

MEANS OF EGRESS – DOORS/STAIRS/RAMPS

Accessible Means of Egress

Means of egress are required to be accessible per requirements of Section 1007 as well as Chapters 11A or 11B, as applicable. If more than one exit is required, both of them are required to be accessible.

- *Accessible stairways* - minimum 48" clear width between handrails and an area of refuge (except in buildings equipped with sprinkler system)
- *Accessible elevators* – provided with area of refuge and additional requirements
- *Area of refuge* – an area where persons unable to use stairways can remain temporarily to await instructions or assistance during emergency evacuation, required to have direct access to accessible stairway or accessible elevator, accommodate two wheelchair spaces of 30"x48" and have two-way communication

Doors (Gates and Turnstiles)

Egress doors shall be provided as required by Chapter 10 and shall be clearly distinguishable from the adjacent construction and finishes. They shall comply with additional requirements listed in Section 1008.

- *Size* - clear width of 32"
- *Swing* – pivoted or side-hinged type
- *Special doors* – revolving, sliding, or power operated, or access controlled doors can be used as provided in Section 1008.1.4
- *Floor elevation* – level floor or landing required on each side of door, landing shall match width of stair and be minimum 44" long
- *Thresholds* – not to exceed ½" height, beveled if more than ¼" high
- *Arrangement* – minimum 48" between two doors
- *Operation* – doors shall be readily openable from the egress side without use of a key or special knowledge or effort

Stairways

Stairway is one or more flights of stairs, either exterior or interior, with necessary landings and platforms connecting them to form a continuous and uninterrupted passage from one level to another. They shall comply with requirements in Section 1009.

- *Size* - clear width of 44"
- *Headroom* – 80" clear
- *Threads and Risers* – 11" minimum thread, 7" maximum/4" minimum riser
- *Slope* – no surface shall be steeper than 2% in any direction
- *Enclosures below* – protected by 1-hr fire resistance rated construction
- *Vertical rise* – 12' maximum before landing is required

- *Special stairs* – curved and spiral stairs, alternating thread devices and ship ladders shall be used as allowed by Section 1009
- *Handrails* - provided on each side, compliant with Section 1012

Ramps

Ramp is a walking surface that has a running slope steeper than 5% (1:20). Ramps shall comply with Section 1010.

- *Slope* - 8% (1:12) maximum, 2% cross-slope maximum
- *Vertical rise* – 30" maximum before landing is required
- *Width* – same as required for corridors, 36" between handrails minimum
- *Landings* – 60" long provided at top, bottom, changes in direction and doors
- *Handrails* – required with rise greater than 6", compliant with Section 1012
- *Edge protection* – curb, rail, wall, or barrier of minimum 4" high shall be provided at edge of ramp as protection

Exit Signs

Exit and exit access doors as well as path of egress travel shall be provided with signs readily visible from any direction so at no point there is more than 100' viewing distance to an exit sign. Exit signs shall comply with Section 1011.

- *Illumination* - exit signs shall be illuminated
- *Tactile signs* – provided as required by Section 1011.3
- *Floor level signs* – provided as required by Section 1011.6

Handrails

Handrail is horizontal or sloping rail intended for grasping by hand for guidance or support which is required at stairs and ramps and shall comply with Section 1012.

- *Height* - 34" minimum, 38" maximum
- *Graspability* – per Section 1012.3
- *Continuity* – there shall be no interruption in handrail by other elements
- *Extensions* – where handrails are not continuous between flights of stairs they shall extend horizontally at least 12" beyond the top riser and the depth equal to one tread plus 12" at the bottom riser at which point they shall terminate to wall, guard or walking surface
- *Clearance* – 1 ½" minimum clearance to the wall
- *Distance* – maximum 30" distance to handrail from any point of the stairway

Guards

Guard is a building component or system of components located at or near the open sides of elevated walking surfaces that minimizes the possibility of a fall from the walking surface to a lower level. Guards are required whenever there is a drop of 30" or more from a walking surface at any point within 36" from the edge of the walking surface and shall comply with Section 1013.

- *Height* - minimum 42"
- *Openings* – openings shall not allow passage of sphere of 4" in diameter

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 are required by [Section 1015.1](#) or [1021.1](#) from any accessible space, each accessible portion of the space shall be served by accessible means of egress in at least the same number as required by [Section 1015.1](#) or [1021.1](#). In addition to the requirements of this chapter, means of egress, which provide access to, or egress from, buildings for persons with disabilities, shall also comply with the requirements of [Chapter 11A](#) or [11B](#) as applicable.

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](#), [1007.4](#) or [1007.5](#), and [Chapter 11A](#) or [11B](#), as applicable.
3. In assembly areas with sloped or stepped aisles, one accessible means of egress is permitted where the common path of travel is accessible and meets the requirements in [Section 1028.8](#), and [Chapter 11A](#) or [11B](#), as applicable.

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 [Chapter 11A](#), Sections 1110A.1 and 1120A, or [Chapter 11B](#), Section 1114B.1.2, as applicable.
2. Interior exit stairways complying with [Sections 1007.3](#), [1026](#), and [Chapter 11A](#), Section 1123A, or [Chapter 11B](#), Section 1133B.4, as applicable.
3. Exterior exit stairways complying with [Sections 1007.3](#), [1026](#), and [Chapter 11A](#), Section 1115A, or [Chapter 11B](#), Section 1133B.4, as applicable.
4. Elevators complying with [Section 1007.4](#), and [Chapter 11A](#), Section 1124A, or [Chapter 11B](#), Section 1116B.1, as applicable..
5. Platform lifts complying with [Section 1007.5](#) and [Chapter 11A](#), Section 1124A, or [Chapter 11B](#), Section 1116B.2 as applicable.
6. Horizontal exits complying with [Section 1025](#).
7. Ramps complying with [Section 1010](#), and [Chapter 11A](#), Sections 1114A and 1122A, or [Chapter 11B](#), Section 1133B.5, as applicable.
8. Areas of refuge complying with [Section 1007.6](#).

Exceptions:

1. Where the exit discharge is not accessible, an exterior area for assisted rescue must be provided in accordance with [Section 1007.7](#).

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 1007.7](#).

1007.3 Stairways.

In order to be considered part of an accessible means of egress, an exit access stairway as permitted by [Section 1016.1](#) or exit stairway 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. [DSA-AC] In addition, exit stairways shall comply with [Chapter 11A](#), Sections 1115A and 1123A, or [Chapter 11B](#), Section 1133B.4, as applicable.

Exceptions:

1. The area of refuge is not required at open exit access or exit stairways as permitted by [Sections 1016.1](#) and [1022.1](#) in buildings that are equipped throughout with an automatic sprinkler system installed in accordance with [Section 903.3.1.1](#) or [903.3.1.2](#).
2. The clear width of 48 inches (1219 mm) between handrails is not required at exit access stairway as permitted by [Section 1016.1](#) or exit stairways in buildings equipped throughout with an automatic sprinkler system installed in accordance with [Section 903.3.1.1](#) or [903.3.1.2](#).
3. Areas of refuge are not required at exit stairways in buildings equipped throughout with an automatic sprinkler system installed in accordance with [Section 903.3.1.1](#) or [903.3.1.2](#).
4. The clear width of 48 inches (1219 mm) between handrails is not required for exit stairways accessed from a horizontal exit.
5. Areas of refuge are not required at exit stairways serving open parking garages.
6. Areas of refuge are not required for smoke protected seating areas complying with [Section 1028.6.2](#).
7. The areas of refuge are not required in Group R-2 occupancies.

1007.4 Elevators.

In order to be considered part of an accessible means of egress, an elevator shall comply with the emergency operation and signaling device requirements of Section 2.27 of ASME A17.1. Standby power shall be provided in accordance with [Chapter 27](#) and [Section 3003](#). The elevator shall be accessed from either an area of refuge complying with [Section 1007.6](#) or a horizontal exit.

Exceptions:

1. Elevators are not required to be accessed from an area of refuge or horizontal exit in open parking garages.
2. Elevators are not required to be accessed from an area of refuge or horizontal exit in buildings and facilities equipped throughout with an automatic sprinkler system installed in accordance with [Section 903.3.1.1](#) or [903.3.1.2](#).

3. Elevators not required to be located in a shaft in accordance with [Section 708.2](#) are not required to be accessed from an area of refuge or horizontal exit.
4. Elevators are not required to be accessed from an area of refuge or horizontal exit for smoke protected seating areas complying with [Section 1028.6.2](#).

1007.5 Platform lifts.

Platform (wheelchair) lifts shall not serve as part of an accessible means of egress, except where allowed as part of a required accessible route in [Chapter 11A](#), Sections 1121A and 1124A.11, or [Chapter 11B](#), Section 1116B.2 Items 1 through 4, as applicable. Standby power shall be provided in accordance with [Chapter 27](#) for platform lifts permitted to serve as part of a means of egress.

