DUBLIN
CALIFORNIA

Community Development Department
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Guards and Handrails (Residential)

Purpose

The 2016 California Residential Code states specific requirements regarding guards and handrails in residential homes to ensure a safe environment. This handout is intended to provide you with the necessary information that will help you build safe and secure guards and handrails in your home.

Guards CRC Section R312

Required

Guards shall be located along open-sided walking surfaces, including ramps, stairs, 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.

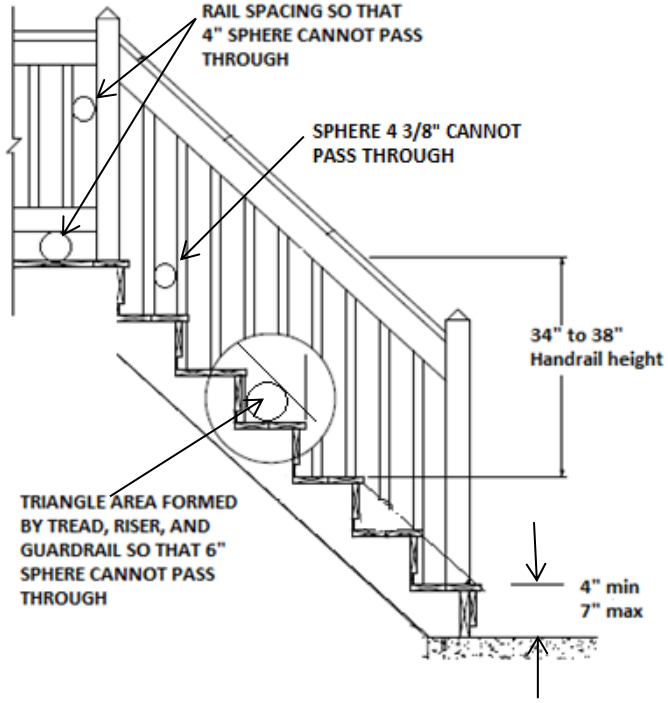
*Note: Insect screening is not considered as a guard.

Height

Required guards at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be not less than 42 inches in height measured vertically above the adjacent walking surface or the line connecting the leading edges of the treads.

Exceptions:

1. Guards on the open sides of the stairs shall have a height of not less than 34 inches measured vertically from a line connection the leading edges of the treads.
2. Where the top of the guard also serves as a handrail on the open sides of 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 treads. (Refer to the figure at the top right)



Opening Limitations

Required guards shall not have openings from the walking surface to the required guard height which allow passage of a sphere 4 inches in diameter. (Refer to the figure above)

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 $4^{3}/_{8}$ inches in diameter.

Handrails CRC Section R311.7.8

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

Height

Measured vertically from the sloped plane adjoining the tread nosing, or finish surface of ramp slope, shall be not less than 34 inches and not more than 38 inches.

Exceptions:

1. The use of volute, turnout or starting easing shall be allowed over the lowest tread.
2. Where handrail fittings or bendings are used to provide continuous transition between flights, transition at winder treads, transition from handrail to guardrail, or used at the start of a flight, handrail height at the fittings or bending shall be permitted to exceed 38 inches.

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 a newel posts of safety terminals. Handrails adjacent to a wall shall have a space of not less than 1½ 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 of starting newel shall be allowed over the lowest tread

Grip Size

All required handrails shall be of one of the following types or provide equivalent graspability:

1. Type I: Handrails with circular cross sections shall have an outside diameter of at least 1¼ inch and not greater than 2 inches. (Refer to Figure 1 below)
2. Type II: Handrails with perimeter greater than 6¼ inches shall have 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 1¾ inches. 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 not less than 0.01 inch.

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Figure 1: Acceptable handrail designs. Other shapes may be acceptable if they provide an equivalent gripping surface.