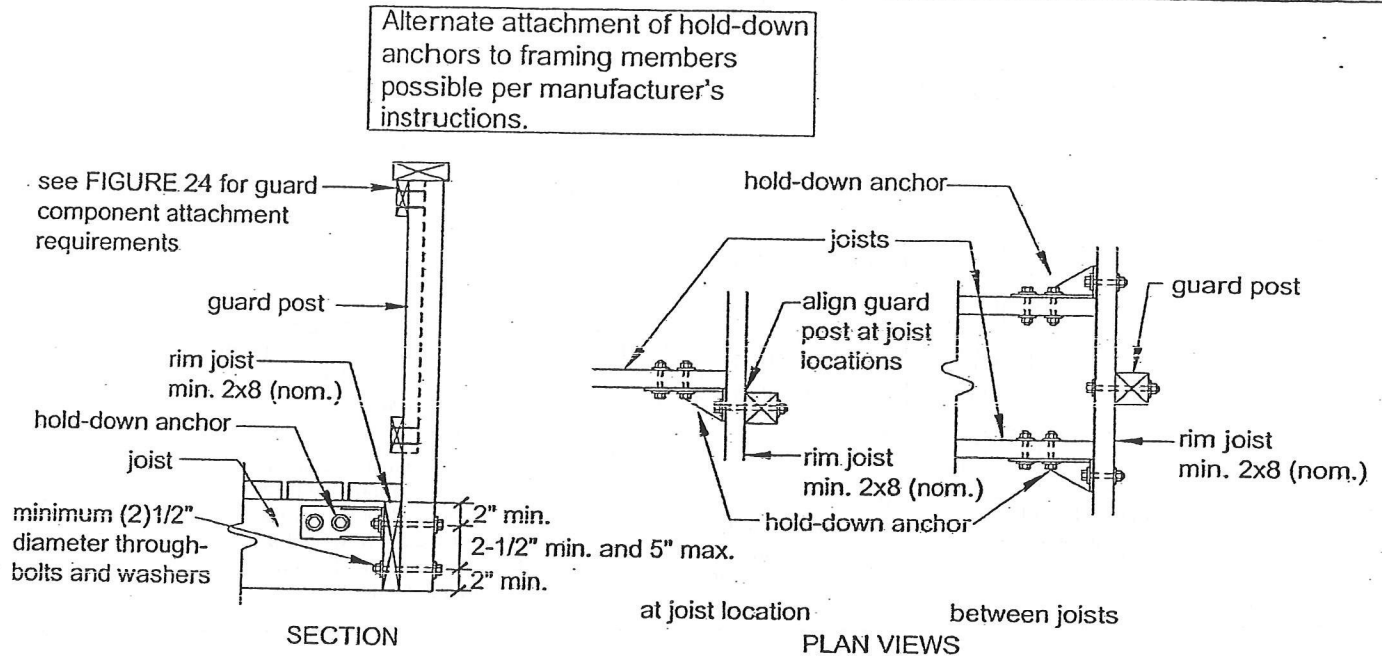


Figure 26. Guard Post to Rim Joist Example.



STAIR REQUIREMENTS

Stairs, stair stringers, and stair guards shall meet the requirements shown in Figure 27 through Figure 34 and Table 6 except where amended by the local jurisdiction. All stringers shall be a minimum of 2x12. Stair stringers shall not span more than the dimensions shown in Figure 28. If the stringer span exceeds these dimensions, then a 4x4 post may be provided to support the stringer and shorten its span length. The 4x4 post shall be notched and bolted to the stringer with (2) 1/2" diameter through-bolts with washers per Figure 8A. The post shall be centered on a 12" diameter or 10" square, 6" thick footing. The footing shall be constructed as shown in Figure 34 and attached to the post as shown in Figure 12. An intermediate landing may also be provided to shorten the stringer span (see provisions below). If the total vertical height of a stairway exceeds 12'-0", then an intermediate landing shall be required. All intermediate stair landings must be designed and constructed as a non-ledger deck using the details in this document. Stairs shall be a minimum of 36" in width as shown in Figure 33 [R311.7]. If only cut stringers are used, a minimum of three are required. For stairs greater than 36" in width, a combination of cut and solid stringers can be used, but shall be placed at a maximum spacing of 18" on center (see Figure 29). The width of each landing shall not be less than the width of the stairway served. Every rectangular landing shall have a minimum dimension of 36" measured in the direction of travel and no less than the width of the stairway served [R311.7].