[DSA-AC] See [Chapter 11B](#), Section 1116B.2.5 for additional accessible means of egress requirements at platform (wheelchair) lifts.

1007.6 Areas of refuge.

Every required area of refuge shall be accessible from the space it serves by an accessible means of egress. The maximum travel distance from any accessible space to an area of refuge shall not exceed the travel distance permitted for the occupancy in accordance with [Section 1016.1](#). Every required area of refuge shall have direct access to a stairway within an exit enclosure complying with [Sections 1007.3](#) and [1022](#) or an elevator complying with [Section 1007.4](#). Where an elevator lobby is used as an area of refuge, the shaft and lobby shall comply with [Section 1022.9](#) for smokeproof enclosures except where the elevators are in an area of refuge formed by a horizontal exit or smoke barrier. *[DSA-AC] Areas of refuge shall comply with the requirements of this code and shall adjoin an accessible route of travel complying with Section 1114B.1.2.*

Exceptions:

1. A stairway serving an area of refuge is not required to be enclosed where permitted in [Sections 1016.1](#) and [1022.1](#).
2. A smokeproof enclosure is not required for an elevator lobby used as an area of refuge where the elevator is not required to be enclosed.

1007.6.1 Size.

Each area of refuge shall be sized to accommodate two wheelchair spaces that are not less than 30 inches by 48 inches (762 mm by 1219 mm). The total number of such 30-inch by 48-inch (762 mm by 1219 mm) spaces per story shall be not less than one for every 200 persons of calculated occupant load served by the area of refuge. Such wheelchair spaces shall not reduce the required means of egress width. Access to any of the required wheelchair spaces in an area of refuge shall not be obstructed by more than one adjoining wheelchair space.

Exception: The enforcing agency may reduce the size of each required area of refuge to accommodate one wheelchair space that is not less than 30 inches by 48 inches (762 mm by 1219 mm) on floors where the occupant load is less than 200.

1007.6.2 Separation.

Each area of refuge shall be separated from the remainder of the story by a smoke barrier complying with [Section 710](#) or a horizontal exit complying with [Section 1025](#). Each area of refuge shall be designed to minimize the intrusion of smoke.

Exception: Areas of refuge located within an exit enclosure.

1007.6.3 Two-way communication. Areas of refuge shall be provided with a two-way communication system complying with [Sections 1007.8.1](#) and [1007.8.2](#).

1007.7 Exterior area for assisted rescue.

The exterior area for assisted rescue must be open to the outside air and meet the requirements of [Section 1007.6.1](#). Separation walls shall comply with the requirements of [Section 705](#) for exterior walls. Where walls or openings are between the area for assisted rescue and the interior of the building, the building exterior walls within 10 feet (3048 mm) horizontally of a nonrated wall or unprotected opening shall have a fire-resistance rating of not less than 1 hour. Openings within such exterior walls shall be protected by opening protectives having a fire protection rating of not less than 3/4 hour. This construction shall extend vertically from the ground to a point 10 feet (3048 mm) above the floor level of the area for assisted rescue or to the roof line, whichever is lower.

1007.7.1 Openness.

The exterior area for assisted rescue shall be at least 50 percent open, and the open area above the guards shall be so distributed as to minimize the accumulation of smoke or toxic gases.

1007.7.2 Exterior exit stairway.

Exterior exit stairways that are part of the means of egress for the exterior area for assisted rescue shall provide a clear width of 48 inches (1219 mm) between handrails.

1007.8 Two-way communication.

A two-way communication system shall be provided at the elevator landing on each accessible floor that is one or more stories above or below the story of exit discharge complying with [Sections 1007.8.1](#) and [1007.8.2](#).

Exceptions:

1. Two-way communication systems are not required at the elevator landing where the two-way communication system is provided within areas of refuge in accordance with [Section 1007.6.3](#).
2. Two-way communication systems are not required on floors provided with exit ramps conforming to the provisions of [Section 1010](#).

1007.8.1 System requirements.

Two-way communication systems shall provide communication between each required location and the fire command center or a central control point location approved by the fire department. Where the central control point is not constantly attended, a two-way communication system shall have a timed automatic telephone dial-out capability to a monitoring location or 911. The two-way communication system shall include both audible and visible signals.

1007.9 Signage.

Signage indicating special accessibility provisions shall be provided as shown:

1. Each door providing access to an area of refuge from an adjacent floor area shall be identified by a sign complying with Section 1117B.5.1, Item 2, stating: AREA OF REFUGE.
2. Each door providing access to an exterior area for assisted rescue shall be identified by a sign stating: EXTERIOR AREA FOR ASSISTED RESCUE.

Signage shall comply with Section 1117B.5.1, Items 2 and 3, requirements for visual characters and include the International Symbol of Accessibility. Where exit sign illumination is required by [Section 1011.2](#), the signs shall be illuminated. Additionally, tactile signage complying with Section 1117B.5.1, Item 1, and the International Symbol of Accessibility shall be located at each door to an area of refuge and exterior area for assisted rescue in accordance with [Section 1011.3](#).

[DSA-AC] Signs shall comply with [Chapter 11A](#) or [Chapter 11B](#), Section 1117B.5.1, Items 2 and 3, as applicable.

1007.10 Directional signage.

Direction signage indicating the location of the other means of egress and which are accessible means of egress shall be provided at the following:

1. At exits serving a required accessible space but not providing an approved accessible means of egress.
2. At elevator landings.
3. Within areas of refuge.

1007.11 Instructions.

In areas of refuge and exterior areas for assisted rescue, instructions on the use of the area under emergency conditions shall be posted. The instructions shall include all of the following and shall comply with Section 1117B.5.1, Item 2:

1. Persons able to use the exit stairway do so as soon as possible, unless they are assisting others.
2. Information on planned availability of assistance in the use of stairs or supervised operation of elevators and how to summon such assistance.
3. Directions for use of the two-way communications system where provided.

1007.12 Alarms/emergency warning systems/accessibility.

If emergency warning systems are required, they shall activate a means of warning the hearing impaired. Emergency warning systems as part of the fire-alarm system shall be designed and installed in accordance with NFPA 72 as amended in [Chapter 35](#).

SECTION 1008 DOORS, GATES AND TURNSTILES

[DSA-AC] In addition to the requirements of this section, means of egress, which provide access to, or egress from, buildings or facilities where accessibility is required for applications listed in Section 1.9.1 regulated by the Division of the State Architect—Access Compliance, shall also comply with [Chapter 11A](#) or [Chapter 11B](#), Section 1133B.2, as applicable.

1008.1 Doors.

Means of egress doors shall meet the requirements of this section. Doors serving a means of egress system shall meet the requirements of this section and [Section 1020.2](#). Doors provided for egress purposes in numbers greater than required by this code shall meet the requirements of this section.

Means of egress doors shall be readily distinguishable from the adjacent construction and finishes such that the doors are easily recognizable as doors. Mirrors or similar reflecting materials shall not be used on means of egress doors. Means of egress doors shall not be concealed by curtains, drapes, decorations or similar materials.

1008.1.1 Size of doors.

The minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a clear width of 32 inches (813 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32 inches (813 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. Means of egress doors in a Group I-2 occupancy used for the movement of beds and litter patients shall provide a clear width not less than 44 inches (1054 mm). The height of door openings shall not be less than 80 inches (2032 mm).

Exceptions:

1. The minimum and maximum width shall not apply to door openings that are not part of the required means of egress in Group R-2 and R-3 occupancies.
2. Door openings to resident sleeping units in Group I-3 occupancies shall have a clear width of not less than 28 inches (711 mm).
3. Door openings to storage closets less than 10 square feet (0.93 m²) in area shall not be limited by the minimum width.

4. Width of door leaves in revolving doors that comply with [Section 1008.1.4.1](#) shall not be limited.
5. Door openings within a dwelling unit or sleeping unit shall not be less than 78 inches (1981 mm) in height.
6. Exterior door openings in dwelling units and sleeping units, other than the required exit door, shall not be less than 76 inches (1930 mm) in height.
7. In other than Group R-1 occupancies, the minimum widths shall not apply to interior egress doors within a dwelling unit or sleeping unit that is not required to be adaptable or accessible as specified in [Chapter 11A](#) or [11B](#), as applicable.
8. Door openings required to be accessible within Type B units shall have a minimum clear width of 31.75 inches (806 mm).

1008.1.1.1 Projections into clear width.

There shall not be projections into the required clear width lower than 34 inches (864 mm) above the floor or ground. Projections into the clear opening width between 34 inches (864 mm) and 80 inches (2032 mm) above the floor or ground shall not exceed 4 inches (102 mm).

