

Blount County Department of Building Safety

Deck Construction Requirements



REV. 062911

Minimum Requirements:

1. This applies to single level residential wood decks only.
2. All lumber must be grade marked and be of a naturally durable species or pressure treated.
3. All fasteners shall be of a material made to resist corrosion.
4. This document does not apply to decks that contain a roof system. These decks will require additional structural support to accommodate the possibility of snow load.
5. Decks supporting hot tubs are beyond the scope of these requirements and may call for an engineered design.

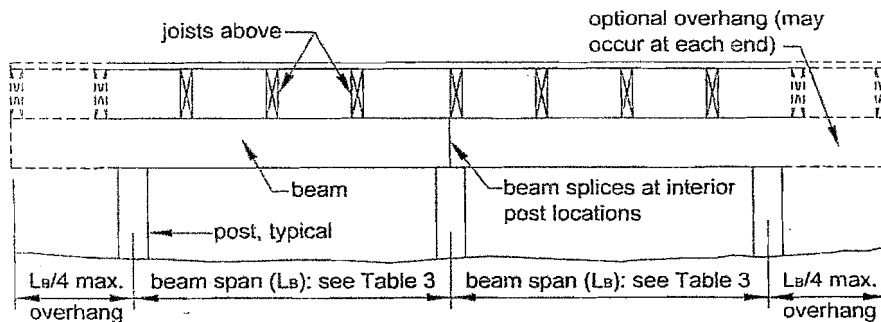
Joist Span Table (Table 2)

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"
	2x8	9' - 3"	9' - 3"	9' - 1"
Douglas Fir-Larch, Hem-Fir, SPF ²	2x10	13' - 4"	13' - 4"	11' - 1"
	2x12	17' - 10"	15' - 9"	12' - 10"
	2x8	8' - 4"	8' - 4"	8' - 4"
Redwood, Western Cedars, Ponderosa Pine ³ , Red Pine ³	2x10	12' - 0"	12' - 0"	10' - 7"
	2x12	16' - 1"	15' - 1"	12' - 3"

Deck Beam Spans (Table 3)

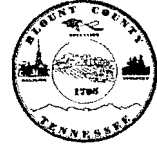
Species	Size	Joist Spans (L _J) Less Than or Equal to:						
		6'	8'	10'	12'	14'	16'	18'
Southern Pine	2-2x6	7' - 1"	6' - 2"	5' - 6"	5' - 0"	4' - 8"	4' - 4"	4' - 1"
	2-2x8	9' - 2"	7' - 11"	7' - 1"	6' - 6"	6' - 0"	5' - 7"	5' - 3"
	2-2x10	11' - 10"	10' - 3"	9' - 2"	8' - 5"	7' - 9"	7' - 3"	6' - 10"
	2-2x12	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' - 8"	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"
	3x6 or 2-2x6	5' - 5"	4' - 8"	4' - 2"	3' - 10"	3' - 6"	3' - 1"	2' - 9"
	3x8 or 2-2x8	6' - 10"	5' - 11"	5' - 4"	4' - 10"	4' - 6"	4' - 1"	3' - 8"
Douglas Fir-Larch ² , Hem-Fir ² , SPF ² , Redwood, Western Cedars, Ponderosa Pine ³ , Red Pine ³	3x10 or 2-2x10	8' - 4"	7' - 3"	6' - 6"	5' - 11"	5' - 6"	5' - 1"	4' - 8"
	3x12 or 2-2x12	9' - 8"	8' - 5"	7' - 6"	6' - 10"	6' - 4"	5' - 11"	5' - 7"
	4x6	6' - 5"	5' - 6"	4' - 11"	4' - 6"	4' - 2"	3' - 11"	3' - 8"
	4x8	8' - 5"	7' - 3"	6' - 6"	5' - 11"	5' - 6"	5' - 2"	4' - 10"
	4x10	9' - 11"	8' - 7"	7' - 8"	7' - 0"	6' - 6"	6' - 1"	5' - 8"
	4x12	11' - 5"	9' - 11"	8' - 10"	8' - 1"	7' - 6"	7' - 0"	6' - 7"
	3-2x6	7' - 4"	6' - 8"	6' - 0"	5' - 6"	5' - 1"	4' - 9"	4' - 6"
	3-2x8	9' - 8"	8' - 6"	7' - 7"	6' - 11"	6' - 5"	6' - 0"	5' - 8"
	3-2x10	12' - 0"	10' - 5"	9' - 4"	8' - 6"	7' - 10"	7' - 4"	6' - 11"
	3-2x12	13' - 11"	12' - 1"	10' - 9"	9' - 10"	9' - 1"	8' - 6"	8' - 1"

1. Assumes 40 psf live load, 10 psf dead load, L/360 simple span beam deflection limit, L/180 cantilever deflection limit, No. 2 grade, and wet service conditions.
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.



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Minimum Requirements(continued):

6. All posts must be notched or contain an approved fastener to provide structural support to the beam(see figures 8 and 9). Side attachment is prohibited.
7. All joists are required to be joist hung using an approved hanger.
8. Exterior rim joists are required to be doubled when receiving floor joists not supported by a deck beam.
9. Pier footings must be placed at least 12 inches below grade for frost line and meet the requirements of Table 4 for diameter. Deck footings closer that five feet to an existing exterior house wall must bear at the same elevation as the footing of the existing house foundation.

