

September 24, 2019

Doug Orth
State Building Code Council Chair
1500 Jefferson Street SE
PO Box 21499
Olympia, WA 98504

Doug,

On behalf of the Washington Association of Building Officials (WABO), I am submitting a public comment relating to the SBCC recommended code changes in the CR102 document dated August 7, 2019. This public comment recommends modifications to items #53-66, WAC 51-51-0507 in the CR102 making changes to Section R507. Review of the CR102 outlining the proposed change identified that the sections and tables should be amended to accurately address the material species we encounter in the PNW and only loading requirements that apply within our State.

This public comment will address the concerns and issues that were identified and provides a better code that is more user friendly.

Thank you for the work the Building Code Council does and the opportunity to present our ideas for modifications.

Sincerely,

Micah Chappell

Technical Code Development Committee Chair,
Washington Association of Building Officials

State Building Code Council

Public Comment:

Sections: Table 507.3.1, Section 507.4, Table 507.4, Table 507.4(1), Table 507.4(2), Table 507.4(3), Table 507.4(4), Table 507.6, and Table 509.1.3(1).

Amend tables and sections to read as follows: Highlighted items indicate public comment.

TABLE R507.3.1
MINIMUM FOOTING SIZE FOR DECKS

LIVE OR GROUND SNOW LOAD ^b (psf)	TRIBUTARY AREA ^e (sq. ft.)	SOIL BEARING CAPACITY ^{a, c, d}								
		1500 psf			2000 psf			≥ 3000 psf		
		Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness _f (inches)	Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness _f (inches)	Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness _f (inches)
40	5	7	8	6	7	8	6	7	8	6
	20	10	10-12	6	9	9	6	7	8	6
	40	14	14-16	7-6	12	13-14	6	10	10-12	6
	60	17	18-19	9-6	15	15-17	8-6	12	13-14	6
	80	20	22	7	17	19	6	14	16	6
	100	22	25	8	19	21	6	15	17	6
	120	24	27	9	21	23	7	17	19	6
	140	26	29	10	22	25	8	18	21	6
	160	28	31	11	24	27	9	20	22	7
50	5	7	8	6	7	8	6	7	8	6
	20	11	12-13	6	10	10-11	6	8	8-9	6
	40	16-15	16-17	6	8-13	14-15	6	11	12-13	6
	60	19	21	6	16	18	6	13	15	6
	80	21	24	8	19	21	6	15	17	6
	100	24	27	9	21	23	7	17	19	6
	120	26	30	10	23	26	8	19	21	6
	140	28	32	11	25	28	9	20	23	7
	160	30	34	12	26	30	10	21	24	8
60	5	7	8	6	7	8	6	7	8	6
	20	12	13-14	6	11	11-12	6	9	9-10	6
	40	17-16	18-19	6	15-14	15-16	8	12	13-14	6
	60	20	23	7	17	20	6	14	16	6
	80	23	26	9	20	23	7	16	19	6
	100	26	29	10	22	25	8	18	21	6
	120	28	32	11	25	28	9	20	23	7
	140	31	35	12	27	30	10	22	24	8
	160	33	37	13	28	32	11	23	26	9
60 live load or 70 ground snow load	5	7	8	6	7	8	6	7	8	6
	20	13-12	14	7-6	11	12-13	6	9	10	6
	40	18	19-20	9-6	16-15	17	8-6	13-12	14	7-6
	60	21	24	8	19	21	6	15	17	6
	80	25	28	9	21	24	8	18	20	6
	100	28	31	11	24	27	9	20	22	7
	120	30	34	12	26	30	10	21	24	8
	140	33	37	13	28	32	11	23	26	9
	160	35	40	15	30	34	12	25	28	9

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m², 1 pound per square foot = 0.0479 kPa.

a. Interpolation permitted, extrapolation not permitted.

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

c. Footing dimensions shall allow complete bearing of the post.

d. If the support is a brick or CMU pier, the footing shall have a minimum 2-inch projection on all sides.

e. Area, in square feet, of deck surface supported by post and footings.

f. Minimum thickness shall only apply to plain concrete footings.

