

City of Hazelwood

2021 IRC Prescriptive Deck Guide



Code Enforcement

Required Documentation

1. Copy of contract showing cost of construction
2. A Site Plan showing distances from the deck to property lines, and to other structures or HVAC equipment on the lot. R106.2
3. Front and Side cross-section drawing are required and must be to scale with measurements. R106.1.1
4. Detailed construction drawings and framing details are required with measurements for piers/foundation, posts, beam sizes and spans, joist sizes and spans, cantilever spans, decking, ledger, guards, stairs/landing, and details for all connections, hardware and fasteners. R106.1.1
5. Manufacturers installation instructions for any manufactured railing kits or composite materials.

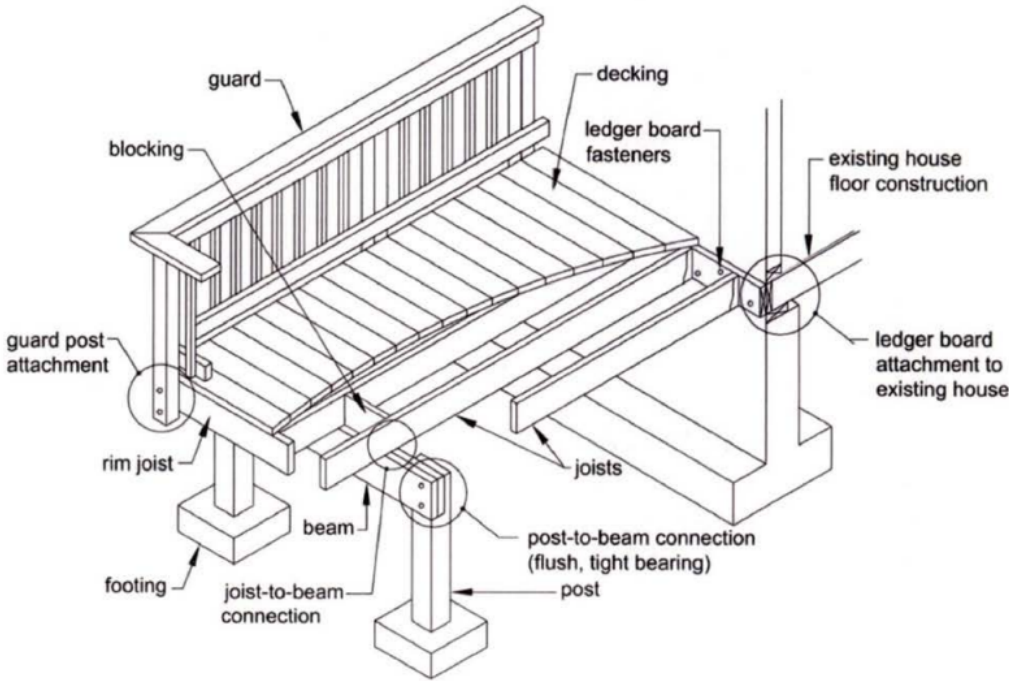
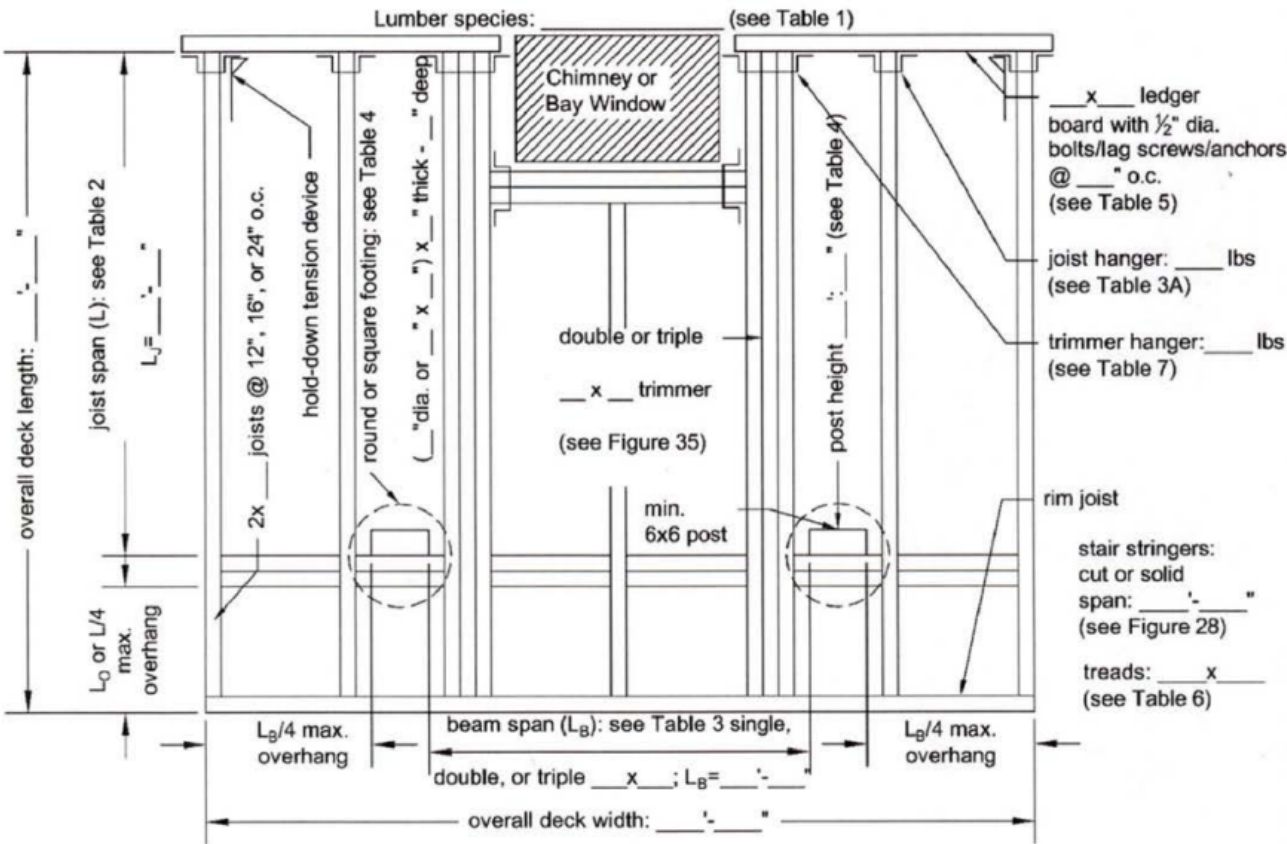
References:

DCA6 (design for code acceptance)
2021 International Residential Code Chapter 5

GENERAL

- All lumber must be sized according to 2021 IRC Chapter 507 - Exterior Decks
- Wood material shall be No. 2 grade or better, preservative-treated, naturally termite and decay resistant or approved material. Fasteners shall be hot-dipped galvanized nails, stainless steel or approved material.
- Decks may not be within 36" inches measured horizontally and 10' feet measured vertically from overhead electrical wires.
- The house must have one GFCI protected electrical receptacle accessible from the deck.
- Deck stairs must be illuminated for safety.

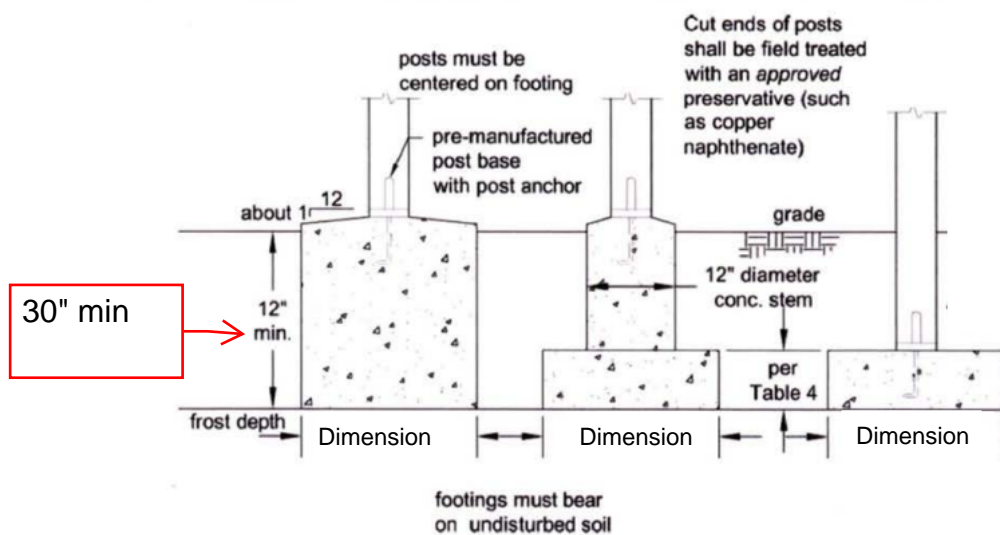
Framing Plan Examples



Footings

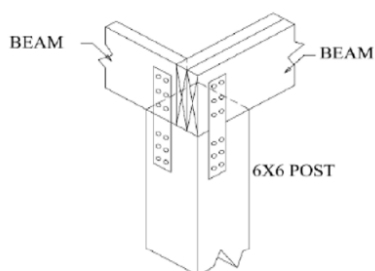
- Footing details provided, extending minimum 30" below grade Table R301.2(1) Hazelwood code 500.050.B.2.q
- Footings meet minimum size requirements per IRC Table R507.3.1
- Exceptions for footing frost depth for free-standing decks R507.3