Exceptions:

1. Door closers and door stops shall be permitted to be 78 inches (1980 mm) minimum above the floor.
2. In a Group I-2 occupancy, there shall be no projections into the clear width of doors used for the movement of beds and litter patients in the means of egress.

1008.1.2 Door swing.

Egress doors shall be of the pivoted or side-hinged swinging type.

Exceptions:

1. Private garages, office areas, factory and storage areas with an occupant load of 10 or less.
2. Group I-3 occupancies used as a place of detention.
3. Critical or intensive care patient rooms within suites of health care facilities.
4. Doors within or serving a single dwelling unit in Groups R-2 and R-3.
5. In other than Group H occupancies, revolving doors complying with [Section 1008.1.4.1](#).
6. In other than Group H occupancies, horizontal sliding doors complying with [Section 1008.1.4.3](#) are permitted in a means of egress.
7. Power-operated doors in accordance with [Section 1008.1.4.2](#).
8. Doors serving a bathroom within an individual sleeping unit in Group R-1.
9. In other than Group H occupancies, manually operated horizontal sliding doors are permitted in a means of egress from spaces with an occupant load of 10 or less.
10. In I-2 and I-2.1 occupancies, exit doors serving an occupant load of 10 or more, may be of the pivoted or balanced type.

Doors shall swing in the direction of egress travel where serving an occupant load of 50 or more persons or a Group H occupancy. For Group L occupancies, see [Section 443.6.3](#).

In a Group I-2 occupancy, all required exterior egress doors shall open in the direction of egress regardless of the occupant load served.

1008.1.3 Door opening force.

The force for pushing or pulling open interior swinging egress doors, other than fire doors, shall not exceed 5 pounds (22 N). For other swinging doors, as well as sliding and folding doors, the door latch shall release when subjected to a 15-pound (67 N) force. The door shall be set in motion when subjected to a 30-pound (133 N) force. The door shall swing to a full-open position when subjected to a 15-pound (67 N) force.

1008.1.4 Special doors.

Special doors and security grilles shall comply with the requirements of [Sections 1008.1.4.1](#) through [1008.1.4.5](#).

1008.1.4.1 Revolving doors.

Revolving doors shall comply with the following:

1. Each revolving door shall be capable of collapsing into a bookfold position with parallel egress paths providing an aggregate width of 36 inches (914 mm).
2. A revolving door shall not be located within 10 feet (3048 mm) of the foot of or top of stairs or escalators. A dispersal area shall be provided between the stairs or escalators and the revolving doors.
3. The revolutions per minute (rpm) for a revolving door shall not exceed those shown in Table 1008.1.4.1.
4. Each revolving door shall have a side-hinged swinging door which complies with [Section 1008.1](#) in the same wall and within 10 feet (3048 mm) of the revolving door.
5. Revolving doors shall not be part of an accessible route required by [Section 1007](#) and [Chapter 11A](#) or [11B](#).

1008.1.4.1.1 Egress component.

A revolving door used as a component of a means of egress shall comply with [Section 1008.1.4.1](#) and the following three conditions:

1. Revolving doors shall not be given credit for more than 50 percent of the required egress capacity.
2. Each revolving door shall be credited with no more than a 50-person capacity.
3. Each revolving door shall be capable of being collapsed when a force of not more than 130 pounds (578 N) is applied within 3 inches (76 mm) of the outer edge of a wing.

1008.1.4.1.2 Other than egress component.

A revolving door used as other than a component of a means of egress shall comply with [Section 1008.1.4.1](#). The collapsing force of a revolving door not used as a component of a means of egress shall not be more than 180 pounds (801 N).

1008.1.4.2 Power-operated doors.

Where means of egress doors are operated by power, such as doors with a photoelectric-actuated mechanism to open the door upon the approach of a person, or doors with power-assisted manual operation, the design shall be such that in the event of power failure, the door is capable of being opened manually to permit means of egress travel or

closed where necessary to safeguard means of egress. The forces required to open these doors manually shall not exceed those specified in [Section 1008.1.3](#), except that the force to set the door in motion shall not exceed 50 pounds (220 N). The door shall be capable of swinging from any position to the full width of the opening in which such door is installed when a force is applied to the door on the side from which egress is made. Full-power-operated doors shall comply with BHMA A156.10. Power-assisted and low-energy doors shall comply with BHMA A156.19.

Exceptions:

1. Occupancies in Group I-3.
2. Horizontal sliding doors complying with [Section 1008.1.4.3](#).
3. For a biparting door in the emergency breakout mode, a door leaf located within a multiple-leaf opening shall be exempt from the minimum 32-inch (813 mm) single-leaf requirement of [Section 1008.1.1](#), provided a minimum 32-inch (813 mm) clear opening is provided when the two biparting leaves meeting in the center are broken out.

1008.1.4.3 Horizontal sliding doors.

In other than Group H occupancies, horizontal sliding doors permitted to be a component of a means of egress in accordance with Exception 6 to Section 1008.1.2 shall comply with all of the following criteria:

1. The doors shall be power operated and shall be capable of being operated manually in the event of power failure.
2. The doors shall be openable by a simple method from both sides without special knowledge or effort.
3. The force required to operate the door shall not exceed 30 pounds (133 N) to set the door in motion and 15 pounds (67 N) to close the door or open it to the minimum required width.
4. The door shall be openable with a force not to exceed 15 pounds (67 N) when a force of 250 pounds (1100 N) is applied perpendicular to the door adjacent to the operating device.
5. The door assembly shall comply with the applicable fire protection rating and, where rated, shall be self-closing or automatic closing by smoke detection in accordance with [Section 715.4.8.3](#), shall be installed in accordance with NFPA 80 and shall comply with [Section 715](#).
6. The door assembly shall have an integrated standby power supply.
7. The door assembly power supply shall be electrically supervised.
8. The door shall open to the minimum required width within 10 seconds after activation of the operating device.

1008.1.4.4 Access-controlled egress doors.

The entrance doors in a means of egress in buildings with an occupancy in Group A, B, I-2, M, R-1 or R-2 and entrance doors to tenant spaces in occupancies in Groups A, B, I-2, M, R-1 and R-2 are permitted to be equipped with an approved entrance and egress access control system which shall be installed in accordance with all of the following criteria:

1. A sensor shall be provided on the egress side arranged to detect an occupant approaching the doors. The doors shall be arranged to unlock by a signal from or loss of power to the sensor.
2. Loss of power to that part of the access control system which locks the doors shall automatically unlock the doors.
3. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016 mm to 1219 mm) vertically above the floor and within 5 feet (1524 mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads "PUSH TO EXIT." When operated, the manual unlocking device shall result in direct interruption of power to the lock-independent of the access control system electronics-and the doors shall remain unlocked for a minimum of 30 seconds.
4. Activation of the building fire alarm system, if provided, shall automatically unlock the doors, and the doors shall remain unlocked until the fire alarm system has been reset.
5. Activation of the building automatic sprinkler or fire detection system, if provided, shall automatically unlock the doors. The doors shall remain unlocked until the fire alarm system has been reset.
6. Entrance doors in buildings with an occupancy in Group A, B, I-2 or M shall not be secured from the egress side during periods that the building is open to the general public.

1008.1.4.5 Security grilles.

In Groups B, F, M and S, horizontal sliding or vertical security grilles are permitted at the main exit and shall be openable from the inside without the use of a key or special knowledge or effort during periods that the space is occupied. The grilles shall remain secured in the full-open position during the period of occupancy by the general public. Where two or more means of egress are required, not more than one-half of the exits or exit access doorways shall be equipped with horizontal sliding or vertical security grilles.

1008.1.5 Floor elevation.

There shall be a floor or landing on each side of a door. Such floor or landing shall be at the same elevation on each side of the door. Landings shall be level except for exterior landings, which are permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent slope).

Exceptions:

1. Doors serving individual dwelling units in Groups R-2 and R-3 where the following apply:
 - 1.1. A door is permitted to open at the top step of an interior flight of stairs, provided the door does not swing over the top step.
 - 1.2. Screen doors and storm doors are permitted to swing over stairs or landings.
2. Exterior doors as provided for in [Section 1003.5](#), Exception 1, and [Section 1020.2](#), which are not on an accessible route.
3. In Group R-3 occupancies not required to be adaptable or accessible, the landing at an exterior doorway shall not be more than 73/4 inches (197 mm) below the top of the threshold, provided the door, other than an exterior storm or screen door, does not swing over the landing.