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

**TABLE R507.4
DECK POST HEIGHT**

LOADS ^b (psf)	POST SPECIES ^c	POST SIZE ^d	MAXIMUM DECK POST HEIGHT ^a (feet-inches)							
			TRIBUTARY AREA ^{e, h} (sq ft)							
			20	40	60	80	100	120	140	160
60 Live Load, ≤ 60 Ground Snow Load	Douglas Fir ^e , Hem-fir ^e , SPF ^e	4 x 4	14-0	10-10	8-7	7-0	5-8	4-1	NP	NP
		4 x 6	14-0	13-10	11-1	9-5	8-2	7-3	6-4	5-4
		6 x 6	14-0	14-0	14-0	14-0	14-0	13-3	10-9	6-11
		8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
	Redwood ^f , Western Cedars ^f , Ponderosa Pine ^f , Red Pine ^f	4 x 4	14-0	10-3	7-0	NP	NP	NP	NP	NP
		4 x 6	14-0	13-6	10-6	8-4	5-10	NP	NP	NP
		6 x 6	14-0	14-0	14-0	14-0	11-11	NP	NP	NP
		8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
70 Ground Snow Load	Douglas Fir ^e , Hem-fir ^e , SPF ^e	4 x 4	14-0	10-1	7-11	6-6	5-3	3-7	NP	NP
		4 x 6	14-0	12-10	10-3	8-9	7-7	6-8	5-10	4-11
		6 x 6	14-0	14-0	14-0	14-0	14-0	12-2	9-9	5-9
		8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
	Redwood ^f , Western Cedars ^f , Ponderosa Pine ^f , Red Pine ^f	4 x 4	14-0	9-5	6-5	NP	NP	NP	NP	NP
		4 x 6	14-0	12-6	9-8	7-7	5-3	NP	NP	NP
		6 x 6	14-0	14-0	14-0	14-0	10-8	NP	NP	NP
		8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0

For SI: 1 inch = 25.4mm, 1 square foot = 0.0929 m², 1 psf = 0.0479 kPa. NP = Not Permitted

- a. Measured from the underside of the beam to top of footing or pier.
- b. 10 psf dead load. Snow load not assumed to be concurrent with live load.
- c. No. 2 grade, wet service factor included.
- d. Notched deck posts shall be sized to accommodate beam size in accordance with Section R507.5.2
- e. Includes incising factor.
- f. Incising factor not included.
- g. Area, in square feet, of deck surface supported by post and footings.
- h. Interpolation permitted. Extrapolation is not permitted.

60	Ground	Douglas Fir ^e ,	4 x 4	14-0	10-11	8-8	7-3	6-2	5-0	3-7	NP
		Hem-fir ^e ,	4 x 6	14-0	13-11	112-11-2	9-7	8-4	7-5	6-8	5-11
			6 x 6	14-0	14-0	14-0	14-0	14-0	14-0	12-2	10-2
	Snow	SPF ^e	8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
			8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
	Load	Redwood ^f ,	4 x 4	14-0	10-6	7-9	4-7	NP	NP	NP	NP
		Western Cedars ^f ,	4 x 6	14-0	13-7	10-9	8-9	7-0	4-9	NP	NP
			6 x 6	14-0	14-0	14-0	14-0	14-0	9-9	NP	NP
		Ponderosa Pine ^f ,	8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
		Red Pine ^f	8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
70	Southern Pine	4 x 4	14-0	10-2	8-2	6-11	5-11	5-2	4-4	3-4	
		4 x 6	14-0	12-11	10-5	8-11	7-10	7-1	6-5	5-10	
		6 x 6	14-0	14-0	14-0	14-0	14-0	12-9	10-11	8-7	
		8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0	
	Douglas Fir ^e ,	4 x 4	14-0	10-1	7-11	6-6	5-3	3-7	NP	NP	
		4 x 6	14-0	12-10	10-3	8-9	7-7	6-8	5-10	4-11	
	Hem-fir ^e ,	6 x 6	14-0	14-0	14-0	14-0	14-0	12-2	9-9	5-9	
		8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0	
	Redwood ^f ,	4 x 4	14-0	9-5	6-5	NP	NP	NP	NP	NP	
		4 x 6	14-0	12-6	9-8	7-7	5-3	NP	NP	NP	
	Western Cedars ^f ,	6 x 6	14-0	14-0	14-0	14-0	10-8	NP	NP	NP	
		8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0	
	Ponderosa Pine ^f ,	8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0	
	Red Pine ^f	8 x 8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0	

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa., NP = Not Permitted

a. Measured from the underside of the beam to top of footing or pier.

b. 10 psf dead load. Snow load not assumed to be concurrent with live load.

c. No. 2 grade, wet service factor included.

d. Notched deck posts shall be sized to accommodate beam size per in accordance with Section R507.5.2

e. Includes incising factor.

f. Incising factor not included.

g. Area, in square feet, of deck surface supported by post and footings.

h. Interpolation permitted. Extrapolation not permitted.

