

DECK SPECIFICATIONS

FOOTINGS [R403]

See Figure 12 and Table 4 for footing size, footing thickness, and post attachment options and requirements. All footings shall bear on solid ground and shall be placed at least 42 inches below the undisturbed ground surface or below the frost line, whichever is deeper; bearing conditions shall be verified in the field by the building official prior to placement of concrete. Where the building official determines that in-place soils with an allowable bearing capacity of less than 1,500 psf are likely to be present at the site, the allowable bearing capacity shall be determined by a soils investigation. DECK FOOTINGS CLOSER THAN 5'-0" TO AN EXISTING EXTERIOR HOUSE WALL MUST BEAR AT THE SAME ELEVATION AS THE FOOTING OF THE EXISTING HOUSE FOUNDATION.

Do not construct footings over utility lines or enclosed meters. Call the local utilities before digging.

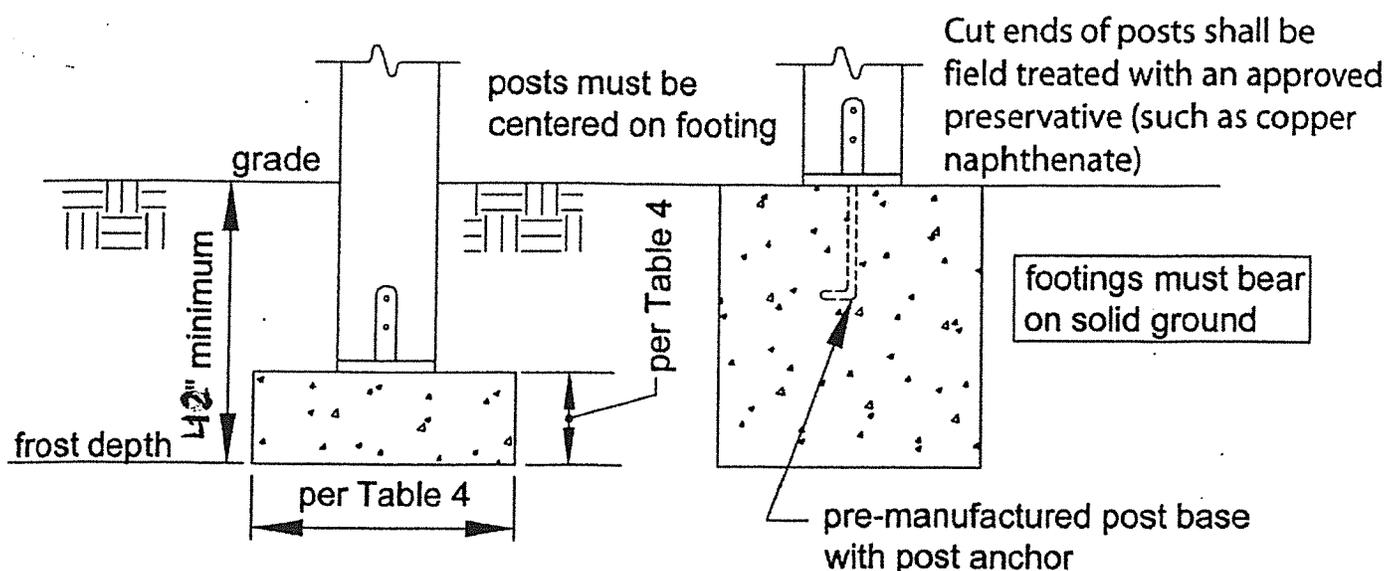
Pre-manufactured post anchors shall be galvanized. See MINIMUM REQUIREMENTS.

Table 4. Footing Sizes²

Beam Span, L _B	Joist Span, L _J	Round ¹ Footing Diameter	Footing Thickness ³
6'	<10'	15"	6"
	<14'	17"	6"
	<18'	20"	7"
8'	<10'	17"	6"
	<14'	20"	8"
	<18'	23"	9"
10'	<10'	19"	7"
	<14'	22"	9"
	<18'	25"	10"
12'	<10'	21"	8"
	<14'	24"	10"
	<18'	28"	11"
14'	<10'	22"	9"
	<14'	26"	11"
	<18'	30"	12"
16'	<10'	24"	9"
	<14'	28"	12"
	<18'	32"	13"
18'	<10'	25"	10"
	<14'	30"	12"
	<18'	34"	14"

1. Square footings are permitted to have widths 2" less than the given diameter of round footings.
2. Assumes 1,500 psf soil bearing capacity.
3. Assumes 2,500 psi compressive strength of concrete. Coordinate footing thickness with post base and anchor requirements.

