



## Handout R.06

### Residential Handrails and Guards

#### Definitions

- Handrail:** A horizontal or sloping rail intended for grasping by the hand for guidance or support.
- Guard:** A building component or a system of building components located near the open sides of elevated walking surfaces that minimizes the possibility of a fall from the walking surface to the lower level.

#### Handrails

**Handrails** having minimum and maximum heights of 34 inches and 38 inches, respectively, measured vertically from the nosing of the treads, are required on at least one side of stairways. Handrails are required to be continuous the full length of stairs with four or more risers, from a point directly above the top riser of a flight to a point directly above the lowest riser of the flight. The handrail ends are to be returned or terminate in a newel post wall or safety terminals. Handrails adjacent to a wall need to have a space not less than 1.5 inches between the wall and the handrail. Handrails shall not project more than 4 ½ inches on either side of the stairway.

#### **Exceptions:**

1. A newel post can interrupt handrails at a turn in a flight with winders, at a landing or over lowest tread.
2. The use of a volute, turnout or starting easing is allowed over the lowest tread.

**Handrail grip size.** All required handrails shall be of one of the following types or provide equivalent graspability. See attached drawings.

1. Type I. Handrails with a circular cross section shall have an outside diameter of at least 1¼ 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 6¼ inches with a maximum cross section of dimension of 2¼ inches. Edges shall have a minimum radius of 0.01 inches
2. Type II. Handrails with a perimeter greater than 6¼ inches shall provide a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of ¾ inch measured vertically from the tallest portion of the profile and achieve a depth of at least 5/16 inch within 7/8 inch below the widest portion of the profile. This required depth shall continue for at least 3/8 inch to a level that is not less than 1¼ inches below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 1¼ inches to a maximum of 2¾ inches. Edges shall have a minimum radius of 0.01 inches

#### Guards

**Guards required.** Porches, balconies, ramps or raised floor surfaces 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 need guards not less than 36 inches in height. Open sides of stairs with a total rise of more than 30 inches above the floor or grade below need guards not less than 34 inches in height measured vertically from the nosing of the treads.

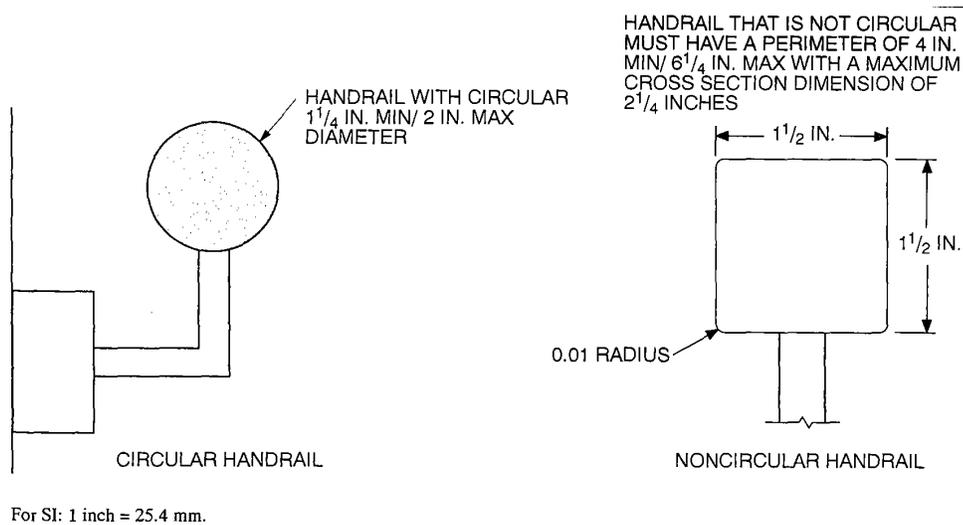
**Guard opening limitations:** Required guards on open sides of stairways, raised floor areas, balconies and porches must have intermediate rails or ornamental closures that do not allow passage of a sphere 4 inches in diameter.

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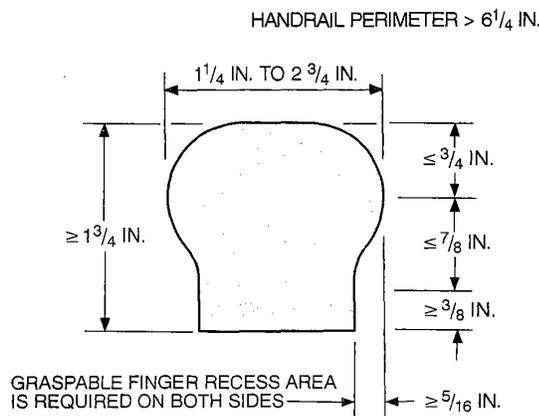


**Exceptions:**

1. The triangle openings formed by the riser, tread and bottom rail of a guard at the open side of a stairway are permitted to be of such a size that a sphere 6 inches in diameter cannot pass through.
2. Openings for required guards on the sides of stair treads shall not allow a sphere 4 3/8 inches to pass through.



**Figure R311.5.6.3(1)  
TYPE I HANDRAIL**



**Figure R311.5.6.3(2)  
TYPE II HANDRAIL**

*Robert Doehl*

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DATE: February 19, 2021

Ref. 96-01, 00-03, 01-03; 04-09; 06-02; 07-08; 08-03; 16-04)