



Deck Building

1. R106.1 Drawings Required. Legible drawings with accurate measurements. Materials used for construction.
2. R507.9.1(2) Deck shall be positively attached with lags or bolts and washers. Attachment. R311.5.1. Exterior landings, decks, balconies, stairs, and similar facilities shall be positively anchored to the primary structure and posts to resist both vertical and lateral forces or shall be designed to be self-supporting. Attachment shall not be accomplished by use of toenails or nails subjects to withdrawal.
3. R507.3 Deck Posts 4x4 maximum height. 6'-9", 4x6 maximum height 8, 6x6 maximum height 14', 8x8 maximum height 14'.
4. R507.6 Deck Joists The maximum joist spacing shall be limited by the decking materials.
5. R507 Joist Hangers Required. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal.
6. R507.3 Footings. Decks supported by a dwelling shall be provided with footings that extend below the frost line 42".

Exceptions:

- i. R507.3.2 Free standing decks consisting of joists directly supported on grade over their entire length. And under 200 square feet (Decks not supported by a dwelling need not be provided with footings that extend below the frost line. R403.1.4.1).
7. R312.1.1 & R312.1.3 Guards shall be located along open-sided walking surfaces, including stairs, ramps, and landings, that are located more than 30 inches in height. 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.

Exceptions:

- i. The triangular openings at the open side of stair, formed by the riser shall not allow passage of a 6-inch sphere.

- ii. Guards on the open side of stairs shall not have openings with allow passage of a sphere 4 3/8 inch. See illustration R312.
- 8. R311 Stair rise max 8.25", 9" min run for stair tread. See-illustration R311.
- 9. R311.7.1 Stairways shall not be less than 36" in clear width.
- 10. R311.7.8 Handrails Required. Handrails shall be provided on not less than one side of each flight of stairs with four or more risers. Handrail height, measured vertically from the sloped plane adjoining the tread nosing, or finish surface of ramp slope, shall be not less than 34" and not more than 38".
- 11. R311.7.8.2 Continuity. Handrails shall be continuous for the full length of the flight. Handrail ends shall be returned or shall terminate in newel post of safety terminals. See grip size R311.7.8.3.
- 12. R311.7.6. Landings for Stairways. There shall be a floor or landing at the top and bottom of each stairway. The width perpendicular to the direction of travel shall not be less than the width of the flight served where the stairway has a straight run, the depth in the direction of travel shall be not less than 36".
- 13. Awnings or roofs require additional information and code compliance.

Topic: Stair Treads and Risers

Reference: IRC R311.7.5.1, R311.7.5.2

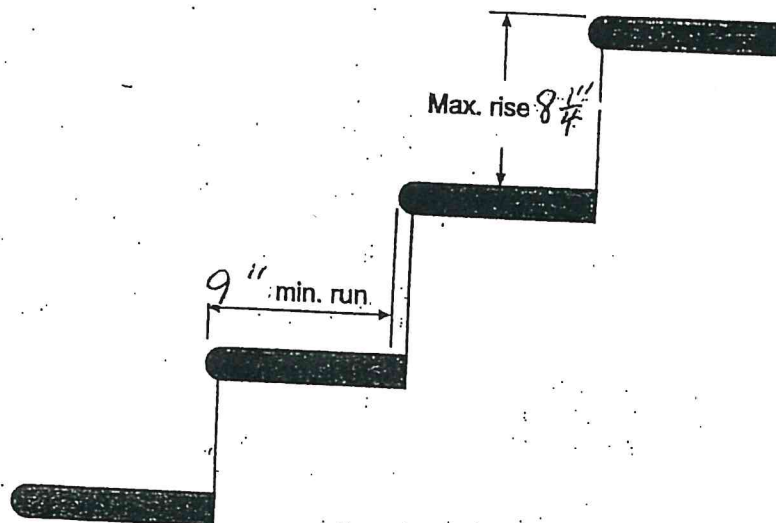
Category: Building Planning

Subject: Means of Egress

See State Amendment

Code Text: The maximum riser height shall be $8\frac{1}{4}$ inches (196 mm). The greatest riser height within any flight of stairs shall not exceed the smallest by more than $\frac{3}{8}$ inch (9.5 mm). Open risers are permitted provided that the opening between treads does not permit the passage of a 4-inch diameter (102 mm) sphere. See exception for stairs with a maximum rise of 30 inches. The minimum tread depth shall be 10 inches (254 mm). The greatest tread depth within any flight of stairs shall not exceed the smallest by more than $\frac{3}{8}$ inch (9.5 mm).

