



Township of East Windsor

Residential Deck Guide

The New Jersey State 2021 IRC Building Minimum Code Requirements

Building permits

Building permits are required for any deck that is attached or adjacent to a building. A complete application includes the following for the Township of East Windsor:

- A signed, completed building permit application form;
- Two copies of a site plan drawn to scale, indicating the lot dimensions, setback measurements to property lines, and the location and area of the proposed deck and stairs;
- Two copies of plans drawn to scale, including the following information:
 - A. Size And Depth of Footing
 - B. Size And Spacing of Posts With Connectors To Post And Beams
 - C. Type of Lumber
 - D. Size of Beams
 - E. Size and Spacing of Joists
 - F. Type of Deck Boards Used
 - G. Height of Deck From Grade
 - H. Detail Flashing and House Connection
 - I. Height and Design of Guards and Spindles
 - J. Size of Deck, and if Stairs are Attached or Not
 - K. Distance to Property Lines

Inspections

All inspections for *Residential Decks* required the following:

- A footing inspection after holes are dug but prior to placing concrete,
- A framing inspection, and;
- Final Inspection

Frost Depth Protection

Footings for all *Residential Decks* must be at least 36 inches deep. (Note: Diameter of footings must be designed adequately for loads and future porch additions).

Required Wood

All wooden members of decks exposed to the weather must be approved, pressure-preservative-treated, or wood of natural resistance to decay (i.e. heartwood, redwood, or cedar).

Note: Embedded material shall be suitable for ground contact use, and identifiable at the framing inspection.

