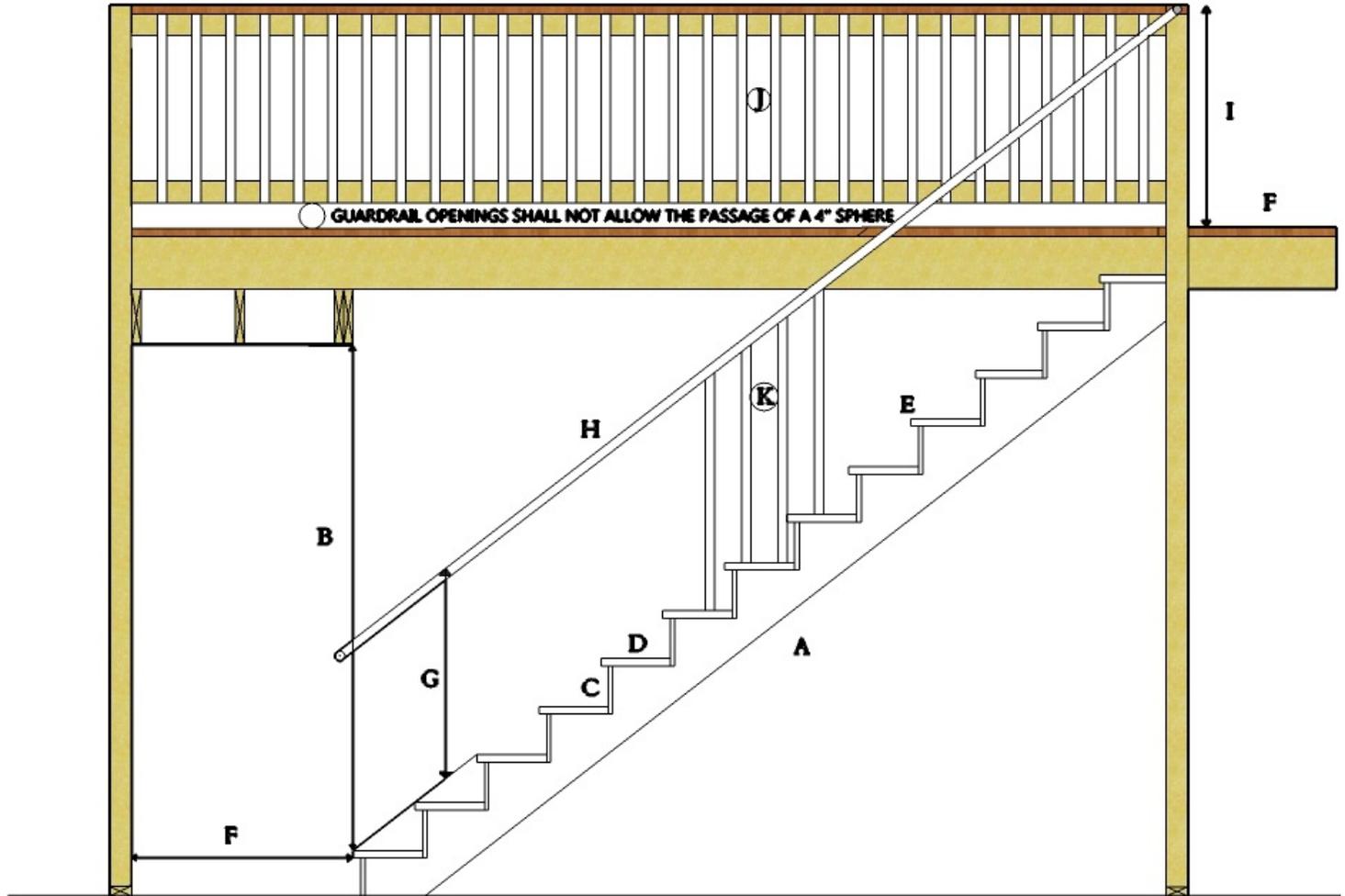




RESIDENTIAL STAIRS, GUARDRAIL AND HANDRAIL REQUIREMENTS Based on the 2006 IRC (Straight Flight only)

2006 International Residential Code



- A. R311.2.2 Under stair protection. Enclosed accessible space under stairs shall have walls, under stair surface and any soffits protected on the enclosed side with $\frac{1}{2}$ -inch gypsum board.
- B. R311.5.2 Headroom. The minimum headroom in all parts of the stairway shall not be less than 6 feet 8 inches measured vertically from the sloped plain adjoining the tread nosing or from the floor surface of the landing or platform.
- C. R311.5.3.1 Riser height. The maximum riser height shall be $7 \frac{3}{4}$ inches. The riser height shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than $\frac{3}{8}$ inch.
- D. R311.5.3.2 Tread depth. The minimum tread depth shall be 10 inches. The tread depth shall be measured horizontally between the vertical planes of the foremost projection or adjacent treads and at a right angle to the

tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch.