Figure 8

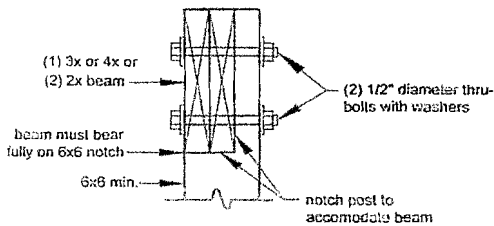


Figure 9

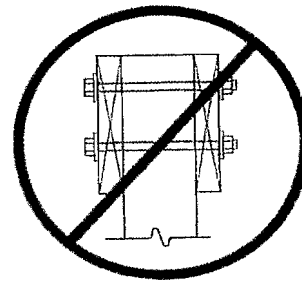
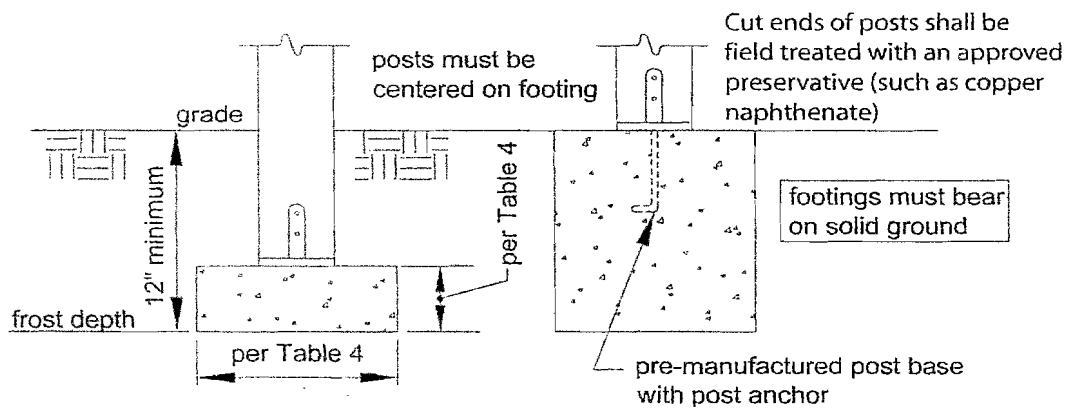


Table 4. Footing Sizes²

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"

Figure 12: Typical Footing Options



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.

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Minimum Requirements(continued):

10. Attachments to exterior veneers (brick, masonry, stone), cantilevered floor overhangs or bay windows and mobile or modular homes are prohibited. In such cases the deck shall be free-standing. See figures 19 and 20 for lag bolt placement and size.
11. See figures 24, 27 and 30 for handrail, guard and stair tread and riser requirements.

Figure 19: Ledger Board Fastener Spacing and Clearances

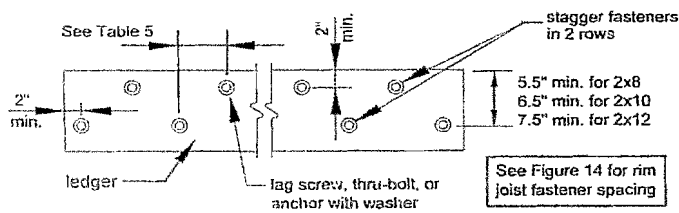


Figure 27: Tread and Riser Detail

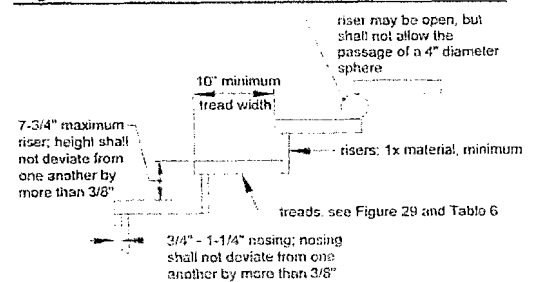


Figure 20: Lag Screw Requirements

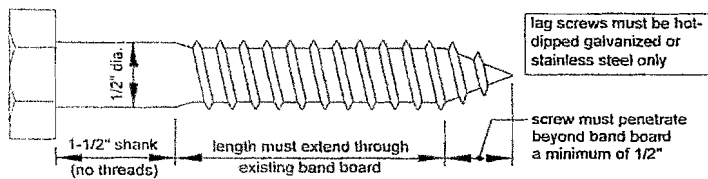


Figure 24: Example Guard Detail

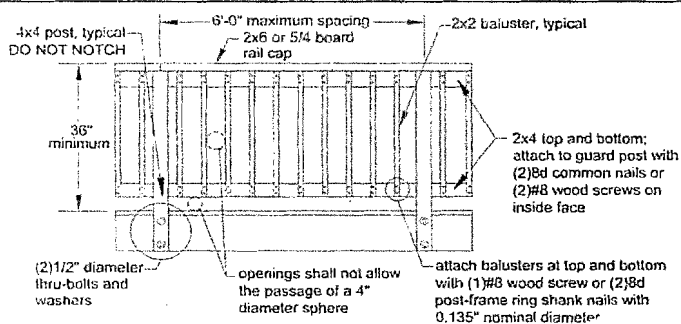


Figure 30: Stair Guard Requirements

