

**STATE OF CONNECTICUT**

**CONNECTICUT FIRE SAFETY CODE GUIDEBOOK**

Changes Issued July 2006

Since the 2005 edition was published this is Change Number:

**1**

Make the following changes to your 2005 edition of the *CONNECTICUT FIRE SAFETY CODE GUIDEBOOK*. It is suggested you place your initials after each change, then place this sheet behind the title page.

**Remove Old Pages:**

29-32  
113-116  
123-124  
139-140  
207-208  
251-252  
275-276  
355-356  
415-416  
607-608  
621-622

**Insert New Pages:**

29-32  
113-116  
123-124  
139-140  
207-208  
251-252  
275-276  
355-356  
415-416  
607-608  
621-622

**Initials:**

---

---

---

---

---

---

---

---

---

---

---

---

An amendment Service of

***BNi* Building News**

990 Park Center Dr., Suite E, Vista CA 92081 - (760) 734-1113

**INTENTIONALLY LEFT BLANK**

**HIGHWAY.** See Section 3302.1.

**HOGGED MATERIALS.** See Section 1902.1.

**HOOD.** See Section 602.1.

**Type I.** See Section 602.1.

**HOT WORK.** See Section 2602.1.

**HOT WORK AREA.** See Section 2602.1.

**HOT WORK EQUIPMENT.** See Section 2602.1.

**HOT WORK PERMITS.** See Section 2602.1.

**HOT WORK PROGRAM.** See Section 2602.1.

**HOTEL.** A building containing six or more guest rooms, intended or designed to be used, or which are used, rented or hired out to be occupied or which are occupied for sleeping purposes by guests.

**HPM FLAMMABLE LIQUID.** See Section 1802.1.

**HPM ROOM.** See Section 1802.1.

**IMMEDIATELY DANGEROUS TO LIFE AND HEALTH (IDLH).** See Section 2702.1.

**IMPAIRMENT COORDINATOR.** See Section 902.1.

**INCOMPATIBLE MATERIALS.** See Section 2702.1.

**INHABITED BUILDING.** See Section 3302.1.

**INITIATING DEVICE.** See Section 902.1.

**IRRITANT.** A chemical which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact. A chemical is a skin irritant if, when tested on the intact skin of albino rabbits by the methods of CPSC 16CFR Part 1500.41 for an exposure of four or more hours or by other appropriate techniques, it results in an empirical score of 5 or more. A chemical is classified as an eye irritant if so determined under the procedure listed in CPSC 16CFR Part 1500.42 or other approved techniques.

**KEY BOX.** See Section 502.1.

**LABELED.** Equipment or material to which has been attached a label, symbol or other identifying mark of a nationally recognized testing laboratory, inspection agency or other organization concerned with product evaluation that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling is indicated compliance with nationally recognized standards or tests to determine suitable usage in a specified manner.

**LIMITED SPRAYING SPACE.** See Section 1502.1.

**LIQUEFIED NATURAL GAS (LNG).** See Section 2202.1.

**LIQUEFIED PETROLEUM GAS (LP-gas).** See Section 3802.1.

**LIQUID.** See Section 2702.1.

**LIQUID STORAGE ROOM.** See Section 3402.1.

**LISTED.** Equipment or materials included on a list published by an approved testing laboratory, inspection agency or other organization concerned with current product evaluation that maintains periodic inspection of production of listed equipment or materials, and whose listing states that equipment or materials comply with approved nationally recognized standards and have been tested or evaluated and found suitable for use in a specified manner.

**LONGITUDINAL FLUE SPACE.** See Section 2302.1.

**LOW-PRESSURE TANK.** See Section 3202.1.

**LOWER EXPLOSIVE LIMIT (LEL).** See Section 2702.1.

**LOWER FLAMMABLE LIMIT (LFL).** See Section 2702.1.

**MAGAZINE.** See Section 3302.1.

**Indoor.** See Section 3302.1.

**Type 1.** See Section 3302.1.

**Type 2.** See Section 3302.1.

**Type 3.** See Section 3302.1.

**Type 4.** See Section 3302.1.

**Type 5.** See Section 3302.1.

**MAGNESIUM.** See Section 3602.1.

**MANUAL FIRE ALARM BOX.** See Section 902.1.

**MANUAL STOCKING METHODS.** See Section 2302.1.

**MARINE MOTOR FUEL-DISPENSING FACILITY.** See Section 2202.1.

**MATERIAL SAFETY DATA SHEET (MSDS).** See Section 2702.1.

**MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA.** See Section 2702.1.

**MEANS OF EGRESS.** See Section 1002.1.

**MECHANICAL STOCKING METHODS.** See Section 2302.1.

**MEMBRANE STRUCTURE.** See Section 2402.1.

**MOBILE FUELING.** See Section 3402.1.

**MORTAR.** See Section 3302.1.

**MULTIPLE-STATION ALARM DEVICE.** See Section 902.1.

**MULTIPLE-STATION SMOKE ALARM.** See Section 902.1.

**NESTING.** See Section 3002.1.

**NET EXPLOSIVE WEIGHT (net weight).** See Section 3302.1.

**NORMAL TEMPERATURE AND PRESSURE (NTP).** See Section 2702.1.

**NOSING.** See Section 1002.1.

**NUISANCE ALARM.** See Section 902.1.

**OCCUPANCY CLASSIFICATION.** For the purposes of this code, certain occupancies are defined as follows:

**Assembly Group A.** Assembly Group A occupancy includes, among others, the use of a building or structure, or a portion thereof, for the gathering together of persons for purposes such as civic, social or religious functions, recreation, food or drink consumption or awaiting transportation. A room or space used for assembly purposes by less than 50 persons and accessory to another occupancy shall be included as a part of that occupancy. Assembly areas with less than 750 square feet (69.7 m<sup>2</sup>) and which are accessory to another occupancy according to Section 302.2.1 of the *International Building Code* are not assembly occupancies, unless they are classified as Special Amusement Buildings as defined by Section 401.11. Assembly occupancies which are accessory to Group E in accordance with Section 302.2 of the *International Building Code* are not considered assembly occupancies. Religious educational rooms and religious auditoriums which are accessory to churches in accordance with Section 302.2 of the *International Building Code* and which have occupant loads of less than 100 shall be classified as A-3. A building or tenant space used for assembly purposes by less than 50 persons shall be considered a Group B occupancy, unless they are classified as Special Amusement Buildings as defined by Section 401.11.

Assembly occupancies shall include the following:

**A-1** Assembly uses, usually with fixed seating, intended for the production and viewing of performing arts or motion pictures including, but not limited to:

Motion picture theaters

Symphony and concert halls

Television and radio studios admitting an audience

Theaters

**A-2** Assembly uses intended for food ~~and~~ or drink consumption including, but not limited to:

Banquet halls

Night clubs

Restaurants

Taverns and bars

**A-3** Assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A, including, but not limited to:

Amusement arcades  
Art galleries  
Bowling alleys  
Churches  
Community halls  
Courtrooms  
Dance halls (not including food or drink consumption)  
Exhibition halls  
Funeral parlors  
Gymnasiums (without spectator seating)  
Indoor swimming pools (without spectator seating)  
Indoor tennis courts (without spectator seating)  
Lecture halls  
Libraries  
Museums  
Waiting areas in transportation terminals  
Pool and billiard parlors

**A-4** Assembly uses intended for viewing of indoor sporting events and activities with spectator seating including, but not limited to:

Arenas  
Skating rinks  
Swimming pools  
Tennis courts

**A-5** Assembly uses intended for participation in or viewing outdoor activities including, but not limited to:

Amusement park structures  
Bleachers  
Grandstands  
Stadiums

**Business Group B.** Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following:

Airport traffic control towers  
Animal hospitals, kennels, pounds  
Banks  
Barber and beauty shops  
Car wash  
Civic administration  
Clinic—outpatient  
Dry cleaning and laundries; pick-up and delivery stations and self-service  
Educational occupancies above the 12th grade  
Electronic data processing

Laboratories; testing and research

Motor vehicle showrooms

Post offices

Print shops

Professional services (architects, attorneys, dentists, physicians, engineers, etc.)

Radio and television stations

Telephone exchanges

**Group B Medical Occupancies.** In addition to the requirements of this code for Group B occupancies, the provisions of Section 401.17 shall apply to Group B medical and dental occupancies that provide services or treatment for four or more patients who may simultaneously be rendered incapable of taking action for self-preservation under emergency conditions. This occupancy shall include, but not be limited to, the following:

Outpatient clinics with general anesthesia or life-support equipment;

Dental centers providing treatment under general anesthesia;

One-day surgical centers;

Physician's offices providing treatment under general anesthesia.

Facilities such as the above that do not provide general anesthesia or life-support equipment simultaneously to four or more patients shall be classified as Group B occupancies and shall not be subject to the special provisions of Section 401.17.

**Educational Group E.** Educational Group E occupancy includes, among others, the use of a building or structure, or a portion thereof, by six or more persons at any one time for educational purposes through the 12th grade. Religious educational rooms and religious auditoriums, which are accessory to churches in accordance with Section 302.2 of the *International Building Code* and have occupant loads of less than 100, shall be classified as Group A-3 occupancies.

**Day care.** The use of a building or structure, or portion thereof, for educational, supervision or personal care services for more than ~~five~~ <sup>six</sup> children older than ~~2½~~ <sup>3</sup> years of age shall be classified as an E occupancy.

**Factory Industrial Group F.** Factory Industrial Group F occupancy includes, among others, the use of a building or structure, or a portion thereof, for assembling, disassembling, fabricating, finishing, manufacturing, packaging, repair or processing operations that are not classified as a Group H high-hazard or Group S storage occupancy.