Figure 12: Typical Footing Options



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DECKING REQUIREMENTS

All decking material shall be composed of dimension lumber (2" nominal thickness) or span rated decking in accordance with the American Lumber Standard Committee *Policy for Evaluation of Recommended Spans for Span Rated Decking Products (November 5, 2004)*. Attach decking to each joist with 2-8d threaded nails or 2-#8 screws. Space decking boards approximately $\frac{1}{8}$ " apart. See Figure 11 for decking connection requirements at the rim joist. Decking may be placed from an angle perpendicular to the joists to an angle of 45 degrees to the joists. Each segment of decking must bear on a minimum of 4 joists.

Decking not meeting the above requirements may be substituted when the product has been approved by the authority having jurisdiction.

JOIST SIZE

The span of a joist is measured from the centerline of bearing at one end of the joist to the centerline of bearing at the other end of the joist and does not include the length of the overhangs. Use Table 2 to determine joist span based on lumber size and joist spacing. See Figure 1 and Figure 2 for joist span types.

Table 2. Maximum Joist Spans (L_J)¹

Species	Size	Joist Spacing (o.c.)		
		12"	16"	24"
Southern Pine	2x8	10' - 6"	10' - 6"	10' - 2"
	2x10	15' - 2"	15' - 2"	13' - 1"
	2x12	18' - 0"	18' - 0"	15' - 5"

1. Assumes 40 psf live load, 10 psf dead load, L/180 cantilever deflection with 230 lb point load, No. 2 grade, and wet service conditions. See span calculator at www.awc.org for simple span conditions without cantilevers.

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

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

BEAM SIZE & ASSEMBLY REQUIREMENTS

Deck beam spans shall be in accordance with Table 3 and can extend past the post centerline up to $L_B/4$ as shown in Figure 3. Joists may bear on the beam and extend past the beam centerline up to $L_J/4$ as shown in Figures 1A and 2, or the joists may attach to the side of the beam with joist hangers as shown in Figure 1B

(however, joists shall not be attached to opposite sides of the same beam). See JOIST-TO-BEAM CONNECTION details, Figure 6.

Where multiple 2x members are used, the deck's beam is assembled by attaching the members identified in Table 3 in accordance with Figure 4. [R602.3(1)]

Table 3. Deck Beam Spans (L_B)¹

Species	Size	Joist Spans (L_J) Less Than or Equal to:						
		6'	8'	10'	12'	14'	16'	18'
Southern Pine	2-2x6	7' - 1"	6' - 2"	5' - 6"	5' - 0"	4' - 8"	4' - 4"	4' - 1"
	2-2x8	9' - 2"	7' - 11"	7' - 1"	6' - 6"	6' - 0"	5' - 7"	5' - 3"
	2-2x10	11' - 10"	10' - 3"	9' - 2"	8' - 5"	7' - 9"	7' - 3"	6' - 10"
	2-2x12	13' - 11"	12' - 0"	10' - 9"	9' - 10"	9' - 1"	8' - 6"	8' - 0"
	3-2x6	8' - 7"	7' - 8"	6' - 11"	6' - 3"	5' - 10"	5' - 5"	5' - 2"
	3-2x8	11' - 4"	9' - 11"	8' - 11"	8' - 1"	7' - 6"	7' - 0"	6' - 7"
	3-2x10	14' - 5"	12' - 10"	11' - 6"	10' - 6"	9' - 9"	9' - 1"	8' - 7"
	3-2x12	17' - 5"	15' - 1"	13' - 6"	12' - 4"	11' - 5"	10' - 8"	10' - 1"