4. Variations in elevation due to differences in finish materials, but not more than 1/2 inch (12.7 mm).

1008.1.6 Landings at doors.

Landings shall have a width not less than the width of the stairway or the door, whichever is greater. Doors in the fully open position shall not reduce a required dimension by more than 7 inches (178 mm). When a landing serves an occupant load of 50 or more, doors in any position shall not reduce the landing to less than one-half its required width. Landings shall have a length measured in the direction of travel of not less than 44 inches (1118 mm).

Exception: Landing length in the direction of travel in Groups R-3 and U and within individual units of Group R-2 need not exceed 36 inches (914 mm).

1008.1.7 Thresholds. Thresholds at doorways shall not exceed 3/4 inch (19.1 mm) in height for sliding doors serving dwelling units or 1/2 inch (12.7 mm) for other doors. Raised thresholds and floor level changes greater than 1/4 inch (6.4 mm) at doorways shall be beveled with a slope not greater than one unit vertical in two units horizontal (50-percent slope).

Exception: The threshold height shall be limited to 7/8 inches (197 mm) where the occupancy is Group R-2 or R-3; the door is an exterior door that is not a component of the required means of egress; the door, other than an exterior storm or screen door, does not swing over the landing or step; and the doorway is not on an accessible route as required by [Chapter 11A](#) or [11B](#) and is not part of an adaptable or accessible dwelling unit.

1008.1.8 Door arrangement. Space between two doors in a series shall be 48 inches (1219 mm) minimum plus the width of a door swinging into the space. Doors in a series shall swing either in the same direction or away from the space between the doors.

Exceptions:

1. The minimum distance between horizontal sliding power-operated doors in a series shall be 48 inches (1219 mm).
2. Storm and screen doors serving individual dwelling units in Groups R-2 and R-3 need not be spaced 48 inches (1219 mm) from the other door.
3. Doors within individual dwelling units in Groups R-2 and R-3 occupancies other than adaptable or accessible dwelling units.

1008.1.9 Door operations.

Except as specifically permitted by this section egress doors shall be readily openable from the egress side without the use of a key or special knowledge or effort.

1008.1.9.1 Hardware.

Door handles, pulls, latches, locks and other operating devices on doors required to be accessible by [Chapter 11A](#) or [11B](#) shall not require tight grasping, tight pinching or twisting of the wrist to operate.

1008.1.9.2 Hardware height.

Door handles, pulls, latches, locks and other operating devices shall be installed 34 inches (864 mm) minimum and 48 inches (1219 mm) maximum above the finished floor. Locks used only for security purposes and not used for normal operation are permitted at any height.

Exception: Access doors or gates in barrier walls and fences protecting pools, spas and hot tubs shall be permitted to have operable parts of the release of latch on self-latching devices at 54 inches (1370 mm) maximum above the finished floor or ground, provided the self-latching devices are not also self-locking devices operated by means of a key, electronic opener or integral combination lock.

1008.1.9.3 Locks and latches.

Locks and latches shall be permitted to prevent operation of doors where any of the following exists:

1. Places of detention or restraint.
2. In buildings in occupancy Group A having an occupant load of 300 or less, Groups B, F, M and S, and in places of religious worship, the main exterior door or doors are permitted to be equipped with key-operated locking devices from the egress side provided:
 - 2.1. The locking device is readily distinguishable as locked;
 - 2.2. A readily visible durable sign is posted on the egress side on or adjacent to the door stating: THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED. The sign shall be in letters 1 inch (25 mm) high on a contrasting background; and
 - 2.3. The use of the key-operated locking device is revokable by the building official for due cause.
3. Where egress doors are used in pairs, approved automatic flush bolts shall be permitted to be used, provided that the door leaf having the automatic flush bolts has no doorknob or surface-mounted hardware.
4. Doors from individual dwelling or sleeping units of Group R occupancies having an occupant load of 10 or less are permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are openable from the inside without the use of a key or tool.
5. Fire doors after the minimum elevated temperature has disabled the unlatching mechanism in accordance with listed fire door test procedures.

1008.1.9.4 Bolt locks. Manually operated flush bolts or surface bolts are not permitted.

Exceptions:

1. On doors not required for egress in individual dwelling units or sleeping units.
2. Where a pair of doors serves a storage or equipment room, manually operated edge- or surface-mounted bolts are permitted on the inactive leaf.
3. Where a pair of doors serves an occupant load of less than 50 persons in a Group B, F or S occupancy, manually operated edge- or surface-mounted bolts are permitted on the inactive leaf. The inactive leaf shall contain no doorknobs, panic bars or similar operating hardware.

4. Where a pair of doors serves a Group B, F or S occupancy, manually operated edge- or surface-mounted bolts are permitted on the inactive leaf provided such inactive leaf is not needed to meet egress width requirements and the building is equipped throughout with an automatic sprinkler system in accordance with [Section 903.3.1.1](#). The inactive leaf shall contain no doorknobs, panic bars or similar operating hardware.

5. Where a pair of doors serves patient care rooms in Group I-2 occupancies, self-latching edge- or surface-mounted bolts are permitted on the inactive leaf provided that the inactive leaf is not needed to meet egress width requirements and the inactive leaf contains no doorknobs, panic bars or similar operating hardware.

1008.1.9.5 Unlatching.

The unlatching of any door or leaf shall not require more than one operation.

Exceptions:

1. Places of detention or restraint.
2. Where manually operated bolt locks are permitted by [Section 1008.1.9.4](#).
3. Doors with automatic flush bolts as permitted by [Section 1008.1.9.3](#), Exception 3.
4. Doors from individual dwelling units and sleeping units of Group R occupancies as permitted by [Section 1008.1.9.3](#), Exception 4.

1008.1.9.5.1 Closet and bathroom doors in Group R-4 occupancies.

In Group R-4 occupancies, closet doors that latch in the closed position shall be openable from inside the closet, and bathroom doors that latch in the closed position shall be capable of being unlocked from the ingress side.

1008.1.9.7 Delayed egress locks.

Approved, listed, delayed egress locks shall be permitted to be installed on doors serving any occupancy except Group A, E, H and L occupancies in buildings that are equipped throughout with an automatic sprinkler system in accordance with [Section 903.3.1.1](#) and an approved automatic smoke detection system installed in accordance with [Section 907](#), provided that the doors unlock in accordance with Items 1 through 9 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. Delayed egress devices shall conform to all of the following:

1. The doors unlock upon actuation of the automatic sprinkler system or automatic smoke detection system.
2. The doors unlock upon loss of electrical power to an one of the following:
 - 2.1 The egress-control device itself.
 - 2.2 The smoke detection system.
 - 2.3 Means of egress illumination as required by [Section 1006](#).
3. The door locks shall have the capability of being unlocked by a signal from a switch located in an approved location.
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. The time delay established for each egress-control device shall not be field adjustable. For applications listed in Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, see [Chapter 11B](#), Section 1133B.2.5.

Exception: In facilities housing Alzheimer's or dementia clients, a delay of not more than 30 seconds is permitted.

5. A sign shall be provided on the door located above and within 12 inches (305 mm) of the release device reading: "KEEP PUSHING. THIS DOOR WILL OPEN IN 15 [30] SECONDS. ALARM WILL SOUND" Sign lettering shall be at least 1 inch (25 mm) in height and shall have a stroke of not less than 1/8 inch (3.2 mm).

5.1. A tactile sign shall also be provided in Braille and raised characters, which complies with Section 1117B.5.1.1, Item 1.

6. Emergency lighting shall be provided at the door.

7. Actuation of the panic bar or other door-latching hardware shall activate an audible signal at the door.

8. The unlatching shall not require more than one operation.

9. Regardless of the means of deactivation, relocking of the egress-control device shall be by manual means only at the door.

1008.1.9.8 Electromagnetically locked egress doors.

Doors in the means of egress that are not otherwise required to have panic hardware in buildings with an occupancy in Group A, B, E, M, R-1 or R-2 and doors to tenant spaces in Group A, B, E, M, R-1 or R-2 shall be permitted to be electromagnetically locked if equipped with listed hardware that incorporates a built-in switch and meet the requirements below:

1. The listed hardware that is affixed to the door leaf has an obvious method of operation that is readily operated under all lighting conditions.

2. The listed hardware is capable of being operated with one hand.

3. Operation of the listed hardware releases to the electromagnetic lock and unlocks the door immediately.

4. Loss of power to the listed hardware automatically unlocks the door.

1008.1.9.10 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 403.5.3](#).

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 and capable of being unlocked simultaneously without unlatching upon a signal from the fire command center, if present, or a signal by emergency personnel from a single location inside the main entrance to the building.