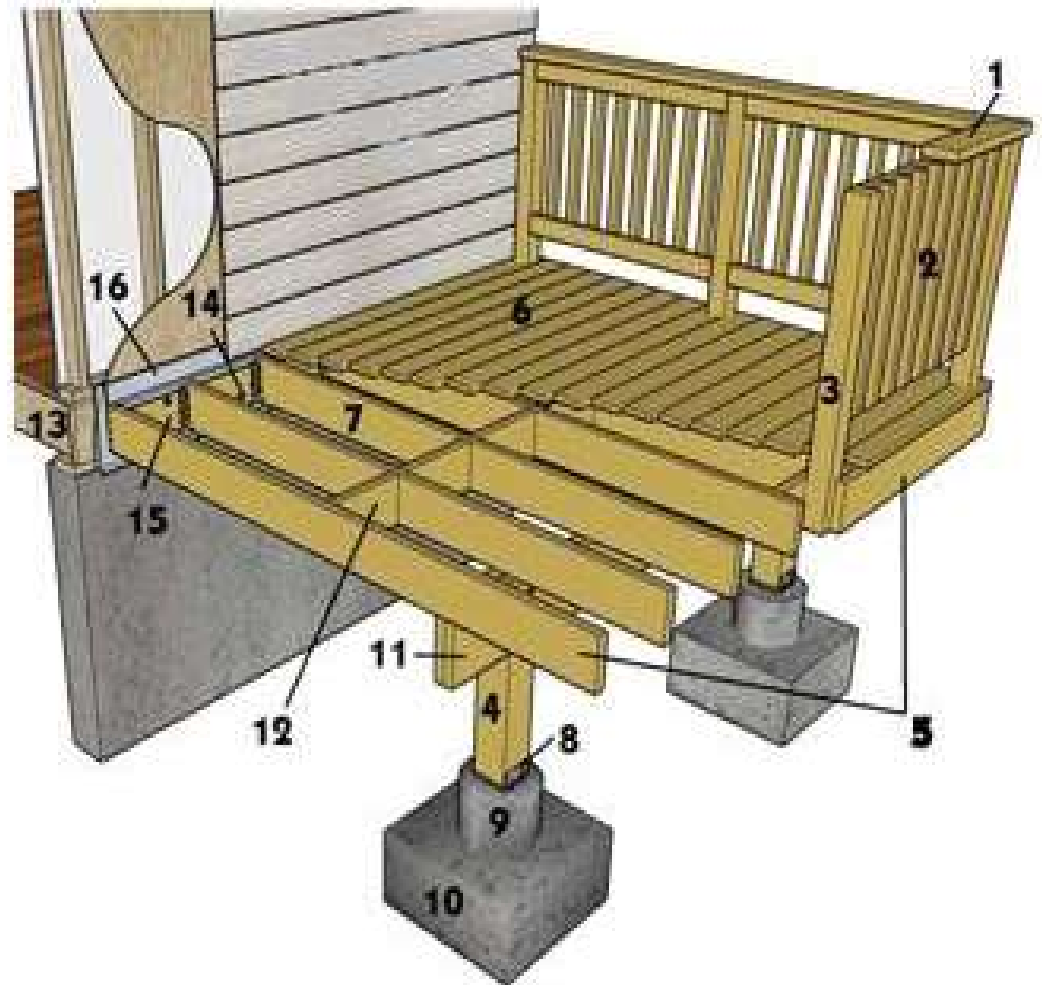
Flashing

All connections between deck and dwelling must be waterproofed. Any cuts in exterior wall finish must be flashed with approved flashing.

The following illustration depicts common terminology utilized in *Residential Deck* inspections:

TERMINOLOGY

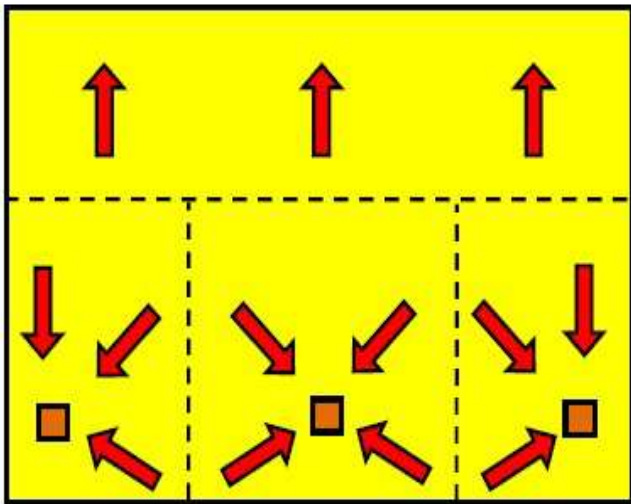
1. RAIL TOP CAP
2. BALLUSTERS
3. RAIL POST
4. SUPPORT POST
5. RIM OR BAND JOIST
6. DECKING
7. JOISTS
8. POST BASE CONNECTOR
9. PIER
10. FOOTING
11. DROP BEAM
12. BLOCKING
13. HOUSE JOIST
14. ½" BOLTS
15. LEDGER BOARD
16. FLASHING



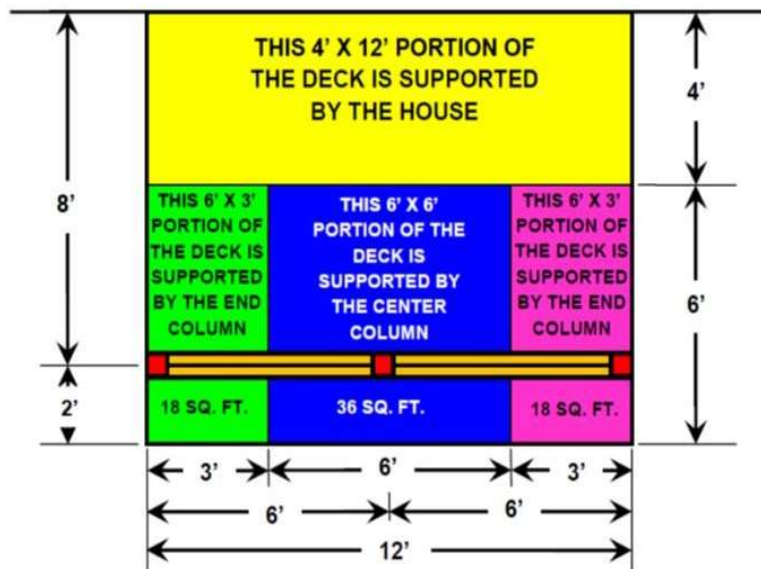
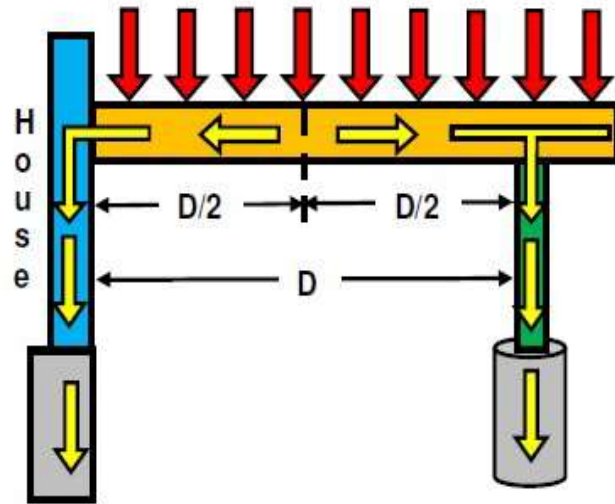
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The illustrations below depict uniform load distribution, and load paths for *Residential Deck* inspections:

UNDERSTANDING LOAD PATHS



Loads are assumed to be uniform across the floor



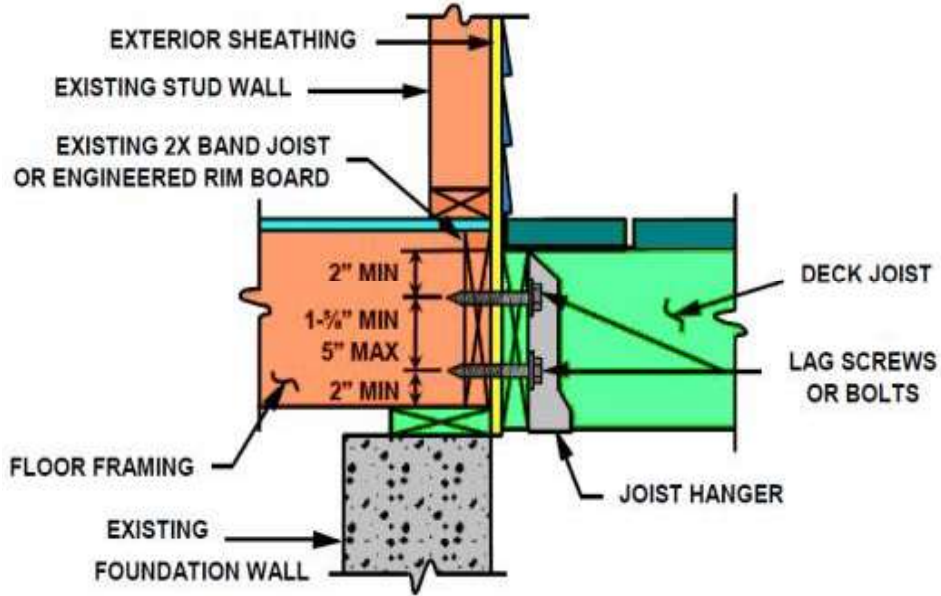
The following table identifies Calculated Load Capacity of round footing sizes based on 1500 PSF soil bearing capacity for *Residential Deck* inspections. Live 40 + Snow load 10 =50

Dia. inch	14	15	16	17	18	20	24
Sq. inch	153.94	176.72	201.06	226.98	254.47	314.16	452.39
Sq. feet	1.07	1.23	1.40	1.58	1.77	2.18	3.14
Bearing Capacity	1604	1841	2094	2364	2651	3273	4712

Design of 40 pounds per square foot (psf) live loads and 10 psf Snow load, =50 multiplied by square foot of deck area to size footings

For the identification of positively anchored vertical loads please use the following depiction as reference for Residential Deck inspections:

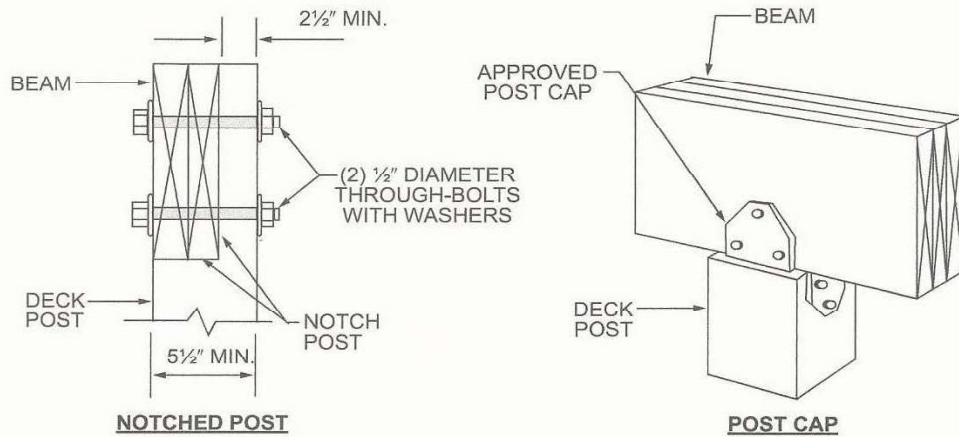
PLACEMENT OF LAG SCREWS AND BOLTS IN BAND JOISTS



**TABLE R507.8
DECK POST HEIGHT^a**

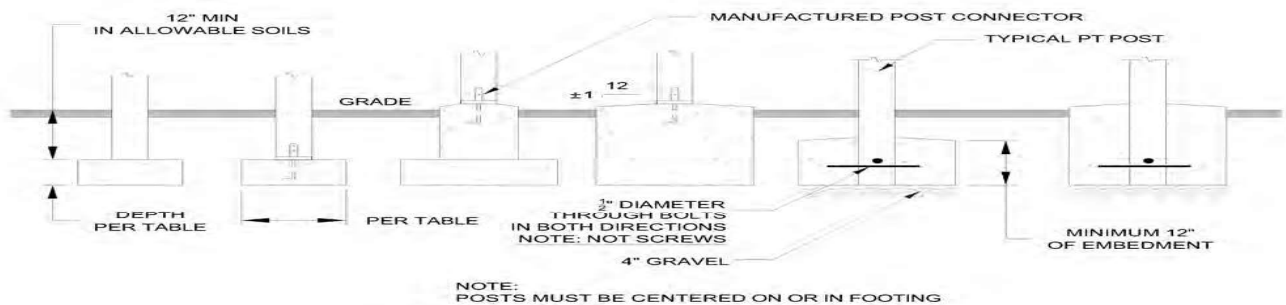
DECK POST SIZE	MAXIMUM HEIGHT ^a
4 x 4	8'
4 x 6	8'
6 x 6	14'

For SI: 1 foot = 304.8 mm.
a. Measured to the underside of the beam.



For SI: 1 inch = 25.4 mm.

**FIGURE R507.7.1
DECK BEAM TO DECK POST**



**FIGURE R507.8.1
TYPICAL DECK POSTS TO DECK FOOTINGS**

The following table identifies Deck Ledger Connection to band joist required for Residential Deck Inspection.

TABLE R507.2 FASTENER SPACING FOR A SOUTHERN PINE OR HEM-FIR DECK LEDGER AND A 2-INCH-NOMINAL SOLID-SAWN SPRUCE-PINE-FIR BAND JOIST^{c, f, and g} (Deck live load = 40 psf, deck dead load = 10 psf)							
JOIST SPAN	6' and less	6'1" to 8'	8'1" to 10'	10'1" to 12'	12'1" to 14'	14'1" to 16'	16'1" to 18'
Connection details	On-center spacing of fasteners ^{d and e}						
1/2 inch diameter lag screw with 1/2-inch maximum sheathing ^a	30	23	18	15	13	11	10
1/2 inch diameter bolt with 1/2 inch maximum sheathing	36	36	34	29	24	21	19
1/2 inch diameter bolt with 1-inch maximum sheathing	36	36	29	24	21	18	16

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa.

a. Ledgers shall be flashed in accordance with Section R703.4 to prevent water from contacting the house band joist.

b. Snow load shall not be assumed to act concurrently with live load.

c. The tip of the lag screw shall fully extend beyond the inside face of the band joist.

d. Sheathing shall be wood structural panel or solid sawn lumber.

e. Sheathing shall be permitted to be wood structural panel, gypsum board, fiber board, lumber or foam sheathing. Up to 1/2-inch thickness of stacked washers shall be permitted to substitute for up to 1/2 inch of allowable sheathing thickness where combined with wood structural panel or lumber sheathing.

The table below identifies placement of lag screws and bolts in deck ledgers and band joist requirements for Residential Deck Inspection.

TABLE 507.2.1 PLACEMENT OF LAG SCREWS AND BOLTS IN DECK LEDGERS AND BAND JOISTS MINIMUM END AND EDGE DISTANCES AND SPACING BETWEEN ROWS				
	TOP EDGE	BOTTOM EDGE	ENDS	ROW SPACING
Ledger ^a	2 inches ^d	1/4 inch	2 inches ^b	1 5/8 inches ^b
Band Joist ^c	3/4 inches	2 inches	2 inches ^b	1 5/8 inches ^b

For SI: 1 inch = 25.4 mm.

a. Lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger in accordance with Figure R507.2.1 (1).

b. Maximum 5 inches.

c. For engineered rim joists, the manufacturer's recommendations shall govern.

d. The minimum distance from bottom row of lag screws or bolts to the top edge of the ledger shall be in accordance with Figure R507.2.1 (1).

