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Yellow highlighted area represents changes suggested by Chuck since meeting in Boston

R301.5 Live load table

Last revised: 10-20

Code change: strategy: move this code change to be heard with R507.9

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TABLE R301.5
MINIMUM UNIFORMLY DISTRIBUTED LIVE LOADS
(in pounds per square foot)

USE	LIVE LOAD
Uninhabitable attics without storage ^b	10
Uninhabitable attics with limited storage ^{b, g}	20
Habitable attics with attics served with fixed stairs	30
Balconies (exterior) and decks ^e	40
Fire escapes	40
Guards and handrails	200 ^{h, i}
Handrails ^d	200 ^h
Guard in-fill components ^f	50 ^h
Passenger vehicle garages ^a	50 ^a
Rooms other than sleeping rooms	40
Sleeping rooms	30
Stairs	40 ^c

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- i. 200 pounds acting as a single concentrated load applied at any point along the top. This load is applied perpendicular to the guard either horizontally away from, or vertically down toward the walking surface. This load is permitted to be reduced to 50 pounds either horizontally toward, or vertically

up from the walking surface. These loads shall be applied independent of one another, and are assumed not to occur with any other live load.

Reason statement

The Deck Code Coalition (DCC) is a diversified group of interested people representing building officials, manufacturing suppliers, National Association of Homebuilders, American Wood Council, engineering companies and academia who have worked since the 2012 IRC in an effort to capture the safest deck practices from across the country. Deck safety is a huge issue and we have been meeting for over three years in an effort to codify how to build a deck:

The 2012 IRC created Section R507 as a collection place for all things deck related (previously deck construction requirements were scattered across the IRC). Our aim was to help the weekend warrior easily find all of the deck requirement in one location.

The 2015 IRC added many additional prescriptive sections, including deck joist span tables and beam span tables. Many parts were borrowed/amended from DCA-6.

For 2018 the committee is trying to offer several proposals which collectively will complete Section R507.

1. HISTORY: This proposal to the live load table is very significant because it has been in the code since at least 1993: BOCA , Section 1615.8.1: "Guards shall be designed and constructed for a concentrated load of 200 pounds applied at any point and in any direction along the top railing member."

2. CURRENT TESTING STANDARDS: The testing standards in AC 273 only have required decks to be tested for downward or outward loads with a 2.5X factor of safety (500#). To our knowledge no one has successfully tested for 500 pounds *inward, upward or in-line* load and passed.

3. SAFETY: The DCC thinks that everyone has been under a false sense of security for all these years.

The committee believes it makes more sense to provide achievable, prescriptive language in the IRC which reflects the current testing protocol in AC273 for 500 pounds downward

and outward and only a 50 pound incidental load applied upward and inward. The assumption here is that there is very limited chance for injury if the guard system fails inward. ...and there is almost no scenario where there would ever be a 200# upward force.

4. CONCLUSION: If this proposal does pass, the committee does not believe that it jeopardizes or reduces the safety of folks using decks because people do not typically fall upward or inward with the same impact as outward and downward. In fact, the opposite might be true- If this code change does not pass, the committee believes that building officials and contractors may continue to ignore deck guard and rail construction altogether and thus reduce deck safety.

Cost impact

In and of itself, this code change may reduce the cost of a deck because it lowers the prescriptive live load requirements. The DCC believes this proposal, along with the other proposals it will bring forward, will save contractors money from testing and hardware.

IBC 16

Last revised: 10-20

Revise as follows

1607.8.1. Handrails and guards. Handrails and *guards* shall be designed to resist a linear load of 50 pounds per linear foot (plf) (0.73 kN/m) in accordance with Section 4.5.1 of ASCE 7. Glass handrail assemblies and *guards* shall also comply with Section 2407.

Exceptions:

1. For one- and two-family dwellings, ~~only the single concentrated handrails shall be designed to resist the~~ load required by Section 1607.8.1.1 ~~shall be applied.~~

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Guards shall be designed to resist 200 pounds acting as a single concentrated load applied at any point along the top. This load is applied perpendicular to the guard either horizontally away from, or vertically down toward the walking surface. This load is permitted to be reduced to 50 pounds either horizontally toward, or vertically up from the walking surface. These loads shall be applied independent of one another, and are assumed not to occur with any other live load.

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2. In Group I-3, F, H and S occupancies, for areas that are not accessible to the general public and that have an *occupant load* less than 50, the minimum load shall be 20 pounds per foot (0.29 kN/m).

1607.8.1.1 Concentrated loads. Handrails and guards shall be designed to resist a concentrated load of 200 pounds (0.89 kN) in accordance with Section 4.5.1 of ASCE 7.

Reason statement

The Deck Code Coalition (DCC) is a diversified group of interested people representing building officials, manufacturing suppliers, National Association of Homebuilders, American Wood Council, engineering companies and academia who have worked since the 2012 in an effort to capture the safest residential deck practices from across the country. Deck safety is a huge issue and we have been meeting for over three years in an effort to codify how to build a residential deck:

This is a parallel proposal being submitted for the IRC.

1. Currently the IBC Table 1607.1- item 15: Handrails, guards and grab bars, refers the reader to Section 1607.8.1: Handrails and guards and its exception #1 for residential applications. The 200# requirement appears to have been part of the 1993: CABO, Section 1615.8.1: "Guards shall be designed and constructed for a concentrated load of 200 pounds applied at any point and in any direction along the top railing member."

2. CURRENT TESTING STANDARDS: The testing standards in AC 273 only have required decks to be tested for downward or outward loads with a 2.5X factor of safety (500#). The testing at Virginia Tech showed the extreme difficulty in achieving these standards. They never tested for inward or in-line loading as it is not part of the AC 273 protocol.

3. SAFETY: The DCC thinks that everyone has been under a false sense of security for all these years. To our knowledge no one has successfully tested for 500 pounds *inward, upward or in-line* load and passed. The committee believes it makes more sense to provide achievable, prescriptive language in the IRC which reflects the current testing protocol in AC 273 for 500 pounds downward and outward and only require a 50 pound incidental load applied upward and inward.

4. CONCLUSION: If this proposal does pass, the committee does not believe that it jeopardizes or reduces the safety of folks using decks because people do not typically fall upward or inward with the same impact as outward and downward. In fact, the opposite might be true- If this code change does not pass, the committee believes that building officials and contractors may continue to ignore deck guard and rail construction altogether and thus reduce deck safety.

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Cost impact

In and of itself, this code change may reduce the cost of a deck because it lowers the prescriptive live load requirements. The DCC believes this proposal, along with the other proposals it will bring forward, will save contractors money from testing and hardware.

R507. Rewrite without technical changes

Code change

*****not included in this document.**

R507.1 Freestanding decks

Last revised: 10-28

1. Code change

R507.1 Decks. ~~Wood~~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. ~~Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure and designed for both vertical and lateral loads. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal. Where positive connection to the primary building structure cannot be verified during inspection, decks shall be self-supporting. For decks with cantilevered framing members, connections to exterior walls or other framing members shall be designed and constructed to resist uplift resulting from the full live load specified in Table R301.5 acting on the cantilevered portion of the deck.~~ 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.

