

R507 Rewrite with technical changes

Created 10-30-2015

	Page
R403.1.4.1 Frost protection	2
R507.1 Decks	3
R507.2 Materials	5
R507.3 Footings	9
R507.4 Deck posts	11
R507.5 Beams	13
R5.7.6 Joists	17
R507.7 Decking	20
R805.8 Guards	21
R507.9 Lateral and vertical supports	23

R403.1.4.1 Frost protection. Except where otherwise protected from frost, foundation walls, piers and other permanent supports of buildings and structures shall be protected from frost by one or more of the following methods:

1. Extended below the frost line specified in Table R301.2.(1);
2. Constructing in accordance with Section R403.3;
3. Constructing in accordance with ASCE 32; or
4. Erected on solid rock.

Exceptions:

1. Protection of freestanding *accessory structures* with an area of 600 square feet (56 m²) or less, of light-frame construction, with an eave height of 10 feet (3048 mm) or less shall not be required.
2. Protection of freestanding *accessory structures* with an area of 400 square feet (37 m²) or less, of other than light-frame construction, with an eave height of 10 feet (3048 mm) or less shall not be required.

Footings shall not bear on frozen soil unless the frozen condition is permanent.

SECTION R507 EXTERIOR LIGHT-FRAMED DECKS

R507.1 Decks. Light-framed decks shall be either freestanding or attached to a primary structure. Light framed decks shall be constructed in accordance with this section, or designed in accordance with Section R301 for materials and conditions not prescribed herein. Light-framed decks shall be constructed to provide a complete load path to transfer both vertical and lateral loads to their foundations or through attachment to a primary structure. Where joists or beams are cantilevered, the supporting framing shall be designed to resist uplift resulting from the full live load specified in Table R301.5 acting on the cantilevered portion of the deck.

R507.1.1 Freestanding decks. Freestanding decks shall be supported by at least two parallel rows of beams and shall be limited in height by the post size specified in Table R507.4. The lateral load resistance shall be permitted to be provided by diagonal braces in both directions in accordance with Figure R507.1.1, or by other methods in accordance with accepted engineering practice.

Exception: Freestanding wood patios consisting of joists directly supported on grade over their entire length, need only comply with Sections R507.3, R507.4, and Chapter 3

R507.1.2 Decks attached to a primary structure. Decks which are not freestanding shall be supported by a ledger board connection to the band joist of the primary structure. Decks shall be constructed to provide a complete load path for both vertical and lateral loads in accordance with Section R507.9. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal. Where connections to the supporting structure, as required in Section R507.9, cannot be verified, decks shall be freestanding in accordance with Section R507.1.1.

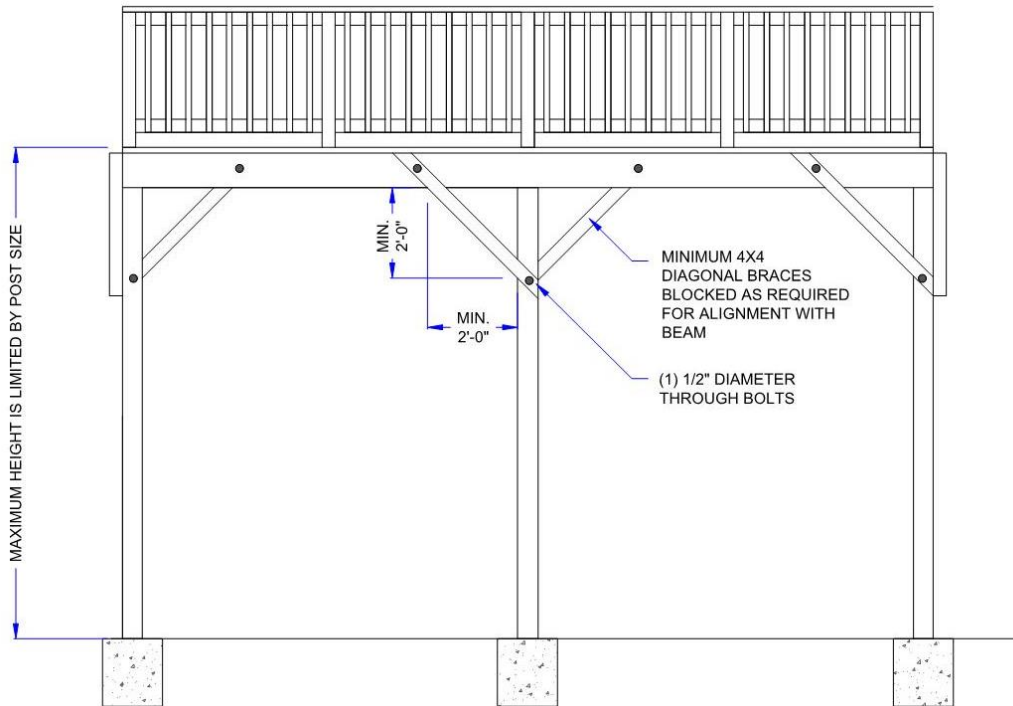


FIGURE R507.1.1
FREESTANDING DECKS

R507.2 Materials. Materials used for the construction of decks shall comply with this section.

R507.2.1 Wood materials. All wood materials shall be No.2 grade or better lumber, preservative-treated in accordance with Section R317 or approved, naturally durable lumber, and termite protected where required in accordance with Section R318. Where design in accordance with Section R301 is provided, all wood structural members shall be designed using the wet service factor defined in AWC NDS. All cuts, notches, and drilled holes of preservative treated wood members shall be treated in accordance with Section R317.1.1. All preservative-treated wood products in contact with the ground shall be labeled for such usage.

R507.2.1.1 Engineered wood products. Engineered wood products shall be in accordance with Section R502.

507.2.2 Plastic composite deck boards, stair treads, guards, or handrails. Plastic composite exterior deck boards, stair treads, guards and handrails shall comply with ASTM D 7032 and of Section 507.3.