Figure 27. Tread and Riser Detail.

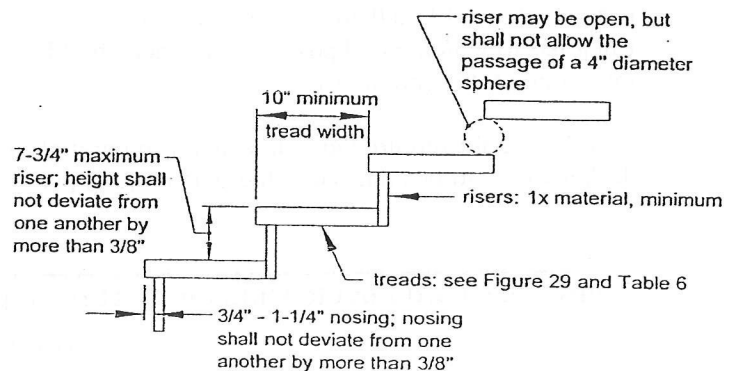


Figure 28. Stair Stringer Requirements.

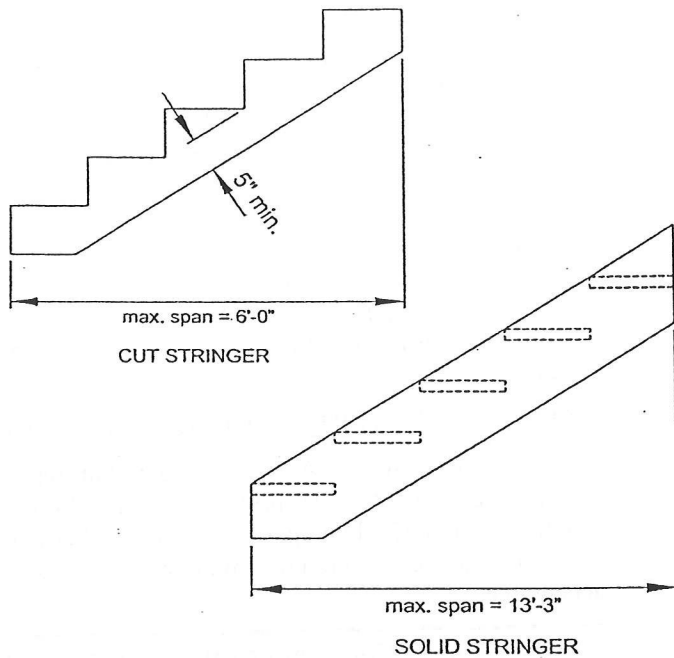


Figure 29. Tread Connection Requirements.

Attachment per tread at each stringer or ledger:
 2x_ or 5/4 treads - (2)8d threaded nails or (2)#8 screws $\geq 2\text{-}1/2\text{'}$ long
 3x_ treads - (2)16d threaded nails or (2)#8 screws $\geq 3\text{-}1/2\text{'}$ long

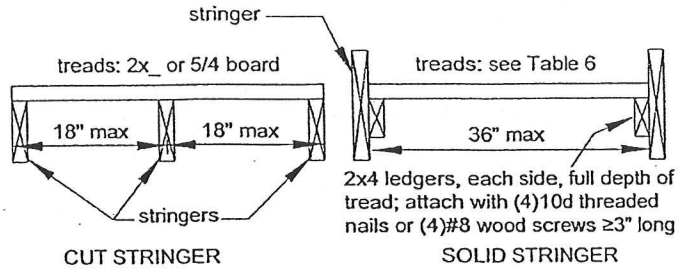


Figure 30. Stair Guard Requirements.

