lamp exhaust system or as recommended by the equipment manufacturer, and auxiliary air shall be permitted to be introduced into the system through a screened opening to stabilize the arc.

13.4.6.9.4.2 Xenon Projection Equipment

The lamp exhaust system shall exhaust not less than 300 ft3/min (0.14 m3/s) per lamp, or not less than the exhaust volume required or recommended by the equipment manufacturer, whichever is greater.

13.4.6.10

Miscellaneous equipment and storage shall be protected as follows:

Each projection room shall be provided with rewind and film storage facilities.

Flammable liquids containers shall be permitted in projection rooms, provided that all of the following criteria are met:

There are not more than four containers per projection room.

No container has a capacity exceeding 16 oz (0.5 L).

The containers are of a nonbreakable type.

Appurtenant electrical equipment, such as rheostats, transformers, and generators, shall be permitted to be located within the booth or in a separate room of equivalent construction.

13.4.7\* Special Amusement Buildings

13.4.7.1\* General

Special amusement buildings, regardless of occupant load, shall meet the requirements for assembly occupancies in addition to the requirements of 13.4.7, unless the special amusement building is a multilevel play structure that is not more than 10 ft (3050 mm) in height and has aggregate horizontal projections not exceeding 160 ft2 (15 m2).

13.4.7.2\* Automatic Sprinklers

Every special amusement building, other than buildings or structures not exceeding 10 ft (3050 mm) in height and not exceeding 160 ft2 (15 m2) in aggregate horizontal projection, shall be protected throughout by an approved, supervised automatic sprinkler system installed and maintained in accordance with Section 9.7.

13.4.7.3 Temporary Water Supply

Where the special amusement building required to be sprinklered by 13.4.7.2 is movable or portable, the sprinkler water supply shall be permitted to be provided by an approved temporary means.

13.4.7.4 Smoke Detection

Where the nature of the special amusement building is such that it operates in reduced lighting levels, the building shall be protected throughout by an approved automatic smoke detection system in accordance with Section 9.6.

13.4.7.5 Alarm Initiation

Actuation of any smoke detection system device shall sound an alarm at a constantly attended location on the premises.

13.4.7.6 Illumination

Actuation of the automatic sprinkler system, or any other suppression system, or actuation of a smoke detection system having an approved verification or cross-zoning operation capability shall provide for both of the following:

Increase in illumination in the means of egress to that required by Section 7.8

Termination of any conflicting or confusing sounds and visuals

13.4.7.7 Exit Marking

13.4.7.7.1

Exit marking shall be in accordance with Section 7.10.

13.4.7.7.2

Floor proximity exit signs shall be provided in accordance with 7.10.1.6.

13.4.7.7.3\*

In special amusement buildings where mazes, mirrors, or other designs are used to confound the egress path, approved directional exit marking that becomes apparent in an emergency shall be provided.

13.4.7.8 Interior Finish

Interior wall and ceiling finish materials complying with Section 10.2 shall he Class A throughout.

13.4.8 Grandstands

13.4.8.1 General

13.4.8.1.1

Grandstands shall comply with the provisions of this chapter as modified by 13.4.8.

13.4.8.1.2

Approved existing grandstands shall be permitted to be continued to be used.

13.4.8.2 Seating

13.4.8.2.1

Where grandstand seating without backs is used indoors, rows of seats shall be spaced not less than 22 in. (560 mm) back-to-back.

13.4.8.2.2

The depth of footboards and seat boards in grandstands shall be not less than 9 in. (230 mm); where the same level is not used for both seat foundations and footrests, footrests independent of seats shall be provided.

13.4.8.2.3

Seats and footrests of grandstands shall be supported securely and fastened in such a manner that they cannot be displaced inadvertently.

13.4.8.2.4

Individual seats or chairs shall be permitted only if secured firmly in rows in an approved manner, unless seats do not exceed 16 in number and are located on level floors and within railed-in enclosures, such as boxes.

13.4.8.2.5

The maximum number of seats permitted between the farthest seat and an aisle in grandstands and bleachers shall not exceed that shown in Table 13.4.8.2.5.