R507.2.2.1 Labeling. Plastic composite deck boards and stair treads, or their packaging, shall bear a label that indicates compliance with ASTM D 7032 and includes the allowable load and maximum allowable span determined in accordance with ASTM D 7032. Plastic or composite handrails and guards, or their packaging, shall bear a label that indicates compliance with ASTM D 7032 and includes the maximum allowable span determined in accordance with ASTM D 7032.

R507.2.2.2 Flame spread index. Plastic composite deck boards, stair treads, guards, and handrails shall exhibit a flame spread index not exceeding 200 when tested in accordance with ASTM E 84 or UL 723 with the test specimen remaining in place during the test.

Exception: Plastic composites determined to be noncombustible.

R507.2.2.3 Decay resistance. Plastic composite deck boards, stair treads, guards and handrails containing wood, cellulosic or other biodegradable materials shall be decay resistant in accordance with ASTM D 7032.

R507.2.2.4 Termite resistance. Where required by Section 318, plastic composite deck boards, stair treads, guards and handrails containing wood, cellulosic or other biodegradable materials shall be termite resistant in accordance with ASTM D 7032.

R507.2.2.5 Installation of plastic composites. Plastic composite deck boards, stair treads, guards and handrails shall be installed in accordance with this code and the manufacturer's instructions.

R507.2.3 Fasteners and connectors. Metal fasteners and connectors used for all decks shall be in accordance with Section R317.3 and Table R507.2.3.

R507.2.4 Flashing: Flashing shall be corrosion-resistant metal of minimum nominal 0.019 – inch thickness or approved non-metallic material that is compatible with the substrate of the structure and the decking materials.

R507.2.5 Alternative materials. Alternative materials, including glass and metals, designed in in accordance with accepted engineering practice shall be permitted subject to the approval of the building official.

TABLE R507.2.3
FASTENER AND CONNECTOR SPECIFICATIONS FOR DECKS ^{a, b, e}

ITEM	BASIC FASTENER REQUIREMENTS		ALTERNATE MATERIALS, COATINGS, AND FINISHES
	MATERIAL	MINIMUM FINISH/COATING	
Nails and timber rivets	In accordance with ASTM F1667	Hot-dipped galvanized per ASTM A 153	300 Series stainless steel; silicon bronze, or copper
Bolts ^c and lag screws ^d (including nuts and washers)	In accordance with ASTM A 307	Hot-dipped galvanized per ASTM A153 Class C (Class D for 3/8" diameter and less) or Mechanically galvanized per ASTM B 695, Class 55 or 410 stainless steel	300 Series stainless steel; silicon bronze, or copper
Metal connectors	Per manufacturer's specification	ASTM A 653 type G185 zinc coated galvanized steel or Hot-dipped galvanized per ASTM A 123 providing a minimum average coating weight of 2.0 oz./ft ² (total both sides)	300 Series stainless steel

- a. Alternative materials, coatings and finishes shall be subject to approval by the building official provided equivalent performance is demonstrated by the manufacturer of the fastener or connector.
- b. Fasteners and connectors exposed to salt water or located within 300 feet of a salt water shoreline shall be stainless steel, Type 304, 305, or 316.
- c. Holes for bolts shall be drilled a minimum 1/32" and a maximum 1/16" larger than the bolt.
- d. Lag screws 1/2" and larger shall be predrilled to avoid wood splitting per National Design Specification (NDS) for Wood Construction with 2005 Supplement.
- e. Stainless steel driven fasteners shall be in accordance with ASTM F 1667.

R507.3 Footings. Decks shall be supported on solid concrete footings or other approved structural systems of sufficient size to accommodate all loads according to Section R301 and to transmit the resulting loads to the soil within the limitations as determined from the character of the soil.









Exception:

1. Freestanding wood patios where the joists are supported directly on grade over their entire length.
2. Precast concrete deck blocks for freestanding decks may be placed on grade provided all of the following deck criteria are met:
 - a. The area of the deck does not exceed 200 square feet (18.9 m²),
 - b. The walking surface is not more than 20 inches (616 mm) above grade at any point within 36 inches (914 mm) measured horizontally from the edge,
 - c. The joists bear directly on precast concrete deck blocks without support by beams or posts, and their span lengths comply with Table R507.6.

R507.3.1 Minimum size. The minimum sizes of concrete footings shall be in accordance with Table R507.3.1, based on the tributary area and allowable soil bearing pressure in accordance with Table R401.4.1.

R507.3.2 Minimum depth. Deck footings shall extend below the frost line specified in Table R301.2(1).

TABLE R507.3.1
MINIMUM FOOTING SIZE FOR DECKS

MINIMUM FOOTING SIZE for DECKS ^{a,c} (sqft)													
LIVE or GROUND SNOW LOAD ^b (psf)	TRIBUTAR Y AREA (sqft)	SOIL BEARING CAPACITY (psf)											
		1500			2000			2500			≥3000		
		side of a square footing (in)	diameter of a round footing (in)	thicknes s (in)	side of a square footing (in)	diameter of a round footing (in)	thicknes s (in)	side of a square footing (in)	diameter of a round footing (in)	thicknes s (in)	side of a square footing (in)	diameter of a round footing (in)	thicknes s (in)
													
