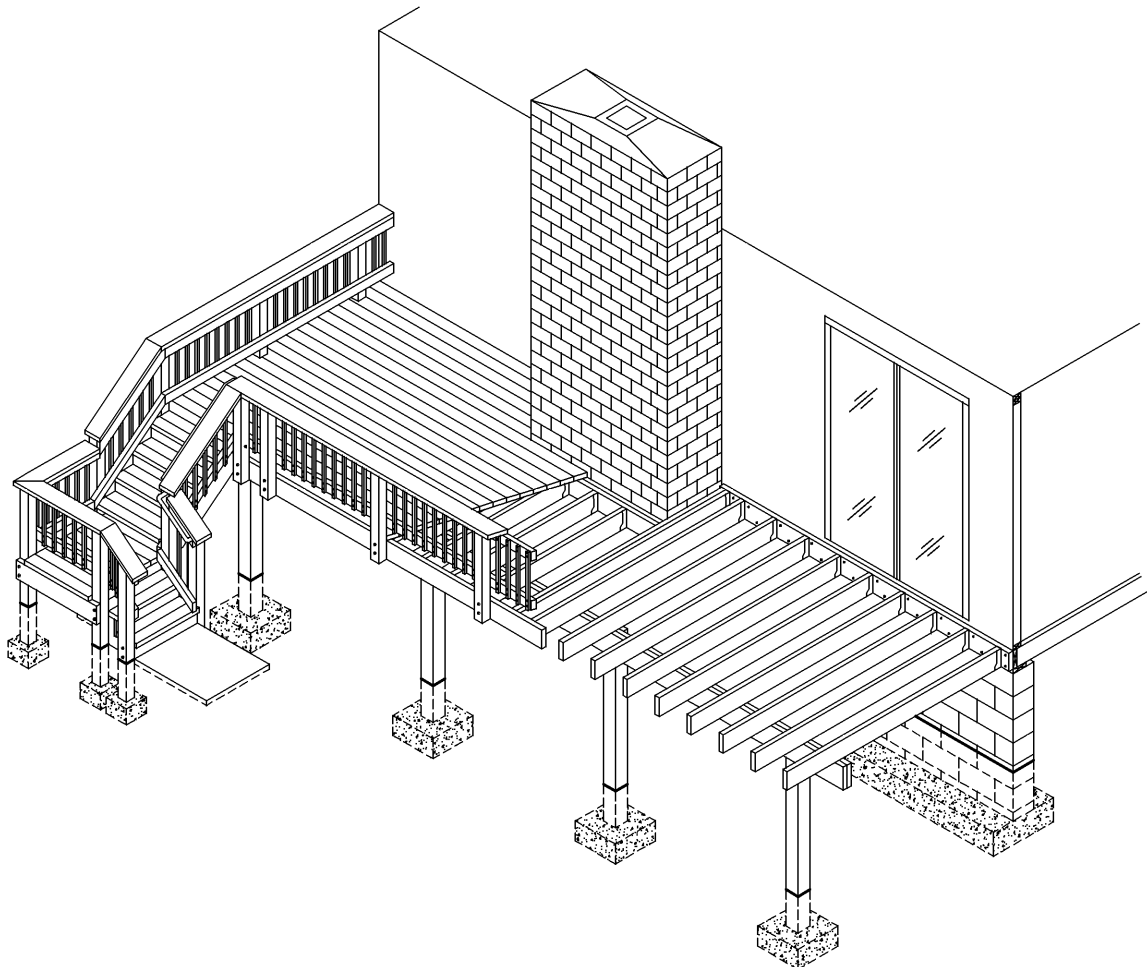


Prince William County

Typical Deck Details

Based on 2003 Virginia Uniform Statewide Building Code



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TYPICAL RESIDENTIAL DECK DESIGN

PRINCE WILLIAM COUNTY, VIRGINIA

Department of Public Works
 Building Development Division
 Prince William, VA 22192-9201
 (703)792-6939

GENERAL NOTES

THINGS TO BRING FOR PERMIT

Important! Zoning Permit. You must bring a copy of your house location plan that shows the proposed location of the deck, drawn to the same scale as the plan. Show the side yard and rear yard distances (setbacks from property lines) on the plan.

NOTES ON DESIGN

- No changes shall be made to approved plans without prior approval from the Construction Plans Review Branch.
- Approved deck plans shall not be used for supporting hot-tub installation, without re-submission for review.
- All metal connections, bolts, joist hangers, etc. shall be galvanized or corrosive resistant.
- All lumber shall be pressure treated Southern Pine, grade #2 or better.
- Building permit is not required if all portions of the top of the deck's flooring is within 16.5 inches from the finished grade unless it carries structural load, e.g. hot-tub. All decks require zoning permit.
- **Setback and Permit Standards for At-Grade Structures**
Provisions in the Prince William County Zoning Ordinance for at-grade decks and patios differ from those in the Building Code. In the Zoning Ordinance, the standards are as follows: "Patios, decks, walkways, steps and driveways constructed no higher than eight (8) inches above existing grade of the contour of the land where located may encroach within any setback provided that no permanent above-grade affixed structures such as railing, planters, benches, roofs or other appurtenances are installed."
- Column spacing and joist spans shown are maximum. Smaller decks may be constructed utilizing the same structural members.
- The typical residential deck design shall be strictly adhered to. All deviations from these drawings shall require an independent set of design documents to be prepared and submitted to the Construction Plans Review Branch for review.
- If a proposed deck does not conform to these typical design details, a custom design can be submitted to the Construction Plans Review Branch. Submit two (2) copies of the design, including framing plans, cross sections, and stringer details for review.
- Material requirements are as follows:

Component	Requirement
Nails, screws, lag screws, and bolts (steel bolts ½" diameter or greater are exempt) shall be	hot-dipped zinc galvanized, stainless steel, or approved for use with ACQ, CA, or CA-B ¹
Hardware (joist hangers, anchors, clips and angles) shall be	<ul style="list-style-type: none"> • hot-dipped galvanized with a 1.85 oz/sf of zinc (G-185 coating)¹ or • Stainless Steel (type 304 or better) • Examples "Zmax" from Simpson Strong-Tie "Triple Zinc" from USP
Flashing shall be	copper, stainless steel, silicon, bronze, or UV-resistant plastic ²
Notes: ¹ In all cases, electroplated galvanizing is NOT acceptable. ² ICC Evaluation Report and testing data are required to substantiate decay resistance of plastic.	

- Please go to www.treatedwood.com/products/preserve/ for a list of hardware manufacturers that recommend hardware for use with Alkaline Copper Quaternary (ACQ) treated wood.
- Decking composed of foreign lumber, plastic or manufactured materials may be substituted only when the product has an approved evaluation report from ICC-ES or from an accredited testing laboratory.





FIGURE 1: DECK FRAMING PLAN

Exterior house condition shall not contain any of the following: prefabricated floor joist system (without at least 1¼" solid band board), brick veneer, stone or cultured stone on the wall, or cantilever.
(refer to sheet 5 for free standing deck)

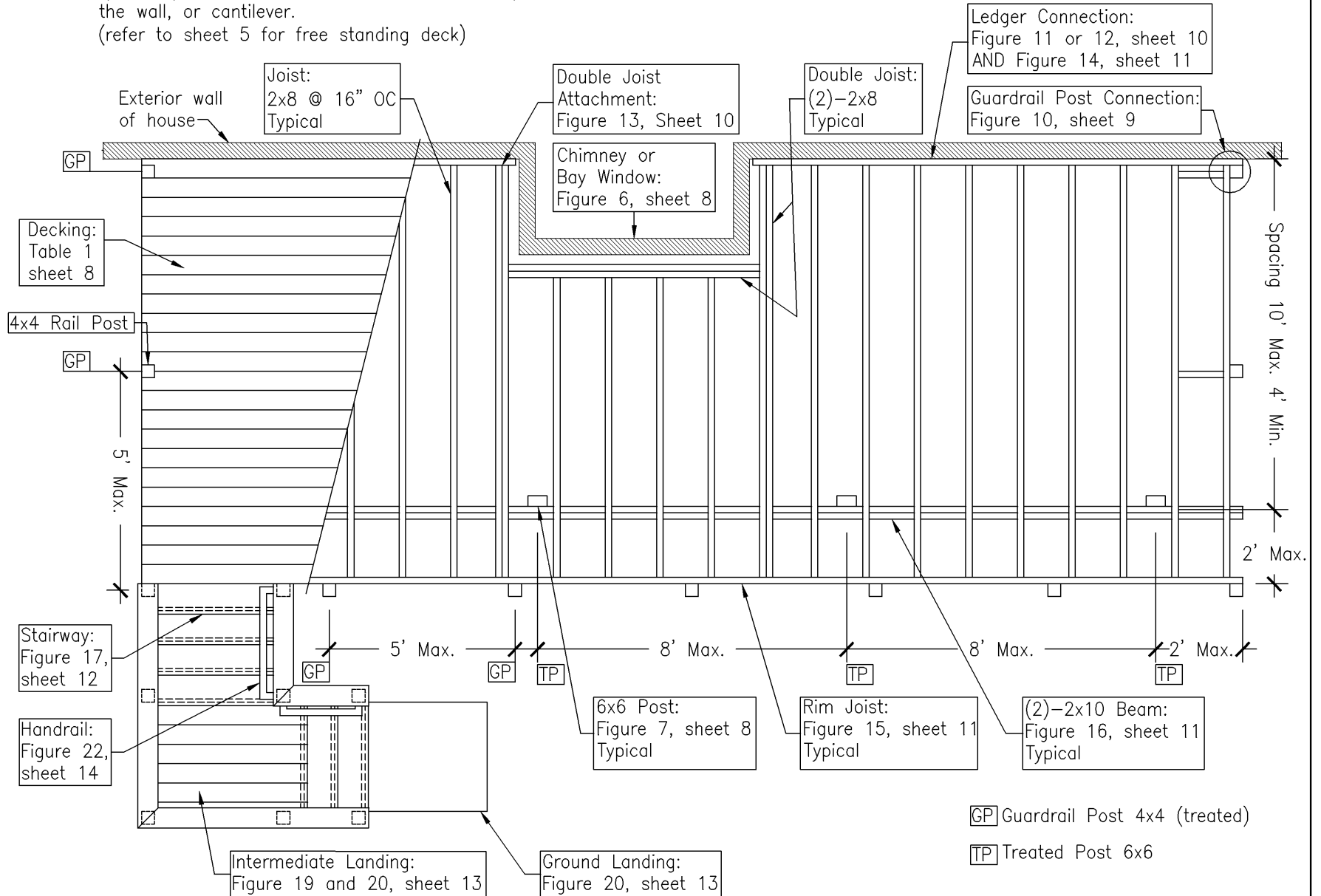




FIGURE 3: FREE STANDING DECK FRAMING PLAN

Deck shall be free standing when adjacent house condition contains any of the following: prefabricated floor joist system (without at least 1¼" solid band board), brick veneer, stone or cultured stone on the wall, or cantilever.