Typical type of Footings, may be belled at bottom

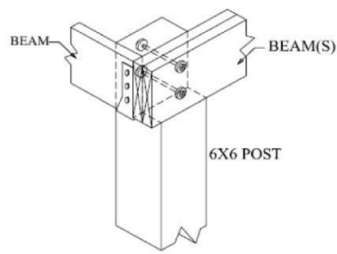


Posts and Beams

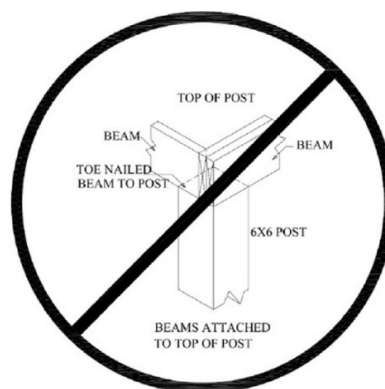
- Post sizes, spans, and connections to footings detailed R507.4, R507.5
- Beam sizes and spans detailed, meeting IRC Table R507.5
- Beam-to-post connections use notched posts or post caps R507.5.2
- Built-up beam plies fastened per R507.5.1 and splices over a post
- Beam bearing minimum 1.5" on wood or metal, 3" on concrete/masonry R507.5.1



BEAMS ATTACHED
TO TOP OF POST
W/ APPROVED
PRE-MFGD PRODUCT



NOTCHED POST
THRU BOLTED BEAMS
BEAM(S) CANTILEVERED PAST POST
SIDE BEAM ATTACHED
W/ APPROVED HANGER (INSIDE FLANGES)
SIMPSON HUSC OR EQUIVALENT



Beam Span.

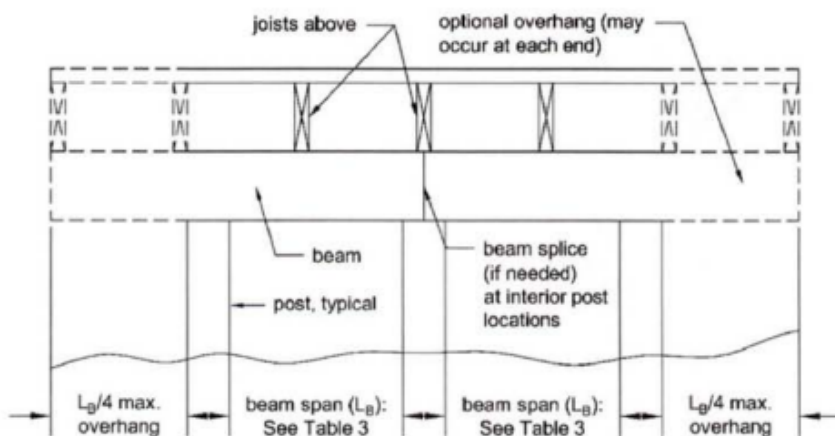
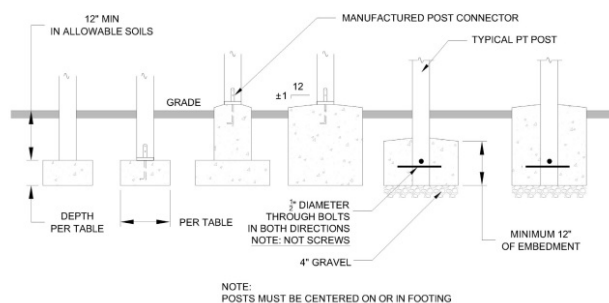


FIGURE R507.3 DECK POSTS TO DECK FOOTING CONNECTION



Joists 507.6

- Joist sizes and spans detailed, meeting IRC Table R507.6
- Joist cantilevers do not exceed IRC limits R507.6
- Joist bearing minimum 1.5" on wood or metal R507.6.1
- Joist hangers sized for joists and fastened with manufacturer's hardware R507.6.1
- Joists connected to the beam with hurricane clips or code-compliant toenailing R507.6.2