40	20	12	14	6	12	14	6	12	14	6	12	14	6
	40	14	16	6	12	14	6	12	14	6	12	14	6
	60	17	19	6	15	17	6	13	15	6	12	14	6
	80	20	22	7	17	19	6	15	17	6	14	16	6
	100	22	25	8	19	21	6	17	19	6	15	17	6
	120	24	27	9	21	23	7	19	21	6	17	19	6
	140	26	29	10	22	25	8	20	23	7	18	21	6
	160	28	31	11	24	27	9	21	24	8	20	22	7
50	20	12	14	6	12	14	6	12	14	6	12	14	6
	40	15	17	6	13	15	6	12	14	6	12	14	6
	60	19	21	6	16	18	6	14	16	6	13	15	6
	80	21	24	8	19	21	6	17	19	6	15	17	6
	100	24	27	9	21	23	7	19	21	6	17	19	6
	120	26	30	10	23	26	8	20	23	7	19	21	6
	140	28	32	11	25	28	9	22	25	8	20	23	7
	160	30	34	12	26	30	10	24	27	9	21	24	8
60	20	12	14	6	12	14	6	12	14	6	12	14	6
	40	16	19	6	14	16	6	13	14	6	12	14	6
	60	20	23	7	17	20	6	16	18	6	14	16	6
	80	23	26	9	20	23	7	18	20	6	16	19	6
	100	26	29	10	22	25	8	20	23	7	18	21	6
	120	28	32	11	25	28	9	22	25	8	20	23	7
	140	31	35	12	27	30	10	24	27	9	22	24	8
	160	33	37	13	28	32	11	25	29	10	23	26	9
70	20	12	14	6	12	14	6	12	14	6	12	14	6
	40	18	20	6	15	17	6	14	15	6	12	14	6
	60	21	24	8	19	21	6	17	19	6	15	17	6
	80	25	28	9	21	24	8	19	22	7	18	20	6
	100	28	31	11	24	27	9	21	24	8	20	22	7
	120	30	34	12	26	30	10	24	27	9	21	24	8
	140	33	37	13	28	32	11	25	29	10	23	26	9
	160	35	40	15	30	34	12	27	31	11	25	28	9

- Interpolation permitted, extrapolation not permitted
- Based on highest load case: Dead + Live or Dead + Snow
- Assumes minimum square footing to be 12" x 12" x 6" and a 6x6 post. If the support is a brick/cmu pier, the minimum side of a square footing shall be equal to the size of the pier plus two 2" projections (4" total projection).

R507.4 Deck posts. For single-level wood-framed decks with beams sized in accordance with Table R507.5 deck post size shall be in accordance with Table R507.4.

TABLE R507.4
MAXIMUM DECK POST HEIGHT ^a

DECK POST SIZE	HEIGHT FOR DECKS ATTACHED TO PRIMARY STRUCTURE	HEIGHT FOR FREESTANDING DECKS
4 x 4	8'	
4 x 6	8'	
6 x 6	14'	
8 x 8		

For SI: 1 foot = 304.8 mm.

a. Measured to the underside of the beam.

R507.4.1 Deck post to deck footing connection. Where posts bear on concrete footings in accordance with Section R403 and Figure R507.4.1, posts shall be restrained to prevent lateral displacement at the bottom support. Such lateral restraint shall be provided by manufactured connectors installed in accordance with the manufacturers' instructions or embedded in concrete piers or other approved footing system.

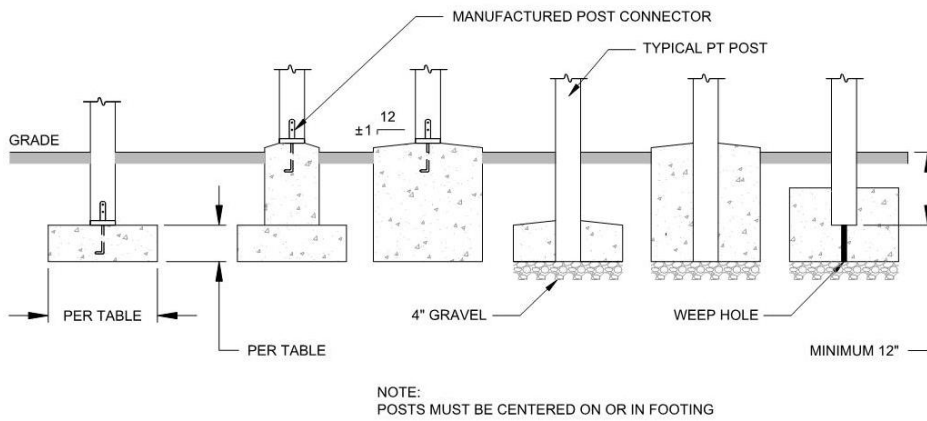


FIGURE R507.4.1
TYPICAL DECK POSTS TO DECK FOOTING CONNECTION

R507.5 Deck Beams. Maximum allowable spans for wood deck beams, as shown in Figure R507.5, shall be in accordance with Table R507.5. Beam plies shall be fastened with two rows of 10d (3-inch x 0.128-inch) nails minimum at 16 inches (406 mm) on center along each edge. Beams shall be permitted to cantilever at each end up to one-fourth of the adjacent beam span.

R507.5.1 Deck beam bearing. The ends of each beam shall have not less than $1\frac{1}{2}$ inches (38mm) of bearing on wood or metal and not less than 3 inches (76 mm) on concrete or masonry over the entire width of the beam. Where multi-span beams bear on intermediate posts, each ply must have full bearing on the post in accordance with Figure R507.5.1(1) and R507.5.1(2).

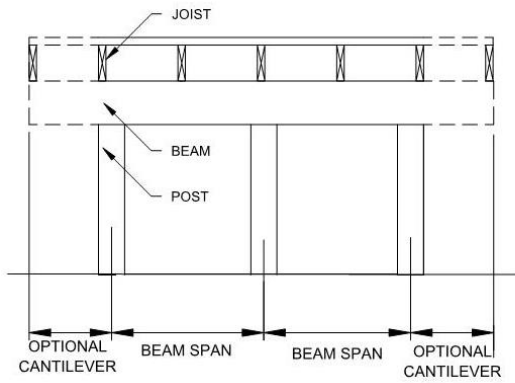
R507.5.2 Deck beam to deck post connection. Deck beams shall be attached to wood deck posts in a manner capable of resisting vertical and horizontal applied loads. Connections shall be in accordance with Figures R507.7.1 (1) and R507.7.1 (2). Manufactured post-to-beam connectors shall be sized for the appropriate post and beam sizes. All bolts shall have washers under the head and nut.

Deck beams shall be attached to concrete or masonry piers in a manner capable of resisting lateral displacement, roll over or uplift .