TABLE R507.5(1)
RESERVED
MAXIMUM DECK BEAM SPAN - 40 PSF LIVE LOAD^c

BEAM SPECIES ^d	BEAM SIZE ^e	DECK JOIST SPAN ^{a,1} (feet)								
		MAXIMUM BEAM SPAN ^{a,b,d}								
		(feet-inches)								
		Deck Joist Span ^{a,b}								
		(feet)								
		6	8	10	12	14	16	18		
Southern Pine	1-2 x 6	4-7	4-0	3-7	3-3	3-0	2-10	2-7	2-8	
	1-2 x 8	5-10	5-11	5-1	4-6	4-7	4-1	4-2	3-10	
	1-2 x 10	6-11	7-0	6-0	5-4	5-5	4-11	4-6	4-7	
	1-2 x 12	8-2	8-3	7-1	6-4	5-9	5-10	5-4	5-5	
	2-2 x 6	6-10	6-11	5-11	5-3	5-4	4-10	4-6	4-2	
	2-2 x 8	8-8	8-9	7-6	7-7	6-9	6-2	5-8	5-9	
	2-2 x 10	10-4	8-11	9-0	8-0	7-3	7-4	6-9	6-4	
	2-2 x 12	12-2	10-6	10-7	9-5	8-7	7-11	8-0	7-5	
	3-2 x 6	8-6	7-5	6-8	6-1	5-7	5-8	5-3	4-11	
	3-2 x 8	10-11	9-5	9-6	8-5	8-6	7-8	7-9	7-1	
	3-2 x 10	12-11	13-0	11-2	10-0	9-1	9-2	8-5	8-6	
3-2 x 12	15-3	13-2	13-3	11-9	11-10	10-9	9-11	10-0		
Douglas fir-larch ^g	1-2 x 6	4-1	3-6	3-0	2-6	2-8	2-1	2-5	1-10	
	1-2 x 8	5-6	4-9	4-8	4-0	3-3	3-6	2-9	3-2	
	1-2 x 10	6-8	5-10	5-1	4-2	4-6	3-6	4-1	3-1	
	1-2 x 12	7-9	6-9	6-0	5-1	5-6	4-4	5-0	3-9	
	2-2 x 6	6-1	5-3	4-9	4-4	4-0	3-11	3-8	3-7	
	2-2 x 8	8-2	7-1	6-4	5-9	5-4	5-2	4-10	4-8	
	2-2 x 10	10-0	8-7	7-9	7-0	6-6	6-1	6-0	5-5	
	2-2 x 12	11-7	10-0	8-11	8-2	7-7	7-1	7-1	6-7	
	3-2 x 6	7-8	6-7	6-8	5-11	6-0	5-5	5-6	5-0	
	3-2 x 8	10-3	8-10	7-11	7-3	6-8	6-3	6-3	5-11	
Hem-fir ^g	3-2 x 10	12-6	10-10	9-8	8-10	8-2	7-8	7-2		
	3-2 x 12	14-6	12-7	11-3	10-3	9-6	8-11	8-5		
	Spruce-pine-fir ^g	1-2 x 6	4-2	3-7	3-1	2-7	2-9	2-2	2-6	1-10
		1-2 x 8	5-4	4-7	4-1	3-4	3-7	2-10	3-3	2-6
1-2 x 10		6-6	5-7	5-0	4-3	4-7	3-8	4-2	3-2	
1-2 x 12		7-6	6-6	5-10	5-3	5-4	4-5	4-11	3-10	
Western Cedars ^h	2-2 x 6	6-2	5-4	4-10	4-5	4-1	4-0	3-9	3-8	
	2-2 x 8	7-10	6-10	6-1	5-7	5-2	4-10	4-4	4-5	
Ponderosa Pine ^h	2-2 x 10	9-7	8-4	7-5	6-9	6-3	5-10	5-6		
Red Pine ^h	2-2 x 12	11-1	9-8	8-7	7-10	7-3	6-10	6-5		
	3-2 x 6	7-8	6-9	6-0	5-6	5-1	4-9	4-6		
	3-2 x 8	9-10	8-6	7-7	6-11	6-5	6-0	5-8		
	3-2 x 10	12-0	10-5	9-4	8-6	7-10	7-4	6-11		
	3-2 x 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.

a. Interpolation permitted. Extrapolation not permitted.

b. Beams supporting a single span of joists with or without cantilever.

c. Dead load = 10 psf, $L/\Delta = 360$ at main span, $L/\Delta = 180$ at cantilever. Snow load not assumed to be concurrent with live load.

d. No. 2 grade, wet service factor included.

e. Beam depth shall be equal to or greater than the depth intersecting joist for a flush beam connection.

f. Beam cantilevers are limited to the adjacent beam's span divided by 4.

g. Includes incising factor.

h. Incising factor not included.

i. Deck joist span as shown in Figure R507.5

TABLE R507.5(2)

