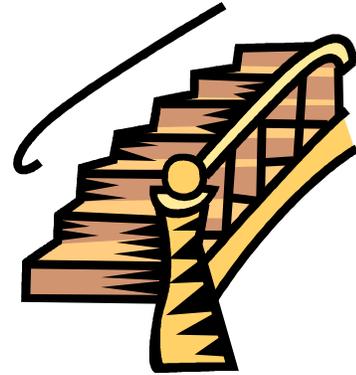


**COMMERCIAL  
STAIRWAYS AND HANDRAILS**  
*Excerpts from*  
**2015 IBC including 2018 Amendment**



**1011.2 Width and capacity.** The required capacity of stairways shall be determined as specified in Section 1005.1, but the minimum width shall not be less than 44 inches. See Section 1009.3 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.
2. Spiral stairways as provided for in Section 1011.10
3. 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. Where the seat and platform can be folded when not in use, the distance shall be measured from the folded position.

**1011.3 Headroom.** Stairways shall have a minimum headroom clearance of 80 inches 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 1011.10 are permitted a 78-inch headroom clearance.

**1011.4 Walkline.** The walkline across winder treads shall be concentric to the direction of travel through the turn and located 12 inches from the side where the winders are narrower.

**1011.5.2 Riser height and tread depth.** Stair riser heights shall be 7 inches maximum and 4 inches minimum. Stair tread depth shall be 11 inches minimum. The riser height shall be measured vertically between the nosings of adjacent treads. Rectangular tread depth shall be 11 inches minimum measured horizontally between the foremost projection of adjacent treads and at right angles to the tread's nosing. Winder treads shall have a minimum tread depth of 11 inches 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 within the clear width of the stair.

**Exceptions:**

1. Alternating tread devices in accordance with Section 1011.14.
2. Ships ladders in accordance with Section 1011.15.
3. Spiral staircases in accordance with Section 1011.10.
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.
5. In Group R-1 bed and breakfast establishments; in Group R-3 occupancies; within dwelling units in Group R-2 occupancies; and in Group U occupancies that are accessory to Group R-3 occupancy, or accessory to individual dwelling units in Group R-2 occupancies; the maximum riser height shall be  $8\frac{1}{4}$  inches and the minimum tread depth shall be 9 inches; the minimum winder tread depth at the walkline shall be 10 inches; and the minimum winder tread depth shall be 6 inches. A nosing not less than  $\frac{3}{4}$  inch but not more than  $1\frac{1}{4}$  inches shall be provided on stairways with solid risers where the tread depth is less than 11 inches.
6. The riser height and tread depth of existing stairways in buildings undergoing addition, alteration, repair, relocation or change of occupancy that involve the existing stairways shall be permitted to remain, provided the greatest riser height within any flight of stair shall not exceed the smallest by  $\frac{3}{8}$  inch and the greatest tread depth within any flight of stairs shall not exceed the smallest by  $\frac{3}{8}$  inch.
7. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.

**1011.5.4 Dimensional uniformity.** Stair treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser or between the largest and smallest tread shall not exceed  $\frac{3}{8}$  inch in any flight of stairs.

**Exceptions:**

2. Consistently shaped winders, complying with Section 1009.7, differing from rectangular treads in the same stairway flight.

**1011.5.4.1 Nonuniform height risers.** 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 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 non-uniform 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 but not more than 2 inches.

**1011.5.5 Nosing and riser profile.** Nosings shall have a curvature or bevel of not less than  $\frac{1}{16}$  inch but not more than  $\frac{9}{19}$  inch from the foremost projection of the tread.

Risers shall be solid and vertical or sloped under the tread from the underside of the nosing above at an angle of not more than 30 degrees from the vertical.

**1011.5.5.1 Nosing projection size.** The leading edge of treads shall not project more than 1 ¼ inches beyond the tread below.

**1011.5.5.2 Nosing projection uniformity.** Nosing projections of the leading edges shall be of uniform size, including the projection of the nosing's leading edge of the floor at the top of a flight.

**1011.6 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 served. 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.

**1011.11 Handrails.** Stairways shall have handrails on each side and shall comply with Section 1014. Where glass is used to provide the handrail, the handrail shall also comply with Section 2407.

**Exceptions:**

2. Decks, patios, and walkways that have a single change in elevation where the landing depth on each side of the change in elevation is greater than what is required for a landing do not require handrails.

**1014.2 Height.** Handrail height, measured above stair tread nosings, or finish surface of ramp slope, shall be uniform, not less than 34 inches and not more than 38 inches.

**1014.3 Handrail graspability.** Handrails with a circular cross section shall have an outside diameter of at least 1.25 inches and not greater than 2 inches. If the handrail is not circular, it shall have a perimeter dimension of at least 4 inches and not greater than 6 ¼ inches with a maximum cross-section dimension of 2 ¼ inches. Edges shall have a minimum radius of 0.01 inch.

**1014.4 Continuity.** Handrail-gripping surfaces shall be continuous, without interruption by newel posts or other obstructions.

**Exceptions:**

3. Handrail brackets or balusters attached to the bottom surface of the handrail...shall not be considered to be obstructions...

**1014.6 Handrail extensions.** Handrails shall return to a wall, guard or the walking surface or shall be continuous to the handrail of an adjacent flight of stairs or ramp run. Where handrails are not continuous between flights, the handrails shall extend horizontally at least 12 inches beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser.

**1015.2 Where required.** Guards shall be located along open-sided walking surfaces, including mezzanines, equipment platforms, aisles, stairs, ramps and landings that are located more than 30 inches measured vertically to the floor or grade below at any point within 36 inches horizontally to the edge of the open side. Guards shall be adequate in strength and attachment in accordance with Section 1607.8.

**1015.3 Height.** Required guards shall not be less than 42 inches high, measured vertically as follows:

- 1) From the adjacent walking surface.
- 2) On stairways and stepped aisles, from the line connecting the leading edges of the tread nosings.
- 3) On ramps and ramped aisles, from the ramp surface at the guard.

**Exceptions:**

3. For occupancies in Group R-1 bed and breakfast establishments, Group R-3, and within individual dwelling units in occupancies in Group R-2, where the guard also serves as a handrail on the open side of stairs, the top of the guard shall not be less than 34 inches and not more than 38 inches measured vertically from a line connecting the leading edges of the treads.

**1015.4 Opening limitations.** Required guards shall not have openings which allow passage of a sphere 4 inches in diameter from the walking surface to the required guard height.

**Exceptions:**

1. From a height of 36 to 42 inches, guards shall not have openings which allow the passage of a sphere 4 3/8" in diameter
2. The triangular openings formed by the riser, tread and bottom rail at the open side of a stairway shall not allow passage of a sphere 6 inches 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 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 ships ladders, guards shall not have openings which allow passage of a sphere 21 inches in diameter.
5. 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 4 3/8 inches in diameter.

**PLEASE NOTE** the entire 2016 Connecticut State Building Code applies. These commonly used code excerpts have been provided for your convenience.