

MARLBORO TOWNSHIP PERMITS AND INSPECTIONS
RESIDENTIAL CODE COMPLIANCE GUIDELINES FOR
DECKS

updated
01/14/2008

Code Reference: 2006 International Residential Code

The following list of Code requirements is intended to assist you in complying with the Building Code as adopted by New Jersey, but does not encompass the entire code. Failure to comply with all applicable Code requirements will result in a Notice of Violation and/or Stop Work Order until such violations are corrected. **The building permit and Deck Plans must be made available at the site for the required inspections.** Should you have any questions regarding these requirements, please call 732-536-0200, x 500.

NOTE: please be aware that these guidelines are minimum requirements for inspection approval only. While the members sized from these span tables will carry the loads assumed, the deck designer should keep in mind that "pushing" the tables to the limit, (that is always using the maximum span allowed for a given size joist, beam, and decking), may create a deck that to some people at least feels "bouncy."

1. FOOTINGS

- a. Minimum depth from finished grade to bottom of all footings. – 36" or extended to virgin soil which ever is greater.
- b. Size – must be 12" thick minimum, 12" minimum diameter for a 4x4 post in concrete and 14" diameter minimum for a 6x6 post in concrete.

2. POST

- a. All post/columns may be 4x4 or equivalent to a height of 4 feet, and 6x6's or equivalent for heights over 4 feet. NOTE: 6x6 posts may be used for decks less than 4' in height.
- b. Post must be secured/attached to concrete footing with the proper galvanized post base for that use
- c. Diagonal bracing required when deck is not attached to the building with a band board or when attached to a floor truss (house floor) system.
- d. See "Beam Size" and "Maximum Space between Posts" for beams.
- e. The notching of 6x6 posts such that the beam will have direct load bearing down onto the posts is a highly recommended practice.(Max 2 2x beams)

3. BEAMS

- a. Post and beam secured to each other by a galvanized steel post cap or beam secured to post with two ½ " bolts per post. See Deck Beam Span Charts for beam size and spacing.
- b. Beam Cantilever: 2x6 prohibited, 2x8 – 2' maximum, 2x10 – 2' maximum.

- c. All beam splices shall be located over top of load bearing posts. Splices between posts are prohibited.

4. LEDGER BOARD

- a. Aluminum is not to be used in direct contact with ACQ preserved Wood- Spacer materials or some other physical barrier are recommended to prevent direct contact. Do not use aluminum Fasteners, if copper is used, use copper nails
- b. LEDGER BOARD of 2x size of joist is to be bolted to house using thru bolts with Washers and nuts. Can not use carriage bolts on load supporting connections.
- c. Bolt size shall be min 1/2" and spaced 24" on center minimum
- d. Must use a drip cap over ledger board and under tarpaper or tyvar to be water tight behind ledger board.
- e. **CAUTION:** Any house floor joist system other than nominal lumber is required to have a freestanding deck. Such as: TJI type floor systems, floor trusses, etc. unless engineered to carry the load of the deck, or designed by an Architect, signed and sealed.
- f. Floor joist attached to band board / Ledger board with approved joist hangers.
- g. Ledger board shall not be connected to house overhang/cantilever for structural purposes. Deck shall be freestanding.

5. FLOOR JOIST

- a. See attached maximum span table for treated lumber, southern yellow pine, 40 psf live load, 10 psf dead load and deflection of L/360 minimum.
- b. Floor joist attached to ledger board or beam with joist hangers.
- c. Maximum cantilever/overhang 2x6 prohibited, 2x8 2' maximum, 2x10 (16" OC) 3' maximum, and 2x12 3' maximum.
- d. Cantilevered floor joists shall extend back towards the building at least three times the length of the cantilevered section and attach to ledger with joist hangers, and hurricane straps on joist to beam.
- e. **CANNOT USE SCREWS TO INSTALL JOIST HANGERS OR ANY OTHER METAL BRACKET OR BRACE UNLESS MANUFACTURE APPROVES.**

6. DECKING

- a. Unless specifically indicated by the manufacturer all composite and nominal 5/4" decking shall be installed on floor joists 16" oc for a 90-degree application and floor joists 12" oc for any angled application.
- b. 2X decking (i.e.; 2x4, 2x6, etc) shall be installed on floor joists 16" oc minimum for a 90-degree application and 16" oc for any angled application.

