

SECTION 1014 HANDRAILS

- 1014.1 Where required.** *Handrails* serving *flights of stairways*, *ramps*, stepped *aisles* and ramped *aisles* shall be adequate in strength and attachment in accordance with Section 1607.8. *Handrails* required for *flights of stairways* by Section 1011.11 shall comply with Sections 1014.2 through 1014.9. *Handrails* required for *ramps* by Section 1012.8 shall comply with Sections 1014.2 through 1014.8. *Handrails* for stepped *aisles* and ramped *aisles* required by Section 1029.16 shall comply with Sections 1014.2 through 1014.8.

1014.2 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 ships ladders, measured above tread *nosings*, shall be uniform, not less than 30 inches (762 mm) and not more than 34 inches (864 mm).

Exceptions:

1. Where handrail fittings or bendings are used to provide continuous transition between *flights*, the fittings or bendings shall be permitted to exceed the maximum height.
2. In Group R-3 occupancies; within *dwelling units* in Group R-2 occupancies; and in Group U occupancies that are associated with a Group R-3 occupancy or associated with individual *dwelling units* in Group R-2 occupancies; where handrail fittings or bendings are used to provide continuous transition between *flights*, transition at *winder* treads, transition from *handrail* to *guard*, or where used at the start of a *flight*, the *handrail* height at the fittings or bendings shall be permitted to exceed the maximum height.
3. *Handrails* on top of a guard where permitted along stepped *aisles* and ramped *aisles* in accordance with Section 1029.16.

1014.3 Handrail graspability. Required *handrails* shall comply with Section 1014.3.1 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 1014.3.1, Type II in accordance with Section 1014.3.2 or shall provide equivalent graspability.

1014.3.1 Type I. *Handrails* with a circular cross section shall have an outside diameter of not less than 1¹/₄ inches (32 mm) and not greater than 2 inches (51 mm). Where the *handrail* is not circular, it shall have a perimeter dimension of not less than 4 inches (102 mm) and not greater than 6¹/₄ inches (160 mm) with a maximum cross-sectional dimension of 2¹/₄ inches (57 mm) and minimum cross-sectional dimension of 1 inch (25 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

1014.3.2 Type II. *Handrails* with a perimeter greater than 6¹/₄ 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 not less than ⁵/₁₆ inch (8 mm) within ⁷/₈ inch (22 mm) below the widest portion of the profile. This required depth shall continue for not less than ³/₄ inch (10 mm) to a level that is not less than 1³/₄ inches (45 mm) below the tallest portion of the profile. The width of the *handrail* above the recess shall be not less than 1¹/₄ inches (32 mm) to not greater than 2³/₄ inches (70 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

1014.4 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 1¹/₂ 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 1¹/₂ inches (38 mm) shall be permitted to be reduced by ¹/₈ inch (3.2 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.
5. *Handrails* serving stepped *aisles* or ramped *aisles* are permitted to be discontinuous in accordance with Section 1029.16.1.

1014.5 Fittings. *Handrails* shall not rotate within their fittings.

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 not less than 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 *flights of stairs* 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. *Handrails* serving *aisles* in rooms or spaces used for assembly purposes are permitted to comply with the