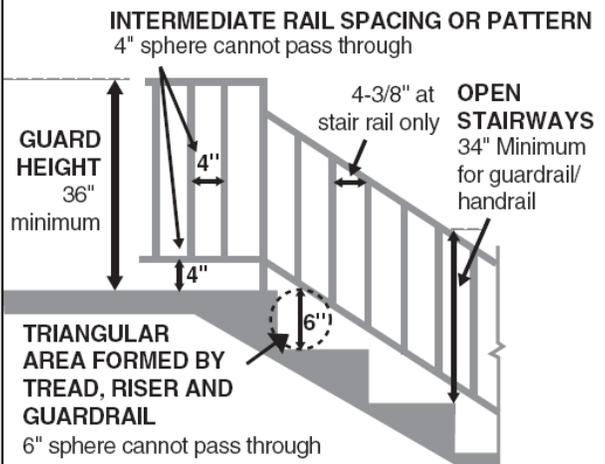
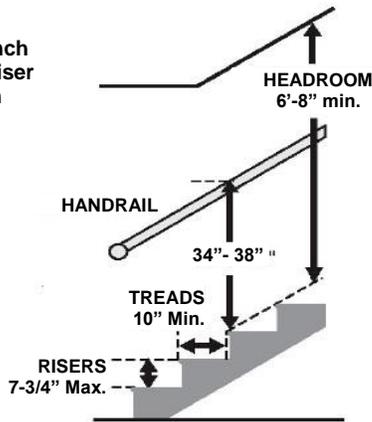


# Residential Stairs/Ramps/Handrails

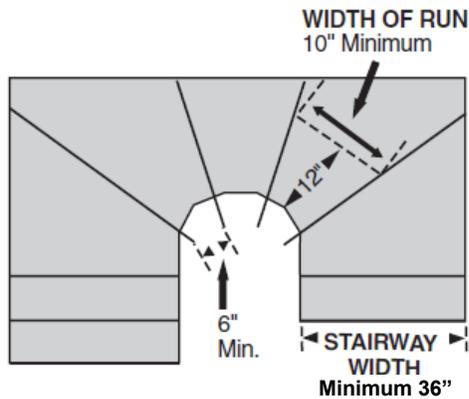
## Guard opening limitations



## Maximum 3/8 inch tread depth & riser height variation



## Winder treads



## Stairway Width (R311.7.1)

Stairways shall not be less than 36 inches wide. The handrail may encroach a maximum of 4-1/2 inches into this dimension. If placing two handrails on a stairway, maintain a minimum clear width of 27 inches.

## Stair treads and risers (R311.7.5)

Maximum riser height shall be 7-3/4 inches. Open risers are permitted, provided that the opening between treads is less than 4 inches when located more than 30 inches above the floor or grade. The minimum tread depth shall be 10 inches.

## Dimensional tolerances (R311.7.5.1)

The largest tread depth or riser height within any stairway shall not exceed the smallest by more than 3/8 inch.

## Stairway Landings (R311.7.6.1)

There shall be a floor or landing at the top and bottom of each stairway. Every landing shall have a minimum dimension of 36 inches measured in the direction of travel.

## Headroom (R311.7.2)

Every stairway shall have a headroom clearance of not less than 6 feet 8 inches. The minimum headroom in all parts of the stairway may not be less than 6 feet 8 inches. This is measured vertically from the sloped plane adjoining the tread nosings or from the floor surface of the landings.

## Under stair protection (R302.7)

Enclosed accessible space under stairs shall have walls, surfaces and soffits protected on the enclosed side with 1/2 inch min. gypsum board.

## Illumination (R311.7.9)

All interior and exterior stairways must be illuminated.

## Ramps (R311.8)

Ramps shall have a maximum slope of one in twelve. It shall have a min. 3' x 3' landing at the top and bottom of the ramp, where the door opens onto the ramp and when the ramp changes direction. Handrails shall be provided on at least one side. Handrails shall be continuous for the full length of the ramp. Rail ends shall terminate into newel posts or return into the wall.

## Handrails (R311.7.8)

**Required on at least one side of stairs with four or more risers.**

The top shall be placed not less than 34 inches, no more than 38 inches, above the nosing of the treads. Ends shall be returned or terminated in newel posts or safety terminals.

All required handrails shall be continuous for the full length of the stairs from a point directly above the top riser of the flight to a point directly above the lowest riser of the flight.