RESERVED

MAXIMUM DECK BEAM SPAN - 50 PSF GROUND SNOW LOAD^c

BEAM SPECIES ^d	BEAM SIZE ^e	DECK JOIST SPAN ^{a,f}							
		MAXIMUM BEAM SPAN ^{a,b,f}							
		(feet-inches)							
		Deck Joist Span ^{a,h}							
		(feet)							
		6	8	10	12	14	16	18	
Southern Pine	1-2x6	4-2-4-6	3-8-3-11	3-3-3-6	2-11-3-2	2-9-2-11	2-5-2-9	2-2-2-7	
	1-2x8	5-4-5-9	4-7-4-11	4-1-4-5	3-9-4-0	3-6-3-9	3-3-3-6	2-10-3-3	
	1-2x10	6-4-6-9	5-6-5-10	4-11-5-3	4-6-4-9	4-2-4-5	3-10-4-2	3-8-3-11	
	1-2x12	7-6-8-0	6-5-6-11	5-9-6-2	5-3-5-8	4-10-5-3	4-7-4-11	4-3-4-7	
	2-2x6	6-3-6-8	5-5-5-9	4-10-5-2	4-5-4-9	4-1-4-4	3-10-4-1	3-7-3-10	
	2-2x8	7-11-8-6	6-10-7-4	6-2-6-7	5-7-6-0	5-2-5-7	4-10-5-2	4-7-4-11	
	2-2x10	9-5-10-1	8-2-8-9	7-3-7-10	6-8-7-1	6-2-6-7	5-9-6-2	5-5-5-10	
	2-2x12	11-1-11-11	9-7-10-3	8-7-9-2	7-10-8-5	7-3-7-9	6-9-7-3	6-5-6-10	
	3-2x6	7-10-7-11	6-9-7-2	6-1-6-6	5-6-5-11	5-1-5-6	4-9-5-1	4-6-4-10	
	3-2x8	9-11-10-5	8-7-9-3	7-8-8-3	7-0-7-6	6-6-6-11	6-16-6-6	5-9-6-2	
	3-2x10	11-9-12-8	10-2-10-11	9-1-9-9	8-4-8-11	7-8-8-3	7-2-7-9	6-9-7-3	
3-2x12	13-11-14-11	12-0-12-11	10-9-11-6	9-10-10-6	9-1-9-9	8-6-9-1	8-0-8-7		
Douglas fir-larch ^g , Hem-fir ^g , Spruce-pine-fir ^g	1-2x6	3-9-4-0	3-3-3-5	2-6-2-11	2-1-2-7	1-9-2-4	1-6-2-2	1-4-2-0	
	1-2x8	5-0-5-4	4-3-4-7	3-4-3-11	2-9-3-5	2-3-3-1	2-0-2-10	1-9-2-8	
	1-2x10	6-1-6-7	5-4-5-8	4-3-4-11	3-6-4-5	2-11-4-0	2-6-3-8	2-3-3-5	
	1-2x12	7-1-7-7	6-2-6-7	5-2-5-11	4-3-5-4	3-7-4-10	3-1-4-6	2-9-4-2	
	2-2x6	5-7-6-0	4-10-5-2	4-4-4-7	3-11-4-2	3-6-3-10	3-0-3-5	2-8-3-2	
	2-2x8	7-5-8-0	6-5-6-11	5-9-6-2	5-3-5-8	4-7-5-0	4-0-4-7	3-6-4-2	
	2-2x10	9-1-9-9	7-10-8-5	7-0-7-7	6-5-6-11	5-11-6-4	5-1-5-10	4-6-5-4	
	2-2x12	10-7-11-4	9-2-9-10	8-2-8-9	7-5-8-0	6-11-7-5	6-3-6-11	5-6-6-6	
	3-2x6	7-0-7-6	6-0-6-6	5-5-5-9	4-11-5-3	4-7-4-11	4-3-4-7	4-0-4-4	
	3-2x8	9-4-10-0	8-1-8-8	7-3-7-9	6-7-7-1	6-1-6-6	5-8-6-1	5-4-5-8	
	3-2x10	11-5-12-3	9-10-10-7	8-10-9-6	8-1-8-8	7-5-8-0	7-0-7-6	6-7-7-0	
3-2x12	13-3-14-3	11-6-12-4	10-3-11-0	9-5-10-1	8-8-9-4	8-1-8-9	7-8-8-3		
Redwood ^h , Western Cedars ^h , Ponderosa Pine ^h , Red Pine ^h	1-2x6	3-10-4-1	3-4-3-6	2-7-3-0	2-2-2-8	1-10-2-5	1-7-2-3	1-5-2-1	
	1-2x8	4-10-5-2	4-2-4-6	3-5-4-0	2-10-3-6	2-4-3-2	2-1-2-11	1-10-2-9	
	1-2x10	5-11-6-4	5-1-5-6	4-4-4-11	3-7-4-6	3-0-4-1	2-8-3-9	2-4-3-6	
	1-2x12	6-10-7-4	5-11-6-4	5-4-5-8	4-4-5-2	3-8-4-10	3-2-4-6	2-10-4-3	
	2-2x6	5-8-6-1	4-11-5-3	4-5-4-8	4-0-4-4	3-7-3-11	3-1-3-6	2-9-3-3	
	2-2x8	7-2-7-8	6-3-6-8	5-7-5-11	5-1-5-5	4-8-5-0	4-1-4-8	3-8-4-3	
	2-2x10	8-9-9-5	7-7-8-2	6-9-7-3	6-2-6-8	5-9-6-2	5-3-5-9	4-8-5-5	
	2-2x12	10-2-10-11	8-10-9-5	7-10-8-5	7-2-7-8	6-8-7-2	6-3-6-8	5-8-6-3	
	3-2x6	7-1	6-2-6-5	5-6-5-11	5-0-5-5	4-8-5-0	4-4-4-8	4-1-4-5	
	3-2x8	9-0-9-4	7-9-8-4	6-11-7-5	6-4-6-10	5-11-6-4	5-6-5-11	5-2-5-7	
	3-2x10	11-0-11-9	9-6-10-2	8-6-9-1	7-9-8-4	7-2-7-8	6-9-7-2	6-4-6-9	
3-2x12	12-9-13-8	11-0-11-10	9-10-10-7	9-0-9-8	8-4-8-11	7-9-8-4	7-4-7-10		

