



STATE OF WASHINGTON

**STATE BUILDING CODE COUNCIL**

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Date: September 16, 2019 September 17, 2019 September 20, 2019

RE: Errors in the 2018 IRC CR-102

SBCC staff has found or made aware of the following errors in the CR-102 (WSR 19-16-156 Dated August 7, 2019) that will be corrected in the CR-103

**WAC 51-51-0325 Section R325.6—Habitable attics.**

**R325.6 Habitable attic.** *A habitable attic shall be considered to be a story above grade plane.*

EXCEPTION: ~~Where located above the third story, an automatic sprinkler system complying with P2904 or NFPA 13D shall be installed throughout the dwelling or townhouse that includes the habitable attic.~~

**Commented [BR(1):** This text should have been struck in the CR-102.

Or

**R325.6 Habitable attic.** A habitable attic shall not be considered a story where complying with all of the following requirements:

1. The occupiable floor area is not less than 70 square feet (17 m2), in accordance with Section R304.
2. The occupiable floor area has a ceiling height in accordance with Section R305.
3. The occupiable space is enclosed by the roof assembly above, knee walls (if applicable) on the sides and the floor-ceiling assembly below.
4. The floor of the occupiable space shall not extend beyond the exterior walls of the floor below.
5. Where located above the third story, an automatic sprinkler system complying with P2904 or NFPA 13D shall be installed throughout the dwelling or townhouse that includes the habitable attic.

**Commented [BR(2):** The Council's intent was to present two options for public comment with only one being selected to move forward as a code change.

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

LIVE OR GROUND SNOW LOAD <sup>b</sup> (psf)	TRIBUTARY AREA <sup>c</sup> (sq.ft.)	SOIL BEARING CAPACITY <sup>acd</sup>								
		1500 psf			2000 psf			≥ 3000 psf		
		Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness <sup>f</sup> (inches)	Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness <sup>f</sup> (inches)	Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness <sup>f</sup> (inches)
40	5	7	8	6	7	8	6	7	8	6
	20	10	10-12	6	9	9	6	7	8	6

LIVE OR GROUND SNOW LOAD <sup>b</sup> (psf)	TRIBUTARY AREA <sup>c</sup> (sq.ft.)	SOIL BEARING CAPACITY <sup>a,c,d</sup>								
		1500 psf			2000 psf			≥ 3000 psf		
		Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness <sup>f</sup> (inches)	Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness <sup>f</sup> (inches)	Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness <sup>f</sup> (inches)
40	40	14	<del>14</del> 16	7.6	12	<del>13</del> 14	6	10	<del>10</del> 12	6
	60	17	<del>18</del> 19	9.6	15	<del>15</del> 17	8.6	12	<del>13</del> 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
20		11	<del>12</del> 13	6	10	<del>10</del> 11	6	8	<del>8</del> 9	6
40		<del>16</del> 15	<del>16</del> 17	6	8.13	<del>14</del> 15	6	11	<del>12</del> 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	<del>13</del> 14	6	11	<del>11</del> 12	6	9	<del>9</del> 10	6
	40	<del>17</del> 16	<del>18</del> 19	6	<del>15</del> 14	<del>15</del> 16	8	12	<del>13</del> 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
70	6	7	8	6	7	8	6	7	8	6
	20	<del>13</del> 12	14	7.6	11	<del>12</del> 13	6	9	10	6
	40	18	<del>19</del> 20	9.6	<del>16</del> 15	17	8.6	<del>13</del> 12	14	<del>7</del> 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 m<sup>2</sup>, 1 pound per square foot = 0.0479 kPa.

a. Interpolation permitted, extrapolation not permitted.

LIVE OR GROUND SNOW LOAD <sup>b</sup> (psf)	TRIBUTARY AREA <sup>c</sup> (sq.ft.)	SOIL BEARING CAPACITY <sup>acd</sup>								
		1500 psf			2000 psf			≥ 3000 psf		
		Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness <sup>f</sup> (inches)	Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness <sup>f</sup> (inches)	Side of a square footing (inches)	Diameter of a round footing (inches)	Thickness <sup>f</sup> (inches)

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

**TABLE R507.4  
DECK POST HEIGHT**

LOADS <sup>b</sup> (psf)	POST SPECIES <sup>c</sup>	POST SIZE	TRIBUTARY AREA <sup>g,h</sup> MAXIMUM DECK POST HEIGHT <sup>a</sup> (square feet)							
			20	40	60	80	100	120	140	160
			MAXIMUM DECK POST HEIGHT <sup>a</sup> (feet-inches)							
40 Live Load	Southern Pine	4x4	14-0	13-8	11-0	9-5	8-4	7-5	6-9	6-2
		4x6	14-0	14-0	13-11	12-0	10-8	9-8	8-10	8-2
		6x6	14-0	14-0	<del>11-0</del> 14-0	14-0	14-0	14-0	14-0	14-0
		8x8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
	Douglas Fir <sup>e</sup> , Hem-fir <sup>e</sup> , SPF <sup>e</sup>	4x4	14-0	13-6	10-10	9-3	8-0	7-0	6-2	5-3
		4x6	14-0	14-0	13-10	11-10	10-6	9-5	8-7	7-10
		6x6	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
		8x8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
	Redwood <sup>f</sup> , Western Cedars <sup>f</sup> , Ponderosa Pine <sup>f</sup> , Red Pine <sup>f</sup>	4x4	14-0	<del>12-1</del> 13-2	9-8 10-3	8-22 8-1	7-1 5-8	6-2 NP	5-3 NP	4-2 NP
		4x6	14-0	14-0	12-4 13-6	10-7 11-4	9-4 9-9	8-4	7-7 6-9	6-11 4-7
		6x6	14-0	14-0	14-0	14-0	14-0	14-0	<del>14-0</del> 13-7	<del>12-10</del> 9-7
		8x8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
50 Ground Snow Load	Southern Pine	4x4	14-0	12-2	9-10	8-5	7-5	9-7 6-7	5-11	5-4
		4x6	14-0	14-0	12-6	10-9	9-6	8-7	7-10	7-3
		6x6	14-0	14-0	14-0	14-0	14-0	14-0	14-0	13-4
		8x8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0

LOADS <sup>b</sup> (psf)	POST SPECIES <sup>c</sup>	POST SIZE	TRIBUTARY AREA <sup>g,h</sup> MAXIMUM DECK POST HEIGHT <sup>a</sup> (square feet)								
			20	40	60	80	100	120	140	160	
			MAXIMUM DECK POST HEIGHT <sup>a</sup> (feet-inches)								
	Douglas Fir <sup>e</sup> , Hem-fir <sup>e</sup> , SPF <sup>e</sup>	4x4	14-0	12-1	9-8	8-2	7-1	6-2	5-3	4-2	
		4x6	14-0	14-0	12-4	10-7	9-4	8-4	7-7	6-11	
		6x6	14-0	14-0	14-0	14-0	14-0	14-0	14-0	12-10	
		8x8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0	
	Redwood <sup>f</sup> , Western Cedars <sup>f</sup> , Ponderosa Pine <sup>f</sup> , Red Pine <sup>f</sup>	4x4	14-0	11-8	9-0	6-10	3-7	NP	NP	NP	
		4x6	14-0	14-0	12-0	10-0	8-6	7-0	5-3	NP	
		6x6	14-0	14-0	14-0	14-0	14-0	14-0	10-8	2-4	
		8x8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0	
	60 Ground Snow Load	Southern Pine	4x4	14-0	11-1	8-11	7-7	6-7	5-10	5-2	4-6
			4x6	14-0	14-0	11-4	9-9	8-7	7-9	7-1	6-6
			6x6	14-0	14-0	14-0	14-0	14-0	14-0	12-9	11-2
			8x8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0
Douglas Fir <sup>e</sup> , Hem-fir <sup>e</sup> , SPF <sup>e</sup>		4x4	14-0	10-11	8-8	7-3	6-2	5-0	3-7	NP	
		4x6	14-0	13-11	<del>11-2</del> 11-2	9-7	8-4	7-5	6-8	5-11	
		6x6	14-0	14-0	14-0	14-0	14-0	14-0	12-2	10-2	
		8x8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0	
Redwood <sup>f</sup> , Western Cedars <sup>f</sup> , Ponderosa Pine <sup>f</sup> , Red Pine <sup>f</sup>		4x4	14-0	10-6	7-9	4-7	NP	NP	NP	NP	
		4x6	14-0	13-7	10-9	8-9	7-0	4-9	NP	NP	
		6x6	14-0	14-0	14-0	14-0	14-0	9-9	NP	NP	
		8x8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0	
70 Ground Snow Load	Southern Pine	4x4	14-0	10-2	8-2	6-11	5-11	5-2	4-4	3-4	
		4x6	14-0	12-11	10-5	8-11	7-10	7-1	6-5	5-10	
		6x6	14-0	14-0	14-0	14-0	14-0	12-9	10-11	8-7	
		8x8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0	
	Douglas Fir <sup>e</sup> , Hem-fir <sup>e</sup> , SPF <sup>e</sup>	4x4	14-0	10-1	7-11	6-6	5-3	3-7	NP	NP	
		4x6	14-0	12-10	10-3	8-9	7-7	6-8	5-10	4-11	
		6x6	14-0	14-0	14-0	14-0	14-0	12-2	9-9	5-9	
		8x8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0	
	Redwood <sup>f</sup>	4x4	14-0	9-5	6-5	NP	NP	NP	NP	NP	