**Factory Industrial F-1 Moderate-Hazard Occupancy.** Factory Industrial uses which are not classified as Factory Industrial Group F-2 shall be classified as F-1 Moderate Hazard and shall include, but not be limited to, the following:

Aircraft

Appliances

Athletic equipment

Automobiles and other motor vehicles

Bakeries

Beverages; over 12 percent in alcohol content

Bicycles

Boats

Brooms or brushes

Business machines

Cameras and photo equipment

Canvas and similar fabric

Carpet and rugs (includes cleaning)

Disinfectants

Dry cleaning and dyeing

Electric generation plants

**TABLE 1004.1.2  
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT**

OCCUPANCY	FLOOR AREA IN SQ. FT. PER OCCUPANT
Agricultural building	300 gross
Aircraft hangars	500 gross
Airport terminal Baggage claim Baggage handling Concourse Waiting areas	20 gross 300 gross 100 gross 15 gross
Assembly Gaming floors (keno, slots, etc.)	11 gross
Assembly with fixed seats	See Section 1004.7
Assembly without fixed seats Concentrated (chairs only—not fixed) Standing space Unconcentrated (tables and chairs)	7 net 5 net 15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
Business areas	100 gross
Courtrooms—other than fixed seating areas	40 net
Dormitories	50 gross
Educational Classroom area Shops and other vocational room areas	20 net 50 net
Exercise rooms	50 gross
H-5 Fabrication and manufacturing areas	200 gross
Industrial areas	100 gross
Institutional areas Inpatient treatment areas Outpatient areas Sleeping areas	240 gross 100 gross 120 gross
Kitchens, commercial	200 gross
Library Reading rooms Stack area	50 net 100 gross
Locker rooms	50 gross
Mercantile Areas on other floors Basement and grade floor areas Storage, stock, shipping areas	60 gross 30 gross 300 gross
Parking garages	200 gross
Residential	200 gross
Skating rinks, swimming pools Rink and pool Decks	50 gross 15 gross
Stages and platforms	15 net
Accessory storage areas, mechanical equipment room	300 gross
Warehouses	500 gross

For SI: 1 square foot = 0.0929 m<sup>2</sup>.

**1004.8 Outdoor areas.** Yards, patios, courts and similar outdoor areas accessible to and usable by the building occupants shall be provided with means of egress as required by this chapter. The occupant load of such outdoor areas shall be assigned by the fire code official in accordance with the anticipated use. Where outdoor areas are to be used by persons in addition to the occupants of the building, and the path of egress travel from the outdoor areas passes through the building, means of egress requirements for the building shall be based on the sum of the occupant loads of the building plus the outdoor areas.

**Exceptions:**

1. Outdoor areas used exclusively for service of the building need only have one means of egress.
2. Both outdoor areas associated with Group R-3 and individual dwelling units of Group R-2, as applicable in Section 1001.1.

**1004.9 Multiple occupancies.** Where a building contains two or more occupancies, the means of egress requirements shall apply to each portion of the building based on the occupancy of that space. Where two or more occupancies utilize portions of the same means of egress system, those egress components shall meet the more stringent requirements of all occupancies that are served.

## SECTION 1005 EGRESS WIDTH

**1005.1 Minimum required egress width.** The means of egress width shall not be less than required by this section. The total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by the factors in Table 1005.1 and not less than specified elsewhere in this code. Multiple means of egress shall be sized such that the loss of any one means of egress shall not reduce the available capacity to less than 50 percent of the required capacity. The maximum capacity required from any story of a building shall be maintained to the termination of the means of egress.

**Exception:** Means of egress complying with Section 1024.

**TABLE 1005.1  
EGRESS WIDTH PER OCCUPANT SERVED**

OCCUPANCY	WITHOUT SPRINKLER SYSTEM		WITH SPRINKLER SYSTEM <sup>a</sup>	
	Stairways (inches per occupant)	Other egress components (inches per occupant)	Stairways (inches per occupant)	Other egress components (inches per occupant)
Occupancies other than those listed below	0.3	0.2	0.3	0.2
R-4	NA	NA	0.4	0.2
I-2, R-1 <sup>b</sup> , R-2, R-3	NA	NA	0.3	0.2
Group H	NA	NA	0.7	0.4

NA = not applicable

For SI: 1 inch = 25.4 mm.

- a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
- b. Except Group R-1 bed and breakfast establishments.



**1005.1.1 Balanced egress capacity.** The total required egress capacity from any story, balcony, tier or other occupied space shall be balanced among the total number of required means of egress. The minimum capacity of any required means of egress shall be the greatest capacity as determined by all of the following:

1. Minimum width as determined by Sections 1008.1, 1009.1 and 1010.5.
2. Minimum width as determined by the total required exit capacity divided by the number of required exits.
3. Minimum width as required by use and occupancy classification.

**1005.2 Door encroachment.** Doors opening into the path of egress travel shall not reduce the required width to less than one-half during the course of the swing. When fully open, the door shall not project more than 7 inches (178 mm) into the required width.

**Exception:** The restrictions on a door swing shall not apply to doors within individual dwelling units and sleeping units of Group R-2 and dwelling units of Group R-3.

## SECTION 1006 MEANS OF EGRESS ILLUMINATION

**1006.1 Illumination required.** The means of egress, including the exit discharge, shall be illuminated at all times the building space served by the means of egress is occupied.

**Exceptions:**

1. Occupancies in Group U.
2. Aisle accessways in Group A.
3. Dwelling units and sleeping units in Groups R-1, R-2 and R-3.
4. Sleeping units of Group I occupancies.
5. Continuous illumination of the means of egress in Group R-1 bed and breakfast establishments shall not be required when illumination of the means of egress is initiated upon initiation of a fire alarm.

**1006.2 Illumination level.** The means of egress illumination level shall not be less than 1 foot-candle (11 lux) at the floor level.

**Exception:** For auditoriums, theaters, concert or opera halls and similar assembly occupancies, the illumination at the floor level is permitted to be reduced during performances to not less than 0.2 foot-candle (2.15 lux) provided that the required illumination is automatically restored upon activation of a premise's fire alarm system where such system is provided.

**1006.2.1 Arrangement of illumination.** Required illumination shall be arranged so that the failure of any single lamp does not result in an illumination level of less than 0.2 foot-candle at the floor level.

**1006.3 Illumination emergency power.** The power supply for means of egress illumination shall normally be provided by the premise's electrical supply.

In the event of power supply failure, an emergency electrical system shall automatically illuminate the following areas:

1. Exit access corridors, passageways and aisles in rooms and spaces which require two or more means of egress.
2. Exit access corridors and exit stairways located in buildings required to have two or more exits.
3. Exterior egress components at other than the level of exit discharge until exit discharge is accomplished for buildings required to have two or more exits.
4. Interior exit discharge elements, as permitted in Section 1023.1, in buildings required to have two or more exits.
5. The portion of the exterior exit discharge immediately adjacent to exit discharge doorways in buildings required to have two or more exits.
6. Means of egress lighting in Group R-1 bed and breakfast establishments.
7. The egress side of access controlled egress doors in accordance with Section 1008.1.3.4 or doors equipped with delayed egress locks in accordance with Section 1008.1.8.6.

The emergency power system shall provide power for a duration of not less than 90 minutes and shall consist of storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with ~~Section 604~~ Section 2702 of the State Building Code.

**1006.4 Performance of system.** Emergency lighting facilities shall be arranged to provide initial illumination that is at least an average of 1 foot-candle (11 lux) and a minimum at any point of 0.1 foot-candle (1 lux) measured along the path of egress at floor level. Illumination levels shall be permitted to decline to 0.6 foot-candle (6 lux) average and a minimum at any point of 0.06 foot-candle (0.6 lux) at the end of the emergency lighting time duration. A maximum-to-minimum illumination uniformity ratio of 40 to 1 shall not be exceeded.

## SECTION 1007

### ACCESSIBLE MEANS OF EGRESS

**1007.1 Accessible means of egress required.** Accessible means of egress shall comply with this section. Accessible spaces shall be provided with not less than one accessible means of egress. Where more than one means of egress is required by Section 1014.1 or 1018.1 from any accessible space, each accessible portion of the space shall be served by not less than two accessible means of egress.

#### Exceptions:

1. Accessible means of egress are not required in alterations to existing buildings.
2. One accessible means of egress is required from an accessible mezzanine level in accordance with Section 1007.3 or 1007.4.
3. In assembly spaces with sloped floors, one accessible means of egress is required from a space where the common path of travel of the accessible route for access to the wheelchair spaces meets the requirements in Section 1024.8.

**1007.2 Continuity and components.** Each required accessible means of egress shall be continuous to a public way and shall consist of one or more of the following components:

1. Accessible routes complying with Section 1104 of the *International Building Code*.
2. Stairways within exit enclosures complying with Sections 1007.3 and 1019.1.
3. Elevators complying with Section 1007.4.
4. Platform lifts complying with Section 1007.5.
5. Horizontal exits.
6. Smoke barriers.

#### Exceptions:

1. Where the exit discharge is not accessible, an exterior area for assisted rescue must be provided in accordance with Section 1007.8.
2. Where the exit stairway is open to the exterior, the accessible means of egress shall include either an area of refuge in accordance with Section 1007.6 or an exterior area for assisted rescue in accordance with Section 1007.8.

**1007.2.1 Buildings with four or more stories.** In buildings where a required accessible floor is four or more stories above or below a level of exit discharge, at least one required accessible means of egress shall be an elevator complying with Section 1007.4.

#### Exceptions:

1. In buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required on floors provided with a horizontal exit and located at or above the level of exit discharge.
2. In buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, the elevator shall not be required on floors provided with a ramp conforming to the provisions of Section 1010.

**1007.3 Enclosed exit stairways.** An enclosed exit stairway, to be considered part of an accessible means of egress, shall have a clear width of 48 inches (1219 mm) minimum between handrails and shall either incorporate an area of refuge within an enlarged floor-level landing or shall be accessed from either an area of refuge complying with Section 1007.6 or a horizontal exit.

**1008.1.8.6 Delayed egress locks.** Approved, listed, delayed egress locks shall be permitted to be installed on doors serving any occupancy except Group A, E and H occupancies in buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below. A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an exit.

1. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a signal from the fire command center.
4. The initiation of an irreversible process which will release the latch in not more than 15 seconds when a force of not more than 15 pounds (67 N) is applied for 1 second to the release device. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the door lock has been released by the application of force to the releasing device, relocking shall be by manual means only.

**Exception:** Where approved, a delay of not more than 30 seconds is permitted.

**Exception to Item 4:** Where approved by the local building official and the local fire marshal, a delay of not more than 30 seconds shall be permitted.

~~5. A sign shall be provided on the door located above and within 12 inches (305 mm) of the release device reading: PUSH UNTIL ALARM SOUNDS. DOOR CAN BE OPENED IN 15 [30] SECONDS.~~

5. A readily visible, durable sign in letters not less than 1 inch high and not less than 1/8 inch in stroke width shall be provided on the door located above and within 12 inches of the release device reading:

PUSH UNTIL ALARM SOUNDS.

DOOR CAN BE OPENED IN 15 (30) SECONDS.

6. Emergency lighting shall be provided at the door.

**1008.1.8.7 Stairway doors.** Interior stairway means of egress doors shall be openable from both sides without the use of a key or special knowledge or effort.

**Exceptions:**

1. Stairway discharge doors shall be openable from the egress side and shall only be locked from the opposite side.
2. This section shall not apply to doors arranged in accordance with Section 403.12 of the *International Building Code*.
3. In stairways serving not more than four stories, doors are permitted to be locked from the side opposite the egress side, provided they are openable from the egress side.

**1008.1.8.8 Bathroom doors.** Group I-2 child care facility, Group I-4 day care facility and Group R-4 occupancy bathroom doors subject to locking shall be designed to allow unlocking from the outside during an emergency.

**1008.1.9 Panic and fire exit hardware.** Where panic and fire exit hardware is installed, it shall comply with the following:

1. The actuating portion of the releasing device shall extend at least one-half of the door leaf width.
2. A maximum unlatching force of 15 pounds (67 N).

Each door in a means of egress from an occupancy of Group A or E having an occupant load of 100 or more and any occupancy of Group H-1, H-2, H-3 or H-5 shall not be provided with a latch or lock unless it is panic hardware or fire exit hardware.

If balanced doors are used and panic hardware is required, the panic hardware shall be the push-pad type and the pad shall not extend more than one-half the width of the door measured from the latch side.

**1008.2 Gates.** Gates serving the means of egress system shall comply with the requirements of this section. Gates used as a component in a means of egress shall conform to the applicable requirements for doors.

**Exception:** Horizontal sliding or swinging gates exceeding the 4-foot (1219 mm) maximum leaf width limitation are permitted in fences and walls surrounding a stadium.

**1008.2.1 Stadiums.** Panic hardware is not required on gates surrounding stadiums where such gates are under constant immediate supervision while the public is present, and further provided that safe dispersal areas based on 3 square feet (0.28 m<sup>2</sup>) per occupant are located between the fence and enclosed space. Such required safe dispersal areas shall not be located less than 50 feet (15 240 mm) from the enclosed space. See Section 1017 for means of egress from safe dispersal areas.

**1008.3 Turnstiles.** Turnstiles or similar devices that restrict travel to one direction shall not be placed so as to obstruct any required means of egress.

**Exception:** Each turnstile or similar device shall be credited with no more than a 50-person capacity where all of the following provisions are met:

1. Each device shall turn free in the direction of egress travel when primary power is lost, and upon the manual release by an employee in the area.
2. Such devices are not given credit for more than 50 percent of the required egress capacity.
3. Each device is not more than 39 inches (991 mm) high.
4. Each device has at least 16.5 inches (419 mm) clear width at and below a height of 39 inches (991 mm) and at least 22 inches (559 mm) clear width at heights above 39 inches (991 mm).

Where located as part of an accessible route, turnstiles shall have at least 36 inches (914 mm) clear at and below a height of 34 inches (864 mm), at least 32 inches (813 mm) clear width between 34 inches (864 mm) and 80 inches (2032 mm) and shall consist of a mechanism other than a revolving device.

**1008.3.1 High turnstile.** Turnstiles more than 39 inches (991 mm) high shall meet the requirements for revolving doors.

**1008.3.2 Additional door.** Where serving an occupant load greater than 300, each turnstile that is not portable shall have a side-hinged swinging door which conforms to Section 1008.1 within 50 feet (15 240 mm).

## SECTION 1009 STAIRWAYS AND HANDRAILS

**1009.1 Stairway width.** The width of stairways shall be determined as specified in Section 1005.1, but such width shall not be less than 44 inches (1118 mm). See Section 1007.3 for accessible means of egress stairways.

**Exceptions:**

1. Stairways serving an occupant load of 50 or less shall have a width of not less than 36 inches (914 mm).
2. Spiral stairways as provided for in Section 1009.9.
3. Aisle stairs complying with Section 1024.
4. Where a stairway lift is installed on stairways serving occupancies in Group R-3, or within dwelling units in occupancies in Group R-2, both as applicable in Section 1001.1 a clear passage width not less than 20 inches (508 mm) shall be provided. If the seat and platform can be folded when not in use, the distance shall be measured from the folded position.

**1009.2 Headroom.** Stairways shall have a minimum headroom clearance of 80 inches (2032 mm) measured vertically from a line connecting the edge of the nosings. Such headroom shall be continuous above the stairway to the point where the line intersects the landing below, one tread depth beyond the bottom riser. The minimum clearance shall be maintained the full width of the stairway and landing.

**Exception:** Spiral stairways complying with Section 1009.9 are permitted a 78-inch (1981 mm) headroom clearance.

**1009.3 Stair treads and risers.** Stair riser heights shall be 7 inches (~~178 mm~~) maximum and 4 inches (~~102 mm~~) minimum. Stair tread depths shall be 11 inches (~~279 mm~~) minimum. The riser height shall be measured vertically between the leading edges of adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than ~~0.375~~  $\frac{3}{8}$  inch (~~9.5 mm~~). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than ~~0.375~~  $\frac{3}{8}$  inch (~~9.5 mm~~). ~~Winder treads shall have a minimum tread depth of 11 inches (279 mm) measured at a right angle to the tread's leading edge at a point 12 inches (305 mm) from the side where the treads are narrower and a minimum tread depth of 10 inches (254 mm). The greatest winder tread depth at the 12 inch (305 mm) walk line within any flight of stairs shall not exceed the smallest by more than 0.375 inch (9.5 mm).~~

**Exceptions:**

1. Circular stairways in accordance with Section 1009.7.
- ~~2. Winders in accordance with Section 1009.8.~~
- ~~3.~~ **2.** Spiral stairways in accordance with Section 1009.9.

**TABLE 1018.2  
BUILDINGS WITH ONE EXIT**

OCCUPANCY	MAXIMUM HEIGHT OF BUILDING ABOVE GRADE PLANE	MAXIMUM OCCUPANTS (OR DWELLING UNITS) PER FLOOR AND TRAVEL DISTANCE
A, B <sup>d</sup> , E, F, M, U	1 Story	50 occupants and 75 feet travel distance
H-2, H-3	1 Story	3 occupants and 25 feet travel distance
H-4, H-5, I, R	1 Story	10 occupants and 75 feet travel distance
S <sup>a</sup>	1 Story	30 occupants and 100 feet travel distance
B <sup>b</sup> , F, M, S <sup>a</sup>	2 Stories	30 occupants and 75 feet travel distance
R-2	2 Stories <sup>c</sup>	4 dwelling units and 50 feet travel distance

For SI: 1 foot = 304.8 mm.

- For the required number of exits for open parking structures, see Section 1018.1.1.
- For the required number of exits for air traffic control towers, see Section 412.1 of the *International Building Code*.
- Buildings classified as Group R-2 equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 and provided with emergency escape and rescue openings in accordance with Section 1025 shall have a maximum height of three stories above grade.
- Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 with an occupancy in Group B shall have a maximum travel distance of 100 feet.

## SECTION 1019 VERTICAL EXIT ENCLOSURES

**1019.1 Enclosures required.** Interior exit stairways and interior exit ramps shall be enclosed with fire barriers. Exit enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories. The number of stories connected by the shaft enclosure shall include any basements but not any mezzanines. An exit enclosure shall not be used for any purpose other than means of egress. Enclosures shall be constructed as fire barriers in accordance with Section 706 of the ~~*International Building Code*~~ *State Building Code*.

### Exceptions:

- In buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1 with other than Group H and I occupancies, a stairway serving an occupant load of less than 10 not more than one story above the level of exit discharge is not required to be enclosed.
- Exits in buildings of Group A-5 where all portions of the means of egress are essentially open to the outside need not be enclosed.
- Stairways serving and contained within a single residential dwelling unit or sleeping unit in occupancies in Group R-2 or R-3 and sleeping units in occupancies in Group R-1 are not required to be enclosed.
- Stairways that are not a required means of egress element are not required to be enclosed where such stairways comply with Section 707.2 of the ~~*International Building Code*~~ *State Building Code*.
- Stairways in open parking structures which serve only the parking structure are not required to be enclosed.

6. Stairways in occupancies in Group I-3 as provided for in Section 408.3.6 of the *International Building Code* **State Building Code** are not required to be enclosed.

7. Means of egress stairways as required by Section 410.5.4 of the *International Building Code* **State Building Code** are not required to be enclosed.

~~8. In other than occupancy Groups H and I, a maximum of 50 percent of egress stairways serving one adjacent floor are not required to be enclosed, provided at least two means of egress are provided from both floors served by the unenclosed stairways. Any two such interconnected floors shall not be open to other floors.~~

8. Stairways connecting the first and second floors of Group R-1 bed and breakfast establishments shall not be required to be enclosed. Stairways connecting the second and third floors in such occupancies shall be enclosed with fire separation assemblies having a fire resistance rating of not less than 1 hour. Stairways connecting the basement and the first floor in such occupancies shall be enclosed with fire partitions having a fire resistance rating of not less than ½ hour with 20-minute fire-resistance-rated door assemblies. Fire-resistance-rated assemblies at stairways in Group R-1 bed and breakfast establishments shall not be required to be supported by fire-resistance-rated construction.