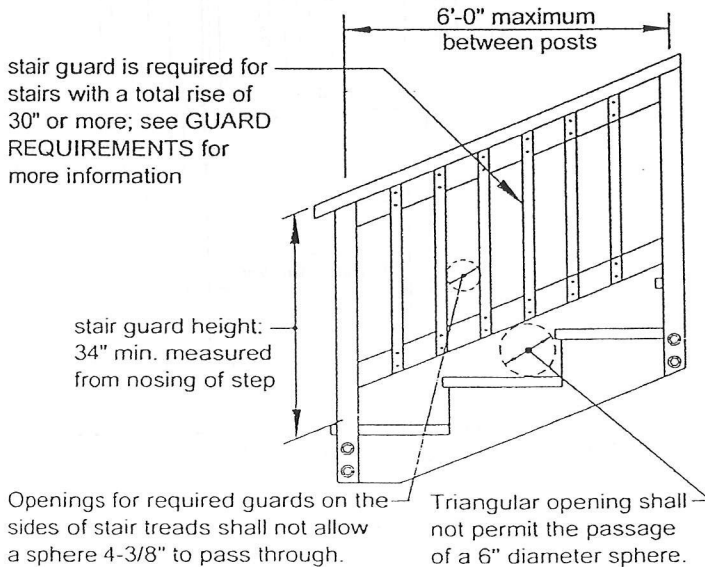


Figure 31. Stair Stringer Attachment Detail.

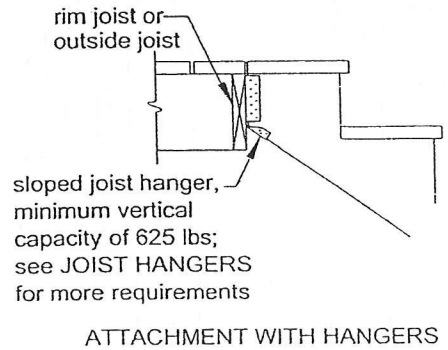


Table 6. Minimum Tread Size for Cut and Solid Stringers.¹

Species	Cut Stringer	Solid Stringer
Southern Pine	2x4 or 5/4	2x8
Douglas Fir Larch, Hem-Fir, SPF ²	2x4 or 5/4	2x8 or 3x4
Redwood, Western Cedars, Ponderosa Pine, ³ Red Pine ³	2x4 or 5/4	2x10 or 3x4

1. Assumes 300 lb concentrated load, L/288 deflection limit, No. 2 stress grade, and wet service conditions.

2. Incising assumed for Douglas fir-larch, hem-fir, and spruce-pine-fir.

3. Design values based on northern species with no incising assumed.

STAIR HANDRAIL REQUIREMENTS

All stairs with 4 or more risers shall have a handrail on at least one side (see Figure 32A) [R311.7.8]. The handrail height measured vertically from the sloped plane adjoining the tread nosing shall be not less than 34 inches and not more than 38 inches (see Figure 30) [R311.7.8.1]. Handrails shall be graspable and shall be composed of decay-resistant and/or corrosion resistant material. Handrails shall be Type I, Type II, or provide equivalent graspability (see Figure 32B). Type I shall have a perimeter dimension of at least 4" and not greater than 6-1/4". Type II rails with a perimeter greater than 6-1/4" shall provide a graspable finger recess area on both sides of the profile [R311.7.8.3]. All shapes shall have a smooth surface with no sharp corners. Handrails shall run continuously from a point directly over the lowest riser to a point directly over the highest riser and shall return to the guard at each end (see Figure 33). Handrails may be interrupted by guard posts at a turn in the stair [R311.7.8.2].

STAIR FOOTING REQUIREMENTS [R403]

Where the stairway meets grade, attach the stringers to the stair guard posts as shown in Figure 34. Posts shall bear on footings. All footings shall bear on solid ground and shall be placed at least 12 inches below the undisturbed ground surface or below the frost line, whichever is deeper (see Figure 34). Stringers shall bear on a 2x4 bearing block attached to the post as shown. Stringers shall not bear on new or existing concrete pads or patios that are not founded below this depth. When guards are not required (see **GUARD REQUIREMENTS**), posts may terminate below the bottom tread elevation. Bolts are only required if a guard post is required.

