



# TOWNSHIP OF HILLSBOROUGH

COUNTY OF SOMERSET

Hillsborough Township Municipal Complex  
The Peter J. Biondi Building  
379 South Branch Road  
Hillsborough, NJ 08844



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## **HILLSBOROUGH TOWNSHIP CODE ENFORCEMENT**

### **SAMPLE GUIDE FOR RESIDENTIAL DECKS** revised 7-16

**Call before you dig! 1-800-272-1000 New Jersey One Call. Utility Mark Out.**

**THIS GENERIC GUIDE IS NOT ALL INCLUSIVE AND DOES NOT ADDRESS ALL CONDITIONS**

**DEFINITION:** DECK-An exterior floor system supported on at least two (2) opposing sides by an adjoining structure and /or post, piers or independent supports. A deck may be attached to the structure (residence) or may be freestanding.

Required Inspections. (1) Footings - prior to placement of concrete.  
(2) Frame – Prior to installation of decking. (3) Final inspection.

#### **SECTION A: DESIGN INFORMATION AND DOCUMENT FILING.**

1. Secure a zoning approval from the zoning department
2. Provide a plot plan showing the proposed deck in relationship to the home.
3. Please submit two sets of scaled drawings and documents including a plan view, elevation, sections and details. All drawings should indicate owners name, owners address block and lot number. Homeowners may prepare plans for decks located at their primary residence. Homeowners who prepare plans must sign all pages of both copies in original ink as well as check Box B and sign the application jacket. If the proposed deck is located at other than the homeowner's primary residence the plans must be prepared by a New Jersey licensed Architect.

#### **CONTRACTORS CAN NOT PREPARE PLANS**

4. The codes used for this scope of work are N.J.A.C. 5: 23 Chapter 6 and 2015 IRC N.J. edition and must be listed on the plan. For further information you can use as a reference the American Forest and Paper Association Design for Code Acceptance 6.
5. The required floor plan view should show:
  - the dimensions of the deck, footing, girder, frame, guard and stair locations as well as the total square foot of the new deck.
  - You can present a foundation plan and a framing plan for clarity.

- The Elevation plan should show framing members and the footing detail as well as the elevation from the walking surface to grade measured at a horizontal distance of 36” away from the face of the walking surface.
  - Any new or existing window or doors that may be affected by the new deck
6. Include on the application the cost of labor and material for the project. If a homeowner is building the project the normal or usual cost for labor and material shall be shown in the estimated cost.  
N.J.A.C. 5:23-2.15 (a) 4.

## SECTION B: FOOTING AND FOUNDATION

- ❖ **Pier footings:** Minimum 36 inches below grade and must bear on undisturbed soil. Footing sizes are based on tributary loads, joist and girder spans and soil bearing capacity. Typical soil bearing capacity in this region is 3,000 pounds per square foot, different sites may vary. A 12” diameter footing has the 2356 pound bearing capacity. The minimum footing size is 6 inches. Dependant on all the design spans the footings may need to be increased beyond the minimum footing size. The minimum P.S.I. strength of vertical concrete exposed to weathering shall be 3,000 psi. & shall bear on undisturbed natural soils or engineered fill.
- ❖ **Anchor bolts:** Minimum ½ inch diameter anchor bolts with minimum 7” embedment in the center of footings. Positive attachment to post base with fully tightened nuts and washers. Other approved post bases with specified model numbers are acceptable.