~~9. In other than occupancy Groups H and I, interior egress stairways serving only the first and second stories of a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 are not required to be enclosed, provided at least two means of egress are provided from both floors served by the unenclosed stairways. Such interconnected stories shall not be open to other stories.~~

**1019.1.1 Openings and penetrations.** Exit enclosure opening protectives shall be in accordance with the requirements of Section 715 of the *International Building Code*.

Except as permitted in Section 402.4.6 of the *International Building Code*, openings in exit enclosures other than unexposed exterior openings shall be limited to those necessary for exit access to the enclosure from normally occupied spaces and for egress from the enclosure.

While interior exit enclosures are extended to the exterior of a building by an exit passageway, the door assembly from the exit enclosure to the exit passageway shall be protected by a fire door conforming to the requirements in Section 715.3 of the *International Building Code*. Fire door assemblies in exit enclosures shall comply with Section 715.3.4 of the *International Building Code*.

**1019.1.2 Penetrations.** Penetrations into and openings through an exit enclosure are prohibited except for required exit doors, equipment and ductwork necessary for independent pressurization, sprinkler piping, standpipes, electrical raceway for fire department communication and electrical raceway serving the exit enclosure and terminating at a steel box not exceeding 16 square inches (0.010 m<sup>2</sup>). Such penetrations shall be protected in accordance with Section 712 of the *International Building Code*. There shall be no penetrations or communication openings, whether protected or not, between adjacent exit enclosures.

**1019.1.3 Ventilation.** Equipment and ductwork for exit enclosure ventilation shall comply with one of the following items:

1. Such equipment and ductwork shall be located exterior to the building and shall be directly connected to the exit enclosure by ductwork enclosed in construction as required for shafts.
2. Where such equipment and ductwork is located within the exit enclosure, the intake air shall be taken directly from the outdoors and the exhaust air shall be discharged directly to the outdoors, or such air shall be conveyed through ducts enclosed in construction as required for shafts.
3. Where located within the building, such equipment and ductwork shall be separated from the remainder of the building, including other mechanical equipment, with construction as required for shafts.

In each case, openings into the fire-resistance-rated construction shall be limited to those needed for maintenance and operation and shall be protected by self-closing fire-resistance-rated devices in accordance with Chapter 7 of the *International Building Code* for enclosure wall opening protectives.

Exit enclosure ventilation systems shall be independent of other building ventilation systems.

**1019.1.4 Vertical enclosure exterior walls.** Exterior walls of a vertical exit enclosure shall comply with the requirements of Section 704 of the *International Building Code* for exterior walls. Where nonrated walls or unprotected openings enclose the exterior of the stairway and the walls or openings are exposed by other parts of the building at an angle of less than 180 degrees (3.14 rad), the building exterior walls within 10 feet (3048 mm) horizontally of a nonrated wall or unprotected opening shall be constructed as required for a minimum 1-hour fire-resistance rating with <sup>3</sup>/<sub>4</sub>-hour opening protectives. This construction shall extend vertically from the ground to a point 10 feet (3048 mm) above the topmost landing of the stairway or to the roof line, whichever is lower.

**7.2.2.2.4\* Winders.**

**7.2.2.2.4.1** Where specified in Chapter 12 through Chapter 42, winders shall be permitted in stairs, provided that they meet the requirements of 7.2.2.2.4.2 and 7.2.2.2.4.3.

**7.2.2.2.4.2** New winders shall have a tread depth of not less than 150 mm (6 in.) and a tread depth of not less than 280 mm (11 in.) at a point 305 mm (12 in.) from the narrowest edge.

**7.2.2.2.4.3** Existing winders shall be permitted to be continued in use, provided that they have a tread depth of not less than 150 mm (6 in.) and a tread depth of not less than 230 mm (9 in.) at a point 305 mm (12 in.) from the narrowest edge.

**7.2.2.2.4.4** Existing stairs containing winders may be continued in use provided all of the following are met:

- (1) Such winders have a minimum depth of tread of 7½ in. at a point 12 in. from the narrowest edge.
- (2) The nosing of each winder tread shall be made readily visible by the application of a 2 in. wide stripe for the full width of the tread that is of a distinctive or contrasting color.
- (3) The area of the winder shall be provided with both normal illumination and emergency lighting in accordance with 7.8 and 7.9.
- (4) A handrail shall be provided for the full length of stair travel at the side of the stair having the widest tread portion.

**7.2.2.3 Stair Details.****7.2.2.3.1 Construction.**

**7.2.2.3.1.1** All stairs serving as required means of egress shall be of permanent fixed construction, unless they are stairs serving seating that is designed to be repositioned in accordance with Chapter 12 and Chapter 13.

**7.2.2.3.1.2** Each stair, platform, and landing, not including handrails and existing stairs, in buildings required in this *Code* to be of Type I or Type II shall be of noncombustible material throughout.

**7.2.2.3.2 Landings.**

**7.2.2.3.2.1** Stairs shall have landings at door openings, except as permitted in 7.2.2.3.2.5.

**7.2.2.3.2.2** Stairs and intermediate landings shall continue with no decrease in width along the direction of egress travel.

**7.2.2.3.2.3** In new buildings, every landing shall have a dimension, measured in the direction of travel, that is not less than the width of the stair.

**7.2.2.3.2.4** Landings shall not be required to exceed 1220 mm (48 in.) in the direction of travel, provided that the stair has a straight run.

**7.2.2.3.2.5** In one- and two-family dwellings and existing buildings, a door at the top of a stair shall be permitted to open directly to the stair, provided that the door does not swing over the stair and the door serves an area with an occupant load of fewer than 50 persons.

**7.2.2.3.3 Tread and Landing Surfaces.**

**7.2.2.3.3.1** Stair treads and landings shall be solid, without perforations, unless otherwise permitted in 7.2.2.3.3.4.

**7.2.2.3.3.2\*** Stair treads and landings shall be free of projections or lips that could trip stair users.

**7.2.2.3.3.3** If not vertical, risers on other than existing stairs shall be permitted to slope under the tread at an angle not to exceed 30 degrees from vertical, provided that the projection of the nosing does not exceed (1½ in.).

**7.2.2.3.3.4** The requirement of 7.2.2.3.3.1 shall not apply to noncombustible grated stair treads and landings in the following occupancies:

- (1) Assembly occupancies as otherwise provided in Chapter 12 and Chapter 13
- (2) Detention and correctional occupancies as otherwise provided in Chapter 22 and Chapter 23
- (3) Industrial occupancies as otherwise provided in Chapter 40

**7.2.2.3.4\* Tread Slope.** Tread slope shall not exceed 21 mm/m (¼ in./ft) (a slope of 1 in 48).

**7.2.2.3.5\* Riser Height and Tread Depth.** Riser height shall be measured as the vertical distance between tread nosings. Tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge but shall not include bevelled or rounded tread surfaces that slope more than 20 degrees (a slope of 1 in 2.75). At tread nosings, such bevelling or rounding shall not exceed 13 mm (½ in.) in horizontal dimension.

**7.2.2.3.6 Dimensional Uniformity.**

**7.2.2.3.6.1** Variation in excess of 4.8 mm (3/16 in.) in the depth of adjacent treads or in the height of adjacent risers shall be prohibited unless otherwise permitted in 7.2.2.3.6.3.

**7.2.2.3.6.2** The tolerance between the largest and smallest riser or between the largest and smallest tread shall not exceed 9.5 mm (3/8 in.) in any flight.

**7.2.2.3.6.3** Where the bottom riser adjoins a sloping public way, walk, or driveway having an established grade and serving as a landing, the bottom riser shall be permitted to have a variation in height of not more than 25 mm in every 300 mm (1 in. in every 12 in.) of stairway width.

**7.2.2.4 Guards and Handrails.****7.2.2.4.1 Handrails.**

**7.2.2.4.1.1** Stairs and ramps shall have handrails on both sides, unless otherwise permitted in 7.2.2.4.1.5 or 7.2.2.4.1.6.

**7.2.2.4.1.2** In addition to the handrails required at the sides of stairs by 7.2.2.4.1.1, the following provisions shall apply:

(1) For new stairs exceeding 1905 mm (75 in.) in width, handrails shall be provided within 760 mm (30 in.) of all portions of the required egress width.

(2) For existing stairs, handrails shall be provided within 1120 mm (44 in.) of all portions of the required egress width.

**7.2.2.4.1.3** Where new intermediate handrails are provided in accordance with 7.2.2.4.1.2, the minimum clear width between handrails shall be 510 mm (20 in.).

**7.2.2.4.1.4\*** The required egress width shall be provided along the natural path of travel.

**7.2.2.4.1.5** If a single step or a ramp is part of a curb that separates a sidewalk from a vehicular way, it shall not be required to have a handrail.

**7.2.2.4.1.6** Existing stairs, existing ramps, stairs within dwelling units and within guest rooms, and ramps within dwelling units and guest rooms shall be permitted to have a handrail on one side only.

**7.2.2.4.2 Continuity.** Required guards and handrails shall continue for the full length of each flight of stairs. At turns of new stairs, inside handrails shall be continuous between flights at landings.

**7.2.2.4.3 Projections.** The design of the guards and handrails and the hardware for attaching handrails to guards, balusters, or walls shall be such that there are no projections that might engage loose clothing. Openings in guards shall be designed to prevent loose clothing from becoming wedged in such openings.

**7.2.2.4.4\* Handrail Details.**

**7.2.2.4.4.1** New handrails on stairs shall be not less than 865 mm (34 in.) and not more than 965 mm (38 in.) above the surface of the tread, measured vertically to the top of the rail from the leading edge of the tread.

**7.2.2.4.4.2** Existing required handrails shall be not less than 760 mm (30 in.) and not more than 965 mm (38 in.) above the surface of the tread, measured vertically to the top of the rail from the leading edge of the tread.

