



# City of Kewanee Building Guide

ILLOWA Chapter of ICC

## Single Family Residential Uncovered Deck and Porches



### How to use this guide: THIS IS NOT A BUILDING PERMIT APPLICATION!

This guide was designed to assist the do-it-yourselfer create a construction plan to build a simple deck using conventional construction methods. Non-conventionally constructed decks may require a design professional.

1. **Complete this Building Guide** by filling in the blanks on page two and three and indicating which construction details will be used.
2. **Provide a Site Plan** showing the dimensions of your project and its relationships to existing buildings or structures, utilities, property lines and easements. In addition to project dimensions, your plot plan must also show other details such as post locations and spacing, joist and beam spans, and any other pertinent information not shown on the section drawing.
3. **Now you are ready to apply for your building permit.** This guide is not mandatory to accompany your building permit application; however, it will assist in the review process and speed up your permit approval. The majority of permit applications can be processed with little delay. This document will help determine if the project is in compliance with building codes, zoning ordinances and other applicable laws.
4. **Inspections.** A footing inspection is required before they can be poured. A framing inspection is required before you lay decking or attach handrails to verify plans are being followed and that proper connections are used. All projects must receive a final inspection in order to verify that your project meets code, is safe to use and to close out the permit. Remember YOU are responsible to get the inspections! If you are unsure during the construction process contact your Department of Building Safety.



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# Single Family Residential—Uncovered Deck and Porches

## Directions:

1. List homeowner name and address of project .
2. Fill in the blanks on pages 2 and 3 with dimensions and materials which will be used to build the structure. Please print legibly.
3. Choose which post to beam detail from page 4 that will be used.

Address:

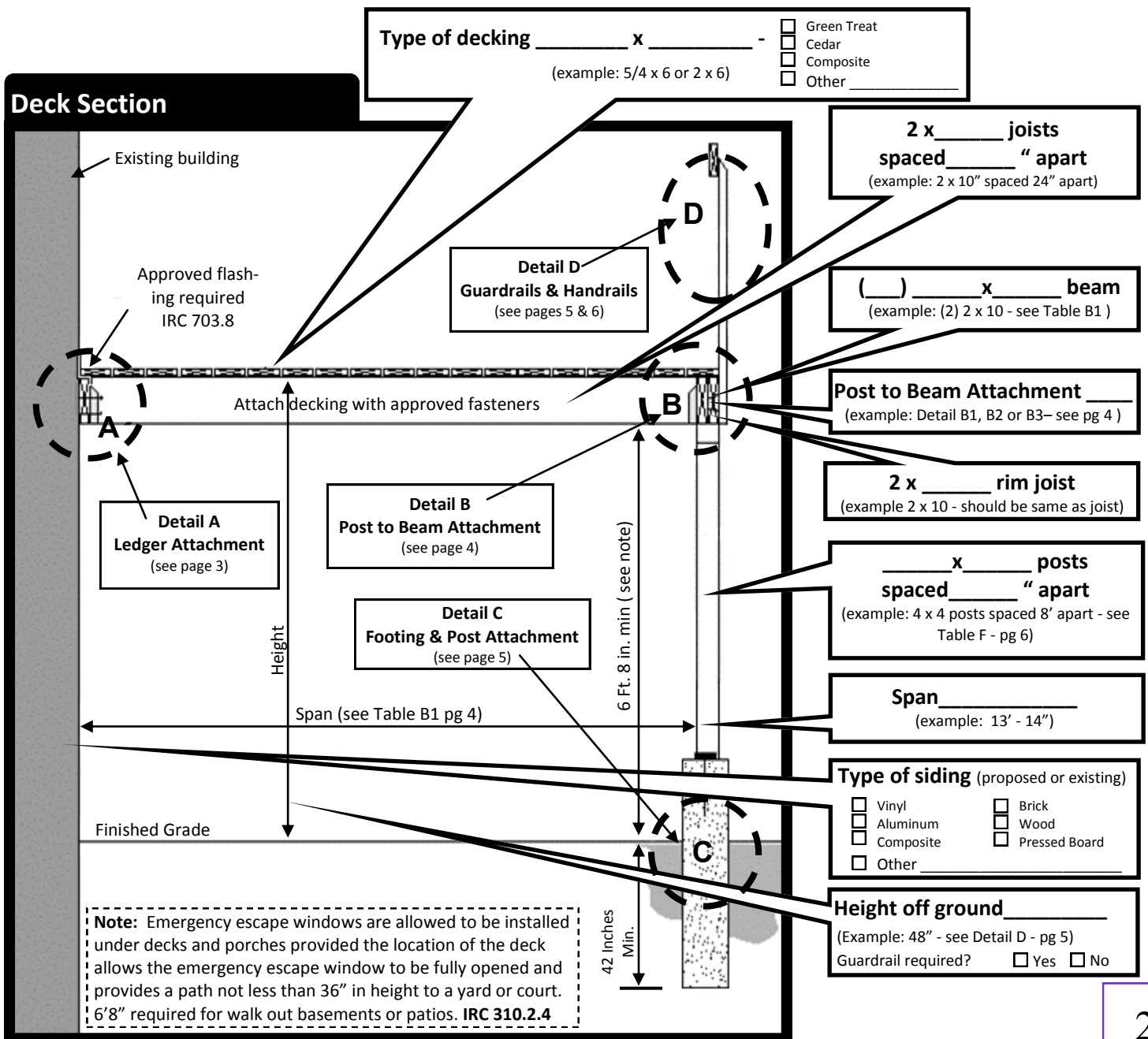
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## Minimum Requirements:

- All lumber shall be naturally durable wood or pressure treated.
- All screws, bolts, and nails for use with preservative treated wood shall be hot-dipped galvanized, stainless steel, silicon bronze or copper. Fasteners to be hot-dipped galvanized shall meet the requirements of ASTM A 153, Standard Specification for Zinc Coating (Hot- Dip) on Iron and Steel Hardware, Class D for fasteners 3/8" in diameter and smaller or Class C for fasteners with diameters over 3/8". IRC 317.3.1
- All hardware (joist hangers, cast-in-place post anchors, etc.) shall be galvanized or shall be stainless steel. Hardware to be hot-dipped prior to fabrication shall meet ASTM A 653, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process, G-185 coating. Hardware to be hot-dipped galvanized after fabrication shall meet ASTM A123, Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.



# Single Family Residential—Uncovered Deck and Porches

## Detail A

### DIRECTIONS:

1. Identify Ledger Size 2 x \_\_\_\_ X \_\_\_\_ (example 2' x 10" X 10')
2. Identify # of fasteners needed \_\_\_\_\_ Size \_\_\_\_\_ X \_\_\_\_\_ @ \_\_\_\_\_ O.C.  
(example two 1/2" X 6" lags @ 18" O.C. See Table A1)\*If using fasteners other than 1/2 lag or bolts, provide manufacturer's specs.
3. Location of lateral load connections \_\_\_\_\_ (see Figure A2)

- 1/2 Lags
- 1/2 Bolts
- 1/2 Bolts w washers
- Other\* \_\_\_\_\_ @ \_\_\_\_\_ O.C.

**NOTE:** This is for attached decks only. Where positive connection to the primary building structure cannot be verified during inspection, decks shall be self-supporting.

**Table A1**

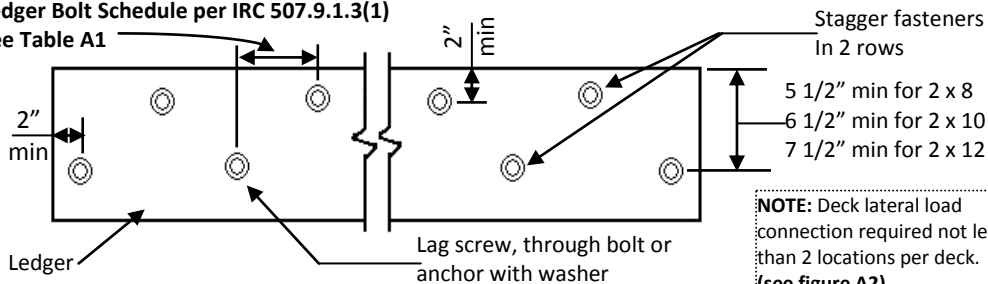
**IRC TABLE 507.9.1.3(1)**  
**DECK LEDGER CONNECTION TO BAND JOIST (Deck live load = 40 psf, deck dead load = 10 psf)**