1008.1.10 Panic and fire exit hardware.

Doors serving a Group H occupancy and doors serving rooms or spaces with an occupant load of 50 or more in a Group A occupancy, assembly area not classified as an assembly occupancy, E, I-2 or I-2.1 occupancies shall not be provided with a latch or lock unless it is panic hardware or fire exit hardware. For Group L occupancies see [Section 443.6.3.](#)

Exception: A main exit of a Group A occupancy in compliance with [Section 1008.1.9.3](#), Item 2.

Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide that contain overcurrent devices, switching devices or control devices with exit or exit access doors shall be equipped with panic hardware or fire exit hardware. The doors shall swing in the direction of egress travel.

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 where safe dispersal areas based on 3 square feet (0.28 m²) 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 1027.6](#) 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 1/2 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

[DSA-AC] In addition to the requirements of this section, means of egress, which provide access to, or egress from, buildings or facilities where accessibility is required for applications listed in Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, shall also comply with [Chapter 11A](#) or [Chapter 11B](#), Section 1133B.4, as applicable.

1. Stairways serving an occupant load of less than 50 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 1028](#).
4. Where an incline platform lift or stairway chairlift is installed on stairways serving occupancies in Group R-3, or within dwelling units in occupancies in Group R-2, 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.

Means of egress stairs in a Group I-2 occupancy used for the movement of beds and litter patients shall provide a clear width not less than 44 inches (1118 mm).

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.

Exceptions:

1. Spiral stairways complying with [Section 1009.9](#) are permitted a 78-inch (1981 mm) headroom clearance.
2. In Group R-3 occupancies; within dwelling units in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to

individual dwelling units in Group R-2 occupancies; where the nosings of treads at the side of a flight extend under the edge of a floor opening through which the stair passes, the floor opening shall be allowed to project horizontally into the required headroom a maximum of 43/4 inches (121 mm).

1009.3 Walkline.

The walkline across winder treads shall be concentric to the direction of travel through the turn and located 12 inches (305 mm) from the side where the winders are narrower. The 12-inch (305 mm) dimension shall be measured from the widest point of the clear stair width at the walking surface of the winder. If winders are adjacent within the flight, the point of the widest clear stair width of the adjacent winders shall be used.

1009.4 Stair treads and risers.

Stair treads and risers shall comply with [Sections 1009.4.1](#) through [1009.4.5](#).

1009.4.1 Dimension reference surfaces.

For the purpose of this section, all dimensions are exclusive of carpets, rugs or runners.

1009.4.2 Riser height and tread depth.

Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between the leading edges of adjacent treads. Rectangular tread depths shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. Winder treads shall have a minimum tread depth of 11 inches (279 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of the stair.

Exceptions:

1. Alternating tread devices in accordance with [Section 1009.10](#).
2. Ship ladders in accordance with [Section 1009.11](#).
3. Spiral stairways in accordance with [Section 1009.9](#).
4. Aisle stairs in assembly seating areas where the stair pitch or slope is set, for sightline reasons, by the slope of the adjacent seating area in accordance with [Section 1028.11.2](#).
5. In Group R-3 occupancies; within dwelling units in Group R-2 occupancies; and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual dwelling units in Group R-2 occupancies; the maximum riser height shall be 73/4 inches (197 mm); the minimum tread depth shall be 10 inches (254 mm); the minimum winder tread depth at the walkline shall be 10 inches (254 mm); and the minimum winder tread depth shall be 6 inches (152 mm). A nosing not less than 3/4 inch (19.1 mm) but not more than 11/4 inches (32 mm) shall be provided on stairways with solid risers where the tread depth is less than 11 inches (279 mm).
6. See [Section 3404.1](#) for the replacement of existing stairways. [HCD 1] See [Chapter 34, Section 3401.4.3](#) for additions, alterations or repairs to existing buildings. [DSA-AC] For applications listed in Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, see [Chapter 11B](#), Section 1134B.

7. In Group I-3 facilities, stairways providing access to guard towers, observation stations and control rooms, not more than 250 square feet (23 m²) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).

8. *[SFM] Stairways providing access to lifeguard towers not open to the public, not more than 250 square feet (23 m²) in area, shall be permitted to have a maximum riser height of 8 inches (203 mm) and a minimum tread depth of 9 inches (229 mm).*

1009.4.3 Winder treads. Winder treads are not permitted in means of egress stairways except within a dwelling unit.

Exceptions:

1. Curved stairways in accordance with [Section 1009.8](#).
2. Spiral stairways in accordance with [Section 1009.9](#).

1009.4.4 Dimensional uniformity.

Stair treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed 3/8 inch (9.5 mm) in any flight of stairs. The greatest winder tread depth at the walkline within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm).

Exceptions:

1. Nonuniform riser dimensions of aisle stairs complying with [Section 1028.11.2](#).
2. Consistently shaped winders, complying with [Section 1009.4.2](#), differing from rectangular treads in the same stairway flight.

Where the bottom or top riser adjoins a sloping public way, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope to less than 4 inches (102 mm) in height, with the variation in height of the bottom or top riser not to exceed one unit vertical in 12 units horizontal (8-percent slope) of stairway width. The nosings or leading edges of treads at such nonuniform height risers shall have a distinctive marking stripe, different from any other nosing marking provided on the stair flight. The distinctive marking stripe shall be visible in descent of the stair and shall have a slip-resistant surface. Marking stripes shall have a width of at least 1 inch (25 mm) but not more than 2 inches (51 mm).

1009.4.5 Profile.

The radius of curvature at the leading edge of the tread shall be not greater than 9/16 inch (14.3 mm). Beveling of nosings shall not exceed 9/16 inch (14.3 mm). Risers shall be solid and vertical or sloped under the tread above from the underside of the nosing above at an angle not more than 30 degrees (0.52 rad) from the vertical. The leading edge (nosings) of treads shall project not more than 1 1/4 inches (32 mm) beyond the tread below and all projections of the leading edges shall be of uniform size, including the leading edge of the floor at the top of a flight.

Exceptions:

1. Solid risers are not required for stairways that are not required to comply with [Section 1007.3](#), provided that the opening between treads does not permit the passage of a sphere with a diameter of 4 inches (102 mm).
2. Solid risers are not required for occupancies in Group I-3 or in Group F, H and S occupancies other than areas accessible to the public. There are no restrictions on the size of the opening in the riser.
3. Solid risers are not required for spiral stairways constructed in accordance with [Section 1009.9](#).
4. Solid risers are not required for alternating tread devices constructed in accordance with [Section 1009.10](#).

1009.5 Stairway landings.

There shall be a floor or landing at the top and bottom of each stairway. The width of landings shall not be less than the width of stairways they serve. Every landing shall have a minimum dimension measured in the direction of travel equal to the width of the stairway. Such dimension need not exceed 48 inches (1219 mm) where the stairway has a straight run. Doors opening onto a landing shall not reduce the landing to less than one-half the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. When wheelchair spaces are required on the stairway landing in accordance with [Section 1007.6.1](#), the wheelchair space shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces.

Exceptions:

1. Aisle stairs complying with [Section 1028](#).
2. [SFM] In Group R-3 occupancies a floor or landing is not required at the top of an interior flight of stairs, including stairs in an enclosed garage, provided a door does not swing over the stairs.

1009.6 Stairway construction.

All stairways shall be built of materials consistent with the types permitted for the type of construction of the building, except that wood handrails shall be permitted for all types of construction.

1009.6.1 Stairway walking surface.

The walking surface of treads and landings of a stairway shall not be sloped steeper than one unit vertical in 48 units horizontal (2-percent slope) in any direction. Stairway treads and landings shall have a solid surface. Finish floor surfaces shall be securely attached.

Exceptions:

1. Openings in stair walking surfaces shall be a size that does not permit the passage of 1/2-inch-diameter (12.7 mm) sphere. Elongated openings shall be placed so that the long dimension is perpendicular to the direction of travel.

2. In Group F, H and S occupancies, other than areas of parking structures accessible to the public, openings in treads and landings shall not be prohibited provided a sphere with a diameter of 11/8 inches (29 mm) cannot pass through the opening.

1009.6.2 Outdoor conditions.

Outdoor stairways and outdoor approaches to stairways shall be designed so that water will not accumulate on walking surfaces.

1009.6.3 Enclosures under stairways.

The walls and soffits within enclosed usable spaces under enclosed and unenclosed stairways shall be protected by 1-hour fire-resistance-rated construction or the fire-resistance rating of the stairway enclosure, whichever is greater. Access to the enclosed space shall not be directly from within the stair enclosure.

Exception: Spaces under stairways serving and contained within a single residential dwelling unit in Group R-2 or R-3 shall be permitted to be protected on the enclosed side with 1/2-inch (12.7 mm) gypsum board.