**7.2.2.4.4.3** The height of required handrails that form part of a guard shall be permitted to exceed 965 mm (38 in.), but shall not exceed 1065 mm (42 in.), measured vertically to the top of the rail from the leading edge of the tread.

**7.2.2.4.4.4\*** Additional handrails that are lower or higher than the main handrail shall be permitted.

**7.2.2.4.4.5\*** New handrails shall be installed to provide a clearance of not less than 57 mm (2¼ in.) between the handrail and the wall to which it is fastened.

**7.2.2.4.4.6** Handrails shall include one of the following features:

(1) A circular cross section with an outside diameter of not less than 32 mm (1¼ in.) and not more than 51 mm (2 in.)

(2)\* A shape that is other than circular with a perimeter dimension of not less than 100 mm (4 in.), but not more than 160 mm (6¼ in.), and with the largest cross-sectional dimension not more than 57 mm (2¼ in.), provided that graspable edges are rounded so as to provide a radius of not less than 3.2 mm (1/8 in.)

**7.2.2.4.4.7** New handrails shall be continuously graspable along their entire length.

**7.2.2.4.4.8** Handrail brackets or balusters attached to the bottom surface of the handrail shall not be considered to be obstructions to graspability, provided that the following criteria are met:

(1) They do not project horizontally beyond the sides of the handrail within 38 mm (1½ in.) of the bottom of the handrail and provided that, for each additional 13 mm (½ in.) of handrail perimeter dimension greater than 100 mm (4 in.), the vertical clearance dimension of 38 mm (1½ in.) is reduced by 3.2 mm (1/8 in.).

(2) They have edges with a radius of not less than 0.25 mm (0.01 in.).



**9.6.2.1** Where required by other sections of this *Code*, actuation of the complete fire alarm system shall be initiated by, but shall not be limited to, any or all of the following means:

- (1) Manual fire alarm initiation
- (2) Automatic detection
- (3) Extinguishing system operation

**9.6.2.2** Manual fire alarm boxes shall be approved for the particular application and shall be used only for fire-protective signaling purposes. Combination fire alarm and guard's tour stations shall be acceptable.

**9.6.2.3** A manual fire alarm box shall be provided in the natural exit access path near each required exit from an area, unless modified by another section of this *Code*.

**9.6.2.4\*** Additional manual fire alarm boxes shall be located so that, on any given floor in any part of the building, no horizontal distance on that floor exceeding 60 m (200 ft) shall need to be traversed to reach a manual fire alarm box.

**9.6.2.5** For fire alarm systems using automatic fire detection or waterflow detection devices, not less than one manual fire alarm box shall be provided to initiate a fire alarm signal. The manual fire alarm box shall be located where required by the authority having jurisdiction.

**9.6.2.6\*** Each manual fire alarm box on a system shall be accessible, unobstructed, and visible.

**9.6.2.7** Where a sprinkler system provides automatic detection and alarm system initiation, it shall be provided with an approved alarm initiation device that operates when the flow of water is equal to or greater than that from a single automatic sprinkler.

**9.6.2.8** Where a total (complete) coverage smoke detection system is required by another section of this *Code*, automatic detection of smoke in accordance with *NFPA 72®*, *National Fire Alarm Code®*, shall be provided in all occupiable areas, common areas, and work spaces in environments that are suitable for proper smoke detector operation.

**9.6.2.9** Where a partial smoke detection system is required by another section of this *Code*, automatic detection of smoke in accordance with *NFPA 72®*, *National Fire Alarm Code®*, shall be provided in all common areas and work spaces, such as corridors, lobbies, storage rooms, equipment rooms, and other tenantless spaces in environments that are suitable for proper smoke detector operation. Selective smoke detection unique to other sections of this *Code* shall be provided as required by those sections.

#### **9.6.2.10 Smoke Alarms.**

**9.6.2.10.1** Where required by another section of this *Code*, single-station and multiple-station smoke alarms shall be in accordance with *NFPA 72®*, *National Fire Alarm Code®*. System smoke detectors in accordance with *NFPA 72®*, *National Fire Alarm Code®*, and arranged to function in the same manner as single-station or multiple-station smoke alarms shall be permitted in lieu of smoke alarms.

~~**9.6.2.10.2** Smoke alarms, other than battery operated devices as permitted by other sections of this *Code*, or battery operated devices complying with 9.6.1.3 and the low power wireless system requirements of *NFPA 72®*, *National Fire Alarm Code®*, shall receive their operating power from the building electrical system.~~

**9.6.2.10.2** Smoke alarms shall receive their operating power as follows:

- (1) In buildings for which a building permit for new occupancy was issued on or after October 1, 1985, smoke alarms shall be powered by both alternating current (AC) and batteries (DC).
- (2) In buildings for which a building permit for new occupancy was issued on or after October 1, 1976, smoke alarms shall be powered by the household electrical service.
- (3) In buildings for which a building permit was issued prior to October 1, 1976, smoke alarms may be battery powered.

**9.6.2.10.3\*** In new construction, where two or more smoke alarms are required within a dwelling unit, suite of rooms, or similar area, they shall be arranged so that operation of any smoke alarm shall cause the alarm in all smoke alarms within the dwelling unit, suite of rooms, or similar area to sound, unless otherwise permitted by the following:

- (1) The requirement of 9.6.2.10.3 shall not apply where permitted by another section of this *Code*.
- (2) The requirement of 9.6.2.10.3 shall not apply to configurations that provide equivalent distribution of the alarm signal.

**9.6.2.10.4** The alarms shall sound only within an individual dwelling unit, suite of rooms, or similar area and shall not actuate the building fire alarm system, unless otherwise permitted by the authority having jurisdiction. Remote annunciation shall be permitted.

**9.6.2.11** Where required by Chapter 11 through Chapter 42, an automatic fire detection system shall be provided in hazardous areas for initiation of the signaling system.

### **9.6.3 Occupant Notification.**

**9.6.3.1** Occupant notification shall be provided to alert occupants of a fire or other emergency where required by other sections of this *Code*.

**9.6.3.2** Occupant notification shall be in accordance with 9.6.3.3 through 9.6.3.11, unless otherwise provided in 9.6.3.2.1 through 9.6.3.2.4.

**9.6.3.2.1\*** Elevator lobby, hoistway, and associated machine room smoke detectors used solely for elevator recall, and heat detectors used solely for elevator power shutdown, shall not be required to activate the building evacuation alarm if the power supply and installation wiring to such detectors are monitored by the building fire alarm system, and if the activation of such detectors results in an audible and visible alarm signal at a constantly attended location.

**9.6.3.2.2\*** Smoke detectors used solely for closing dampers or heating, ventilating, and air-conditioning system shutdown shall not be required to activate the building evacuation alarm.

**9.6.3.2.3\*** Detectors located at doors for the exclusive operation of automatic door release shall not be required to activate the building evacuation alarm.

**9.6.3.2.4** Detectors in accordance with 22.3.4.3.1(2) and 23.3.4.3.1(2) shall not be required to activate the building evacuation alarm.

**9.6.3.3** Where permitted by Chapter 11 through Chapter 42, a presignal system shall be permitted where the initial fire alarm signal is automatically transmitted without delay to a municipal fire department, to a fire brigade (if provided), and to an on-site staff person trained to respond to a fire emergency.

**9.6.3.4** Where permitted by Chapter 11 through Chapter 42, a positive alarm sequence shall be permitted, provided that it is in accordance with *NFPA 72*<sup>®</sup>, *National Fire Alarm Code*<sup>®</sup>.

**9.6.3.5** Unless otherwise provided in 9.6.3.5.1 through 9.6.3.5.6, notification signals for occupants to evacuate shall be audible and visible signals in accordance with *NFPA 72*<sup>®</sup>, *National Fire Alarm Code*<sup>®</sup>, and ICC/ANSI A117.1, *American National Standard for Accessible and Usable Buildings and Facilities*, or other means of notification acceptable to the authority having jurisdiction shall be provided.

**9.6.3.5.1** Areas not subject to occupancy by persons who are hearing impaired shall not be required to comply with the provisions for visible signals.

**9.6.3.5.2** Visible-only signals shall be provided where specifically permitted in health care occupancies in accordance with the provisions of Chapter 18 and Chapter 19.

**9.6.3.5.3** Existing alarm systems shall not be required to comply with the provision for visible signals.

**9.6.3.5.4** Visible signals shall not be required in lodging or rooming houses in accordance with the provisions of Chapter 26.

**9.6.3.5.5** Visible signals shall not be required in exit stair enclosures.

**9.6.3.5.6** Visible signals shall not be required in elevator cars.

**9.6.3.5.7** When selective occupant notification is utilized in accordance with 9.6.3.6.2 or 9.6.3.6.3, the portions of the building that do not receive the initial notification of alarm shall be separated from areas of the immediate emergency and initial evacuation by construction having a fire resistance rating of at least 1 hour.

**9.6.3.6** The general evacuation alarm signal shall operate in accordance with one of the methods prescribed by 9.6.3.6.1 through 9.6.3.6.4.

**9.6.3.6.1** The general evacuation alarm signal shall operate throughout the entire building.

**9.6.3.6.2\*** Where total evacuation of occupants is impractical due to building configuration, only the occupants in the affected zones shall be notified initially. Provisions shall be made to selectively notify occupants in other zones to afford orderly evacuation of the entire building.

**9.6.3.6.3** Where occupants are incapable of evacuating themselves because of age, physical or mental disabilities, or physical restraint, the private operating mode as described in *NFPA 72*<sup>®</sup>, *National Fire Alarm Code*<sup>®</sup>, shall be permitted to be used. Only the attendants and other personnel required to evacuate occupants from a zone, area, floor, or building shall be required to be notified. The notification shall include means to readily identify the zone, area, floor, or building in need of evacuation.