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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 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

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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

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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.

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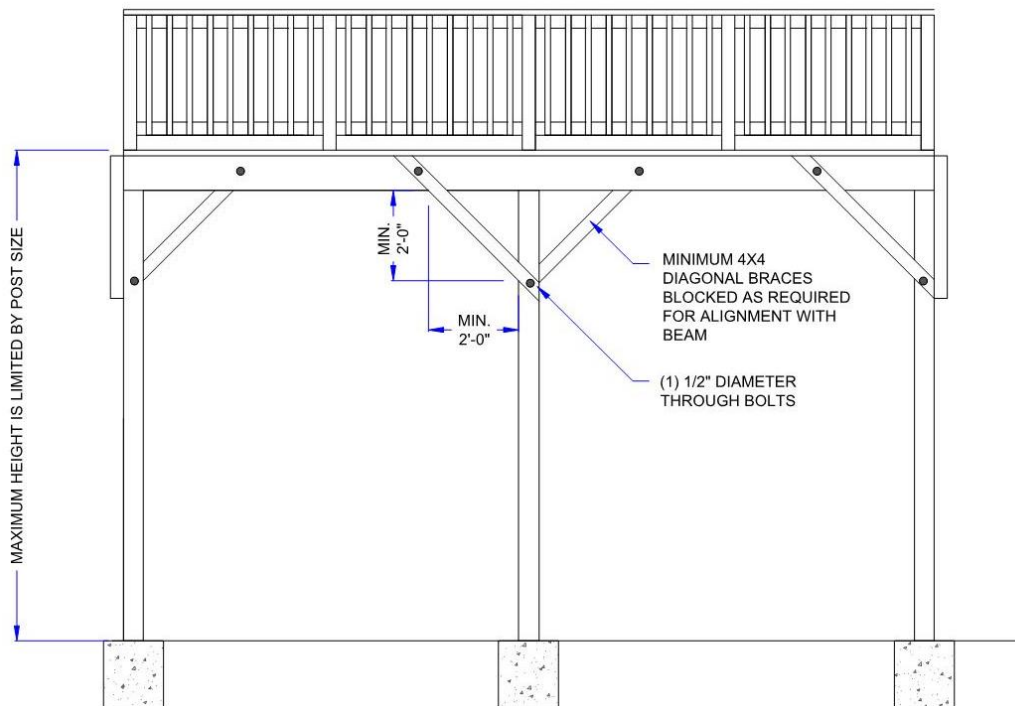


FIGURE R507.1.1
FREESTANDING DECKS

2. Renumber and make changes as follows including all corresponding tables and figures. ▲

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R507.~~3~~2 Plastic composite deck boards, stair treads, guards, or handrails.

R507.~~32~~2.1 Labeling

R507.~~32~~2.2 Flame spread index

R507.~~32~~2.3 Decay resistance

R507.~~32~~2.4 Termite resistance

R507.~~32~~2.5 Installation of plastic composites

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.

R507.~~8~~4 Deck posts

R507.~~84~~4.1 Deck post to deck footing

R507.~~6~~5 Deck beams

R507.~~75~~5.1 Deck post to deck beam

R507.~~5~~6 Deck joists

R507.~~56~~6.1 Lateral restraint at supports

R507.~~7~~6.2 Deck joists and deck beam bearing

R507.~~4~~7 Decking

R507.8 Deck guards. Deck guards shall be in accordance with Section R312.1

R507.~~2~~9 Deck ledger connections to band joists

R507.~~29~~9.1 Ledger details

R507.~~29~~9.2 Band joist details

R507.~~29~~9.3 Ledger to band joist fastener details

R507.~~29~~9.4 Deck lateral load connection

3. Renumber and modify the table as follows:

TABLE R507.84
MAXIMUM DECK POST HEIGHT

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DECK POST SIZE	<u>MAXIMUM HEIGHT FOR DECKS ATTACHED TO PRIMARY STRUCTURE</u>	<u>HEIGHT FOR FREESTANDING DECKS</u>
4X4	8'	
4X6	8'	
6X6	14'	
<u>8X8</u>		

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4. Renumber and replace figure with new figure.

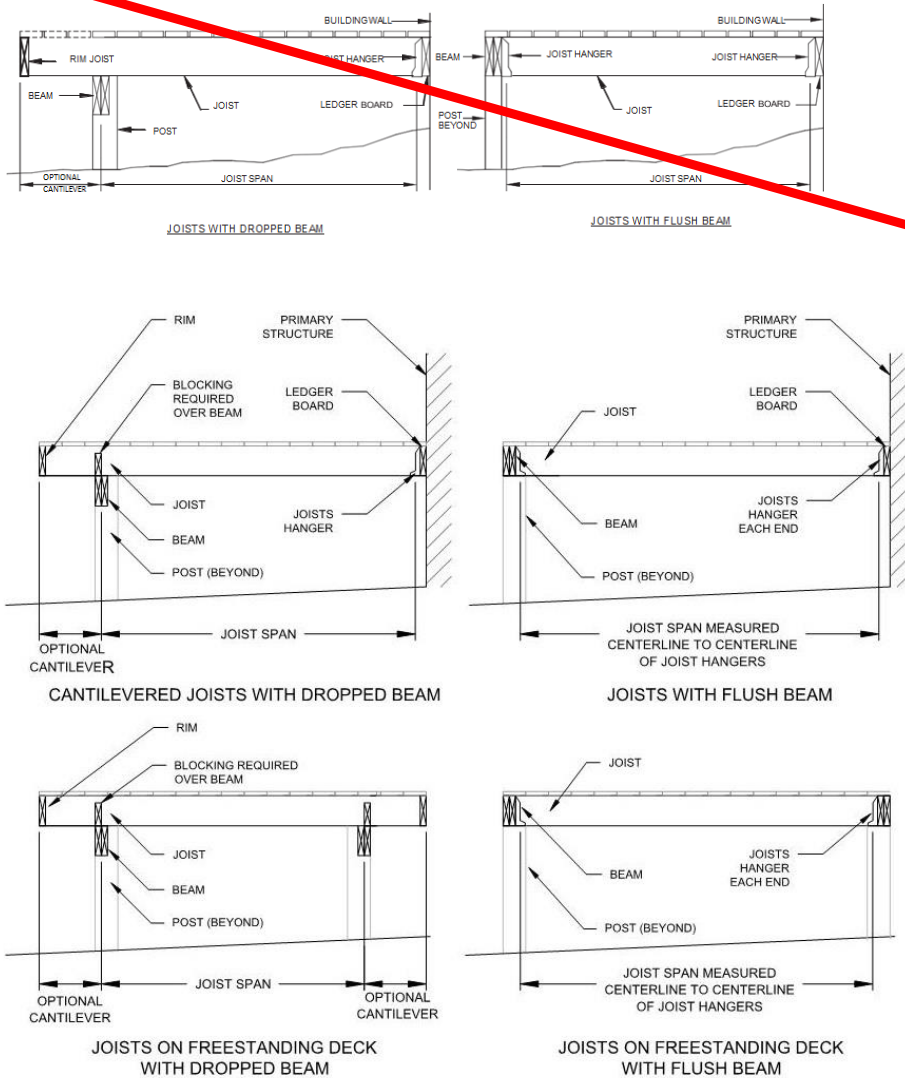


FIGURE R507.56

TYPICAL DECK JOIST SPANS

Reason statement

The Deck Code Coalition (DCC) is a diversified group of interested people representing building officials, manufacturing suppliers, National Association of Homebuilders, American Wood Council, engineering companies and academia who have worked since the 2012 IRC in an effort to capture the safest deck practices from across the country. Deck safety is a huge issue and we have been meeting for over three years in an effort to codify how to build a deck.

