PLEASE READ !!!!!

Each construction phase must pass each inspection before you proceed with the next construction phase.

When scheduling an inspection, that phase of construction must be ready for inspection by 8:30 A.M. on the date scheduled. If that inspection is not ready when the inspector arrives, it will result in a failed inspection and there will be a $30.00 re-inspection fee assessed. Any failed inspections will be charged a $30.00 re-inspection fee. All re-inspection fees must be paid prior to scheduling any further inspections.

A Certificate of Occupancy and Approval for Electrical Connection will be issued after all inspections have been passed and all fees paid. We will require a copy of the Certificate of Completion for the sewage disposal system (issued by the State) prior to our issuing the Certificate of Occupancy for the dwelling.

Please call 457-6244 at least 24 hours in advance of the needed inspection and provide the following information:

REQUIRED INSPECTIONS

☐ Footing (complete with grade stakes and bulkheads in place)/Setbacks

☐ Slab ***If there is plumbing under the slab, effective immediately, there will be two inspections.***
1. All plumbing must be installed, on test and inspected prior to concealment.
2. Once plumbing has been inspected and approved the 6 ml vapor barrier and if required reinforcement may be installed and inspected.

☐ Foundation Inspection
Block after 4-5 courses have been laid. Reinforcement must be in place and visible, reinforcement or interlocking block must be visible at wall intersections.
Poured wall foundations: To be inspected prior to concrete being poured.
All forms must be in place; all reinforcement must be installed and properly supported.

☐ Rough-in Framing/Plumbing/Gas/Mechanical (all interior lines on test, all HVAC vents, ducts, etc. that will be concealed must be installed.)

☐ Building envelope insulation

☐ Final/Mechanical

KEEP ON SITE WITH PLANS

PLEASE REMEMBER

RE-INSPECTION FEE - $30.00

Remember to post the ribbon where it is visible from public roads so the building inspector can locate your building site or the inspection maybe disapproved. Your permit must be posted at the job site, protected from weather and in a location visible to the inspector.

Inspection requests.

It shall be the duty of the holder of the permit or their duly authorized agent to notify the code official when work is ready for inspection. It shall be the duty of the permit holder to provide access to and means for inspections of such work that are required by this code.

We assume that if you are building, you possess at least basic knowledge of minimum construction requirements, methods, standards, and common practices. The following is to be used as a minimum guide to the codes. It is not intended to specify every code requirement or regulation. IT IS YOUR RESPONSIBILITY TO MAKE CERTAIN YOUR STRUCTURE IS CONSTRUCTED TO THE STANDARDS OF THE APPROPRIATE CODES. If you have any questions, you should call one of the county building inspectors. The 2009 International Building Codes are contained in several books. We do not sell or loan them. You may study them in our office, in the county clerk's office during regular business hours or online at http://publicecodes.cyberregs.com/icod/index.htm

Read the following before calling 457-6244 for each inspection.
You must call at least 24 hours before you need an inspection.

GRADING, EXCAVATIONS AND DRIVEWAYS

If any area over one acre is being graded a "Grading Permit" is required.

Anytime earth is disturbed it is the property owner's responsibility to install and maintain proper erosion and sediment control.

INSPECTION: FOOTERS

Inspection of the foundation shall be made after poles or piers are set or trenches or basement areas are excavated and any required forms erected and grade stakes are in place. Footers must be free of water, mud, roots, rocks, earth or any organic material. Footings cannot be poured on frozen ground. Footings need to be 12" below grade to the bottom or until solid ground. If gravel is being used to fill footers that have been dug to meet compaction, 3/4" gravel needs to be used and compacted in 12" runs. Footer must be inspected prior to the addition of gravel.

INSPECTION: FOUNDATION

Concrete foundation walls shall be constructed in accordance with the provisions of Section R404.1.2. Masonry foundation walls shall be constructed in accordance with the provisions of Section R404.1.1.
Anchor bolts shall be at least 1/2 inch in diameter and shall extend a minimum of 7 inches into concrete or grouted cells of concrete masonry units.

Poured wall foundations: To be inspected prior to concrete being poured. All forms must be in place; all reinforcement must be installed and properly supported.

Masonry Foundation Walls: Shall be constructed in accordance with IRC 2009 tables that are attached at the end of this document. Reinforcement must be in place and visible, reinforcement or interlocking block must be visible at wall intersections.

INSPECTION: SLAB ON GRADE

The area within the foundation walls shall have all vegetation, top soil and foreign material removed. Concrete slab-on-ground floors shall be a minimum 3.5 inches thick. The specified compressive strength of concrete shall be minimum 2500 psi. A 4-inch-thick base course consisting of clean graded sand, gravel, crushed stone or crushed blast-furnace slag passing a 2-inch sieve shall be placed on the prepared subgrade when the slab is below grade.

***Important*:**

If there is plumbing under the slab, effective immediately, there will be two inspections.

1. All plumbing must be installed, on test and inspected prior to the vapor barrier and reinforcement being installed. If PEX is covered with less than 12" of approved fill it must be sleeved. In locations where PEX penetrates a slab it shall be sleeved 18" above and below the slab. Waste pipes under slabs shall be 2" or larger.

2. After plumbing has been inspected and approved the 6 ml vapor barrier, reinforcement will be installed and inspected. Where provided in slabs on ground, reinforcement shall be supported to remain in place from the center to upper one third of the slab for the duration of the concrete placement.

INSPECTION: FRAMING, PLUMBING, MECHANICAL, AND GAS

Framing, plumbing, electric, mechanical and insulation must pass inspection before being concealed.

Framing:

Any header over 6 feet must have double jack studs under each end.
Minimum headroom on stairs is 6'- 8"; risers are 7 ¾" maximum; treads are 10" minimum.
Access openings through the floor shall be a minimum of 18 inches by 24 inches. Openings through a perimeter wall shall be not less than 16 inches by 24 inches.).

Guards:

Shall be located along open-sided walking surfaces, including stairs, ramps and landings, that are located more than 30 inches measured vertically to the floor or grade below at any point within 36 inches horizontally to the edge of the open side. Insect screening shall not be considered as a guard. Handrails shall be provided on at least one side of each continuous run of treads or flight with four or more risers.

Habitable Spaces:

Basements, habitable attics and every sleeping room shall have at least one operable emergency escape and rescue opening. Where basements contain one or more sleeping rooms, emergency egress and rescue openings shall be required in each sleeping room. Where emergency escape and rescue openings are provided they shall have a sill height of not more than 44 inches (1118 mm) above the floor.

Emergency Egress:

Minimum opening area. All emergency escape and rescue openings shall have a minimum net clear opening of 5.7 square feet (0.530 m2). *Exception:* Grade floor openings shall have a minimum net clear opening of 5 square feet.
Minimum opening height. The minimum net clear opening height shall be 24 inches.
Minimum opening width. The minimum net clear opening width shall be 20 inches.
Operational constraints. Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys, tools or special knowledge.

Attached garages:

Must to be fire separated from living area and must have a smoke detector installed.

Plumbing:

Must be on test with a gauge at 50 psi (water or air) on all water lines or connect the plumbing system to the water supply. Waste vent lines must be full of water or on a gauge at 5-psi air. To test waste vent lines with water: cap off main waste line to septic or sewer, cap off all drain lines (vanities, washer stand pipe, water closets, and sinks) and then, with a water hose, fill waste vent lines from the vent stack on the roof to overflowing.

Mechanical:

All duct work and other materials that will be concealed will be inspected. All fire stopping to be in place. All concealed gas piping must be installed and on test. Any prefabricated fireplaces or decorative gas appliances must be completely roughed in.

Smoke detectors:

Smoke detectors Shall be installed in each sleeping room, outside of each separate sleeping room in the immediate vicinity of the bedrooms, inside attached garages and each additional story of the dwelling (including basements). Smoke detectors shall be interconnected, AC powered with battery back-up.

Carbon monoxide alarms:

For new construction, an approved carbon monoxide alarm shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms in dwelling units within which fuel-fired appliances are installed and in dwelling units that have attached garages.

Where work requiring a permit occurs in existing dwellings that have attached garages or in existing dwellings within which fuel-fired appliances exist, carbon monoxide alarms shall be installed in accordance with applicable codes and the manufacturer's installation instructions.

INSPECTION: ENERGY EFFICIENCY

"Anderson County is located in Climate Zone 4A for purposes of energy efficiency requirements." Compliance shall be demonstrated by either meeting the requirements of the 2006 International Energy Conservation Code or Chapter 11 of the 2009 International Residential Code.