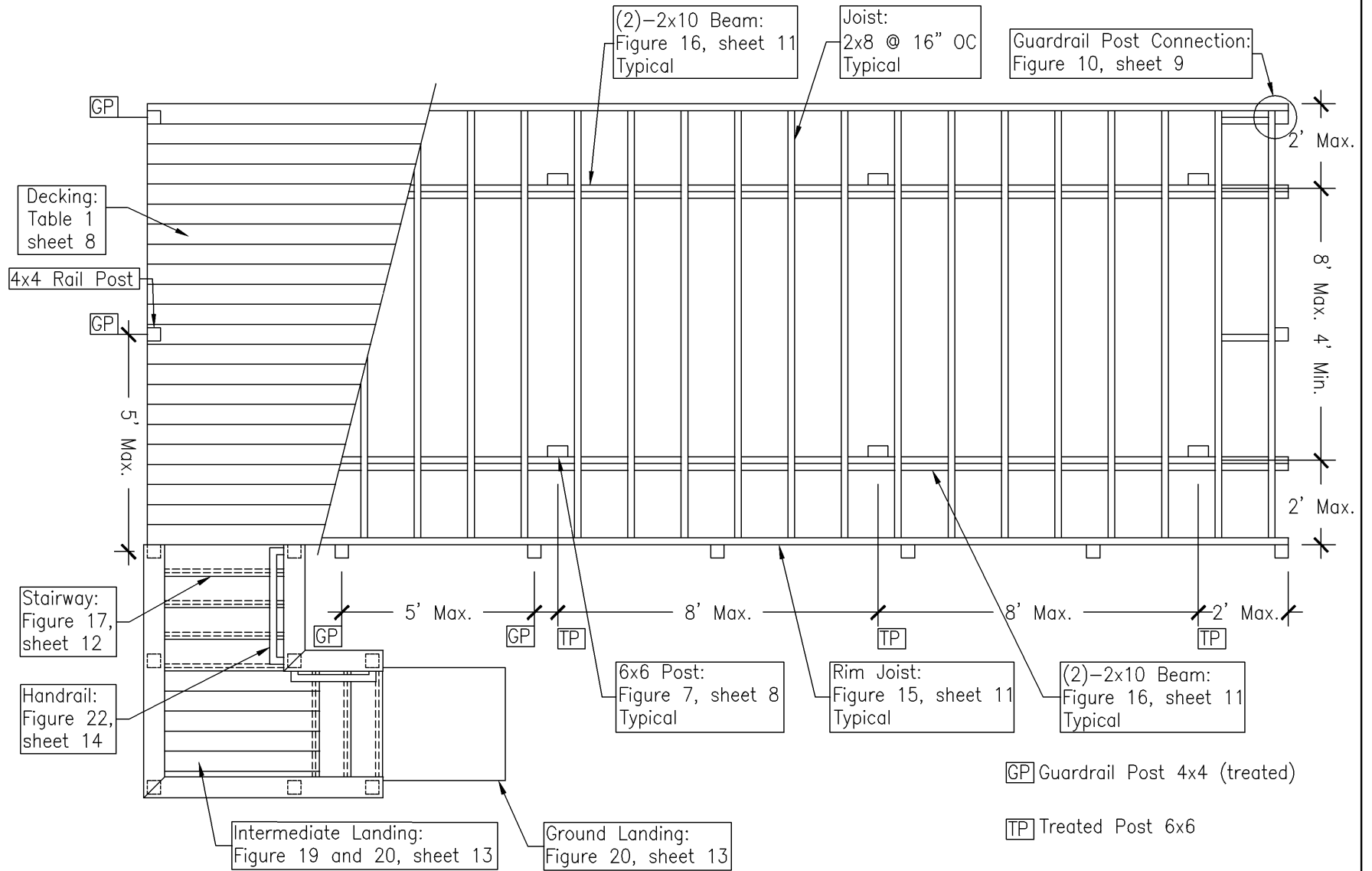


FIGURE 4: CROSS SECTION OF FREE STANDING DECK

Deck shall not be anchored to face of house

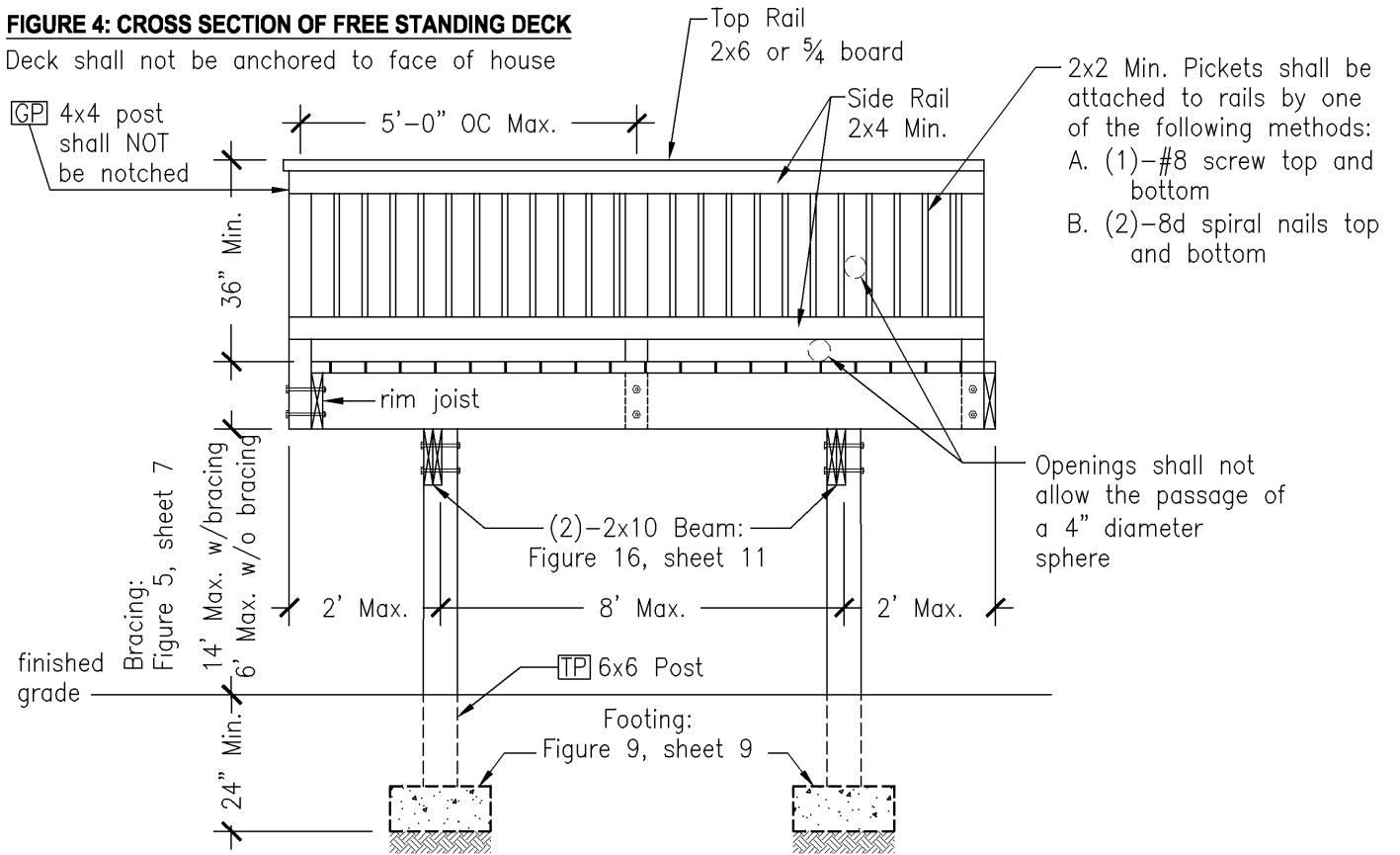


FIGURE 4: CROSS SECTION OF FREE STANDING DECK

Deck shall not be anchored to face of house

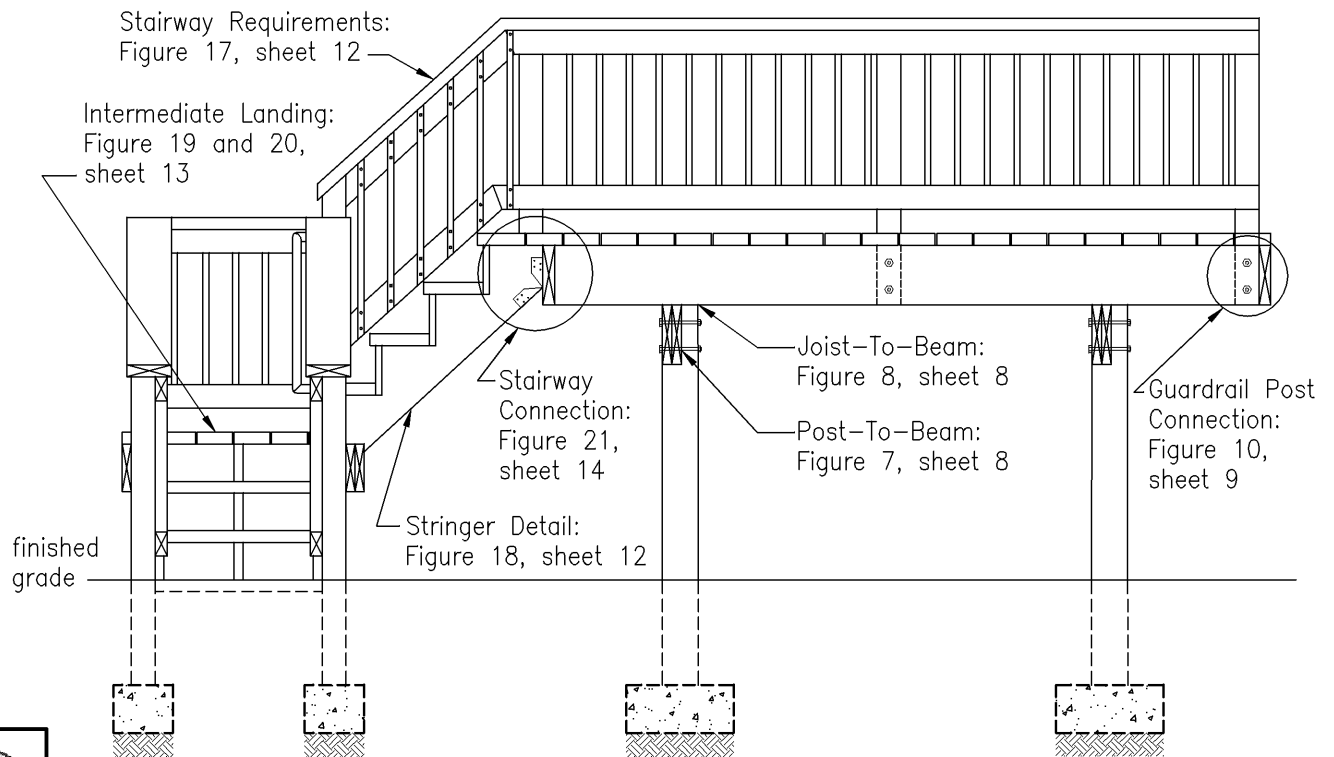
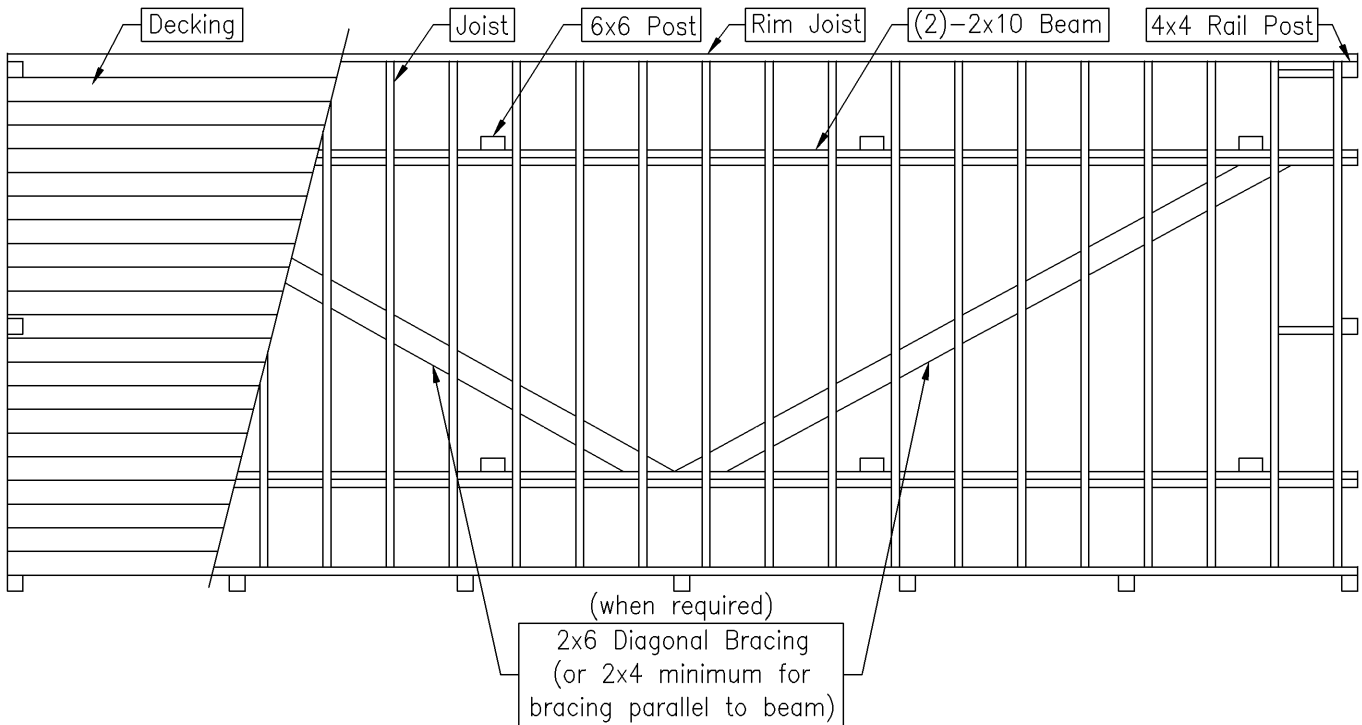


FIGURE 5: LATERAL SUPPORT OF FREE STANDING DECK

Deck bracing shall be provided when deck height is greater than 8'-0" above level ground.