LOADS <sup>b</sup> (psf)	POST SPECIES <sup>c</sup>	POST SIZE	TRIBUTARY AREA <sup>g,h</sup> MAXIMUM DECK POST HEIGHT <sup>a</sup> (square feet)							
			20	40	60	80	100	120	140	160
			MAXIMUM DECK POST HEIGHT <sup>a</sup> (feet-inches)							
Western Cedars <sup>f</sup> , Ponderosa Pine <sup>f</sup> , Red Pine <sup>f</sup>	4×6	14-0	12-6	9-8	7-7	5-3	NP	NP	NP	
	6×6	14-0	14-0	14-0	14-0	10-8	NP	NP	NP	
	8×8	14-0	14-0	14-0	14-0	14-0	14-0	14-0	14-0	

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m<sup>2</sup>, 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 footing.
- h. Interpolation permitted. Extrapolation not permitted.

**TABLE R507.5(1)**  
**MAXIMUM DECK BEAM SPAN – 40 PSF LIVE LOAD<sup>c</sup>**

BEAM SPECIES <sup>d</sup>	BEAM SIZE <sup>e</sup>	DECK JOIST SPAN <sup>g,h</sup> (feet) MAXIMUM BEAM SPAN <sup>a,b,f</sup> (feet-inches)							
		Deck Joist Span (Feet) <sup>a,i</sup>							
		6	8	10	12	14	16	18	
Southern Pine	1-2×6	4-7	4-0	3-7	3-3	3-0	2-10	<del>2-7</del> 2-8	
	1-2×8	<del>5-10</del> 5-11	5-1	<del>4-6</del> 4-7	<del>4-1</del> 4-2	3-10	3-7	<del>3-4</del> 3-5	
	1-2×10	<del>6-11</del> 7-0	6-0	<del>5-4</del> 5-5	4-11	<del>4-6</del> 4-7	4-3	4-0	
	1-2×12	<del>8-2</del> 8-3	7-1	6-4	<del>5-9</del> 5-10	<del>5-4</del> 5-5	5-0	<del>4-8</del> 4-9	
	2-2×6	<del>6-10</del> 6-11	5-11	<del>5-3</del> 5-4	4-10	4-6	<del>4-2</del> 4-3	<del>3-11</del> 4-0	
	2-2×8	<del>8-8</del> 8-9	<del>7-6</del> 7-7	6-9	6-2	<del>5-8</del> 5-9	5-4	5-0	

BEAM SPECIES <sup>d</sup>	BEAM SIZE <sup>e</sup>	DECK JOIST SPAN <sup>a,h</sup> (feet) MAXIMUM BEAM SPAN <sup>a,b,f</sup> (feet-inches)						
		Deck Joist Span (Feet) <sup>a,i</sup>						
		6	8	10	12	14	16	18
	<u>2-2x10</u>	<u>10-4</u>	<del>8-11</del> <u>9-0</u>	<u>8-0</u>	<del>7-3</del> <u>7-4</u>	<u>6-9</u>	<u>6-4</u>	<del>5-11</del> <u>6-0</u>
	<u>2-2x12</u>	<u>12-2</u>	<del>10-6</del> <u>10-7</u>	<u>9-5</u>	<u>8-7</u>	<del>7-11</del> <u>8-0</u>	<u>7-5</u>	<u>7-0</u>
	<u>3-2x6</u>	<u>8-6</u>	<u>7-5</u>	<u>6-8</u>	<u>6-1</u>	<del>5-7</del> <u>5-8</u>	<u>5-3</u>	<u>4-11</u>
	<u>3-2x8</u>	<u>10-11</u>	<del>9-5</del> <u>9-6</u>	<del>8-5</del> <u>8-6</u>	<del>7-8</del> <u>7-9</u>	<del>7-1</del> <u>7-2</u>	<u>6-8</u>	<del>6-3</del> <u>6-4</u>
	<u>3-2x10</u>	<del>12-11</del> <u>13-0</u>	<u>11-2</u>	<u>10-0</u>	<del>9-1</del> <u>9-2</u>	<del>8-5</del> <u>8-6</u>	<u>7-11</u>	<del>7-5</del> <u>7-6</u>
	<u>3-2x12</u>	<u>15-3</u>	<del>13-2</del> <u>13-3</u>	<del>11-9</del> <u>11-10</u>	<u>10-9</u>	<del>9-11</del> <u>10-0</u>	<u>9-4</u>	<del>8-9</del> <u>8-10</u>
<u>Douglas fir-larch<sup>g</sup>, Spruce-pine-fir<sup>g</sup></u>	<u>1-2x6</u>	<u>4-1</u>	<u>3-6</u>	<u>3-0</u>	<del>2-6</del> <u>2-8</u>	<del>2-1</del> <u>2-5</u>	<del>1-10</del> <u>2-3</u>	<u>1-7</u>
	<u>1-2x8</u>	<u>5-6</u>	<del>4-9</del> <u>4-8</u>	<u>4-0</u>	<del>3-3</del> <u>3-6</u>	<del>2-9</del> <u>3-2</u>	<del>2-5</del> <u>2-11</u>	<del>2-1</del> <u>2-9</u>
	<u>1-2x10</u>	<u>6-8</u>	<u>5-10</u>	<u>5-1</u>	<del>4-2</del> <u>4-6</u>	<del>3-6</del> <u>4-1</u>	<del>3-1</del> <u>3-9</u>	<del>2-8</del> <u>3-6</u>
	<u>1-2x12</u>	<u>7-9</u>	<u>6-9</u>	<u>6-0</u>	<del>5-1</del> <u>5-6</u>	<del>4-4</del> <u>5-0</u>	<u>3-9</u>	<del>3-3</del> <u>3-6</u>
	<u>2-2x6</u>	<u>6-1</u>	<u>5-3</u>	<u>4-9</u>	<u>4-4</u>	<del>4-0</del> <u>3-11</u>	<del>3-8</del> <u>3-7</u>	<u>3-3</u>
	<u>2-2x8</u>	<u>8-2</u>	<u>7-1</u>	<u>6-4</u>	<u>5-9</u>	<del>5-4</del> <u>5-2</u>	<del>4-10</del> <u>4-8</u>	<del>4-3</del> <u>4-4</u>
	<u>2-2x10</u>	<u>10-0</u>	<u>8-7</u>	<u>7-9</u>	<u>7-0</u>	<u>6-6</u>	<del>6-1</del> <u>6-0</u>	<del>5-5</del> <u>5-6</u>
	<u>2-2x12</u>	<u>11-7</u>	<u>10-0</u>	<u>8-11</u>	<u>8-2</u>	<u>7-7</u>	<u>7-1</u>	<del>6-7</del> <u>6-8</u>
	<u>3-2x6</u>	<u>7-8</u>	<del>6-7</del> <u>6-8</u>	<del>5-11</del> <u>6-0</u>	<del>5-5</del> <u>5-6</u>	<del>5-0</del> <u>5-1</u>	<del>4-8</del> <u>4-9</u>	<del>4-5</del> <u>4-6</u>
	<u>3-2x8</u>	<u>10-3</u>	<u>8-3</u>	<u>7-11</u>	<u>7-3</u>	<u>6-8</u>	<u>6-3</u>	<u>5-11</u>
	<u>3-2x10</u>	<u>12-6</u>	<u>10-10</u>	<u>9-8</u>	<u>8-10</u>	<u>8-2</u>	<u>7-8</u>	<u>7-2</u>
	<u>3-2x12</u>	<u>14-6</u>	<u>12-7</u>	<u>11-3</u>	<u>10-3</u>	<u>9-6</u>	<u>8-11</u>	<u>8-5</u>
<u>Redwood<sup>h</sup>, Western Cedars<sup>h</sup>, Ponderosa Pine<sup>h</sup>, Red Pine<sup>h</sup></u>	<u>1-2x6</u>	<u>4-2</u>	<u>3-7</u>	<u>3-1</u>	<del>2-7</del> <u>2-9</u>	<del>2-2</del> <u>2-6</u>	<del>1-10</del> <u>2-3</u>	<del>1-8</del> <u>2-2</u>
	<u>1-2x8</u>	<u>5-4</u>	<u>4-7</u>	<u>4-1</u>	<del>3-4</del> <u>3-7</u>	<del>2-10</del> <u>3-3</u>	<del>2-6</del> <u>3-0</u>	<del>2-2</del> <u>2-10</u>