The Building Thermal Envelope must be maintained as indicated on the submitted plans. The envelope shall meet the requirements as specified in the code for "Insulation and Fenestration Requirements by Component" for climate zone 4A. All required certificates shall be affixed and/or posted as prescribed by the code.

Manufacturer's requirements for blown or sprayed insulations must be submitted to the inspector at the time of inspection.

INSPECTION: COMPLETION

The project must be complete before you call for your inspection. All handrails, guardrails, stairs, porches, decks, water heaters, smoke detectors, carbon monoxide alarms, plumbing, mechanical, gas, fireplaces, and/or any other construction part, which can be defined as a life-safety issue, shall be in place before the project can be approved.

Gutters/down spouts, 6mill vapor barrier in crawl space, and crawl space access door must be installed. Access shall be provided to all under-floor spaces and the attic.

Certificate of Completion on septic will be needed at this time. If you have any questions about the requirements for your final inspection, please call 457-6244 to speak with an inspector.

The structure must be unlocked or arrangements made with an inspector for entry.

When your construction has passed all inspections and all fees have been paid, we will issue your Certificate of Occupancy and a Permanent Power authorization slip.

MOBILE HOMES

All handrails, guardrails, stairs, porches, decks, and underpinnings must be installed before a final inspection can be scheduled

Certificate of Completion on septic must be present at job site.

All electrical inspections must be complete

FOUNDATION AND SLAB CONSTRUCTION AND INSULATION

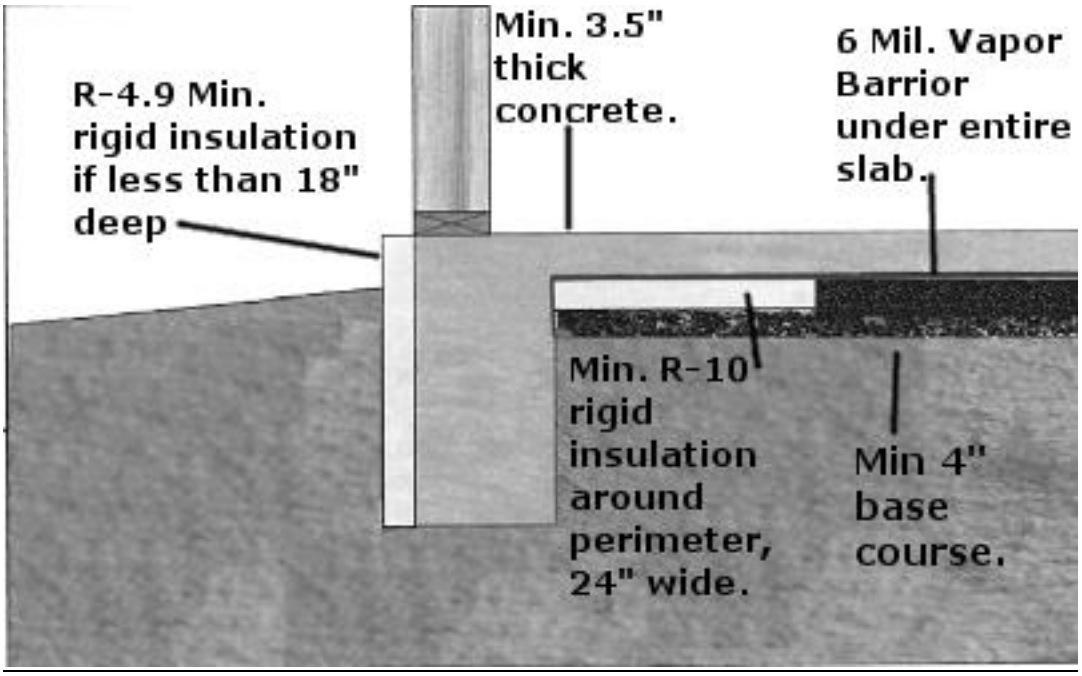


FIGURE R403.1.3.2 DOWELS FOR SLABS-ON-GROUND WITH TURNED-DOWN FOOTINGS

Exception: For slabs-on-ground cast monolithically with the footing, locating one No. 5 bar or two No. 4 bars in the middle third of the footing depth shall be permitted as an alternative to placement at the footing top and bottom.

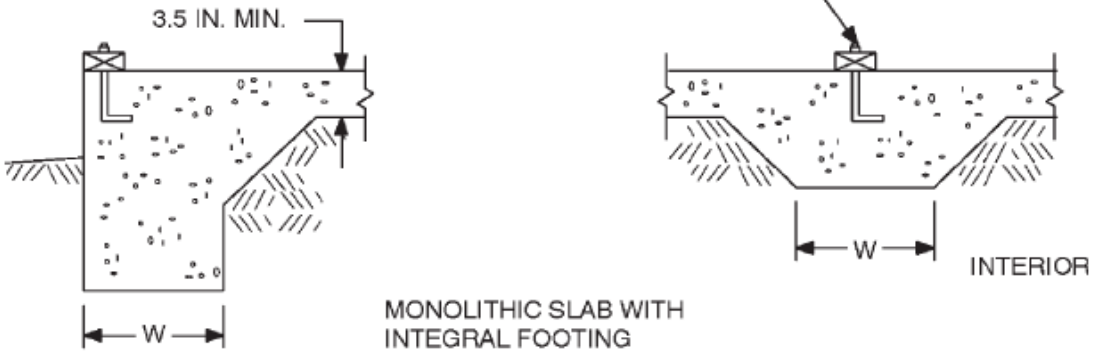
Where the slab is not cast monolithically with the footing, No. 3 or larger vertical dowels with standard hooks on each end shall be provided in accordance with Figure R403.1.3.2. Standard hooks shall comply with Section R611.5.4.5.

TABLE R403.1 MINIMUM WIDTH OF CONCRETE, PRECAST OR MASONRY FOOTINGS (inches)

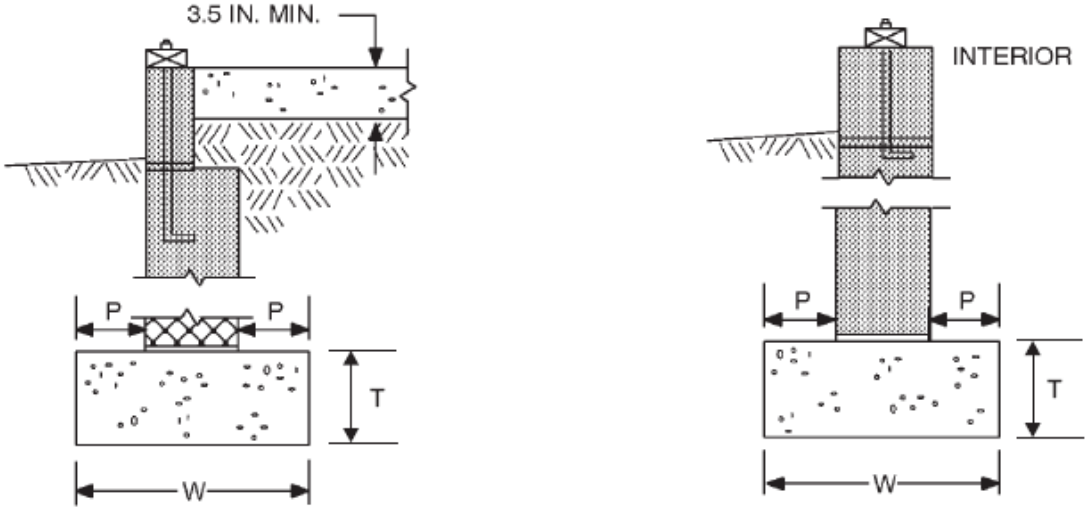
	LOAD-BEARING VALUE OF SOIL (psf)			
	1,500	**2,000**	**3,000**	**≥ 4,000**
Conventional light-frame construction				
1-story	12	12	12	12
2-story	15	12	12	12
3-story	23	17	12	12
4-inch brick veneer over light frame or 8-inch hollow concrete masonry				
1-story	12	12	12	12
2-story	21	16	12	12
3-story	32	24	16	12
8-inch solid or fully grouted masonry				
1-story	16	12	12	12
2-story	29	21	14	12
3-story	42	32	21	16

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

a. Where minimum footing width is 12 inches, use of a single wythe of solid or fully grouted 12-inch nominal concrete masonry units is permitted.

