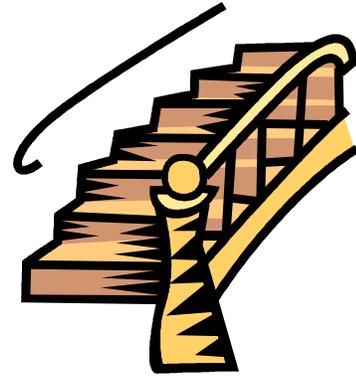


COMMERCIAL STAIRWAYS AND HANDRAILS 2003 IBC including 2009 Amendment



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

Exceptions:

1. Stairways serving an occupant load of 50 or less shall have a width of not less than 36 inches (914 mm).
2. Spiral stairways as provided for in Section 1009.9.
3. Aisle stairs complying with Section 1024.
4. Where a stairway lift is installed on stairways serving occupancies in Group R-3, or within dwelling units in occupancies in Group R-2, both as applicable in Section 101.2, 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.

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

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

1009.3 Stair treads and risers. Stair riser heights shall be 7 inches maximum and 4 inches minimum. Stair tread depth shall be 11 inches minimum. The riser height shall be measured vertically between the leading edges of adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch. The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by 3/8 inch.

Exceptions:

1. Circular stairways in accordance with Section 1009.7.
2. Spiral stairways in accordance with Section 1009.9.

3. 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 1024.11.2.
4. In occupancies in Group R-1 bed and breakfast establishments, in occupancies in Group R-3, as applicable in Section 101.2, within dwelling units in occupancies in Group R-2 and in occupancies in Group U, which are accessory to an occupancy in Group R-3, as applicable in Section 101.2, the maximum riser height shall be 8 ¼ inches and the minimum tread depth shall be 9 inches. A nosing not less than ¾ inch but not more than 1 ¼ inches shall be provided on stairways with solid risers where the tread depth is less than 11 inches.
5. 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 3/8 inch and the greatest tread depth within any flight of stairs shall not exceed the smallest by 3/8 inch.
6. 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.

1009.3.1 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 3/8 inch (10 mm) in any flight of stairs.

Exceptions:

1. Non-uniform riser dimensions of aisle stairs complying with Section 1024.11.2.
2. Consistently shaped winders, complying with Section 1009.8, 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 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 (25 mm) but not more than 2 inches (51 mm).

1009.3.2 Profile. The radius of curvature at the leading edge of the tread shall be not greater than ½ inch (13 mm). Beveling of nosings shall not exceed ½ inch (13 mm). Risers shall be solid and vertical or sloped from the underside of the leading edge of the tread 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 ¼ 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).

1009.4 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)

1009.11 Handrails. Stairways shall have handrails on each side. Handrails shall be adequate in strength and attachment in accordance with Section 1607.7.

Exceptions:

3. 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.

1009.11.1 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).

1009.11.3 Handrail graspability. Handrails with a circular cross section shall have an outside diameter of at least 1.25 inches (32 mm) and not greater than 2 inches (51 mm) or shall provide equivalent graspability. If the handrail is not circular, it shall have a perimeter dimension of at least 4 inches (102 mm) and not greater than 6 ¼ inches (160 mm) with a maximum cross-section dimension of 2 ¼ inches (57 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

1009.11.4 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...

1009.11.5 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. 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.

1012.1 Where required. Guards shall be located along open-sided walking surfaces, mezzanines, industrial equipment platforms, stairways, ramps and landings which are located more than 30 inches above the floor or grade below. Guards shall be adequate in strength and attachment in accordance with Section 1607.7...

1012.2 Height. Guards shall form a protective barrier not less than 42" high, measured vertically above the leading edge of the tread or the adjacent walking surface.

Exceptions:

1. For occupancies in Group R-1 bed and breakfast establishments and in Group R-3, and within individual dwelling units in occupancies in Group R-2, guards whose top rail also serves as a handrail shall have a height not less than 34 inches and not more than 38 inches measured vertically from the leading edge of the stair tread nosing.

1012.3 Opening limitations. Open guards shall have balusters or ornamental patterns such that a 4-inch diameter sphere cannot pass through any opening up to a height of 34 inches. From a height of 34 inches to 42 inches above the adjacent walking surface a sphere of 8 inches in diameter shall not pass.

Exceptions:

1. The triangular openings formed by the riser, tread and bottom rail at the open side of a stairway shall be of a maximum size such that a sphere of 6 inches in diameter cannot pass through the opening.
2. At elevated walking surfaces for access to and use of electrical, mechanical or plumbing systems or equipment, guards shall have horizontal rails, balusters or be of solid material such that a sphere with a diameter of 21 inches cannot pass through any opening.
3. In areas that are not open to the public, within occupancies in Group I-3, F, H or S, balusters, horizontal intermediate rails or other construction shall not permit a sphere of 21 inches to pass through any opening.