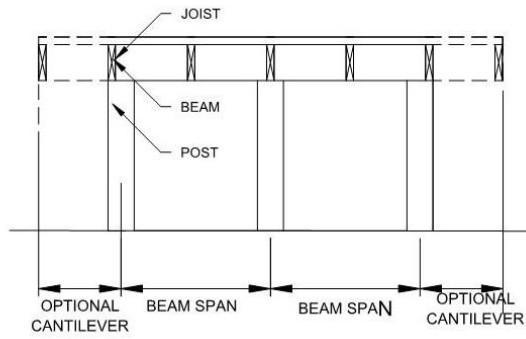
Other attachment methods shall be subject to approval by the building official.

Exception: Where deck beams bear directly on footings in accordance with Section R507.4.1.

What does this exception mean??? Currently R507.7.1 exception!!!!



DROPPED BEAM



FLUSH BEAM

FIGURE R507.5
TYPICAL DECK BEAM SPANS

TABLE R507.5
DECK BEAM SPAN LENGTHS ^{a,b,g} (ft-in)

SPECIES ^c	SIZE ^d	DECK JOIST SPAN LESS THAN OR EQUAL TO: (feet)						
		6	8	10	12	14	16	18
	1- 2x6							
	1- 2x8							
	1- 2x10							
	1- 2x12							
	2 – 2 × 6	6-11	5-11	5-4	4-10	4-6	4-3	4-0
	2 – 2 × 8	8-9	7-7	6-9	6-2	5-9	5-4	5-0
	2 – 2 × 10	10-4	9-0	8-0	7-4	6-9	6-4	6-0
	2 – 2 × 12	12-2	10-7	9-5	8-7	8-0	7-6	7-0
	3 – 2 × 6	8-2	7-5	6-8	6-1	5-8	5-3	5-0
	3 – 2 × 8	10-10	9-6	8-6	7-9	7-2	6-8	6-4
	3 – 2 × 10	13-0	11-3	10-0	9-2	8-6	7-11	7-6
	3 – 2 × 12	15-3	13-3	11-10	10-9	10-0	9-4	8-10
Douglas fir-larch ^e , Hem-fir ^e , Spruce-pine-fir ^e , Redwood, Western cedars, Ponderosa pine ^f , Red pine ^f	3 × 6 or 2 – 2 × 6	5-5	4-8	4-2	3-10	3-6	3-1	2-9
	3 × 8 or 2 – 2 × 8	6-10	5-11	5-4	4-10	4-6	4-1	3-8
	3 × 10 or 2 – 2 × 10	8-4	7-3	6-6	5-11	5-6	5-1	4-8
	3 × 12 or 2 – 2 × 12	9-8	8-5	7-6	6-10	6-4	5-11	5-7
	4 × 6	6-5	5-6	4-11	4-6	4-2	3-11	3-8
	4 × 8	8-5	7-3	6-6	5-11	5-6	5-2	4-10
	4 × 10	9-11	8-7	7-8	7-0	6-6	6-1	5-8
	4 × 12	11-5	9-11	8-10	8-1	7-6	7-0	6-7
	3 – 2 × 6	7-4	6-8	6-0	5-6	5-1	4-9	4-6
	3 – 2 × 8	9-8	8-6	7-7	6-11	6-5	6-0	5-8
	3 – 2 × 10	12-0	10-5	9-4	8-6	7-10	7-4	6-11
	3 – 2 × 12	13-11	12-1	10-9	9-10	9-1	8-6	8-1

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound = 0.454 kg.

- Ground snow load, live load = 40 psf, dead load = 10 psf, $L/\Delta = 360$ at main span, $L/\Delta = 180$ at cantilever with a 220-pound point load applied at the end.
- Beams supporting deck joists from one side only.
- No. 2 grade, wet service factor.
- Beam depth shall be greater than or equal to depth of joists with a flush beam condition.
- Includes incising factor.
- Northern species. Incising factor not included.
- Beam cantilevers are limited to adjacent beam span divided by 4.