Free standing decks shall be braced with 2x6 diagonal bracing corner to corner at the underside of floor joists using an 8d nail at each joist, or by installing 2x6 decking diagonally.

FIGURE 5: LATERAL SUPPORT OF FREE STANDING DECK

Knee bracing shall be provided when deck height is greater than 6'-0" above level ground.

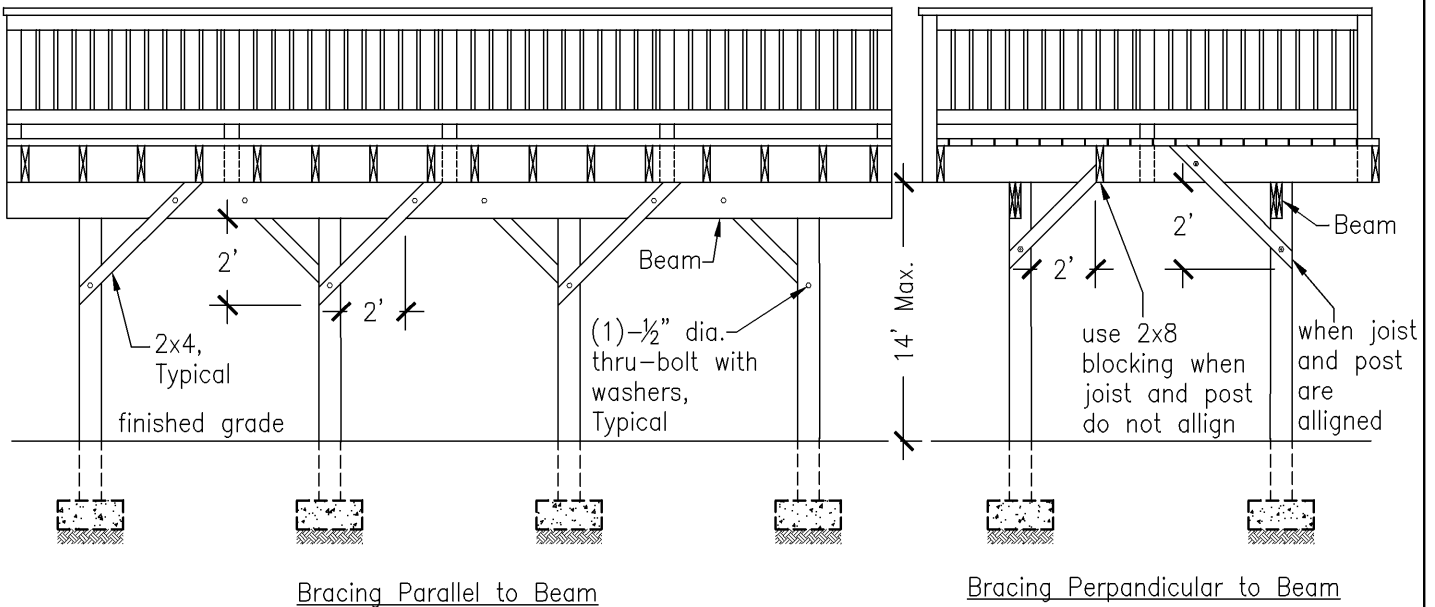


FIGURE 6: FRAMING PLAN AT CHIMNEY OR BAY WINDOW

Exterior house condition shall not contain any of the following: prefabricated floor joist system (without at least 1¼" solid band board), brick veneer, stone or cultured stone on the wall, or cantilever. (refer to sheet 5 for free standing deck)