This code change offers new charging language in R507.1 to acknowledge freestanding decks. Previously there are several references to freestanding decks, but there has never been any design consideration provided. This code change tries to differentiate between freestanding and ledgered decks that are supported by another structure.

DCA-6 only handles ledgered decks.

R507.2 is to be relocated after all other sections, existing and any new sections which might be approved by ICC hearings. The reason is that while lateral support is very important, it should not be the first issue to consider when building a deck. The text of the lateral connectors does not change, only its location within R507.

Cost impact

There is no cost impact by offering an option for freestanding decks.

R507.1 Wood patios

Last revised: 10-28

1. Code change

R507.1 Decks. Wood 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. Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure and designed for both vertical and lateral loads. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal. Where positive connection to the primary building structure cannot be verified during inspection, decks shall be self-supporting. For decks with cantilevered framing members, connections to exterior walls or other framing members shall be designed and constructed to resist uplift resulting from the full live load specified in Table R301.5 acting on the cantilevered portion of the deck. 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.

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Exception: Freestanding wood patios consisting of joists directly supported on grade over their entire length, need only comply with Sections R507.3, R507.5 and Chapter 3

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R507.1.2 Where supported by attachment to another structure capable of supporting all loads according to Section R301, decks shall be constructed to provide a complete load path for both vertical and lateral loads in accordance with Section R507.10. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal. Where

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~~connections to the supporting structure, as required in Section R507.2, cannot be verified, decks shall be freestanding in accordance with Section R507.1.1.~~ [I don't see where this is relevant to wood patios. I am suggesting we scrap this paragraph.]

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R507.~~3~~2 Plastic composite deck boards, stair treads, guards, or handrails.

R507.~~32~~1 Labeling

R507.~~32~~2 Flame spread index

R507.~~32~~3 Decay resistance

R507.~~32~~4 Termite resistance

R507.~~32~~5 Installation of plastic composites

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. Freestanding wood patios where the joists are supported directly on grade over their entire length.

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R507.~~8~~4 Deck posts

R507.~~84~~1 Deck post to deck footing

R507.~~6~~5 Deck beams

R507.~~75~~1 Deck post to deck beam

R507.~~5~~6 Deck joists

R507.~~56~~1 Lateral restraint at supports

R507.~~7~~6.2 Deck joists and deck beam bearing

R507.~~4~~7 Decking

R507.8 Deck guards. Deck guards shall be in accordance with Section R312.1

R507.~~2~~9 Deck ledger connections to band joists

R507.~~29~~9.1 Ledger details

R507.~~29~~9.2 Band joist details

R507.~~29~~9.3 Ledger to band joist fastener details

R507.~~29~~9.4 Deck lateral load connection

Reason statement

The Deck Code Coalition (DCC) is a diversified group of interested people representing building officials, manufacturing suppliers, National Association of Homebuilders, American Wood Council, engineering companies and academia who have worked since the 2012 IRC in an effort to capture the safest deck practices from across the country. Deck safety is a huge issue and we have been meeting for over three years in an effort to codify how to build a deck.

This code change provides language for wood patios. It will allow a wood patio that is totally supported on the ground - no footings are required.

Cost impact

R507.2 Materials

Last revised 10-28

1. Code change

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.

507.3.2.2 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.

R507.32.2.1 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.

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R507.32.2.2 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.

R507.32.2.3 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.

R507.32.2.4 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.

R507.32.2.5 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 R507.2.2.

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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.

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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.

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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

Commented [EG1]: Does A 307 cover lag screws? Not sure if it is the right spec for nuts and washers either, may be for just the bolt itself.

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- 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.

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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.

R507.~~8~~4 Deck posts

R507.~~84~~1 Deck post to deck footing

R507.~~6~~5 Deck beams

R507.~~75~~1 Deck post to deck beam

R507.~~5~~6 Deck joists

R507.~~56~~1 Lateral restraint at supports

R507.~~7~~6.2 Deck joists and deck beam bearing

R507.~~4~~7 Decking

R507.8 Deck guards. Deck guards shall be in accordance with Section R312.1

R507.~~2~~9 Deck ledger connections to band joists

R507.~~29~~1 Ledger details

R507.~~29~~2 Band joist details

R507.~~29~~3 Ledger to band joist fastener details

R507.~~29~~4 Deck lateral load connection

Reason statement

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1. The 2015 IRC has a section on plastic composite materials, but the DCC thought it was wise to add more materials to this section so that there was no need to cross reference to other sections in the IRC.

Cost impact

There is no cost impact. These materials are already required by other sections of the IRC for connecting members outdoors.

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R507.3. Deck footings – size and depth

Last revised 10-28

1. Collateral code change

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.

~~3.— Decks not supported by a dwelling need not be provided with footings that extend below the frost line.~~

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

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1. Renumber and make changes as follows including all corresponding tables and figures.

R507.1 Decks –no change

R507.~~3~~2 Plastic composite deck boards, stair treads, guards, or handrails.

R507.~~32~~1 Labeling

R507.~~32~~2 Flame spread index

R507.~~32~~3 Decay resistance

R507.~~32~~4 Termite resistance

R507.~~32~~5 Installation of plastic composites

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.

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).

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TABLE R507.3.1**MINIMUM FOOTING SIZE FOR DECKS**

LIVE or GROUND SNOW LOAD ^b (psf)	TRIBUTAR Y AREA (sqft)	MINIMUM FOOTING SIZE for DECKS ^{a,c} (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
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
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
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

a. Interpolation permitted, extrapolation not permitted

b. Based on highest load case: Dead + Live or Dead + Snow

c. 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).

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R507.8.4 Deck posts. For single-level wood-framed decks with beams sized in accordance with Table R507.6, deck post size shall be in accordance with Table R507.8.4.

TABLE R507.8.4
DECK POST HEIGHT^a

DECK POST SIZE	MAXIMUM
4 × 4	8'
4 × 6	8'
6 × 6	14'

For SI: 1 foot = 304.8 mm.

a. Measured to the underside of the beam.

