



## Guardrails & Handrail Requirements

Planning Building & Transportation

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Hours: 8:30-3:00 Mon-Thur

**CODE SECTION:** CRC R308.4.4.1, R311.7.8, R312, CA Historic Building Code 8-504

### Handrails CRC R311.7.8

Handrails shall be provided on not less than 1 side of each flight of stairs with  $\geq 4$  risers.

#### Exempted stairways:

1. Stairways not within or serving a building, porch or deck.
2. Stairways leading to nonhabitable attics.
3. Stairways leading to crawl spaces.

#### Height

Handrail height, measured vertically from the sloped plane adjoining the tread nosing, or finish surface of ramp slope, shall be 34 – 38”.

#### Exceptions:

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

#### Handrail Projection

Handrails shall not project  $> 4 \frac{1}{2}$  on either side of the stairway.

**Exception:** Where nosing of landings, floors or passing flights project into the stairway reducing the clearance at passing handrails, handrails shall project not  $> 6 \frac{1}{2}$ ” into the stairway, provided that the stair width & handrail clearance are not reduced to less than required.

## Handrail Clearance

Handrails adjacent to a wall shall have a space  $\geq 1 \frac{1}{2}$ " between the wall & the handrail.

## Continuity

Handrails 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.

### Exceptions:

1. Handrail continuity shall be permitted to be interrupted by a newel post at a turn in a flight with winders, at a landing, or over the lower tread.
2. A volute, turnout or starting easing shall be allowed to terminate over the lowest tread.

## Grip Size

Required handrails shall be of one of the following types or provide equivalent graspability.

**Type I.** Handrails with a circular cross section shall have an outside diameter of  $1 \frac{1}{4}$  - 2". If the handrail is not circular, it shall have a perimeter of  $4 - 6 \frac{1}{4}$ " & a cross section of  $\leq 2 \frac{1}{4}$ ". Edges shall have a radius  $\geq 0.01$ ".

**Type II.** Handrails with a perimeter  $> 6 \frac{1}{4}$ " shall have a graspable finger recess area on both sides of the profile. The finger recess shall begin within  $\frac{3}{4}$ " measured vertically from the tallest portion of the profile & have a depth  $\geq 5/16$ " within  $7/8$ " below the widest portion of the profile. This required depth shall continue for not  $< 3/8$ " to a level that is not  $< 1 \frac{3}{4}$ " below the tallest portion of the profile. The width of the handrail above the recess shall be  $1 \frac{1}{4}$  -  $2 \frac{3}{4}$ ". Edges shall have a radius  $\geq 0.01$ ".

## Alternating Tread Devices

Handrails shall be provided on both sides of alternating tread devices & shall comply with Sections R311.7.8.2 – R311.7.8.6. Handrails shall be uniform & 30 – 34" in height.

## Ships Ladders

Handrails shall be provided on both sides of ships ladders & shall comply with Sections R311.7.8.2 – R311.7.8.6. Handrails shall be uniform & 30 – 34" in height.

## Guardrails CRC R312

### Where Required

Guards shall be provided for those portions of open-sided walking surfaces, including stairs, ramps & landings that are located > 30" measured vertically to the floor or grade below at any point within 36" horizontally to the edge of the open side.

### Height

Required guards at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be  $\geq 42$ " in height as measured vertically above the adjacent walking surface or the line connecting the nosings.

#### Exceptions:

1. Guards on the open sides of stairs shall have a height  $\geq 34$ " measured vertically from a line connecting the nosings
2. Where the top of the guard serves as a handrail on the open side of stairs, the top of the guard shall be 34 - 38" as measured vertically from a line connecting the nosings.

### Opening Limitations

Required guards shall not have openings from the walking surface to the required guard height that allow passage of a 4" sphere.

#### Exceptions:

1. The triangular openings at the open side of stairs, formed by the riser, tread & bottom rail of the guard, shall not allow passage of a 6" sphere.
2. Guards on the open side of stairs shall not have opening that allow passage of a 4 3/8" sphere.

### Structural Glass Baluster Panels

Guards with structural glass baluster panels shall be installed with an attached top rail or handrail. The top rail or handrail shall be supported by  $\geq 3$  glass baluster panels, or shall be otherwise supported to remain in place should 1 glass baluster panel fail.

**Exception:** An attached top rail or handrail is not required where the glass baluster panels are laminated glass with  $\geq 2$  glass plies of equal thickness and of the same glass type