BEAM SPECIES <sup>d</sup>	BEAM SIZE <sup>e</sup>	<u>DECK JOIST SPAN<sup>a,f</sup> (feet)</u> <u>MAXIMUM BEAM SPAN<sup>a,b,f</sup></u> <u>(feet-inches)</u>						
		<u>Deck Joist Span (Feet) <sup>a,i</sup></u>						
		<u>6</u>	<u>8</u>	<u>10</u>	<u>12</u>	<u>14</u>	<u>16</u>	<u>18</u>
	<u>1-2×10</u>	<u>6-6</u>	<u>5-7</u>	<u>5-0</u>	<u>4-3</u> <u>4-7</u>	<u>3-8</u> <u>4-2</u>	<u>3-2</u> <u>3-10</u>	<u>2-9</u> <u>3-7</u>
	<u>1-2×12</u>	<u>7-6</u>	<u>6-6</u>	<u>5-10</u>	<u>5-3</u> <u>5-4</u>	<u>4-5</u> <u>4-11</u>	<u>3-10</u> <u>4-7</u>	<u>3-5</u> <u>4-4</u>
	<u>2-2×6</u>	<u>6-2</u>	<u>5-4</u>	<u>4-10</u>	<u>4-5</u>	<u>4-1</u> <u>4-0</u>	<u>3-9</u> <u>3-8</u>	<u>3-4</u>
	<u>2-2×8</u>	<u>7-10</u>	<u>6-10</u>	<u>6-1</u>	<u>5-7</u>	<u>5-2</u>	<u>4-10</u>	<u>4-4</u> <u>4-5</u>
	<u>2-2×10</u>	<u>9-7</u>	<u>8-4</u>	<u>7-5</u>	<u>6-9</u>	<u>6-3</u>	<u>5-10</u>	<u>5-6</u>
	<u>2-2×12</u>	<u>11-1</u>	<u>9-8</u>	<u>8-7</u>	<u>7-10</u>	<u>7-3</u>	<u>6-10</u>	<u>6-5</u>
	<u>3-2×6</u>	<u>7-8</u>	<u>6-9</u>	<u>6-0</u>	<u>5-6</u>	<u>5-1</u>	<u>4-9</u>	<u>4-6</u>
	<u>3-2×8</u>	<u>9-10</u>	<u>8-6</u>	<u>7-7</u>	<u>6-11</u>	<u>6-5</u>	<u>6-0</u>	<u>5-8</u>
	<u>3-2×10</u>	<u>12-0</u>	<u>10-5</u>	<u>9-4</u>	<u>8-6</u>	<u>7-10</u>	<u>7-4</u>	<u>6-11</u>
	<u>3-2×12</u>	<u>13-11</u>	<u>12-1</u>	<u>10-9</u>	<u>9-10</u>	<u>9-1</u>	<u>8-6</u>	<u>8-1</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.

- a. Interpolation permitted. Extrapolation not permitted.
- b. Beams supporting a single span of joists with or without cantilever.
- c. Dead load = 10 psf, L/Δ = 360 at main span, L/Δ = 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)**  
**MAXIMUM DECK BEAM SPAN – 50 PSF LIVE LOAD<sup>e</sup>**

BEAM SPECIES <sup>d</sup>	BEAM SIZE <sup>e</sup>	<u>DECK JOIST SPAN<sup>a,f</sup> MAXIMUM BEAM SPAN<sup>a,b,f</sup></u> <u>(feet-inches)</u>						
		<u>Deck Joist Span <sup>a,i</sup></u> <u>(feet)</u>						
		<u>6</u>	<u>8</u>	<u>10</u>	<u>12</u>	<u>14</u>	<u>16</u>	<u>18</u>
<u>Southern Pine</u>	<u>1-2×6</u>	<u>4-2</u> <u>4-6</u>	<u>3-8</u> <u>3-11</u>	<u>3-3</u> <u>3-6</u>	<u>2-11</u> <u>3-2</u>	<u>2-9</u> <u>2-11</u>	<u>2-5</u> <u>2-9</u>	<u>2-2</u> <u>2-7</u>
	<u>1-2×8</u>	<u>5-4</u> <u>5-9</u>	<u>4-7</u> <u>4-11</u>	<u>4-1</u> <u>4-5</u>	<u>3-9</u> <u>4-0</u>	<u>3-6</u> <u>3-9</u>	<u>3-3</u> <u>3-6</u>	<u>2-10</u> <u>3-3</u>

BEAM SPECIES <sup>d</sup>	BEAM SIZE <sup>e</sup>	DECK JOIST SPAN <sup>a,f</sup> MAXIMUM BEAM SPAN <sup>a,b,f</sup> (feet-inches)						
		Deck Joist Span <sup>a,i</sup> (feet)						
		<u>6</u>	<u>8</u>	<u>10</u>	<u>12</u>	<u>14</u>	<u>16</u>	<u>18</u>
	<u>1-2×10</u>	<del>6-4</del> 6-9	<del>5-6</del> 5-10	<del>4-11</del> 5-3	<del>4-6</del> 4-9	<del>4-2</del> 4-5	<del>3-10</del> 4-2	<del>3-8</del> 3-11
	<u>1-2×12</u>	<del>7-6</del> 8-0	<del>6-5</del> 6-11	<del>5-9</del> 6-2	<del>5-3</del> 5-8	<del>4-10</del> 5-3	<del>4-7</del> 4-11	<del>4-3</del> 4-7
	<u>2-2×6</u>	<del>6-3</del> 6-8	<del>5-5</del> 5-9	<del>4-10</del> 5-2	<del>4-5</del> 4-9	<del>4-1</del> 4-4	<del>3-10</del> 4-1	<del>3-7</del> 3-10
	<u>2-2×8</u>	<del>7-11</del> 8-6	<del>6-10</del> 7-4	<del>6-2</del> 6-7	<del>5-7</del> 6-0	<del>5-2</del> 5-7	<del>4-10</del> 5-2	<del>4-7</del> 4-11
	<u>2-2×10</u>	<del>9-5</del> 10-1	<del>8-2</del> 8-9	<del>7-3</del> 7-10	<del>6-8</del> 7-1	<del>6-2</del> 6-7	<del>5-9</del> 6-2	<del>5-5</del> 5-10
	<u>2-2×12</u>	<del>11-1</del> 11-11	<del>9-7</del> 10-3	<del>8-7</del> 9-2	<del>7-10</del> 8-5	<del>7-3</del> 7-9	<del>6-9</del> 7-3	<del>6-5</del> 6-10
	<u>3-2×6</u>	<del>7-10</del> 7-11	<del>6-9</del> 7-2	<del>6-1</del> 6-6	<del>5-6</del> 5-11	<del>5-1</del> 5-6	<del>4-9</del> 5-1	<del>4-6</del> 4-10
	<u>3-2×8</u>	<del>9-11</del> 10-5	<del>8-7</del> 9-3	<del>7-8</del> 8-3	<del>7-0</del> 7-6	<del>6-6</del> 6-11	<del>6-16</del> 6-6	<del>5-9</del> 6-2
	<u>3-2×10</u>	<del>11-9</del> 12-8	<del>10-2</del> 10-11	<del>9-1</del> 9-9	<del>8-4</del> 8-11	<del>7-8</del> 8-3	<del>7-2</del> 7-9	<del>6-9</del>
	<u>3-2×12</u>	<del>13-11</del> 14-11	<del>12-0</del> 12-11	<del>10-9</del> 11-6	<del>9-10</del> 10-6	<del>9-1</del> 9-9	<del>8-6</del> 9-1	<del>8-0</del> 8-7
Douglas fir- larch <sup>g</sup> , Spruce- pine-fir <sup>g</sup>	<u>1-2×6</u>	<del>3-9</del> 4-0	<del>3-3</del> 3-5	<del>2-6</del> 2-11	<del>2-1</del> 2-7	<del>1-9</del> 2-4	<del>1-6</del> 2-2	<del>1-4</del> 2-0
	<u>1-2×8</u>	<del>5-0</del> 5-4	<del>4-3</del> 4-7	<del>3-4</del> 3-11	<del>2-9</del> 3-5	<del>2-3</del> 3-1	<del>2-0</del> 2-10	<del>1-9</del> 2-8
	<u>1-2×10</u>	<del>6-1</del> 6-7	<del>5-4</del> 5-8	<del>4-3</del> 4-11	<del>3-6</del> 4-5	<del>2-11</del> 4-0	<del>2-6</del> 3-8	<del>2-3</del> 3-5
	<u>1-2×12</u>	<del>7-1</del> 7-7	<del>6-2</del> 6-7	<del>5-2</del> 5-11	<del>4-3</del> 5-4	<del>3-7</del> 4-10	<del>3-1</del> 4-6	<del>2-9</del> 4-2
	<u>2-2×6</u>	<del>5-7</del> 6-0	<del>4-10</del> 5-2	<del>4-4</del> 4-7	<del>3-11</del> 4-2	<del>3-6</del> 3-10	<del>3-0</del> 3-5	<del>2-8</del> 3-2
	<u>2-2×8</u>	<del>7-5</del> 8-0	<del>6-5</del> 6-11	<del>5-9</del> 6-2	<del>5-3</del> 5-8	<del>4-7</del> 5-0	<del>4-0</del> 4-7	<del>3-6</del> 4-2
	<u>2-2×10</u>	<del>9-1</del> 9-9	<del>7-10</del> 8-5	<del>7-0</del> 7-7	<del>6-5</del> 6-11	<del>5-11</del> 6-4	<del>5-1</del> 5-10	<del>4-6</del> 5-4
	<u>2-2×12</u>	<del>10-7</del> 11-4	<del>9-2</del> 9-10	<del>8-2</del> 8-9	<del>7-5</del> 8-0	<del>6-11</del> 7-5	<del>6-3</del> 6-11	<del>5-6</del> 6-6
<u>3-2×6</u>	<del>7-0</del> 7-6	<del>6-0</del> 6-6	<del>5-5</del> 5-9	<del>4-11</del> 5-3	<del>4-7</del> 4-11	<del>4-3</del> 4-7	<del>4-0</del> 4-4	