There shall be no enclosed usable space under exterior exit stairways unless the space is completely enclosed in 1-hour fire-resistance-rated construction. The open space under exterior stairways shall not be used for any purpose.

1009.7 Vertical rise.

A flight of stairs shall not have a vertical rise greater than 12 feet (3658 mm) between floor levels or landings.

Exceptions:

1. Aisle stairs complying with [Section 1028](#).
2. Alternating tread devices used as a means of egress shall not have a rise greater than 20 feet (6096 mm) between floor levels or landings.

1009.8 Curved stairways.

Curved stairways with winder treads shall have treads and risers in accordance with [Section 1009.4](#) and the smallest radius shall not be less than twice the required width of the stairway.

Exception: The radius restriction shall not apply to curved stairways for occupancies in Group R-3 and within individual dwelling units in occupancies in Group R-2.

1009.9 Spiral stairways.

Spiral stairways are permitted to be used as a component in the means of egress only within dwelling units or from a space not more than 250 square feet (23 m²) in area and serving not more than five occupants, or from galleries, catwalks and gridirons in accordance with [Section 1015.6](#).

A spiral stairway shall have a 7 1/2-inch (191 mm) minimum clear tread depth at a point

12 inches (305 mm) from the narrow edge. The risers shall be sufficient to provide a headroom of 78 inches (1981 mm) minimum, but riser height shall not be more than 91/2 inches (241 mm). The minimum stairway clear width at and below the handrail shall be 26 inches (660 mm).

1009.10 Alternating tread devices.

Alternating tread devices are limited to an element of a means of egress in buildings of Groups F, H and S from a mezzanine not more than 250 square feet (23 m²) in area and which serves not more than five occupants; in buildings of Group I-3 from a guard tower, observation station or control room not more than 250 square feet (23 m²) in area and for access to unoccupied roofs.

1009.11 Ship ladders.

Ship ladders are permitted to be used in Group I-3 as a component of a means of egress to and from control rooms or elevated facility observation stations not more than 250 square feet (23 m²) with not more than three occupants and for access to unoccupied roofs.

Ship ladders shall have a minimum tread depth of 5 inches (127 mm). The tread shall be projected such that the total of the tread depth plus the nosing projection is no less than 81/2 inches (216 mm). The maximum riser height shall be 91/2 inches (241 mm).

Handrails shall be provided on both sides of ship ladders. The minimum clear width at and below the handrails shall be 20 inches (508 mm).

1009.12 Handrails.

Stairways shall have handrails on each side and shall comply with [Section 1012](#). Where glass is used to provide the handrail, the handrail shall also comply with [Section 2407](#).

Exceptions:

1. Handrails for aisle stairs are not required where permitted by [Section 1028.13](#).
2. Stairways within dwelling units, spiral stairways and aisle stairs serving seating only on one side are permitted to have a handrail on one side only.
3. Decks, patios and walkways that have a single change in elevation where the landing depth on each side of the change of elevation is greater than what is required for a landing do not require handrails.
4. In Group R-3 occupancies, a continuous run of treads or flight of stairs with less than four risers does not require handrails. [SFM]
5. Changes in room elevations of three or fewer risers within dwelling units and sleeping units in Group R-2 and R-3 do not require handrails.

[DSA-AC] For applications listed in Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, see [Chapter 11B](#), Section 113B.4.1.

1009.13 Stairway to roof.

In buildings four or more stories above grade plane, one stairway shall extend to the roof surface, unless the roof has a slope steeper than four units vertical in 12 units horizontal (33-percent slope). In buildings without an occupied roof, access to the roof from the top story shall be permitted to be by an alternating tread device.

1009.13.1 Roof access.

Where a stairway is provided to a roof, access to the roof shall be provided through a penthouse complying with [Section 1509.2](#).

Exception: In buildings without an occupied roof, access to the roof shall be permitted to be a roof hatch or trap door not less than 16 square feet (1.5 m²) in area and having a minimum dimension of 2 feet (610 mm).

1009.13.2 Protection at roof hatch openings.

Where the roof hatch opening providing the required access is located within 10 feet (3049 mm) of the roof edge, such roof access or roof edge shall be protected by guards installed in accordance with the provisions of [Section 1013](#).

1009.14 Stairway to elevator equipment.

Roofs and penthouses containing elevator equipment that must be accessed for maintenance are required to be accessed by a stairway.

SECTION 1010 RAMPS

[DSA-AC] In addition to the requirements of this section, means of egress, which provide access to, or egress from, buildings or facilities where accessibility is required for applications listed in Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, shall also comply with [Chapter 11A](#) or [Chapter 11B](#), Section 1133B.5, as applicable.

1. Other than ramps that are part of the accessible routes providing access in accordance with [Chapter 11A](#) or [11B](#), ramped aisles within assembly rooms or spaces shall conform with the provisions in [Section 1028.11](#).
2. Curb ramps shall comply with [Chapter 11A](#) or [11B](#), Section 1127B.5, as applicable.
3. Vehicle ramps in parking garages for pedestrian exit access shall not be required to comply with [Sections 1010.3](#) through [1010.9](#) when they are not an accessible route serving accessible parking spaces, other required accessible elements or part of an accessible means of egress.

1010.2 Slope.

Ramps used as part of a means of egress shall have a running slope not steeper than one unit vertical in 12 units horizontal (8-percent slope). The slope of other pedestrian ramps shall not be steeper than one unit vertical in eight units horizontal (12.5-percent slope).

Exception: Aisle ramp slope in occupancies of Group A or assembly occupancies accessory to Group E occupancies shall comply with [Section 1028.11](#).

1010.3 Cross slope.

The slope measured perpendicular to the direction of travel of a ramp shall not be steeper than one unit vertical in 48 units horizontal (2-percent slope).

1010.4 Vertical rise.

The rise for any ramp run shall be 30 inches (762 mm) maximum.

1010.5 Minimum dimensions.

The minimum dimensions of means of egress ramps shall comply with [Sections 1010.5.1](#) through [1010.5.3](#).

1010.5.1 Width.

The minimum width of a means of egress ramp shall not be less than that required for corridors by [Section 1018.2](#). The clear width of a ramp between handrails, if provided, or other permissible projections shall be 36 inches (914 mm) minimum.

1010.5.2 Headroom.

The minimum headroom in all parts of the means of egress ramp shall not be less than 80 inches (2032 mm).

1010.5.3 Restrictions.

Means of egress ramps shall not reduce in width in the direction of egress travel. Projections into the required ramp and landing width are prohibited. Doors opening onto a landing shall not reduce the clear width to less than 42 inches (1067 mm).

1010.6 Landings.

Ramps shall have landings at the bottom and top of each ramp, points of turning, entrance, exits and at doors. Landings shall comply with [Sections 1010.6.1](#) through [1010.6.5](#).

1010.6.1 Slope.

Landings shall have a slope not steeper than one unit vertical in 48 units horizontal (2-percent slope) in any direction. Changes in level are not permitted.

1010.6.2 Width.

The landing shall be at least as wide as the widest ramp run adjoining the landing.

1010.6.3 Length.

The landing length shall be 60 inches (1525 mm) minimum.

Exceptions:

1. In Group R-2 and R-3 individual dwelling and sleeping units that are not required to be accessible in accordance with [Chapter 11A](#), landings are permitted to be 36 inches (914 mm) minimum.
2. Where the ramp is not a part of an accessible route, the length of the landing shall not be required to be more than 48 inches (1220 mm) in the direction of travel.

1010.6.4 Change in direction.

Where changes in direction of travel occur at landings provided between ramp runs, the landing shall be 60 inches by 60 inches (1524 mm by 1524 mm) minimum.

Exception: In Group R-2 and R-3 individual dwelling or sleeping units that are not required to be accessible in accordance with [Chapter 11A](#), landings are permitted to be 36 inches by 36 inches (914 mm by 914 mm) minimum.

1010.6.5 Doorways.

Where doorways are located adjacent to a ramp landing, maneuvering clearances required for accessibility are permitted to overlap the required landing area as specified in [Chapter 11A](#) or [11B](#), Section 1133B.5.

1010.7 Ramp construction.

All ramps shall be built of materials consistent with the types permitted for the type of construction of the building, except that wood handrails shall be permitted for all types of construction. Ramps used as an exit shall conform to the applicable requirements of [Sections 1022.1](#) through [1022.6](#) for exit enclosures.

1010.7.1 Ramp surface.

The surface of ramps shall be of slip-resistant materials that are securely attached.

1010.7.2 Outdoor conditions.

Outdoor ramps and outdoor approaches to ramps shall be designed so that water will not accumulate on walking surfaces.

1010.8 Handrails.

Ramps with a rise greater than 6 inches (152 mm) shall have handrails on both sides. Handrails shall comply with [Section 1012](#).

