



Building Department

Douglas County Building Department

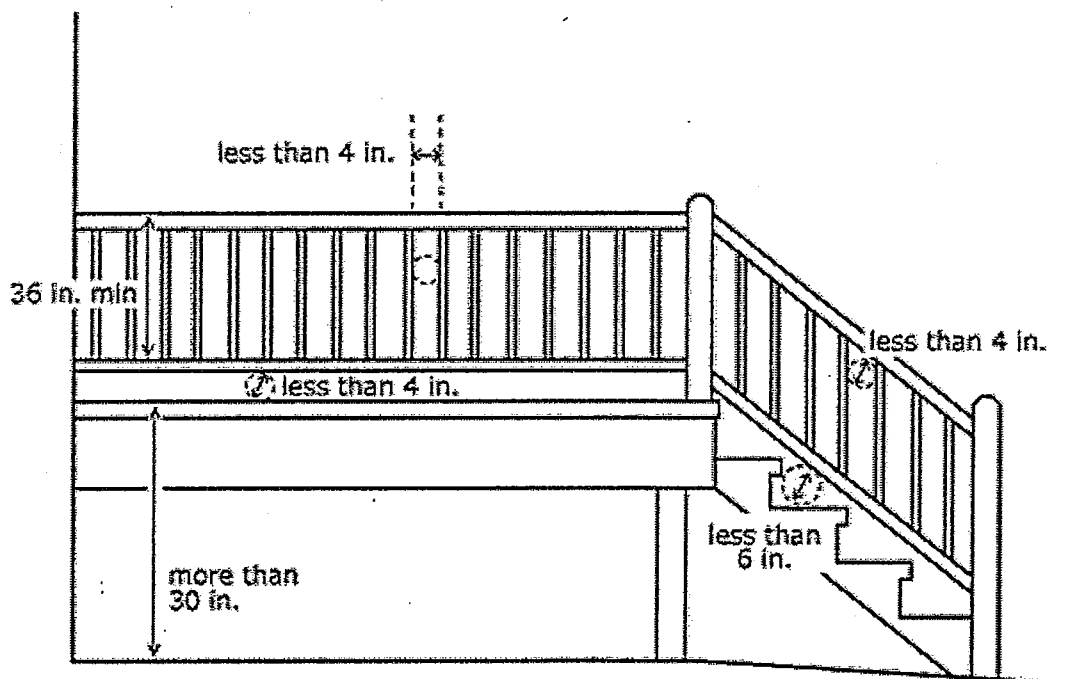
1036 SE Douglas, Room 106

Justice Building - Douglas County Courthouse

Roseburg, Oregon 97470

Inspection Line (541) 440-4284 Business Office (541) 440-4559 Fax (541) 440-4297

STAIRWAYS, HANDRAILS, RAMPS, GUARDRAILS AND LANDINGS



*Structural framing for decks and other similar exposed to the weather shall be of pressure treated or of natural decay resistant wood. Deck covering may be of other material but must be painted or treated.

**Porches, balconies or raised floor surfaces located more than 30" above the floor or grade below shall have guardrails.

SECTION R311.7 STAIRWAYS

R311.7.1 Width. Stairways shall not be less than 36 inches in clear width at all points above the permitted handrail height and below the required headroom height. Handrails shall not project more than 4.5 inches on either side of the stairway and the minimum clear width of the stairway at and below the handrail height, including treads and landings, shall not be less than 31 ½ inches where a handrail is installed on one side and 27 inches where handrails are provided on both sides.

Exceptions:

1. The width of spiral stairways shall be in accordance with Section R311.7.9.1.
2. Where a floor is served by more than one stairway, stairways other than the first stairway may have a clear width of not less than 30 inches. Any handrail may encroach a maximum of 4 ½ inches into the clear width.

R311.7.2 Headroom. The minimum headroom in all parts of the stairway shall not be less than 6 feet 8 inches measured vertically from the sloped line adjoining the tread nosing or from the floor surface of the landing or platform on the portion of the stairway.