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

- (1) Section 7.3 for other than theater-type seating or smoke-protected assembly seating
- (2) 13.2.3.2 for rooms with theater-type seating or similar seating arranged in rows
- (3) 13.4.2 for smoke-protected assembly seating

**13.2.3.2\*** 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	
	mm	in.	mm	in.
Unlimited	7.6 AB	0.3 AB	5.6 C	0.22 C

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

- (1) 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:

$$A = 1 + \frac{\text{riser height} - 178}{125}$$

- (2) 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:

$$A = 1 + \frac{\text{riser height} - 7}{5}$$

(3) Stairs not having a handrail within a 760-mm (30-in.) 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:

$$B = 1.25$$

(4) 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 71 cm (28 in.) or less, and from which front egress is not limited, aisles shall not be required to exceed 1675 mm (66 in.) in width.

**13.2.3.6 Main Entrance/Exit.** Every assembly occupancy shall be provided with a main entrance/exit.

**13.2.3.6.1** The main entrance/exit shall be of a width that accommodates one-half of the total occupant load and shall be at the level of exit discharge or shall connect to a stairway or ramp leading to a street.

**13.2.3.6.2 Reserved.**

**13.2.3.6.3** 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.

**13.2.3.6.4** A bowling establishment shall have a main entrance/exit of a capacity that accommodates 50 percent of the total occupant load without regard to the number of aisles that it serves.

**13.2.3.6.5\*** 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 Exits.**

**13.2.4.1** The number of exits 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:

- (1) If more than 6000 persons are to be served by such means of egress, there shall be not less than three means of egress.
- (2) 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.

~~23.7.1.2\*~~ Provisions shall be made so that residents in Use Condition III, Use Condition IV, and Use Condition V shall be able to notify staff of an emergency.

~~23.7.1.3\*~~ The administration of every detention or correctional facility shall have, in effect and available to all supervisory personnel, written copies of a plan for the protection of all persons in the event of fire, for their evacuation to areas of refuge, and for evacuation from the building when necessary.

~~23.7.1.3.1~~ All employees shall be instructed and drilled with respect to their duties under the plan.

~~23.7.1.3.2~~ The plan shall be coordinated with and reviewed by the fire department legally committed to serve the facility.

~~23.7.1.4~~ Employees of detention and correctional occupancies shall be instructed in the proper use of portable fire extinguishers and other manual fire suppression equipment.

~~23.7.1.4.1~~ Such training shall be provided to new staff promptly upon commencement of duty.

~~23.7.1.4.2~~ Refresher training shall be provided to existing staff at not less than annual intervals.

~~23.7.2 Combustible Personal Property.~~ Books, clothing, and other combustible personal property allowed in sleeping rooms shall be stored in closable metal lockers or an approved fire resistant container.

~~23.7.3 Heat Producing Appliances.~~ The number of heat producing appliances, such as toasters and hot plates, and the overall use of electrical power within a sleeping room shall be controlled by facility administration.

~~23.7.4\* Furnishings, Bedding, and Decorations.~~

~~23.7.4.1~~ Draperies and curtains, including privacy curtains, in detention and correctional occupancies, shall be in accordance with the provisions of 10.3.1.

~~23.7.4.2~~ Newly introduced upholstered furniture within detention and correctional occupancies shall be tested in accordance with the provisions of 10.3.2(2) and 10.3.3.

~~23.7.4.3\*~~ Newly introduced mattresses within detention and correctional occupancies shall be tested in accordance with the provisions of 10.3.2(3) and 10.3.4.

~~23.7.4.4~~ Combustible decorations shall be prohibited in any detention or correctional occupancy unless flame retardant.

~~23.7.4.5~~ Wastebaskets and other waste containers shall be of noncombustible or other approved materials. Waste containers with a capacity exceeding 76 L (20 gal) shall be provided with a noncombustible lid or lid of other approved material.

~~23.7.5 Keys.~~ All keys necessary for unlocking doors installed in a means of egress shall be individually identified by both touch and sight.

~~23.7.6 Portable Space Heating Devices.~~ Portable space heating devices shall be prohibited in all detention and correctional occupancies.

## Chapter 24 One- and Two-Family Dwellings

### 24.1 General Requirements.

#### 24.1.1 Application.

~~24.1.1.1\*~~ The requirements of this chapter shall apply to **existing** one- and two-family dwellings, which shall include those buildings containing not more than two dwelling units in which each dwelling unit is occupied by members of a single family with not more than six outsiders, if any, accommodated in rented rooms, **except those occupancies classified as health care, residential board and care or detention and correctional.**

**Buildings which contain a maximum of two dwelling units and no other occupancies are specifically exempted by section 29-292 of the Connecticut General Statutes from the jurisdiction of this code, except for the specific smoke detection provisions set forth in 24.3.4.**

~~24.1.1.2~~ The requirements of this chapter shall apply to new buildings and to existing or modified buildings according to the provisions of 1.3.1 of this *Code*.

#### 24.1.2 Multiple Occupancies.

~~24.1.2.1~~ Multiple occupancies shall be in accordance with 6.1.14.

~~24.1.2.2~~ No dwelling unit of a residential occupancy shall have its sole means of egress pass through any nonresidential occupancy in the same building **may have its sole means of escape through another dwelling unit or other occupancy.**

**24.1.2.2.1** Where one or two dwelling units are present in a building containing another occupancy, each dwelling shall be provided with a primary means of escape in accordance with 24.2.2.2. If the primary means of escape consists of an interior stairway, the stairway shall be separated by at least ½-hour fire barriers with all openings protected by self closing doors of an equivalent rating.

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

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

**24.1.3 Definitions.** Terms applicable to this chapter are defined in Chapter 3 of this *Code*; where necessary, other terms are defined in the text.

**24.1.4 Classification of Occupancy.** See 24.1.1.1.

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

**24.1.6 Minimum Construction Requirements.** (No special requirements.)

**24.1.7 Occupant Load.** (No requirements.)

**24.2\* Means of Escape Requirements.**

**24.2.1 General.** The provisions of Chapter 7 shall not apply to means of escape unless specifically referenced in this chapter.

**24.2.2 Number and Types of Means of Escape.**

**24.2.2.1 Number of Means of Escape.**

**24.2.2.1.1** In dwellings or dwelling units of two rooms or more, every sleeping room and every living area shall have not less than one primary means of escape and one secondary means of escape.

**24.2.2.1.2** A secondary means of escape shall not be required where one of the following conditions are met:

- (1) The bedroom or living area has a door leading directly to the outside of the building at or to grade level.
- (2) The dwelling unit is protected throughout by an approved automatic sprinkler system in accordance with 24.3.5.

**24.2.2.2 Primary Means of Escape.** The primary means of escape shall be a door, stairway, or ramp providing a means of unobstructed travel to the outside of the dwelling unit at street or ground level.

**24.2.2.3\* Secondary Means of Escape.** The secondary means of escape, other than existing approved means of escape, shall be one of the means specified in 24.2.2.3(A) through 24.2.2.3(C).

**(A)** It shall be a door, stairway, passage, or hall providing a way of unobstructed travel to the outside of the dwelling at street or ground level that is independent of and remote from the primary means of escape.

**(B)** It shall be a passage through an adjacent nonlockable space, independent of and remote from the primary means of escape, to any approved means of escape.

**(C)\*** It shall be an outside window or door operable from the inside without the use of tools, keys, or special effort and shall provide a clear opening of not less than 0.53 m<sup>2</sup> (5.7 ft<sup>2</sup>). The width shall be not less than 510 mm (20 in.), and the height shall be not less than 610 mm (24 in.). The bottom of the opening shall be not more than 1120 mm (44 in.) above the floor. Such means of escape shall be acceptable where one of the following criteria are met:

- (1) The window shall be within 6100 mm (240 in.) of grade.
- (2) The window shall be directly accessible to fire department rescue apparatus as approved by the authority having jurisdiction.
- (3) The window or door shall open onto an exterior balcony.
- (4) Windows having a sill height below the adjacent ground level shall be provided with a window well meeting the following criteria:
  - (a) The window well shall have horizontal dimensions that allow the window to be fully opened.

**42.2 Means of Egress Requirements.**

**42.2.1 General.** Each required means of egress shall be in accordance with the applicable portions of Chapter 7.

**42.2.2 Means of Egress Components.**

**42.2.2.1 General.** Components of means of egress shall be limited to the types described in 42.2.2.2 through 42.2.2.12.

**42.2.2.2 Doors.**

**42.2.2.2.1** Doors complying with 7.2.1 shall be permitted.

**42.2.2.2.2** Delayed-egress locks complying with 7.2.1.6.1 shall be permitted.

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

**42.2.2.2.4** Approved existing horizontal-sliding fire doors shall be permitted in the means of egress under the following conditions:

- (1) They are held open by fusible links.
- (2) The fusible links are rated at not less than 74°C (165°F).
- (3) The fusible links are located not more than 3050 mm (120 in.) above the floor.
- (4) The fusible links are in immediate proximity to the door opening.
- (5) The fusible links are not located above a ceiling.
- (6) The door is not credited with providing any protection under this *Code*.

**42.2.2.3 Stairs.**

**42.2.2.3.1** Stairs shall comply with 7.2.2 and shall be permitted to be modified by as follows:

- (1) Noncombustible, grated stair treads and noncombustible, grated landing floors shall be permitted.
- (2) Industrial equipment access stairs in accordance with 40.2.5.2 shall be permitted.

**42.2.2.3.2** Spiral stairs complying with 7.2.2.2.3 shall be permitted.

**42.2.2.3.3** Existing winders complying with 7.2.2.2.4 shall be permitted.

**42.2.2.4 Smokeproof Enclosures.** Smokeproof enclosures complying with 7.2.3 shall be permitted.

**42.2.2.5 Horizontal Exits.**

**42.2.2.5.1** Horizontal exits complying with 7.2.4 shall be permitted.

**42.2.2.5.2\*** In horizontal exits where the opening is protected by a fire door assembly on each side of the wall in which it is located, one fire door shall be of the swinging type as provided in 7.2.4.3.6, and the other shall be permitted to be an automatic-sliding fire door that shall be kept open whenever the building is occupied.