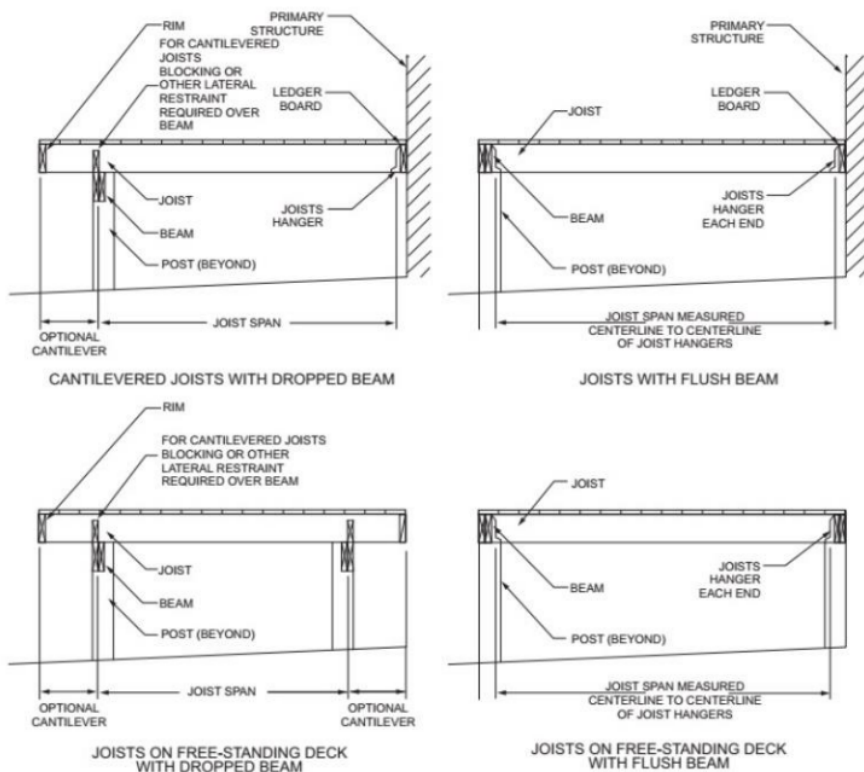
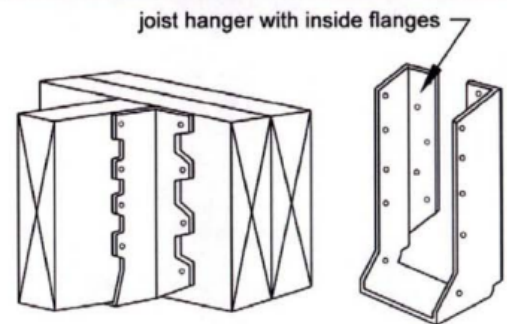
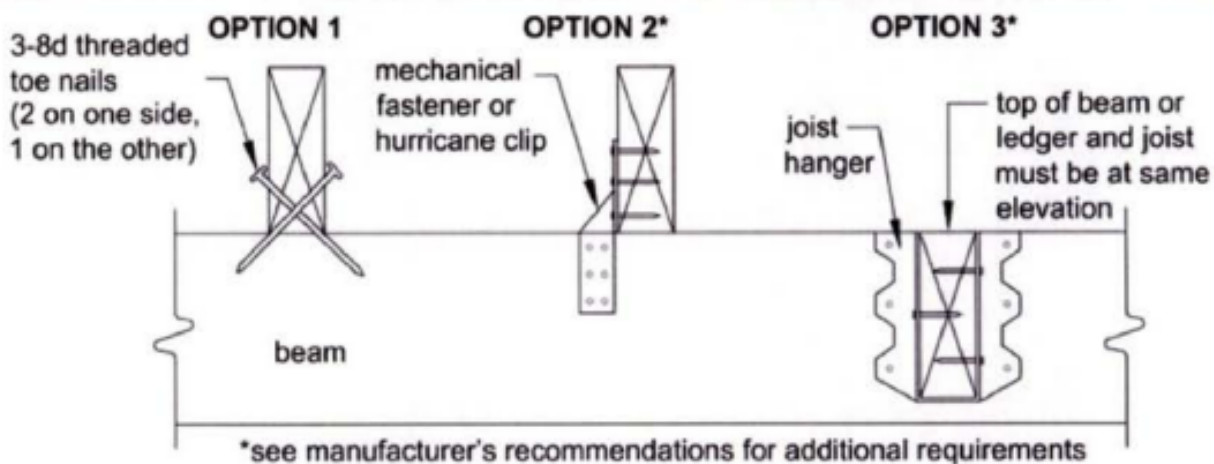


Figure 7. Typical Joist Hangers.

