

DECK CONSTRUCTION - One and Two-Family Dwellings
(Chapter 36, State Building Code)

Basic requirements for deck construction:

1. All framing and decking must be approved pressure treated or other decay resistant lumber.
For decking, approved composite material (such as trex) may be used.
2. Minimum design live load is 60 psf, dead load is 10 psf, for a total minimum design load of 70 psf. Tables 1 & 2 are based upon these assumptions.
3. Connections to the building shall be lagged, through bolted, unless otherwise approved.
4. Connections between beams and columns, columns and piers, joists to rim or band joists, etc. are critical. Metal connectors - plates, hangers, etc., are recommended.
5. Joists that are framed from opposite sides and extend over a bearing support (beam) must be tied together by
 - (i) lapping the ends of each joist at least three inches, or;
 - (ii) a metal or wooden splice plate, or;
 - (iii) overlapping the floor sheathing at least three inches beyond the end of each floor joist.
6. Minimum bearing surface for joists supported by wood framing is 1 1/2 inches; 3 inches for masonry. Beams and girders supported by wood framing must have a minimum bearing surface of 3 inches.
7. Double all header joists that are over four feet; use hangers when the header length exceeds six feet.
8. Double all trimmer joists.
9. For decks more than three feet above the adjacent grade, sway bracing for the support columns may be necessary.
10. If the deck is connected to the building, the connection must be flashed, to maintain the weathertightness of the building.
11. Guards on decks - porches, balconies, decks or other raised floor surfaces located more than 30 inches above the floor or grade below shall have guardrails not less than 36 inches high.
Open sides of stairs with a total rise of 30 inches above the floor or grade below shall have guardrails, which may also serve as handrails, not less than 34 inches in height measured from the nosing of the treads.
Required guardrails shall have intermediate rails, balusters or ornamental enclosures which prevent the passage of an object 5 inches in diameter.
12. If a stair is built to or from the deck, see the rules for stairs - width, loading, riser and tread geometry, handrails, lighting, etc..
13. Piers supporting decks must be adequately support the loads imposed upon them. See Table 2 for minimum pier bearing area for most (but not all) soil conditions.

Table 1
Allowable Spans for Floor Joists in Decks and Porches

Joist Size	Spacing (" o.c.)	Maximum Span (feet - inches)
2 x 6	12	9 - 4
2 x 6	16	8 - 6
2 x 6	24	7 - 1
2 x 8	12	12 - 4
2 x 8	16	11 - 3
2 x 8	24	9 - 2
2 x 10	12	15 - 5
2 x 10	16	13 - 4
2 x 10	24	11 - 0
2 x 12	12	18 - 4
2 x 12	16	15 - 10
2 x 12	24	13 - 0

Design Criteria:

Strength - Live Load of 60 psf plus dead load of 10 psf
Deflection - Live load of 60 psf. Limited to - $span / 360$.
Number 2 or Better Pressure Treated Southern Yellow Pine:

Table 2
Girder and Pier Sizes for Decks and Porches

Girder Size ¹	Tributary Span ²	Maximum Girder Span Between Supports ³	Minimum Pier Bearing Area ⁴	Minimum Sonotube Diameter (inches)
4 x 10 or 6 x 8	4'-0	7'-0	0.98	6
	6'-0	5'-9"	1.19	8
	8'-0	5'-0	1.4	10
	10'-0	4'-3"	1.48	10
4 x 12 or 6 x 10	4'-0	8'-3"	1.15	8
	6'-0	7'-0	1.47	10
	8'-0	6'-0	1.68	10
	10'-0	5'-6"	1.93	10

1. Assumes southern yellow pine, # 2 or better, (nominal) laminated beam size.
2. Add span(s) of the floor structure on each side which are supported by the girder and divide by 2.
3. Span = distance from face to face of supports, plus 1/2 the required bearing length at each end.
4. Square inches of bearing surface. Based upon an assumed minimum 2000 psf soil-bearing capacity.