**42.2.2.6 Ramps.**

**42.2.2.6.1** Ramps complying with 7.2.5 shall be permitted.

**42.2.2.6.2** Industrial equipment access ramps in accordance with 40.2.5.2 shall be permitted.

**42.2.2.7 Exit Passageways.** Exit passageways complying with 7.2.6 shall be permitted.

**42.2.2.8 Fire Escape Stairs.** Existing fire escape stairs complying with 7.2.8 shall be permitted.

**42.2.2.9 Fire Escape Ladders.**

**42.2.2.9.1** Fire escape ladders complying with 7.2.9 shall be permitted.

**42.2.2.9.2** Fixed industrial stairs in accordance with the minimum requirements for fixed stairs in ANSI A1264.1, *Safety Requirements for Workplace Floor and Wall Openings, Stairs, and Railing Systems*, shall be permitted where fire escape ladders are permitted in accordance with 7.2.9.1

**42.2.2.10 Slide Escapes.** Existing slide escapes complying with 7.2.10 shall be permitted.

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

**42.2.2.12 Areas of Refuge.** Areas of refuge complying with 7.2.12 shall be permitted.

**42.2.3 Capacity of Means of Egress.** The capacity of means of egress shall be in accordance with Section 7.3.

**42.2.4** Number of Means of Egress. See also Section 7.4.

**42.2.4.1** The number of means of egress shall comply with 42.2.4.1(1), 42.2.4.1(2), ~~or 42.2.4.1(3)~~ or 42.2.4.1(4).

(1) In low and ordinary hazard storage occupancies, a single means of egress shall be permitted from any story or section provided the following limits are not exceeded:

(a) One story, 30 occupants and 100 ft (30 m) maximum travel distance; or

(b) Two story, 30 occupants and 75 ft (23 m) maximum travel distance.

(2) In ~~ordinary~~ low hazard storage occupancies existing prior to May 7, 2000, a single means of egress shall be permitted from any story or section, ~~provided that the exit can be reached within the distance permitted as a common path of travel.~~

~~(3) All buildings or structures not complying with 42.2.4.1(1) or 42.2.4.1(2) and used for storage, and every section thereof considered separately, shall have not less than two separate means of egress as remotely located from each other as practicable.~~

(3) In ordinary hazard storage occupancies existing prior to May 7, 2000, a single means of egress shall be permitted from any story or section, provided that the exit can be reached within the distance permitted as a common path of travel.

(4) All buildings or structures not complying with 42.2.4.1(1), 42.2.4.1(2) or 42.2.4.1(3) and used for storage, and every section thereof considered separately, shall have not less than two separate means of egress as remotely located from each other as practicable.

**42.2.4.2** In new buildings, floors or portions thereof with an occupant load of more than 500 persons shall have the minimum number of separate and remote means of egress specified by 7.4.1.2.

**42.2.4.3** Areas with high hazard contents shall comply with Section 7.11.

**42.2.5 Arrangement of Means of Egress.**

**42.2.5.1** Means of egress, arranged in accordance with Section 7.5, shall not exceed that provided by Table 42.2.5.1, ~~except that a dead-end corridor shall not be limited in length where the length of the dead-end corridor is less than 2.5 times the least width of the dead-end corridor.~~

**Table 42.2.5.1 Arrangements of Means of Egress**

Level of Protection	Low Hazard Storage Occupancy	Ordinary Hazard Storage Occupancy	High Hazard Storage Occupancy
<b>Dead-End Corridor</b>			
Protected throughout by an approved, supervised automatic sprinkler system in accordance with 9.7.1.1(1)	No limits	30 m (100 ft)	Prohibited except as permitted by 7.11.4.
Not protected throughout by an approved, supervised automatic sprinkler system in accordance with 9.7.1.1(1)	No limits	15 m (50 ft)	Prohibited except as permitted by 7.11.4.
<b>Common Path of Travel</b>			
Protected throughout by an approved, supervised automatic sprinkler system in accordance with 9.7.1.1(1)	No limits	30 m (100 ft)	Prohibited except as permitted by 7.11.4.
Not protected throughout by an approved, supervised automatic sprinkler system in accordance with 9.7.1.1(1)	No limits	15 m (50 ft)	Prohibited except as permitted by 7.11.4.

**42.2.6\* Travel Distance to Exits.** Travel distance, measured in accordance with Section 7.6, shall not exceed that provided by Table 42.2.6, ~~except existing low hazard storage shall have no limits.~~



**20.1.4.3.1** Fabrics and films used for decorative purposes, all draperies and curtains, and similar furnishings shall be in accordance with the provisions of 20.1.4.3.2. [**101:12.7.3.1; 101:13.7.3.1**]

**20.1.4.3.2\*** Where required by the applicable provisions of this *Code*, draperies, curtains, and other similar loosely hanging furnishings and decorations shall be flame resistant as demonstrated by testing in accordance with NFPA 701, *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films*. [**101:10.3.1**]

**20.1.4.3.3\*** Furnishings or decorations of an explosive or highly flammable character shall not be used. [**101:10.3.5**]

**20.1.4.3.4** Fire-retardant coatings shall be maintained to retain the effectiveness of the treatment under service conditions encountered in actual use. [**101:10.3.6**]

~~**20.1.4.3.5** The AHJ 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. [**101:12.7.3.2; 101:13.7.3.2**]~~

**20.1.4.3.6\*** 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 UL 1975, *Standard for Fire Tests for Foamed Plastics Used for Decorative Purposes*. [**101:12.7.3.3; 101:13.7.3.3**]

**20.1.4.3.7** The requirement of 20.1.4.3.6 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. [**101:12.7.3.4; 101:13.7.3.4**]

**20.1.4.3.8 Stage standpipe system.** When the AHJ determines that material such as scenery, props and temporary fixtures, are present on a stage equipped with hose connections that create an extraordinary fire load, a fire watch equipped with fire hoses attached to the hose outlets on the stage for first aid firefighting shall be provided whenever an audience is present.

#### **20.1.4.4 Special Provisions for Exposition Facilities.**

~~**20.1.4.4.1 Permits.** Permits, where required, shall comply with 1.12.19.~~

**20.1.4.4.2 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. [**101:12.7.4.1; 101:13.7.4.1**]

~~**20.1.4.4.3 Materials Not on Display.** A storage room having an enclosure consisting of a smoke barrier having a fire resistance rating of 1 hour 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. [**101:12.7.4.2; 101:13.7.4.2**]~~ Combustible materials not on display, including combustible packing crates used to ship exhibitors' supplies and products, shall be stored in a room having an enclosure consisting of a smoke barrier having a fire resistance rating of 1 hour and protected by an automatic extinguishing system, or outside the building.

#### **20.1.4.4.4 Exhibits.**

**20.1.4.4.4.1** Exhibits shall comply with 20.1.4.4.4.2 through 20.1.4.4.4.11. [**101:12.7.4.3.1; 101:13.7.4.3.1**]

**20.1.4.4.4.2** The travel distance within the exhibit booth or exhibit enclosure to an exit access aisle shall not exceed 50 ft (15 m). [**101:12.7.4.3.2; 101:13.7.4.3.2**]

**20.1.4.4.4.3** The upper deck of multilevel exhibits exceeding 300 ft<sup>2</sup> (28 m<sup>2</sup>) shall have not less than two remote means of egress. [**101:12.7.4.3.3; 101:13.7.4.3.3**]

**20.1.4.4.4.4** Exhibit booths shall be constructed of the following:

- (1) Noncombustible or limited-combustible materials
- (2) Wood exceeding ¼ in. (6.3 mm) nominal thickness or wood not exceeding ¼ in. (6.3 mm) nominal thickness that is pressure-treated, fire-retardant wood meeting the requirements of NFPA 703, *Standard for Fire Retardant Impregnated Wood and Fire Retardant Coatings for Building Materials*
- (3)\* Flame-retardant materials complying with NFPA 701, *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films*
- (4) 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 of NFPA 101
- (5) Plastics limited to those that comply with 12.3.3 and Section 10.2 of NFPA 101
- (6) 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 UL 1975, *Standard for Fire Tests for Foamed Plastics Used for Decorative Purposes*

(7) 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 UL 1975, *Standard for Fire Tests for Foamed Plastics Used for Decorative Purposes* [101:12.7.4.3.4; 101:13.7.4.3.4]

**20.1.4.4.4.5** Curtains, drapes, and decorations shall comply with the applicable portions of 20.1.4.3.2. [101:12.7.4.3.5; 101:13.7.4.3.5]

**20.1.4.4.4.6** 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 AHJ. [101:12.7.4.3.6; 101:13.7.4.3.6]

(A) Materials that cannot be treated for flame retardancy shall not be used. [101:12.7.4.3.6.1; 101:13.7.4.3.6.1]

(B) 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 UL 1975, *Standard for Fire Tests for Foamed Plastics Used for Decorative Purposes*. [101:12.7.4.3.6.2; 101:13.7.4.3.6.2]

(C) 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 AHJ. [101:12.7.4.3.6.3; 101:13.7.4.3.6.3]

**20.1.4.4.4.7** The following shall be protected by automatic extinguishing systems:

(1) Single-level exhibit booths exceeding 300 ft<sup>2</sup> (28 m<sup>2</sup>) and covered with a ceiling

(2) Each level of multilevel exhibit booths, including the uppermost level where the uppermost level is covered with a ceiling [101:12.7.4.3.7; 101:13.7.4.3.7]

(A) The requirements of 20.1.4.4.4.7 shall not apply where otherwise permitted by the following:

(1) 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 20.1.4.4.4.7.

(2) Vehicles, boats, and similar exhibited products having over 100 ft<sup>2</sup> (9.3 m<sup>2</sup>) of roofed area shall be provided with smoke detectors acceptable to the AHJ.