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Figure 3: Beam Span Types

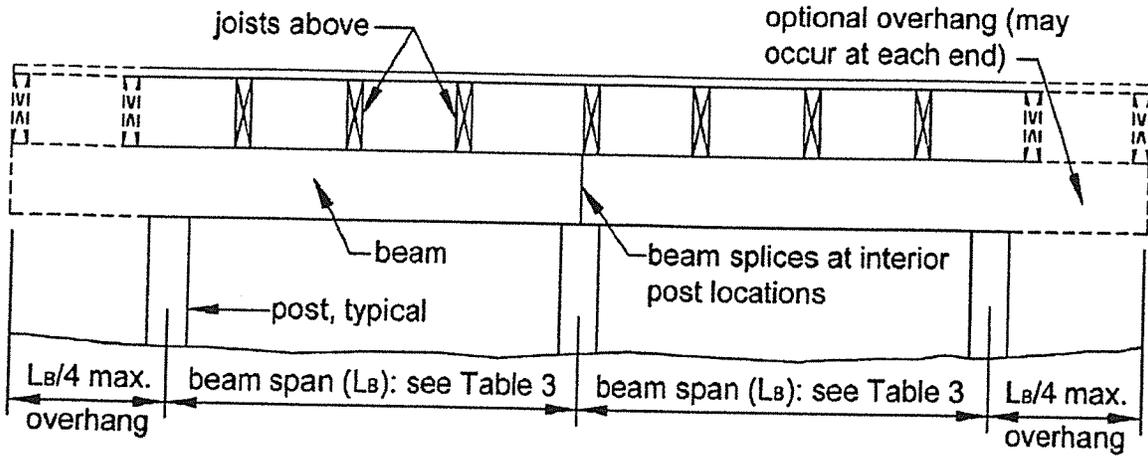


Figure 1A: Joist Span – Deck Attached