Discussion and Commentary: Although the rise and run configuration is important in regulating stairway safety, another significant safety factor relative to stairways is the uniformity of risers and treads in any flight (the section of a stairway leading from one landing to the next). It is important that any variation that would interfere with the rhythm of the stair user be avoided. Special allowances are provided for winder treads.



For SI: 1 inch = 25.4 mm.

R311

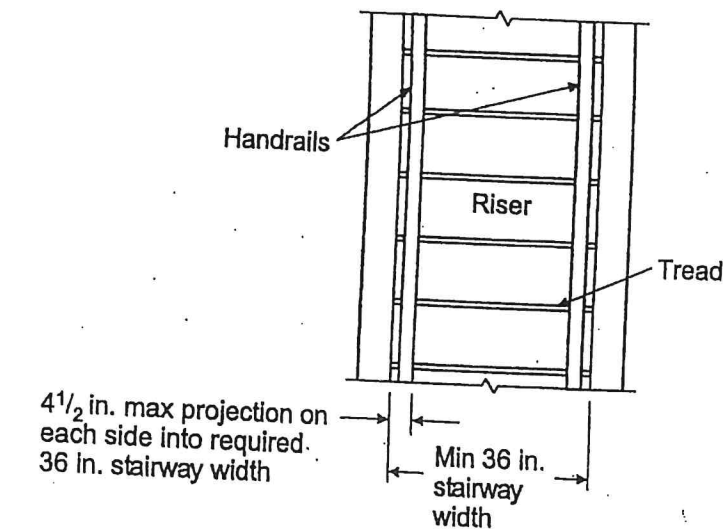
The tolerance permitted for risers and treads is not to be used as a design variation but is a recognition that construction practices make it difficult to get identical riser heights and tread dimensions in field construction or where changes occur in stair and floor coverings.

Topic: Stairway Width and Headroom
Reference: IRC R311.7.1 – R311.7.3

Category: Building Planning
Subject: Means of Egress

Code Text: Stairways shall not be less than 36 inches (914 mm) in clear width at all points above the permitted handrail height and below the required headroom height. Handrails shall not project more than 4½ inches (114 mm) on either side of the stairway and the minimum clear width of the stairway at and below the handrail height, including treads and landings, shall not be less than 31½ inches (787 mm) where a handrail is installed on one side and 27 inches (698 mm) where handrails are provided on both sides. See exception for the minimum width of spiral stairways. The minimum headroom in all parts of the stairway shall not be less than 6 feet 8 inches (2032 mm). A flight of stairs shall not have a vertical rise larger than 12 feet (3658 mm) between floor levels or landings.

Discussion and Commentary: Although a minimum width of 36 inches is required for stairways, the code is not as concerned about elements such as trim, stringers or other items that may be found below the level of the handrail, as long as they do not exceed the projection of the handrail(s). The width limitations are based on the body's movements as a person walks on a stairway.



Other projections of 4½ in. or less permitted below handrail height

For SI: 1 inch = 25.4 mm

R311

Typically, when a building code mandates a minimum width, it is expected that the width be the clear, net, usable, unobstructed width. In this case, however, limited projections into the minimum width are acceptable where located at or below the height of the handrail.

Topic: Location and Height

Reference: IRC R312.1.1, R312.1.2

Category: Building Planning

Subject: Guards

Code Text: Guards shall be located along open-sided walking surfaces, including stairs, ramps and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side. Required guards shall be not less than 36 inches (914 mm) high measured vertically above the adjacent walking surface, adjacent fixed seating or the line connecting the leading edges of the treads. See exceptions for guards at the open sides of stairs.

Discussion and Commentary: Some form of protection is necessary at elevated floor areas with a vertical drop of more than 30 inches, as a fall from that height can potentially result in injury. Where required, the guard must be of an adequate height to prevent someone from falling over the edge of the protected area. Where fixed seating is installed adjacent to an elevation change of more than 30 inches, the guard must be extended at least 36 inches above the level of the seating.

