

# STAIRWAYS – 2006 IBC Section 1009 & IRC Section R311.5

This document is an overview of stairs and their associated components. The following references are to the IBC, please reference similar sections in the IRC for more specific information including exceptions for one- and two-family dwellings.

**1002.1 Definitions.** STAIR. A change in elevation, consisting of one or more risers. All steps, even a single step, are defined as a stair. This makes the stairway requirements applicable to all steps unless specifically exempt in the code.

**1009.1 Stairway width** of stairways shall be determined as specified in Section 1005.1, but such width shall be not less than 48 inches (1219 mm) by local amendment except within a dwelling unit (36 inches minimum). Unless specifically exempt, 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 as per 1009.4. See Section 1007.3 for accessible means of egress stairways where 48 inches is required between handrails.

**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 in accordance with Section 1009.2 except spiral stairways complying with Section 1009.8 are permitted a 78-inch (1981 mm) clearance. Stairs shall have a maximum rise of 7 inches and a minimum run of 11 inches. Stairs within dwelling units may have a maximum rise of 7 <sup>3</sup>/<sub>4</sub> inches and a minimum run of 10 inches. See code requirements for nosings and riser designs.

**1009.3.1 Winder treads** are not permitted in means of egress stairways except within a dwelling unit. Treads shall have a minimum depth of 10 inches at a point 12 inches from the side where the treads are narrower, but no less than 6 inches at the narrowest point in accordance with Section 1009.3.

**1009.7 Curved stairways** with winder treads shall have treads and risers in accordance with Sections 1009.3 the smallest radius shall not be less than twice the required width of the stairway.

**1009.8 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 in area and serving not more than five occupants, or from galleries, catwalks and gridirons in accordance with Section 1015.6.

**1009.9 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 m<sup>2</sup>) 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 m<sup>2</sup>) in area and for access to unoccupied roofs in accordance with Section 1009.9; and as per local amendment to R311.5.8.4 may serve as an exit from an area not to exceed 200 square feet within a dwelling unit. Alternating tread stairways shall have a minimum projected tread of 8.5 inches (216 mm) with a minimum tread depth of 10.5 inches (267 mm). The rise to the next alternating tread surface should not be more than 8 inches (203 mm). The initial tread of the stairway shall begin at the same elevation as the platform, landing or floor surface. An approved handrail shall be provided on each side. **Ship's Ladder stairway** may be used in a dwelling unit for areas up to 200 square feet as per local amendment to R311.5.8.3. The pitch shall not exceed 60 degrees with a minimum width of 24 inches. Treads shall not be less than 4 inches in width and the rise between treads shall not exceed 10 inches. An approved handrail shall be provided on each side.

**1009.10 Handrails.** Unless specifically exempt, stairways shall have handrails on each side and shall comply with Section 1012.

**1012.2 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).

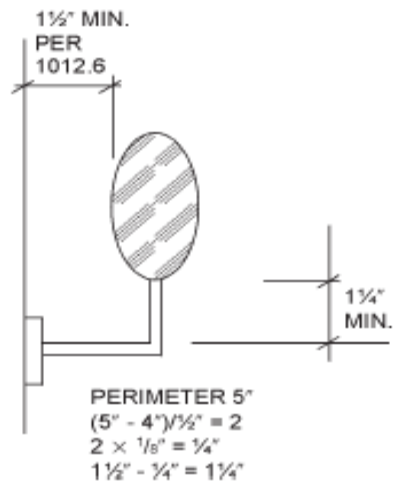
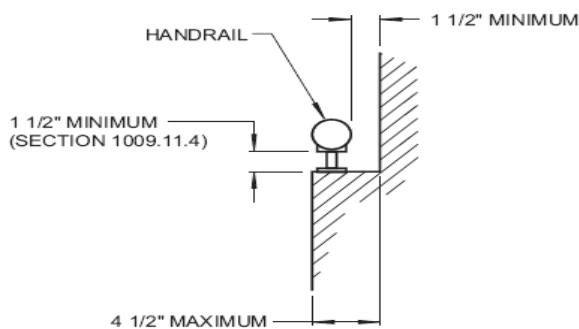
**1012.3 Handrail graspability.** As per local code amendment, handrails with a circular cross section shall have an outside diameter of at least 1.25 inches (32 mm) and not greater than 2 inches (51 mm) or shall provide equivalent graspability. If a handrail is not circular, it shall have a maximum horizontal cross section dimension of at least 1.25 inches (32mm) and not greater than 3 inches (57 mm). The narrowest horizontal cross section of the handgrip portion of the handrail shall have a minimum dimension .75 inch (20 mm) less than the maximum horizontal cross section. The surface of the handgrip portion of the handrail shall have a perimeter dimension of at least 4 inches (102 mm) and not greater than 6.25 inches (160 mm) measured to the centerline of the narrowest horizontal cross section. Edges shall have a minimum radius of 0.01 inch.

**1012.4 Continuity.** Handrail-gripping surfaces shall be continuous, without interruption by newel posts or other obstructions, unless specifically exempt.

**1012.5 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 (305 mm) beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser, except handrails within a dwelling unit that is not required to be accessible need extend only from the top riser to the bottom riser.

**1012.6 Clearance.** Clear space between a handrail and a wall or other surface shall be a minimum of 1.5 inches (38 mm).

**1012.7 Stairway projections.** Projections into the required width of the stairs at each handrail shall not exceed 4.5 inches (114 mm) at or below the handrail height. Projections into the required width shall not be limited above 80 inches (the minimum headroom height required in Section 1009.2).



For SI: 1 inch = 25.4 mm.

Figure 1009.11.7(2)  
PROJECTION OF HANDRAIL

Figure 1012.4(2)  
JS EXAMPLE PER SECTION 1012.4, EXCEPTION 3

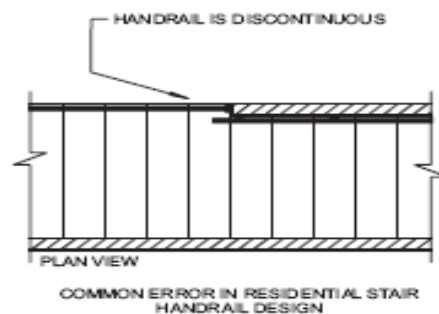
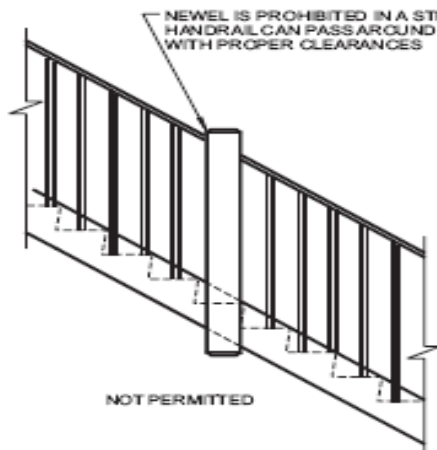


Figure 1012.4(1)  
EXAMPLES OF PROHIBITED HANDRAIL DESIGNS