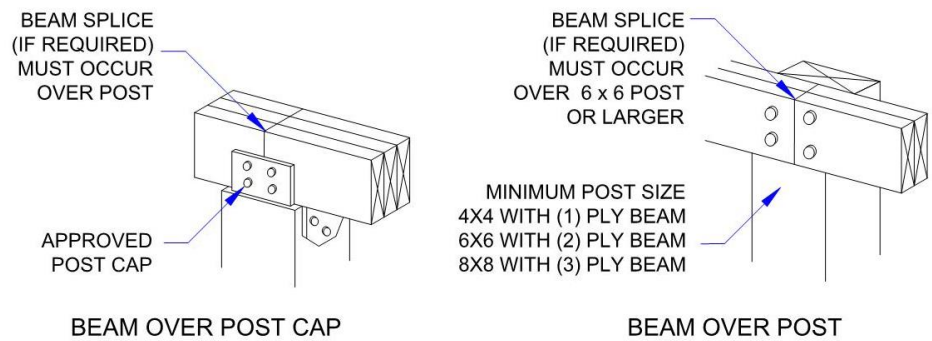


FIGURE R507.5.1(1)
TYPICAL DECK BEAM TO DECK POST CONNECTION

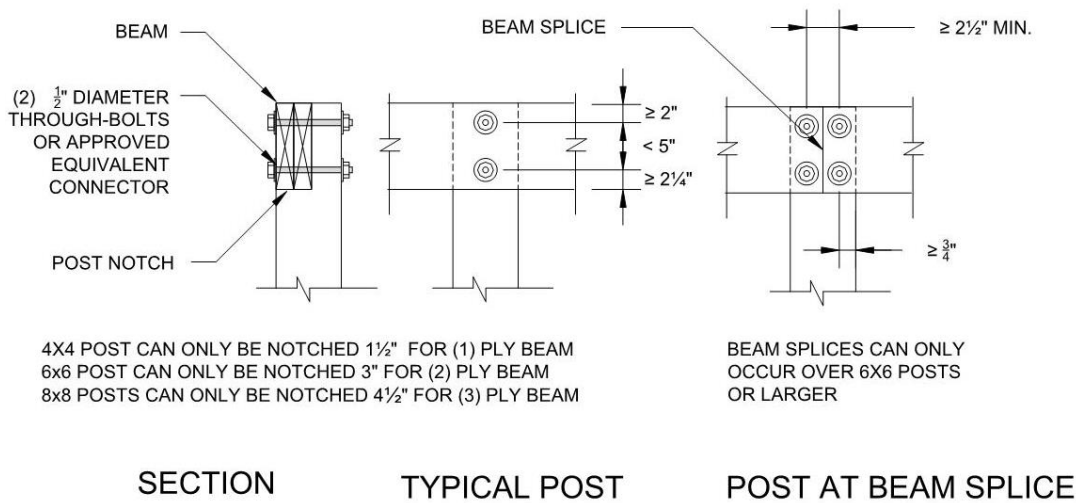


FIGURE R507.5.1 (2)
NOTCHED POST-TO-BEAM CONNECTION

Formatted: Font: (Default) Arial, 14 pt

Formatted: Font: (Default) Arial, 14 pt

R507.6 Deck joists. Maximum allowable spans for wood deck joists, as shown in Figure R507.6, shall be in accordance with Table R507.6. The maximum joist spacing shall be limited by the decking material in accordance with Figure R507.7. The maximum joist cantilever shall be limited to the actual joist span divided by 4 or the maximum cantilever length specified in Table R507.5, whichever is less.

R507.6.1 Deck joist bearing. The ends of each joist shall have not less than $1\frac{1}{2}$ inches (38mm) of bearing on wood beams or ledger boards and not less than 3 inches (76 mm) on concrete or masonry piers over its entire bearing width.

Joists bearing on a beam or ledger shall be connected to the beam or ledger with (3) 10d common nails with two toenails on one side and one toenails on the opposing side. Joist framing into the side of a ledger board or beam shall be supported by approved joist hangers. Joists bearing on a beam shall be connected to the beam to resist lateral displacement.

R507.6.2 Deck joist supports. Joist ends and bearing locations shall be provided with lateral restraint to prevent rotation. Where lateral restraint is provided by joist hangers or blocking between joists, their depth shall equal not less than 60 percent of the joist depth. Where lateral restraint is provided by rim joists, they shall be secured to the end of each joist with not less than (3) 10d (3-inch x 0.128-inch) nails or (3) No. 10 x 3-inch (76 mm) long wood screws.

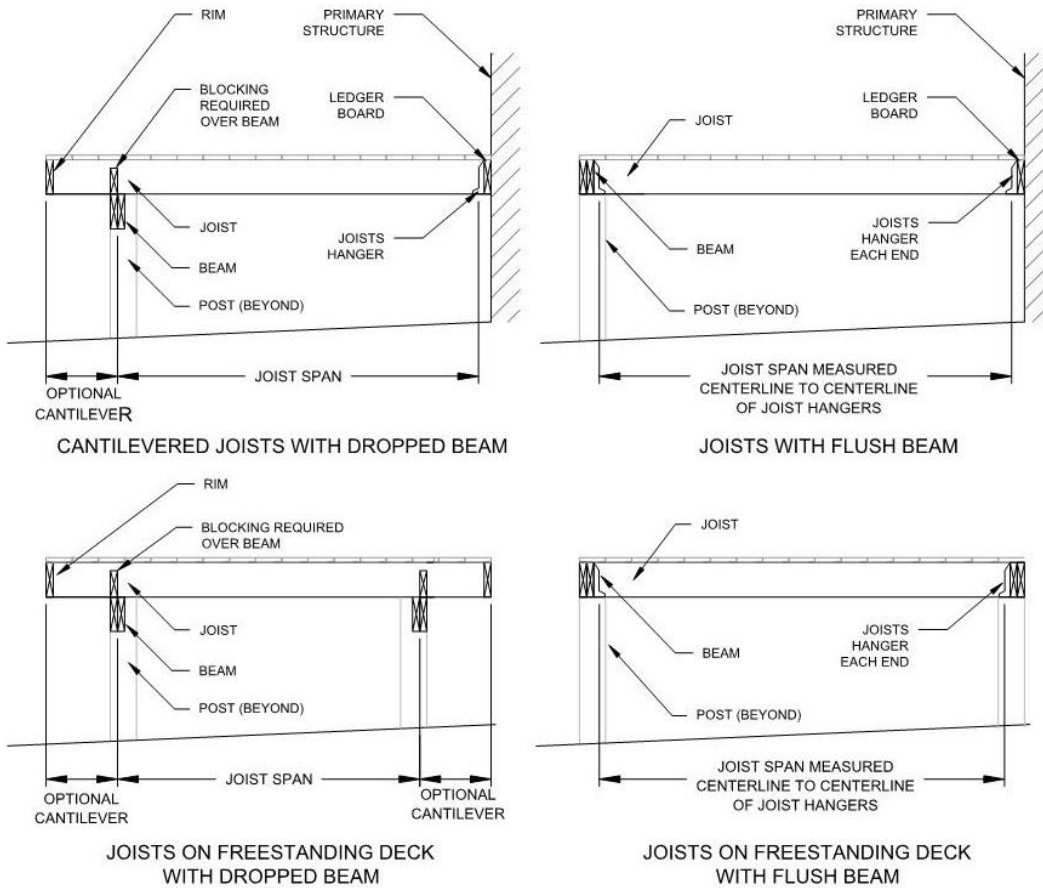


FIGURE R507.6
TYPICAL DECK JOIST SPANS

TABLE R507.6
DECK JOIST SPANS FOR COMMON LUMBER SPECIES

SPECIES ^b	SIZE	ALLOWABLE JOIST SPAN ^c			MAXIMUM CANTILEVER ^{d,e,f}		
		SPACING OF DECK JOISTS (inches)			SPACING OF DECK JOISTS (inches)		
		12	16	24	12	16	24
Southern pine	2 x 6	9-11	9-0	7-7	1-3	1-4	1-6
	2 x 8	13-1	11-10	9-8	2-1	2-3	2-5
	2 x 10	16-2	14-0	11-5	3-4	3-6	2-10
	2 x 12	18-0	16-6	13-6	4-6	4-2	3-4
Douglas fir- larch ^d , hem-fir ^d spruce-pine-fir ^d	2 x 6	9-6	8-8	7-2	1-2	1-3	1-5
	2 x 8	12-6	11-1	9-1	1-11	2-1	2-3
	2 x 10	15-8	13-7	11-1	3-1	3-5	2-9
	2 x 12	18-0	15-9	12-10	4-6	3-11	3-3
Redwood, western cedars, ponderosa pine ^e , red pine ^e	2 x 6	8-10	8-0	7-0	1-0	1-1	1-2
	2 x 8	11-8	10-7	8-8	1-8	1-10	2-0
	2 x 10	14-11	13-0	10-7	2-8	2-10	2-8
	2 x 12	17-5	15-1	12-4	3-10	3-9	3-1

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound = 0.454 kg.