Table 13.4.8.2.5 Maximum Number of Seats Between Farthest Seat and an Aisle

Application Outdoors Indoors

Grandstands 11 6

Bleachers (See 13.2.5.6.1.2.) 20 9

13.4.8.3 Special Requirements — Wood Grandstands

13.4.8.3.1

An outdoor wood grandstand shall be erected within not less than two-thirds of its height, and, in no case, within not less than 10 ft (3050 mm), of a building, unless otherwise permitted by one of the following:

The distance requirement shall not apply to buildings having minimum 1-hour fire resistance—rated construction with openings protected against the fire exposure hazard created by the grandstand.

The distance requirement shall not apply where a wall having minimum 1-hour fire resistance—rated construction separates the grandstand from the building.

13.4.8.3.2

An outdoor wood grandstand unit shall not exceed 10,000 ft2 (929 m2) in finished ground level area or 200 ft (61 m) in length, and all of the following requirements also shall apply:

Grandstand units of the maximum size shall be placed not less than 20 ft (6100 mm) apart or shall be separated by walls having a minimum 1-hour fire resistance rating.

The number of grandstand units erected in any one group shall not exceed three.

Each group of grandstand units shall be separated from any other group by a wall having minimum 2-hour fire resistance—rated construction extending 24 in. (610 mm) above the seat platforms or by an open space of not less than 50 ft (15 m).

13.4.8.3.3

The finished ground level area or length required by 13.4.8.3.2 shall be permitted to be doubled where one of the following criteria is met:

Where the grandstand is constructed entirely of labeled fire-retardant-treated wood that has passed the standard rain test, ASTM D 2898, Standard Test Methods for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing

Where the grandstand is constructed of members conforming to dimensions for heavy timber construction [Type IV (2HH)]

13.4.8.3.4

The highest level of seat platforms above the finished ground level or the surface at the front of any wood grandstand shall not exceed 20 ft (6100 mm).

13.4.8.3.5

The highest level of seat platforms above the finished ground level, or the surface at the front of a portable grandstand within a tent or membrane structure, shall not exceed 12 ft (3660 mm).

13.4.8.3.6

The height requirements specified in 13.4.8.3.4 and 13.4.8.3.5 shall be permitted to be doubled where the grandstand is constructed entirely of labeled fire-retardant-treated wood that has passed the standard rain test, ASTM D 2898, Standard Test Methods for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing, or where constructed of members conforming to dimensions for heavy timber construction [Type IV (2HH)].

13.4.8.4 Special Requirements — Portable Grandstands

13.4.8.4.1

Portable grandstands shall conform to the requirements of 13.4.8 for grandstands and the requirements of 13.4.8.4.2 through 13.4.8.4.7.

13.4.8.4.2

Portable grandstands shall be self-contained and shall have within them all necessary parts to withstand and restrain all forces that might be developed during human occupancy.

13.4.8.4.3

Portable grandstands shall be designed and manufactured so that, if any structural members essential to the strength and stability of the structure have been omitted during erection, the presence of unused connection fittings shall make the omissions self-evident.

13.4.8.4.4

Portable grandstand construction shall be skillfully accomplished to produce the strength required by the design.

13.4.8.4.5

Portable grandstands shall be provided with base plates, sills, floor runners, or sleepers of such area that the permitted bearing capacity of the supporting material is not exceeded.

13.4.8.4.6

Where a portable grandstand rests directly on a base of such character that it is incapable of supporting the load without appreciable settlement, mud sills of suitable material, having sufficient area to prevent undue or dangerous settlement, shall be installed under base plates, runners, or sleepers.

13.4.8.4.7

All bearing surfaces shall be in contact with each other.

13.4.8.5 Spaces Underneath Grandstands

Spaces underneath a grandstand shall be kept free of flammable or combustible materials, unless protected by an approved, supervised automatic sprinkler system in accordance with Section 9.7 or unless otherwise permitted by one of the following:

This requirement shall not apply to accessory uses of 300 ft2 (28 m2) or less, such as ticket booths, toilet facilities, or concession booths, where constructed of noncombustible or fire-resistive construction in otherwise nonsprinklered facilities.