7. DECKING BOARD SPANS

Traditionally, 2x4 and 2x6 structural lumber has been used for decking boards. Although these lumber sizes are still used for decking, 5/4" radius edge deck (RED) and composites are becoming more popular. In any case, the use of decking boards wider than 6 inches is not recommended because of "cup" (a form of warp that can become a problem). Allowable spans for 2x4, 2x6, and radius edge (5/4") and composite decking are given in table 502.

*** Reduce the allowable decking spans if the decking is applied diagonally by installing the floor joists closer together,
e.g.; 16" to 12" oc. See Table 502.3.1(2)

SPECIES	NORMAL DECK SIZE	MAXIMUM JOIST SPACING
Douglas Fir, Southern	5/4"	16"
Pine, Hem-Fir, SPF, SPF	2x4	16"
(South), Ponderosa Pine, Redwood, Western Cedar	2x6	16"

TABLE 502

NOTE: The allowable spans if the decking is applied diagonally by installing the floor joists closer together, e.g.; 16" to 12" oc.

8. STAIRWAYS

- a. Minimum 3 feet net clear width.
- b. Maximum riser 8 1/4" or 4" minimum
- c. Minimum treads 9" nose to nose.
- d. Riser and tread shall be consistent to within a tolerance of 3/8" throughout any given stairway, 3/16" tolerance to next tread.
- e. Stairs shall be solidly attached to the main deck or stair landing. The plumb cut for the stair stringers or stair carriages shall be solidly attached for the entire height of the cut.
- f. The maximum allowable spacing of stair stringers or stair carriages shall be determined by the maximum allowable span of the tread material or decking used. See section #7 of this guideline. NOTE: Three stringers or carriages minimum required for the standard 3' wide stairway.

9. HANDRAILS

- a. Handrails 30" – 38" above nosing of 4 or more risers.
- b. Continuous the full length of stairs.

10. GUARDRAILS

- a. Guardrails for porches, decks, balconies, ramps or raised floor surfaces more than 30" above floor or grade shall not be less than 36" high.
- b. Open sides of stairs with total rise of more than 30" above floor or grade shall have guardrails not less than 34" high measured vertically from nose of tread.
- c. Horizontal spacing between vertical members in required guardrails shall be a maximum of 4"
- d. Triangular openings formed by riser, tread, and bottom rail of guardrails on stairways shall not allow a sphere 6" in diameter to pass through.

11. INSPECTIONS

- a. **Footings** – before concrete is poured.
- b. **Framing** – Before decking is installed
- c. **Final** – Final inspection when deck is 100% complete and all debris is removed.

Ref: 2006 International Residential Code
 Southern Yellow Pine
 Joist Spans

Decks
 Exterior
 Treated Lumber

Deck: An exterior floor system supported on at least two opposing sides by an adjoining structure and/or post, piers, or other independent supports.

Live Load: 40 lbs./SF
 Dead Load: 10 lbs./SF
 Deflection: L/360

Size in Inches	Spacing in Inches	No.1	No.2
2x6	12"	10-7	10-4
	16"	9-7	9-5
2x8	12"	13-11	13-8
	16"	12-8	12-5
2x10	12"	17-9	17-5
	16"	16-2	15-10
2x12	12"	21-7	21-2
	16"	19-8	18-10