- a. No. 2 grade with wet service factor.
- b. Ground snow load, live load = 40 psf, dead load = 10 psf, $L/\Delta = 360$.
- c. Ground snow load, live load = 40 psf, dead load = 10 psf, $L/\Delta = 360$ at main span, $L/\Delta = 180$ at cantilever with a 220-pound point load applied to end.
- d. Includes incising factor.
- e. Northern species with no incising factor
- f. The maximum joist cantilever shall be limited to the joist span divided by 4 or the tabular value, whichever is less.

R507.7 Decking. Maximum allowable spans for decking shall be in accordance with Table R507.7. Wood decking shall be attached to each supporting member with not less than (2) 8d threaded nails or (2) No. 8 wood screws. For custom decking, fasteners to joists shall be in accordance with manufacturer's installation requirements and subject to the approval of the building official.

**TABLE R507.7
MAXIMUM JOIST SPACING**

MAXIMUM SPAN FOR DECKING		
MATERIAL TYPE AND NOMINAL SIZE	DECKING RUNNING PERPENDICULAR TO JOIST	DECKING RUNNING DIAGONALLY TO JOIST ^a
1½ -inch thick wood	16 inches o.c.	12 inches o.c.
2-inch-thick wood	24 inches o.c.	16 inches o.c.
Plastic composite	In accordance with Section R507.2.2.5	In accordance with Section R507.2.2.5

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 degree = 0.01745 rad.

a. Maximum angle of 45 degrees from perpendicular for wood deck boards

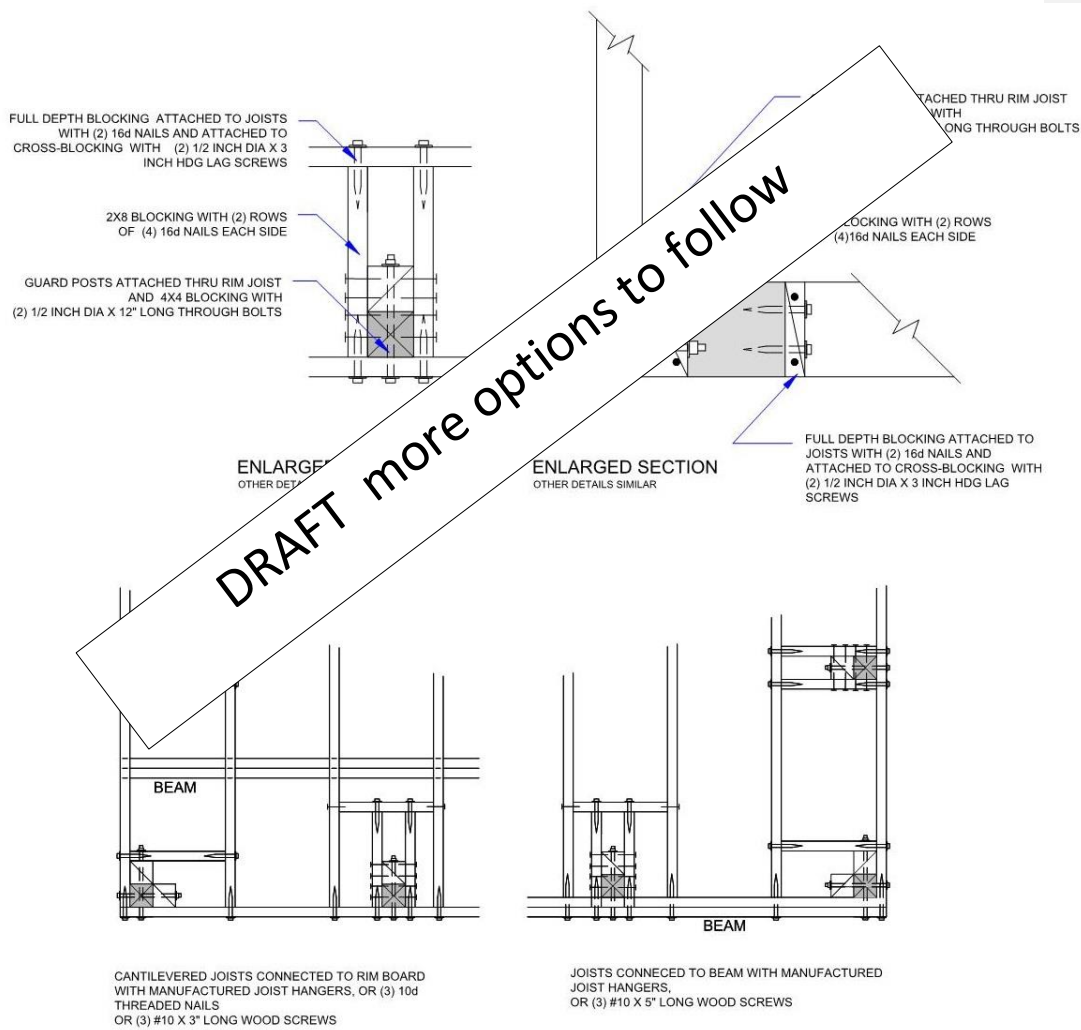
R507.8 Exterior Guards. Guards shall comply with Section R312.1

R507.8.1 Guard attachment. Guards shall transfer the prescribed loads to the structure.