Exceptions: Where the nosings of treads at the side of flight extend under the edge of a floor opening through which the stair passes, the floor opening shall be allowed to project horizontally into the required headroom a maximum of 4 ¾ inches.

R311.7.4 Stair treads and risers. Stair treads and risers shall meet the requirements of this section. For the purposes of this section all dimensions and dimensioned surfaces shall be exclusive of carpets, rugs or runners.

R311.7.4.1 Riser height. The maximum riser height shall be 8 inches. The riser shall be measured vertically between leading ledges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch.

R311.7.4.2 Tread depth. The minimum tread depth shall be 9 inches. The tread depth shall be measured horizontally between the vertical planes of the foremost projection of 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. Consistently shaped

winders at the walkline shall be allowed within the same flight of stairs as rectangular treads and do not have to be within 3/8 inch of the rectangular tread depth.

Winder treads shall have a minimum tread depth of 9 inches measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline. Winder treads shall have a minimum tread depth of 6 inches at any point within the clear width of the stair. Within any flight of stairs, the largest winder tread depth at the walkline shall not exceed the smallest winder tread by more than 3/8 inch.

R311.7.4.3 Profile. The radius of curvature at the nosing shall be not greater than 9/16 inch. A nosing not less than ¾ inch but not more than 1¼ inches 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 nosings shall not exceed ½ inch. Risers shall be vertical or sloped under the tread above from the underside of the nosing 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.

Exceptions:

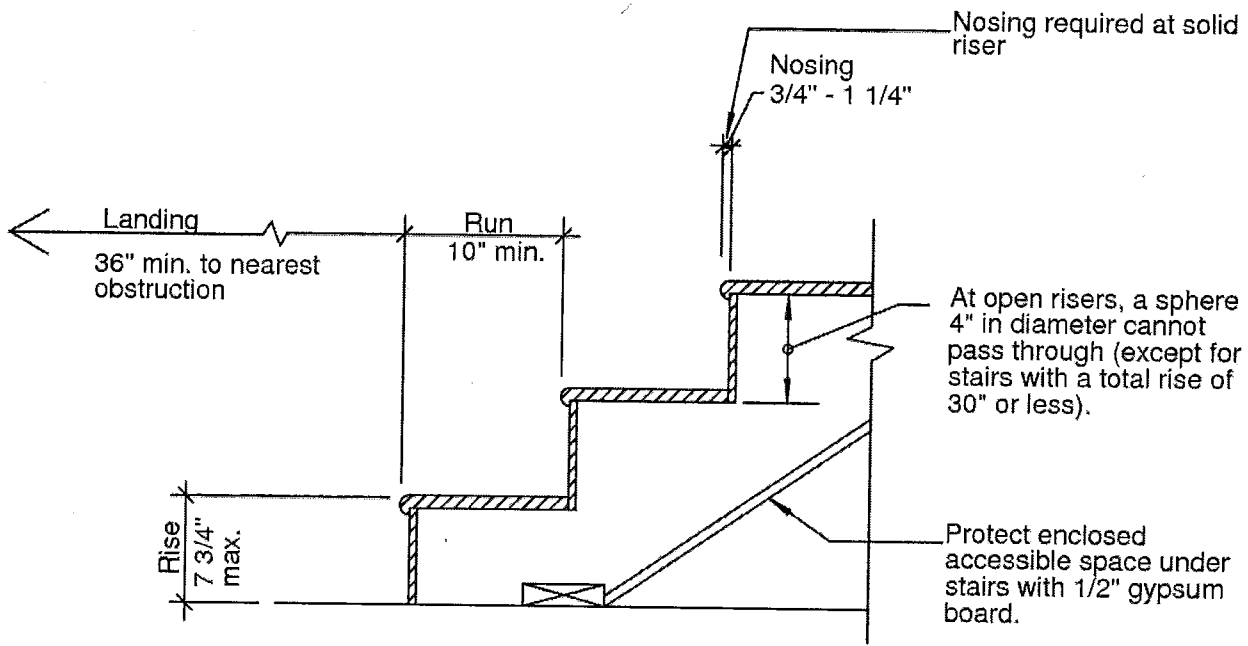
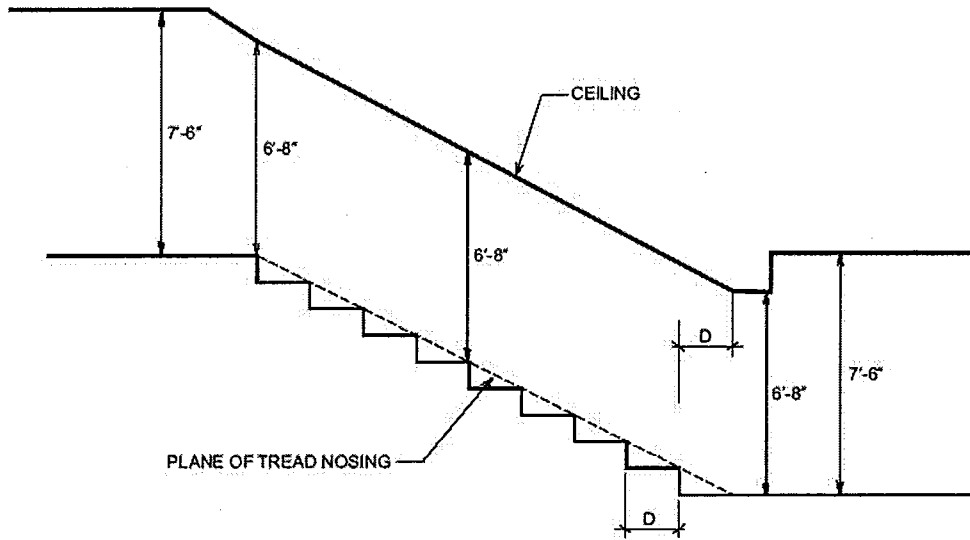
1. A nosing is not required where the tread depth is a minimum of 10 inches.
2. The opening between adjacent treads is not limited on stairs with a total rise of 30 inches.