BEAM SPECIES <sup>d</sup>	BEAM SIZE <sup>e</sup>	<u>DECK JOIST SPAN<sup>a,f</sup> MAXIMUM BEAM SPAN<sup>a,b,f</sup></u> (feet-inches)						
		Deck Joist Span <sup>a,i</sup> (feet)						
		<u>6</u>	<u>8</u>	<u>10</u>	<u>12</u>	<u>14</u>	<u>16</u>	<u>18</u>
	<u>3-2×8</u>	<u>9-4 10-0</u>	<u>8-1</u> <u>8-8</u>	<u>7-3</u> <u>7-9</u>	<u>6-7</u> <u>7-1</u>	<u>6-1</u> <u>6-6</u>	<u>5-8</u> <u>6-1</u>	<u>5-4</u> <u>5-8</u>
	<u>3-2×10</u>	<u>11-5 12-3</u>	<u>9-10</u> <u>10-7</u>	<u>8-10</u> <u>9-6</u>	<u>8-1</u> <u>8-8</u>	<u>7-5</u> <u>8-0</u>	<u>7-0</u> <u>7-6</u>	<u>6-7</u> <u>7-0</u>
	<u>3-2×12</u>	<u>13-3 14-3</u>	<u>11-6</u> <u>12-4</u>	<u>10-3</u> <u>11-0</u>	<u>9-5</u> <u>10-1</u>	<u>8-8</u> <u>9-4</u>	<u>8-1</u> <u>8-9</u>	<u>7-8</u> <u>8-3</u>
<u>Redwood<sup>h</sup>, Western Cedars<sup>h</sup>, Ponderosa Pine<sup>h</sup>, Red Pine<sup>h</sup></u>	<u>1-2×6</u>	<u>3-10 4-1</u>	<u>3-4</u> <u>3-6</u>	<u>2-7</u> <u>3-0</u>	<u>2-2</u> <u>2-8</u>	<u>1-10</u> <u>2-5</u>	<u>1-7</u> <u>2-3</u>	<u>1-5</u> <u>2-1</u>
	<u>1-2×8</u>	<u>4-10 5-2</u>	<u>4-2</u> <u>4-6</u>	<u>3-5</u> <u>4-0</u>	<u>2-10</u> <u>3-6</u>	<u>2-4</u> <u>3-2</u>	<u>2-1</u> <u>2-11</u>	<u>1-10</u> <u>2-9</u>
	<u>1-2×10</u>	<u>5-11 6-4</u>	<u>5-1</u> <u>5-6</u>	<u>4-4</u> <u>4-11</u>	<u>3-7</u> <u>4-6</u>	<u>3-0</u> <u>4-1</u>	<u>2-8</u> <u>3-9</u>	<u>2-4</u> <u>3-6</u>
	<u>1-2×12</u>	<u>6-10 7-4</u>	<u>5-11</u> <u>6-4</u>	<u>5-4</u> <u>5-8</u>	<u>4-4</u> <u>5-2</u>	<u>3-8</u> <u>4-10</u>	<u>3-2</u> <u>4-6</u>	<u>2-10</u> <u>4-3</u>
	<u>2-2×6</u>	<u>5-8 6-1</u>	<u>4-11</u> <u>5-3</u>	<u>4-5</u> <u>4-8</u>	<u>4-0</u> <u>4-4</u>	<u>3-7</u> <u>3-11</u>	<u>3-1</u> <u>3-6</u>	<u>2-9</u> <u>3-3</u>
	<u>2-2×8</u>	<u>7-2 7-8</u>	<u>6-3</u> <u>6-8</u>	<u>5-7</u> <u>5-11</u>	<u>5-1</u> <u>5-5</u>	<u>4-8</u> <u>5-0</u>	<u>4-1</u> <u>4-8</u>	<u>3-8</u> <u>4-3</u>
	<u>2-2×10</u>	<u>8-9 9-5</u>	<u>7-7</u> <u>8-2</u>	<u>6-9</u> <u>7-3</u>	<u>6-2</u> <u>6-8</u>	<u>5-9</u> <u>6-2</u>	<u>5-3</u> <u>5-9</u>	<u>4-8</u> <u>5-5</u>
	<u>2-2×12</u>	<u>10-2 10-11</u>	<u>8-10</u> <u>9-5</u>	<u>7-10</u> <u>8-5</u>	<u>7-2</u> <u>7-8</u>	<u>6-8</u> <u>7-2</u>	<u>6-3</u> <u>6-8</u>	<u>5-8</u> <u>6-3</u>
	<u>3-2×6</u>	<u>7-1</u>	<u>6-2</u> <u>6-5</u>	<u>5-6</u> <u>5-11</u>	<u>5-0</u> <u>5-5</u>	<u>4-8</u> <u>5-0</u>	<u>4-4</u> <u>4-8</u>	<u>4-1</u> <u>4-5</u>
	<u>3-2×8</u>	<u>9-0 9-4</u>	<u>7-9</u> <u>8-4</u>	<u>6-11</u> <u>7-5</u>	<u>6-4</u> <u>6-10</u>	<u>5-11</u> <u>6-4</u>	<u>5-6</u> <u>5-11</u>	<u>5-2</u> <u>5-7</u>
	<u>3-2×10</u>	<u>11-0 11-9</u>	<u>9-6</u> <u>10-2</u>	<u>8-6</u> <u>9-1</u>	<u>7-9</u> <u>8-4</u>	<u>7-2</u> <u>7-8</u>	<u>6-9</u> <u>7-2</u>	<u>6-4</u> <u>6-9</u>
	<u>3-2×12</u>	<u>12-9 13-8</u>	<u>11-0</u> <u>11-10</u>	<u>9-10</u> <u>10-7</u>	<u>9-0</u> <u>9-8</u>	<u>8-4</u> <u>8-11</u>	<u>7-9</u> <u>8-4</u>	<u>7-4</u> <u>7-10</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.