Exception: Handrails for ramped aisles are not required where permitted by [Section 1028.13](#).

1010.9 Edge protection.

Edge protection complying with [Section 1010.9.1](#) or [1010.9.2](#) shall be provided on each side of ramp runs and at each side of ramp landings. [HCD 1-AC] See [Chapter 11A](#), Sections 1114A.7 and 1122A.6, for curb and wheel guide requirements.

Exceptions:

1. Edge protection is not required on ramps that are not required to have handrails, provided they have flared sides that comply with [Chapter 11A](#) or [11B](#), Section 1127B.5.
2. Edge protection is not required on the sides of ramp landings serving an adjoining ramp run or stairway.
3. Edge protection is not required on the sides of ramp landings having a vertical drop off of not more than 1/2 inch (12.7 mm) within 10 inches (254 mm) horizontally of the required landing area.
4. In assembly spaces with fixed seating, edge protection is not required on the sides of ramps where the ramps provide access to the adjacent seating and aisle accessways.

1010.9.1 Curb, rail, wall or barrier.

A curb, rail, wall or barrier shall be provided to serve as edge protection. A curb must be a minimum of 4 inches (102 mm) in height. Barriers must be constructed so that the barrier prevents the passage of a 4-inch-diameter (102 mm) sphere, where any portion of the sphere is within 4 inches (102 mm) of the floor or ground surface.

1010.9.2 Extended floor or ground surface.

The floor or ground surface of the ramp run or landing shall extend 12 inches (305 mm) minimum beyond the inside face of a handrail complying with [Section 1012](#).

1010.10 Guards.

Guards shall be provided where required by [Section 1013](#) and shall be constructed in accordance with [Section 1013](#).

SECTION 1011 EXIT SIGNS**1011.1 Where required.**

Exits and exit access doors shall be marked by an approved exit sign readily visible from any direction of egress travel. The path of egress travel to exits and within exits shall be marked by readily visible exit signs to clearly indicate the direction of egress travel in cases where the exit or the path of egress travel is not immediately visible to the occupants. Intervening means of egress doors within exits shall be marked by exit signs. Exit sign placement shall be such that no point in an exit access corridor or exit passageway is more than 100 feet (30 480 mm) or the listed viewing distance for the sign, whichever is less, from the nearest visible exit sign.

Exceptions:

1. Exit signs are not required in rooms or areas that require only one exit or exit access.
2. Main exterior exit doors or gates that are obviously and clearly identifiable as exits need not have exit signs where approved by the building official.
3. Exit signs are not required in occupancies in Group U and individual sleeping units or dwelling units in Group R-1, R-2, R-3 or R-3.1.
4. Exit signs are not required where inmates are housed, or held in dayrooms, sleeping rooms or dormitories in occupancies in Group I-3.

5. In occupancies in Groups A-4 and A-5, exit signs are not required on the seating side of vomitories or openings into seating areas where exit signs are provided in the concourse that are readily apparent from the vomitories. Egress lighting is provided to identify each vomitory or opening within the seating area in an emergency.

1011.2 Illumination.

Exit signs shall be internally or externally illuminated.

Exception: Tactile signs required by [Section 1011.3](#) need not be provided with illumination.

1011.3 Tactile exit signs.

For the purposes of Section 1011.3, the term "tactile exit signs" shall mean those required signs that comply with Section 1117B.5.1 Item 1. Tactile exit signs shall be required at the following locations:

1. Each grade-level exterior exit door shall be identified by a tactile exit sign with the word, "EXIT."
2. Each exit door that leads directly to a grade-level exterior exit by means of a stairway or ramp shall be identified by a tactile exit sign with the following words as appropriate:
 - A. "EXIT STAIR DOWN"
 - B. "EXIT RAMP DOWN"
 - C. "EXIT STAIR UP"
 - D. "EXIT RAMP UP"
3. Each exit door that leads directly to a grade-level exterior exit by means of an exit enclosure that does not utilize a stair or ramp, or an exit passageway shall be identified by a tactile exit sign with the words, "EXIT ROUTE."
4. Each exit access door from an interior room or area that is required to have a visual exit sign, shall be identified by a tactile exit sign with the words, "EXIT ROUTE."
5. Each exit door through a horizontal exit shall be identified by a tactile exit sign with the words, "TO EXIT."

1011.4 Internally illuminated exit signs.

Electrically powered, self-luminous and photoluminescent exit signs shall be listed and labeled in accordance with UL 924 and shall be installed in accordance with the manufacturer's instructions and [Chapter 27](#). Exit signs shall be illuminated at all times.

1011.5 Externally illuminated exit signs.

Externally illuminated exit signs shall comply with [Sections 1011.5.1](#) through [1011.5.3](#).

1011.5.1 Graphics.

Every exit sign and directional exit sign shall have plainly legible letters not less than 6 inches (152 mm) high with the principal strokes of the letters not less than 3/4 inch (19.1 mm) wide. The word "EXIT" shall have letters having a width not less than 2 inches (51 mm) wide, except the letter "I," and the minimum spacing between letters shall not be less than 3/8 inch (9.5 mm). Signs larger than the minimum established in this section

shall have letter widths, strokes and spacing in proportion to their height.

The word "EXIT" shall be in high contrast with the background and shall be clearly discernible when the means of exit sign illumination is or is not energized. If a chevron directional indicator is provided as part of the exit sign, the construction shall be such that the direction of the chevron directional indicator cannot be readily changed.

1011.5.2 Exit sign illumination.

The face of an exit sign illuminated from an external source shall have an intensity of not less than 5 foot-candles (54 lux).

1011.5.3 Power source.

Exit signs shall be illuminated at all times. To ensure continued illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with [Chapter 27](#).

Exception: Approved exit sign illumination means that provide continuous illumination independent of external power sources for a duration of not less than 90 minutes, in case of primary power loss, are not required to be connected to an emergency electrical system.

1011.6 Floor-level exit signs.

Where exit signs are required by Chapter 10, additional approved low-level exit signs which are internally or externally illuminated photoluminescent or self-luminous, shall be provided in all interior corridors of Group A, E, I and R-2.1 occupancies and in all interior rated exit corridors serving guest rooms of hotels in Group R, Division 1 occupancies.

Exceptions:

1. Group A occupancies that are protected throughout by an approved supervised fire sprinkler system.
2. Group E occupancies where direct exits have been provided from each classroom.
3. Group I and R-2.1 occupancies which are provided with smoke barriers constructed in accordance with [Section 407.4](#)
4. Group I-3 occupancies.

The bottom of the sign shall not be less than 6 inches (152 mm) or more than 8 inches (203 mm) above the floor level and shall indicate the path of exit travel. For exit and exit-access doors, the sign shall be on the door or adjacent to the door with the closest edge of the sign or marker within 4 inches (102 mm) of the door frame.

Note: Pursuant to Health and Safety Code Section 13143, this California amendment applies to all newly constructed buildings or structures subject to this section for which a

building permit is issued (or construction commenced, where no building permit is issued) on or after January 1, 1989.

1011.7 Path marking.

When exit signs are required by Chapter 10, in addition to approved floor-level exit signs, approved path marking shall be installed at floor level or no higher than 8 inches (203 mm) above the floor level in all interior rated exit corridors of unsprinklered Group A occupancies, and Group R-1 and R-2 occupancies.

Such marking shall be continuous except as interrupted by door-ways, corridors or other such architectural features in order to provide a visible delineation along the path of travel.

Note: Pursuant to Health and Safety Code Section 13143, the California amendments of this section shall apply to all newly constructed buildings or structures subject to this section for which a building permit is issued (or construction commenced, where no building permit is issued) on or after January 1, 1989.

SECTION 1012 HANDRAILS

[DSA-AC] In addition to the requirements of this section, means of egress, which provide access to, or egress from, buildings or facilities where accessibility is required for applications listed in Section 1.9.1 regulated by the Division of the State Architect-Access Compliance, shall also comply with [Chapter 11A](#) or [Chapter 11B](#), Sections 1133B.4.1 or 1133B.5.5, as applicable.

1012.1 Where required.

Handrails for stairways and ramps shall be adequate in strength and attachment in accordance with [Section 1607.7](#). Handrails required for stairways by [Section 1009.12](#) shall comply with [Sections 1012.2](#) through [1012.9](#). Handrails required for ramps by [Section 1010.8](#) shall comply with [Sections 1012.2](#) through [1012.8](#).

1012.2 Height.

Handrail height, measured above stair tread nosings, or finish surface of ramp slope, shall be uniform, not less than 34 inches (864 mm) and not more than 38 inches (965 mm). Handrail height of alternating tread devices and ship ladders, measured above tread nosings, shall be uniform, not less than 30 inches (762 mm) and not more than 34 inches (864 mm).

