



General

Any part of an accessible route with a slope greater than 1 unit vertical in 20 units horizontal (5-percent slope), shall be considered a ramp and shall comply with 2016 California Building Code Section 1133B.5.

Note: Ramps are essential for wheelchair users if elevators or lifts are not available to connect different levels. However, some people who use walking aids have difficulty with ramps and prefer stairs.

Slope and Rise

The least possible slope shall be used for any ramp. The maximum slope of a ramp in new construction shall be 1 unit vertical in 12 units horizontal (8.33-percent slope). The maximum rise for any run shall be 30 inches.

Note: Ramp slopes between 1 unit vertical in 16 units horizontal and 1 unit vertical in 20 units horizontal are preferred. The ability to manage an incline is related to both its slope and its length. Wheelchair users with disabilities affecting their arms or with low stamina have serious difficulty using inclines. Most ambulatory people and most people who use wheelchairs can manage a slope of 1 unit vertical in 16 units horizontal. Many people cannot manage a slope of 1 unit vertical in 12 units horizontal for 30 ft.

Width

Ramps shall have a minimum clear width of **48 inches**. Ramps serving entrance to buildings where the ramp is the only exit discharge path and serves an occupant load of 300 or more shall have a minimum clear width of 60 inches. Ramps serving residential occupancies may be **36 inches** clear width when the occupant load is 50 or less.

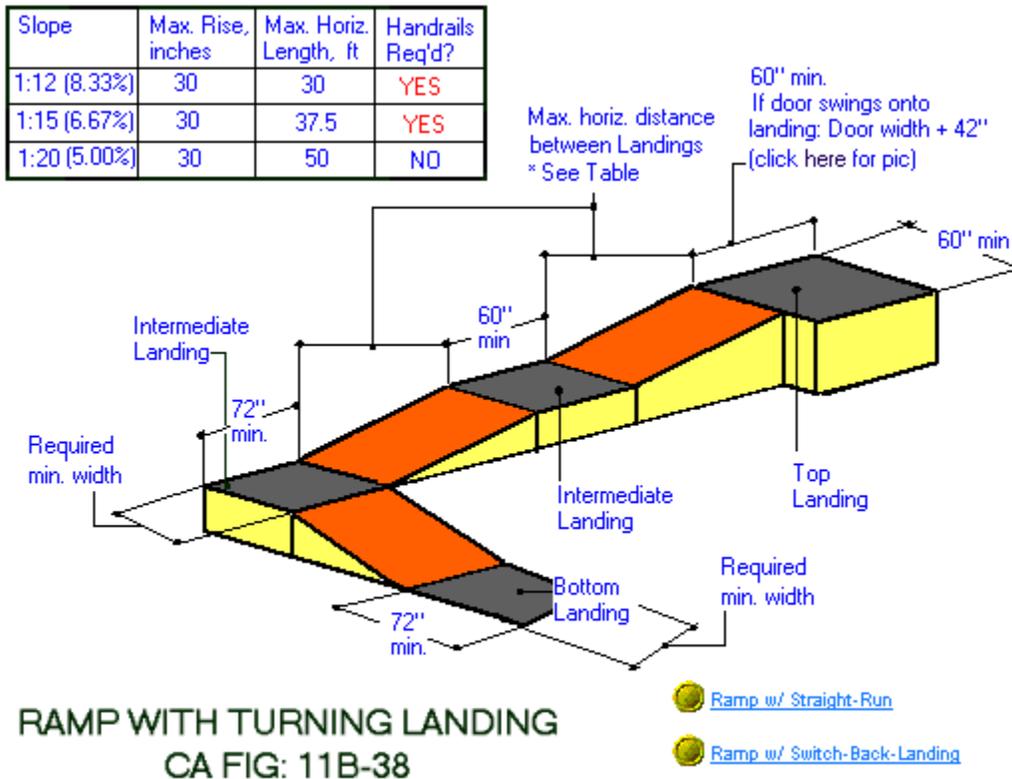
Landings

Ramps shall have level landings at bottom and top of each ramp and each ramp run. Landings shall have the following features:

- Level ramp landing shall be provided at the top and bottom of each ramp. Intermediate landings shall be provided at intervals not exceeding 30 inches of vertical rise and at each change of direction.
- The top landing shall be not less than 60 inches wide and shall have a length of not less than 60 inches in the direction of ramp run. Landings at the bottom ramps shall have a dimension in the direction of ramp run not less than 72 inches. The bottom and intermediate landing width shall be at least the same as required for the ramps
- Intermediate and bottom landings at a change of direction in excess of 30 degrees shall have a dimension in the direction of ramp run of not less than 72 inches to accommodate the handrail extension.
- Doors in any position shall not reduce the minimum dimension of the landing to less than 42 inches and shall not reduce the required width by more than 3 inches when fully open.
- The width of the landing shall extend 24 inches past the strike edge of any door or grate for exterior ramps and 18 inches past the strike edge for interior ramps.