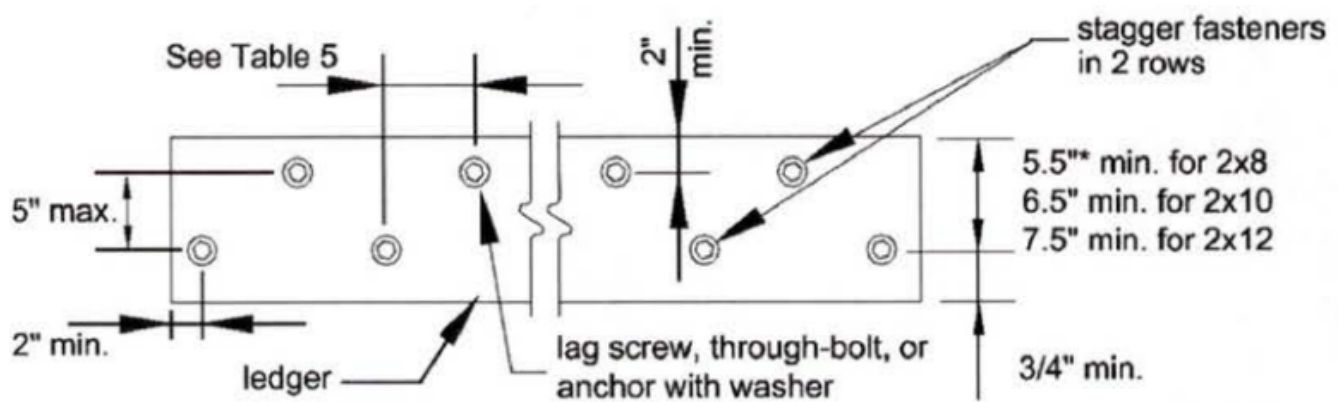


Joist-to-Beam Detail.

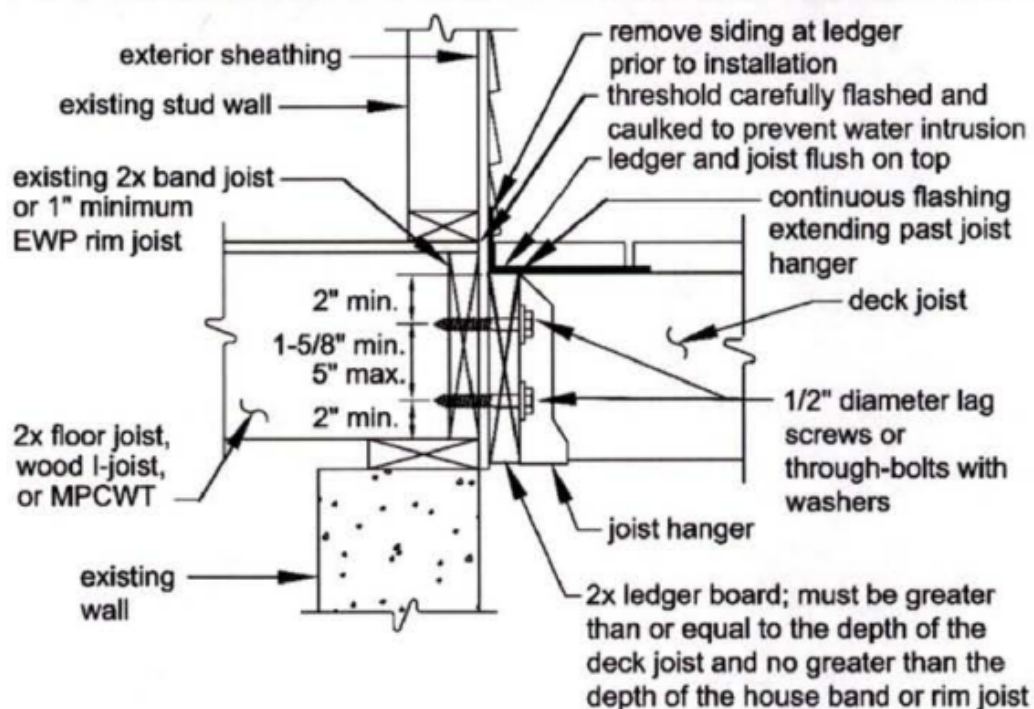


Ledger Attachment R507.9

- Ledge board attached with minimum 1/2" lag bolts or approved equivalent R507.9.1.1
- Ledge fasteners staggered and spaced per IRC Table R507.9.1.3(1)
- Ledge flashing extends behind exterior wall covering R507.9.1.3
- Ledge board not attached to stone/masonry veneer R507.9.1.2
- Check the “H” frame header and trimmer joist size, attached directly to the house band.