at House and Bearing Over Beam

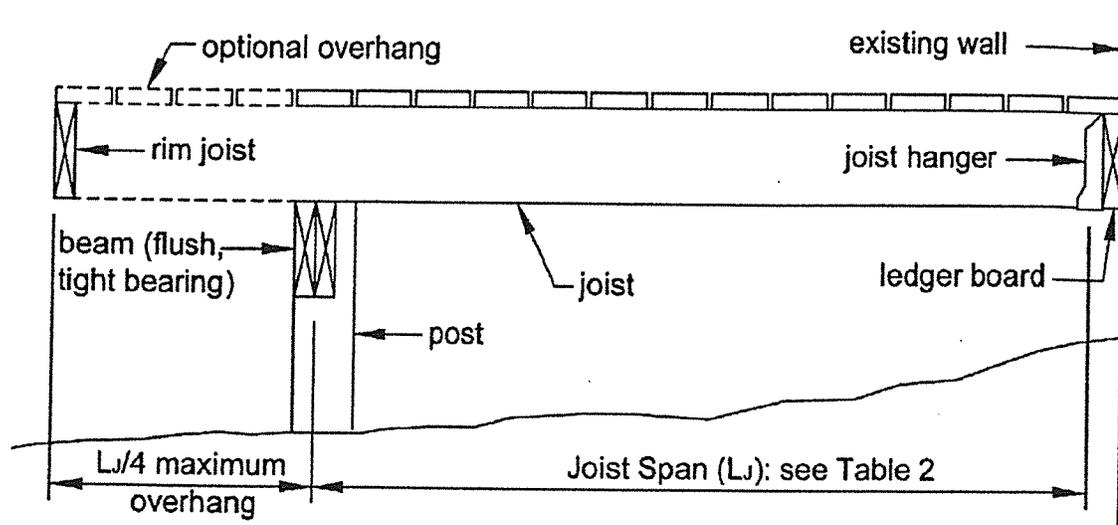
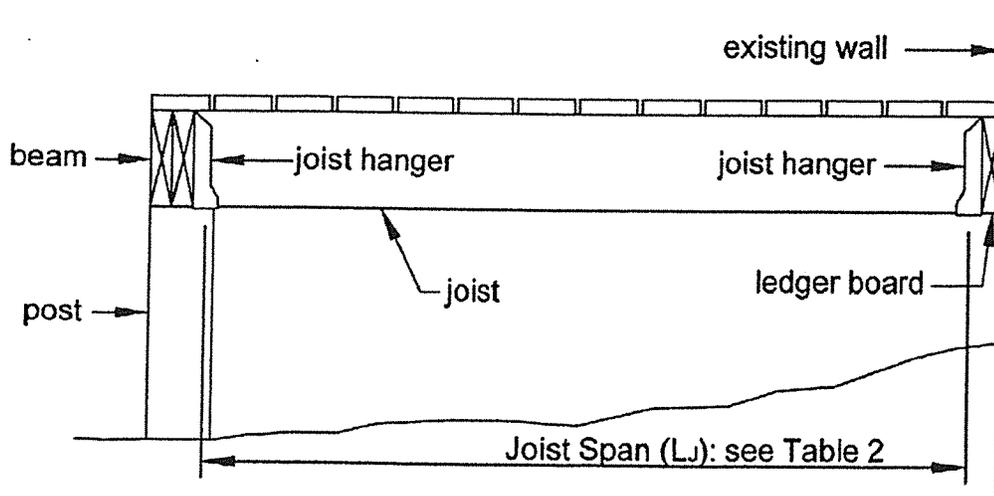
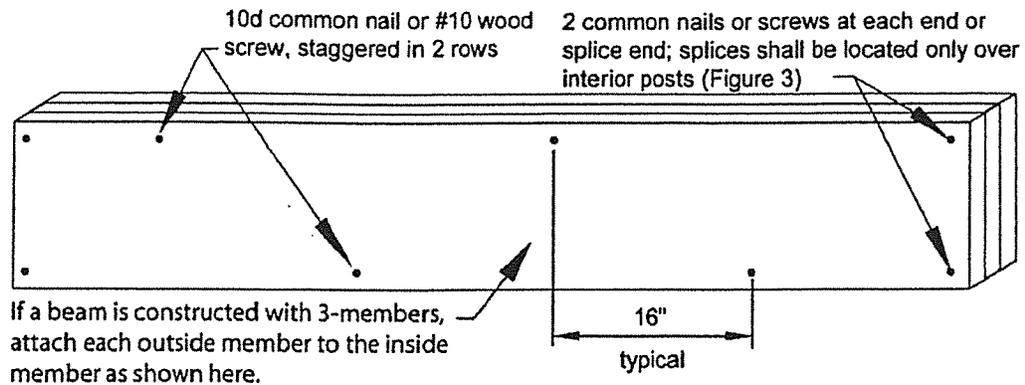