Note: Level landings are essential toward maintaining an aggregate slope that complies with these guidelines. A ramp landing that is not level causes individuals using wheelchairs to tip backward or bottom out when the ramp is approached.



Handrails

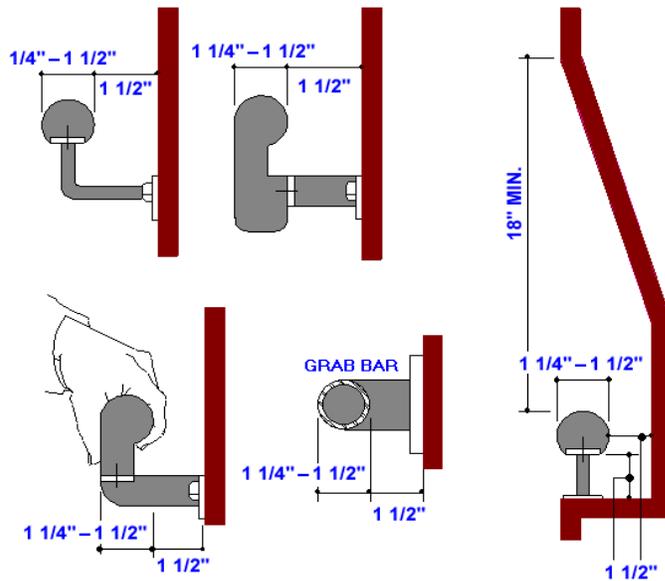
Handrails are required on ramps that provide access if the slope exceeds one unit vertical in 20 units horizontal (5-percent slope), except that at exterior doors landings, handrails are not required on ramps less than 6 inches rise or 72 inches in length. Handrails are not required on curb ramps or at ramps immediately adjacent to fixed seating in assembly areas. Handrails shall comply with Section 1133B.5.5 and shall have the following features:

- Handrails shall be placed on each sides of each ramp, shall be continuous the full length of the ramp, shall be 34 to 38 inches above the ramp surface to the top of the handrails.
- Handrails shall extend a minimum of 1 foot beyond the top and bottom of the ramp and shall be parallel with the floor or ground surface. The inside handrail on switchback or dogleg ramps shall always be continuous.
- Handrails projecting from a wall shall have a space of 1-1/2 inches between the wall and the handrail.
- The ends of handrails shall be either rounded or returned smoothly to floor, wall or posts. The grip portion shall not be less than 1-1/4 inches, nor more than 1-1/2 inches in cross-sectional nominal dimension, or the shape shall provide equivalent gripping surface, and all surfaces shall be smooth with no sharp corners.



- Handrails shall not rotate within their fittings.
- Any wall or other surface adjacent to the handrail shall be free of sharp or abrasive elements.

Note: The requirements for stair and ramp handrails in this guideline are for adults. When children are principal users in a building or facility, a second set of handrails at an appropriate height can assist them and aid in preventing accidents.



Handrails & Grab Bars Shapes & Sizes
 ADA FIG: 39
 CA FIG: 11B-1C & 11B-36



Cross Slope and Surfaces

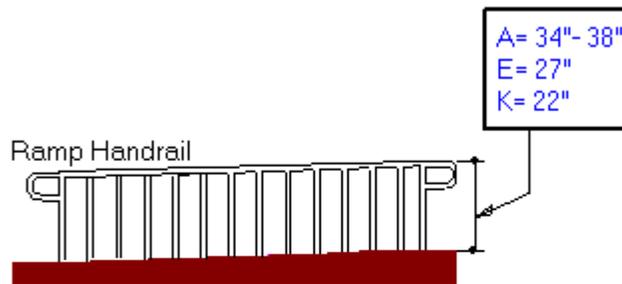
The cross slope of ramp surfaces shall be no greater than 1 unit vertical in 50 units horizontal (2-percent slope). Ramp surfaces shall comply with 4.5.

Wheel Guides

Where the ramps surface is not bounded by a wall, and has a vertical drop exceeding 4 inches, a guide curb a minimum of 2 inches in height shall be provided at each side of the ramp or a wheel guide rail 2 to 4 inches shall be provided, centered 3 inches plus or minus 1 inch, above the surface of each side of the ramp.

Outdoor Ramps

Outdoor ramps and their approaches shall be designed so that water will not accumulate on walking surfaces.



MOUNTING HEIGHTS
REF: CA TABLE 1115B-1

A= Adult (12 yrs & above) dimension
E= Elementary children dimension
K= Kindergarten children dimension