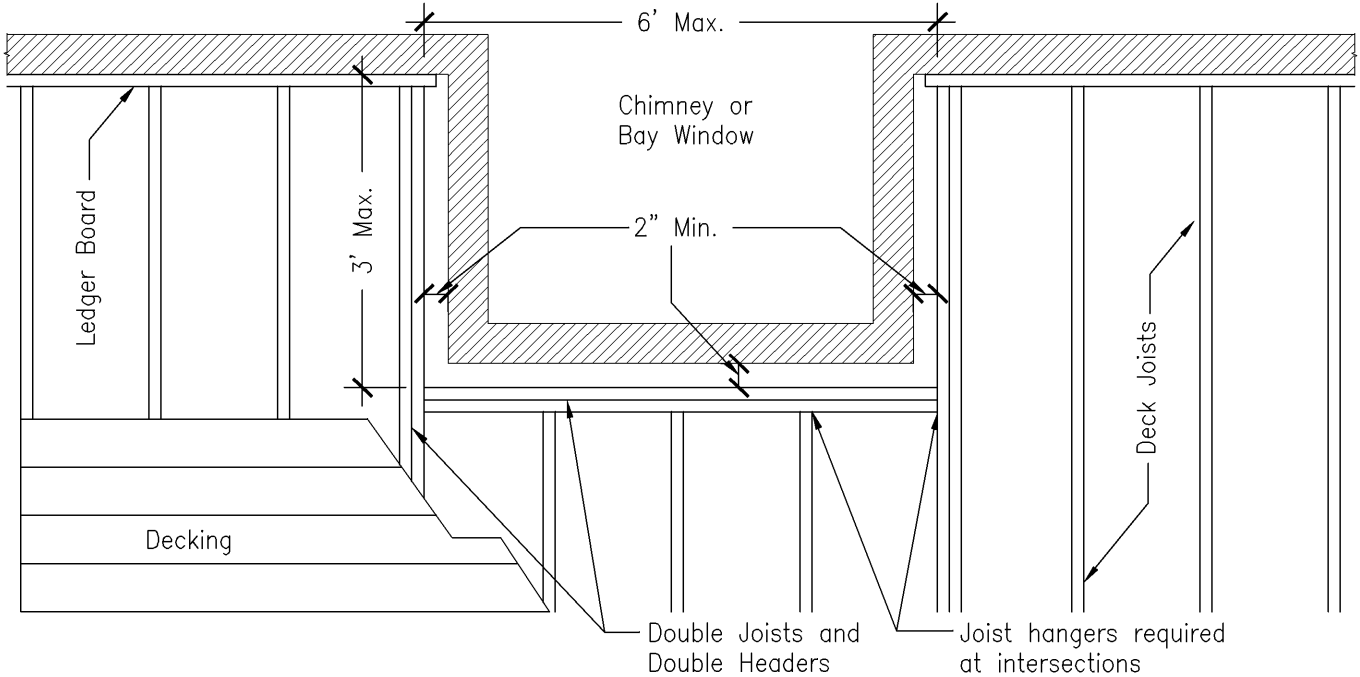
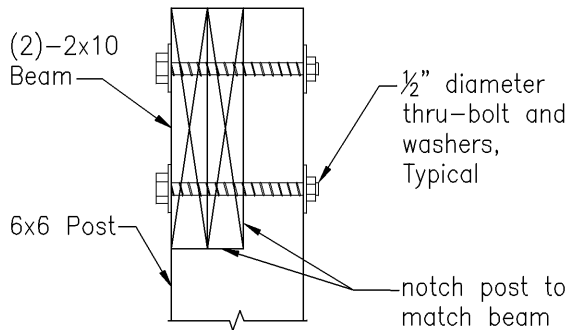


FIGURE 7: POST-TO-BEAM CONNECTION



Joist Spacing	Thickness of Diagonal Decking ¹		Composite Material ²
	2x	5/4x	
16" OC	YES	YES	NO
12" OC	YES	YES	YES

¹Treated Southern Yellow Pine #2 or better
²Trex® or similar, must be rated to support 40 PSF or 200 pound concentrated load

FIGURE 8: JOIST-TO-BEAM CONNECTIONS

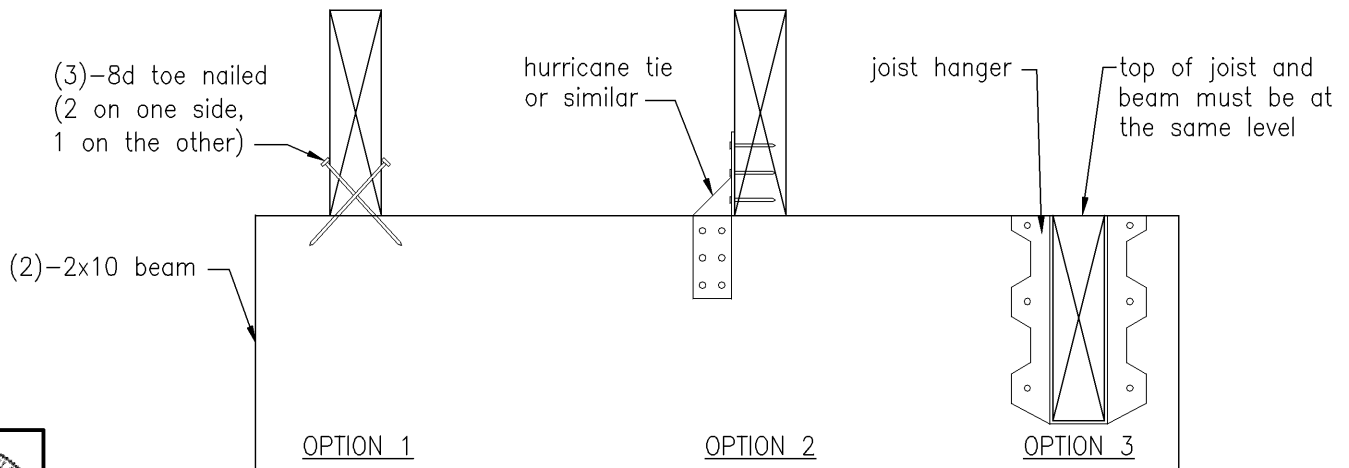


FIGURE 9: FOOTING DETAILS

- All footings shall bear on solid ground; bearing conditions shall be verified in the field by an approved Third Party Inspector or by County Inspectors prior to placement of concrete. The bottom of all footings closer than 5'-0" to the exterior wall of the existing house must be extended down to undisturbed soil.
- Pre-manufactured post anchors shall be galvanized with 1.85 oz/sf of zinc (G-185 coating) or shall be stainless steel.
- All concrete must be properly mixed per specifications.

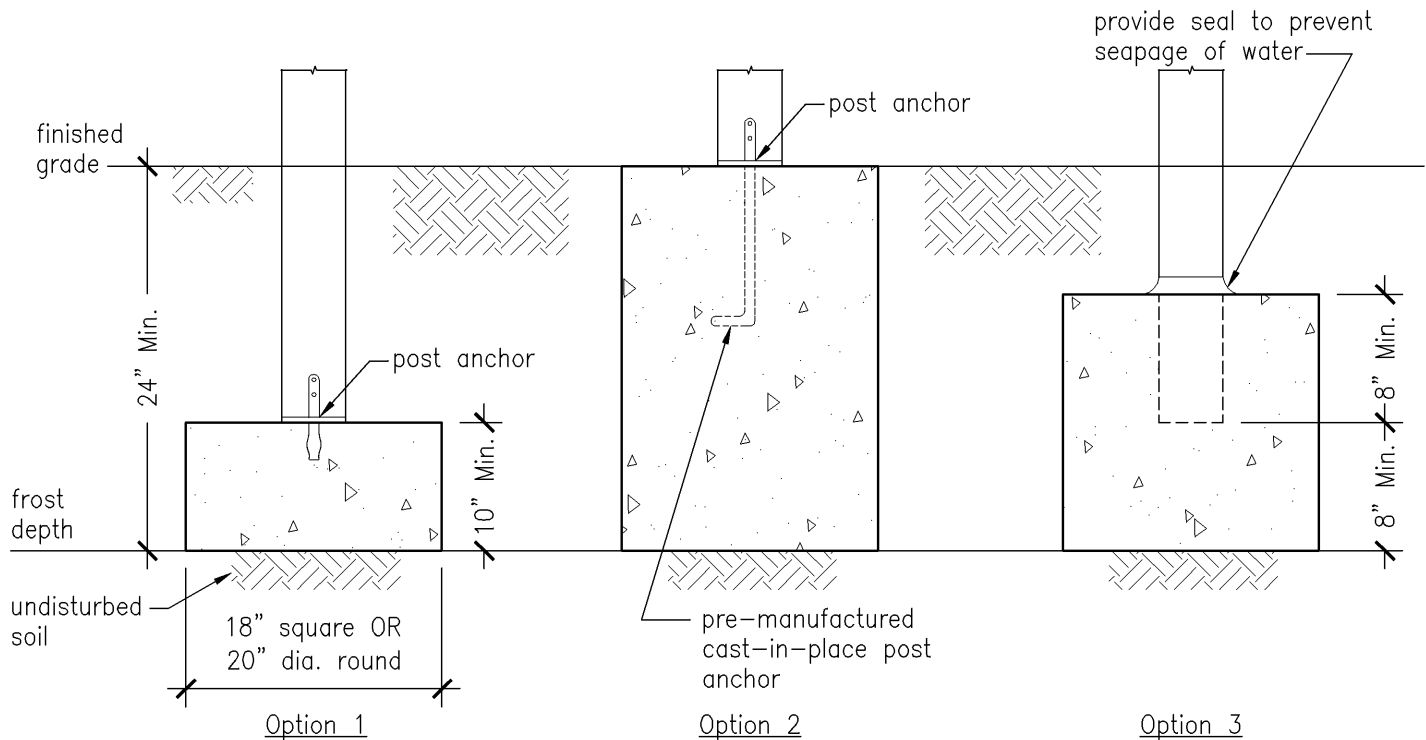
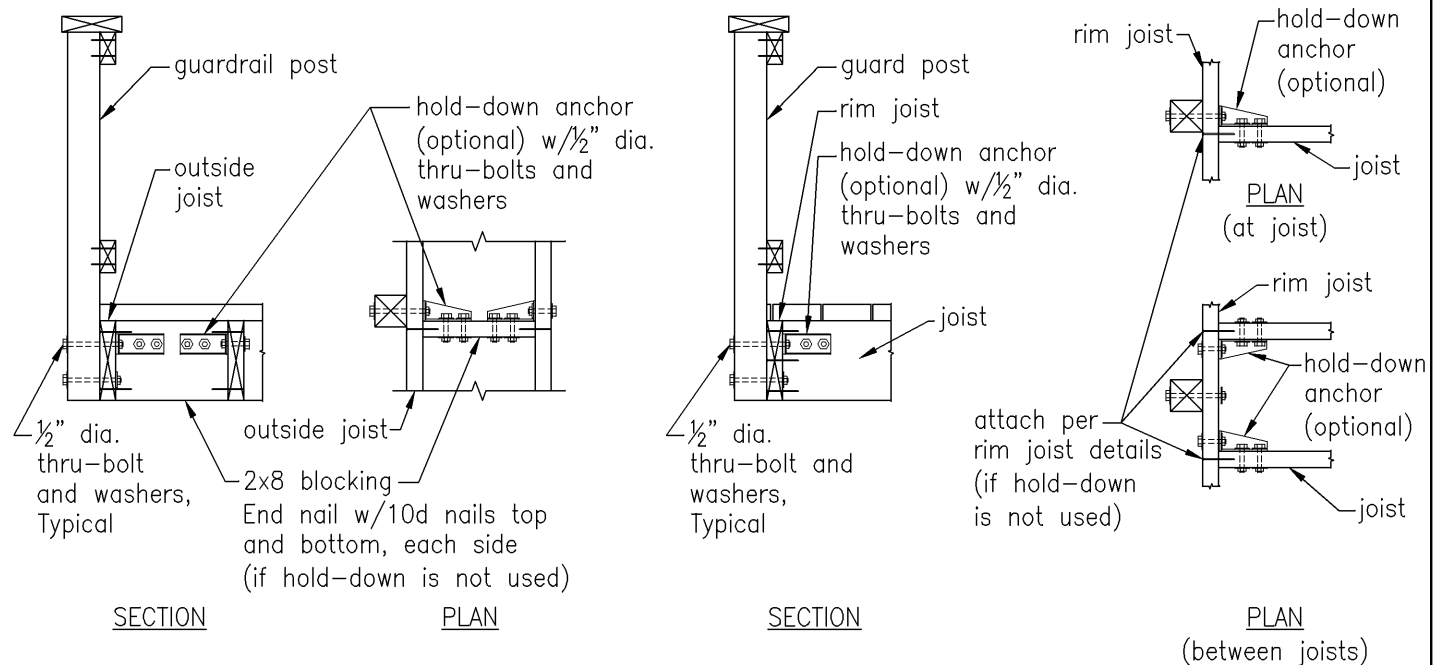