This requirement shall not apply to rooms that are enclosed in not less than 1-hour fire resistance—rated construction and are less than 1000 ft2 (93 m2) in otherwise nonsprinklered facilities.

13.4.8.6 Guards and Railings

13.4.8.6.1

Railings or guards not less than 42 in. (1065 mm) above the aisle surface or footrest or not less than 36 in. (915 mm) vertically above the center of the seat or seat board surface, whichever is adjacent, shall be provided along those portions of the backs and ends of all grandstands where the seats are in excess of 48 in. (1220 mm) above the floor or the finished ground level.

13.4.8.6.2

The requirement of 13.4.8.6.1 shall not apply where an adjacent wall or fence affords equivalent safeguard.

13.4.8.6.3

Where the front footrest of any grandstand is more than 24 in. (610 mm) above the floor, railings or guards not less than 33 in. (825 mm) above such footrests shall be provided.

13.4.8.6.4

The railings required by 13.4.8.6.3 shall be permitted to be not less than 26 in. (660 mm) high in grandstands or where the front row of seats includes backrests.

13.4.8.6.5

Cross aisles located within the seating area shall be provided with rails not less than 26 in. (660 mm) high along the front edge of the cross aisle.

13.4.8.6.6

The railings specified by 13.4.8.6.5 shall not be required where the backs of the seats in front of the cross aisle project 24 in. (610 mm) or more above the surface of the cross aisle.

13.4.8.6.7

Vertical openings between guardrails and footboards or seat boards shall be provided with intermediate construction so that a 4 in. (100 mm) diameter sphere cannot pass through the opening.

13.4.8.6.8

An opening between the seat board and footboard located more than 30 in. (760 mm) above the finished ground level shall be provided with intermediate construction so that a 4 in. (100 mm) diameter sphere cannot pass through the opening.

13.4.9 Folding and Telescopic Seating

13.4.9.1 General

13.4.9.1.1

Folding and telescopic seating shall comply with the provisions of this chapter as modified by 13.4.9.

13.4.9.1.2

Approved existing folding and telescopic seating shall be permitted to be continued to be used.

13.4.9.2 Seating

13.4.9.2.1

The horizontal distance of seats, measured back-to-back, shall be not less than 22 in. (560 mm) for seats without backs, and all of the following requirements shall also apply:

There shall be a space of not less than 12 in. (305 mm) between the back of each seat and the front of each seat immediately behind it.

If seats are of the chair type, the 12 in. (305 mm) dimension shall be measured to the front edge of the rear seat in its normal unoccupied position.

All measurements shall be taken between plumb lines.

13.4.9.2.2

The depth of footboards (footrests) and seat boards in folding and telescopic seating shall be not less than 9 in. (230 mm).

13.4.9.2.3

Where the same level is not used for both seat foundations and footrests, footrests independent of seats shall be provided.

13.4.9.2.4

Individual chair-type seats shall be permitted in folding and telescopic seating only if firmly secured in groups of not less than three.

13.4.9.2.5

The maximum number of seats permitted between the farthest seat in an aisle in folding and telescopic seating shall not exceed that shown in Table 13.4.8.2.5.

13.4.9.3 Guards and Railings

13.4.9.3.1

Railings or guards not less than 42 in. (1065 mm) above the aisle surface or footrest, or not less than 36 in. (915 mm) vertically above the center of the seat or seat board surface, whichever is adjacent, shall be provided along those portions of the backs and ends of all folding and telescopic seating where the seats are more than 48 in. (1220 mm) above the floor or the finished ground level.

13.4.9.3.2

The requirement of 13.4.9.3.1 shall not apply where an adjacent wall or fence affords equivalent safeguard.

13.4.9.3.3

Where the front footrest of folding or telescopic seating is more than 24 in. (610 mm) above the floor, railings or guards not less than 33 in. (825 mm) above such footrests shall be provided.