R311.7.4.4 Exterior wood/plastic composite stair treads. Wood-plastic composite stair treads shall comply with the provisions of Section R317.4.

R311.7.4.5 Steps. The rise of a step or steps shall not be than 4 inches or greater than 8 inches.

R311.7.4.6 Slope. Where the top or bottom riser adjoins a sloping walk, garage floor or driveway, the top or bottom riser may be reduced to less than 4 inches in height with the variation height of the riser not to exceed 3 inches in every 3 feet of walk or stairway width.

R311.7.5 Landings for stairways. There shall be a floor or landing at the top and bottom of each stairway. The minimum width perpendicular to the direction of travel shall be no less than the width of the flight served. Landings of other than square or rectangular shall be permitted provided the depth at the walkline and the total area is not less than that of a quarter circle with a radius equal to the required landing width. Where the stairway has a straight run the minimum depth in the



**Typical Stair Section
R311.7**

direction of travel shall be not less than 36 inches. 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.

Exception: A floor or landing is not required at the top of an interior flight of stairs in an enclosed garage, provided a door does not swing over the stairs.

R311.7.6 Stairway walking surface. The walking surface of treads and landings of stairways shall be sloped no steeper than one unit vertical in 48 inches horizontal (2 percent.)

R311.7.7 Handrails. Handrails shall be provided on at least one side of each continuous run of treads or flight with four or more risers. The continuous handrail required for winders shall be located on the side where the tread is narrower.

R311.7.7.1 Height. Handrail height, measured vertically from the sloped plane adjoining the tread nosing, or finish surface of ramp slope, shall be not less than 30 inches and not more than 38 inches.