The diagram below identifies the table above for lag screw and bolt placement requirements for Residential Deck Inspections.

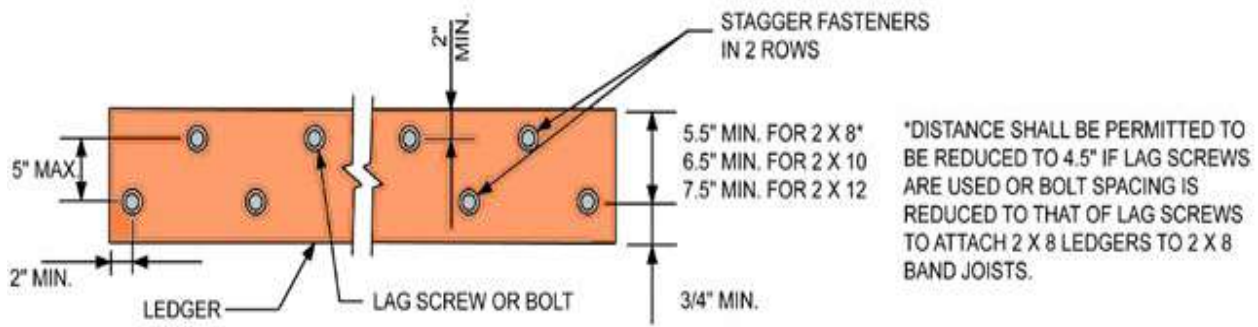
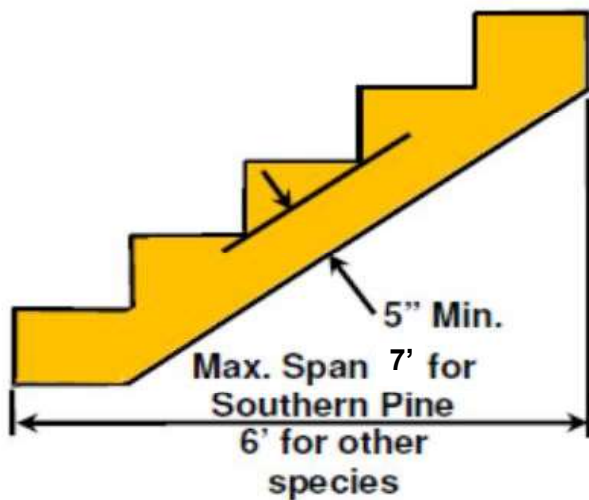


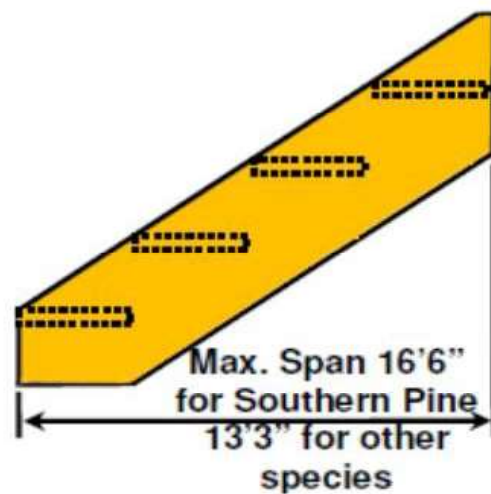
FIGURE R507.2.1(1)
PLACEMENT OF LAG SCREWS AND BOLTS IN LEDGERS

The following picture identifies Stringer Spans required for Residential Deck inspections.