13.4.9.3.4

The railings required by 13.4.9.3.3 shall be permitted to be not less than 26 in. (660 mm) high where the front row of seats includes backrests.

13.4.9.3.5

Cross aisles located within the seating area shall be provided with rails not less than 26 in. (660 mm) high along the front edge of the cross aisle.

13.4.9.3.6

The railings specified by 13.4.9.3.5 shall not be required where the backs of the seats in front of the cross aisle project 24 in. (610 mm) or more above the surface of the cross aisle.

13.4.9.3.7

Vertical openings between guardrails and footboards or seat boards shall be provided with intermediate construction so that a 4 in. (100 mm) diameter sphere cannot pass through the opening.

13.4.9.3.8

An opening between the seat board and footboard located more than 30 in. (760 mm) above the finished ground level shall be provided with intermediate construction so that a 4 in. (100 mm) diameter sphere cannot pass through the opening.

13.4.10 Airport Loading Walkways

13.4.10.1

Airport loading walkways shall conform to NFPA 415, Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways, and the provisions of 13.4.10.2 and 13.4.10.3.

13.4.10.2

Doors in the egress path from the aircraft through the airport loading walkway into the airport terminal building shall meet both of the following criteria:

They shall swing in the direction of egress from the aircraft.

\*They shall not be permitted to have delayed-egress locks.

13.4.10.3

Exit access shall be unimpeded from the airport loading walkway to the nonsecured public areas of the airport terminal building.

13.5 Building Services

13.5.1 Utilities

Utilities shall comply with the provisions of Section 9.1.

13.5.2 Heating, Ventilating, and Air-Conditioning Equipment

Heating, ventilating, and air-conditioning equipment shall comply with the provisions of Section 9.2.

13.5.3 Elevators, Escalators, and Conveyors

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

13.5.4 Rubbish Chutes, Incinerators, and Laundry Chutes

Rubbish chutes, incinerators, and laundry chutes shall comply with the provisions of Section 9.5.

13.6 Reserved

13.7 Operating Features

13.7.1 Means of Egress Inspection

13.7.1.1

The building owner or agent shall inspect the means of egress to ensure it is maintained free of obstructions, and correct any deficiencies found, prior to each opening of the building to the public.

13.7.1.2

The building owner or agent shall prepare and maintain records of the date and time of each inspection on approved forms, listing any deficiencies found and actions taken to correct them.

13.7.1.3 Inspection of Door Openings

Door openings shall be inspected in accordance with 7.2.1.15.

13.7.2 Special Provisions for Food Service Operations

13.7.2.1

All devices in connection with the preparation of food shall be installed and operated to avoid hazard to the safety of occupants.

13.7.2.2

All devices in connection with the preparation of food shall be of an approved type and shall be installed in an approved manner.

13.7.2.3

Food preparation facilities shall be protected in accordance with 9.2.3 and shall not be required to have openings protected between food preparation areas and dining areas.

13.7.2.4

Portable cooking equipment that is not flue-connected shall be permitted only as follows:

Equipment fueled by small heat sources that can be readily extinguished by water, such as candles or alcohol-burning equipment, including solid alcohol, shall be permitted to be used, provided that precautions satisfactory to the authority having jurisdiction are taken to prevent ignition of any combustible materials.

Candles shall be permitted to be used on tables used for food service where securely supported on substantial non-combustible bases located to avoid danger of ignition of combustible materials and only where approved by the authority having jurisdiction.

Candle flames shall be protected.

"Flaming sword" or other equipment involving open flames and flamed dishes, such as cherries jubilee or crépe suzette, shall be permitted to be used, provided that precautions subject to the approval of the authority having jurisdiction are taken.

\*Listed and approved LP-Gas commercial food service appliances shall be permitted to be used where in accordance with NFPA 58, Liquefied Petroleum Gas Code.

13.7.3 Open Flame Devices and Pyrotechnics

No open flame devices or pyrotechnic devices shall be used in any assembly occupancy, unless otherwise permitted by one of the following:

Pyrotechnic special effect devices shall be permitted to be used on stages before proximate audiences for ceremonial or religious purposes, as part of a demonstration in exhibits, or as part of a performance, provided that both of the following criteria are met:

Precautions satisfactory to the authority having jurisdiction are taken to prevent ignition of any combustible material.