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a. Interpolation allowed. Extrapolation is not allowed.

b. Beams supporting a single span of joists with or without cantilever.

c. Dead load = 10 psf, $L/\Delta = 360$ at main span, $L/\Delta = 180$ at cantilever. Snow load not assumed to be concurrent with live load.

d. No. 2 grade, wet service factor included.

e. Beam depth shall be equal to or greater than the depth of intersecting joist for a flush beam connection.

f. Beam cantilevers are limited to the adjacent beam's span divided by 4.

g. Includes incising factor

h. Incising factor not included.

i. Deck joist span as shown in Figure R507.5

TABLE R507.5(3)

RESERVED

MAXIMUM DECK BEAM SPAN - 60 PSF GROUND SNOW LOAD^c

Portions of table not shown remain unchanged.

BEAM SPECIES ^d	BEAM SIZE ^e	DECK JOIST SPAN ^{a, h} (feet)						
		MAXIMUM BEAM SPAN ^{a, b, f} (feet-inches)						
		Deck Joist Span ^{g, i} (feet)						
		6	8	10	12	14	16	18
Southern Pine	1-2x6	3-11 4-2	3-4 3-7	3-0 3-3	2-9 2-11	2-5 2-9	2-1 2-6	1-10 2-5
	1-2x8	4-11 5-3	4-3 4-7	3-10 4-1	3-6 3-9	3-2 3-5	2-9 3-3	2-5 3-0
	1-2x10	5-10 6-3	5-1 5-5	4-6 4-10	4-2 4-5	3-10 4-1	3-6 3-10	3-1 3-7
	1-2x10	6-11 7-5	6-0 6-5	5-4 5-9	4-10 5-3	4-6 4-10	4-3 4-6	3-10 4-3
	2-2x6	5-9 6-2	5-0 5-4	4-6 4-9	4-1 4-4	3-9 4-0	3-6 3-9	3-4 3-7
	2-2x8	7-4 7-10	6-4 6-10	5-8 6-1	5-2 5-7	4-9 5-2	4-6 4-10	4-3 4-6
	2-2x10	8-8 9-4	7-6 8-1	6-9 7-3	6-2 6-7	5-8 6-1	5-4 5-8	5-0 5-4
	2-2x12	10-3 11-0	8-11 9-6	7-11 8-6	7-3 7-9	6-8 7-2	6-3 6-9	5-11 6-4
	3-2x6	7-3 7-5	6-3 6-9	5-7 6-0	5-1 5-6	4-9 5-1	4-5 4-9	4-2 4-6
	3-2x8	9-2 9-9	7-11 8-6	7-1 7-8	6-6 6-11	6-0 6-5	5-7 6-0	5-3 5-8
	3-2x10	10-11 11-8	9-5 10-2	8-5 9-1	7-8 8-3	7-2 7-8	6-8 7-2	6-3 6-9
	3-2x12	12-10 13-9	11-2 11-11	9-11 10-8	9-1 9-9	8-5 9-0	7-10 8-5	7-5 7-11
Douglas fir-larch ^g	1-2x6	3-5 3-8	2-9 3-1	2-2 2-8	1-9 2-4	1-6 2-2	1-3 2-0	1-1 1-10
	1-2x8	4-8 5-0	3-8 4-1	2-10 3-6	2-4 3-1	1-11 2-10	1-8 2-7	1-6 2-5
	1-2x10	5-8 6-1	4-8 5-2	3-8 4-6	3-0 4-0	2-6 3-7	2-2 3-4	1-11 3-2
	1-2x12	6-7 7-1	5-8 6-1	4-5 5-5	3-7 4-10	3-1 4-5	2-7 4-1	2-3 3-10
	2-2x6	5-2 5-6	4-5 4-9	4-0 4-3	3-6 3-10	3-0 3-5	1-11 3-1	1-8 2-10
	2-2x8	6-11 7-5	5-11 6-5	5-4 5-9	4-8 5-0	3-11 4-6	3-5 4-1	3-0 3-9
	2-2x10	8-5 9-0	7-3 7-10	6-6 7-0	5-11 6-4	5-1 5-9	4-5 5-2	3-10 4-10
	2-2x12	9-9 10-6	8-5 9-1	7-7 8-1	6-11 7-5	6-2 6-10	5-4 6-4	4-8 5-10
	3-2x6	6-5 6-11	5-7 6-0	5-0 5-4	4-7 4-11	4-3 4-6	3-11 4-2	3-5 3-10
	3-2x8	8-8 9-3	7-6 8-0	6-8 7-2	6-1 6-6	5-8 6-1	5-2 5-6	4-7 5-0
	3-2x10	10-7 11-4	9-2 9-10	8-2 8-9	7-5 8-0	6-11 7-5	6-5 6-11	5-10 6-5
	3-2x12	12-3 13-2	10-8 11-5	9-6 10-2	8-8 9-4	8-0 8-7	7-6 8-1	7-1 7-7
Redwood ^h	1-2x6	3-6 3-9	2-10 3-2	2-3 2-9	1-10 2-5	1-7 2-2	1-4 2-0	1-2 1-11
	1-2x8	4-6 4-10	3-9 4-2	2-11 3-7	2-5 3-2	2-0 2-11	1-9 2-8	1-7 2-6
	1-2x10	5-6 5-10	4-9 5-1	3-9 4-6	3-1 4-1	2-7 3-8	2-3 3-5	2-0 3-3
	1-2x12	6-4 6-10	5-6 5-11	4-7 5-3	3-9 4-10	3-2 4-5	2-9 4-2	2-5 3-11
	2-2x6	5-3 5-7	4-6 4-10	4-1 4-4	3-8 3-11	3-1 3-6	2-8 3-2	2-4 2-11
	2-2x8	6-8 7-1	5-9 6-2	5-2 5-6	4-8 5-0	4-1 4-7	3-6 4-2	3-1 3-10
	2-2x10	8-1 8-8	7-0 7-6	6-3 6-9	5-9 6-2	5-2 5-8	4-6 5-4	4-0 4-11
	2-2x12	9-5 10-1	8-2 8-9	7-3 7-10	6-8 7-2	6-2 6-7	5-6 6-2	4-10 5-10
	3-2x6	6-7 6-8	5-8 6-1	5-1 5-5	4-8 5-0	4-4 4-7	4-0 4-3	3-7 3-11
	3-2x8	8-4 8-9	7-2 7-9	6-5 6-11	5-11 6-4	5-5 5-10	5-1 5-5	4-8 5-2
	3-2x10	10-2 10-11	8-10 9-5	7-10 8-5	7-2 7-8	6-8 7-2	6-3 6-8	5-10 6-3
	3-2x12	11-9 12-8	10-2 10-11	9-1 9-9	8-4 8-11	7-8 8-3	7-3 7-9	6-10 7-3