R507.8.4.1 Deck post to deck footing connection. Where posts shall bear on concrete footings in accordance with Section R403 and Figure R507.8.4.1, 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 Section R507 and the manufacturers' instructions or a minimum post embedment of 12 inches in surrounding soils or concrete piers or other approved footing system.

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3. Replace Figure R507.4.1

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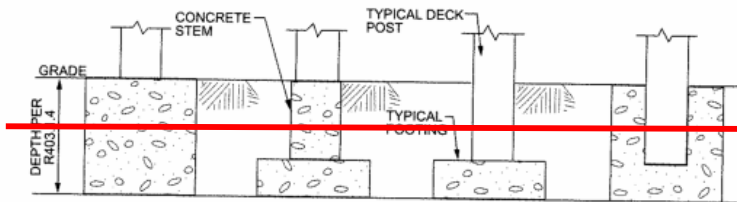


FIGURE R507.8.1
TYPICAL DECK POSTS TO DECK FOOTINGS

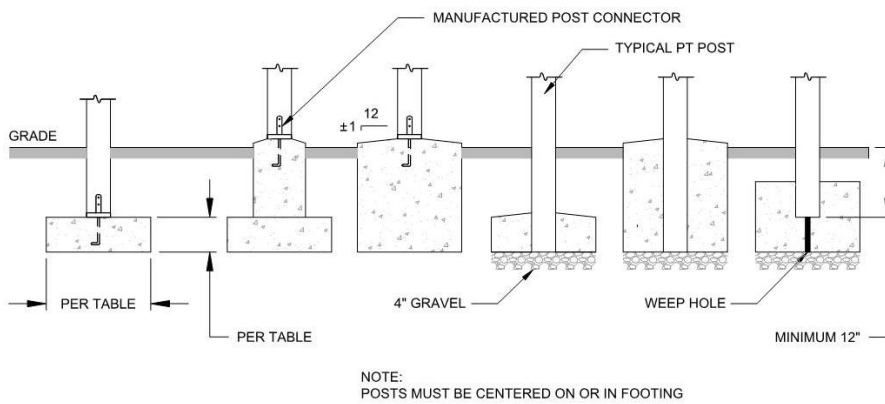


FIGURE R507.4.1

TYPICAL DECK POSTS TO DECK FOOTINGS

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R507.~~6~~5 Deck beams

R507.~~7~~5.1 Deck post to deck beam

R507.~~5~~6 Deck joists

R507.~~5~~6.1 Lateral restraint at supports

R507.~~7~~6.2 Deck joists and deck beam bearing

R507.~~4~~7 Decking

R507.8 Deck guards. Deck guards shall be in accordance with Section R312.1

R507.~~2~~9 Deck ledger connections to band joists

R507.~~2~~9.1 Ledger details

R507.~~2~~9.2 Band joist details

R507.~~2~~9.3 Ledger to band joist fastener details

R507.~~2~~9.4 Deck lateral load connection

Reason statement

The Deck Code Coalition (DCC) is a diversified group of interested people representing building officials, manufacturing suppliers, National Association of Homebuilders, American Wood Council, engineering companies and academia who have worked since the 2012 IRC in an effort to capture the safest deck practices from across the country. Deck safety is a huge issue and we have been meeting for over three years in an effort to codify how to build a deck.

This is one of several code changes dealing with footings that the committee is proposing.

This change is submitted for two reasons:

The committee wanted to put in minimum prescriptive size of footings into Section R507 so that the reader would not have to calculate it out based on tributary area.

The committee wanted to put in minimum prescriptive depth of footings into Section R507 so that the reader would not have to refer back to chapter 4.

Cost impact

There is a potential that the footing cost will go up because the footing size may go up for some post spacings.

R507.3 Deck footings - using pier blocks

Last revised 10-28

1. Renumber and make changes as follows including all corresponding tables and figures.

R507.1 Decks –no change

R507.~~3~~2 Plastic composite deck boards, stair treads, guards, or handrails.

R507.~~32~~1 Labeling

R507.~~32~~2 Flame spread index

R507.~~32~~3 Decay resistance

R507.~~32~~4 Termite resistance

R507.~~32~~5 Installation of plastic composites

R507.3 Footings. Decks shall be supported on solid concrete footings or other approved structural systems sufficient 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.

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Exceptions:

1. **Precast concrete deck blocks** for freestanding decks may be placed on grade provided all of the following deck criteria are met:

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- 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.

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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.

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R507.~~8~~4 Deck posts

R507.~~8~~4.1 Deck post to deck footing

R507.~~6~~5 Deck beams

R507.~~7~~5.1 Deck post to deck beam

R507.~~5~~6 Deck joists

R507.~~5~~6.1 Lateral restraint at supports

R507.~~7~~6.2 Deck joists and deck beam bearing

R507.~~4~~7 Decking

R507.8 Deck guards. Deck guards shall be in accordance with Section R312.1

R507.~~2~~9 Deck ledger connections to band joists

R507.~~2~~9.1 Ledger details

R507.~~2~~9.2 Band joist details

R507.~~2~~9.3 Ledger to band joist fastener details

R507.~~2~~9.4 Deck lateral load connection

Reason statement

The Deck Code Coalition (DCC) is a diversified group of interested people representing building officials, manufacturing suppliers, National Association of Homebuilders, American Wood Council, engineering companies and academia who have worked since the 2012 IRC in an effort to capture the safest deck practices from across the country. Deck safety is a huge issue and we have been meeting for over three years in an effort to codify how to build a deck.

This is one of several code changes dealing with footings that the committee is proposing.

This change is submitted for two reasons:

The committee wanted to put in minimum prescriptive size of footings into Section R507 so that the reader would not have to calculate it out based on tributary area.

The committee wanted to put in minimum prescriptive depth of footings into Section R507 so that the reader would not have to refer back to chapter 4.

Cost impact

There is a potential that the footing cost will go up because the footing size may go up for some post spacings.

R507.4. Deck posts – remove 12” of surrounding soil

Last revised 10-28

Strategy: move this code change to after R507.9a. If 507.9a is approved, ask for withdrawal of this one.

2. Renumber and make changes as follows including all corresponding tables and figures.

R507.1 Decks –no change

R507.~~3~~2 Plastic composite deck boards, stair treads, guards, or handrails.

R507.~~32~~2.1 Labeling

R507.~~32~~2.2 Flame spread index

R507.~~32~~2.3 Decay resistance

R507.~~32~~2.4 Termite resistance

R507.~~32~~2.5 Installation of plastic composites

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.

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R507.~~84~~4.1 Deck post to deck footing connection. Where Pposts shall bear on concrete footings in accordance with Section R403 and Figure R507.~~84~~4.1. Posts-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 Section R507 and the manufacturers' concrete piers.