Use of the pyrotechnic device complies with NFPA 1126, Standard for the Use of Pyrotechnics Before a Proximate Audience.

Flame effects before an audience shall be permitted in accordance with NFPA 160, Standard for the Use of Flame Effects Before an Audience.

Open flame devices shall be permitted to be used in the following situations, provided that precautions satisfactory to the authority having jurisdiction are taken to prevent ignition of any combustible material or injury to occupants:

\*For ceremonial or religious purposes

On stages and platforms where part of a performance

Where candles on tables are securely supported on substantial noncombustible bases and candle flame is protected

The requirement of 13.7.3 shall not apply to heat-producing equipment complying with 9.2.2.

The requirement of 13.7.3 shall not apply to food service operations in accordance with 13.7.2.

Gas lights shall be permitted to be used, provided that precautions are taken, subject to the approval of authority having jurisdiction, to prevent ignition of any combustible materials.

13.7.4 Furnishings, Decorations, and Scenery

13.7.4.1

Fabrics and films used for decorative purposes, all draperies and curtains, and similar furnishings shall be in accordance with the provisions of 10.3.1.

13.7.4.2

The authority having jurisdiction shall impose controls on the quantity and arrangement of combustible contents in assembly occupancies to provide an adequate level of safety to life from fire.

13.7.4.3\*

Exposed foamed plastic materials and unprotected materials containing foamed plastic used for decorative purposes or stage scenery shall have a heat release rate not exceeding 100 kW where tested in accordance with one of the following:

ANSI/UL 1975, Standard for Fire Tests for Foamed Plastics Used for Decorative Purposes

NFPA 289, Standard Method of Fire Test for Individual Fuel Packages, using the 20 kW ignition source

13.7.4.4

The requirement of 13.7.4.3 shall not apply to individual foamed plastic items and items containing foamed plastic where the foamed plastic does not exceed 1 lb (0.45 kg) in weight.

13.7.5 Special Provisions for Exposition Facilities

13.7.5.1 General

No display or exhibit shall be installed or operated to interfere in any way with access to any required exit or with the visibility of any required exit or required exit sign; nor shall any display block access to fire-fighting equipment.

13.7.5.2 Materials Not on Display

A storage room having an enclosure consisting of a smoke barrier having a minimum 1-hour fire resistance rating and protected by an automatic extinguishing system shall be provided for combustible materials not on display, including combustible packing crates used to ship exhibitors' supplies and products.

13.7.5.3 Exhibits

13.7.5.3.1

Exhibits shall comply with 13.7.5.3.2 through 13.7.5.3.11.

13.7.5.3.2

The travel distance within the exhibit booth or exhibit enclosure to an exit access aisle shall not exceed 50 ft (15 m).

13.7.5.3.3

The upper deck of multilevel exhibits exceeding 300 ft2 (28 m2) shall have not less than two remote means of egress.

13.7.5.3.4

Exhibit booth construction materials shall be limited to the following:

Noncombustible or limited-combustible materials

Wood exceeding 1/4 in. (6.3 mm) nominal thickness

Wood that is pressure-treated, fire-retardant wood meeting the requirements of NFPA 703, Standard for Fire Retardant—Treated Wood and Fire-Retardant Coatings for Building Materials

Flame-retardant materials complying with one of the following:

They shall meet the flame propagation performance criteria contained in NFPA 701, Standard Methods of Fire Tests for Flame Propagation of Textiles and Films.

They shall exhibit a heat release rate not exceeding 100 kW when tested in accordance with NFPA 289, Standard Method of Fire Test for Individual Fuel Packages, using the 20 kW ignition source.