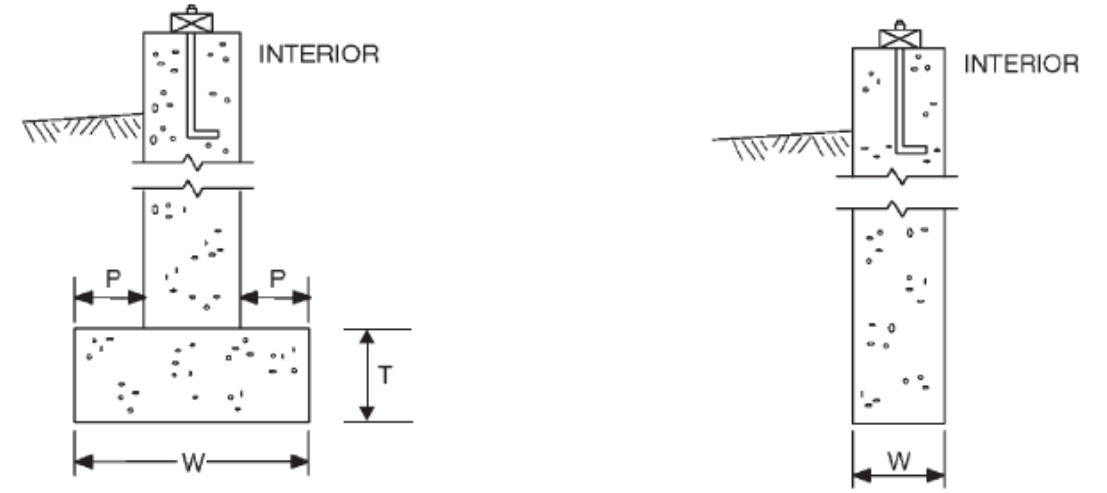


MONOLITHIC SLAB WITH INTEGRAL FOOTING



GROUND SUPPORT SLAB WITH MASONRY WALL AND SPREAD FOOTING

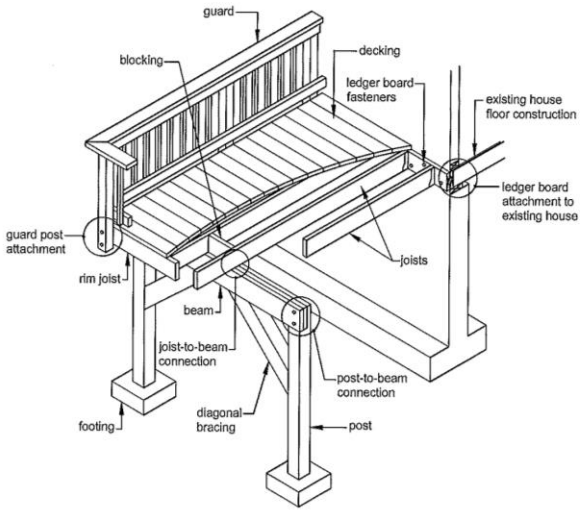
BASEMENT OR CRAWL SPACE WITH MASONRY WALL AND SPREAD FOOTING



BASEMENT OR CRAWL SPACE WITH CONCRETE WALL AND SPREAD FOOTING

BASEMENT OR CRAWL SPACE WITH FOUNDATION WALL BEARING DIRECTLY ON SOIL

Deck Information based on the 2009 International Residential code.



SECTION 1: GENERAL NOTES

1. Lumber shall be preservative-treated, southern pine, grade #2 or better. Lumber in contact with the ground shall be rated as "ground-contact;" please note: not all treated lumber is rated for ground contact.
2. Wood-plastic composites are materials composed of bound wood and plastic fibers used typically as decking and elements of a guard. Permissible as noted in this document, wood-plastic composites must bear a label indicating its performance criteria and compliance with ASTM D 7032.
3. When using a wood-plastic composite, exercise caution as some composite members do not have the same capacity as their equivalent wood sizes.
4. Nails shall be threaded, ring-shanked or annular grooved. A ⅛-inch pilot hole is recommended for all toe-nailing locations.
5. Fasteners shall be hot-dipped galvanized, stainless steel or approved for use with preservative-treated lumber.
6. Carriage-bolts may be substituted where through-bolts are specified provided carriage-bolt washers (with square holes) are installed at the bolt head.
7. Hardware, e.g., joist hangers or post anchors, shall be stainless steel or galvanized with 1.85 ounces of zinc per square foot (G-185 coating). Look for product lines such as "Zmax," "Triple Zinc" or "Gold Coat."
8. Decks with a floor area greater than 20 square feet shall have an electrical outlet along the perimeter of the deck and within 6.5 feet of the floor.
9. Decks constructed in accordance with these details are not approved for privacy screens, planters, built-in seating or hot tubs.
10. Information regarding permit, plan review and inspection requirements can be found at alexandria.gov/code
11. Publication "DCA6" from the American Wood Council (awc.org) is considered equivalent to the details

SECTION 2: DECKING

Approved material. Wood or wood-plastic composite decking shall be installed in accordance with the requirements below.

- Decking shall be wood 2x4, 2x6 or five-quarter board (span-rated decking) and wood-plastic composite sizes per manufacturer.
- Wood decking may be placed at an angle of 45 to 90 degrees to the joists and attached per FIGURE 1. If wet, place decking with no gap so after drying a ⅛-inch gap is created.
- Each wood decking member shall bear upon a minimum of three joists or intermediate blocking between joists.

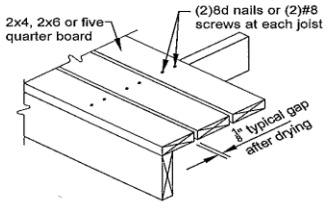


FIGURE 1: TYPICAL DECKING

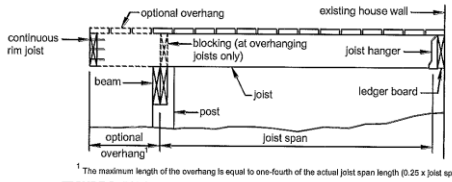
- Placement and attachment of wood-plastic composites shall be per manufacturer's instructions.
- Wood-plastic composite's label and installation instructions must be made available to the inspector.

Plastic decking. Plastic or PVC decking, not considered a wood-plastic composite, may be substituted only when the product has a valid evaluation report (see FIGURE 28) from an accredited listing agency and is capable of resisting a live load of 40 pounds per square feet. Installation shall be in conformance with the evaluation report and the manufacturer's instructions which must be made available to the inspector.

SECTION 3: JOISTS

Joists shall be designed in accordance with the requirements below.

- Joist span length is measured between the centerline of bearing at each joist end and does not include the overhangs. Use TABLE 1 to determine your joist size based on span length and joist spacing.
- See FIGURES 2 through 4 for joist span types.
- Joists may overhang past the center of the beam up to one-fourth of the actual joist span.
- Provide full-depth 2x blocking between overhanging joists above beam locations; toe-nail with (3)10d nails at each end. **Exception:** blocking may be omitted if the overhang is less than or equal to 2 feet.
- Attach a continuous rim joist or blocking at the joist ends as shown in FIGURES 2 and 4. Attach rim joist to the end of each joist with (3)10d nails or (3)#10 by 3-inch wood screws. Attach blocking with (3)10d nails at each end.



[1] The maximum length of the overhang is equal to one-fourth of the actual joist span length (0.25 x joist span).

FIGURE 2: JOISTS WITH DROPPED BEAM – DECK ATTACHED AT HOUSE

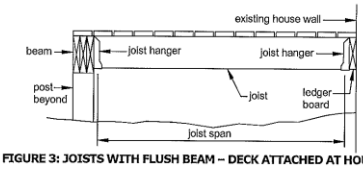
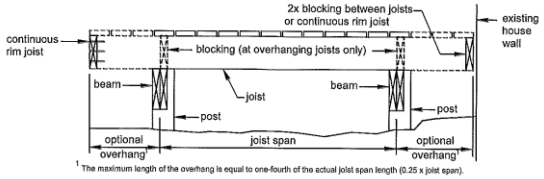


FIGURE 3: JOISTS WITH FLUSH BEAM – DECK ATTACHED AT HOUSE



[1] The maximum length of the overhang is equal to one-fourth of the actual joist span length (0.25 x joist span).

FIGURE 4: JOISTS WITH TWO DROPPED BEAMS/FREE-STANDING DECK

(See Page 12 for more information.)