FLOOR 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'
<b>Connection details</b>	<b>On-center spacing of fasteners<sup>d,e</sup></b>						
1/2-inch diameter lag screw with 1/2-inch maximum sheathing <sup>d,e</sup>	30	23	18	15	13	11	10
1/2-inch diameter bolt with 1/2-inch maximum sheathing <sup>e</sup>	36	36	34	29	24	21	19
1/2-inch diameter bolt with 1-inch maximum sheathing <sup>f</sup>	36	36	29	24	21	18	16

**Figure A1**

**Ledger Bolt Schedule per IRC 507.9.1.3(1)**

See Table A1

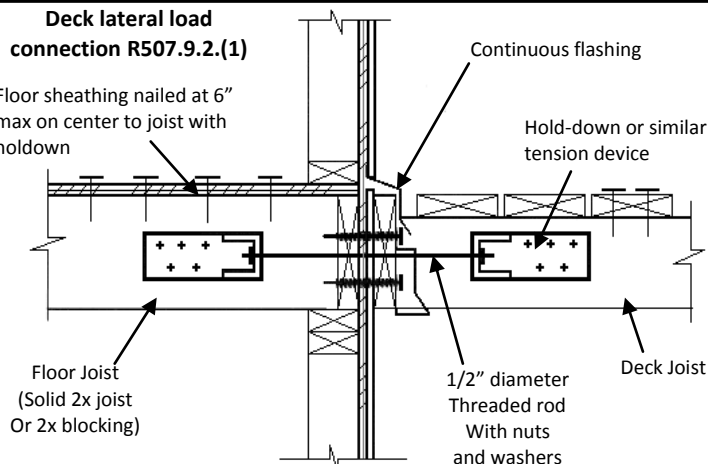


- Interpolation permitted. Extrapolation is not permitted.
- Ledgers shall be flashed in accordance with Section R703.4 to prevent water from contacting the house band joist.
- Dead Load = 10 psf. Snow load shall not be assumed to act concurrently with live load.
- The tip of the lag screw shall fully extend beyond the inside face of the band joist.
- Sheathing shall be wood structural panel or solid sawn lumber.
- Sheathing shall be permitted to be wood structural panel, gypsum board, fiberboard, 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.

**Figure A2**

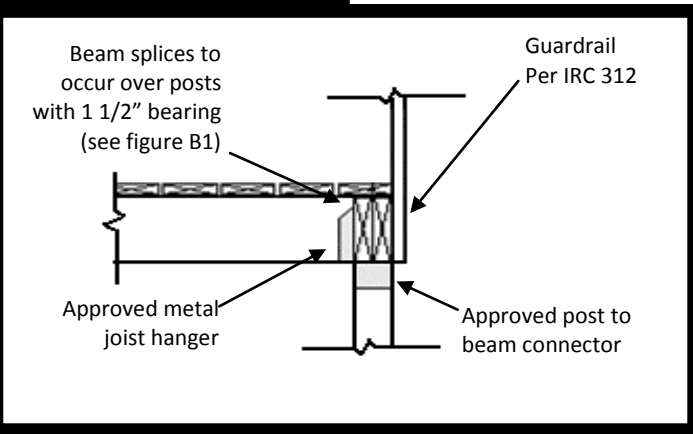
**Deck lateral load connection R507.9.2.(1)**