STAIR LIGHTING REQUIREMENTS [R303.7]

Stairways shall have a light source located at the top landing such that all stairs and landings are illuminated. The light switch shall be operated from inside the house. However, motion detected or timed switches are acceptable.

Figure 32A. Handrail Mounting Examples.

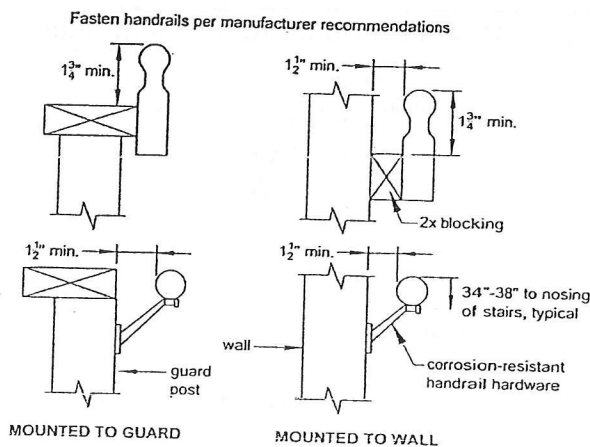


Figure 33. Miscellaneous Stair Requirements.

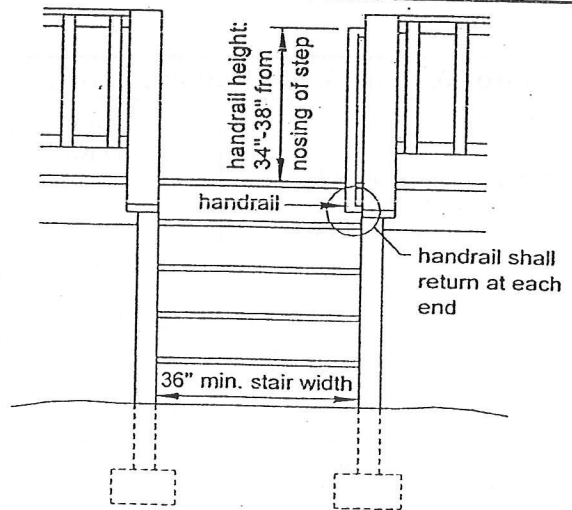


Figure 32B. Handrail Grip Size.

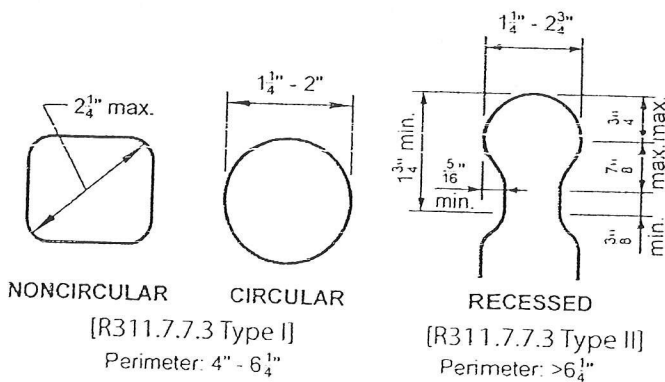
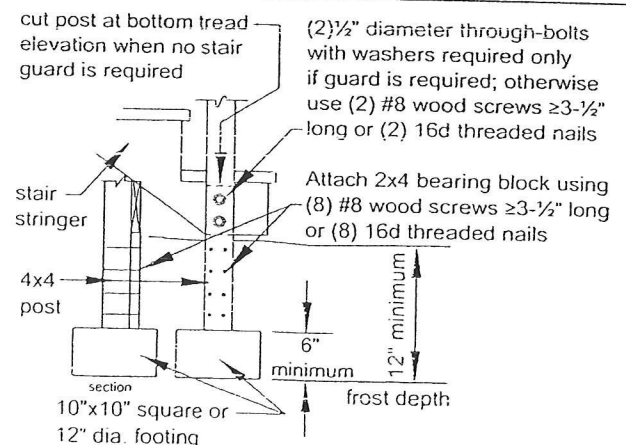


Figure 34. Stair Footing Detail.