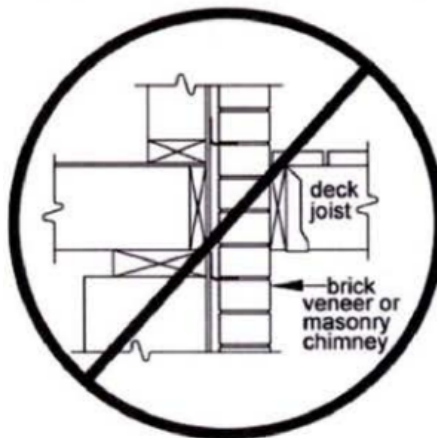
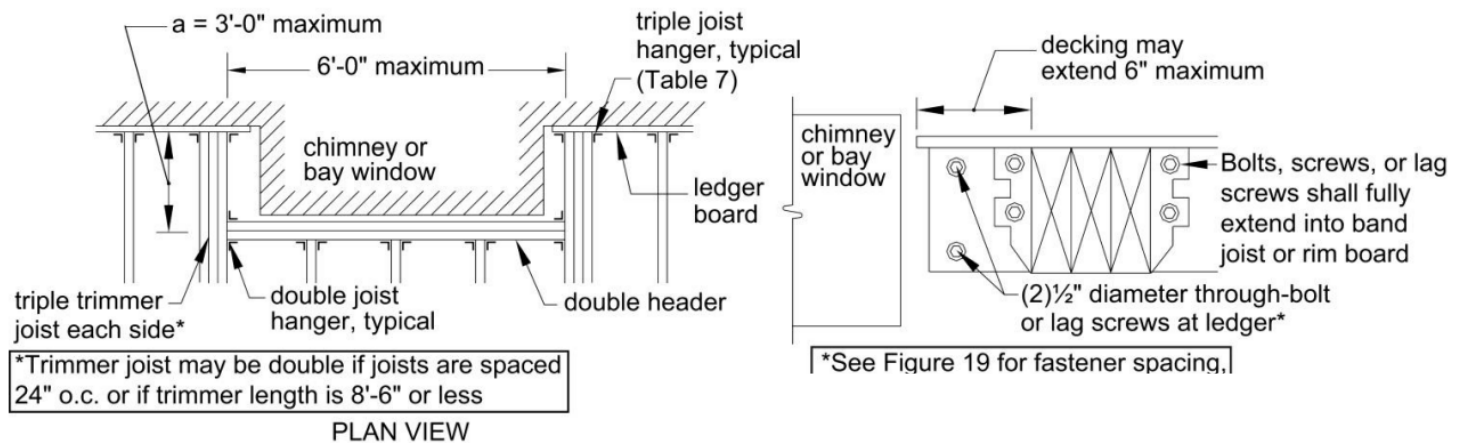


Flashing Detail



H-Frame

Headers must be installed within 3 feet of the trimmer joist ends and are limited to a maximum span of 6 feet. For obstructions wider than 6 feet, you must install additional 6x6 posts on code-compliant footings to reduce header spans accordingly. DCA 6



- Minimum two lateral load devices installed per IRC Figure R507.9.2(1)

or

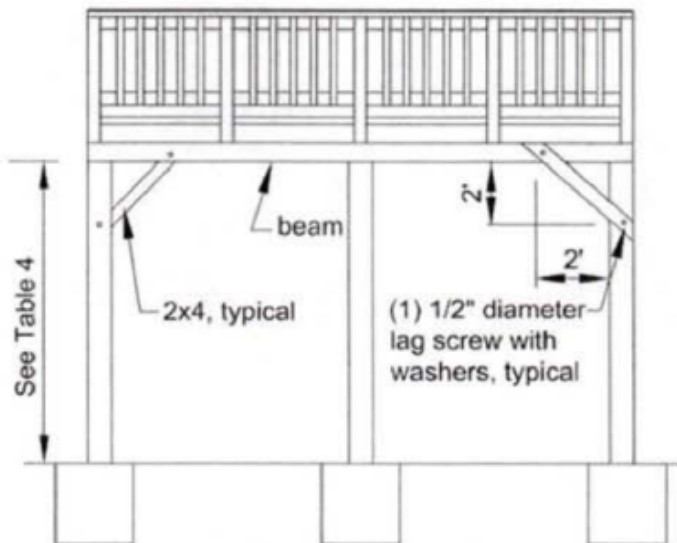
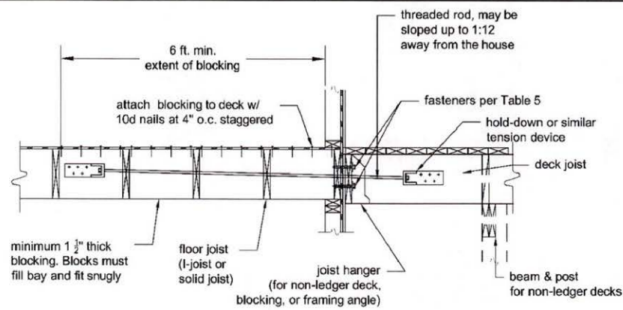
- four devices per Figure R507.9.2(2)