Floor sheathing nailed at 6" max on center to joist with hold-down

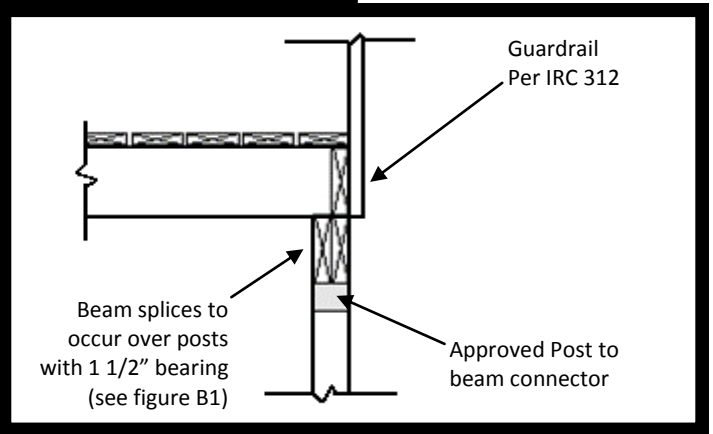


# Single Family Residential—Uncovered Deck and Porches

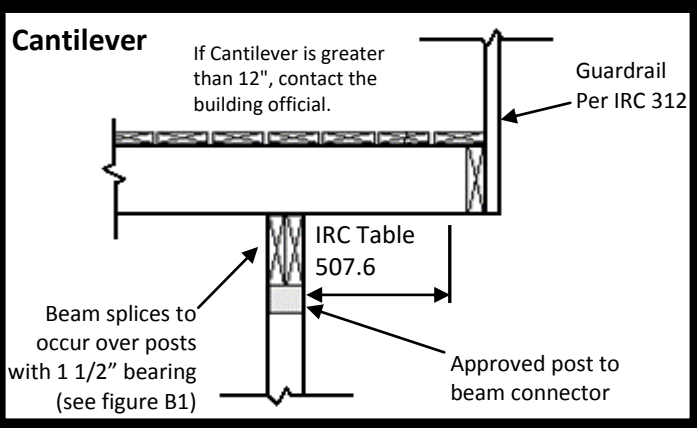
## Detail B1



## Detail B2



## Detail B3



## Figure B1

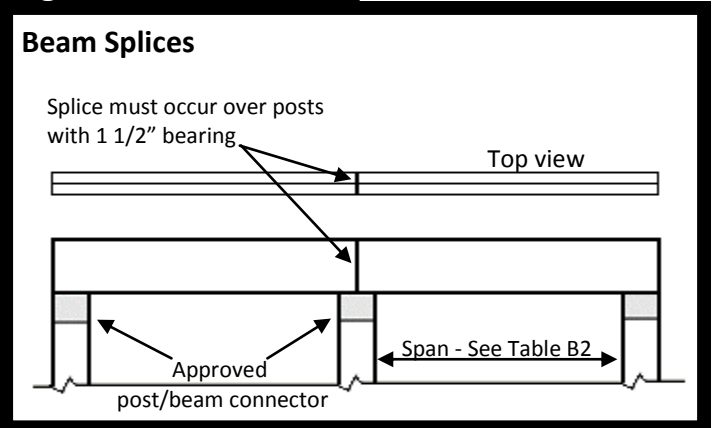


Table B1		MAXIMUM FLOOR JOIST SPANS <sup>a,b</sup>			
IRC Table 502.3.1(2)					
Species	Size	Floor Joist Spacing On Center			
		12"	16"	19.2"	24"
Southern Yellow Pine	2 x 8	13'6"	11'10"	10'10"	9'8"
	2 x 10	16'2"	14'0"	12'10"	11'5"
	2 x 12	19'1"	16'6"	15'1"	13'6"
Douglas Fir-Larch,	2 x 8	14'2"	12'9"	11'8"	10'5"
	2 x 10	18'0"	15'7"	14'3"	12'9"
	2 x 12	20'11"	18'1"	16'6"	14'9"

NOTES: a. # 2 grade or better, wet service conditions b. 40 psf live load, 10 psf dead load

Table B2*		DECK BEAM SPANS <sup>a,b,c</sup>						
Lumber Species	Joist Size	IRC Table 507.5(1)						
		6'	8'	10'	12'	14'	16'	18'
Southern Yellow Pine	2 - 2 x 6	6'11"	5'11"	5'4"	4'10"	4'6"	4'3"	4'0"
	2 - 2 x 8	8'9"	7'7"	6'9"	6'2"	5'9"	5'4"	5'0"
	2 - 2 x 10	10'4"	9'0"	8'0"	7'4"	6'9"	6'4"	6'0"
	2 - 2 x 12	12'2"	10'7"	9'5"	8'7"	8'0"	7'5"	7'0"
	3 - 2 x 6	8'6"	7'5"	6'8"	6'1"	5'8"	5'3"	4'11"
	3 - 2 x 8	10'11"	9'6"	8'6"	7'9"	7'2"	6'8"	6'4"
	3 - 2 x 10	13'0"	11'2"	10'0"	9'2"	8'6"	7'11"	7'6"
Douglas Fir-Larch, Hem-Fir,	3 - 2 x 12	15'3"	13'3"	11'10"	10'9"	10'0"	9'4"	8'10"
	2 - 2 x 8	8'2"	7'1"	6'4"	5'9"	5'2"	4'8"	4'4"
	2 - 2 x 10	10'0"	8'7"	7'9"	7'0"	6'6"	6'0"	5'6"
2 - 2 x 12	11'7"	10'0"	8'11"	8'2"	7'7"	7'1"	6'8"	

