

BOROUGH OF WESTWOOD

Office of Construction and Zoning



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WOOD DECKS

The New Jersey Uniform Construction Code requires that a Construction Permit must be issued for the construction of a wood or plastic timber deck. In addition, the Borough of Westwood requires a review and approval by the Zoning Officer as a prior approval to the Construction Permit. **This is to ensure that the deck is not encroaching into the "rear or side yard setback" of your property.**

The State of New Jersey adopted the Rehabilitation Subcode to be the code of choice for all repairs, renovations, alterations and reconstruction work. The construction of a deck is considered **new work** under the Rehabilitation Subcode and directs the designer to the 2006 IRC/IBC for the code requirements for the stair, handrail and baluster dimensions, foundation and structural requirements. If you are planning to access this new deck with a new door, the installation of this sliding or French door would be considered an alteration with the rule for design requirements being governed by the Rehabilitation Subcode. Thus, the designer of the plan being either the homeowner or a Design Professional will need to review two codes for the proposed work.

The Uniform Construction Code has many concerns for life safety on decks, many that do not appear relevant on the surface, but are important nevertheless. The fact that you can "load up" a deck with people and create a very high "live load" (persons moving, furniture, etc.) in addition to the "dead load" (weight of the material the deck is made of) is important. The IRC/IBC consider the typical load for a deck the design load of the use. In this case, the design load for a single or two-family dwelling is 40 lbs. hence the live load you must use in determining the size of lumber in the design must be 40 lbs. per square foot.

This **design load** translates into the "on-center" spacing of the floor joist and the length of the span between the supports of the floor joists and the size of and length of the girder proposed. The spans and the "on center" space for a deck is typically 16 inches between joists. If you wish to make the deck very stiff you might reduce that "on center" spacing to 12 inches. The design load will also effect the size of the floor joist relative to the length of the span or distance between the footings and support girder and the connection to the dwelling or another girder.

All typical deck footings are required to be 36" deep, and 12 inches in diameter. As the total load becomes heavier, because of the size of the deck and the spans between the girders, the footing diameter must be increased from the typical 12 inches to 15 or even 18 inches in diameter, depending on the load and the size of the deck.

The code requires all steps have handrails and conform to the requirements for stairs. The differences between each step from the first to the last must be equal. In addition, you must also have a walking surface at the bottom of the stair that is the full width of the stair and a minimum of 36" out. By definition; a stair is defined as two steps and three risers.

A second story deck requires additional support to keep the deck from "racking or sliding sideways" because there was no support designed to prevent the deck from rolling sideways. Typically, you can install the same size timber as the joist, one on each side. Have it cut so it can be attached to the deck and support beam on a forty-five (45) degree angle from the vertical. If done properly the deck will not be able to slide sideways when there is a load of people on one side. Make sure your plan shows that type of support bracket.

We will not issue a permit with missing or unclear information or if the submitted plan does not meet code requirements. Once your permit has been issued and you have the approved plan, you must work from that plan only. If you require changes you will need to submit revised plans for approval from the Building Office.

INSPECTIONS

The Code requires that the Building Inspector first inspect the footings before the concrete is poured into the hole. The attachment of the deck to the dwelling and the framing of the deck are second. Lastly a final inspection must be scheduled to verify all components are in place and installed as shown on the approved drawings.

APPLICATION

1. Approvals:

All proposed decks require the approval of the Zoning Officer. Provide a plot plan (survey) of your property with the proposed deck drawn in the intended location with your permit application.

2. Application:

The following must be provided with the Application Folder:

- a. Two (2) sets of construction plans indicating the size, shape and location of the proposed deck. One copy will stay with your file and the other approved set will be returned to you to build from. A copy of the plans must be on site for all inspections.
- b. The plans must show the location and indicate the dimensions of the individual footings. This information must include a cross section of the footing indicating the depth below grade. It shall also show a detail of the bearing intersection or connection of the beams or girders to individual columns with the proposed distance or elevation of the wood members to the proposed finished grade indicated.
- c. The drawings must show the deck in "plan view" showing all footings, beams, girders, joists and stairs. They also must show an "elevation view" showing the guard

around the deck, baluster spacing, stair guard and handrail.

d. All beam, girder and joist sizes, all spans including direction and any cantilever, if proposed, must be indicated on the construction drawings.

Construction Materials must be specified.

a. Wood post and columns in contact with the ground or embedded in concrete are required to be pressure treated to allow contact with soil. Wood posts and columns **SHOULD NOT** be designed to rest on the earth at the footing bottom. The posts must be mechanically attached to the footings or set into the concrete.

b. Girders, framing and decking material that is exposed to the soil or weather shall be constructed with pressure treated wood or naturally durable materials.

c. Galvanized nails or screws are required.

d. Metal hangers, straps, etc. must be attached with the specified manufacturers galvanized nails or approved equals.