Exceptions:

1. The use of a volute, turnout or starting easing shall be allowed over the lowest tread.
2. When handrail fittings or bendings are used to provide continuous transition between flights, the transition from handrail to guardrail, or used at the start of a flight, the handrail height at the fittings or bendings shall be permitted to exceed the maximum height.

R311.7.7.2 Continuity. Handrails for stairways shall be continuous for the full length of the flight, from 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 ½ inches 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.

R311.7.7.3 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 ¼ 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 ¼ inches with a maximum cross section dimension of 2 ¼ inches. Edges shall have a minimum radius of 0.01 inch.
2. Type II. Handrails with a perimeter greater than 6 ¼ inches shall have 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 with 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 ¾ inches below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 1 ¼ inches to a maximum of 2 ¾ inches. Edges shall have a minimum radius of 0.01 inch.

R311.7.7.4 Exterior wood/plastic composite handrails. Wood/plastic composite handrails shall comply with the provisions of Section R317.4.

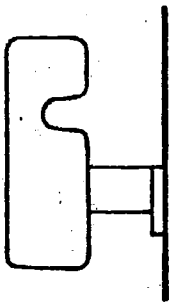
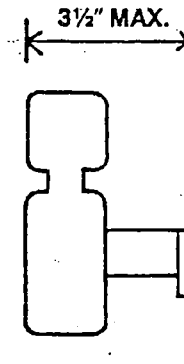
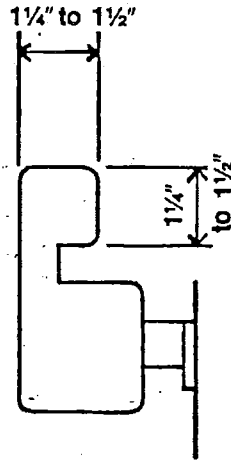
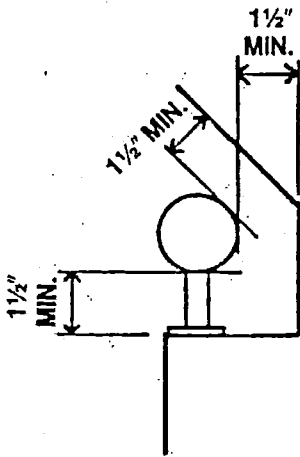
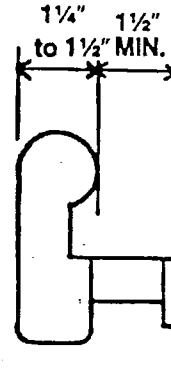
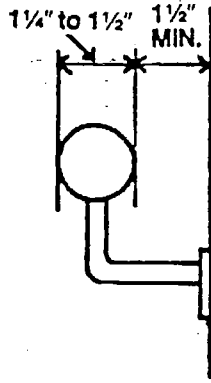
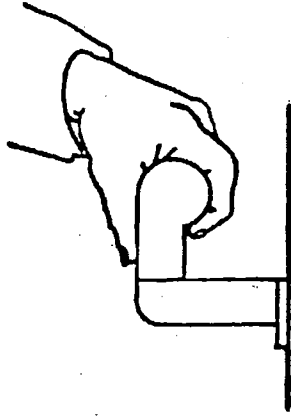
R311.7.8 Illumination. All stairs shall be provided with illumination in accordance with Section R303.06.

R311.7.9 Special stairways. Spiral stairways and bulkhead enclosure stairways shall comply with all requirements of Section R311.7 except as specified below.

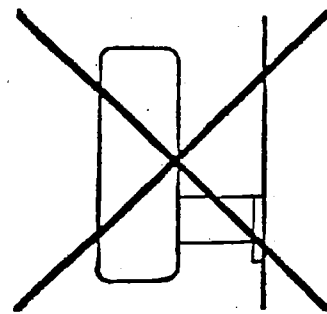
R311.7.9.1 Spiral stairways. Spiral stairways are permitted, provided the minimum clear width at and below the handrail shall be 26 inches with each tread having a 7 ½-inch minimum tread depth at 12 inches from the narrower edge. All treads shall be identical, and the rise shall be not more than 9 ½ inches. A minimum headroom of 6 feet 6 inches shall be provided.