TABLE 1: MAXIMUM JOIST SPAN LENGTH[1]

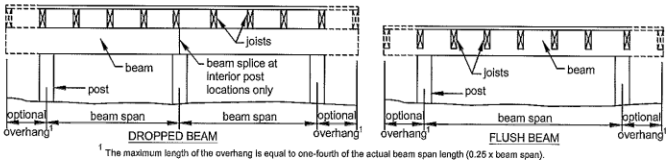
JOIST SPACING (on center)	JOIST SIZE	WITHOUT OVERHANG	WITH OVERHANGS
12"	2x6	9'-11"	6'-8"
	2x8	13'-1"	10'-1"
	2x10	16'-2"	14'-6"
	2x12	18'-0"	18'-0"
16"	2x6	9'-0"	6'-8"
	2x8	11'-10"	10'-1"
	2x10	14'-0"	14'-0"
	2x12	16'-6"	16'-6"
24"	2x6	7'-7"	6'-8"
	2x8	9'-8"	9'-8"
	2x10	11'-5"	11'-5"
	2x12	13'-6"	13'-6"

[1] Spans are based on 40 PSF live load, 10 PSF dead load, southern pine #2, normal loading duration, wet service conditions and deflections of Δ=ℓ/360 for main span and ℓ/180 for overhang with a 220 lbs. point load.

SECTION 4: BEAMS

Beams shall be designed and assembled in accordance with the requirements below.

- As shown in FIGURE 5, beam span length is measured between the centerlines of two adjacent posts and does not include the overhangs.
- Beam size is determined using TABLE 2. Flush beams shall be greater than or equal to the joist depth.
- Beams may overhang past the center of the post up to one-fourth of the actual beam span as shown in FIGURE 5.
- The plies of the beam shall be assembled in accordance with FIGURE 6.
- Preservative-treated glulam beams are permissible for spans longer than those shown in TABLE 2. However, a design and plan submission to the county is required during the permit application process.



[1] The maximum length of the overhang is equal to one-fourth of the actual beam span length (0.25 x beam span).

FIGURE 5: BEAM TYPES

TABLE 2: MAXIMUM BEAM SPAN LENGTH[1]

Joist Span	(number of plies) Beam Size							
less than or equal to:	(2)2x6	(2)2x8	(2)2x10	(2)2x12	(3)2x6	(3)2x8	(3)2x10	(3)2x12
6'	6'-11"	8'-9"	10'-4"	12'-2"	8'-2"	10'-10"	13'-0"	15'-3"
8'	5'-11"	7'-7"	9'-0"	10'-7"	7'-5"	9'-6"	11'-3"	13'-3"
10'	5'-4"	6'-9"	8'-0"	9'-5"	6'-8"	8'-6"	10'-0"	11'-10"
12'	4'-10"	6'-2"	7'-4"	8'-7"	6'-1"	7'-9"	9'-2"	10'-9"
14'	4'-6"	5'-9"	6'-9"	8'-0"	5'-8"	7'-2"	8'-6"	10'-0"
16'	4'-3"	5'-4"	6'-4"	7'-6"	5'-3"	6'-8"	7'-11"	9'-4"
18'	4'-0"	5'-0"	6'-0"	7'-0"	5'-0"	6'-4"	7'-6"	8'-10"

[1] Spans are based on 40 PSF live load, 10 PSF dead load, southern pine #2, normal loading duration, wet service conditions and deflections of Δ=ℓ/360 for main span and ℓ/180 for overhang with a 220 lb. point load.

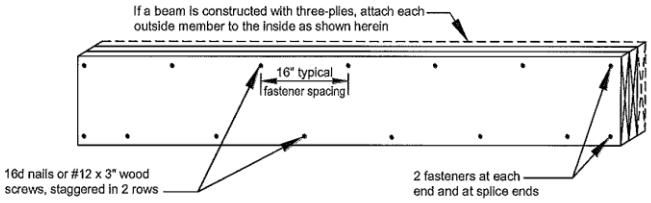


FIGURE 6: BEAM ASSEMBLY

SECTION 5: JOIST-TO-BEAM CONNECTION

Each joist shall be attached to the beam in accordance with FIGURE 7 and the requirements below.

- Use Options 1 or 2 when joists bear on a dropped beam.
- Use Option 3 when joists bear at a flush beam; see SECTION 6 for hanger requirements.
- Mechanical fasteners or hurricane clips shall have a minimum capacity of 100 pounds in both uplift and lateral directions. Installation shall be per manufacturer's instructions.

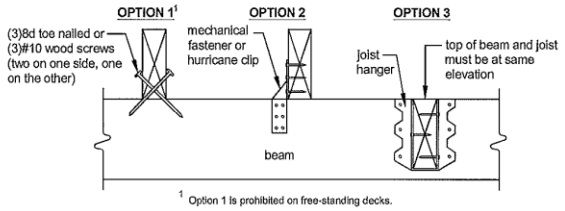


FIGURE 7: JOIST-TO-BEAM CONNECTION

SECTION 6: JOIST HANGERS

Joist hangers shall meet the requirements listed below.

- Joist hanger depth (**d**, as shown in FIGURE 8) shall be greater than or equal to 60 percent of the joist depth.
- The manufactured width of the joist hanger shall accommodate the number of plies being carried.
- Do not bend hanger flanges to accommodate field conditions.
- Joist hangers shall be fastened to the ledger board using its manufacturer's recommended screws. All other fasteners are permitted to be nails.

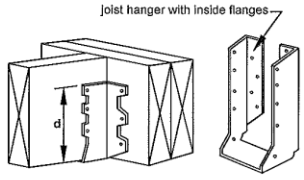


FIGURE 8: JOIST HANGERS

- Use joist hangers with inside flanges when clearances to the edge of the beam or ledger board dictate.
- Clip angles or brackets used to support framing members in lieu of joist hangers are prohibited.

SECTION 7: POSTS

Posts shall meet the requirements listed below.

- Post height, measured from the top of the footing to the underside of the beam, shall be in accordance with TABLE 3.

TABLE 3: MAXIMUM POST HEIGHT

Post Size	Maximum Height
4x4	8'-0"
4x6	8'-0"
6x6	14'-0"

- Posts supporting a beam splice shall be 6x6 only.
- The beam shall be attached to the post by the appropriate methods shown in FIGURE 9.
- Post caps, as shown in FIGURE 9, shall be specifically designed for two- or three-ply beams and the post size used. Attachment shall be per manufacturer's instructions.
- Cut ends of posts shall be field treated with a wood preservative containing copper naphthenate. Such products can be found in the paint department of most hardware or home center stores.

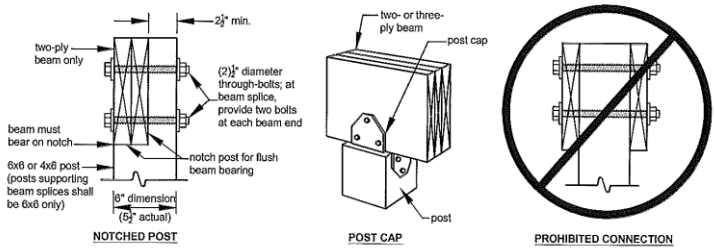


FIGURE 9: POST-TO-BEAM CONNECTIONS

SECTION 8: FOOTINGS

Footings shall be constructed in accordance with the requirements below.

- Concrete shall have a minimum compressive strength of 3,000 pounds per square inch.
- Footing size and thickness shall be in accordance with TABLE 4.
- Post attachment requirements shall be in accordance with FIGURE 10.
- Post anchors shall have a 1-inch minimum base.
- Posts shall be centered on the footing.
- Footings shall bear on solid ground at a minimum depth of 24 inches. Footings shall be deeper if solid ground is not found. Bearing conditions must be verified by county inspectors prior to placement of concrete.
- When the edge of a deck footing is closer than 5 feet to an existing exterior house wall, the footing must bear at the same elevation as the existing house footings.
- Do not construct footings over utility lines or service pipe. Call Miss Utility at 811 before you dig.

TABLE 4: FOOTING SIZE

Beam Span less than or equal to:	Joist Span less than or equal to:	Size of Square	Size of Round	Minimum Thickness
8'	10'	15"	17"	6"
	14'	18"	20"	8"
	18'	21"	23"	9"
12'	10'	19"	21"	8"
	14'	22"	24"	10"
	18'	26"	28"	11"
17'	10'	23"	25"	10"
	14'	28"	30"	12"

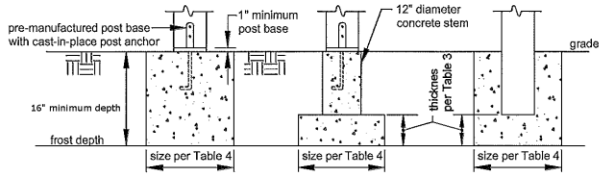


FIGURE 10: FOOTINGS

SECTION 9: LEDGER ATTACHMENTS

General requirements. Ledger boards shall be attached to the existing house in accordance with the requirements below. Compliance is critical to ensure the safety and structural stability of your deck.

- Ledger board depth shall be greater than or equal to the depth of the deck joists, but not less than a 2x8.
- The ledger board shall be attached in accordance with one of the conditions shown in FIGURES 12 through 14.
- The existing band board shall be capable of supporting the deck. If this cannot be verified or existing conditions differ from the details herein, then a free-standing deck or an engineered design is required.
- The top of the ledger board and top of the deck joists shall be at the same elevation.