## SECTION C MAIN FRAME:

- ❖ **Framing material:** Shall be pressure treated or other approved naturally durable wood. Material in contact with earth or embedded in concrete must be approved as “In ground contact” check with the manufacturer for specifications. All framing members shall be placed with the camber side up. Framing connections shall comply with table R 602.3(1)
- ❖ **Hardware and fasteners** Shall be corrosion resistant and compatible with material. All mechanical connections shall be made in accordance with the manufactures specifications.
- ❖ **Post / Columns:** **Minimum** 4” x 4” post shall bear on footings and be secured to girders with positive connections to prevent lateral displacement and uplift. 6” x 6” inch post can be notched for the full bearing of the beam with bolts for attachment. Beams CAN NOT be mounted to the sides of post. For single story decks the maximum height for a 4” x 4” or 4” x 6” post is 8 feet and 6” x 6” post maximum of 14’
- ❖ **Beams:** Beams shall be positively bolted or nailed together with a minimum of (2) rows of 10d nails 16” O.C. along each edge. All laps in beams shall fully bear on post. Beam laps shall be staggered or connected by an approved engineering design. Ledgers or rim joist shall not support beams. All beams must have bearing the entire width of the member.

# SPAN TABLES

## Spans based on Pressure Treated Southern Yellow Pine #2

### Live Load 40 L.B. Dead load 10 L.B. L/360

The Below tables are based on single level decks. For Multi stacked decks provide adjusted beam spans for lower deck. For longer joist spans and increased loading i.e. (Hot Tubs) Spans to be designed.

BEAM SIZE	Max 6' Joist Span	Max 8' Joist Span	Max 10' Joist Span	Max 12' Joist Span	Max 14' Joist Span	Max 16' Joist Span
(2) 2" x 6"	6'11"	5' 11"	5' 4"	4' 10"	4' 6"	4'3"
(3) 2" x 6"	8' 2"	7' 5"	6' 8"	6' 1"	5' 8"	5'3"
(2) 2" x 8"	8' 9"	7' 7"	6' 9"	6' 2"	5' 9"	5'4"
(3) 2" x 8"	10' 10"	9' 6"	8' 6"	7' 9"	7' 2"	6'8"
(2) 2" x 10"	10' 4"	9'	8"	7' 4"	6' 9"	6'4"
(3) 2"x 10"	13'	11' 3"	10'	9' 2"	8' 6"	7'11"
(2) 2"x 12"	12' 2"	10' 7"	9' 5"	8' 7"	8"	7'6"
(3) 2"x 12"	15' 3"	13' 3"	11' 10"	10' 9"	10"	9'4"

❖ **Floor Joist:** Floor joist shall be secured to ledger with the correct load bearing capacity joist hanger with correct double shear nailing per manufacture. Joist shall be installed with camber up. All ends of joist shall have lateral restraint and must be secured to girders to prevent rotation and uplift.

Floor Joist Size	Spacing	NO CANTILEVER	WITH CANTILEVER
2"x6"	16" on center	9'	6'8"
	12" on center	9'11"	6'8"
2" x 8"	16" on center	11' 10"	10'1"
	12" on center	13' 1"	10'1"
2" x 10"	16" on center	14'	14'
	12" on center	16' 2"	14'6"
2" x 12"	16" on center	16' 6"	16'6"
	12" on center	18'	18'

\*Shorter O.C. spacing will increase spans\*

- ❖ **Cantilevers:** Typical cantilevers are 2 Feet. However longer length cantilevers are permissible. Provide design calculations for uplift, deflection, spans and spacing, back span ratios and required blocking. Attachment to the homes cantilever is not permitted without design calculations.

**SECTION D: LEDGER BOARD AND ATTACHMENT.**

- ❖ **Ledger Board:** Framing member of equal size or greater than floor joist (minimum ledger shall be 2" x 8" ) positively secured to the house with minimum ½ inch diameter corrosion resistant lag screw or bolt of sufficient length to bolt firmly through the rim joist. All fasteners shall follow the tables below for spacing and edge distance.

For homes with engineered floor systems, provide solid blocking with through bolting. For masonry walls, provide solid blocking with through bolting or manufactures specifications of fastening i.e. Bolt / Epoxy application. For alternate attachment to the tables, provide manufacturer's specifications for **Bolt Spacing, Sheer, Withdrawal, Pull Through i.e.** Ledger Locks etc.