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R507.6.5 Deck beams

R507.7.5.1 Deck post to deck beam

R507.5.6 Deck joists

R507.5.6.1 Lateral restraint at supports

R507.7.6.2 Deck joists and deck beam bearing

R507.4.7 Decking

R507.8 Deck guards. Deck guards shall be in accordance with Section R312.1

R507.2.9 Deck ledger connections to band joists

R507.2.9.1 Ledger details

R507.2.9.2 Band joist details

R507.2.9.3 Ledger to band joist fastener details

R507.2.9.4 Deck lateral load connection

Reason statement

The Deck Code Coalition (DCC) is a diversified group of interested people representing building officials, manufacturing suppliers, National Association of Homebuilders, American Wood Council, engineering companies and academia who have worked since the 2012 IRC in an effort to capture the safest deck practices from across the country. Deck safety is a huge issue and we have been meeting for over three years in an effort to codify how to build a deck.

This is one of several code changes dealing with footings that the committee is proposing.

This change is submitted for three reasons:

1. The committee wanted to disallow using 12 inches of soil as a lateral restraint for posts
2. The committee wanted to provide more clarity for typical post footings.
3. The committee wanted to acknowledge that there are proprietary footing systems that can handle the job as well.

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Cost impact

There may be a cost increase if the contractor was accustomed to setting his deck posts on a precast concrete footing and just backfilling the hole with excavated dirt. Now he will be required to either use a manufacturer's connector or pour his footing.

R507.5 Beams

Last revised 10-28

1. Renumber and make changes as follows including all corresponding tables and figures.

R507.1 Decks –no change

R507.~~3~~2 Plastic composite deck boards, stair treads, guards, or handrails.

R507.~~32~~1 Labeling

R507.~~32~~2 Flame spread index

R507.~~32~~3 Decay resistance

R507.~~32~~4 Termite resistance

R507.~~32~~5 Installation of plastic composites

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.

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R507.~~8~~4 Deck posts

R507.~~84~~1 Deck post to deck footing

R507.6~~5~~ **Deck Beams.** Maximum allowable spans for wood deck beams, as shown in Figure R507.~~65~~5, shall be in accordance with Table R507.~~65~~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 actual beam span. Splices of multispan beams shall be located at interior post locations~~R507.7.~~

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R507.7.5.1 Deck joist and deck beam bearing. The ends of each joist and beam shall have not less than 1½ inches (38 mm) of bearing on wood or metal and not less than 3 inches (76 mm) on concrete or masonry for the entire width of the beam. ~~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. Where~~ multispan beams bear on intermediate posts, each ply must have full bearing on the post in accordance with Figures R507.5.1(1) and R507.5.1(2).

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R507.7.15.2 Deck post to deck beam connection. Deck beams shall be attached to wood deck posts in ~~accordance with Figure R507.7.1 or by other equivalent means a manner~~ capable to resist of resisting lateral displacement vertical and horizontal applied loads. Connections shall be accordance with Figures R507.5.1 (1) and R507.5.1 (2). Manufactured post-to-beam connectors shall be sized for the post and beam sizes. All bolts shall have washers under the head and nut.

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

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

Exception: Where deck beams bear directly on footings in accordance with Section R507.8.1. ~~what does this exception mean. I suggest we delete it.~~

2. Add or replace Table B507.5, Figure R507.5, R507.1(1) and R507.1(2)

TABLE R507.65
DECK BEAM SPAN LENGTHS ^{a,b,d} (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.