or

- full depth posts, a 45° angle brace, Decking on 45°, X or K bracing

- 1500 lb lateral load device capacity, or 750 lb for free-standing decks R507.9.2

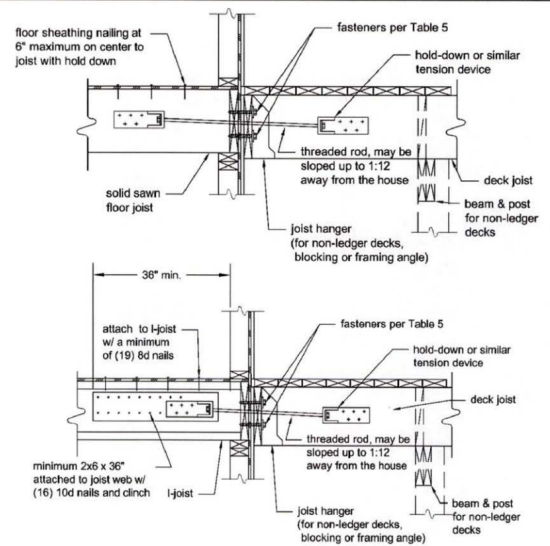
Figure 23. Lateral Load Device with Floor Joists Perpendicular to Deck Joists.



DIAGONAL BRACING PARALLEL TO BEAM

Note: Diagonal Bracing is prohibited on center posts.

Figure 22. Lateral Load Device with Floor Joists Parallel to Deck Joists.



Guards 507.10

- Guard height minimum 36" R507.10.1
- Guard openings do not allow 4" diameter sphere to pass R507.10.2
- Guard post connection to the deck framing detailed to meet load requirements Table R301.5
- Guard posts not stacked on top of support posts
- 4x4 guard posts are not notched at the connection to the deck R507.10.1
- If using a system, provide manufacturer instructions

Figure 24. Example Guard Detail.

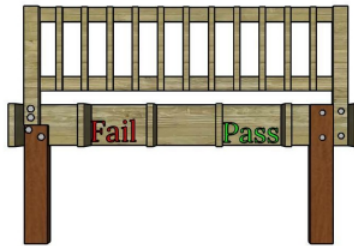
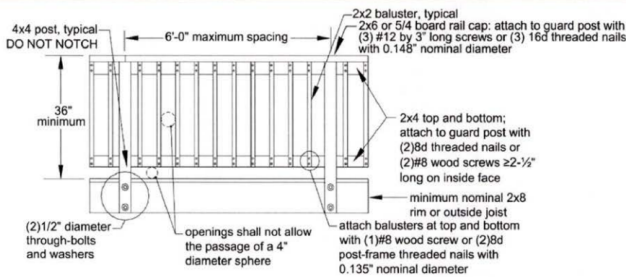
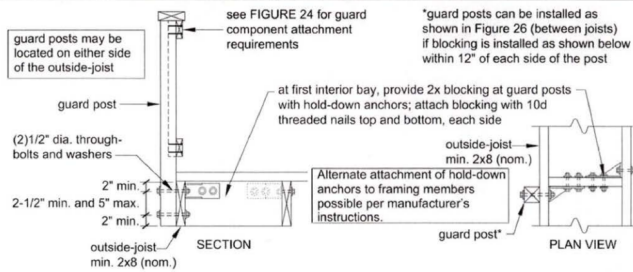


