



Stairway, Handrail & Guard Requirements

PURPOSE: To clarify stairway, handrail, and guard requirements

STAIRWAYS:

Commercial and multifamily common use space maximum rise and minimum run are seven and 11 inches. The minimum stairway rise is four inches (CBC 1009).

Within Group R-3 occupancies (single family, townhome and duplex residential construction), individual dwelling units of R-2 occupancies, and Group U occupancies accessory to an R-3, stairway maximum rise and minimum run are 7 $\frac{3}{4}$ and ten inches (CRC R311.7 and CBC 1009.4.2). Note that a nosing of not less than $\frac{3}{4}$ and not greater than 1 $\frac{1}{4}$ inches must be provided on Group R-3 stairways with solid risers where the tread depth is less than 11 inches.

The stair nosing may be beveled or rounded. The maximum bevel and radius of curvature are both $\frac{1}{2}$ inch.

Treads and risers must be consistent in dimension. The largest riser in a flight cannot exceed the smallest by more than $\frac{3}{8}$ inch. The same is true for treads.

Commercial and multifamily stairway risers that are part of an accessible means of egress (CBC 1007) must be closed. Open risers are not permitted.

Group R-3 stairs may be open or closed riser. If closed, risers may be vertical or sloped. If sloped, the maximum angle from vertical is 30°. The leading edge of a tread shall be not greater than 1.25 inches beyond the tread below. The leading edges of treads shall be consistent. The opening created by an open riser shall prohibit the passage of a 4-inch sphere.

HANDRAILS (CBC Section 1009.12 and 1012; CRC R311.7.7):

Handrails are required on ramps and stairways. In commercial and common use areas of multifamily occupancies, handrails are required on both sides of a stairway or ramp and shall extend beyond the top riser by 12 inches and the bottom riser by one tread length plus 12 inches. In R-3 occupancies handrails are required on one side only. They shall extend from the top to the bottom riser. Handrails shall return to a guard, wall, or the walking surface. Handrails shall be installed between 34 and 38 inches vertically above the nose of treads. Handrails are not required on stairways in R-3 occupancies with three or fewer risers.

Handrails shall be Type I or Type II profile or shall provide equivalent graspability as approved by the building official.

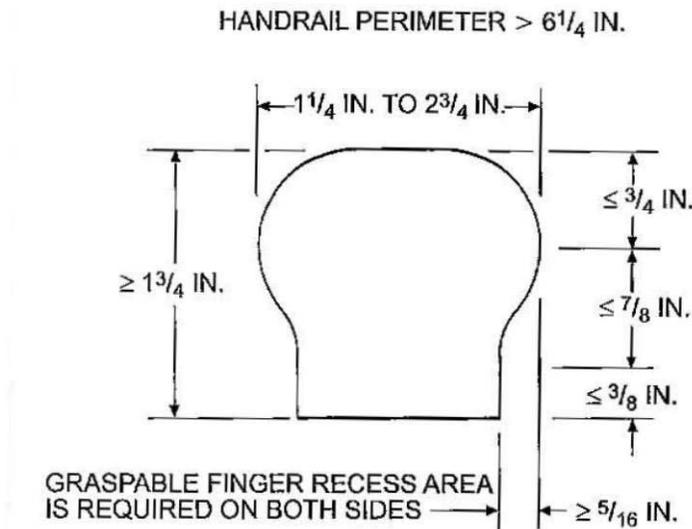
Type I handrails shall be circular between 1 ¼ to 2 inches in diameter, if not circular, shall have a perimeter dimension of four to 6.25 inches with no cross-section dimension greater than 2 ¼ inches.

Type II handrails have a perimeter greater than 6.25 inches. They shall have a graspable finger recess on both sides. The finger recess shall begin within ¾ inch of the top of the profile and achieve a depth of 5/16 inch within 7/8 inch below the widest portion of the profile. The required recess depth shall continue for at least 3/8 inch to a level that is not less than 1 ¾ inch below the tallest portion of the profile. The width of the profile above the recess shall be between 1 ¼ and 2 ¾ inches. If unsure whether a given profile works, bring it in to the Building and Safety Division for evaluation.

GUARDS:

Guards are required on the open sides of walking surfaces, including stairways, ramps and landings that are located more than 30 inches vertically to any point of the floor or grade below within 36 inches horizontally (CBC 1013 and CRC R312.1).

The minimum guard height in all occupancies (including residential) is 42 inches measured vertically above the adjacent walking surface, adjacent fixed seating or the nose of the treads. Guards on the open sides of Group R-3 occupancy stairways need not exceed 34 inches vertically above the nose of treads.



For SI: 1 inch = 25.4 mm.

Figure R311.7.7.3(2)
TYPE II HANDRAIL