STAIR STRINGER SPANS
LANDINGS OR COLUMNS AND BEAMS MAY BE USED TO SHORTEN STRINGER SPANS



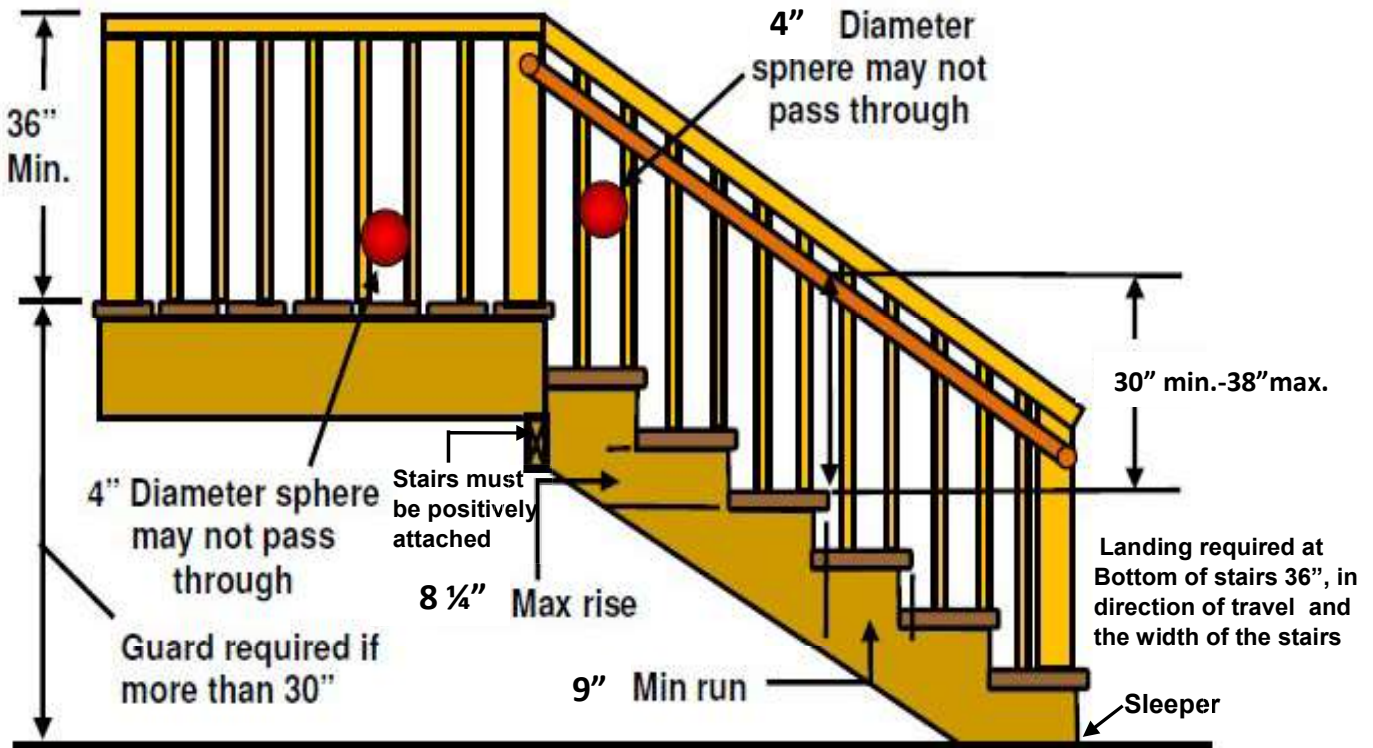
CUT STRINGER



SOLID STRINGER

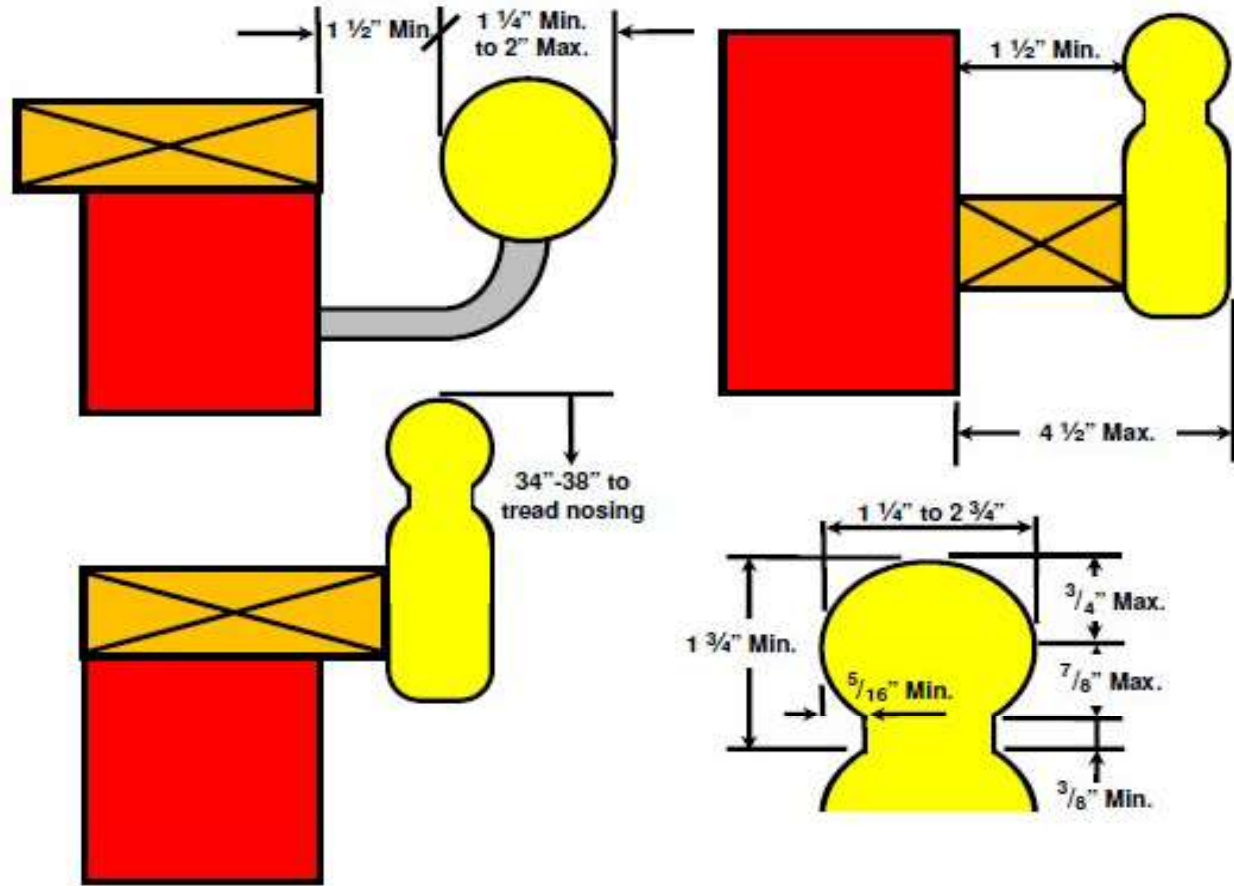
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The following depicts NJ IRC 2018 Residential Deck code requirements for guard/fall protection for Residential Deck inspections

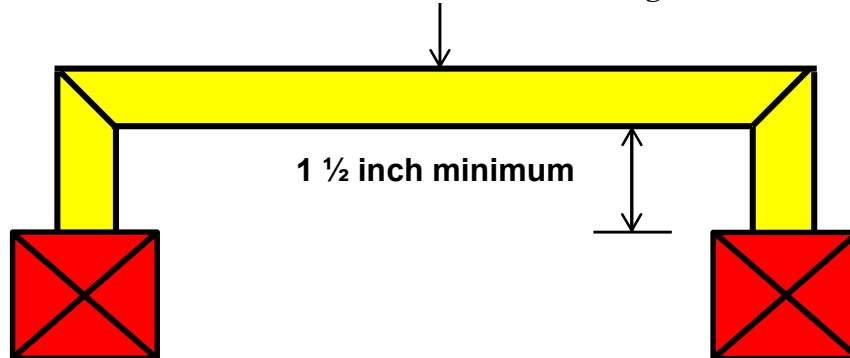


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The following picture identifies *Residential Deck* hand rail requirements for *Residential Deck* inspections



Top view of handrail returned to posts from bottom to top of stair flight
Measured 34 " to 38 " from nosing



Composites, Other Deck Material, and Railing Products

This handout does not cover deck or railing products made of composites, aluminum, steel, glass, and/ or any other man made products. Those products may be used if the manufacturer has a research report from the International Code Council (ICC) or other approved testing agency and the products are installed in strict accordance with that report. These products need to be identified on the plans and reports available to the inspector at the framing inspection.

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SUPPLEMENT TO DECK PERMIT APPLICATION

The following information is Suggested with the *Residential Deck* permit application and plans.

- A. Size and depth of footing _____
- B. Size and spacing of post _____
- C. Type of lumber _____
- D. Size of beams _____
- E. Size and spacing of joists _____
- F. Type of floor boards _____
- G. Height of deck off ground _____
- H. Height and design of guardrail _____
- I. Size of deck _____