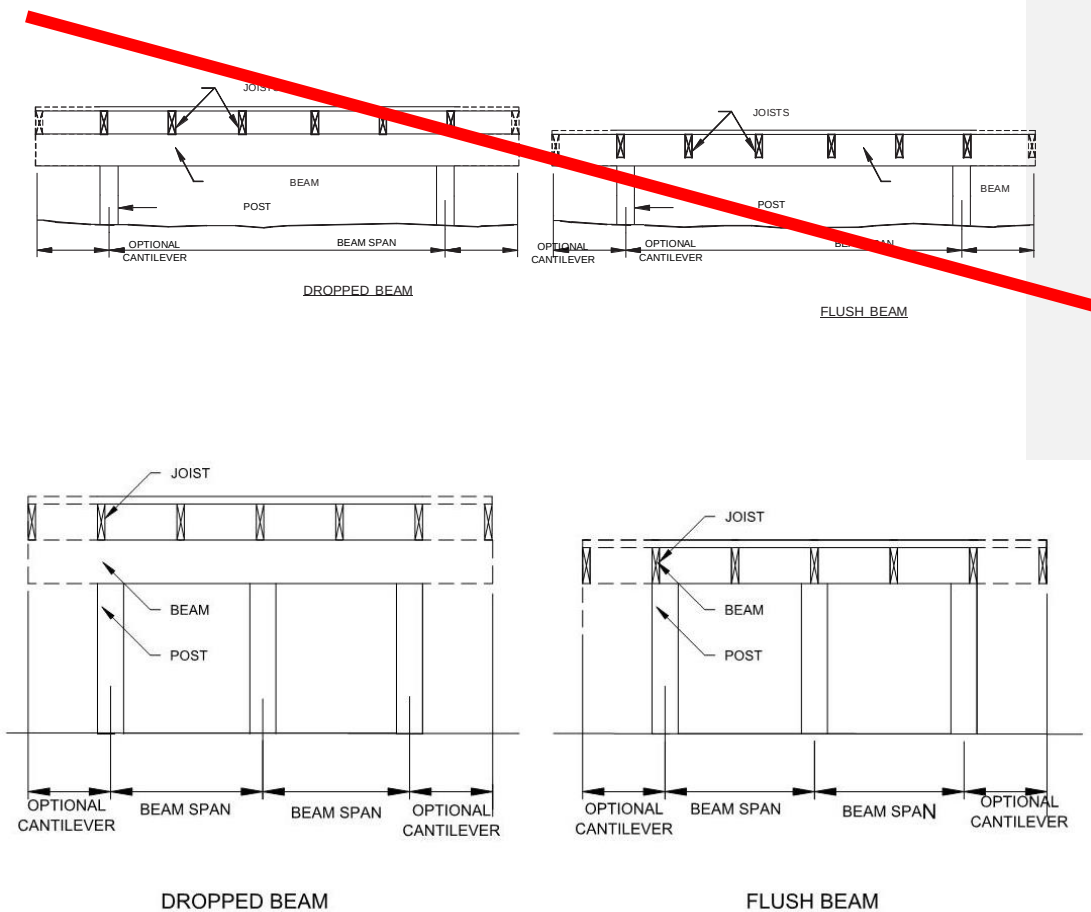


FIGURE R507.65
TYPICAL DECK BEAM SPANS

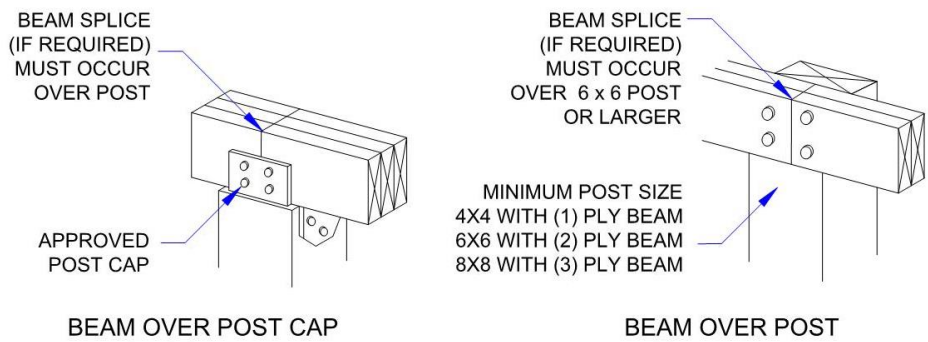
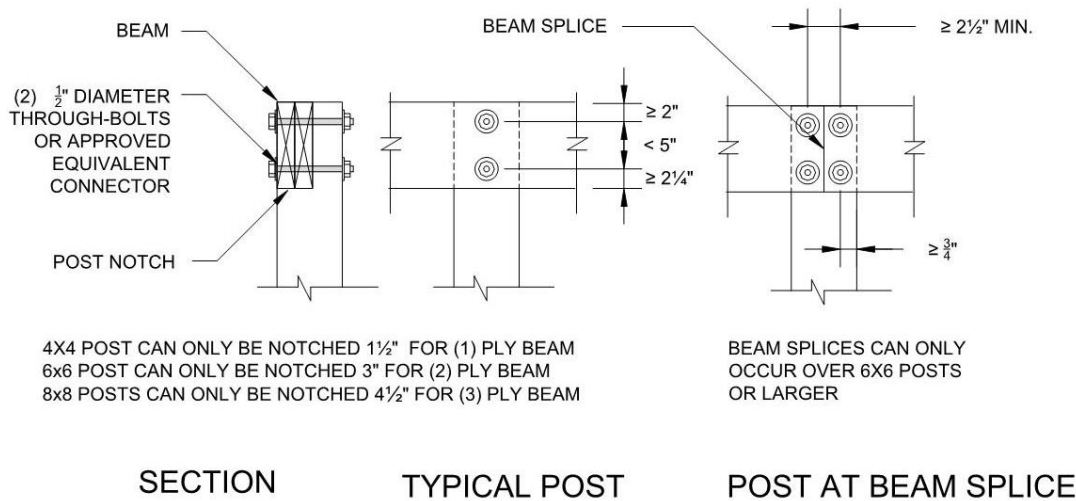


FIGURE R507.5.1(1)

TYPICAL POST CONNECTIONS

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FIGURE R507.5.1(2)

NOTCHED POST-TO-BEAM CONNECTION

R507.~~5~~6 Deck joists

R507.~~5~~6.1 Lateral restraint at supports

R507.~~7~~6.2 Deck joists and deck beam bearing

R507.~~4~~7 Decking

R507.8 Deck guards. Deck guards shall be in accordance with Section R312.1

R507.~~2~~9 Deck ledger connections to band joists

R507.~~2~~9.1 Ledger details

R507.~~2~~9.2 Band joist details

R507.~~2~~9.3 Ledger to band joist fastener details

R507.~~2~~9.4 Deck lateral load connection

Reason statement

The Deck Code Coalition (DCC) is a diversified group of interested people representing building officials, manufacturing suppliers, National Association of Homebuilders, American Wood Council, engineering companies and academia who have worked since the 2012 IRC in an effort to capture the safest deck practices from across the country. Deck safety is a huge issue and we have been meeting for over three years in an effort to codify how to build a deck.

This change is submitted to more clearly show how beams are to be connected to posts.

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Cost impact

There is not cost impact.

R507.6 Joist

Last revised 10-28

2. Renumber and make changes as follows including all corresponding tables and figures.

R507.1 Decks –no change

R507.~~3-2~~ Plastic composite deck boards, stair treads, guards, or handrails.

R507.~~32~~.1 Labeling

R507.~~32~~.2 Flame spread index

R507.~~32~~.3 Decay resistance

R507.~~32~~.4 Termite resistance

R507.~~32~~.5 Installation of plastic composites

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.

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R507.~~8-4~~ Deck posts

R507.~~84~~.1 Deck post to deck footing

R507.~~6-5~~ Deck beams

R507.~~75~~.1 Deck post to deck beam

R507.5-6 Deck joists. Maximum allowable spans for wood deck joists, as shown in Figure R507.~~56~~, shall be in accordance with Table R507.~~56~~. ~~Deck joists shall be permitted to cantilever not greater than one-fourth of the actual, adjacent joist span. 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.

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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.

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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.

R507.5.1 6.2 Lateral restraint at supports. 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.

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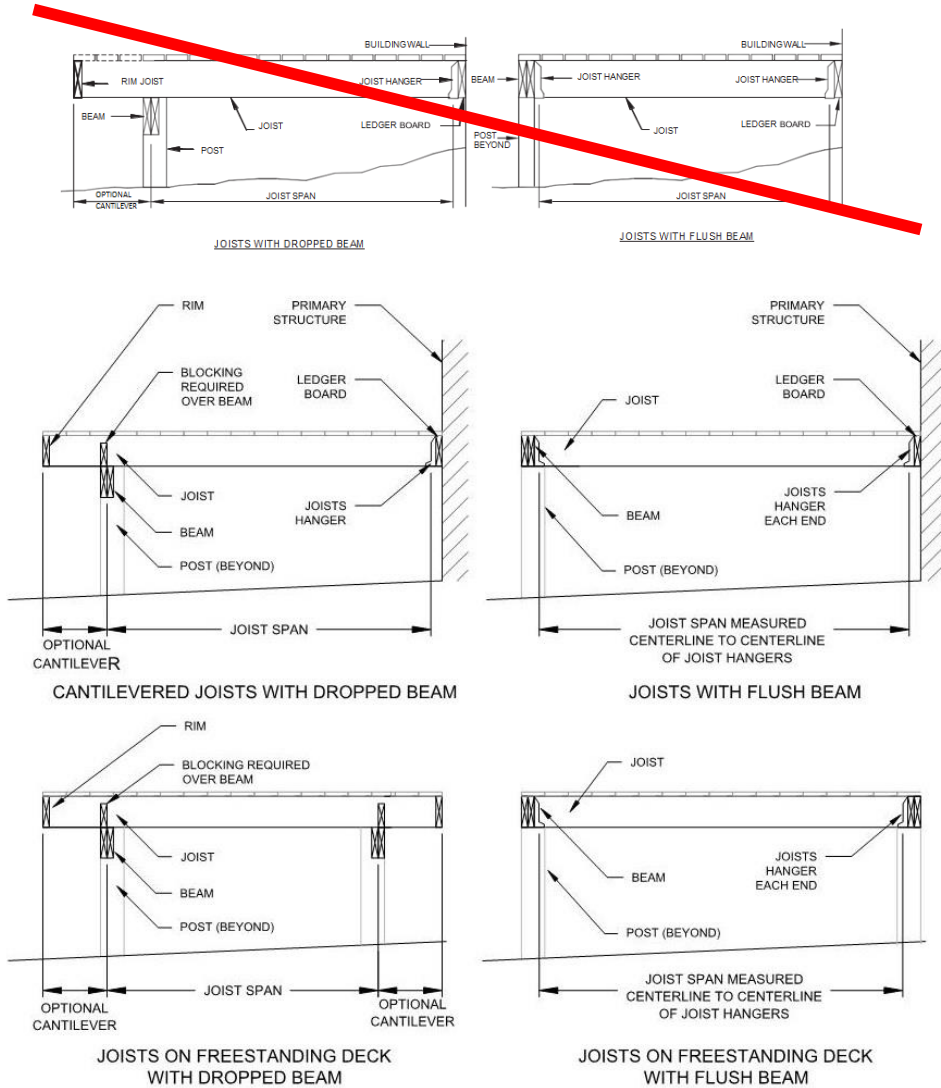