** SPANS ARE ROUNDED TO THE NEAREST INCH

Beam size and maximum space between posts for beams

CHART A/NO JOIST CANTILEVER				
MAXIMUM ALLOWABLE SPACING BETWEEN POSTS				
Joist Span Distance from House to Beam or Header	2-2" x 6" Beam	2-2" x 8" Beam	2-2" x 10" Beam	2-2" x 12" Beam
6'	Up to 9'0"	Up to 11'6"	Up to 15'0"	Up to 16'0"
7'	Up to 8'0"	Up to 10'6"	Up to 14'0"	Up to 15'6"
8'	Up to 7'6"	Up to 10'0"	Up to 13'0"	Up to 15'0"
9'	Up to 7'0"	Up to 9'6"	Up to 12'0"	Up to 14'0"
10'	Up to 6'6"	Up to 9'0"	Up to 11'6"	Up to 13'6"
11'	Up to 6'3"	Up to 8'6"	Up to 11'0"	Up to 13'0"
12'	Up to 6'0"	Up to 8'0"	Up to 10'6"	Up to 12'6"
13'	Up to 5'9"	Up to 7'9"	Up to 10'0"	Up to 12'0"
14'	Up to 5'6"	Up to 7'6"	Up to 9'6"	Up to 11'6"
15'	Up to 5'6"	Up to 7'3"	Up to 9'3"	Up to 11'0"
16'	Up to 5'3"	Up to 7'0"	Up to 9'0"	Up to 10'6"

CHART B WITH 2' FLOOR JOIST CANTILEVER

MAXIMUM ALLOWABLE SPACING BETWEEN POSTS				
Joist Span Distance from House to Beam or Header	2-2" x 6" Beam	2-2" x 8" Beam	2-2" x 10" Beam	2-2" x 12" Beam
6'	Up to 7'0"	Up to 9'0"	Up to 11'6"	Up to 13'6"
7'	Up to 6'6"	Up to 8'6"	Up to 11'0"	Up to 13'0"
8'	Up to 6'3"	Up to 8'0"	Up to 10'6"	Up to 12'6"
9'	Up to 6'0"	Up to 7'9"	Up to 10'0"	Up to 12'0"
10'	Up to 5'6"	Up to 7'6"	Up to 9'6"	Up to 11'6"
11'	Up to 5'3"	Up to 7'3"	Up to 9'3"	Up to 11'0"
12'	Up to 5'0"	Up to 7'0"	Up to 9'0"	Up to 10'6"
13'	Up to 5'0"	Up to 6'9"	Up to 8'9"	Up to 10'3"
14'	Up to 5'0"	Up to 6'6"	Up to 8'6"	Up to 10'0"
15'	Up to 4'9"	Up to 6'3"	Up to 8'3"	Up to 9'9"
16'	Up to 4'6"	Up to 6'0"	Up to 8'0"	Up to 9'6"

CHART C WITH 3' FLOOR JOIST CANTILEVER				
(NOTE: Floor Joist must be 2x10, 16 O.C. or better to use chart C)				
MAXIMUM ALLOWABLE SPACING BETWEEN POSTS				
Joist Span Distance from House to Beam or Header	2-2" x 6" Beam	2-2" x 8" Beam	2-2" x 10" Beam	2-2" x 12" Beam
6'	-----	-----	-----	-----
7'	-----	-----	-----	-----
8'	-----	-----	-----	-----
9'	Up to 5'6"	Up to 7'0"	Up to 9'6"	Up to 11'0"
10'	Up to 5'6"	Up to 6'6"	Up to 9'0"	Up to 10'6"
11'	Up to 5'0"	Up to 6'3"	Up to 8'9"	Up to 10'3"
12'	Up to 5'0"	Up to 6'0"	Up to 8'6"	Up to 10'0"
13'	Up to 4'9"	Up to 5'9"	Up to 8'3"	Up to 9'9"
14'	Up to 4'6"	Up to 5'6"	Up to 8'0"	Up to 9'6"
15'	Up to 4'3"	Up to 5'3"	Up to 7'9"	Up to 9'3"
16'	Up to 4'0"	Up to 5'0"	Up to 7'6"	Up to 9'0"