Textile wall coverings, such as carpeting and similar products used as wall or ceiling finishes, complying with the provisions of 10.2.2 and 10.2.4

Plastics limited to those that comply with 13.3.3 and Section 10.2

Foamed plastics and materials containing foamed plastics having a heat release rate for any single fuel package that does not exceed 100 kW where tested in accordance with one of the following:

ANSI/UL 1975, Standard for Fire Tests for Foamed Plastics Used for Decorative Purposes

NFPA 289, using the 20 kW ignition source

Cardboard, honeycombed paper, and other combustible materials having a heat release rate for any single fuel package that does not exceed 150 kW where tested in accordance with one of the following:

ANSI/UL 1975

NFPA 289, using the 20 kW ignition source

13.7.5.3.5

Curtains, drapes, and decorations shall comply with 10.3.1.

13.7.5.3.6

Acoustical and decorative material including, but not limited to, cotton, hay, paper, straw, moss, split bamboo, and wood chips shall be flame-retardant treated to the satisfaction of the authority having jurisdiction.

13.7.5.3.6.1

Materials that cannot be treated for flame retardancy shall not be used.

13.7.5.3.6.2

Foamed plastics, and materials containing foamed plastics and used as decorative objects such as, but not limited to, mannequins, murals, and signs shall have a heat release rate for any single fuel package that does not exceed 150 kW where tested in accordance with one of the following:

ANSI/UL 1975, Standard for Fire Tests for Foamed Plastics Used for Decorative Purposes

NFPA 289, Standard Method of Fire Test for Individual Fuel Packages, using the 20 kW ignition source

13.7.5.3.6.3

Where the aggregate area of acoustical and decorative materials is less than 10 percent of the individual floor or wall area, such materials shall be permitted to be used subject to the approval of the authority having jurisdiction.

13.7.5.3.7

The following shall be protected by automatic extinguishing systems:

Single-level exhibit booths exceeding 300 ft2 (28 m2) and covered with a ceiling

Each level of multilevel exhibit booths, including the uppermost level where the uppermost level is covered with a ceiling

13.7.5.3.7.1

The requirements of 13.7.5.3.7 shall not apply where otherwise permitted by the following:

Ceilings that are constructed of open grate design or listed dropout ceilings in accordance with NFPA 13, Standard for the Installation of Sprinkler Systems, shall not be considered ceilings within the context of 13.7.5.3.7.

Vehicles, boats, and similar exhibited products having over 100 ft2 (9.3 m2) of roofed area shall be provided with smoke detectors acceptable to the authority having jurisdiction.

\*The requirement of 13.7.5.3.7(2) shall not apply where fire protection of multilevel exhibit booths is consistent with the criteria developed through a life safety evaluation of the exhibition hall in accordance with 13.4.1, subject to approval of the authority having jurisdiction.

13.7.5.3.7.2

A single exhibit or group of exhibits with ceilings that do not require sprinklers shall be separated by a distance not less than 10 ft (3050 mm) where the aggregate ceiling exceeds 300 ft2 (28 m2).

13.7.5.3.7.3

The water supply and piping for the sprinkler system shall be permitted to be of approved temporary means that is provided by a domestic water supply, a standpipe system, or a sprinkler system.

13.7.5.3.8

Open flame devices within exhibit booths shall comply with 13.7.3.

13.7.5.3.9

Cooking and food-warming devices in exhibit booths shall comply with 13.7.2 and all of the following:

Gas-fired devices shall comply with all of the following:

Natural gas-fired devices shall comply with 9.1.1.

The requirement of 13.7.5.3.9(1) (a) shall not apply to compressed natural gas where permitted by the authority having jurisdiction.

The use of LP-Gas cylinders shall be prohibited.

Nonrefillable LP-Gas cylinders shall be approved for use where permitted by the authority having jurisdiction.

The devices shall be isolated from the public by not less than 48 in. (1220 mm) or by a barrier between the devices and the public.

Multi-well cooking equipment using combustible oils or solids shall comply with 9.2.3.

Single-well cooking equipment using combustible oils or solids shall meet all of the following criteria:

The equipment shall have lids available for immediate use.

The equipment shall be limited to 2 ft2 (0.2 m2) of cooking surface.

The equipment shall be placed on noncombustible surface materials.