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. Interpolation allowed. Extrapolation is not allowed.

b. Beams supporting a single span of joists with or without cantilever.

c. Dead load = 10 psf, $L/\Delta = 360$ at main span, $L/\Delta = 180$ at cantilever. Snow load not assumed to be concurrent with live load.

d. No. 2 grade, wet service factor included.

e. Beam depth shall be equal to or greater than the depth of intersecting joist for a flush beam connection.

f. Beam cantilevers are limited to the adjacent beam's span divided by 4.

g. Includes incising factor

h. Incising factor not included.

i. Deck joist span as shown in Figure R507.5

TABLE R507.5(4)
 MAXIMUM DECK BEAM SPAN -60 PSF LIVE LOAD or 70 PSF
 GROUND SNOW LOAD ^c

BEAM SPECIES ^d	BEAM SIZE ^e	DECK JOIST SPAN (feet) ^{a,i}						
		MAXIMUM BEAM SPAN ^{a,b,f}						
		(feet-inches)						
		Deck Joist Span ^{a,i}						
		6	8	10	12	14	16	18
Southern Pine	1-2x6	3-8 3-11	3-2 3-4	2-10 3-0	2-1 2-9	1-10 2-6	1-4 2-4	1-7 2-3
	1-2x8	4-7 4-11	4-0 4-3	3-7 3-10	3-3 3-6	2-9 3-3	2-5 3-0	2-2 2-10
	1-2x10	5-6 5-10	4-9 5-1	4-3 4-6	3-10 4-2	3-7 3-10	3-1 3-7	2-9 3-4
	1-2x12	6-5 6-11	5-7 6-0	5-0 5-4	4-7 4-11	4-3 4-6	3-9 4-3	3-4 4-0
	2-2x6	5-5 5-9	4-8 5-0	4-2 4-6	3-10 4-1	3-6 3-9	3-3 3-6	3-1 3-4
	2-2x8	6-10 7-4	5-11 6-4	5-4 5-8	4-10 5-2	4-6 4-10	4-2 4-6	3-11 4-3
	2-2x10	8-2 8-9	7-1 7-7	6-4 6-9	5-9 6-2	5-4 5-8	5-0 5-4	4-8 5-0
	2-2x12	9-7 10-3	8-4 8-11	7-5 8-0	6-9 7-3	6-3 6-9	5-10 6-3	5-6 5-11
	3-2x6	6-9 7-0	5-10 6-3	5-3 5-7	4-9 5-1	4-5 4-9	4-2 4-5	3-11 4-2
	3-2x8	8-7 9-3	7-5 8-0	6-8 7-2	6-1 6-6	5-7 6-0	5-3 5-8	4-11 5-4
	3-2x10	10-2 10-11	8-10 9-6	7-11 8-6	7-2 7-9	6-8 7-2	6-3 6-8	5-10 6-4
	3-2x12	12-0 12-11	10-5 11-2	9-4 10-0	8-6 9-1	7-10 8-5	7-4 7-11	6-11 7-5
Douglas fir-larch ^g , Hem-fir ^g , Spruce-pine-fir ^g	1-2x6	3-3 3-5	2-5 2-10	1-10 2-5	1-6 2-2	1-3 2-0	1-1 1-10	1-0 1-9