### Exceptions:

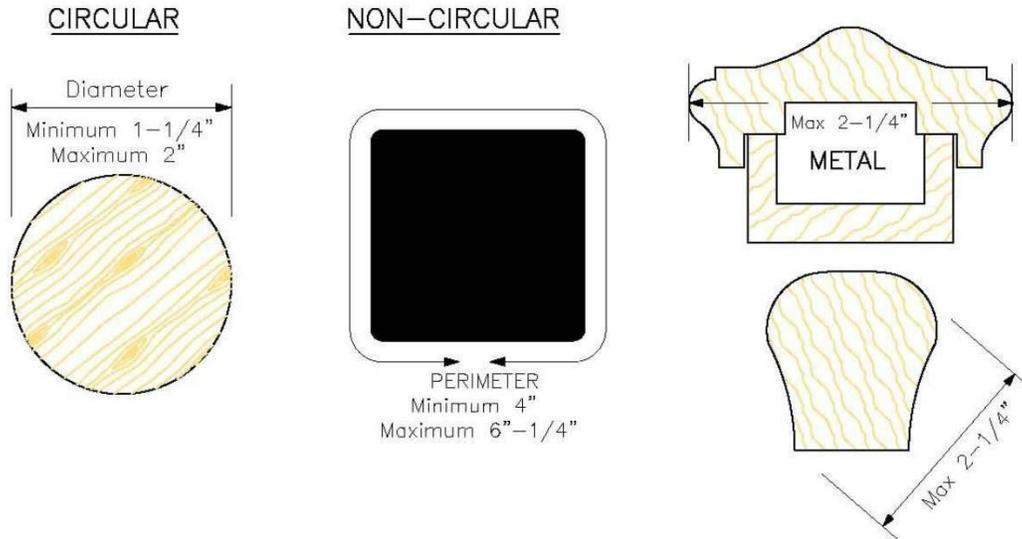
1. Handrails may be interrupted by a newel post at a turn.
2. A volute, turnout or newel post is allowed over the lowest tread.

Handrail grips shall be of Type I or Type II, or provide equivalent graspability. (See page 2 for more information)

## Guards (R312)

Guards shall be located along open-sided walking surfaces that are located more than 30 inches measured vertically to the floor or grade below. Guard shall be not less than 36 inches high measured vertically above the adjacent walking surface, adjacent fixed seating or the line connecting the leading edges of treads and shall not have openings which allow passage of a sphere 4 inches in diameter.





**Handrail Grip Size** (R311.7.8.3)

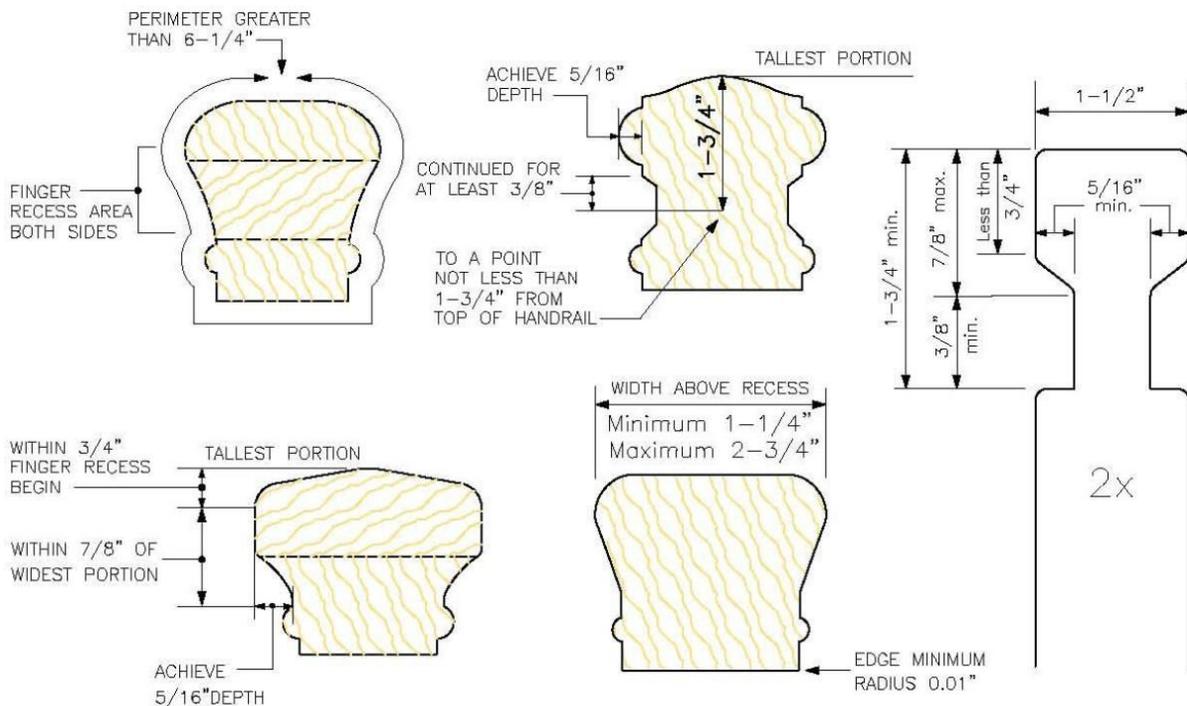
All required handrails shall be of Type I or II, or provide equivalent graspability.

**Type I Handrail**

Handrails with a circular cross section shall have an outside diameter of at least 1-1/4 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 6-1/4 inches with a maximum cross section of dimension of 2-1/4 inches. Edges shall have a minimum radius of 0.01 inch.

**Type II Handrail**

Handrails with a perimeter greater than 6-1/4 inches shall have a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of 3/4 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 1-3/4 inches below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 1-1/4 inches to a maximum of 2-3/4 inches. Edges shall have a minimum radius of 0.01 inch.



**Examples of Type II Residential Handrails**