1012.3 Handrail graspability.

All required handrails shall comply with [Section 1012.3.1](#) or shall provide equivalent graspability.

Exception: In Group R-3 occupancies; within dwelling units in Group R-2 occupancies;

and in Group U occupancies that are accessory to a Group R-3 occupancy or accessory to individual dwelling units in Group R-2 occupancies; handrails shall be Type I in accordance with [Section 1012.3.1](#), Type II in accordance with [Section 1012.3.2](#) or shall provide equivalent graspability.

1012.3.1 Type I.

Handrails with a circular cross section shall have an outside diameter of at least 1 1/4 inches (32 mm) and not greater than 2 inches (51 mm). If the handrail is not circular, it shall have a perimeter dimension of at least 4 inches (102 mm) and not greater than 6 1/4 inches (160 mm) with a maximum cross-section dimension of 2 1/4 inches (57 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

1012.3.2 Type II.

Handrails with a perimeter greater than 6 1/4 inches (160 mm) shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of 3/4 inch (19 mm) measured vertically from the tallest portion of the profile and achieve a depth of at least 5/16 inch (8 mm) within 7/8 inch (22 mm) below the widest portion of the profile. This required depth shall continue for at least 3/8 inch (10 mm) to a level that is not less than 1 3/4 inches (45 mm) below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 1 1/4 inches (32 mm) to a maximum of 2 3/4 inches (70 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

1012.4 Continuity.

Handrail gripping surfaces shall be continuous, without interruption by newel posts or other obstructions.

Exceptions:

1. Handrails within dwelling units are permitted to be interrupted by a newel post at a turn or landing.
2. Within a dwelling unit, the use of a volute, turnout, starting easing or starting newel is allowed over the lowest tread.
3. Handrail brackets or balusters attached to the bottom surface of the handrail that do not project horizontally beyond the sides of the handrail within 1 1/2 inches (38 mm) of the bottom of the handrail shall not be considered obstructions. For each 1/2 inch (12.7 mm) of additional handrail perimeter dimension above 4 inches (102 mm), the vertical clearance dimension of 1 1/2 inches (38 mm) shall be permitted to be reduced by 1/8 inch (3 mm).
4. Where handrails are provided along walking surfaces with slopes not steeper than 1:20, the bottoms of the handrail gripping surfaces shall be permitted to be obstructed along their entire length where they are integral to crash rails or bumper guards.

1012.5 Fittings.

Handrails shall not rotate within their fittings.

1012.6 Handrail extensions.

Handrails shall return to a wall, guard or the walking surface or shall be continuous to the handrail of an adjacent stair flight or ramp run. Where handrails are not continuous between flights, the handrails shall extend horizontally at least 12 inches (305 mm) beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser. At ramps where handrails are not continuous between runs, the handrails shall extend horizontally above the landing 12 inches (305 mm) minimum beyond the top and bottom of ramp runs. The extensions of handrails shall be in the same direction of the stair flights at stairways and the ramp runs at ramps.

Exceptions:

1. Handrails within a dwelling unit that is not required to be accessible need extend only from the top riser to the bottom riser.
2. Aisle handrails in Group A and E occupancies in accordance with [Section 1028.13](#).
3. Handrails for alternating tread devices and ship ladders are permitted to terminate at a location vertically above the top and bottom risers. Handrails for alternating tread devices and ship ladders are not required to be continuous between flights or to extend beyond the top or bottom risers.

1012.7 Clearance.

Clear space between a handrail and a wall or other surface shall be a minimum of 1 1/2 inches (38 mm). A handrail and a wall or other surface adjacent to the handrail shall be free of any sharp or abrasive elements.

1012.8 Projections.

On ramps, the clear width between handrails shall be 36 inches (914 mm) minimum. Projections into the required width of stairways and ramps at each handrail shall not exceed 4 1/2 inches (114 mm) at or below the handrail height. Projections into the required width shall not be limited above the minimum headroom height required in [Section 1009.2](#).

In Group I-2 occupancy ramps required for exit access shall not be less than 8 ft in width and handrails are permitted to protrude 3 1/2 inches from the wall on both sides. Ramps used as exits and stairways used for the movement of bed and litter patients, the clear width between handrails shall be 44 inches (1118 mm) minimum.

1012.9 Intermediate handrails.

Stairways shall have intermediate handrails located in such a manner that all portions of the stairway width required for egress capacity are within 30 inches (762 mm) of a handrail. On monumental stairs, handrails shall be located along the most direct path of egress travel.

SECTION 1013 GUARDS

1013.1 Where required.

Guards shall be located along open-sided walking surfaces, including mezzanines, equipment platforms, stairs, ramps and landings that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side. Guards shall be adequate in strength and attachment in accordance with [Section 1607.7](#).

Exception: Guards are not required for the following locations:

1. On the loading side of loading docks or piers.
2. On the audience side of stages and raised platforms, including steps leading up to the stage and raised platforms.
3. On raised stage and platform floor areas, such as runways, ramps and side stages used for entertainment or presentations.
4. At vertical openings in the performance area of stages and platforms.
5. At elevated walking surfaces appurtenant to stages and platforms for access to and utilization of special lighting or equipment.
6. Along vehicle service pits not accessible to the public.
7. In assembly seating where guards in accordance with [Section 1028.14](#) are permitted and provided.

1013.1.1 Glazing.

Where glass is used to provide a guard or as a portion of the guard system, the guard shall also comply with [Section 2407](#). Where the glazing provided does not meet the strength and attachment requirements of [Section 1607.7](#), complying guards shall also be located along glazed sides of open-sided walking surfaces.

1013.2 Height.

Required guards shall be not less than 42 inches (1067 mm) high, measured vertically above the adjacent walking surfaces, adjacent fixed seating or the line connecting the leading edges of the treads.

Exceptions:

1. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, guards on the open sides of stairs shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.
2. For occupancies in Group R-3, and within individual dwelling units in occupancies in Group R-2, where the top of the guard also serves as a handrail on the open sides of stairs, the top of the guard shall not be less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.
3. The height in assembly seating areas shall be in accordance with [Section 1028.14](#).

4. Along alternating tread devices and ship ladders, guards whose top rail also serves as a handrail, shall have height not less than 30 inches (762 mm) and not more than 34 inches (864 mm), measured vertically from the leading edge of the device tread nosing.

1013.3 Opening limitations.

Required guards shall not have openings which allow passage of a sphere 4 inches (102 mm) in diameter from the walking surface to the required guard height.

Exceptions:

1. From a height of 36 inches (914 mm) to 42 inches (1067 mm), guards shall not have openings which allow passage of a sphere 43/8 inches (111 mm) in diameter.
2. The triangular openings at the open sides of a stair, formed by the riser, tread and bottom rail shall not allow passage of a sphere 6 inches (152 mm) in diameter.
3. At elevated walking surfaces for access to and use of electrical, mechanical or plumbing systems or equipment, guards shall not have openings which allow passage of a sphere 21 inches (533 mm) in diameter.
4. In areas that are not open to the public within occupancies in Group I-3, F, H or S, and for alternating tread devices and ship ladders, guards shall not have openings which allow passage of a sphere 21 inches (533 mm) in diameter.
5. In assembly seating areas, guards at the end of aisles where they terminate at a fascia of boxes, balconies and galleries shall not have openings which allow passage of a sphere 4 inches in diameter (102 mm) up to a height of 26 inches (660 mm). From a height of 26 inches (660 mm) to 42 inches (1067 mm) above the adjacent walking surfaces, guards shall not have openings which allow passage of a sphere 8 inches (203 mm) in diameter.
6. Within individual dwelling units and sleeping units in Group R-2 and R-3 occupancies, guards on the open sides of stairs shall not have openings which allow passage of a sphere 43/8 (111 mm) inches in diameter.
7. Lifeguard towers not open to the public, guards shall not have openings which allow passage of a sphere 21 inches (533 mm) in diameter.

1013.4 Screen porches.

Porches and decks which are enclosed with insect screening shall be provided with guards where the walking surface is located more than 30 inches (762 mm) above the floor or grade below.

1013.5 Mechanical equipment.

Guards shall be provided where appliances, equipment, fans, roof hatch openings or other components that require service are located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The guard shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter. The guard shall extend not less than 30 inches (762 mm) beyond each end of such appliance, equipment, fan or component.

1013.6 Roof access.

Guards shall be provided where the roof hatch opening is located within 10 feet (3048 mm) of a roof edge or open side of a walking surface and such edge or open side is located more than 30 inches (762 mm) above the floor, roof or grade below. The guard shall be constructed so as to prevent the passage of a sphere 21 inches (533 mm) in diameter.