Wood I-joists. Many homes are constructed with wood I-joists, as shown in FIGURE 11. Rather than utilize a 2x band board, these systems are often constructed with a minimum 1-inch thick engineered wood product (EWP) band board capable of supporting a deck. If a minimum 1-inch EWP or 2x band board is not present, then a free-standing deck is required; see Page 12 for more information.

FIGURE 11: WOOD I-JOISTS

Siding and flashing. Flashing shall be installed in accordance with the requirements below.

- The exterior finish, i.e., house siding, must be removed prior to the installation of the ledger board.
- Continuous flashing with a drip edge, as shown in FIGURE 12, is required at the ledger board when attached to wood-framed construction.
- Flashing shall be copper (attached using copper nails only), stainless steel, UV resistant plastic or galvanized steel coated with 1.85 ounces of zinc per square foot (G-185 coating).
- Flashing at a door threshold shall be installed to prevent water intrusion from rain or melting snow.

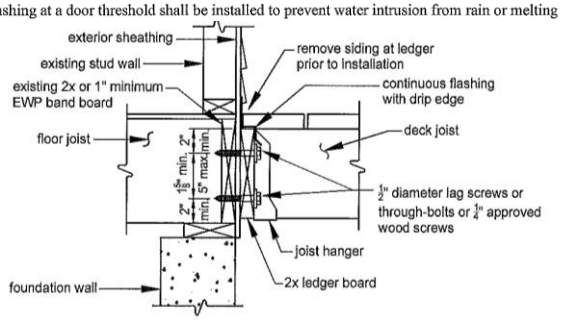


FIGURE 12: LEDGER BOARD-TO-BAND BOARD ATTACHMENT

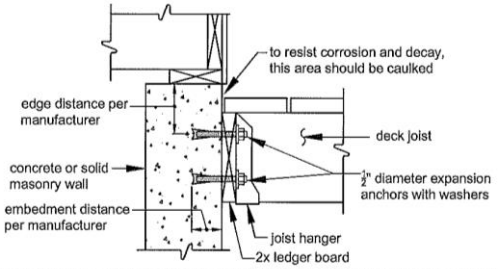


FIGURE 13: LEDGER BOARD-TO-SOLID FOUNDATION ATTACHMENT

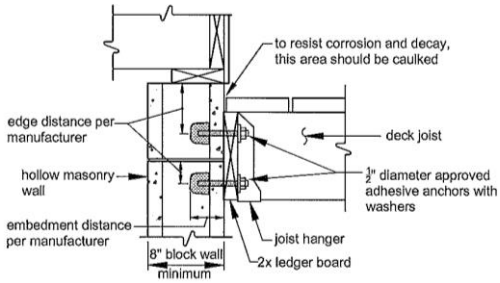


FIGURE 14: LEDGER BOARD-TO-HOLLOW FOUNDATION ATTACHMENT

DECKS ON MOBILE HOMES MUST BE FREE STANDING

Prohibited ledger attachments. The ledger board attachment conditions shown below are prohibited. In such cases, the deck shall be free-standing; see Page 12.

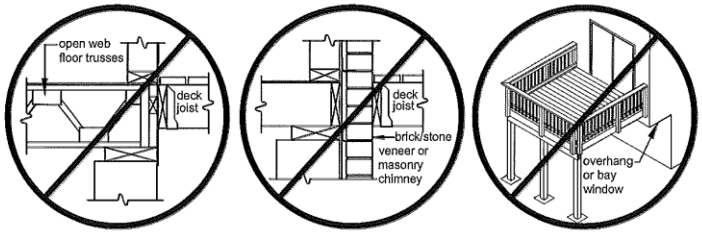
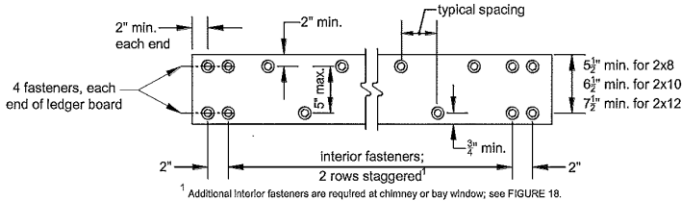


FIGURE 15: PROHIBITED LEDGER ATTACHMENTS

SECTION 10: LEDGER BOARD FASTENERS

General requirements. Ledger board fasteners shall be installed in accordance with this section. Placement and spacing shall be in accordance with FIGURE 16 and TABLE 5. Only those fastener types noted herein are approved for use; lead anchors are prohibited. Adequacy of connections will be verified by county inspectors.



[1] Additional interior fasteners are required at chimney or bay window; see FIGURE 18.

FIGURE 16: LEDGER BOARD FASTENER SPACING AND CLEARANCES

TABLE 5: LEDGER BOARD FASTENER SPACING, ON CENTER

Fastener	Band Board	Joist Span less than or equal to: 6'	8'	10'	12'	14'	16'	18'
Lag Screws	EWP[1]	24"	18"	14"	12"	10"	9"	8"
	2x lumber	30"	23"	18"	15"	13"	11"	10"
Through Bolts	EWP[1]	24"	18"	14"	12"	10"	9"	8"
	2x lumber	36"	36"	34"	29"	24"	21"	19"
Wood Screws[2]	1" EWP[1]	18"	13"	11"	9"	8"	7"	6"
	2x lumber	19"	14"	11"	9"	8"	7"	6"
Expansion Anchors	—	36"	36"	34"	29"	24"	21"	19"
Adhesive Anchors	—	32"	32"	32"	24"	24"	16"	16"

[1] EWP = 1" minimum manufactured engineered wood product; see Page 8 for more information.
[2] Wood screws shall be permitted to be spaced in accordance with its corresponding evaluation report if less restrictive than the values in TABLE 5.

Expansion anchors. Expansion anchors shall be used only when attaching a ledger board to a concrete or solid masonry wall as shown in FIGURE 13. The bolt or threaded rod of expansion anchors shall have a ½-inch diameter minimum; in some cases, this may require a $^{5}/_{8}$-inch anchor size. Expansion anchors must be installed per manufacturer's instructions and shall be equipped with washers.

Adhesive anchors. The adhesive anchors listed in TABLE 6 with a minimum ½-inch diameter threaded rod shall be used when attaching to hollow masonry as shown in FIGURE 14. Adhesive anchors are also permitted with concrete or solid masonry installations. Anchors shall be installed per manufacturer's instructions and shall be equipped with washers. Adhesive cartridges must be remain on the jobsite for inspector verification.

TABLE 6: APPROVED ADHESIVE ANCHORS

Manufacturer	Product
ITW Ramset/Red Head	Epcon Acrylic 7
Hilti	HY-20

Lag screws. Lag screws shall be hot-dipped galvanized or stainless steel with a ½-inch minimum diameter. Length and shank requirements shall be in accordance with FIGURE 17. Lag screws shall be equipped with washers and installed in the sequence below.

1. Drill a ½-inch diameter hole in the ledger board and a $^{5}/_{16}$-inch diameter pilot-hole into the solid connection material of the existing house.
2. Insert the lag screw through the ledger board and into the pilot hole by turning. Do not drive with a hammer. Use soap or a wood-compatible lubricant as required to facilitate tightening.
3. Tighten each lag screw snugly, but do not over tighten so as to cause wood damage.

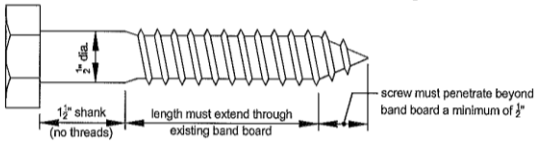


FIGURE 17: LAG SCREW

Wood screws. The wood screws listed in TABLE 7 with a ¼-inch diameter may be used to attach to wood-framed construction. Wood screws shall have a sufficient length to fully penetrate the existing house band board. Installation shall be in conformance with the manufacturer's instructions.

TABLE 7: APPROVED WOOD SCREWS

Manufacturer	Product
FastenMaster	LedgerLok
Simpson Strong-Tie	Strong-Drive Screws (SDS, SDW)

- For decks attached to the existing house, the ratio of the overall deck length to width must be no more than 2 to 1. This requirement can also be verified by ensuring L ÷ W ≤ 2 as shown in FIGURE 41. (This does not apply to free-standing decks or attached decks using lateral support Method 1.)