FIGURE 10: GUARDRAIL POST CONNECTION DETAIL



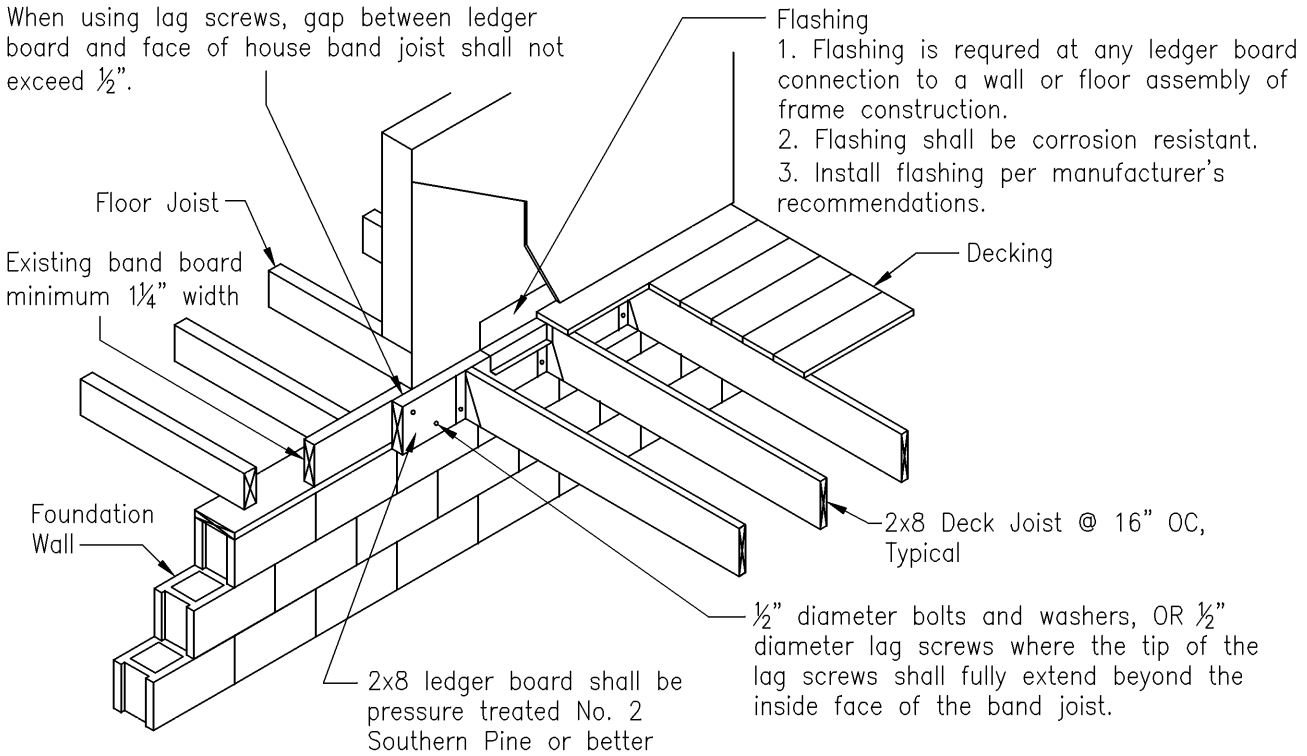
Guardrail Post to Outside Joist

Guardrail Post to Rim Joist



FIGURE 11: LEDGER BOARD CONNECTION TO DIMENSIONAL BAND BOARD

When using lag screws, gap between ledger board and face of house band joist shall not exceed $\frac{1}{2}$ ".



1. Flashing is required at any ledger board connection to a wall or floor assembly of frame construction.
2. Flashing shall be corrosion resistant.
3. Install flashing per manufacturer's recommendations.

FIGURE 12: LEDGER BOARD CONNECTION TO FOUNDATION WALL

Gap between ledger board and face of house band joist shall not exceed $\frac{1}{2}$ ".

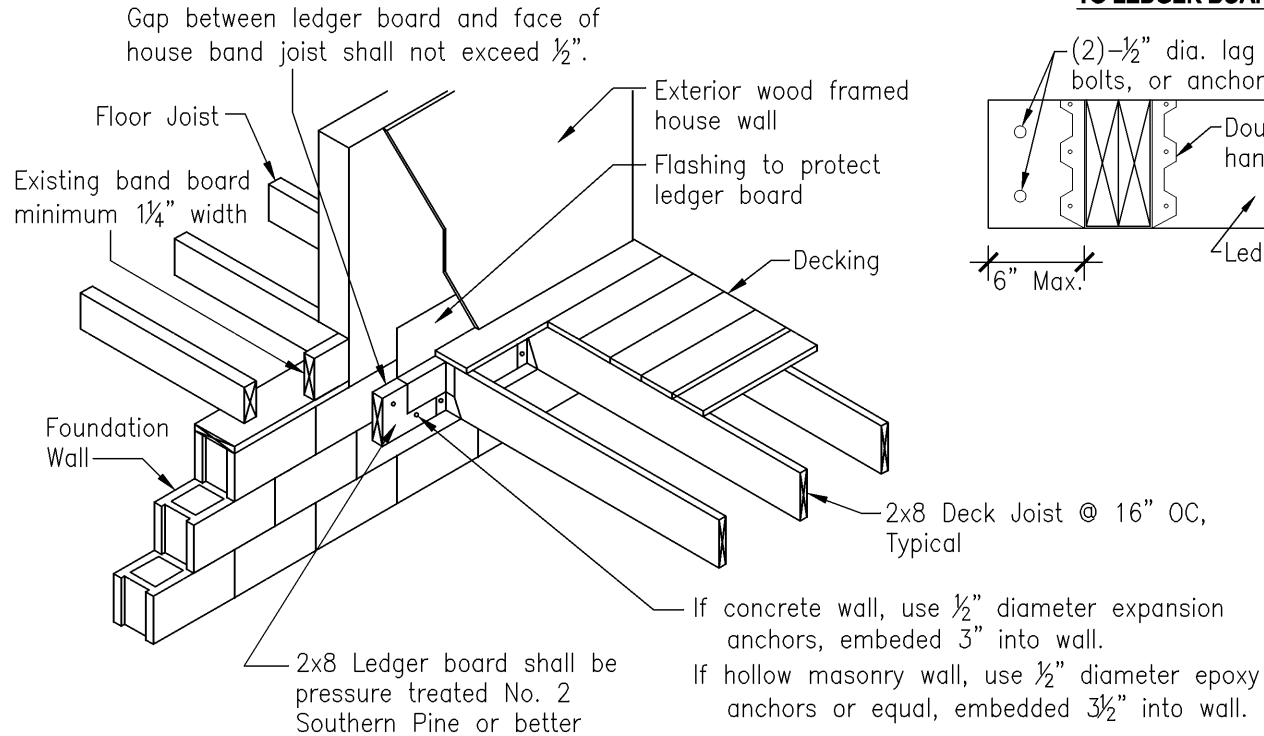


FIGURE 13: DOUBLE JOIST ATTACHMENT TO LEDGER BOARD

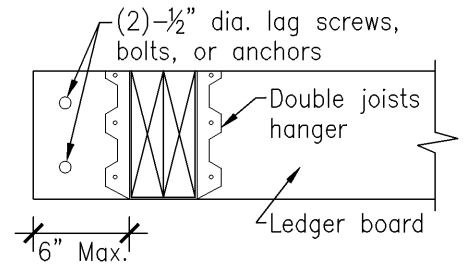
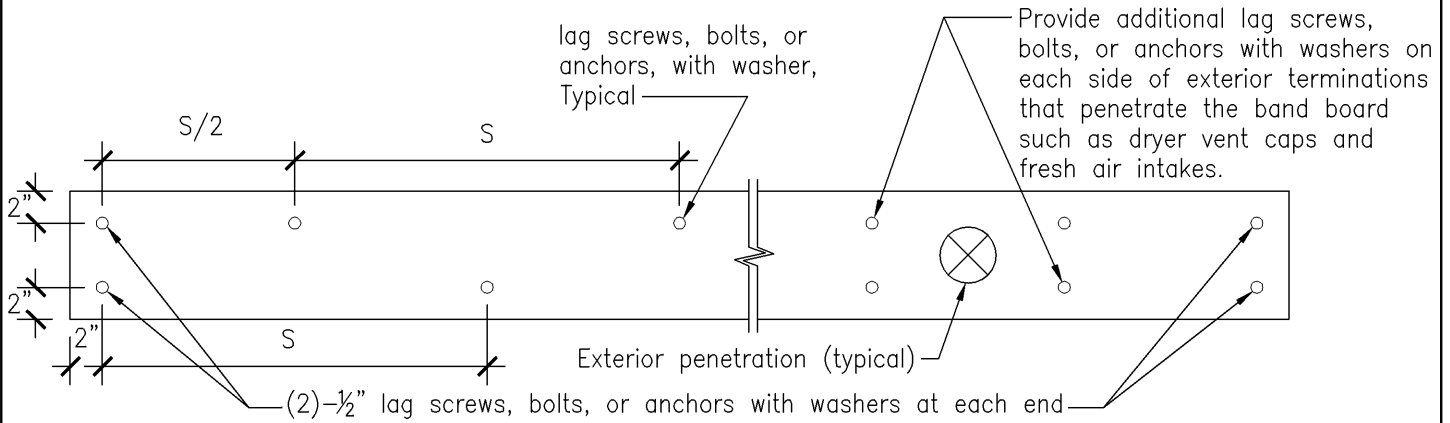