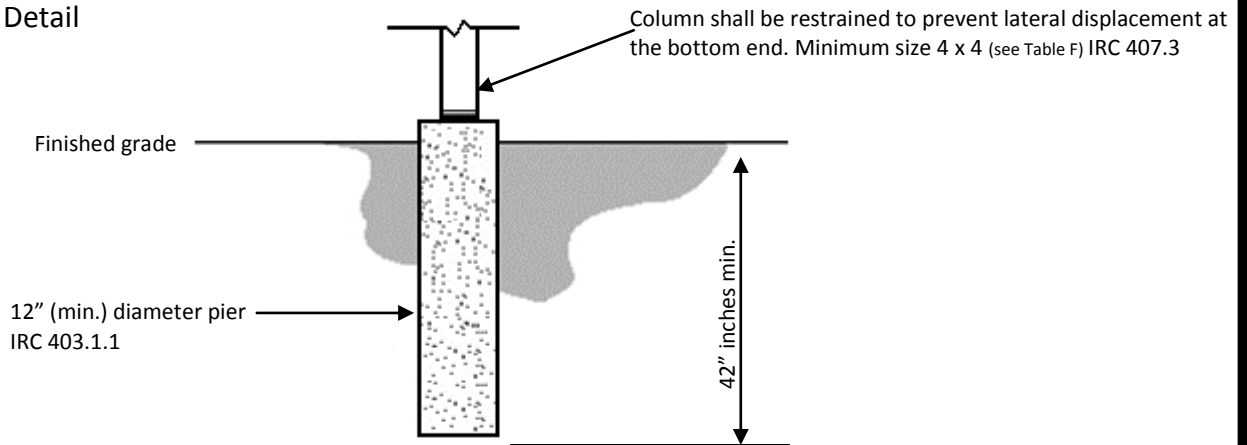
NOTES: a. # 2 grade or better, wet service conditions b. 40 psf live load, 10 psf dead load c. Beam assembled per ( IRC 602.3(1))

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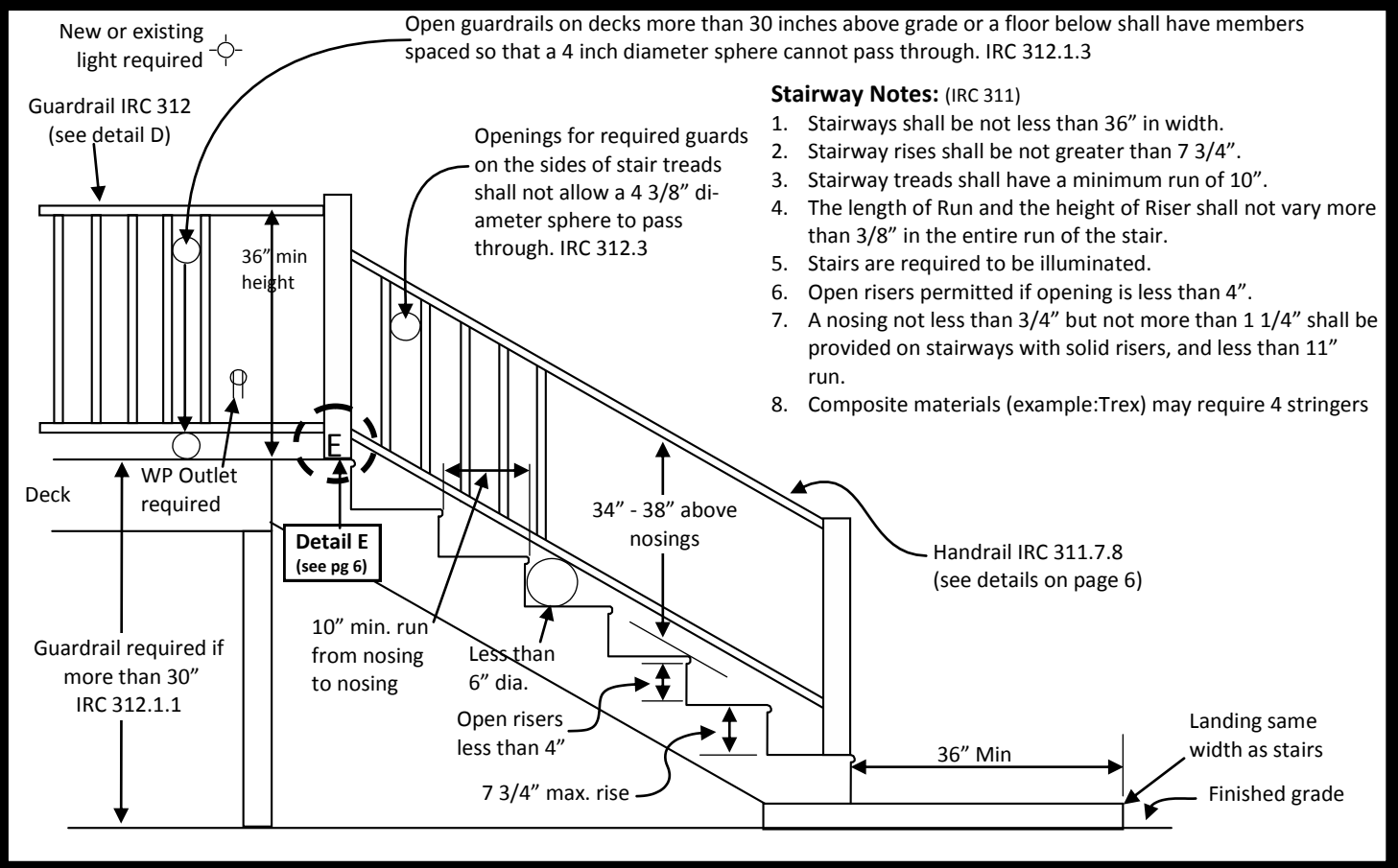
# Single Family Residential—Uncovered Deck and Porches