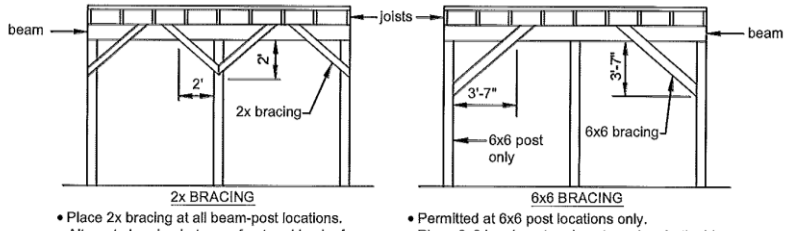


FIGURE 23: DIAGONAL BRACING AT BEAM-POST LOCATIONS

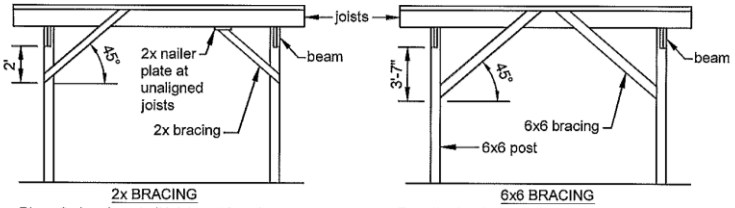
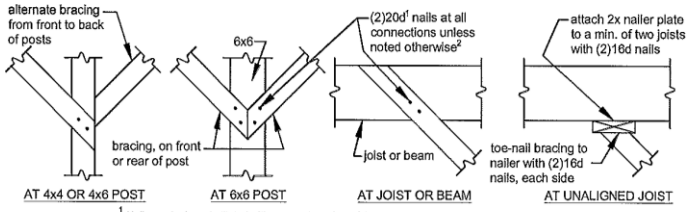


FIGURE 24: DIAGONAL BRACING AT JOIST-POST LOCATIONS
(required for free-standing decks only)

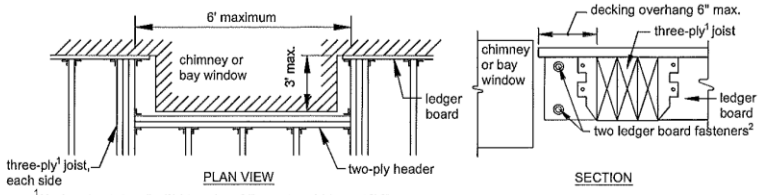


[1] Nails maybe be substituted with an equal number of the approved wood screws listed in TABLE 7.
[2] Nails shall have a distance of ⅜ inches to all edges and ¾ inches to the end of the bracing member.

FIGURE 25: TYPICAL CONNECTIONS OF 2x BRACING

SECTION 11: FRAMING AT CHIMNEY OR BAY WINDOW

Additional framing and ledger board fasteners at a chimney or bay window protrusion are required as shown in FIGURE 18. Each ply of the header shall be equal to the deck joist size. Joist hangers shall meet the requirements on Page 6.



[1] May be reduce to two-plies if joist spacing = 24" on center or joist span ≤ 8'-6".
[2] Fasteners adjacent chimney/bay window are considered interior to the ledger board. See FIGURE 16 for fasteners requirements at the end of the ledger board.

FIGURE 18: FRAMING AT CHIMNEY OR BAY WINDOW

SECTION 12: FREE-STANDING DECKS

Decks which are free-standing do not utilize the exterior wall of the existing house to support vertical or horizontal loads. An additional beam is provided at or offset from the existing house wall; see FIGURES 4 and 19. When the edge of a deck footing is closer than 5 feet to an existing exterior house wall, the footing must bear at the same elevation as the existing house footings as shown in FIGURE 19 below. Beam size is determined by TABLE 2.

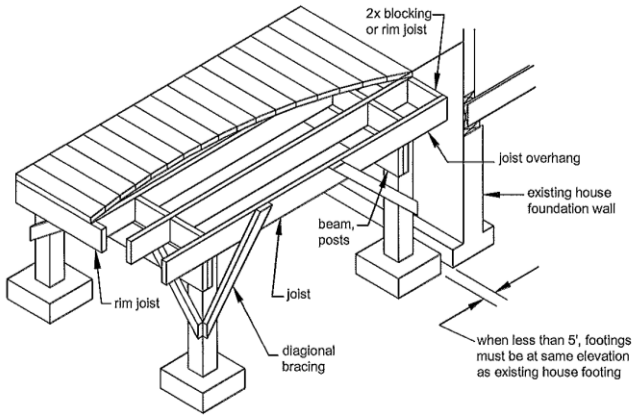
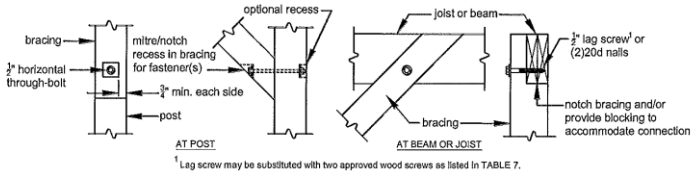


FIGURE 19: FREE-STANDING DECK



[1] Lag screw may be substituted with two approved wood screws as listed in TABLE 7.

FIGURE 26: TYPICAL CONNECTIONS OF 6x6 BRACING

SECTION 14: GUARDS

General requirements. A guard is required when a deck is greater than 30 inches above grade at a point 36 inches from the edge of the deck, as shown in FIGURE 27. Guards shall be constructed in accordance with the requirements herein; deviations are prohibited. Guards which are not required, but are nevertheless provided, must also comply with these requirements.

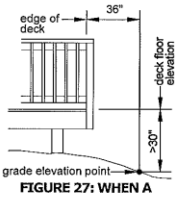
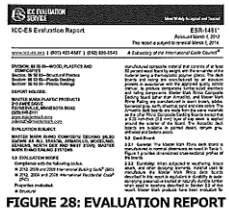


FIGURE 27: WHEN A GUARD IS REQUIRED

Wood-plastic composites. Wood-plastic composites of equal dimension and complying with the criteria noted on Page 3 may be substituted for the guard rail-cap and infill elements shown in FIGURE 29 provided the manufacturer's performance criteria specifically permit such use.

Guard systems. Guard systems with a valid evaluation report from an accredited listing agency are permitted. See FIGURE 28 for a sample report. Pre-fabricated systems without an evaluation report will require a plan review during the permit application process.


ICC EVALUATION SERVICE

ICC-ES Evaluation Report

ESR-1461

FIGURE 28: EVALUATION REPORT

Openings in guards. Guards shall be constructed to restrict the passage of a 4-inch diameter sphere through any opening. Wet lumber shall be spaced such that when shrinkage occurs, a compliant opening is maintained.

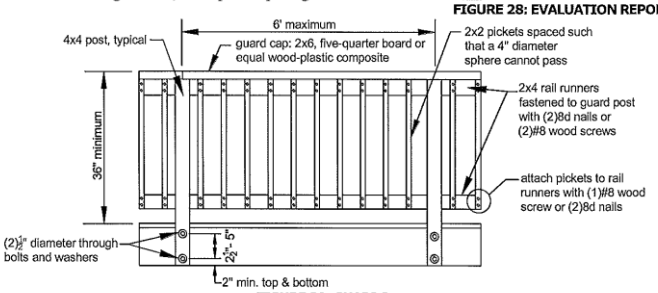


FIGURE 29: GUARDS

Guard posts. Guard posts shall be attached to the deck structure in accordance with the requirements below in order to ensure resistance to imposed loads.

- Notching guard posts, as shown in FIGURE 30, is prohibited.
- Hold-down anchors, as shown in FIGURES 31 and 32, shall be used to attach the guard post to the end joist and rim joist, respectively.
- Hold-down anchors shall have a minimum capacity of 1,800 pounds.
- Guard posts may be attached to either side of the rim joist or end joist.

FIGURE 30: POST NOTCHES PROHIBITED

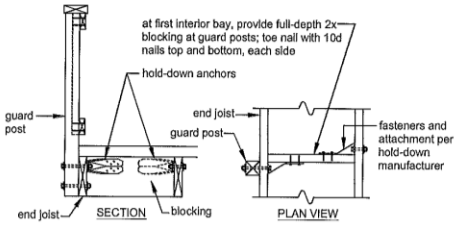


FIGURE 31: GUARD POST-TO-END JOIST

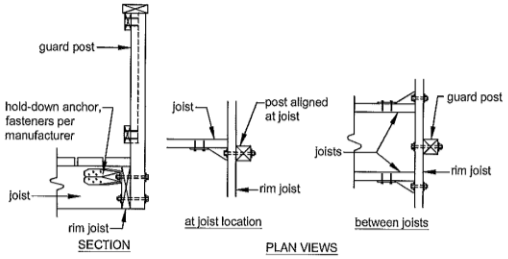


FIGURE 32: GUARD POST-TO-RIM JOIST

SECTION 15: STAIRS

Stair dimensions. Stairs shall be constructed with the dimensions listed below.