FIGURE 14: FASTENER SPACING AND CLEARANCES AT LEDGER BOARD



Joist Span (ft)	6' and less	6'-1" to 8'	8'-1" to 10'	10'-1" to 12'
	On-Center Spacing of Fasteners ^{d,e}			
1/2"x4" Lag Screw ^{a,b}	30	23	18	15
1/2" Bolt with washers	36	36	34	29

^aThe maximum gap between the face of the ledger board and face of the house band joist shall be 1/2".
^bThe tip of the lag screw shall be fully extended beyond the inside face of the band joist.
^cLedgers shall be flashed to prevent water from contacting the house band joist.
^dLag screws and bolts shall be staggered as shown.
^eDeck ledger shall be 2x8 No. 2 Southern Pine (minimum), or other approved method and material as established by standard engineering practice.

FIGURE 15: RIM JOIST ATTACHMENT DETAIL

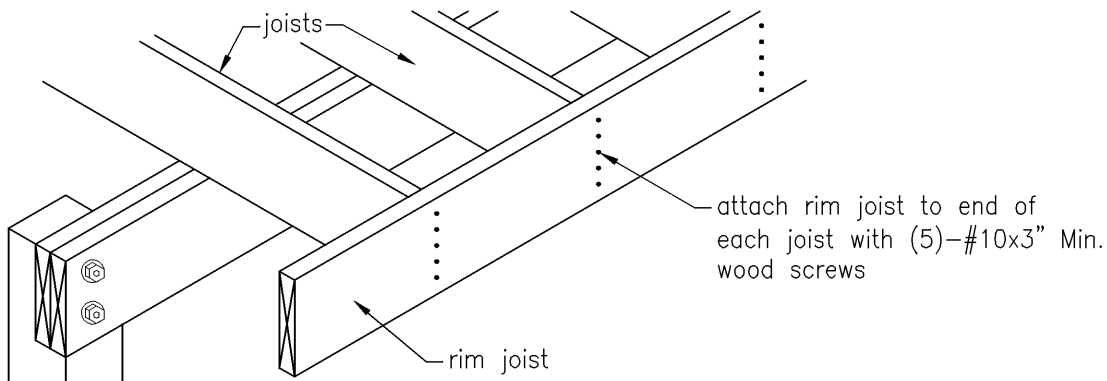


FIGURE 16: BUILT-UP BEAM DETAIL

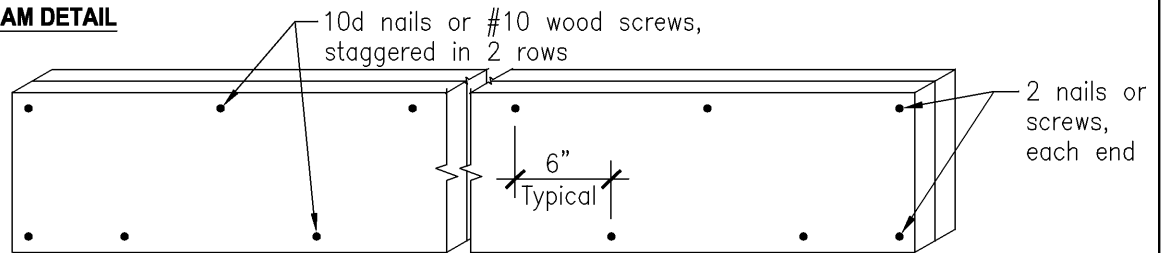


FIGURE 17: STAIRWAY REQUIREMENTS