	1-2x8	4-4 4-7	3-2 3-8	2-6 3-2	2-0 2-10	1-8 2-7	1-6 2-5	1-4 2-4
	1-2x10	5-4 5-8	4-1 4-9	3-2 4-1	2-7 3-8	2-2 3-4	1-11 3-1	1-8 2-11
	1-2x12	6-2 6-7	5-0 5-8	3-10 5-0	3-2 4-6	2-8 4-1	2-4 3-10	2-0 3-7
	2-2x6	4-10 5-2	4-2 4-6	3-9 4-0	3-1 3-5	2-7 3-1	2-3 2-10	2-0 2-7
	2-2x8	6-5 6-11	5-7 6-0	5-0 5-3	4-1 4-7	3-5 4-1	3-0 3-8	2-8 3-5
	2-2x10	7-10 8-5	6-10 7-4	6-1 6-6	5-3 5-10	4-5 5-2	3-10 4-9	3-5 4-5
	2-2x12	9-2 9-10	7-11 8-6	7-1 7-7	6-4 6-11	5-5 6-4	4-8 5-9	4-1 5-4
	3-2x6	6-0 6-6	5-3 5-7	4-8 5-0	4-3 4-7	3-11 4-2	3-5 3-9	3-0 3-5
	3-2x8	8-1 8-8	7-0 7-6	6-3 6-8	5-8 6-1	5-2 5-6	4-6 5-0	4-0 4-7
3-2x10	9-10 10-7	8-6 9-2	7-8 8-2	7-0 7-6	6-5 6-11	5-9 6-4	5-1 5-10	
3-2x12	11-6 12-4	9-11 10-8	8-11 9-7	8-1 8-9	7-6 8-1	7-0 7-7	6-3 7-1	
Redwood ^h , Western Cedars ^h , Ponderosa Pine ^h , Red Pine ^h	1-2x6	3-4 3-6	2-6 2-11	1-11 2-6	1-7 2-3	1-4 2-0	1-2 1-11	1-0 1-9
	1-2x8	4-2 4-6	3-3 3-10	2-7 3-3	2-1 2-11	1-9 2-8	1-7 2-6	1-4 2-4
	1-2x10	5-1 5-6	4-2 4-9	3-3 4-2	2-8 3-9	2-3 3-5	2-0 3-2	1-9 3-0
	1-2x12	5-11 6-4	5-1 5-6	4-0 4-11	3-3 4-6	2-9 4-2	2-5 3-11	2-1 3-8
	2-2x6	4-11 5-3	4-3 4-7	3-10 4-1	3-2 3-6	2-8 3-2	2-4 2-11	2-1 2-8
	2-2x8	6-3 6-8	5-5 5-9	4-10 5-2	4-2 4-8	3-7 4-2	3-1 3-10	2-9 3-6
	2-2x10	7-7 8-2	6-7 7-1	5-10 6-4	5-4 5-9	4-7 5-4	3-11 4-10	3-6 4-6
	2-2x12	8-10 9-5	7-7 8-2	6-10 7-4	6-3 6-8	5-6 6-2	4-10 5-9	4-3 5-5
	3-2x6	6-2 6-4	5-4 5-8	4-9 5-1	4-4 4-8	4-0 4-3	3-6 3-10	3-1 3-6
	3-2x8	7-9 8-4	6-9 7-3	6-0 6-5	5-6 5-11	5-1 5-5	4-8 5-1	4-1 4-8
	3-2x10	9-6 10-2	8-3 8-10	7-4 7-11	6-9 7-2	6-3 6-8	5-10 6-3	5-3 5-11
	3-2x12	11-0 11-10	9-6 10-3	8-6 9-2	7-9 8-4	7-3 7-9	6-9 7-3	6-4 6-10

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. Interpolation allowed. Extrapolation is not allowed.

b. Beams supporting a single span of joists with or without cantilever.