FIGURE R507.56

TYPICAL DECK JOIST SPANS

2. Replace Table with new table

TABLE R507.56
DECK JOIST SPANS FOR COMMON LUMBER SPECIES ^f(ft-in.)

SPECIES ^a	SIZE	SPACING OF DECK JOISTS WITH NO CANTILEVER ^b			SPACING OF DECK JOISTS WITH CANTILEVERS ^c		
		(inches)			(inches)		
		12	16	24	12	16	24
Southern pine	2 x 6	9-11	9-0	7-7	6-8	6-8	6-8
	2 x 8	13-1	11-10	9-8	10-1	10-1	9-8
	2 x 10	16-2	14-0	11-5	14-6	14-0	11-5
	2 x 12	18-0	16-6	13-6	18-0	16-6	13-6
Douglas fir, larch ^d , hem- fir ^d spruce-pine- fir ^d	2 x 6	9-6	8-8	7-2	6-3	6-3	6-3
	2 x 8	12-6	11-1	9-1	9-5	9-5	9-1
	2 x 10	15-8	13-7	11-1	13-7	13-7	11-1
	2 x 12	18-0	15-9	12-10	18-0	15-9	12-10
Redwood, western cedars, ponderosa pine ^e , red pine ^e	2 x 6	8-10	8-0	7-0	5-7	5-7	5-7
	2 x 8	11-8	10-7	8-8	8-6	8-6	8-6
	2 x 10	14-11	13-0	10-7	12-3	12-3	10-7
	2 x 12	17-5	15-1	12-4	16-5	15-1	12-4

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

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.

- No. 2 grade with wet service factor.
- Ground snow load, live load = 40 psf, dead load = 10 psf, $L/\Delta = 360$.
- 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.
- Includes incising factor.
- Northern species with no incising factor
- The maximum joist cantilever shall be limited to the joist span divided by 4 or the tabular value, whichever is less.

R507.4-7 Decking

R507.8 Deck guards. Deck guards shall be in accordance with Section R312.1

R507.2-9 Deck ledger connections to band joists

R507.29.1 Ledger details

R507.29.2 Band joist details

R507.29.3 Ledger to band joist fastener details

R507.29.4 Deck lateral load connection

Reason statement

The Deck Code Coalition (DCC) is a diversified group of interested people representing building officials, manufacturing suppliers, National Association of Homebuilders, American Wood Council, engineering companies and academia who have worked since the 2012 IRC in an effort to capture the safest deck practices from across the country. Deck safety is a huge issue and we have been meeting for over three years in an effort to codify how to build a deck.

This change was submitted because the committee wanted to change the way the cantilever length was displayed in the 2015 table. The committee thought that the information might be misleading, and wanted to provide the prescriptive cantilever length based on the deflection limits.

Cost impact

There is not cost impact.

R507.7 Decking

Last revised 10-30

1 Renumber and make changes as follows including all corresponding tables and figures.

R507.1 Decks –no change

R507.~~3~~2 Plastic composite deck boards, stair treads, guards, or handrails.

R507.~~32~~1 Labeling

R507.~~32~~2 Flame spread index

R507.~~32~~3 Decay resistance

R507.~~32~~4 Termite resistance

R507.~~32~~5 Installation of plastic composites

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.

R507.~~8~~4 Deck posts

R507.~~84~~1 Deck post to deck footing

R507.~~6~~5 Deck beams

R507.~~75~~1 Deck post to deck beam

R507.~~5~~6 Deck joists

R507.~~56~~1 Lateral restraint at supports

R507.~~7~~62 Deck joists and deck beam bearing

R507.4.7 Decking. Maximum allowable spacing for joists supporting decking shall be in accordance with Table R507.4.7. 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 R507.4.7
MAXIMUM JOIST SPACING

MATERIAL TYPE AND NOMINAL SIZE	MAXIMUM ON-CENTER JOIST SPACING	
	Perpendicular to joist	Diagonal to joist ^a
1 ¹ / ₄ -inch-thick wood	16 inches	12 inches
2-inch-thick wood	24 inches	16 inches
Plastic composite	In accordance with Section R507.32.2.5	In accordance with Section R507.32.2.5

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

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R507.8 Guards

Last revised 10-28

1 Renumber and make changes as follows including all corresponding tables and figures.

R507.1 Decks –no change

R507.~~3.2~~ Plastic composite deck boards, stair treads, guards, or handrails.

R507.~~3.2~~.1 Labeling

R507.~~3.2~~.2 Flame spread index

R507.~~3.2~~.3 Decay resistance

R507.~~3.2~~.4 Termite resistance

R507.~~3.2~~.5 Installation of plastic composites

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.

R507.~~8.4~~ Deck posts

R507.~~8.4~~.1 Deck post to deck footing

R507.~~6.5~~ Deck beams

R507.~~7.5~~.1 Deck post to deck beam

R507.~~5.6~~ Deck joists

R507.~~5.6~~.1 Lateral restraint at supports

R507.~~7.6.2~~ Deck joists and deck beam bearing

R507.~~4.7~~ Decking

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

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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.

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It is anticipated that there will be 9 or 10 details included here for guards

R507.~~2~~.9 Deck ledger connections to band joists

R507.~~2~~.9.1 Ledger details

R507.~~2~~.9.2 Band joist details

R507.~~2~~.9.3 Ledger to band joist fastener details

R507.~~2~~.9.4 Deck lateral load connection

Reason statement

The Deck Code Coalition (DCC) is a diversified group of interested people representing building officials, manufacturing suppliers, National Association of Homebuilders, American Wood Council, engineering companies and academia who have worked since the 2012 IRC in an effort to capture the safest deck practices from across the country. Deck safety is a huge issue and we have been meeting for over three years in an effort to codify how to build a deck.

This code change goes hand in hand with our proposal for a change to the Live Load Table R301.5.

The current lack of prescriptive guidance has put the industry and the building officials in a position of where everyone has complicity ignored the requirements in the Live Load Table.