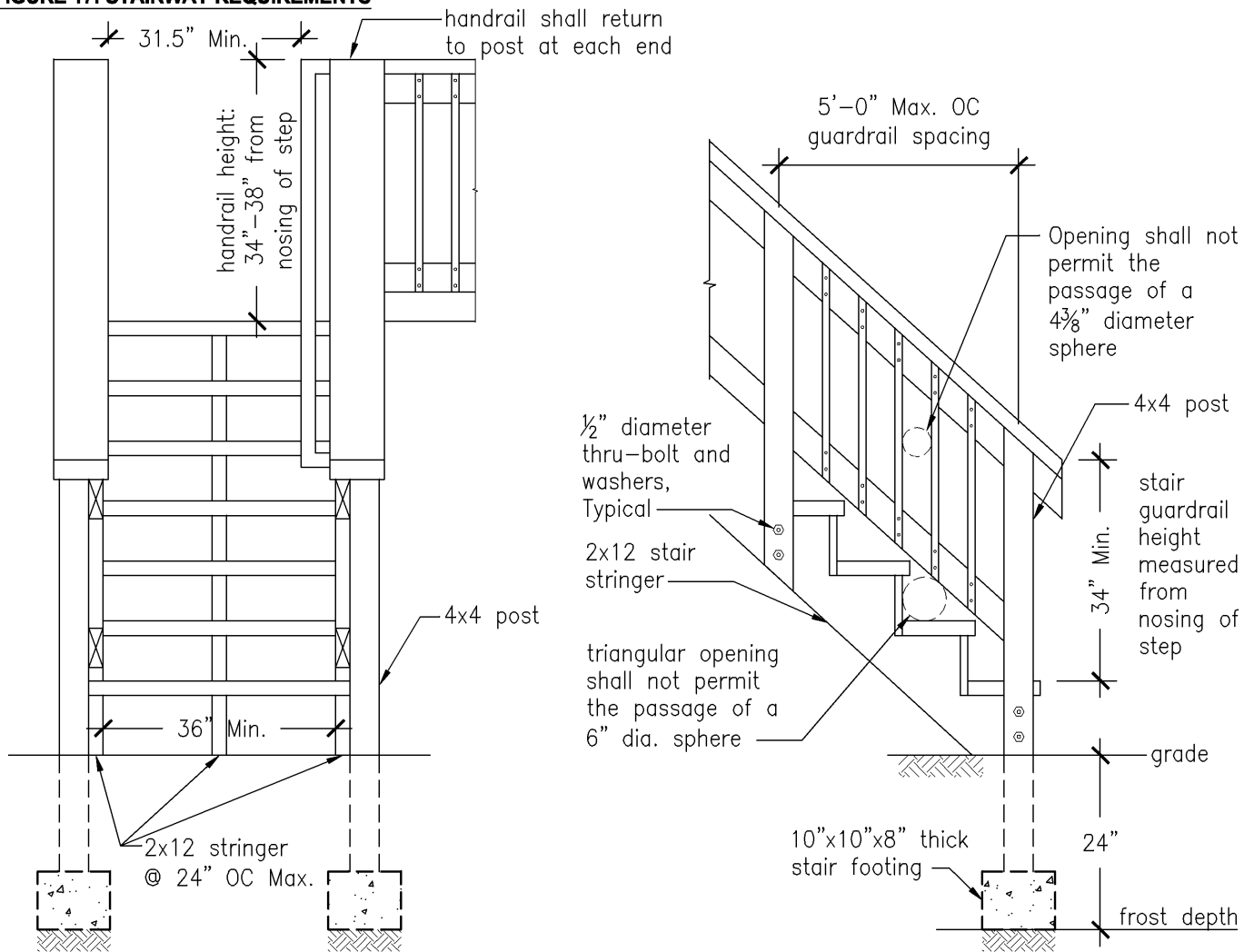


FIGURE 18: TREAD, RISER, AND STRINGER DETAIL

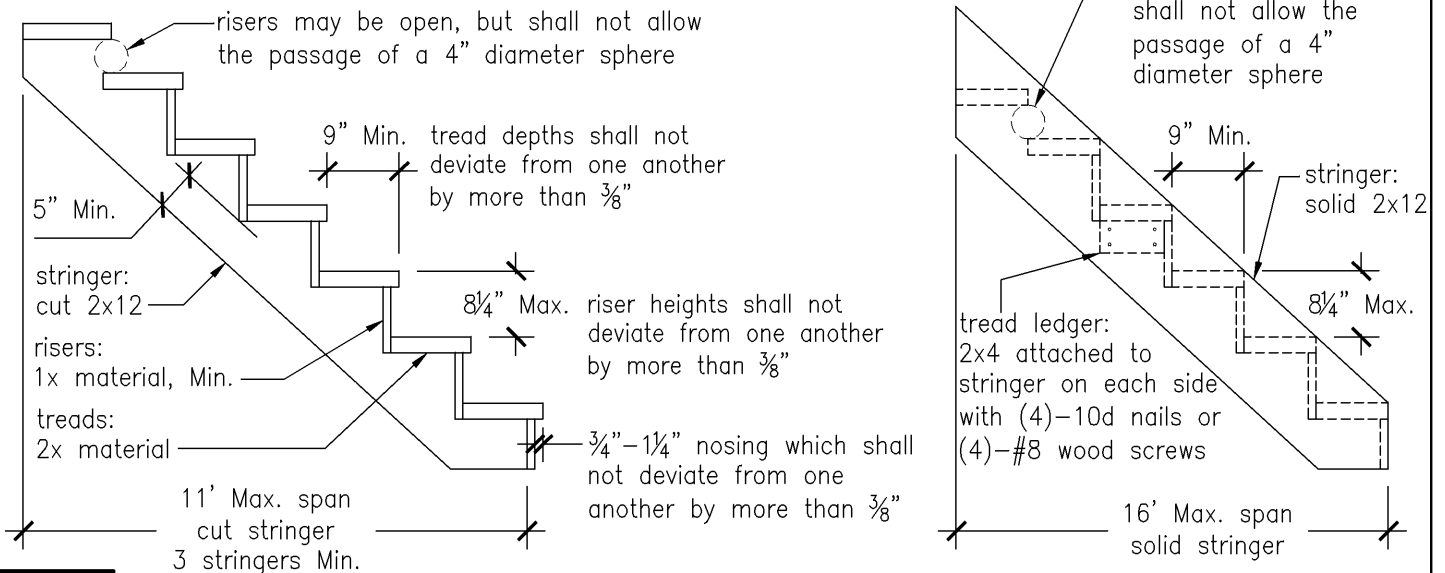


FIGURE 19: INTERMEDIATE STAIRWAY LANDING FRAMING DETAILS

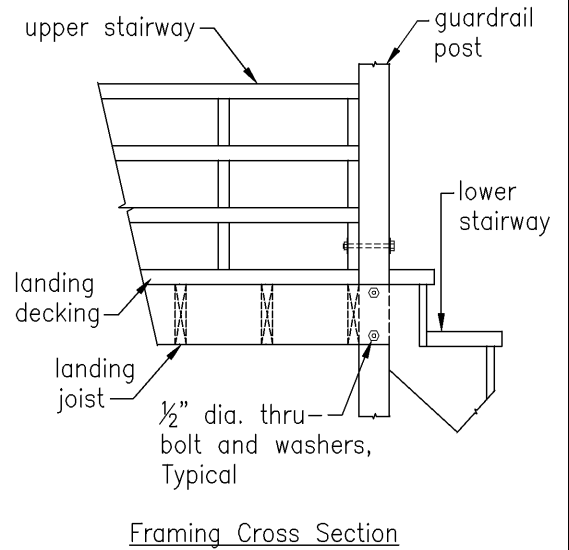
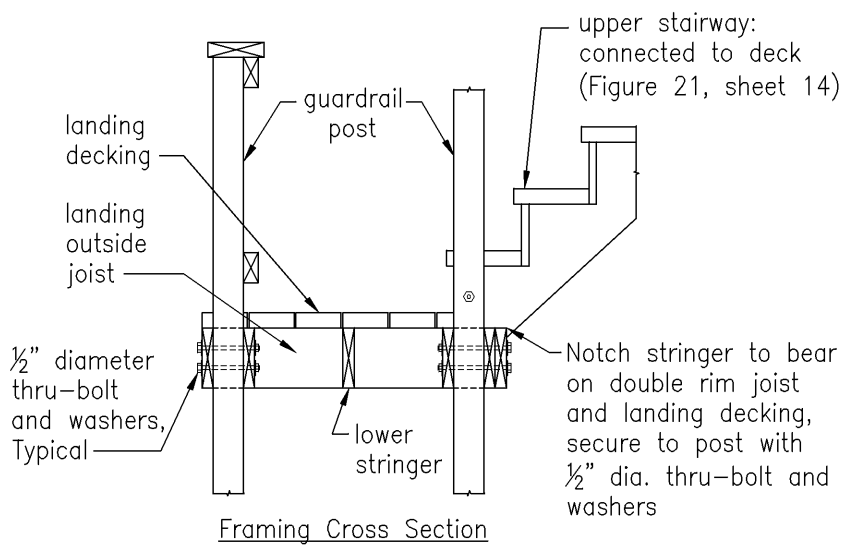
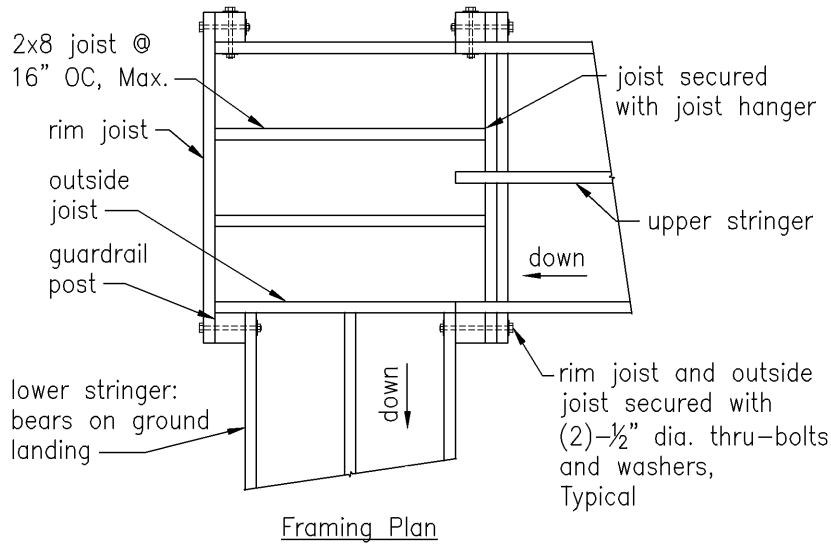


FIGURE 20: STAIRWAY LANDING DIMENSION DETAILS

Dimensions shown are for both intermediate, and ground level landings.

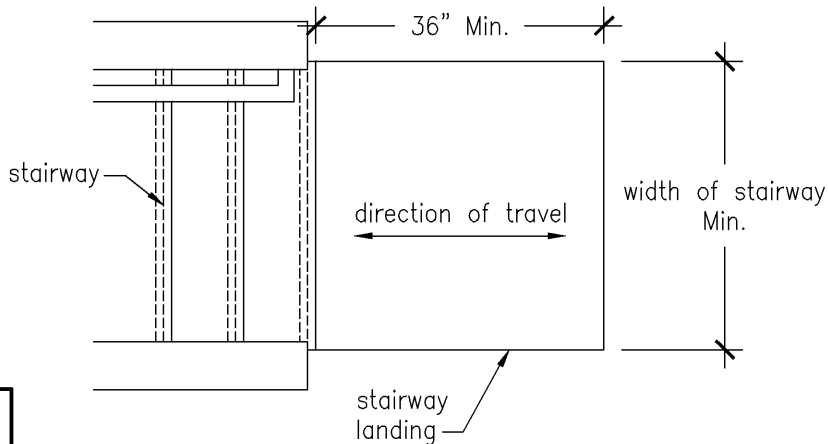
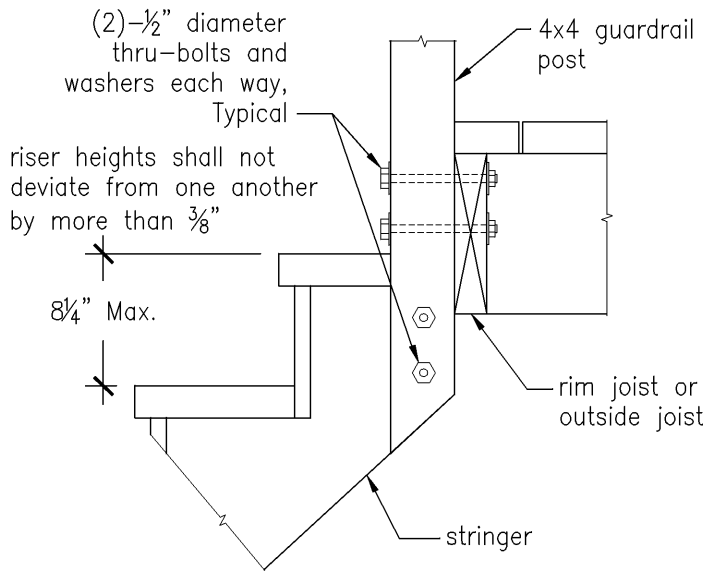
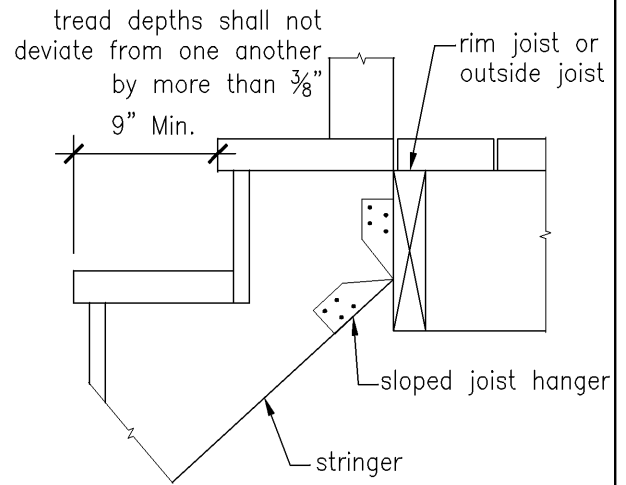


FIGURE 21: STAIRWAY CONNECTION TO DECK DETAILS



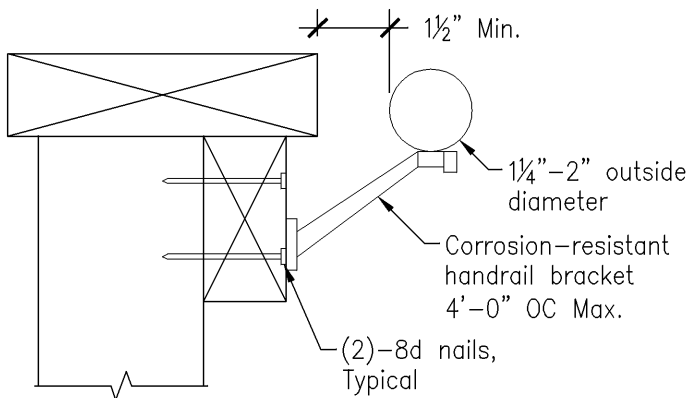
Option 1: Stringer Connection with Thru-Bolts



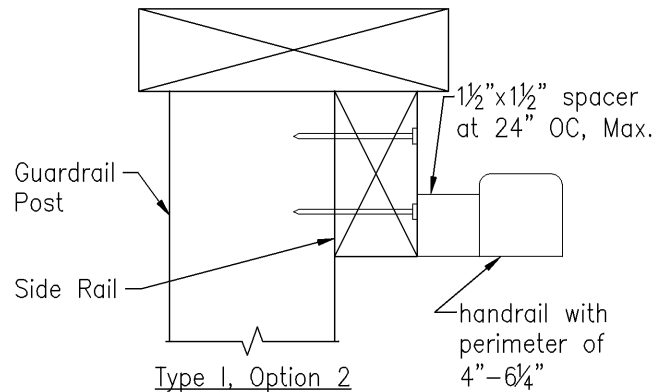
Option 2: Stringer Connection with Joist Hanger

FIGURE 22: HANDRAIL DETAILS

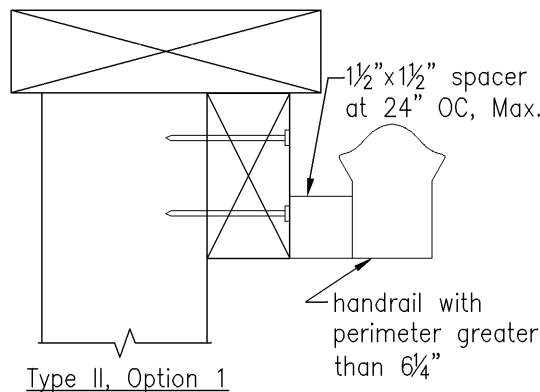
Handrails should be continuous from top riser to bottom riser.