- The minimum width of a stairway is 36 inches.
- Stair geometry and opening limitations shall meet the requirements shown in FIGURE 33. Treads, risers and nosing dimensions shall not deviate at each step by more than ⅜ inch.
- If the total vertical height of a stairway exceeds 12 feet, then an intermediate landing is required and must be constructed as a free-standing deck with flush beams.
- Landing widths shall be equal to the total width(s) of the stairway(s) it serves.

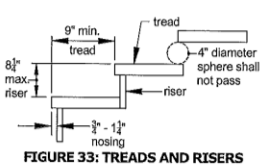


FIGURE 33: TREADS AND RISERS

Stair stringers. Stringers shall be in accordance with the following requirements.

- Stringers shall be sawn or solid 2x12s complying with the tread and riser geometry requirements.
- Stringers shall be spaced at a maximum of 18 inches on center.
- Stringers shall bear on footings and attach to the deck or landing per FIGURE 34.
- Stringer span length is measured using the horizontally projected distance between the centerlines of bearing at each end.
- The span length of a stringer shall not exceed 6 feet-11 inches, and the throat size of cut stringers shall not exceed 5 inches as shown in FIGURE 35.

  Solid stringer exception: Stringers of stairways with a width equal to 36 inches shall be permitted to have a horizontally projected span up to 15.5 feet when framed solely with two solid stringers.

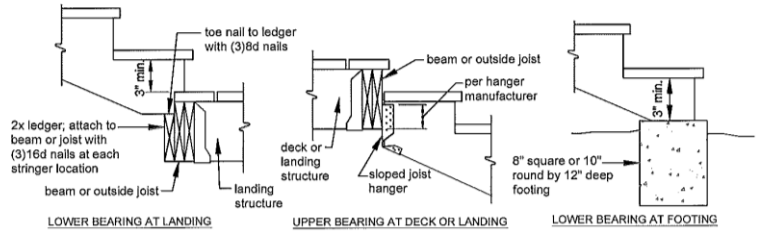


FIGURE 34: STRINGER BEARING

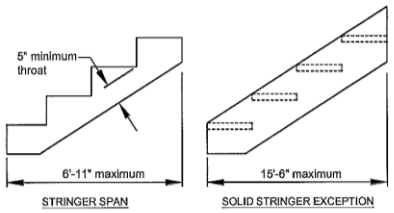
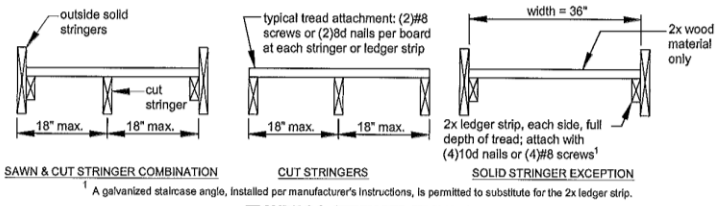


FIGURE 35: MAXIMUM STRINGER SPAN LENGTH

Tread and riser material. Tread and riser material shall be in accordance with the requirements below.

- Tread material shall be equivalent to the decking specified on Page 3 and attached in accordance with FIGURE 36.
- Stairs constructed using the solid stringer exception noted above shall have treads constructed of 2x wood material only; see FIGURE 36.
- Risers may be framed with 1x lumber minimum or equivalent wood-plastic composite. Open risers are permitted provided the opening does not allow the passage of a 4-inch diameter sphere.



[1] A galvanized staircase angle, installed per manufacturer's instructions, is permitted to substitute for the 2x ledger strip.

FIGURE 36: STRINGER TREADS

Stair guards. Stair guards shall be required when the total rise of the stair is greater than 30 inches at a point 36 inches from the edge of the stair. Stair guards shall be constructed in accordance with SECTION 14 and FIGURE 37.

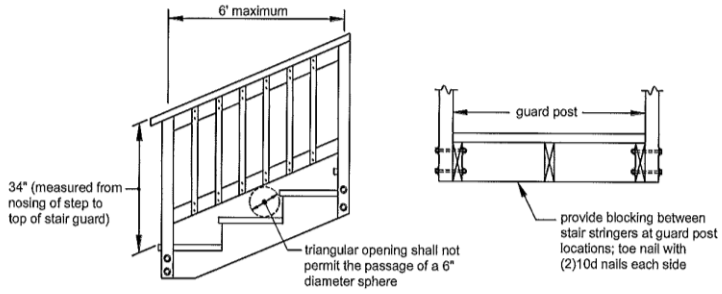


FIGURE 37: STAIR GUARD

Stair handrails. Handrails shall be provided in accordance with the following requirements.

- Stairs with four or more risers shall have a handrail on one side at a height between 34 to 38 inches above the nosing of the step.
- Handrails shall be attached to a stair guard or exterior wall acting as a barrier as shown in see FIGURE 38.
- Handrail and connecting hardware material shall be decay and corrosion resistant.
- Handrails shall have a smooth surface with no sharp corners and shall be graspable. Recessed sections may be shaped from a 2x6 or five-quarter board as shown in FIGURE 39.
- Handrails shall run continuously from a point directly over the lowest riser to a point directly over the highest riser and shall return to the guard or wall at each end.
- Handrails may be interrupted by guard posts at a turn in the stair only.

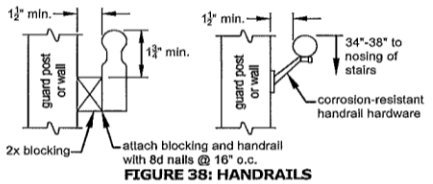


FIGURE 38: HANDRAILS

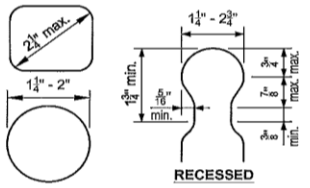


FIGURE 39: HANDRAIL GRASPABILITY

Stair lighting. Each stairway section shall have a light source at the top such that all stairs and landings are illuminated. Lights shall be operated from switches inside the house, motion detectors or timed switches.

SECTION 16: SAFETY GLAZING

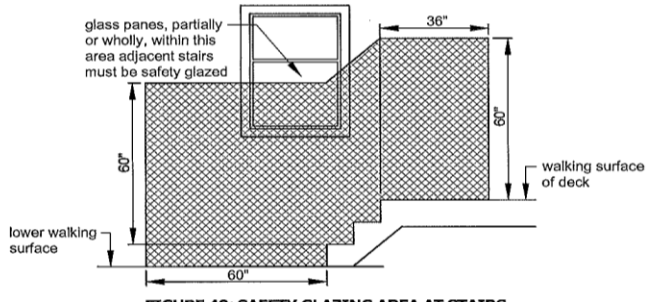
General requirements. To reduce injury due to an accidental impact, safety glazing in window and door glass is required when the existing house wall encloses any portion of the deck or acts as a barrier to stairs, landings and areas at the top and bottom of the stairs.

Window adjacent any surface of a deck. Individual panes of glass meeting all the requirements listed below must be safety-glazed.

- Glass area is greater than 9 square feet,
- The bottom edge of the pane is less than 18 inches above the walking surface of the deck, and
- The top edge of the pane is greater than 36 inches above the walking surface of the deck.

In the absence of safety glazing, a horizontal rail across the window must be installed at a height between 34 and 38 inches. The rail must meet the requirements of a stair handrail.

Windows adjacent stairway. Individual panes, partially or wholly located in the hatched area shown in FIGURE 40, must be safety-glazed. In the absence of safety glazing in a window adjacent a stairway, a stair guard must be constructed to separate the window from the stairway. In the absence of safety glazing in a window adjacent the 36-inch horizontal areas at the top or bottom of the stairs, a guard or horizontal rail must be installed at a height between 34 and 38 inches. The rail must meet the requirements of a stair handrail.



Other useful Information from the 2009 International Residential Code.

(This handout only contains the most commonly used codes. It is up to each homeowner or builder to be sure their structure meets the full requirements of the 2009 International residential code.)

R31 1.3 Floors and landings at exterior doors. There shall be a landing or floor on each side of each exterior door. The width of each landing shall not be less than the door served. Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel. Exterior landings shall be permitted to have a slope not to exceed i/ 4 unit vertical in 12 units horizontal (2-percent).

R3 11.5.1 Attachment. Exterior landings, decks, balconies, stairs and similar facilities shall be positively anchored to the primary structure to resist both vertical and lateral forces or shall be designed to be self-supporting. Attachment shall not be accomplished by use of toenails or nails subject to withdrawal.

