BOROUGH OF NEW MILFORD
BUREAU OF CODE ENFORCEMENT
PLANNING AND ZONING

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SAMPLE GUIDE FOR RESIDENTIAL DECKS *revised 5-20*

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.

****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. Two sets of scaled drawings including a plan view, elevation, sections and details. All drawings must indicate the owner's name, address, block and lot number. Homeowners who prepare plans for their primary residence must sign all pages and application jacket "Box B" Proposed deck plans located other than the homeowner's primary residence 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 2018 IRC N.J. edition and must be listed on the plan. For further information refer to the AFPA Design for Code Acceptance 6.

5. The required floor plan view and elevation view must show the following:
   - Deck square footage with dimensions and locations of: footings, girders, frame, guard & stair
   - Elevation to grade with framing members, footing detail, stair guard with handrails and landings
   - 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 Table R507.3.1, Live and Dead Loads, Tributary Area, and Soil Bearing Capacity. Typical soil bearing capacity in this region is 3,000 pounds per square foot, different site conditions may vary. The minimum footing size is 14 inches in diameter and 6 inches thick. Depending 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 manufacturer's 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 the posts. 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.

Section R507.9.2 pertaining to lateral loads has not been adopted by New Jersey

- **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 a home's existing cantilever is not permitted without design calculations.

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 the lower portion of the deck. For longer joist spans and increased loading i.e. (Hot Tubs) Spans to be designed.

For additional spans and lumber types please refer to the 2018 IRC NJ section R507

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	MAXIMUM CANTILEVER
2"x6"	16" on center 12" on center	9' 9'11"	6'8" 6'8"	1'4" 1'3"
2" x 8"	16" on center 12" on center	11' 10" 13' 1"	10'1" 10'1"	2'3" 2'1"
2" x 10"	16" on center 12" on center	14' 16' 2"	14' 14'6"	3'6" 3'4"
2" x 12"	16" on center 12" on center	16' 6" 18'	16'6" 18'	4'2" 4'6"

Shorter O.C. spacing will increase spans

☐ SECTION D: LEDGER BOARD AND ATTACHMENT.

- **Ledger Board:** Framing to match floor joist (minimum le 2" x 8") positively secured to the house with minimum ½ inch diameter corrosion resistant lag screw or bolt of sufficient length. All fasteners shall follow the tables below for spacing and edge distance. Alternate attachments, provide manufacturer's specifications for **Bolt Spacing, Sheer, Withdrawal, Pull Over**
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Existing engineered floor systems, follow manufacturer's recommendations. **DECK LEDGER CONNECTION TO BAND JOIST: Live Load 40 L.B. Dead load 10 L.B**

Maximum Joist Span	6' or less	6'1"- 8'	8'1"-10'	10'1"-12'	12'1"-14	14'1"-16"	16'1"-18'
½" Lag screw Spacing (½" sheathing max)	30"	23"	18"	15"	13"	11"	10"
½" Bolt Spacing (½" sheathing max)	36"	36"	34"	29"	24"	21"	19"
½" Bolt Spacing (1" sheathing max)	36"	36"	29"	24"	21"	18"	16"

MINIMUM END AND EDGE DISTANCE FOR LEDGERS

	TOP EDGE	BOTTOM EDGE	ENDS	ROW SPACING
Ledgers	2"	¾"	2"	1 5/8"
Band Joist	¾"	2"	2"	1 5/8"

☐ 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 the building

☐ SECTION F: SURFACE MATERIAL

- **Decking:** Indicate the surface material and fasteners to be used and installation orientation to the joist. Composite decking, Provide manufactures O.C. joist spacing, stair tread spacing.