Figure 1B: Joist Span – Joists Attached at House and to Side of Beam



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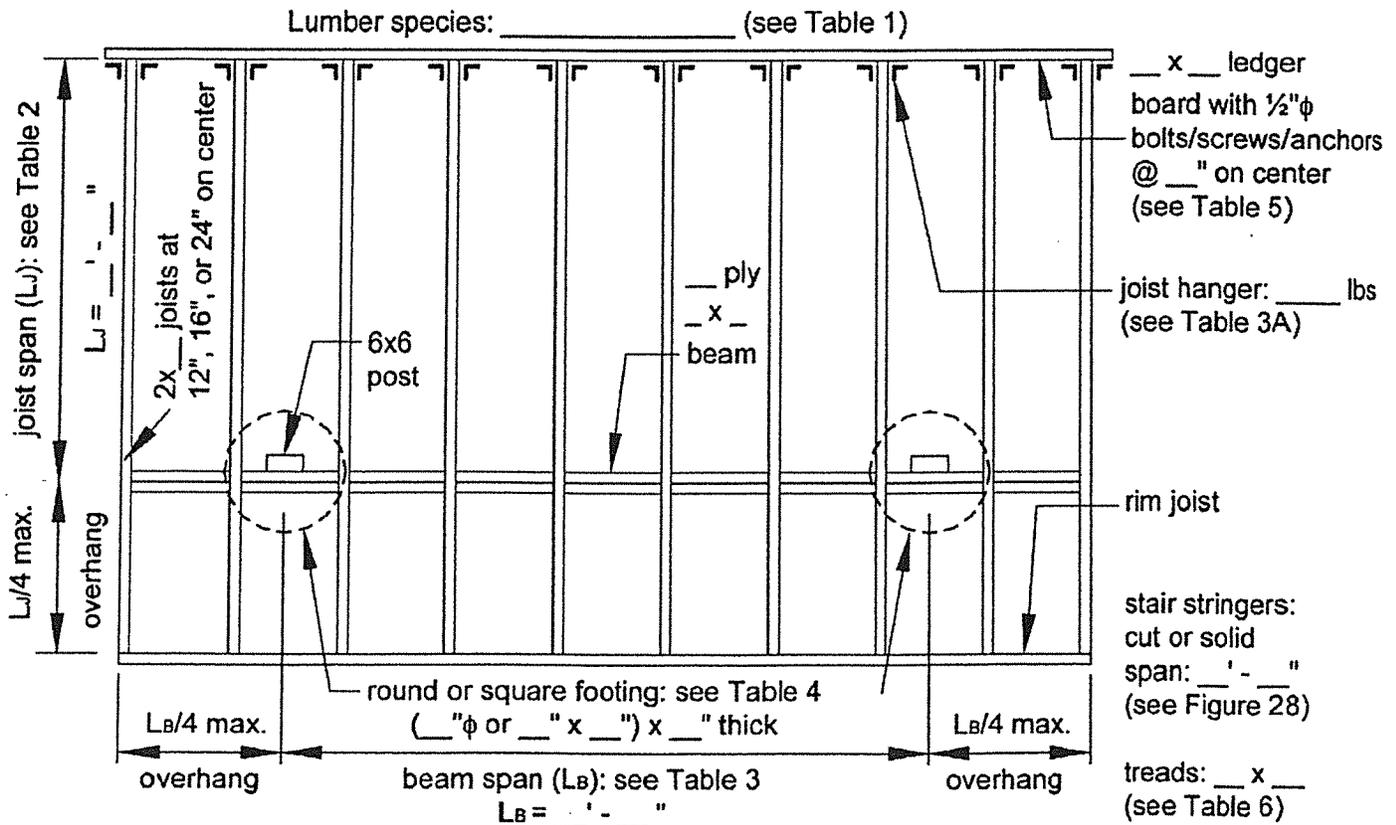
Figure 4: Beam Assembly Details