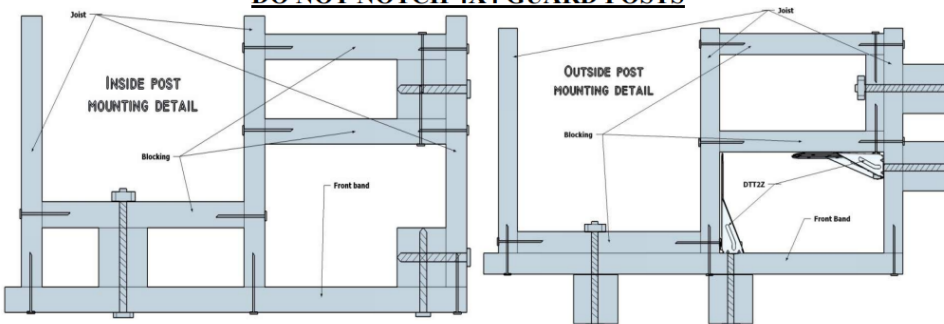
Figure 25. Guard Post to Outside-Joist Example.



PROHIBITED NOTCHING
AT GUARD POSTS

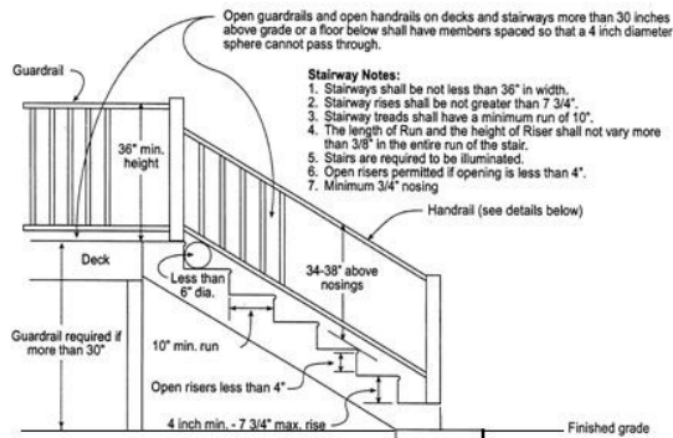
UNLESS 6" x 6" POST

Typical guard post attachment DO NOT NOTCH 4X4 GUARD POSTS



Stairs 507.11

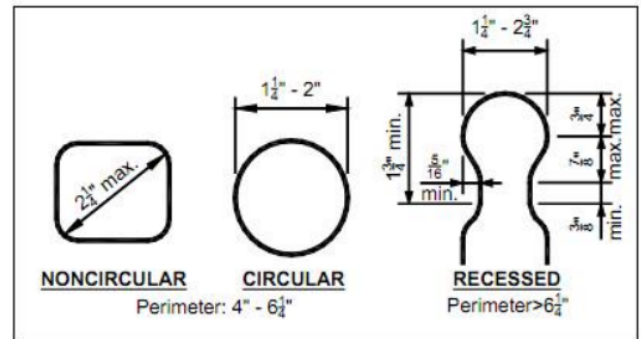
- Stair geometry meets IRC for width, landing size, tread depth, and riser height R311.7
- Handrails provided and meet IRC height and opening limitations R311.7.8
- Stair stringers sized per IRC Table R507.11.1
- Stair footings extend below the frost line R507.11.2



TYPICAL STAIR

Stringers attached at top with non-corrosive metal straps or joist hangers and bottom on concrete pad.

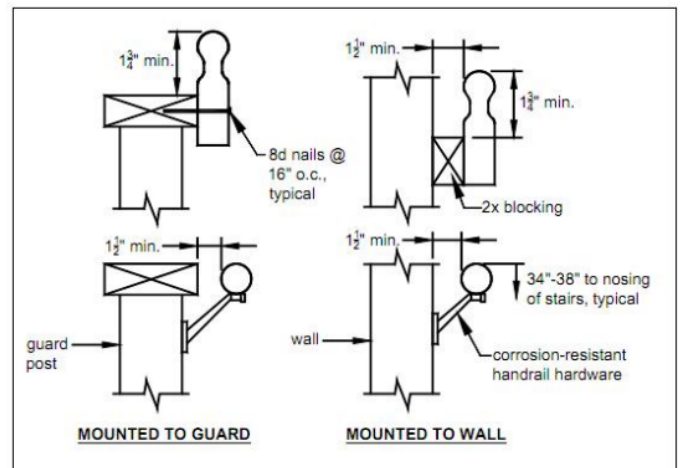
Stringers shall be a minimum of 3 - 2" x 12"



HANDRAIL GRASPABILITY TYPES/GEOMETRY

GRASPABLE HANDRAIL

(Required minimum on one side)



HANDRAIL REQUIREMENTS