**DECK LEDGER CONNECTION TO BAND JOIST: Live Load 40 L.B. Dead load 10 L.B**

½" Lag spacing	6' or less	6'1"- 8'	8'1"-10'	10'1"-12'	12'1"-14'	14'1"-16"	16'1"-18'
Max ½" Sheathing	30"	23"	18"	15"	13"	11"	10"

**MINIMUM END AND EDGE DISTANCE FOR LEDGERS**

Ledgers	TOP EDGE	BOTTOM EDGE	ENDS
Staggered	2"	¾"	2"

**SECTION E: FLASHING.**

- ❖ **Flashing:** Provide continuous corrosion-resistant flashing **listed for this use** along the ledger in such a manner as to prevent the passage of moisture into the wall cavity of any untreated wood or wood siding. Self-adhered flashing membranes shall comply with AAMA711. Mechanically attached flexible flashing shall comply with AAMA712

**Exception:** Flashing is not required if against vinyl or metal siding. Shims shall be installed as to not crush siding when bolts are tightened. At masonry walls provide water tightness at bolting penetrations.

## SECTION F: SURFACE MATERIAL

- ❖ **Decking:** Specify the decking surface material to be used. Indicate the type of fasteners to be used. Indicate the installation orientation to the floor joist. Angle installations require closer O.C. joist spacing. Composite decking material has a full range of O.C. spacing, please provide the 1 page cut sheet showing the O.C. joist spacing for the material selected for the deck surface as well as the stair tread O.C. stringer spacing. Plastic composite deck boards must comply with ASTM D7032. All material must meet the standards for flame spread and smoke development.

Material	Perpendicular to joist	Diagonal to joist
1 ¼" Wood	16" O.C.	12" O.C.
2" Thick wood	24" O.C.	16" O.C.
Composites	By manufacturer	By manufacturer

## SECTION G: GUARDS, HANDRAILS AND STAIRS

- ❖ **Guards:** All walking surfaces that are 30 inches or more above grade measured at 36" horizontal from the face edge of the walking surface shall have a guard 36" minimum in height, and have balusters or other construction such that a sphere of 4 inches cannot pass through any opening. **Exception:** Opening in required guards on the sloped sides of stairs shall not allow a sphere of 4 3/8 inches to pass through. All stairways with a vertical rise of 30 inches or more are required to have guards on open sides measuring 34 inches or more above the leading edge of the tread. The triangular openings formed by the riser, tread and bottom rail of a guard at the open side of a stairway are permitted to be of such size that a 6 inch sphere can not pass through. Guards shall be designed and constructed such for a concentrated load of 200 pounds applied at any point and in any direction along the top railing member. The in fill area of a guard shall be designed and constructed for a horizontal concentrated load of 50 pounds applied on a one foot area in any point of the system, including intermittent rails or other elements serving this purpose
- ❖ **Stairways:** Minimum 36 inches **clear** width required. Stairway stringer framing to be positively connected to deck frame. Maximum rise is 8 ¼ inches and minimum tread depth is 9 inches. When a tread depth is less than 11 inches a minimum ¾ inch and maximum 1-¼ inch nosing shall be provided. The largest rise and tread shall not exceed the smallest rise and tread by 3/8 inch. Open risers are permitted to a maximum of 4 inches. Stairways with 4 or more rises are required to have at least 1 graspable handrail with closed / returned ends. Graspable handrails may project into clear opening a maximum of 4.5inches. All stairways are required to have a landing the full width of the staircase and minimum 36 inches in the direction of travel. Landing shall be firm and level. (Concrete, pavers, slate, crushed compacted clean stone, etc.)