R311.7.9.2 Bulkhead enclosure stairways. Stairways serving bulkhead enclosures, not part of the required building egress, providing access from the outside *grade* level to the *basement* shall be exempt from the requirements of Sections R311.3 and R311.7 where the maximum height from the *basement* finished floor level to *grade* adjacent to the stairway does not exceed 8 feet and the *grade* level opening

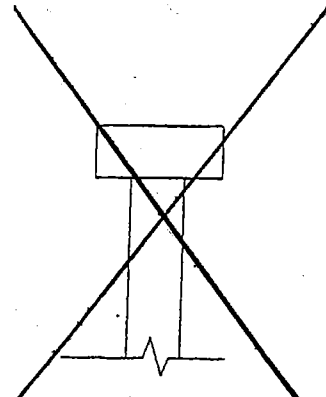
ACCEPTABLE HANDRAIL DETAILS



NOTE:
OTHER SHAPES MAY BE ACCEPTABLE
IF THEY PROVIDE AN
EQUIVALENT GRIPPING SERVICE.



**NOT
ACCEPTABLE**



to the stairway is covered by a bulkhead enclosure with hinged doors or other *approved* means.

R311.8 Ramps.

R311.8.1 Maximum slope. Ramps shall have a maximum slope of 1 unit vertical in 12 units horizontal (8.3 percent slope.)

Exception: Where it is technically infeasible to comply because of site constraints, ramps may have a maximum slope of one unit vertical in eight horizontal (12.5 percent slope.)

R311.8.2 Landings required. A minimum 3-foot-by-3-foot landing shall be provided:

1. At the top and bottom of ramps.
2. Where doors open onto ramps.
3. Where ramps change direction.

R311.8.3 Handrails required. Handrails shall be provided on at least one side of all ramps exceeding a slope of one unit vertical in 12 units horizontal (8.33 percent slope.)

R311.8.3.1 Height. Handrail height, measured above the finished surface of the ramp slope, shall be not less than 30 inches and not more than 38 inches.

R311.8.3.2 Grip size. Handrails on ramps shall comply with Section R311.7.7.3.

R311.8.3.3 Continuity. Handrails where required on ramps shall be continuous for the full length of the ramp. 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 ½ inches between the wall and the handrails.

SECTION R312 GUARDS

R312.1 Where required. *Guards* shall be located along open-sided walking surfaces, including stairs, ramps and landings that are 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. Insect screening shall not be considered as a *guard*.

R312.2 Height. Required *guards* at open-sided walking surfaces, including stairs, paches, balconies or landings, 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 the treads.

Exceptions:

1. *Guards* on the open sides of stairs shall have a height not less than 34 inches measured vertically from a line connecting the leading edges of the treads.
2. Where the top of the *guard* also serves as a handrail on the open sides of the stairs, the top of the *guard* shall not be less than 34 inches and not more than 38 inches measured vertically from a line connecting the leading edges of the tread.

R312.3 Opening limitations. Required *guards* shall not have openings from the walking service to the required *guard* height which allow passage of a sphere 4 inches in diameter.

Exceptions:

1. The triangular openings at the open side of a stair, formed by the riser, tread and bottom rail of a *guard*, shall not allow passage of a sphere 6 inches in diameter.
2. *Guards* on the open sides of stairs shall not have openings which allow passage of a sphere 5 inches in diameter. Opening limitations for required guardrails on open sides of stairways are applicable above the second riser of the stair.

R312.4 Exterior wood/plastic composite guards. Wood/plastic composite *guards* shall comply with the provisions of Section R317.4.