The equipment shall be separated from each other by a horizontal distance of not less than 24 in. (610 mm).

The requirement of 13.7.5.3.9(4) (d) shall not apply to multiple single-well cooking equipment where the aggregate cooking surface area does not exceed 2 ft2 (0.2 m2).

The equipment shall be kept at a horizontal distance of not less than 24 in. (610 mm) from any combustible material.

A portable fire extinguisher in accordance with 9.7.4.1 shall be provided within the booth for each device, or an approved automatic extinguishing system shall be provided.

13.7.5.3.10

Combustible materials within exhibit booths shall be limited to a one-day supply. Storage of combustible materials behind the booth shall be prohibited. (See 13.7.4.2 and 13.7.5.2.)

13.7.5.3.11

Plans for the exposition, in an acceptable form, shall be submitted to the authority having jurisdiction for approval prior to setting up any exhibit.

13.7.5.3.11.1

The plan shall show all details of the proposed exposition.

13.7.5.3.11.2

No exposition shall occupy any exposition facility without approved plans.

13.7.5.4 Vehicles

Vehicles on display within an exposition facility shall comply with 13.7.5.4.1 through 13.7.5.4.5.

13.7.5.4.1

All fuel tank openings shall be locked and sealed in an approved manner to prevent the escape of vapors; fuel tanks shall not contain in excess of one-half their capacity or contain in excess of 10 gal (38 L) of fuel, whichever is less.

13.7.5.4.2

At least one battery cable shall be removed from the batteries used to start the vehicle engine, and the disconnected battery cable shall then be taped.

13.7.5.4.3

Batteries used to power auxiliary equipment shall be permitted to be kept in service.

13.7.5.4.4

Fueling or defueling of vehicles shall be prohibited.

13.7.5.4.5

Vehicles shall not be moved during exhibit hours.

13.7.5.5 Prohibited Materials

13.7.5.5.1

The following items shall be prohibited within exhibit halls:

Compressed flammable gases

Flammable or combustible liquids

Hazardous chemicals or materials

Class II or greater lasers, blasting agents, and explosives

13.7.5.5.2

The authority having jurisdiction shall be permitted to allow the limited use of any items specified in 13.7.5.5.1 under special circumstances.

13.7.5.6 Alternatives

See Section 1.4.

13.7.6\* Crowd Managers

13.7.6.1

Assembly occupancies shall be provided with a minimum of one trained crowd manager or crowd manager supervisor. Where the occupant load exceeds 250, additional trained crowd managers or crowd manager supervisors shall be provided at a ratio of one crowd manager or crowd manager supervisor for every 250 occupants, unless otherwise permitted by one of the following:

This requirement shall not apply to assembly occupancies used exclusively for religious worship with an occupant load not exceeding 2000.

The ratio of trained crowd managers to occupants shall be permitted to be reduced where, in the opinion of the authority having jurisdiction, the existence of an approved, supervised automatic sprinkler system and the nature of the event warrant.

13.7.6.2

The crowd manager shall receive approved training in crowd management techniques.

13.7.7\* Drills

13.7.7.1

The employees or attendants of assembly occupancies shall be trained and drilled in the duties they are to perform in case of fire, panic, or other emergency to effect orderly exiting.

13.7.7.2

Employees or attendants of assembly occupancies shall be instructed in the proper use of portable fire extinguishers and other manual fire suppression equipment where provided.

13.7.7.3\*

In the following assembly occupancies, an audible announcement shall be made, or a projected image shall be shown, prior to the start of each program that notifies occupants of the location of the exits to be used in case of a fire or other emergency:

Theaters

Motion picture theaters

Auditoriums

Other similar assembly occupancies with occupant loads exceeding 300 where there are noncontinuous programs

13.7.7.4

The requirement of 13.7.7.3 shall not apply to assembly occupancies in schools where used for nonpublic events.

13.7.8 Smoking

13.7.8.1

Smoking in assembly occupancies shall be regulated by the authority having jurisdiction.