- E. R311.5.3.3 Profile. The radius of the curvature at the leading edge of the tread shall be no greater than 9/16 inch. A nosing not less than 3/4 inch but not more than 1 1/4 inch shall be provided on stairways with solid risers. The greatest nosing projection shall not exceed the smallest nosing projection by more than 3/8 inch between two stories, including the nosing at the level of floors and landings. Beveling of the nosing shall not exceed 1/2 inch. Risers shall be vertical or sloped from the underside of the leading edge of the tread above at an angle not more than 30 degrees from the vertical. Open risers are permitted, provided that the opening between treads does not permit the passage of a 4-inch diameter sphere.

- F. R311.5.4 Landings for stairways. There shall be a floor or landing at the top and bottom of each stairway.

A flight of stairs shall not have a vertical rise larger than 12 feet between floor levels or landings.

The width of each landing shall not be less than the width of the stairway served. Every landing shall have a minimum dimension of 36 inches measured in the direction of travel.

- G. R311.5.6 Handrails. Handrails shall be provided on at least one side of each continuous run of treads or flight with four or more risers.

R 311.5.6.1 Height. Handrail height, measured vertically from the sloped plane adjoining the read nosing, or finish surface of ramp slope, shall be not less than 34 inches and not more than 38 inches.

R311.5.6.2 Continuity. Handrails for stairways shall be continuous for the full length of the flight, form a point directly above the top riser of the flight, to a point directly above the lowest riser of the flight. Handrail ends shall be returned or shall terminate in newel posts or safety terminals. Handrails adjacent to a wall shall have a space of not less than 1 1/2 inch between the wall and the handrails.

Exceptions:

1. Handrails shall be permitted to be interrupted by a newel post at the turn.
2. The use of a volute, turnout, starting easing or starting newel shall be allowed over the lowest tread.

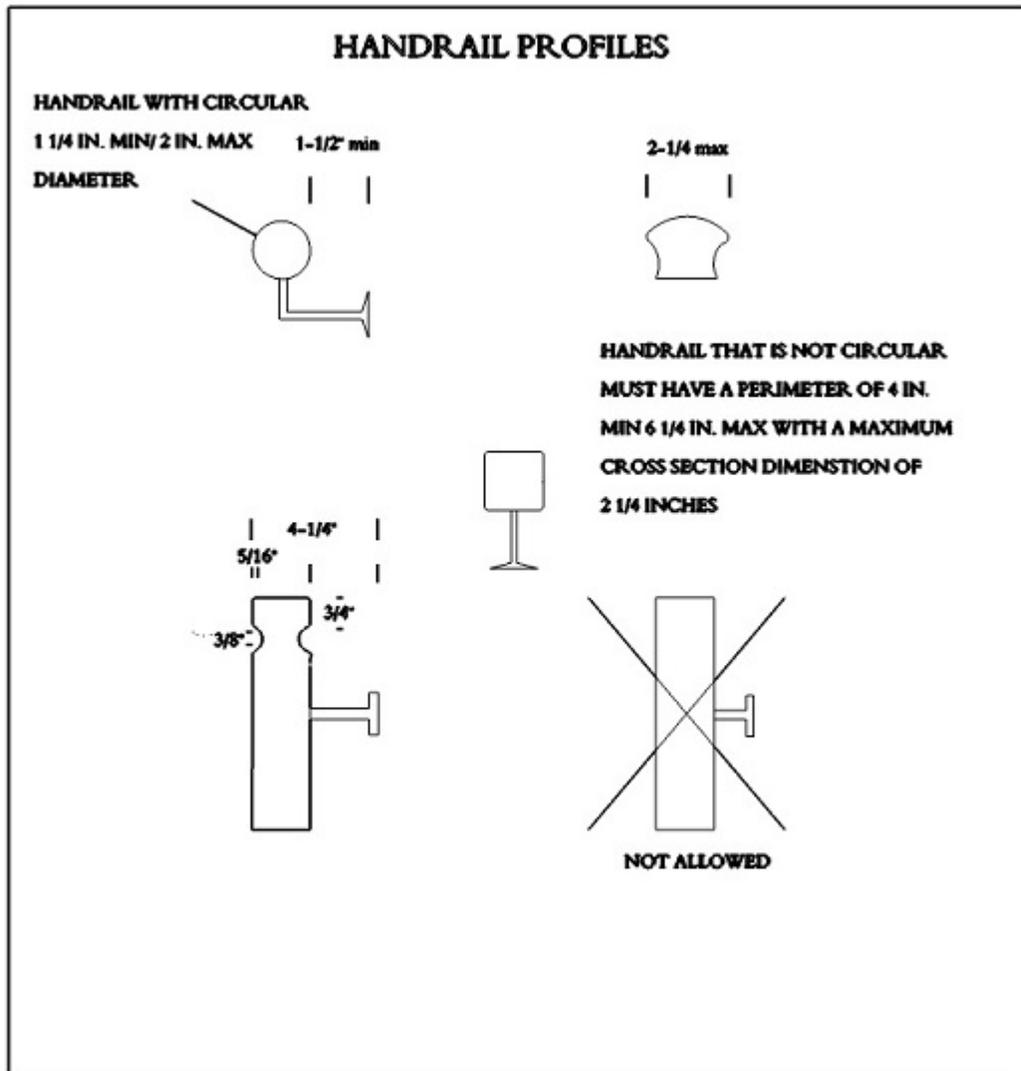
- H. R311.5.6.3 Handrail grip size. All required handrails shall be of one of the following types or provide equivalent graspability.