R311.7 Stairways.

R3 11.7.1 Width. Stairways shall not be less than 36 inches (914 mm) in clear width at all points above the permitted handrail height and below the required headroom height. Handrails shall not project more than 4.5 inches (114 mm) on either side of the stairway and the minimum clear width of the stairway at and below the handrail height, including treads and landings, shall not be less than 31 V 2 inches (787
mm) where a handrail is installed on one side and 27 inches (698 mm) where handrails are provided on both sides.

R3 11.7.4 Stair treads and risers. Stair treads and risers shall meet the requirements of this section. For the purposes of this section all dimensions and dimensioned surfaces shall be exclusive of carpets, rugs or runners.

R3 1 1 .7.4. 1 Riser height. The maximum riser height shall be 7 3 / 4 inches (196 mm). The riser shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/ 8 inch (9.5 mm).

R3 11.7.4.2 Tread depth. The minimum tread depth shall be 10 inches (254 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/ 8 inch (9.5 mm). Consistently shaped winders at the walkline shall be allowed within the same flight of stairs as rectangular treads and do not have to be within 3/ 8 inch (9.5 mm) of the rectangular tread depth.

R3 11.7.4.4 Exterior wood/plastic composite stair treads. Wood/plastic composite stair treads shall comply with the provisions of Section R31 7.4.

R3 11.7.5 Landings for stairways. There shall be a floor or landing at the top and bottom of each stairway.

Exception: A floor or landing is not required at the top of an interior flight of stairs, including stairs in an enclosed garage, provided a door does not swing over the stairs. A flight of stairs shall not have a vertical rise larger than 12 feet (3658 mm) between floor levels or landings. The width of each landing shall not be less than the width of the stairway served. Every landing shall have a minimum dimension of 36 inches (914 mm) measured in the direction of travel.

R3 11 . 7.7 Handrails . Handrails shall be provided on at least one side of each continuous run of treads or flight with four or more risers.

R3 11.7.7.1 Height. Handrail height, measured vertically from the sloped plane adjoining the tread nosing, or finish surface of ramp slope, shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm).

R311.7.7.3 Grip-size. All required handrails shall be of one of the following types or provide equivalent graspability.

1. Type I. Handrails with a circular cross section shall have an outside diameter of at least 11/4 inches (32 mm) and not greater than 2 inches (51 mm). If the handrail is not circular, it shall have a perimeter dimension of at least 4 inches (102 mm) and not greater than 61/4 inches (160 mm) with a maximum cross section of dimension of 21/4 inches (57 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

2. Type II. Handrails with a perimeter greater than 61/4 inches (160 mm) shall have a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of 3/4 inch (19 mm) measured vertically from the tallest portion of the profile and achieve a depth of at least 5/16 inch (8 mm) within 7/8 inch (22 mm) below the widest portion of the profile. This required depth shall continue for at least 3/8 inch (10 mm) to a level that is not less than 13/4 inches (45 mm) below the tallest portion of the profile. The minimum width of the handrail above the recess shall be 11/4 inches (32 mm) to a maximum of 23/4 inches (70 mm). Edges shall have a minimum radius of 0.01 inch (0.25 mm).

R3 11.7.7.4 Exterior wood/plastic composite handrails. Wood/plastic composite handrails shall comply with the provisions of Section R31 7.4.

R31 1.7.8 Illumination. All stairs shall be provided with illumination in accordance with Section R303.6.

SECTION R312
GUARDS

R312.1 Where required. Guards shall be located along open-sided walking surfaces, including stairs, ramps and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side. Insect screening shall not be considered as a guard.

R312.2 Height. Required guards at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be not less than 36 inches (914 mm) high measured vertically above the adjacent walking surface, adjacent fixed seating or the line connecting the leading edges of the treads.

Exceptions:

1. Guards on the open sides of stairs shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.

2. Where the top of the guard also serves as a handrail on the open sides of stairs, the top of the guard shall not be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) measured vertically from a line connecting the leading edges of the treads.

R312.3 Opening limitations. Required guards shall not have openings from the walking surface to the required guard height which allow passage of a sphere 4 inches (102 mm) in diameter.

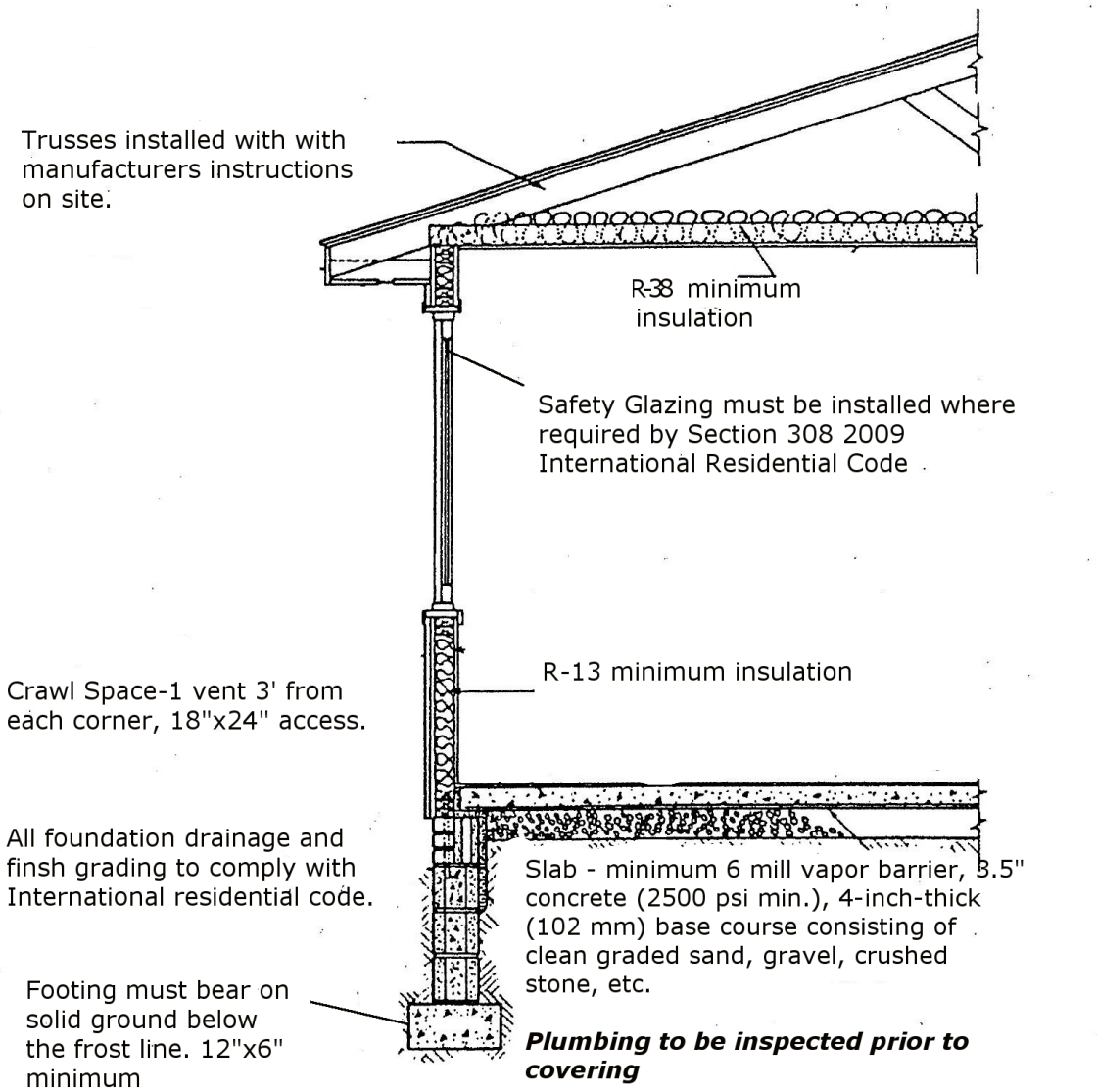
Exceptions:

1. The triangular openings at the open side of a stair, formed by the riser, tread and bottom rail of a guard, shall not allow passage of a sphere 6 inches (153 mm) in diameter.

2. Guards on the open sides of stairs shall not have openings which allow passage of a sphere 4 3/8 inches (111 mm) in diameter.

R312.4 Exterior woodplastic composite guards. Woodplastic composite guards shall comply with the provisions of Section R3 17.4.

All Construction must comply with the 2009 International Building Code.



This handout does not list all specifications and is not meant to be a comprehensive list of requirements.All Construction must comply with the 2009 International Building Code.