## Detail C

### Post & Footing Detail



## Detail D - Stair & Handrail Specifications

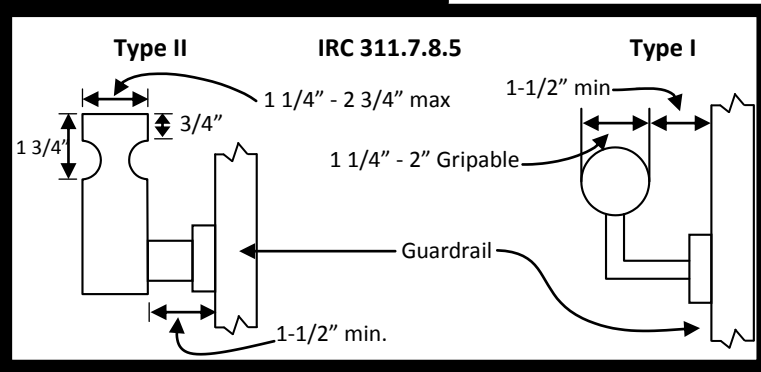


### Handrail Notes:

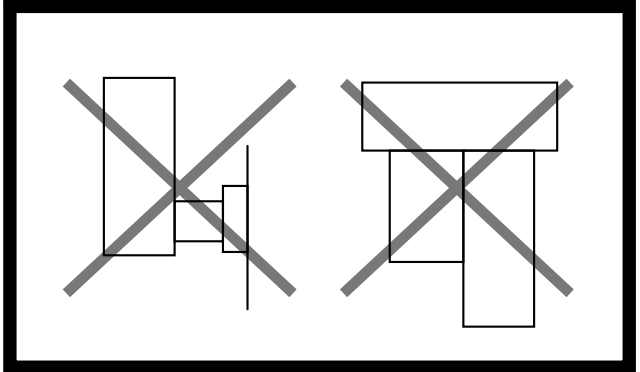
1. Handrails shall be continuous on at least one side of stairs with 4 or more risers. IRC 311.7.8.4
2. Top of the handrails shall be placed not less than 34 inches nor more than 38 inches above stair nosings. 311.7.8.1
3. The handgrip portion of handrails shall be not less than 1-1/4 inches nor more than 2 1/4 inches in cross section for non circular handrails.
4. Handrails shall be placed not less than 1-1/2 inches from any wall or other surface. IRC 311.7.8.3