1. Type I. 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.
2. Type II. Handrails with a perimeter greater than 6 1/4 inches 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 measured vertically from the tallest portion of the profile and achieve a depth of at least 5/16 inch within 7/8 inch below the4 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 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

- I. 312.1 Guards. Porches, balconies, ramps or raised floor surfaces located more than 30 inches above the floor or grade below shall have 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 shall have guards not less than 34 inches in height measured vertically from the nosing of the treads.
- J. R312.2 Guard opening limitations. Required guards on open sides of stairways, raised floor areas, balconies and porches shall have intermediate rails or ornamental closures which do not allow passage of a sphere 4 inches or more in diameter.

Exception 1. The triangular 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 size that a sphere 6 inches cannot pass through.

- K. R312.1 Guards. Exception 2. Openings for required guards on the sides of stair treads shall not allow a sphere 4 3/8 inches to pass through.

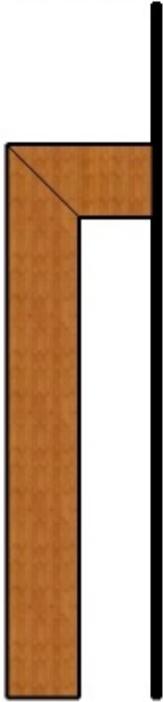


OTHER PROFILES MAY BE ACCEPTABLE, PLEASE CONTACT THE BUILDING DIVISION FOR APPROVAL

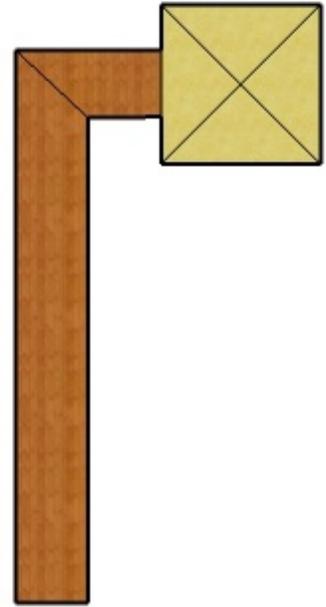
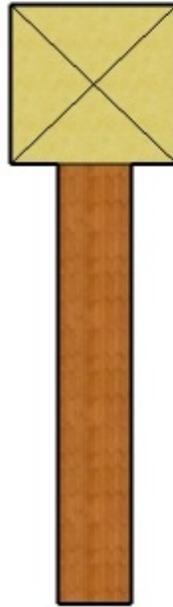
R311.5.6.2 Continuity (Handrail return and termination examples)

Other configurations may work please contact the RBC Building Division for approval

Handrail returned to wall



Handrail returned to post



Post termination