R507.8.1.1 Wood guard posts. Where guards rely on wood posts attached to the deck frame for support, this section shall apply. Wood guard posts shall be permitted to be located interior or exterior of the deck framing. Wood guard post attachment shall be permitted to be constructed in accordance with Figure R507.9.1.1. Other wood post attachment details constructed to meet the requirements of Table R301.5 shall be subject to approval by the building official.

R507.8.1.2 Guard posts of other materials. Where guards rely on posts of other materials attached to the deck frame for support, this section shall apply. Guard posts of other materials shall be permitted to be constructed interior or exterior of the deck framing or mounted on top of the deck framing. Guard posts of other materials shall be permitted to be installed interior or exterior of the deck framing in accordance with Figure R507.9.1.2 (1). Guards of other materials shall be permitted to be installed on top of the deck framing in accordance with Figure R507.9.1.2 (2). Other post attachment details constructed to meet the requirements of Table R301.5 shall be subject to approval by the building official.

R507.8.3.3 Other Guard Supports. Guards constructed without posts shall be permitted to be attached to the deck when the guard details are designed to meet the requirements of Table R301.5 and are approved by the building official.



R507.8. AND MORE TO COME

WOOD GUARD POSTS INSTALLED INTERIOR OF THE RIM BOARD

R507.9 Deck ledger connection to band joist. Deck ledger connections to band joists shall be in accordance with this section, Tables R507.9(1) and R507.9(2), and Figures R507.9.1(1) and R507.9.1(2). For other grades, species, connection details and loading conditions, deck ledger connections shall be designed in accordance with Section R301.

R507.9.1 Ledger details. Deck ledgers installed in accordance with Section R507.9 shall be a minimum 2-inch by 8-inch nominal, pressure-preservative-treated southern pine, incised pressure-preservative-treated Hem-fir, or approved, naturally durable, No.2 grade or better lumber. Deck ledgers installed in accordance with Section R507.9 shall not support concentrated loads from beams or girders. Deck ledgers shall not be supported on stone or masonry veneer.

R507.9.2 Band joist supporting a ledger. Band joists supporting a ledger in accordance with Section R507.9 shall be a minimum 2-inch nominal, solid-sawn, spruce-pine-fir lumber or better or a minimum 1-inch by 9 1/2-inch dimensional, Douglas fir, laminated veneer or better lumber. Band joists shall bear fully on the primary structure capable of supporting all required loads. Other framing configurations supporting a ledger constructed to meet the load requirements of Section R301.5 shall be subject to approval by the building official.

R507.9.3 Ledger to band joist fastener details. Fasteners used in deck ledger connections in accordance with Table R507.9(1) shall be hot-dipped galvanized or stainless steel and shall be installed in accordance with Table R507.9(2) and Figures R507.9(1) and R507.9(2).

R507.9.4 Deck lateral load resistance. Resistance to lateral loads required by Section R507.1 shall be permitted to be in accordance with Figure R507.9.4(1) or R507.9.4(2). Where the lateral load connection is provided in accordance with Figure R507.9.3(1), hold-down tension devices shall be installed in not less than two locations per deck, within 24-inches of each end of the deck. Each device shall have an allowable stress design capacity of not less than 1,500 pounds. Where the lateral load connections are provided in accordance with Figure R507.9.3(2), the hold-down tension

devices shall be installed in not less than four locations per deck, and each device shall have an allowable stress design capacity of not less than 750 pounds.

TABLE R507.9 (1)
DECK LEDGER CONNECTION TO BAND JOIST^{a, b}

(Deck live load = 40 psf, deck dead load = 10 psf, snow load = < 40 psf)

CONNECTION DETAILS	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'
	On-center spacing of fasteners						
½ -inch diameter lag screw with ½ -inch maximum sheathing ^{c, d}	30	23	18	15	13	11	10
½ -inch diameter bolt with ½ -inch maximum sheathing ^d	36	36	34	29	24	21	19
½ -inch diameter bolt with ½ -inch maximum sheathing ^e	36	36	29	24	21	18	16

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

- a. Ledgers shall be flashed in accordance with Section R703.8 to prevent water from contacting the house band board.
- b. Snow load shall not be assumed to act concurrently with live load.
- c. The tip of the lag screw shall fully extend beyond the inside face of the band joist.
- d. Sheathing shall be wood structural panel or solid sawn lumber.
- e. Sheathing shall be permitted to be wood structural panel, gypsum board, fiberboard, lumber or foam sheathing. Up to ½ inch thickness of stacked washers shall be permitted to substitute for up to ½ inch of allowable sheathing thickness where combined with wood structural panel or lumber sheathing.

TABLE R507.9 (2)
PLACEMENT OF LAG SCREWS AND BOLTS IN DECK LEDGERS AND
BAND JOISTS

MINIMUM END AND EDGE DISTANCES AND SPACING BETWEEN ROWS				
	TOP EDGE	BOTTOM EDGE	ENDS	ROW SPACING
Ledger ^a	2 inches ^d	¾ inch	2 inches ^b	1 5/8 inches ^b
Band Joist ^c	¾ inch	2 inches	2 inches ^b	1 5/8 inches ^b

For SI: 1 inch = 25.4 mm.

- a. Lag screws or bolts shall be staggered from the top to the bottom along the horizontal run of the deck ledger in accordance with Figure R507.9 (1).
- b. Maximum 5 inches.
- c. For engineered rim joists, the manufacturer's recommendations shall govern.
- d. The minimum distance from bottom row of lag screws or bolts to the top edge of the ledger shall be in accordance with Figure R507.9 (1).