13.7.8.2

In rooms or areas where smoking is prohibited, plainly visible signs shall be posted that read as follows:

NO SMOKING

13.7.8.3

No person shall smoke in prohibited areas that are so posted, unless permitted by the authority having jurisdiction under both of the following conditions:

Smoking shall be permitted on a stage only where it is a necessary and rehearsed part of a performance.

Smoking shall be permitted only where the smoker is a regular performing member of the cast.

13.7.8.4

Where smoking is permitted, suitable ashtrays or receptacles shall be provided in convenient locations.

13.7.9 Seating

13.7.9.1 Secured Seating

13.7.9.1.1

Seats in assembly occupancies accommodating more than 200 persons shall be securely fastened to the floor, except where fastened together in groups of not less than three and as permitted by 13.7.9.1.2 and 13.7.9.2.

13.7.9.1.2

Balcony and box seating areas that are separated from other areas by rails, guards, partial-height walls, or other physical barriers and have a maximum of 14 seats shall be exempt from the requirement of 13.7.9.1.1.

13.7.9.2 Unsecured Seating

13.7.9.2.1

Seats not secured to the floor shall be permitted in restaurants, night clubs, and other occupancies where fastening seats to the floor might be impracticable.

13.7.9.2.2

Unsecured seats shall be permitted, provided that, in the area used for seating, excluding such areas as dance floors and stages, there is not more than one seat for each 15 ft2 (1.4 m2) of net floor area, and adequate aisles to reach exits are maintained at all times.

13.7.9.2.3

Seating diagrams shall be submitted for approval by the authority having jurisdiction to permit an increase in occupant load per 7.3.1.3.

13.7.9.3 Occupant Load Posting

13.7.9.3.1

Every room constituting an assembly occupancy and not having fixed seats shall have the occupant load of the room posted in a conspicuous place near the main exit from the room.

13.7.9.3.2

Approved signs shall be maintained in a legible manner by the owner or authorized agent.

13.7.9.3.3

Signs shall be durable and shall indicate the number of occupants permitted for each room use.

13.7.10 Maintenance of Outdoor Grandstands

13.7.10.1

The owner shall provide for not less than annual inspection and required maintenance of each outdoor grandstand to ensure safe conditions.

13.7.10.2

At least biennially, the inspection shall be performed by a professional engineer, registered architect, or individual certified by the manufacturer.

13.7.10.3

Where required by the authority having jurisdiction, the owner shall provide a copy of the inspection report and certification that the inspection required by 13.7.10.2 has been performed.

13.7.11 Maintenance and Operation of Folding and Telescopic Seating

13.7.11.1

Instructions in both maintenance and operation shall be transmitted to the owner by the manufacturer of the seating or his or her representative.

13.7.11.2

Maintenance and operation of folding and telescopic seating shall be the responsibility of the owner or his or her duly authorized representative and shall include all of the following:

During operation of the folding and telescopic seats, the opening and closing shall be supervised by responsible personnel who shall ensure that the operation is in accordance with the manufacturer's instructions.

Only attachments specifically approved by the manufacturer for the specific installation shall be attached to the seating.

An annual inspection and required maintenance of each grandstand shall be performed to ensure safe conditions.

At least biennially, the inspection shall be performed by a professional engineer, registered architect, or individual certified by the manufacturer.

13.7.12 Clothing

Clothing and personal effects shall not be stored in corridors, and spaces not separated from corridors, unless otherwise permitted by one of the following:

This requirement shall not apply to corridors, and spaces not separated from corridors, that are protected by an approved automatic sprinkler system in accordance with Section 9.7.

This requirement shall not apply to corridors, and spaces not separated from corridors, that are protected by a smoke detection system in accordance with Section 9.6.

This requirement shall not apply to storage in metal lockers, provided that the required egress width is maintained.

13.7.13 Emergency Plans

13.7.13.1

Emergency plans shall be provided in accordance with Section 4.8.

13.7.13.2

Where assembly occupancies are located in the high-rise portion of a building, the emergency plan shall include egress procedures, methods, and preferred evacuation routes for each event considered to be a life safety hazard that could impact the building, including the appropriateness of the use of elevators.