- a. Interpolation permitted. Extrapolation not permitted.
- b. Beams supporting a single span of joists with or without cantilever.
- c. Dead load = 10 psf, L/Δ = 360 at main span, L/Δ = 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(3)**  
**MAXIMUM DECK BEAM SPAN – 60 PSF LIVE LOAD<sup>c</sup>**

BEAM SPECIES <sup>d</sup>	BEAM SIZE <sup>e</sup>	MAXIMUM BEAM SPAN <sup>a,b,f</sup> (feet-inches)						
		Deck Joist Span <sup>a,i</sup> (feet)						
		6	8	10	12	14	16	18
Southern Pine	1-2×6	<del>3-11</del> 4-2	<del>3-4</del> 3-7	<del>3-0</del> 3-3	<del>2-9</del> 2-11	<del>2-5</del> 2-9	<del>2-1</del> 2-6	<del>1-10</del> 2-5
	1-2×8	<del>4-11</del> 5-3	<del>4-3</del> 4-7	<del>3-10</del> 4-1	<del>3-6</del> 3-9	<del>3-2</del> 3-5	<del>2-9</del> 3-3	<del>2-5</del> 3-0
	1-2×10	<del>5-10</del> 6-3	<del>5-1</del> 5-5	<del>4-6</del> 4-10	<del>4-2</del> 4-5	<del>3-10</del> 4-1	<del>3-6</del> 3-10	<del>3-1</del> 3-7
	1-2×12	<del>6-11</del> 7-5	<del>6-0</del> 6-5	<del>5-4</del> 5-9	<del>4-10</del> 5-3	<del>4-6</del> 4-10	<del>4-3</del> 4-6	<del>3-10</del> 4-3
	2-2×6	<del>5-9</del> 6-2	<del>5-0</del> 5-4	<del>4-6</del> 4-9	<del>4-1</del> 4-4	<del>3-9</del> 4-0	<del>3-6</del> 3-9	<del>3-4</del> 3-7
	2-2×8	<del>7-4</del> 7-10	<del>6-4</del> 6-10	<del>5-8</del> 6-1	<del>5-2</del> 5-7	<del>4-9</del> 5-2	<del>4-6</del> 4-10	<del>4-3</del> 4-6
	2-2×10	<del>8-8</del> 9-4	<del>7-6</del> 8-1	<del>6-9</del> 7-3	<del>6-2</del> 6-7	<del>5-8</del> 6-1	<del>5-4</del> 5-8	<del>5-0</del> 5-4
	2-2×12	<del>10-3</del> 11-0	<del>8-11</del> 9-6	<del>7-11</del> 8-6	<del>7-3</del> 7-9	<del>6-8</del> 7-2	<del>6-3</del> 6-9	<del>5-11</del> 6-4
	3-2×6	<del>7-3</del> 7-5	<del>6-3</del> 6-9	<del>5-7</del> 6-0	<del>5-1</del> 5-6	<del>4-9</del> 5-1	<del>4-5</del> 4-9	<del>4-2</del> 4-6
	3-2×8	<del>9-2</del> 9-9	<del>7-11</del> 8-6	<del>7-1</del> 7-8	<del>6-6</del> 6-11	<del>6-0</del> 6-5	<del>5-7</del> 6-0	<del>5-3</del> 5-8
	3-2×10	<del>10-11</del> 11-8	<del>9-5</del> 10-2	<del>8-5</del> 9-1	<del>7-8</del> 8-3	<del>7-2</del> 7-8	<del>6-8</del> 7-2	<del>6-3</del> 6-9
	3-2×12	<del>12-10</del> 13-9	<del>11-2</del> 11-11	<del>9-11</del> 10-8	<del>9-1</del> 9-9	<del>8-5</del> 9-0	<del>7-10</del> 8-5	<del>7-5</del> 7-11
Douglas fir- larch <sup>g</sup> , Spruce- pine-fir <sup>g</sup>	1-2×6	<del>3-5</del> 3-8	<del>2-9</del> 3-1	<del>2-2</del> 2-8	<del>1-9</del> 2-4	<del>1-6</del> 2-2	<del>1-3</del> 2-0	<del>1-1</del> 1-10
	1-2×8	<del>4-8</del> 5-0	<del>3-8</del> 4-1	<del>2-10</del> 3-6	<del>2-4</del> 3-1	<del>1-11</del> 2-10	<del>1-8</del> 2-7	<del>1-6</del> 2-5
	1-2×10	<del>5-8</del> 6-1	<del>4-8</del> 5-2	<del>3-8</del> 4-6	<del>3-0</del> 4-0	<del>2-6</del> 3-7	<del>2-2</del> 3-4	<del>1-11</del> 3-2
	1-2×12	<del>6-7</del> 7-1	<del>5-8</del> 6-1	<del>4-5</del> 5-5	<del>3-7</del> 4-10	<del>3-1</del> 4-5	<del>2-7</del> 4-1	<del>2-3</del> 3-10

BEAM SPECIES <sup>d</sup>	BEAM SIZE <sup>e</sup>	MAXIMUM BEAM SPAN <sup>a,b,f</sup> (feet-inches)						
		Deck Joist Span <sup>a,i</sup> (feet)						
		<u>6</u>	<u>8</u>	<u>10</u>	<u>12</u>	<u>14</u>	<u>16</u>	<u>18</u>
	<u>2-2×6</u>	<del>5-2</del> 5-6	<del>4-5</del> 4-9	<del>4-0</del> 4-3	<del>3-6</del> 3-10	<del>3-0</del> 3-5	<del>1-11</del> 3-1	<del>1-8</del> 2-10
	<u>2-2×8</u>	<del>6-11</del> 7-5	<del>5-11</del> 6-5	<del>5-4</del> 5-9	<del>4-8</del> 5-0	<del>3-11</del> 4-6	<del>3-5</del> 4-1	<del>3-0</del> 3-9
	<u>2-2×10</u>	<del>8-5</del> 9-0	<del>7-3</del> 7-10	<del>6-6</del> 7-0	<del>5-11</del> 6-4	<del>5-1</del> 5-9	<del>4-5</del> 5-2	<del>3-10</del> 4-10
	<u>2-2×12</u>	<del>9-9</del> 10-6	<del>8-5</del> 9-1	<del>7-7</del> 8-1	<del>6-11</del> 7-5	<del>6-2</del> 6-10	<del>5-4</del> 6-4	<del>4-8</del> 5-10
	<u>3-2×6</u>	<del>6-5</del> 6-11	<del>5-7</del> 6-0	<del>5-0</del> 5-4	<del>4-7</del> 4-11	<del>4-3</del> 4-6	<del>3-11</del> 4-2	<del>3-5</del> 3-10
	<u>3-2×8</u>	<del>8-8</del> 9-3	<del>7-6</del> 8-0	<del>6-8</del> 7-2	<del>6-1</del> 6-6	<del>5-8</del> 6-1	<del>5-2</del> 5-6	<del>4-7</del> 5-0
	<u>3-2×10</u>	<del>10-7</del> 11-4	<del>9-2</del> 9-10	<del>8-2</del> 8-9	<del>7-5</del> 8-0	<del>6-11</del> 7-5	<del>6-5</del> 6-11	<del>5-10</del> 6-5
	<u>3-2×12</u>	<del>12-3</del> 13-2	<del>10-8</del> 11-5	<del>9-6</del> 10-2	<del>8-8</del> 9-4	<del>8-0</del> 8-7	<del>7-6</del> 8-1	<del>7-1</del> 7-7
Redwood <sup>h</sup> , Western Cedars <sup>h</sup> , Ponderosa Pine <sup>h</sup> , Red Pine <sup>h</sup>	<u>1-2×6</u>	<del>3-6</del> 3-9	<del>2-10</del> 3-2	<del>2-3</del> 2-9	<del>1-10</del> 2-5	<del>1-7</del> 2-2	<del>1-4</del> 2-0	<del>1-2</del> 1-11
	<u>1-2×8</u>	<del>4-6</del> 4-10	<del>3-9</del> 4-2	<del>2-11</del> 3-7	<del>2-5</del> 3-2	<del>2-0</del> 2-11	<del>1-9</del> 2-8	<del>1-7</del> 2-6
	<u>1-2×10</u>	<del>5-6</del> 5-10	<del>4-9</del> 5-1	<del>3-9</del> 4-6	<del>3-1</del> 4-1	<del>2-7</del> 3-8	<del>2-3</del> 3-5	<del>2-0</del> 3-3
	<u>1-2×12</u>	<del>6-4</del> 6-10	<del>5-6</del> 5-11	<del>4-7</del> 5-3	<del>3-9</del> 4-10	<del>3-2</del> 4-5	<del>2-9</del> 4-2	<del>2-5</del> 3-11
	<u>2-2×6</u>	<del>5-3</del> 5-7	<del>4-6</del> 4-10	<del>4-1</del> 4-4	<del>3-8</del> 3-11	<del>3-1</del> 3-6	<del>2-8</del> 3-2	<del>2-4</del> 2-11
	<u>2-2×8</u>	<del>6-8</del> 7-1	<del>5-9</del> 6-2	<del>5-2</del> 5-6	<del>4-8</del> 5-0	<del>4-1</del> 4-7	<del>3-6</del> 4-2	<del>3-1</del> 3-10
	<u>2-2×10</u>	<del>8-1</del> 8-8	<del>7-0</del> 7-6	<del>6-3</del> 6-9	<del>5-9</del> 6-2	<del>5-2</del> 5-8	<del>4-6</del> 5-4	<del>4-0</del> 4-11
	<u>2-2×12</u>	<del>9-5</del> 10-1	<del>8-2</del> 8-9	<del>7-3</del> 7-10	<del>6-8</del> 7-2	<del>6-2</del> 6-7	<del>5-6</del> 6-2	<del>4-10</del> 5-10
	<u>3-2×6</u>	<del>6-7</del> 6-8	<del>5-8</del> 6-1	<del>5-1</del> 5-5	<del>4-8</del> 5-0	<del>4-4</del> 4-7	<del>4-0</del> 4-3	<del>3-7</del> 3-11
	<u>3-2×8</u>	<del>8-4</del> 8-9	<del>7-2</del> 7-9	<del>6-5</del> 6-11	<del>5-11</del> 6-4	<del>5-5</del> 5-10	<del>5-1</del> 5-5	<del>4-8</del> 5-2
	<u>3-2×10</u>	<del>10-2</del> 10-11	<del>8-10</del> 9-5	<del>7-10</del> 8-5	<del>7-2</del> 7-8	<del>6-8</del> 7-2	<del>6-3</del> 6-8	<del>5-10</del> 6-3