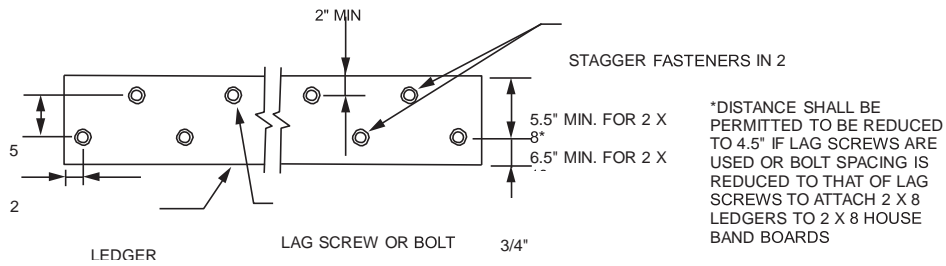


FIGURE R507.9 (1)
PLACEMENT OF LAG SCREWS AND BOLTS IN LEDGERS

For SI: 1 inch = 25.4 mm.

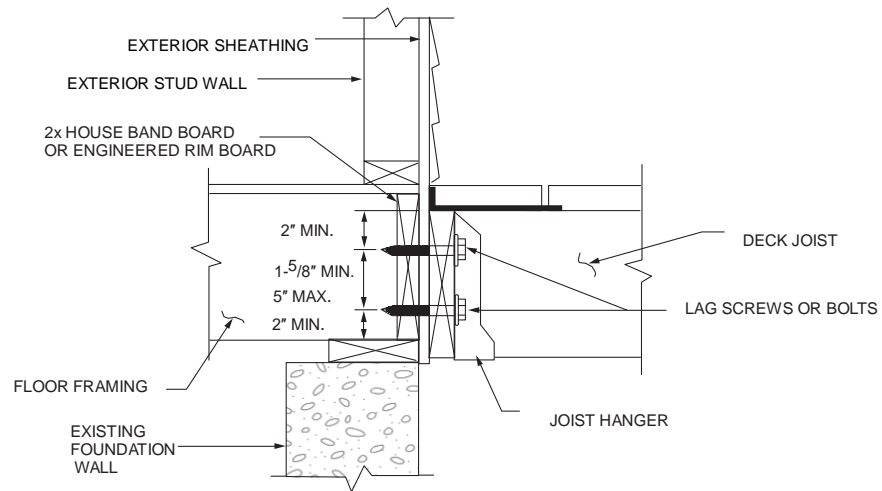


FIGURE R507.9 (2)
PLACEMENT OF LAG SCREWS AND BOLTS IN BAND JOISTS

For SI: 1 inch = 25.4 mm.

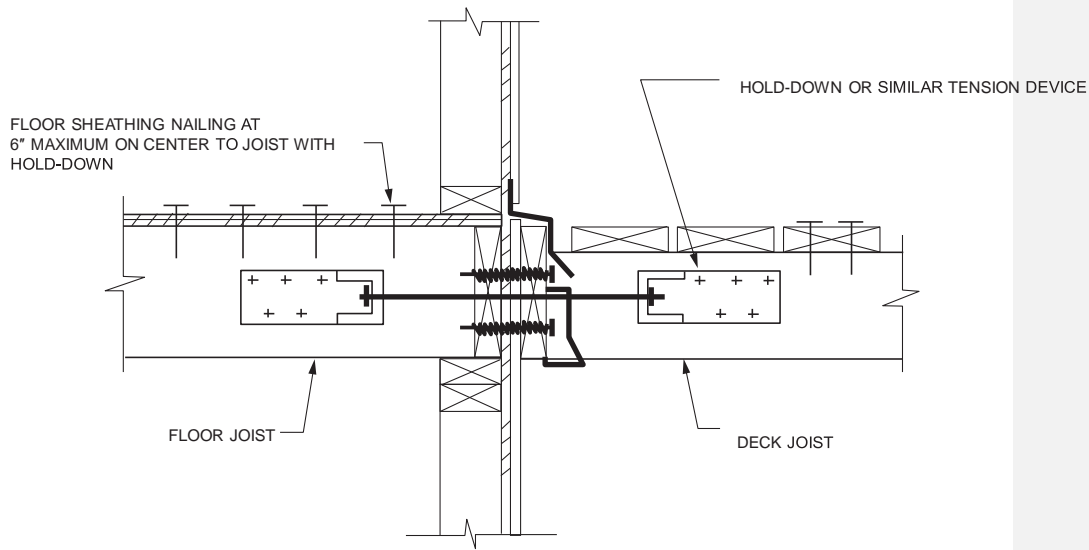


FIGURE R507.9.4 (1)
DECK ATTACHMENT FOR LATERAL LOADS
 For SI: 1 inch = 25.4 mm.

NOTE:
 THIS DETAIL IS APPLICABLE
 WHERE FLOOR JOISTS ARE
 PARALLEL TO DECK JOISTS.

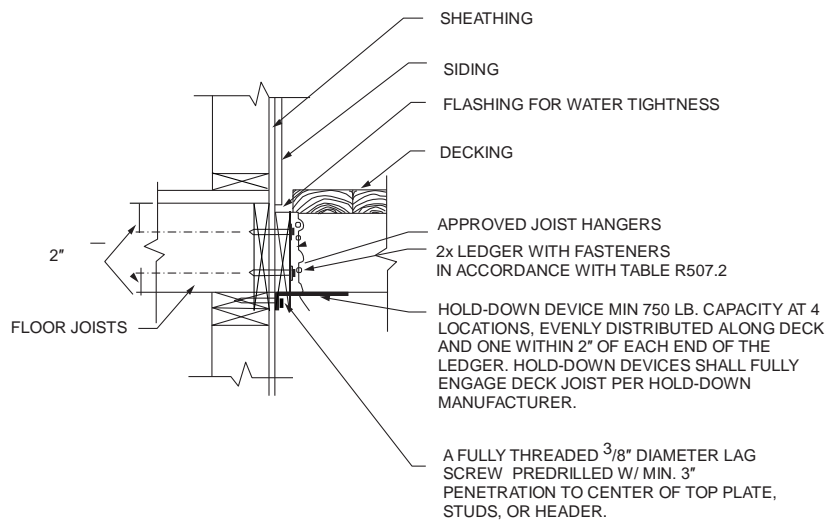


Figure R507.9.4 (2)
DECK ATTACHMENT FOR LATERAL LOADS
 For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.