

Stair Safety Guards and Handrails



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A substantial number of home injuries occur at stairways. Proper railing design and construction is especially important for children who can easily slip through large railing openings and for older persons who may have difficulty grasping a wide, poorly shaped hand rail.

The **Wisconsin Uniform Building Code** calls for guards and handrails on stairways.

A guard must be provided on the open side of a stair where it is more than 24 inches above grade. A handrail can serve as a guard. Openings below the top rail must be small enough to prevent the passage of an object more than 4 inches in diameter.

At least one handrail must be provided for the full length of each stair with more than 3 risers. The handrail must be 30 to 38 inches above the nose of the stair. A handrail must be graspable [see the code]; ie, a flat or vertical 2x4 is not acceptable.

Code Requirements

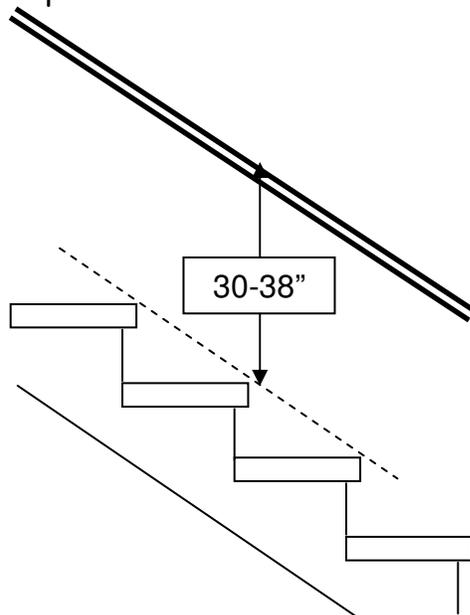
City of Appleton
Public Works-Inspection Division
100 North Appleton Street
Appleton, WI 45911
920-832-6411

HANDRAILS AND GUARDRAILS

(a) General.

1. Stair flights with more than 3 risers shall be provided with at least one handrail for the full length of the stair flight.
2. Handrails or guardrails shall be provided on all open sides of stair flights consisting of more than 3 risers and on all open sides of areas that are elevated more than 24 inches above the floor or exterior grade.
3. Handrails and guardrails shall be constructed to prevent the through passage of a sphere with a diameter of 4 inches or larger.
4. Handrails and guardrails shall be designed and constructed to withstand a 200 pound load applied in any direction.
5. Exterior handrails and guardrails shall be constructed of metal, decay resistant or pressure treated wood, or shall be protected from the weather.

(b) Handrails. 1. Height. Handrails shall be located at least 30 inches, but no more than 38 inches above the nosing of the treads. Measurements shall be taken from the hard structural surface beneath any finish material to the top of the rail. Variations in uniformity are allowed only when a rail contacts a wall or newel post or where a turnout or volute is provided at the bottom steps.



2. Clearance. The clearance between a handrail and the wall surface shall be at least 1 1/2 inches.

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3. Winders. a. Except as provided under subd.3. b., the required handrail on winder steps shall be placed on the side where the treads are wider.

b. Where all winder steps in a flight have a tread depth of at least 9 inches from nosing to nosing measured at a point 12 inches from the narrow end of the tread, the required handrail may be located on either side of the stairway.

4. Projection. Handrails and associated trim may project into the required width of stairs and landings a maximum of 4 1/2 inches on each side.

5. Size and configuration. Handrails shall be symmetrical about the vertical centerline to allow for equal wraparound of the thumb and fingers.

a. Handrails with a round or truncated round cross sectional gripping surface shall have a maximum whole diameter of 2 inches.

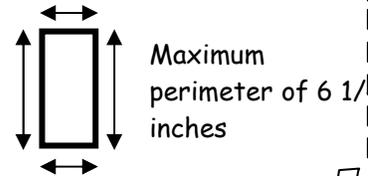
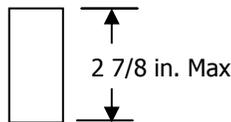


Round



Truncated Round

b. Handrails with a rectangular cross sectional gripping surface shall have a maximum perimeter of 6 1/4 inches with a maximum cross sectional dimension of 2 7/8 inches.



c. Handrails with other cross sections shall have a maximum cross sectional dimension of the gripping surface of 2 7/8 inches with a maximum linear gripping surface measurement of 6 1/4 inches and a minimum linear gripping surface of 4 inches.

6. Continuity. Handrails shall be continuous for the entire length of the stairs except in any one of the following cases:

a. A handrail may be discontinuous at an intermediate landing.

b. A handrail may have newel posts.

c. A handrail may terminate at an intermediate wall provided the lower end of the upper rail is returned to the wall or provided with a flared end, the horizontal offset between the two rails is no more than 12 inches measured from the center of the rails, and both the upper and lower rails can be reached from the same tread without taking a step.

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