



Building Department

Residential Handrails & Guards

Single Family and Duplex

Handrails: Provide a graspable surface along stairs.

Applicable Code: 2021 IRC Section 311.7.8

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

Height: 34" – 38"

Continuity: Handrails shall be continuous for the full length of the stairs and handrails ends shall be returned or terminate in newel posts or safety terminals. Handrails shall have a space of not less than 1 1/2" between a wall and the handrail (See Figure 1).

Size:

- Circular handrails shall have a diameter of 1 1/4" – 2" (See Figure 2)
- Noncircular:
 - No noncircular handrail shall have a perimeter less than 4" (See Figure 3)
 - If the perimeter is 4" – 6 1/4" shall have a maximum cross section of 2 1/4" (See Figure 3)
 - If the perimeter is greater than 6 1/4" shall have a graspable finger recess area on both sides as described in IRC Section 311.7.8.3 #2 (see Figure 4)

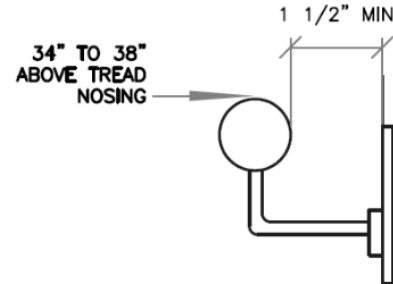


Figure 1. Handrail height

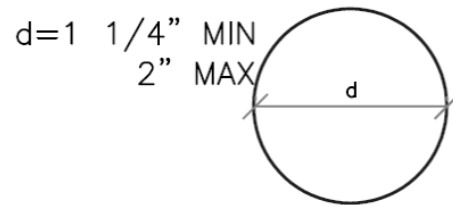


Figure 2. Circular handrail

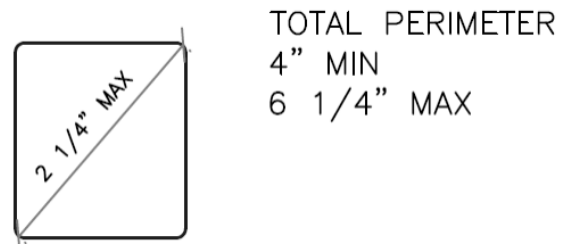


Figure 3. Noncircular handrail

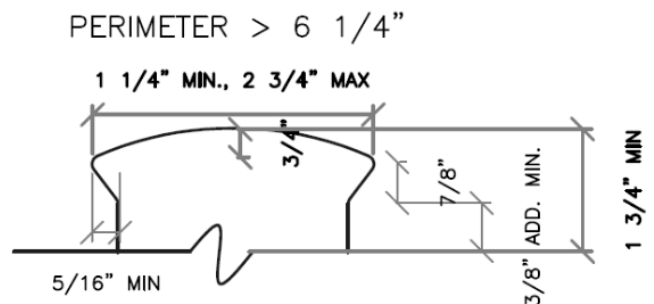


Figure 4. Noncircular handrail, with recess

Guards: Protect people from falling from elevated walking surfaces.

Applicable Code: 2021 IRC Section 312.1.2, 312.1.3

When Required: Along any open-sided walking surface, including stairs, ramps and landings, that are located more than 30" vertically above grade at any point within 36" horizontally to the edge of the open side. If a stair is more than 30" above grade at any point in the stair's flight, a guard is required along the full length of the open side.

Height: 36" minimum above the walking surface or the line connecting the leading edge of treads

Opening limitations:

No openings shall be large enough to allow a 4" diameter sphere to pass through (See Figure 5), with the following exceptions:

- Triangular openings on a stair, between the tread, riser and bottom rail of a guard, shall not allow a 6" diameter sphere to pass through (See Figure 6)
- Other openings on guards located on stairs shall not allow a 4 3/8" sphere to pass through (See Figure 6)

Height: Where the top of the *guard* serves as a *handrail* on the open sides of stairs, the top of the *guard* shall be not less than 34" and not more than 38" as measured vertically from a line connecting the *nosings*.

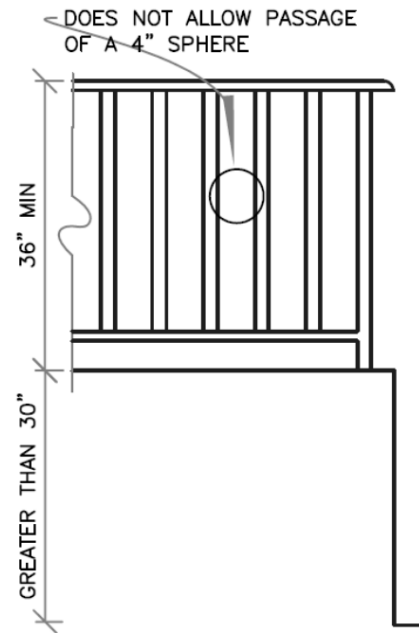


Figure 5. Guard height and opening limitations

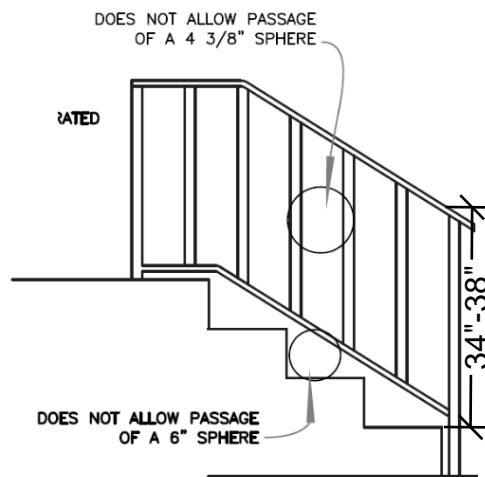


Figure 6. Guard opening limitations on stairs

This handout is for informational purposes only, it is not a substitute for the code. If discrepancies arise, the code shall govern.