BEAM SPECIES <sup>d</sup>	BEAM SIZE <sup>e</sup>	MAXIMUM BEAM SPAN <sup>a,b,f</sup> (feet-inches)						
		Deck Joist Span <sup>a,i</sup> (feet)						
		6	8	10	12	14	16	18
	<u>3-2×12</u>	<del>11-9</del> 12-8	<del>10-2</del> 10-11	<del>9-1</del> 9-9	<del>8-4</del> 8-11	<del>7-8</del> 8-3	<del>7-3</del> 7-9	<del>6-10</del> 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 permitted. Extrapolation not permitted.
- b. Beams supporting a single span of joists with or without cantilever.
- c. Dead load = 10 psf, L/Δ = 360 at main span, L/Δ = 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(4)**  
**MAXIMUM DECK BEAM SPAN – 70 PSF LIVE LOAD<sup>c</sup>**

BEAM SPECIES <sup>d</sup>	BEAM SIZE <sup>e</sup>	MAXIMUM BEAM SPAN <sup>a,b,f</sup> (feet-inches)						
		DECK JOIST SPAN <sup>a,i</sup> (feet)						
		6	8	10	12	14	16	18
<u>Southern Pine</u>	<u>1-2×6</u>	<del>3-8</del> 3-11	<del>3-2</del> 3-4	<del>2-10</del> 3-0	<del>2-1</del> 2-9	<del>1-10</del> 2-6	<del>1-4</del> 2-4	<del>1-7</del> 2-3
	<u>1-2×8</u>	<del>4-7</del> 4-11	<del>4-0</del> 4-3	<del>3-7</del> 3-10	<del>3-3</del> 3-6	<del>2-9</del> 3-3	<del>2-5</del> 3-0	<del>2-2</del> 2-10
	<u>1-2×10</u>	<del>5-6</del> 5-10	<del>4-9</del> 5-1	<del>4-3</del> 4-6	<del>3-10</del> 4-2	<del>3-7</del> 3-10	<del>3-1</del> 3-7	<del>2-9</del> 3-4
	<u>1-2×12</u>	<del>6-5</del> 6-11	<del>5-7</del> 6-0	<del>5-0</del> 5-4	<del>4-7</del> 4-11	<del>4-3</del> 4-6	<del>3-9</del> 4-3	<del>3-4</del> 4-0
	<u>2-2×6</u>	<del>5-5</del> 5-9	<del>4-8</del> 5-0	<del>4-2</del> 4-6	<del>3-10</del> 4-1	<del>3-6</del> 3-9	<del>3-3</del> 3-6	<del>3-1</del> 3-4
	<u>2-2×8</u>	<del>6-10</del> 7-4	<del>5-11</del> 6-4	<del>5-4</del> 5-8	<del>4-10</del> 5-2	<del>4-6</del> 4-10	<del>4-2</del> 4-6	<del>3-11</del> 4-3
	<u>2-2×10</u>	<del>8-2</del> 8-9	<del>7-1</del> 7-7	<del>6-4</del> 6-9	<del>5-9</del> 6-2	<del>5-4</del> 5-8	<del>5-0</del> 5-4	<del>4-8</del> 5-0
	<u>2-2×12</u>	<del>9-7</del> 10-3	<del>8-4</del> 8-11	<del>7-5</del> 8-0	<del>6-9</del> 7-3	<del>6-3</del> 6-9	<del>5-10</del> 6-3	<del>5-6</del> 5-11

BEAM SPECIES <sup>d</sup>	BEAM SIZE <sup>e</sup>	MAXIMUM BEAM SPAN <sup>a,b,f</sup> (feet-inches)						
		DECK JOIST SPAN <sup>a,i</sup> (feet)						
		6	8	10	12	14	16	18
	<u>3-2×6</u>	<del>6-9</del> 7-0	<del>5-10</del> 6-3	<del>5-3</del> 5-7	<del>4-9</del> 5-1	<del>4-5</del> 4-9	<del>4-2</del> 4-5	<del>3-11</del> 4-2
	<u>3-2×8</u>	<del>8-7</del> 9-3	<del>7-5</del> 8-0	<del>6-8</del> 7-2	<del>6-1</del> 6-6	<del>5-7</del> 6-0	<del>5-3</del> 5-8	<del>4-11</del> 5-4
	<u>3-2×10</u>	<del>10-2</del> 10-11	<del>8-10</del> 9-6	<del>7-11</del> 8-6	<del>7-2</del> 7-9	<del>6-8</del> 7-2	<del>6-3</del> 6-8	<del>5-10</del> 6-4
	<u>3-2×12</u>	<del>12-0</del> 12-11	<del>10-5</del> 11-2	<del>9-4</del> 10-0	<del>8-6</del> 9-1	<del>7-10</del> 8-5	<del>7-4</del> 7-11	<del>6-11</del> 7-5
	<u>Douglas fir-larch<sup>g</sup>, Spruce-pine-fir<sup>g</sup></u>	<u>1-2×6</u>	<del>3-3</del> 3-5	<del>2-5</del> 2-10	<del>1-10</del> 2-5	<del>1-6</del> 2-2	<del>1-3</del> 2-0	<del>1-1</del> 1-10
	<u>1-2×8</u>	<del>4-4</del> 4-7	<del>3-2</del> 3-8	<del>2-6</del> 3-2	<del>2-0</del> 2-10	<del>1-8</del> 2-7	<del>1-6</del> 2-5	<del>1-4</del> 2-4
	<u>1-2×10</u>	<del>5-4</del> 5-8	<del>4-1</del> 4-9	<del>3-2</del> 4-1	<del>2-7</del> 3-8	<del>2-2</del> 3-4	<del>1-11</del> 3-1	<del>1-8</del> 2-11
	<u>1-2×12</u>	<del>6-2</del> 6-7	<del>5-0</del> 5-8	<del>3-10</del> 5-0	<del>3-2</del> 1-6	<del>2-8</del> 4-1	<del>2-4</del> 3-10	<del>2-0</del> 3-7
	<u>2-2×6</u>	<del>4-10</del> 5-2	<del>4-2</del> 4-6	<del>3-9</del> 4-0	<del>3-1</del> 3-5	<del>2-7</del> 3-1	<del>2-3</del> 2-10	<del>2-0</del> 2-7
	<u>2-2×8</u>	<del>6-5</del> 6-11	<del>5-7</del> 6-0	<del>5-0</del> 5-3	<del>4-1</del> 4-7	<del>3-5</del> 4-1	<del>3-0</del> 3-8	<del>2-8</del> 3-5
	<u>2-2×10</u>	<del>7-10</del> 8-5	<del>6-10</del> 7-4	<del>6-1</del> 6-6	<del>5-3</del> 5-10	<del>4-5</del> 5-2	<del>3-10</del> 4-9	<del>3-5</del> 4-5
	<u>2-2×12</u>	<del>9-2</del> 9-10	<del>7-11</del> 8-6	<del>7-1</del> 7-7	<del>6-4</del> 6-11	<del>5-5</del> 6-4	<del>4-8</del> 5-9	<del>4-1</del> 5-4
	<u>3-2×6</u>	<del>6-0</del> 6-6	<del>5-3</del> 5-7	<del>4-8</del> 5-0	<del>4-3</del> 4-7	<del>3-11</del> 4-2	<del>3-5</del> 3-9	<del>3-0</del> 3-5
	<u>3-2×8</u>	<del>8-1</del> 8-8	<del>7-0</del> 7-6	<del>6-3</del> 6-8	<del>5-8</del> 6-1	<del>5-2</del> 5-6	<del>4-6</del> 5-0	<del>4-0</del> 4-7
	<u>3-2×10</u>	<del>9-10</del> 10-7	<del>8-6</del> 9-2	<del>7-8</del> 8-2	<del>7-0</del> 7-6	<del>6-5</del> 6-11	<del>5-9</del> 6-4	<del>5-1</del> 5-10
	<u>3-2×12</u>	<del>11-6</del> 12-4	<del>9-11</del> 10-8	<del>8-11</del> 9-7	<del>8-1</del> 8-9	<del>7-6</del> 8-1	<del>7-0</del> 7-7	<del>6-3</del> 7-1
<u>Redwood<sup>h</sup>, Western Cedars<sup>h</sup>, Ponderosa Pine<sup>h</sup>, Red Pine<sup>h</sup></u>	<u>1-2×6</u>	<del>3-4</del> 3-6	<del>2-6</del> 2-11	<del>1-11</del> 2-6	<del>1-7</del> 2-3	<del>1-4</del> 2-0	<del>1-2</del> 1-11	<del>1-0</del> 1-9
	<u>1-2×8</u>	<del>4-2</del> 4-6	<del>3-3</del> 3-10	<del>2-7</del> 3-3	<del>2-1</del> 2-11	<del>1-9</del> 2-8	<del>1-7</del> 2-6	<del>1-4</del> 2-4
	<u>1-2×10</u>	<del>5-1</del> 5-6	<del>4-2</del> 4-9	<del>3-3</del> 4-2	<del>2-8</del> 3-9	<del>2-3</del> 3-5	<del>2-0</del> 3-2	<del>1-9</del> 3-0