c. Dead load = 10 psf, $L/\Delta = 360$ at main span, $L/\Delta = 180$ at cantilever. Snow load not assumed to be concurrent with live load.

d. No. 2 grade, wet service factor included.

e. Beam depth shall be equal to or greater than the depth of intersecting joist for a flush beam connection.

f. Beam cantilevers are limited to the adjacent beam's span divided by 4.

g. Includes incising factor

h. Incising factor not included.

i. Deck joist span as shown in Figure R507.5

	Red Pine ^f	2x12	15-10 15-9	14-4 13-8	12-7 11-2	1-0	1-6	2-0	2-6	3-0	3-2	NP	NP	
60 live load or 70 ground snow load	Southern Pine	2x6	8-3	7-6	6-6 6-5	1-0	1-6	1-5	NP	NP	NP	NP	NP	
		2x8	10-10	9-10	8-7 8-2	1-0	1-6	2-0	2-2	NP	NP	NP	NP	
		2x10	13-10 13-9	12-7 11-11	11-0 9-9	1-0	1-6	2-0	2-6	2-9	NP	NP	NP	
		2x12	16-10 16-2	15-3 14-0	13-4 11-5	1-0	1-6	2-0	2-6	3-0	3-5	3-5	NP	
	Douglas fir-larch ^e ,	2x6	7-11	7-2 7-1	6-3 5-9	1-0	1-6	NP	NP	NP	NP	NP	NP	
	Hem-fir ^e ,	2x8	10-5	9-5	8-3 7-8	1-0	1-6	2-0	2-1	NP	NP	NP	NP	
		2x10	13-3	12-0 11-6	10-6 9-5	1-0	1-6	2-0	2-6	2-8	NP	NP	NP	
	Spruce-pine-fir ^e	2012	16-4 15-5	14-8 13-4	12-10 10-11	1-0	1-6	2-0	2-6	3-0	3-3	3-3	NP	NP
	Redwood ^f ,	2x6	7-4	6-8	5-10	1-0	1-4	NP	NP	NP	NP	NP	NP	
	Western Cedars ^f ,	2x8	9-8	8-10	7-8 7-4	1-0	1-6	1-11	NP	NP	NP	NP	NP	
		2x10	12-4	11-3 11-0	9-10 9-0	1-0	1-6	2-0	2-6	2-6	NP	NP	NP	
	Ponderosa Pine ^f ,	2x12	15-0 14-9	13-8 12-9	11-11 10-5	1-0	1-6	2-0	2-6	2-0 3-0	3-0	NP	NP	
Red Pine ^f														

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. NP = Not Permitted

a. Dead load = 10 psf. Snow load not assumed to be concurrent with live load.

b. No. 2 grade, wet service factor included.

c. $L/\Delta = 360$ at main span.

d. $L/\Delta = 180$ at cantilever with 220-pound point load applied to end.

e. Includes incising factor.

f. Incising factor not included.

g. Interpolation permitted. Extrapolation is not permitted.

TABLE R507.9.1.3(1)
DECK LEDGER CONNECTION TO BAND JOIST

LOAD ^c (psf)	JOIST SPAN ^a (feet)	On-CENTER SPACING OF FASTENERS ^b (inches)		
		1/2-inch diameter lag screw with 1/2-inch maximum sheathing ^{d, e}	1/2-inch diameter bolt with 1/2-inch maximum sheathing ^e	1/2-inch diameter bolt with 1-inch maximum sheathing ^f
40 Live Load	6	30	36	36
	8	23	36	36
	10	18	34	29
	12	15	29	24
	14	13	24	21
	16	11	21	18
	18	10	19	16
50 Ground Snow Load	6	29	36	36
	8	22	36	35
	10	17	33	28
	12	14	27	23
	14	12	23	20
	16	11	20	17
	18	9	18	15
60 Ground Snow Load	6	25	36	36
	8	18	35	30
	10	17-15	33-28	28-24
	12	14-12	27-23	23-20
	14	12-10	23-20	20-17
	16	11-9	20-17	17-15
	18	9-8	18-15	15-13
60 live load or 70 ground snow load	6	22	36	35
	8	16	31	26
	10	13	25	21
	12	11	20	17
	14	9	17	15
	16	8	15	13
	18	7	13	11

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

a. Interpolation permitted. Extrapolation is not permitted.

b. Ledgers shall be flashed in accordance with Section R703.4 to prevent water from contacting the house band joist.

c. Dead Load = 10 psf. Snow load shall not be assumed to act concurrently with live load.

d. The tip of the lag screw shall fully extend beyond the inside face of the band joist.

e. Sheathing shall be wood structural panel or solid sawn lumber.

f. Sheathing shall be permitted to be wood structural panel, gypsum board, fiberboard, lumber or foam sheathing. Up to $\frac{1}{2}$ -inch thickness of stacked washers shall be permitted to substitute for up to $\frac{1}{2}$ inch of allowable sheathing thickness where combined with wood structural panel or lumber sheathing.