(3)\* The requirement of 20.1.4.4.4.7(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 12.4.1 of NFPA 101, subject to approval of the AHJ. [101:12.7.4.3.7.1; 101:13.7.4.3.7.1]

(B) A single exhibit or group of exhibits with ceilings that do not require sprinklers shall be separated by a distance of not less than 120 in. (3050 mm) where the aggregate ceiling exceeds 300 ft<sup>2</sup> (28 m<sup>2</sup>). [101:12.7.4.3.7.2; 101:13.7.4.3.7.2]

(C) The water supply and piping for the sprinkler system shall be permitted to be of an approved, temporary means that is provided by a domestic water supply, a standpipe system, or a sprinkler system. [101:12.7.4.3.7.3; 101:13.7.4.3.7.3]

**20.1.4.4.4.8** Open flame devices within exhibit booths shall comply with 20.1.4.2. [101:12.7.4.3.8; 101:13.7.4.3.8]

**20.1.4.4.4.9** Cooking and food-warming devices in exhibit booths shall comply with ~~12.7.1 of NFPA 101~~ and the following:

(1) Gas-fired devices shall comply with the following:

(a) Natural gas-fired devices shall comply with ~~9.1.1 of NFPA 101~~ **Connecticut Gas Equipment and Piping Code**.

(b) The requirement of 20.1.4.4.4.9(1)(a) shall not apply to compressed natural gas where permitted by the AHJ.

(c) The use of LP-Gas cylinders shall be prohibited.

(d) Nonrefillable LP-Gas cylinders shall be approved for use where permitted by the AHJ.

(2) 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.

~~(3) Multi-well cooking equipment using combustible oils or solids shall comply with 9.2.3 of NFPA 101.~~

~~(4)~~ (3) Single-well cooking equipment using combustible oils or solids shall meet the following criteria:

(a) They shall have lids available for immediate use.

(b) They shall be limited to 288 in.<sup>2</sup> (0.2 m<sup>2</sup>) of cooking surface.

(c) They shall be placed on noncombustible surface materials.

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

**20.6.2.5.1\*** Draperies, curtains, and other loosely hanging fabrics and films serving as furnishings or decorations in ambulatory health care occupancies shall be in accordance with the provisions of ~~10.3.1 of NFPA 101~~ 10.20.1 of this code, and the following also shall apply:

- (1) Such curtains shall include cubicle curtains.
- (2) Such curtains shall not include curtains at showers. [~~101:20.7.5.1; 101:21.7.5.1~~]

**20.6.2.5.2** Where required by the applicable provisions of this Code, draperies, curtains, and other similar loosely hanging furnishings and decorations shall be flame resistant as demonstrated by testing in accordance with NFPA 701, *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films*. [~~101:10.3.1~~]

**20.6.2.5.3** Newly introduced upholstered furniture shall meet the criteria specified when tested in accordance with the methods cited in ~~10.3.2(2) 10.20.2(2) and 10.3.3 of NFPA 101~~ 10.20.3 of this code. ~~— [101:20.7.5.2; 101:21.7.5.2]~~

**20.6.2.5.4** Newly introduced mattresses shall meet the criteria specified when tested in accordance with the methods cited in ~~10.3.2(3) 10.20.2(3) and 10.3.4 of NFPA 101~~ 10.20.4 of this code. [~~101:20.7.5.3; 101:21.7.5.3~~]

**20.6.2.5.5** Combustible decorations shall be prohibited unless one of the following criteria is met:

- (1) They are flame-retardant.
- (2) They are decorations, such as photographs and paintings, in such limited quantities that a hazard of fire development or spread is not present. [~~101:20.7.5.4; 101:21.7.5.4~~]

**20.6.2.5.6** Soiled linen or trash collection receptacles shall not exceed 32 gal (121 L) in capacity and shall meet the following requirements:

- (1) The average density of container capacity in a room or space shall not exceed 0.5 gal/ft<sup>2</sup> (20.4 L/m<sup>2</sup>).
- (2) A capacity of 32 gal (121 L) shall not be exceeded within any 64 ft<sup>2</sup> (6 m<sup>2</sup>) area.
- (3) Mobile soiled linen or trash collection receptacles with capacities greater than 32 gal (121 L) shall be located in a room protected as a hazardous area when not attended.
- (4) Container size and density shall not be limited in hazardous areas. [~~101:20.7.5.5, 101:21.7.5.5~~]

**20.6.2.6 Portable Heating Devices.** Portable space-heating devices shall be prohibited in all ambulatory health care occupancies, unless both of the following criteria are met:

- (1) Such devices are used only in nonsleeping staff and employee areas.
- (2) The heating elements of such devices do not exceed 212°F (100°C). [~~101:20.7.8; 101:21.7.8~~]

**20.6.2.7 Alcohol-Based Hand-Rub Solutions.** Alcohol-based hand-rub dispensers shall be protected as required for flammable and combustible liquids unless all of the following conditions are met:

- (1) Where dispensers are installed in exit access corridors, the corridor shall have a minimum width of 1830 mm (72 in.) except that projections of maximum 152 mm (6 in.) from the corridor wall above handrail height shall be permitted for dispensing units.
- (2) The maximum individual dispenser fluid capacity shall be:
  - (a) 1.2 L (0.32 gal) for dispensers in rooms, corridors and areas open to corridors.
  - (b) 2.0 L (0.53 gal) for dispensers in suites of rooms.
- (3) The dispensers shall have a minimum horizontal spacing of 1220 mm (48 in.) from each other.
- (4) Not more than an aggregate 37.8 L (10 gal) of alcohol-based hand-rub solution shall be in use in a single smoke compartment outside of a storage cabinet.
- (5) Storage of quantities greater than 18.9 L (5 gal) in a single smoke compartment shall meet the requirements of the Connecticut Flammable and Combustible Liquids Code.
- (6) The dispensers shall not be installed over or directly adjacent to an ignition source.
- (7) In locations with carpeted floor coverings, dispensers installed directly over carpeted surfaces shall be permitted only in sprinklered smoke compartments.

## 20.7 Detention and Correctional Occupancies, including Institutional Group I-3.

**20.7.1 Application.** New and existing detention and correctional occupancies shall comply with Section 20.7 ~~and the referenced edition of NFPA 101.~~

## 20.7.2 Operating Features.

### 20.7.2.1 Attendants, Evacuation Plan, and Fire Drills.

**20.7.2.1.1** Detention and correctional facilities, or those portions of facilities having such occupancy, shall be provided with 24-hour staffing, and the following requirements also shall apply:

(1) Staff shall be within three floors or a ~~300 ft (91 m)~~ 91 m (300 ft) horizontal distance of the access door of each resident housing area.

(2) In addition, for Use Condition III, Use Condition IV, and Use Condition V, the arrangement shall be such that the staff involved starts the release of locks necessary for emergency evacuation or rescue and initiates other necessary emergency actions within 2 minutes of alarm.

(3) The following shall apply to areas in which all locks are unlocked remotely in compliance with ~~22.2.11.7 of NFPA 101~~ 20.7.2.1.1.1:

(a) Staff shall not be required to be within three floors or ~~300 ft (91 m)~~ 91 m (300 ft) of the access door.

(b) The 10-lock, manual key exemption of ~~22.2.11.7.2 of NFPA 101~~ 20.7.2.1.1.1.2 shall not be permitted to be used in conjunction with this alternative requirement. [101:22.7.1.1; 101:23.7.1.1]

**20.7.2.1.1.1** Any remote-control release used in a means of egress shall be provided with a reliable means of operation to release locks on all doors and shall be remotely located from the resident living areas, unless otherwise permitted by 20.7.2.1.1.1.2.

**20.7.2.1.1.1.1** The remote location of a remote-control release used in a means of egress shall provide sight and sound supervision of the resident living areas.

**20.7.2.1.1.2** Remote-control locking and unlocking of occupied rooms in Use Condition IV shall not be required, provided that both of the following criteria are met:

(1) Not more than 10 locks need to be unlocked to relocate all occupants from one smoke compartment to an area of refuge as promptly as is required where remote-control unlocking is used.

(2) Unlocking of all necessary locks shall be accomplished with not more than two separate keys.

**20.7.2.1.2\*** Provisions shall be made so that residents in Use Condition III, Use Condition IV, and Use Condition V shall be able to notify staff of an emergency. [101:22.7.1.2; 101:23.7.1.2]

**20.7.2.1.3\*** The administration of every detention or correctional facility shall have, in effect and available to all supervisory personnel, written copies of a plan for the protection of all persons in the event of fire, for their evacuation to areas of refuge, and for evacuation from the building when necessary. [101:22.7.1.3; 101:23.7.1.3]

**20.7.2.1.3.1** All employees shall be instructed and drilled with respect to their duties under the plan. [101:22.7.1.3.1; 101:23.7.1.3.1]

**20.7.2.1.3.2** The plan shall be coordinated with and reviewed by the fire department legally committed to serve the facility. [101:22.7.1.3.2; 101:23.7.1.3.2]

**20.7.2.1.4** Employees of detention and correctional occupancies shall be instructed in the proper use of portable fire extinguishers and other manual fire suppression equipment. [101:22.7.1.4; 101:23.7.1.4]

**20.7.2.1.4.1** Such training shall be provided to new staff promptly upon commencement of duty. [101:22.7.1.4.1; 101:23.7.1.4.1]

**20.7.2.1.4.2** Refresher training shall be provided to existing staff at not less than annual intervals. [101:22.7.1.4.2; 101:23.7.1.4.2]

**20.7.2.2 Combustible Personal Property.** Books, clothing, and other combustible personal property allowed in sleeping rooms shall be stored in closable metal lockers or a fire-resistant container. [101:22.7.2; 101:23.7.2]

**20.7.2.3 Heat-Producing Appliances.** The number of heat-producing appliances, such as toasters and hot plates, and the overall use of electrical power within a sleeping room shall be controlled by facility administration. [101:22.7.3; 101:23.7.3]

### 20.7.2.4\* Furnishings, Bedding, and Decorations.

**20.7.2.4.1** Draperies and curtains, including privacy curtains, in detention and correctional occupancies shall be in accordance with the provisions of 20.7.2.4.2 [101:22.7.4.1; 101:23.7.4.1].