FRAMING AT CHIMNEY OR BAY WINDOW

All members at a chimney or bay window shall be framed in accordance with Figure 35. Headers may span a maximum of 6'-0". When a chimney or bay window is wider than 6'-0", one or more 6x6 posts may be added to reduce header spans to less than 6'-0". In such cases, the post footing must meet the requirements in the FOOTINGS section. Headers shall be located no more than 3'-0" from the end of the trimmer joist.

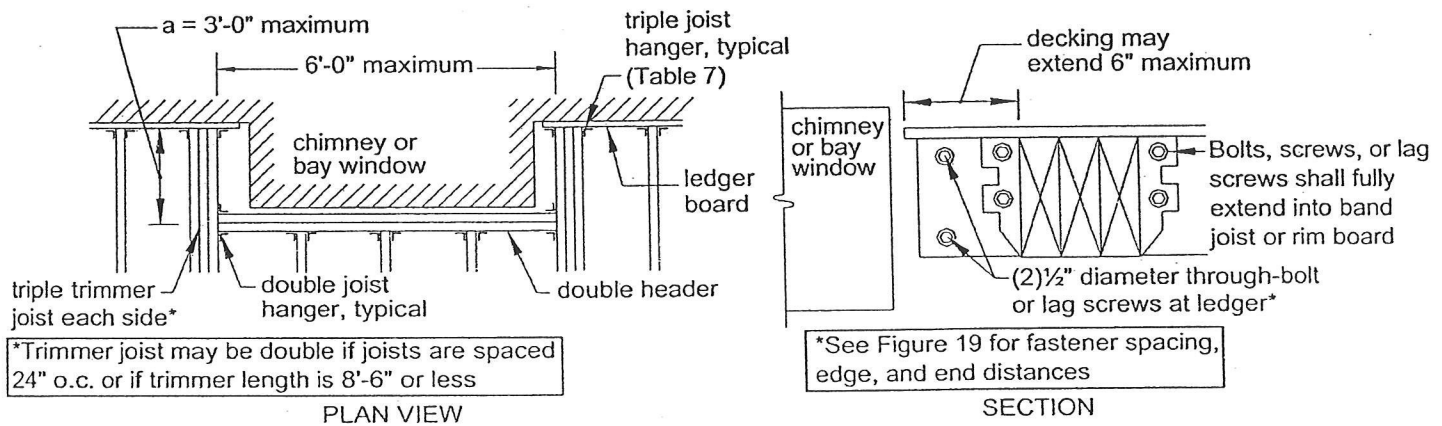
Triple trimmer joists are required on each side of the header if joist spacing is 12" or 16" o.c. or if the trimmer joist span exceeds 8'-6"; otherwise, double trimmer joists are permitted. Trimmer joists may bear on the beam and extend past the beam centerline up to the lesser of L_0 or $L/4$ as shown in Figures 1A and 2, or the trimmer joist may attach to the side of the beam with joist hangers as

shown in Figure 1B. Joist hangers shall each have a minimum vertical capacity in accordance with Table 7. Bolts, screws, or lag screws used to attach the hanger to the ledger shall fully extend through the ledger into the 2-inch nominal lumber band joist (1-1/2" actual) or EWP rim joist. Otherwise a non-ledger deck is required.

Table 7. Trimmer Joist Hanger Vertical Capacity.

Joist Size	Minimum Capacity, lbs
2x6	870
2x8	1155
2x10	1420
2x12	1575

Figure 35. Detail for Framing Around a Chimney or Bay Window.



*Trimmer joist may be double if joists are spaced 24" o.c. or if trimmer length is 8'-6" or less

*See Figure 19 for fastener spacing, edge, and end distances



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