BEAM SPECIES <sup>d</sup>	BEAM SIZE <sup>e</sup>	MAXIMUM BEAM SPAN <sup>a,b,f</sup> (feet-inches)						
		DECK JOIST SPAN <sup>a,i</sup> (feet)						
		6	8	10	12	14	16	18
	<u>1-2×12</u>	<del>5-11</del> 6-4	<del>5-1</del> 5-6	<del>4-0</del> 4-11	<del>3-3</del> 4-6	<del>2-9</del> 4-2	<del>2-5</del> 3-11	<del>2-1</del> 3-8
	<u>2-2×6</u>	<del>4-11</del> 5-3	<del>4-3</del> 4-7	<del>3-10</del> 4-1	<del>3-2</del> 3-6	<del>2-8</del> 3-2	<del>2-4</del> 2-11	<del>2-1</del> 2-8
	<u>2-2×8</u>	<del>6-3</del> 6-8	<del>5-5</del> 5-9	<del>4-10</del> 5-2	<del>4-2</del> 4-8	<del>3-7</del> 4-2	<del>3-1</del> 3-10	<del>2-9</del> 3-6
	<u>2-2×10</u>	<del>7-7</del> 8-2	<del>6-7</del> 7-1	<del>5-10</del> 6-4	<del>5-4</del> 5-9	<del>4-7</del> 5-4	<del>3-11</del> 4-10	<del>3-6</del> 4-6
	<u>2-2×12</u>	<del>8-10</del> 9-5	<del>7-7</del> 8-2	<del>6-10</del> 7-4	<del>6-3</del> 6-8	<del>5-6</del> 6-2	<del>4-10</del> 5-9	<del>4-3</del> 5-5
	<u>3-2×6</u>	<del>6-2</del> 6-4	<del>5-4</del> 5-8	<del>4-9</del> 5-1	<del>4-4</del> 4-8	<del>4-0</del> 4-3	<del>3-6</del> 3-10	<del>3-1</del> 3-6
	<u>3-2×8</u>	<del>7-9</del> 8-4	<del>6-9</del> 7-3	<del>6-0</del> 6-5	<del>5-6</del> 5-11	<del>5-1</del> 5-5	<del>4-8</del> 5-1	<del>4-1</del> 4-8
	<u>3-2×10</u>	<del>9-6</del> 10-2	<del>8-3</del> 8-10	<del>7-4</del> 7-11	<del>6-9</del> 7-2	<del>6-3</del> 6-8	<del>5-10</del> 6-3	<del>5-3</del> 5-11
	<u>3-2×12</u>	<del>11-0</del> 11-10	<del>9-6</del> 10-3	<del>8-6</del> 9-2	<del>7-9</del> 8-4	<del>7-3</del> 7-9	<del>6-9</del> 7-3	<del>6-4</del> 7-10

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 permitted. Extrapolation not permitted.
- b. Beams supporting a single span of joists with or without cantilever.
- c. Dead load = 10 psf, L/Δ = 360 at main span, L/Δ = 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 R507.6  
MAXIMUM DECK JOIST SPANS**

LOAD <sup>a</sup> (psf)	JOIST SPECIES <sup>b</sup>	JOIST SIZE	MAXIMUM ALLOWABLE JOIST SPAN <sup>b,c</sup> (feet-inches)			MAXIMUM CANTILEVER <sup>d</sup> (feet-inches) ADJACENT JOIST SPAN <sup>e,g</sup> (feet-inches)								
			Joist Spacing (Inches)			Adjacent Joist Back Span <sup>g</sup> (feet)								
			12	16	24	4	6	8	10	12	14	16	18	
40 Live Load	Southern Pine	2×6	9-11	9-0	7-7	1-0	1-6	1-5	NP	NP	NP	NP	NP	
		2×8	13-1	11-10	9-8	1-0	1-6	2-0	2-6	2-3	NP	NP	NP	
		2×10	16-2	14-0	11-5	1-0	1-6	2-0	2-6	3-0	3-4	3-4	NP	
		2×12	18-0	16-6	13-6	1-0	1-6	2-0	-6	3-0	3-6	4-0	4-1	
	Douglas Fir <sup>e</sup> , Hem-fir <sup>e</sup> , SPF <sup>e</sup>	2×6	9-6	8-4	6-10	1-0	1-6	1-4	NP	NP	NP	NP	NP	
		2×8	12-6	11-1	9-1	1-0	1-6	2-0	2-3	2-0	NP	NP	NP	
		2×10	15-8	13-7	11-1	1-0	1-6	2-0	2-6	3-0	3-3	NP	NP	
		2×12	18-0	15-9	12-10	1-0	1-6	2-0	2-6	3-0	3-6	3-11	3-11	
	Redwood <sup>f</sup> , Western Cedars <sup>f</sup> , Ponderosa Pine <sup>f</sup> , Red Pine <sup>f</sup>	2×6	8-10	8-0	6-10	1-0	1-4	1-1	NP	NP	NP	NP	NP	
		2×8	11-8	10-7	8-8	1-0	1-6	2-0	1-11	NP	NP	NP	NP	
		2×10	14-11	13-0	10-7	1-0	1-6	2-0	2-6	3-0	2-9	NP	NP	
		2×12	17-5	15-1	12-4	1-0	1-6	2-0	2-6	3-0	3-6	3-8	NP	
50 Ground Snow Load	Southern Pine	2×6	9-2	8-4	7-4	1-0	1-6	1-5	NP	NP	NP	NP	NP	
		2×8	12-1	11-0	9-7 9-5	1-0	1-6	2-0	2-5	2-3	NP	NP	NP	
		2×10	15-5	14-1 13-9	12-3 11-3	1-0	1-6	2-0	2-6	3-0	3-1	NP	NP	
		2×12	18-0	17-1 16-2	14-6 13-2	1-0	1-6	2-0	2-6	3-0	3-6	3-10	3-10	
	Douglas Fir <sup>e</sup> , Hem-fir <sup>e</sup> , SPF <sup>e</sup>	2×6	8-10	8-0	7-0 6-8	1-0	1-6	1-4	NP	NP	NP	NP	NP	
		2×8	11-7	10-7	9-3 8-11	1-0	1-6	2-0	2-3	NP	NP	NP	NP	
		2×10	14-10	13-6 13-3	11-9 10-10	1-0	1-6	2-0	2-6	3-0	3-0	NP	NP	
		2×12	18-0 19-9	16-5 15-5	13-9 12-7	1-0	1-6	2-0	2-6	3-0	3-6	3-8	NP	
	Redwood <sup>f</sup> , Western Cedars <sup>f</sup>	2×6	8-3	7-6	6-8 6-6	1-0	1-4	1-1	NP	NP	NP	NP	NP	
		2×8	10-10	9-10	8-7 8-6	1-0	1-6	2-0	1-11	NP	NP	NP	NP	