- ❖ **Handrails:** At least one graspable handrail shall be provided on any stairway with (4) four or more rises. Handrails shall be minimum 30 inches to 38 inches measured vertically from the sloped plane of the adjacent tread. Handrails shall be continuous from a point above the top riser to the lowest riser. Ends shall be returned to a post or wall. Minimum space from handrail to wall surface is 1 ½ inches. Handrails shall be smooth and splinter free and have a minimum 1 ¼ inch to a maximum 2” circular cross section. Other handrail shapes that comply with section 2015 IRC 311.7.8.3 are permissible, please submit details. Please note not all composite rail tops meet the standards for handrails.
  
- ❖ **WINDOWS:** Windows adjacent to newly created walking surfaces may be subject to the requirements of safety glazing. Please consider this in your planning

Information based on the 2015 International Residential Code N.J. edition

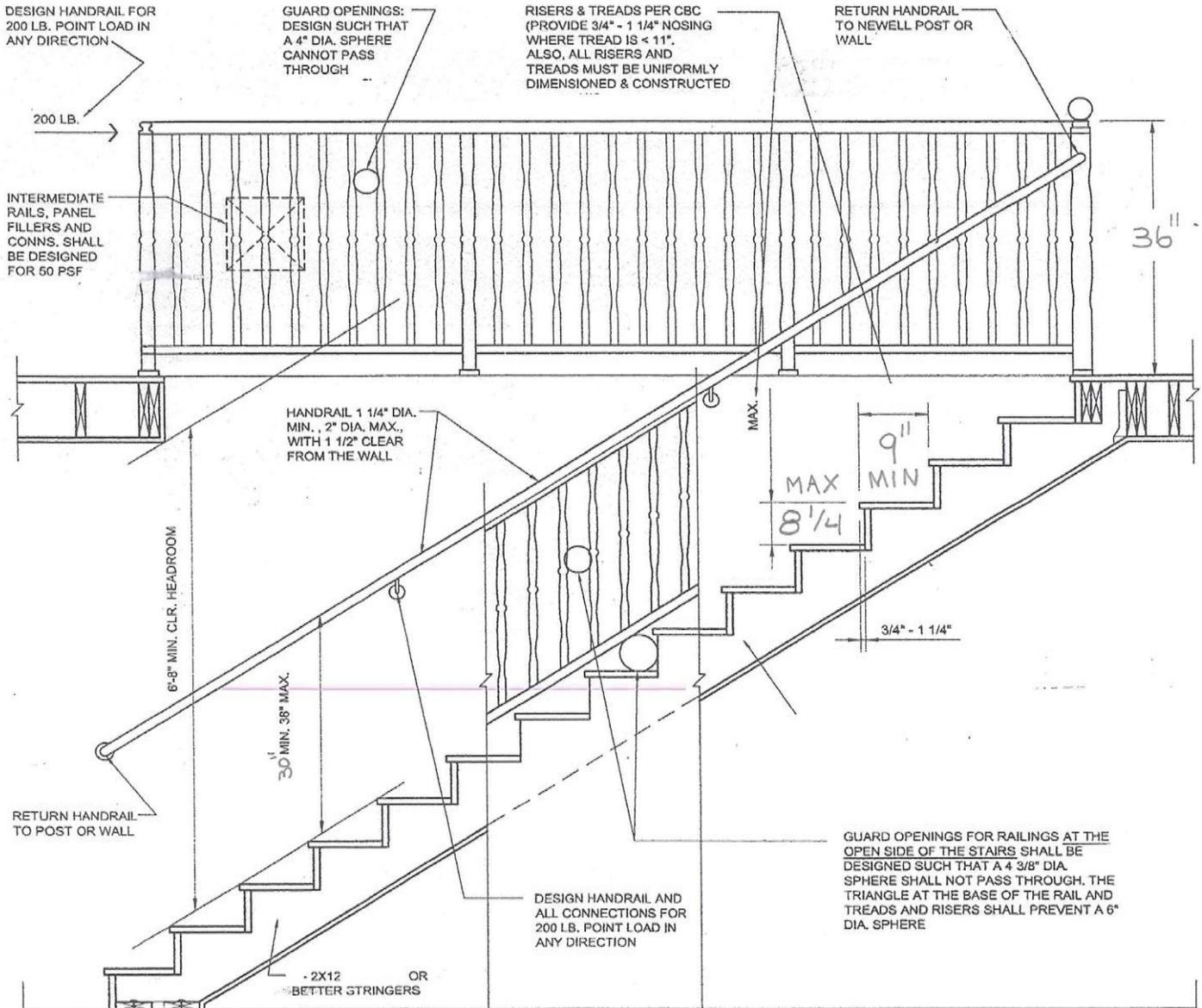
## DECK INFORMATION CHECK LIST

Below find a list of minimum items needed for a successful plan review  
This is not an all-inclusive list, please refer to the deck hand sections for further details

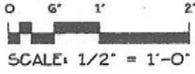
YES	N/A	Please provide the following on the submitted plans
		<b>Section A: DESIGN INFORMATION AND DOCUMENT FILING:</b>
		Site address, block and lot, plot plan showing the deck location
		Code used in the design N.J.A.C. 5:23 6-6 Alteration 2015 IRC nj edition
		Original seals and signatures from a design professional or the homeowner of the property
		Zoning permit, property association approval
		Floor plan with deck dimension and total square footage, elevation plan with details
		Completed application forms including the cost for all labor and material
		<b>SECTION B: FOOTING AND FOUNDATION:</b>
		Footing diameter / size and footing depth from grade
		Spacing between footings and spacing between footing rows. PSI of concrete (3000 lb)
		Type, length and diameter of footing anchor bolt and type of mechanical post attachment