DECK FRAMING PLAN

A framing plan shows the joist and beam layout; the location of the ledger board, posts, and footings, and the type, size, and spacing of the ledger board fasteners. See Figure 5 for an example of a typical deck framing plan.

Figure 5: Typical Deck Framing Plan



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GUARD REQUIREMENTS

All decks greater than 30" above grade are required to have a guard [R312.1] - one example is shown in Figure 24. Other methods and materials may be used for guard construction when approved by the authority having jurisdiction.

Figure 24: Example Guard Detail

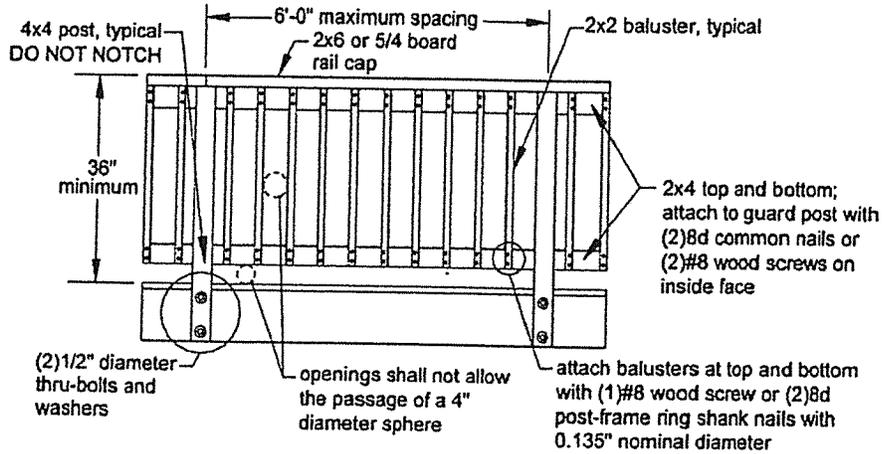


Figure 30: Stair Guard Requirements

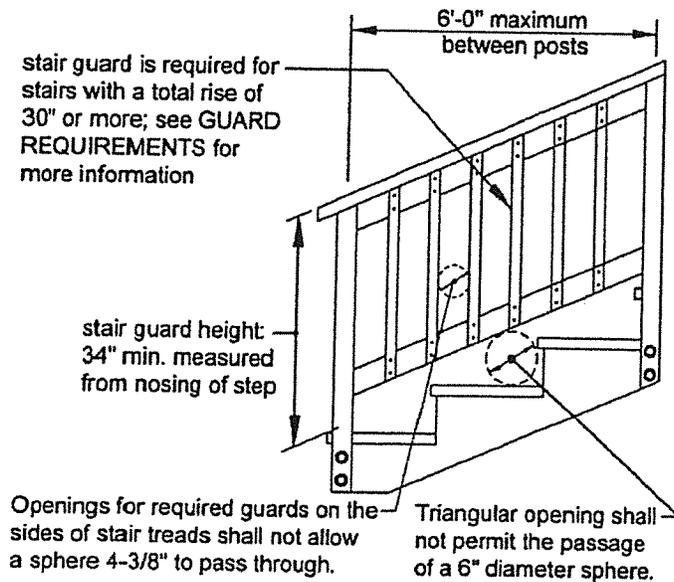
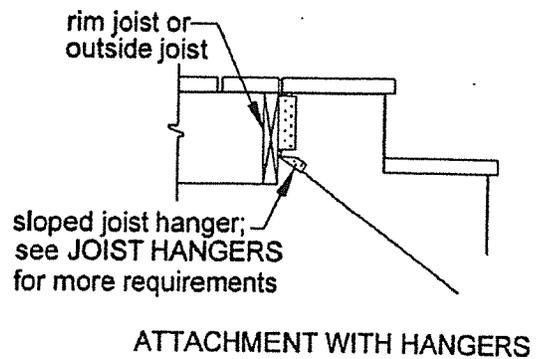


Figure 31: Stair Stringer Attachment Detail



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STAIR HANDRAIL REQUIREMENTS

All stairs with 4 or more risers shall have a handrail on at least one side (see Figure 32A) [R311.5.6]. 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) [R311.5.6.1]. 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 [R311.5.6.3]. 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 [R311.5.6.2].

Figure 32A: Handrail Mounting Examples

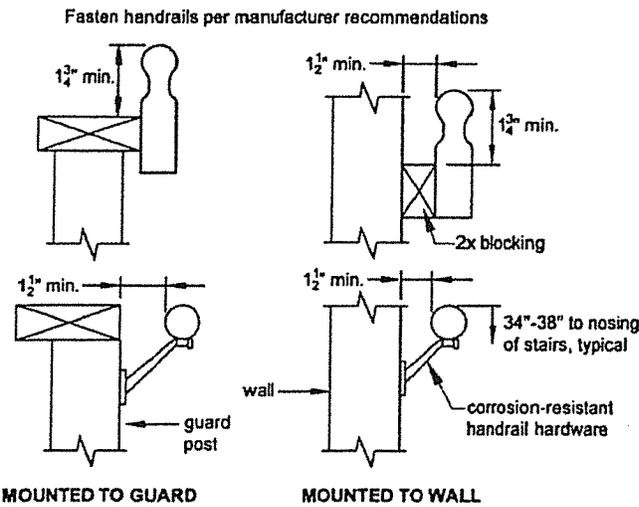
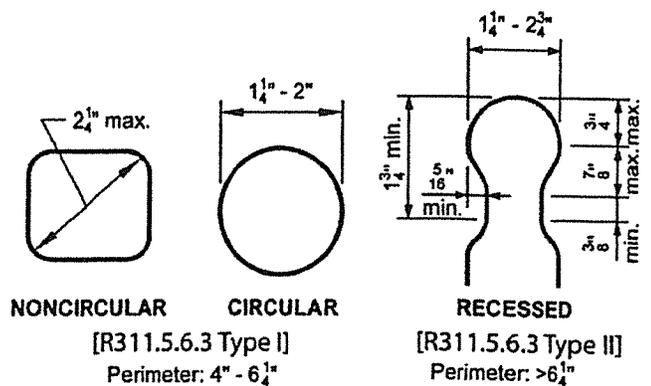


Figure 32B: Handrail Grip Size



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 10 inches below the undisturbed ground surface or below the frost line, whichever is deeper (see Figure 34). 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.

STAIR LIGHTING REQUIREMENTS [R303.6]

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 33: Miscellaneous Stair Requirements