Guards shall be required for decks and stairs as follows:

Deck Guards:

a. Deck guardrails shall be a minimum of 36 inches in height and constructed to withstand a concentrated load of 200 pounds applied at any point and in any direction along the top railing member.

b. Open guards shall have balusters or be of solid material such that a sphere with a diameter of 4 inches cannot pass through any opening.

Stair Guards/Handrails:

a. Stair guards/handrails shall have balusters or be of solid material such that a sphere with a diameter of 4 inches cannot pass through any opening.

b. The triangular openings formed by the riser, tread and bottom rail at the open side of the stairway shall be a maximum size such that a sphere 6 inches in diameter cannot pass through any openings.

c. All handrails and gripable surfaces shall be continuous with any wall or other surface adjacent to the handrail. In addition, all handrails shall be free of projections. The clear space between the handrail and adjacent wall or surface shall not be less than 1½ inches. Handrails shall not project more than 3½ inches into the stair.

d. Handrails shall not be less than 34 inches nor more than 38 inches, measured vertically, above the leading edge of the treads or above the finished floor of the landing or walking surface.

- e. Handrails shall be graspable with a cross-sectional area outside diameter a minimum of 1¼ inches but not greater than 2½ inches.
- f. Stair guard/handrails shall be constructed to withstand a concentrated load of 200 pounds applied at any point and in any direction.
- g. Intermediate handrails are required so that all portions of the width of the stairs are within 30 inches of a handrail.

Stairways:

- a. Stairways with fewer than *Four* risers are not required to have handrails, when serving a single family dwelling unit.
- b. Stairways serving a residential occupancy shall not be less than 36 inches in width.
- c. In all residential uses, the MAXIMUM riser height shall be 8¼ inches and the MINIMUM tread depth shall be 9 inches (measured from nose to nose). A ¾" to 1¼" nosing shall be provided on stairways with solid risers.
- d. All treads and risers are to be equal. There shall not be variation exceeding 3/16 inch in the depth of adjacent treads or in the height of adjacent risers. The tolerance between the largest and smallest tread shall not exceed 3/8 inch in any flight of stairs.
- e. All stringers with more than two (2) risers shall have approved masonry under both stringers.

Framing is required to be held together with galvanized nails or bolts and nuts. "Deck screws" can only be used for the deck boards, balusters, steps and railings provided they give the required strength to support the intended loads.

No Aluminum Flashing

Walkway / Landing Must be at Least 3 Feet and Full Width of Stairs

DECK REQUIREMENTS
Single Family Residential Only

- **Footings:** Minimum 36" Deep
4"x4" Post - 12" Diameter
6"x6" Post - 14" Diameter

- **Girders:** Southern Pine #2 or better***

Allowable span for girders supporting one floor only!

SIZE OF WOOD GIRDER 2		FLOOR LIVE LOAD (PSF)	SPACING BETWEEN GIRDERS AND LOAD BEARING WALLS 3				
			4 Feet	6 Feet	8 Feet	10 Feet	16 Feet
4x4		40	5'-0"	4'-0"	3'-6"	3'-0"	2'-6"
4x6		40	7'-6"	6'-0"	5'-6"	4'-6"	4'-0"
4x8	6x6	40	10'-0"	8'-6"	7'-6"	6'-6"	5'-0"
4x10	6x8	40	13'-0"	10'-6"	9'-6"	8'-6"	5'-6"
4x12	6x10	40	16'-0"	12'-6"	11'-0"	10'-0"	8'-0"

- **Deck Joists:**
 - 2"x 6" - 9' 9" maximum Span
 - 2"x 8" - 12' 10" Maximum Span
 - 2"x 10" - 16' Maximum Span
 - 2"x 12" - 18' 7" Maximum Span

Floor Live Load 40psf
Calculations for Southern Pine or Better***
***Other species require calculations
- **Support Posts:** Anchored to footing by embedment or mechanical fastener (Simpson Bracket)
4"x4" post can be used to 6' above grade. Above 6' use a 6"x6" bracket or larger.
- **Railings:** Guardrails minimum 36" high. Balusters shall be less than 4" apart.
Stair rails shall not be more than 2 1/4" maximum in diameter and grippable.
Minimum handrail height, 34" to 38" from tread nose.
- **Risers:** Height shall be maximum 8 1/4" and all risers equal.
Total differential between risers shall not exceed 3/8".
- **Treads:** Minimum tread depth shall be 9".
Nosing required 3/4" to 1 1/4" on less than 11" wide treads.
- **Stringers:** Must rest on masonry (poured concrete or patio blocks)
Depending on tread material and stair width, additional stringers may be required.
- **Cantilever:** Maximum 27 3/4" @ 2" x 10" 21 3/4" @ 2" x 8" 15 3/4" @ 2" x 6"
- **Hangers & Framing:** Galvanized nails or bolts. "Deck screws" are not to be used for framing connectic or hangers.

The following inspections are required:

1. **Footings:** Before pouring concrete. Concrete is not to be poured in standing water.
2. **Open deck / frame:** Before the deck boards are attached.
3. **Final.**