The committee worked hard to provide prescriptive guard details for all of the anticipated situations: guards mounted interior of the rim, exterior of the rim and on top of the rim. While the committee recognizes that there are lots of other feasible solutions, we are offering these commodity details which calc out for 200# outward and 200# downward.

Cost impact

There will be a considerable cost in both time and money to build the guards to comply with Table R301.5 – even if the proposed reduction in loading, as we submitted is approved.

R507.9 Supports

Last revised: 10-29

1. Renumber and make changes as follows including all corresponding tables and figures.

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R507.1 Decks –no change

R507.~~3~~2 Plastic composite deck boards, stair treads, guards, or handrails.

R507.~~32~~1 Labeling

R507.~~32~~2 Flame spread index

R507.~~32~~3 Decay resistance

R507.~~32~~4 Termite resistance

R507.~~32~~5 Installation of plastic composites

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.

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R507.~~8~~4 Deck posts

R507.~~84~~1 Deck post to deck footing

R507.~~6~~5 Deck beams

R507.~~75~~1 Deck post to deck beam

R507.~~5~~6 Deck joists

R507.~~56~~1 Lateral restraint at supports

R507.~~7~~62 Deck joists and deck beam bearing

R507.~~4~~7 Decking

R507.8 Deck guards. Deck guards shall be in accordance with Section R312.1

R507.29.1 Ledger details. Deck ledgers installed in accordance with Section R507.2-9 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 R507.2-9 shall not support concentrated loads from beams or girders. Deck ledgers shall not be supported on stone or masonry veneer.

R507.29.3 Ledger to band joist fastener details. Fasteners used in deck ledger connections in accordance with Table R507.29(1) shall be hot-dipped galvanized or stainless steel and shall be installed in accordance with Table R507.29(2) and Figures R507.2-19(1) and R507.2-19(2).

R507.29.4 Deck lateral load resistance. Resistance to lateral loads required by Section R507.1 shall be permitted to be in accordance with Figure R507.2-39.4(1) or R507.2-39.4(2). Where the lateral load connection is in accordance with Figure R507.2-39.4(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 R507.2-39.4(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.

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TABLE R507.29 (1)**DECK LEDGER CONNECTION TO BAND JOIST ^{a,b}**(Deck live load = 40 psf, deck dead load = 10 psf, snow load $\leq$ 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 joist.

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 R507.2-1-9 (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 R507.2-1-9. (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 R507.2-1-9. (1).

FIGURE R507.2.19 (1)
PLACEMENT OF LAG SCREWS AND BOLTS IN LEDGERS
For SI: 1 inch = 25.4 mm.

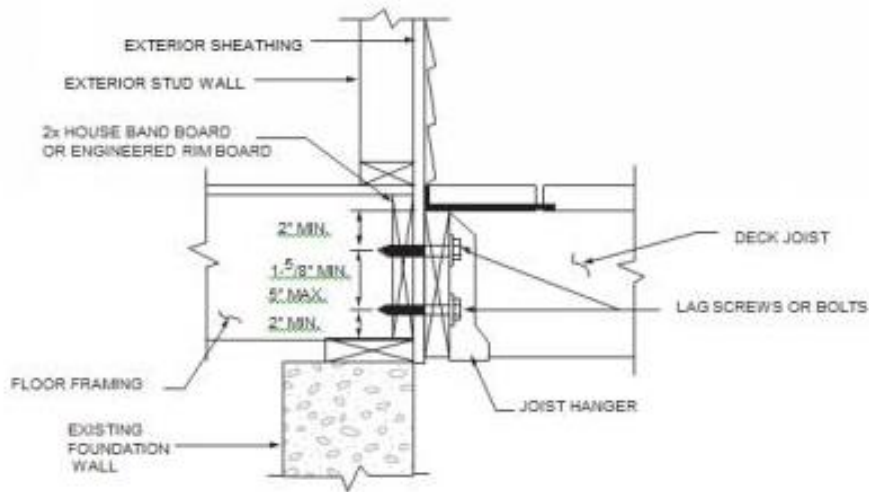


FIGURE R507.2.19 (2)
PLACEMENT OF LAG SCREWS AND BOLTS IN BAND JOISTS

For SI: 1 inch = 25.4 mm.

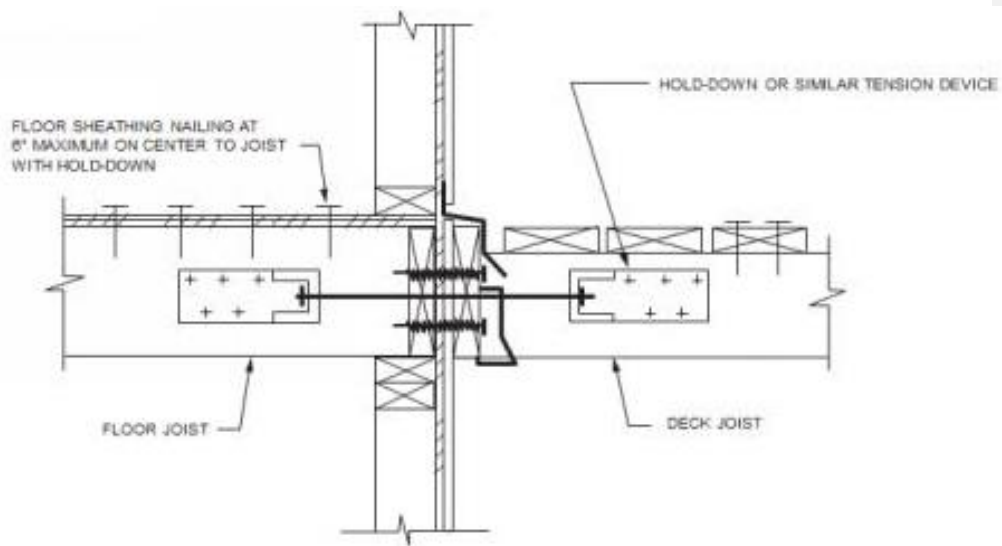


FIGURE R507.2.39.4 (1)
DECK ATTACHMENT FOR LATERAL LOADS
For SI: 1 inch = 25.4 mm.

FIGURE R507.2.39.4 (2)
DECK ATTACHMENT FOR LATERAL LOADS
For SI: 1 inch = 25.4 mm.

Reason statement

The Deck Code Coalition (DCC) is a diversified group of interested people representing building officials, manufacturing suppliers, National Association of Homebuilders, American Wood Council, engineering companies and academia who have worked since the 2012 IRC in an effort to capture the safest deck practices from across the country. Deck safety is a huge issue and we have been meeting for over three years in an effort to codify how to build a deck.

1. This change is to specify the minimum grade of band joists. As originally written, it implied that:
 - wood band joist had to be spruce-pine-fir
 - LVLs had to be Douglas fir.
2. Other changes to the text were written to clean up the intention.

Cost impact

There is no cost impact. These materials are already required by other sections of the IRC for connecting members outdoors.

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R507. Rewrite with all of these technical changes

Code change

*****not included**

in this document.