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:** Openings 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 and must be continuous (and uniform to ⅜") throughout the entire flight of stairs. 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 the clear opening a maximum of 4.5 inches. 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 2018 IRC 311.7.8.5 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

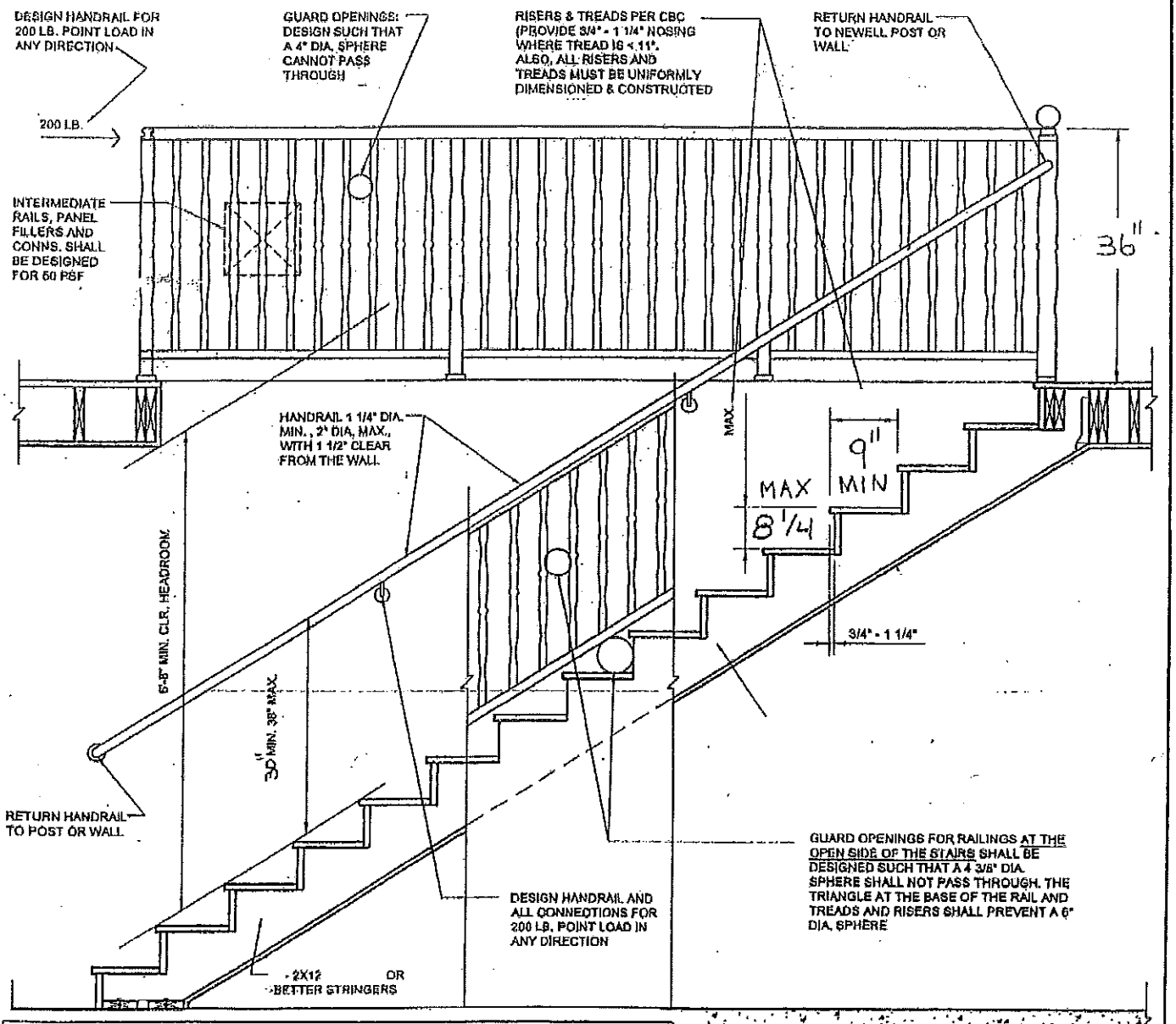
DECK INFORMATION CHECKLIST

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
		Section A: DESIGN INFORMATION AND DOCUMENT FILING:
		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 2018 IRC NJedition
		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
		SECTION B: FOOTING AND FOUNDATION:
		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
		SECTION C: FRAME:
		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
		SECTION D: LEDGER BOARD AND ATTACHMENT:
		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 ½" diameter bolts or lag screws with washer, provide the manufacturer specification sheets.