		<b>SECTION C: FRAME:</b>
		Indicate the structural material type including the corrosion resistant compatible fasteners
		Size of main frame post and beam. In ground contact material as required
		Mechanical connection from main beam to main post, wind bracing as needed
		Distance from the home to the centerline of the beam and from beam to beam
		Floor joist size and spacing in the frame and staircase
		<b>SECTION D: LEDGER BOARD AND ATTACHMENT:</b>
		Size of ledger board (minimum of 2" x 8" ) Ledger attachment to sawn lumber or manufactured
		Type, length, diameter and spacing of approved fasteners. If other than 1/2" diameter bolts or lag screws with washer, provide the manufacturer specification sheets.
		<b>SECTION E: FLASHING:</b>
		Flashing material used (adhesive backed flashing must meet AAMA711) for intended use
		<b>SECTION F: SURFACE MATERIAL:</b>
		Type, grade and species of lumber. (1-2) page spec sheet on all composites
		<b>SECTION G: GUARD, HANDRAIL AND STAIR:</b>
		Height of all guardrail systems and handrails
		Handrail diameters with returned ends
		Spacing of guardrail post and spacing of guardrail balusters / infill material and other spacing
		Staircase width, stair riser max 8 1/4" and stair tread min 9"
		36" Landing in the direction of travel and material used

# TYPICAL SINGLE-FAMILY RESIDENTIAL STAIR DETAIL

THIS DRAWING DEPICTS MINIMUM CODE REQUIREMENTS INFORMATION IS FOR REFERENCE ONLY AND IS NOT A SUBSTITUTE FOR ACCURATE DRAWINGS PREPARED FOR EACH PROPOSED CONSTRUCTION PROJECT.



Staircase 36" Minimum width  
 Stair 8 1/4" max rise 9" min tread  
 Minimum 2" x 12" stringer or design with calculations  
 Stringer spacing based on manufacturer's specifications or minimum code  
 Firm landing full width of the stair served 36" in the direction of travel with support by design



NAME, ADDRESS AND PHONE NO. OF DESIGNER	<b>EXAMPLE RESIDENCE</b>	<b>STAIRS</b>	DATE:
WET SIGNATURE OF DESIGNER ON EACH SHEET			SAMPLE DRAWING