# Single Family Residential—Uncovered Deck and Porches

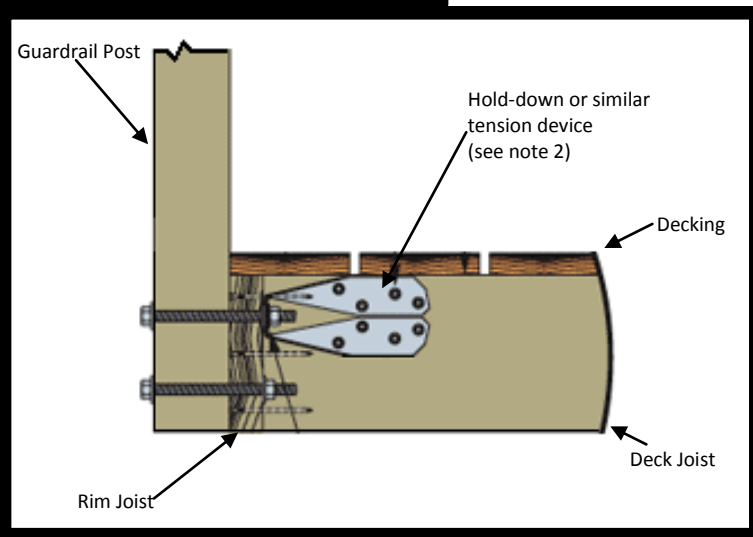
## Preferred Handrail Details



## Unacceptable Handrails



## Detail E



### Guardrail Notes:

1. Shall be able to resist a single concentrated load applied in any direction at any point along the top of 200 lbs/sq ft. (Table 301.5)
2. Approved fasteners shall be used to connect post to deck and be able to resist 1700 lb force.
3. Guard in-fill components, balusters, and panel fillers shall be designed to withstand a horizontally applied normal load of 50 lbs on an area equal to one sq ft. (Table 301.5)
4. Guard in-fill components, balusters, and panel fillers shall be designed to shed water.
5. 4 x 4 posts should be spaced every 6 ft.
6. 4 x 4 posts cannot be notched.

Deck height	RECOMMENDED POST SIZE				
	Load Area *				
	48	72	96	120	124
0' to 6'	4 x 4	4 x 4	6 x 6	6 x 6	6 x 6
6' and up	6 x 6	6 x 6	6 x 6	6 x 6	6 x 6

\*To calculate "Load area" multiply the distance between the beams by the distance between the posts (in feet).

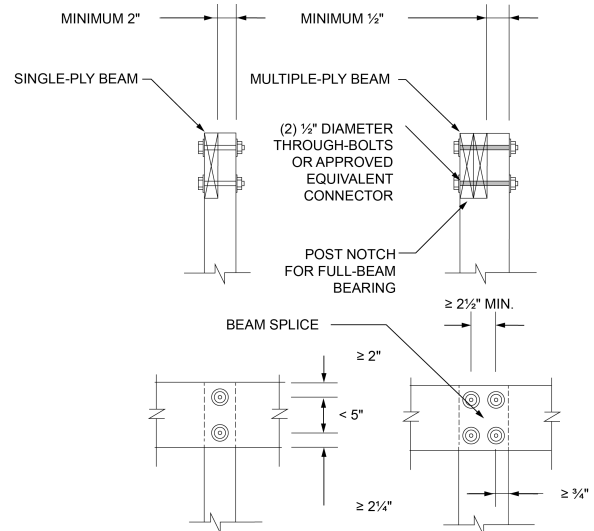


FIGURE R507.5.1(2)  
NOTCHED POST-TO-BEAM CONNECTION

Beams must be attached to the top of posts with approved connectors or notched into an appropriately sized post and attached with approved fasteners. Beams shall not be fastened to the side of a post.

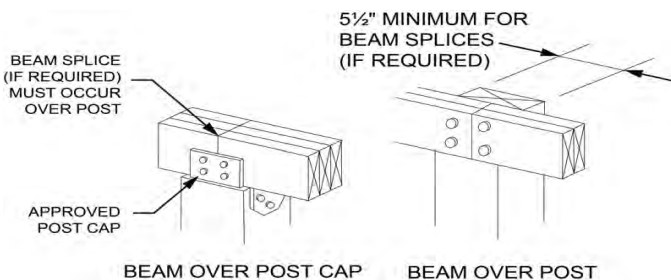


FIGURE R507.5.1(1) DECK BEAM TO DECK POST

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