LOAD <sup>a</sup> (psf)	JOIST SPECIES <sup>b</sup>	JOIST SIZE	MAXIMUM ALLOWABLE JOIST SPAN <sup>b,c</sup> (feet-inches)			MAXIMUM CANTILEVER <sup>d</sup> (feet-inches) ADJACENT JOIST SPAN <sup>g</sup> (feet-inches)							
			Joist Spacing (Inches)			Adjacent Joist Back Span <sup>g</sup> (feet)							
			12	16	24	4	6	8	10	12	14	16	18
60 Ground Snow Load	Southern Pine	2×10	13-10	12-7	<del>11-0</del> 10-5	1-0	1-6	2-0	2-6	2-9	NP	NP	NP
		2×12	16-10	<del>15-3</del> 14-9	<del>13-2</del> 12-1	1-0	1-6	2-0	2-6	3-0	3-5	3-5	NP
		2×6	8-8	7-10	6-10	1-0	1-6	1-5	NP	NP	NP	NP	NP
		2×8	11-5	10-4	<del>9-1</del> 8-9	1-0	1-6	2-0	2-4	NP	NP	NP	NP
	Douglas Fir <sup>e</sup> , Hem-fir <sup>e</sup> , SPF <sup>c</sup>	2×10	14-7	<del>13-3</del> 12-9	<del>11-7</del> 10-5	1-0	1-6	2-0	2-6	<del>2-</del> 11	<del>2-</del> 11	NP	NP
		2×12	<del>17-8</del> 17-3	<del>16-1</del> 15-0	<del>14-0</del> 12-3	1-0	1-6	2-0	2-6	3-0	3-6	3-7	NP
		2×6	8-4	7-6	<del>6-7</del> 6-2	1-0	1-6	1-4	NP	NP	NP	NP	NP
		2×8	10-11	9-11	<del>8-8</del> 8-3	1-0	1-6	2-0	2-2	NP	NP	NP	NP
	Redwood <sup>f</sup> , Western Cedars <sup>f</sup> , Ponderosa Pine <sup>f</sup> , Red Pine <sup>f</sup>	2×10	13-11	<del>12-8</del> 12-4	<del>11-1</del> 10-0	1-0	1-6	2-0	2-6	<del>2-</del> 10	NP	NP	NP
		2×12	<del>17-0</del> 16-6	<del>15-5</del> 14-3	<del>13-6</del> 11-8	1-0	1-6	2-0	2-6	3-0	3-5	3-5	NP
		2×6	7-9	7-0	6-2	1-0	1-4	NP	NP	NP	NP	NP	NP
		2×8	10-2	9-3	<del>8-1</del> 7-11	1-0	1-6	2-0	1- 11	NP	NP	NP	NP
70 Ground Snow Load	Southern Pine	2×10	13-0	<del>11-10</del> 11-9	<del>10-4</del> 9-7	1-0	1-6	2-0	2-6	2-7	NP	NP	NP
		2×12	<del>15-10</del> 15-9	<del>14-4</del> 13-8	<del>12-7</del> 11-2	1-0	1-6	2-0	2-6	3-0	3-2	NP	NP
		2×6	8-3	7-6	<del>6-6</del> 6-5	1-0	1-6	1-5	NP	NP	NP	NP	NP
		2×8	10-10	9-10	<del>8-7</del> 8-2	1-0	1-6	2-0	2-2	NP	NP	NP	NP
Douglas Fir <sup>e</sup>	2×10	<del>13-10</del> 13-9	<del>12-7</del> 11-11	<del>11-0</del> 9-9	1-0	1-6	2-0	2-6	2-9	NP	NP	NP	
	2×12	<del>16-10</del> 16-2	<del>15-3</del> 14-0	<del>13-4</del> 11-5	1-0	1-6	2-0	2-6	3-0	3-5	3-5	NP	
		2×6	7-11	<del>7-2</del> 7-1	<del>6-3</del> 5-9	1-0	1-6	NP	NP	NP	NP	NP	NP



LOAD <sup>a</sup> (psf)	JOIST SPECIES <sup>b</sup>	JOIST SIZE	MAXIMUM ALLOWABLE JOIST SPAN <sup>b,c</sup> (feet-inches)			MAXIMUM CANTILEVER <sup>d</sup> (feet-inches) ADJACENT JOIST SPAN <sup>g</sup> (feet-inches)							
			Joist Spacing (Inches)			Adjacent Joist Back Span <sup>g</sup> (feet)							
			12	16	24	4	6	8	10	12	14	16	18
Hem-fir <sup>e</sup> , SPF <sup>e</sup>	2×8	10-5	9-5	<del>8-3</del> 7-9	1-0	1-6	2-0	2-1	NP	NP	NP	NP	
	2×10	13-3	<del>12-0</del> 11-6	<del>10-6</del> 9-5	1-0	1-6	2-0	2-6	2-8	NP	NP	NP	
	2×12	<del>16-1</del> 15-5	<del>14-8</del> 13-4	<del>12-</del> 10- 10- 11	1-0	1-6	2-0	2-6	3-0	3-3	<del>3-3</del> NP	NP	
	Redwood <sup>f</sup> , Western Cedars <sup>f</sup> , Ponderosa Pine <sup>f</sup> , Red Pine <sup>f</sup>	2×6	7-4	6-8	5-10	1-0	1-4	NP	NP	NP	NP	NP	NP
	2×8	9-8	8-10	<del>7-8</del> 7-4	1-0	1-6	1- 11	NP	NP	NP	NP	NP	
	2×10	12-4	<del>11-3</del> 11-0	<del>9-10</del> 9-0	1-0	1-6	2-0	2-6	2-6	NP	NP	NP	
	2×12	<del>15-0</del> 14-9	<del>13-8</del> 12-9	<del>11-</del> 11- 10-5	1-0	1-6	2-0	2-6	<del>2-0</del> 3-0	3-0	NP	NP	

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 dead load. Snow load not assumed to be concurrent with live load.
- b. No. 2 grade, wet service factor included.
- c. L/Δ = 360 at main span.
- d. L/Δ = 180 at cantilever with 220-pound point load applied to end.
- e. Includes incising factor.
- f. Incising factor not included.
- g. Interpolation permitted. Extrapolation not permitted.

TABLE R507.9.3(1)  
DECK LEGER CONNECTION TO BAND JOIST

LOAD <sup>c</sup> (psf)	JOIST SPAN <sup>a</sup> (feet)	ON-CENTER SPACING OF FASTENERS <sup>b</sup> (inches)		
		1/2-inch diameter leg screw with 1/2-inch maximum sheathing <sup>d,e</sup>	1/2-inch diameter bolt with 1/2-inch maximum sheathing <sup>e</sup>	1/2-inch diameter bolt with 1-inch maximum sheathing <sup>f</sup>
40 Live Load	6	30	36	36
	8	23	36	36
	10	18	34	29

LOAD <sup>c</sup> (psf)	JOIST SPAN <sup>a</sup> (feet)	ON-CENTER SPACING OF FASTENERS <sup>b</sup> (inches)		
		1/2-inch diameter leg screw with 1/2-inch maximum sheathing <sup>d,e</sup>	1/2-inch diameter bolt with 1/2-inch maximum sheathing <sup>e</sup>	1/2-inch diameter bolt with 1-inch maximum sheathing <sup>f</sup>
	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	<del>17</del> 15	<del>33</del> 28	<del>28</del> 24
	12	<del>14</del> 12	<del>27</del> 23	<del>23</del> 20
	14	<del>12</del> 10	<del>23</del> 20	<del>20</del> 17
	16	<del>11</del> 9	<del>20</del> 17	<del>17</del> 15
	18	<del>9</del> 8	<del>18</del> 15	<del>15</del> 13
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 not permitted.
- b. Legers 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 1/2 inch thickness of stacked washers shall be permitted to substitute for up to 1/2 inch of allowable sheathing thickness where combined with wood structural panel or lumber sheathing.