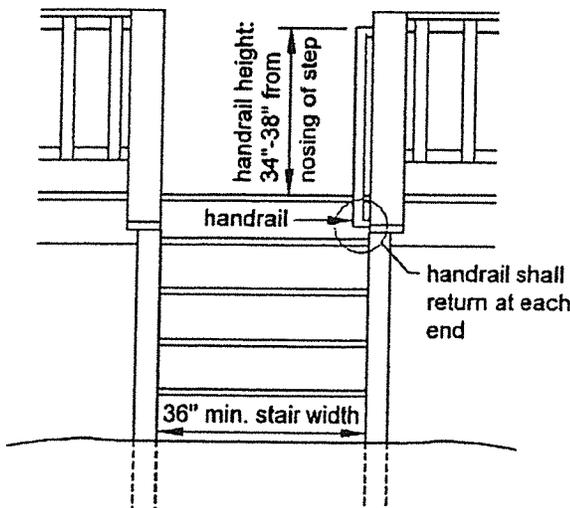
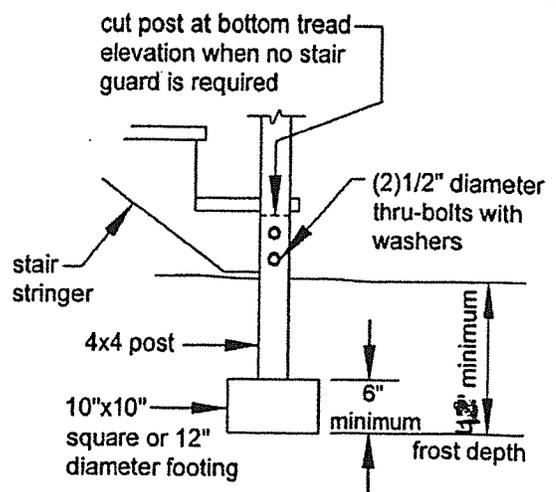


Figure 34: Stair Footing Detail



(c) Appendices to a code or standard listed in subsection (a) are not adopted in the Uniform Construction Code except for the provisions adopted in subsection (a)(9) and (12)—(14).

(d) Until December 31, 2003, a permit applicant shall use one of the following specifications for stairway construction in use groups R-3, within dwelling units in occupancies in use group R-2 and in occupancies in use group U which are accessory to an occupancy in use group R-3. The "International Residential Code" will apply to stairway construction in use group R-3 after December 31, 2003:

- (1) Specifications utilized in place of exception 5 under section 1003.3.3.3 of the "International Building Code":
- (i) The maximum riser height shall be 8 1/4 inches.
 - (ii) The minimum tread depth shall be 9 inches.
 - (iii) A 1-inch nosing shall be provided on all stairways with solid risers.
- (2) Stairway specifications utilized in place of section R-314.2 of the "International Residential Code":
- (i) The maximum riser height is 8 1/4 inches. There may be no more than a 3/8 inch variation in riser height within a flight of stairs. The riser height is to be measured vertically between leading edges of the adjacent treads.
 - (ii) The minimum tread depth is 9 inches measured from tread nosing to tread nosing.
 - (iii) The greatest tread depth within any flight of stairs may not exceed the smallest by more than 3/8 inch.
 - (iv) All treads may have a uniform projection of not more than 1 1/2 inches when solid risers are used.
 - (v) Stairways may not be less than 3 feet in clear width and clear headroom of 6 feet 8 inches shall be maintained for the entire run of the stair.
 - (vi) Handrails may project from each side of a stairway a distance of 3 1/2 inches into the required width of the stair.

(e) A permit applicant may utilize one of the following prescriptive methods to demonstrate compliance with the energy conservation requirements of the Uniform Construction Code. The standards are those listed for the climatic zone of this Commonwealth where the building or structure is located:

(1) The prescriptive methods for detached residential buildings contained in the current version of the "International Energy Conservation Code" compliance guide containing State maps, prescriptive energy packages and related software published by the United States Department of Energy, Building Standards and Guidelines Program (REScheck™) or "Pennsylvania's Alternative Residential Energy Provisions."

(2) The prescriptive methods for all other buildings or structures contained in the current version of the "International Energy Conservation Code" compliance guide containing State maps, prescriptive packages and related software published by the United States Department of Energy, Building Standards and Guidelines Program (COMcheck™).

(f) Construction of individual sewage disposal systems is governed under 25 Pa. Code Chapter 73 (relating to onlot sewage treatment facilities).

(g) The repair, alteration, change of occupancy, addition and relocation of existing buildings shall comply with Chapter 34 of the "International Building Code" or with the "International Existing Building Code."

Cross References

This section cited in 34 Pa. Code § 403.2 (relating to other statutes or ordinances); 34 Pa. Code § 403.27 (relating to applicability and use of standards); 34 Pa. Code § 403.44 (relating to alternative construction materials and methods); and 34 Pa. Code § 403.102 (relating to municipalities electing to enforce the Uniform Construction Code).