		SECTION E: FLASHING:
		Flashing material used (adhesive backed flashing must meet AAMA711) for intended use
		SECTION F: SURFACE MATERIAL:
		Type, grade and species of lumber. (1-2) page spec sheet on all composites
		SECTION G: GUARD, HANDRAIL AND STAIR:
		Height of all guardrail systems and handrails
		Handrail diameters with returned ends
		Spacing or guardrail post and spacing of guardrail balusters / infill material and other spacing
		Staircase width, stair riser max 8 ¼" and stair tread min 9"
		36" Landing in the direction of travel and material used

TYPICAL SINGLE-FAMILY RESIDENTIAL STAIR DETAIL

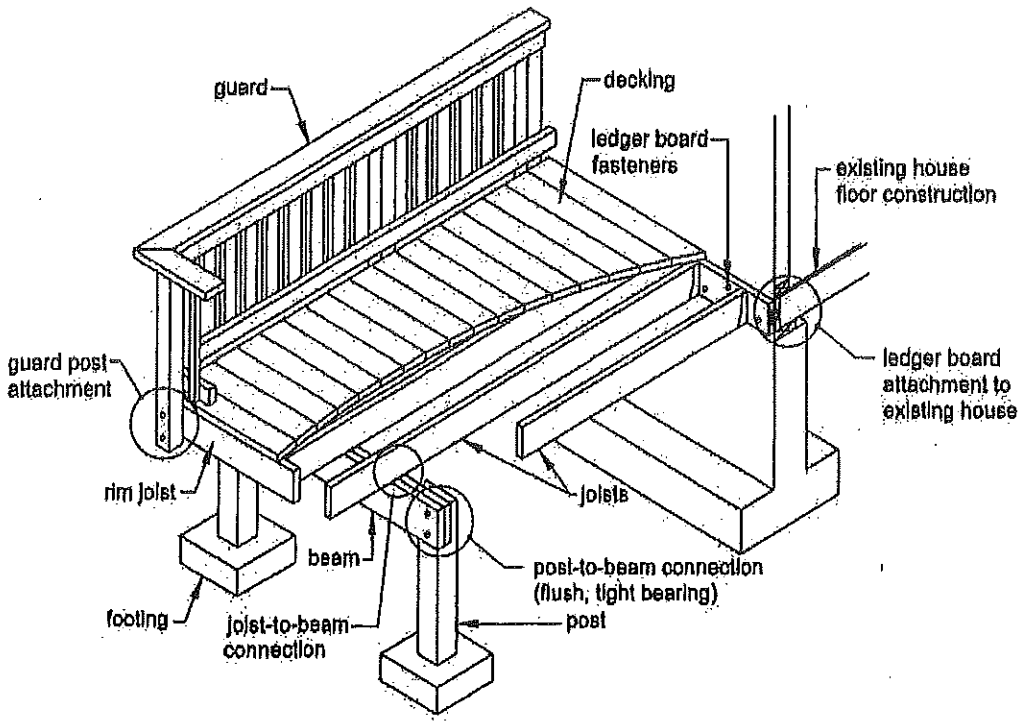
THIS DRAWING DEPICTS MINIMUM CODE REQUIREMENTS INFORMATION IS FOR REFERENCE ONLY AND IS NOT A SUBSTITUTE FOR ACCURATE DRAWINGS PREPARED FOR EACH PROPOSED CONSTRUCTION PROJECT.



Stairs use 36" Minimum width
Stair 8 ¼" 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

0 6" 1' 2'
SCALE: 1/2" = 1'-0"

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



Example Ledger Attachment Detail