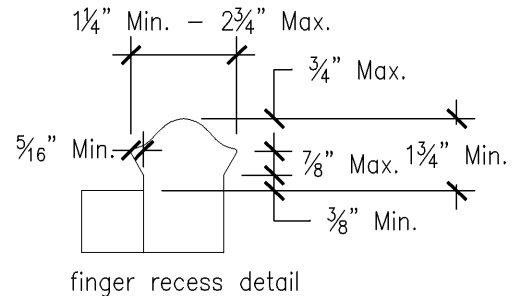
Type I, Option 1
For circular handrails only



Type I, Option 2
Non-circular handrails must have a perimeter of 4 inch min. and 6 1/4 inch max. with a maximum cross-section dimension of 2 1/4 inch



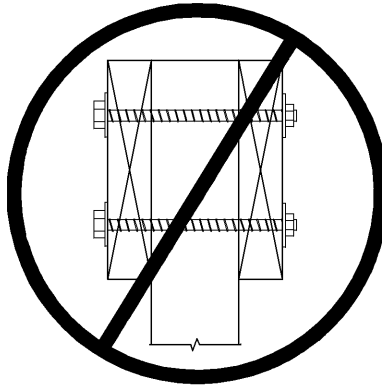
Type II, Option 1
Handrails with a perimeter greater than 6 1/4 inch shall provide a graspable finger recess area on both sides of the profile



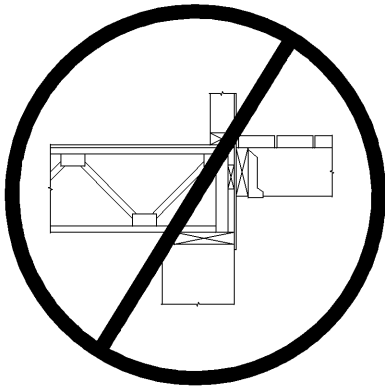
finger recess detail



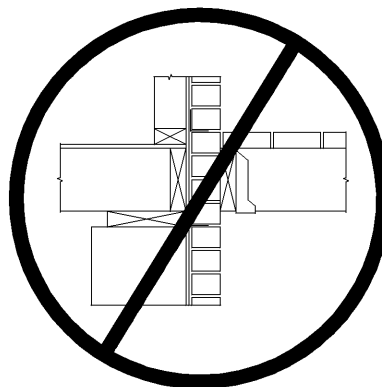
DO NOT DO'S



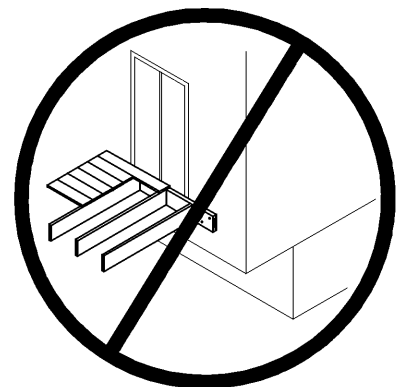
Prohibited Post-to-Beam Connection



Prohibited Ledger Attachment:
to open web trusses



Prohibited Ledger Attachment:
to or thru brick veneer



Prohibited Ledger Attachment:
to house overhang



STAIRWAY ILLUMINATION FOR DECKS

The 2003 edition of the International Residential code (IRC) establishes the requirements for stairway illumination. This section includes stairways associated with decks. The following are a few of the ways to comply with the stairway illumination requirements:

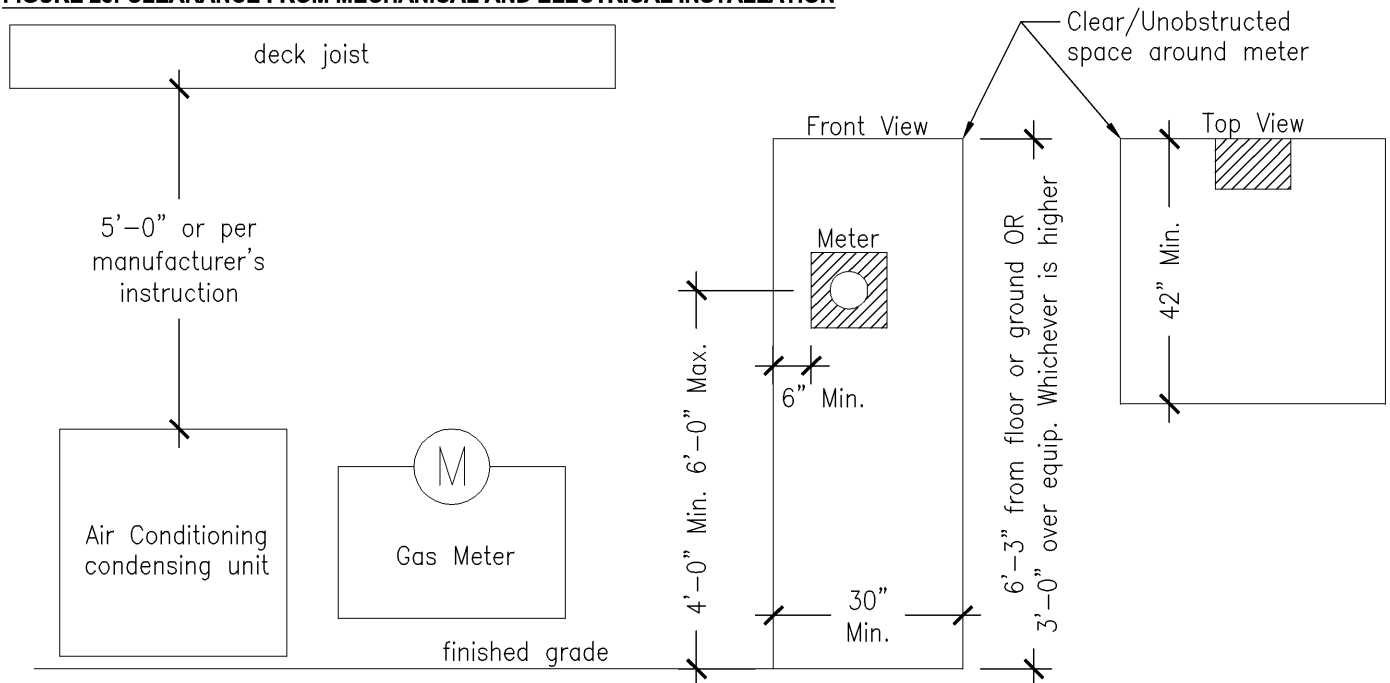
- Install an exterior light fixture within 5 feet of horizontal distance from the top landing of the stairway. The light fixture must be positioned to illuminate both the top landing and the stairway.
- Install an exterior 150 watt floor light fixture within 30 feet of horizontal distance from the top landing of the stairway. The light fixture must be positioned to illuminate both the top landing and the stairway.
- Install low voltage light fixtures that are approved for exterior use. A low voltage fixture must be installed at each step. Also, one fixture must be installed on the walkway within 3 feet of the bottom step. Any wiring must be installed and secured in a safe manner. The low voltage lights may be plugged into an exterior GFI electrical outlet with an In-Use Weatherproof Cover (NEMA 3R Rated) or hard wired into the electrical panel box in the house.
- Other methods of complying with the illumination requirements, including justification and analysis shall be submitted to the Construction Plans Review Branch for approval prior to installation.

An electrical permit and inspection is required for the installation of the required illumination of the stairway. During the final inspection of the deck, the inspector will verify that the required stairway illumination has been provided.

GLAZING ADJACENT TO STAIRWAYS

Glazing installed within 60 inches of the bottom of the stairways where the bottom edge is less than 60 inches above the walking surface shall be considered a hazardous location per the current edition of the IRC and shall meet the safety glazing standards outlined in the IRC.

FIGURE 23: CLEARANCE FROM MECHANICAL AND ELECTRICAL INSTALLATION



- Contact the gas company for a courtesy inspection if: the distance from finished grade to bottom of joist is less than 5'-0", a roof will be above the deck, or the deck will have a floor covering.
- Normally the power company will not approve a meter location on or under a balcony, porch, carport, deck catwalk, or stairs. Contact power company for more information.
- Gas fireplace terminations shall be 12" from the top of the outside termination to combustibile materials and overhangs or per manufacturers specifications.



REQUIRED INSPECTION AND SCHEDULING

1. Before you dig, call Miss Utility at 1-800-552-7001.
 2. Call for a footing inspection before placing concrete.
 3. Call for a final inspection when the deck is complete.
 4. If required, call for electrical permit and inspection.
- Prince William County accepts inspection requests daily from 8:00am to 3:00pm for inspections on the following workday. You must have your permit number available when calling for inspections.
 - No inspections shall be made unless an approved set of drawings is on site.

Important Phone Numbers

- Residential Plan Review
(703)792-6939
- Construction Plan Review
(703)792-4040
- Permits and Records
(703)792-6924
- To Schedule Inspection call
(703)792-6970 or visit
www.pwccgov.org/eInspectionSchedule
- Inspection Office
(703)792-7006
- Zoning Office
(703)792-6830

Hours

The Building Development Division reviews plans M-F from 8:00am To 11:00am. We will stop taking customers in the morning once the number of plans waiting for review will take staff beyond the 11:00am deadline.

