**WSR 21-08-080**
**EXPEDITED RULES**
**BUILDING CODE COUNCIL**
[Filed April 7, 2021, 8:19 a.m.]

Title of Rule and Other Identifying Information: Chapter 51-51 WAC, Making editorial corrections to the state amendments to the 2018 International Residential Code.

Purpose of the Proposal and Its Anticipated Effects, Including Any Changes in Existing Rules: Making editorial changes, correcting tables and references to state amendments.

| WAC | Section | Changes in 2018 | Discussion |
|---|---|---|---|
| 51-51-0507 | R507.5 | Correct Reference tables | Omission missed |
| 51-51-0507 | Table R507.5 | Corrected header | Editorial change |
| 51-51-0507 | Tables R507.5 (1-4) | Deleted | Omission missed |
| 51-51-0507 | Table R507.9.1.3 (1) | Formatted Table | Editorial change |

Reasons Supporting Proposal: After adoption and publication of the amendments to the 2018 Residential Code, chapter 51-51 WAC, errors and omissions of an editorial nature were discovered; these must be corrected to ensure consistent enforcement of the code.

Statutory Authority for Adoption: RCW 19.27.074.

Statute Being Implemented: RCW 19.27.074.

Rule is not necessitated by federal law, federal or state court decision.

Name of Proponent: Governmental.

Name of Agency Personnel Responsible for Drafting and Implementation: Ray Shipman, 1500 Jefferson Street S.E., Olympia, WA, 360-407-8047; Enforcement: Local jurisdictions.

This notice meets the following criteria to use the expedited adoption process for these rules:

Corrects typographical errors, make address or name changes, or clarify language of a rule without changing its effect.

NOTICE

THIS RULE IS BEING PROPOSED UNDER AN EXPEDITED RULE-MAKING PROCESS THAT WILL ELIMINATE THE NEED FOR THE AGENCY TO HOLD PUBLIC HEARINGS, PREPARE A SMALL BUSINESS ECONOMIC IMPACT STATEMENT, OR PROVIDE RESPONSES TO THE CRITERIA FOR A SIGNIFICANT LEGISLATIVE RULE. IF YOU OBJECT TO THIS USE OF THE EXPEDITED RULE-MAKING PROCESS, YOU MUST EXPRESS YOUR OBJECTIONS IN WRITING AND THEY MUST BE SENT TO Stoyan Bumbalov, State Building Code Council, 1500 Jefferson Street S.E., phone 360-407-9277, email Stoyan.Bumbalov@des.wa.gov, AND RECEIVED BY June 7, 2021.

March 31, 2021
Diane Glen
Chair

**OTS-2975.1**

AMENDATORY SECTION (Amending WSR 20-21-041, filed 10/13/20, effective 11/13/20)

## WAC 51-51-0507 Section R507—Decks.

**R507.1 Decks.** Wood-framed decks shall be in accordance with this section. Decks shall be designed for the live load required in Section R301.5 or the ground snow load indicated in Table R301.2(1), whichever is greater. For decks using materials and conditions not prescribed in this section, refer to Section R301.

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

| LIVE OR GROUND SNOW LOAD[b] (psf) | TRIBUTARY AREA[c] (sq.ft.) | SOIL BEARING CAPACITY[acd] | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 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) |
| 60 Live or 70 Ground Snow Load | 5 | 7 | 8 | 6 | 7 | 8 | 6 | 7 | 8 | 6 |
| | 20 | 12 | 14 | 6 | 11 | 13 | 6 | 9 | 10 | 6 |
| | 40 | 18 | 20 | 6 | 15 | 17 | 6 | 12 | 14 | 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 $m^2$, 1 pound per square foot = 0.0479 kPa.
a. Interpolation permitted, extrapolation not permitted.
b. 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 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[g,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 |

| LOADS[b] (psf) | POST SPECIES[c] | POST SIZE[d] | MAXIMUM DECK POST HEIGHT[a] (feet-inches) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Tributary Area[g,h] (sq. ft.) | | | | | | | |
| | | | 20 | 40 | 60 | 80 | 100 | 120 | 140 | 160 |
| 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 = 25.4 mm, 1 square foot = 0.0929 $m^2$, 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.

**R507.5 Deck beams.** Maximum allowable spans for wood deck beams, as shown in Figure R507.5, shall be in accordance with Table((~~s~~)) R507.5((~~(1) through R507(4)~~)). Beam plies shall be fastened with two rows of 10d (3-inch × 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 allowable beam span. Deck beams of other materials shall be permitted where designed in accordance with accepted engineering practices.

**TABLE R507.5**
**MAXIMUM DECK BEAM SPAN - 60 PSF LIVE LOAD or 70 PSF GROUND SNOW LOAD[c]**

| ((~~BEAM SPECIES[d]~~ | ~~BEAM SIZE[e]~~ | ~~MAXIMUM BEAM SPAN[a,b,f] (feet-inches)~~ | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | ~~Deck Joist Span[a,i] (feet)~~ | | | | | | |
| | | ~~6~~ | ~~8~~ | ~~10~~ | ~~12~~ | ~~14~~ | ~~16~~ | ~~18~~)) |
| **BEAM SPECIES[d]** | **BEAM SIZE[e]** | **DECK JOIST SPAN[a,i] (feet)** | | | | | | |
| | | **6** | **8** | **10** | **12** | **14** | **16** | **18** |
| | | **MAXIMUM BEAM SPAN[a,b,f] (feet-inches)** | | | | | | |
| Douglas fir-larch[g], Hem-fir[g], Spruce-pine-fir[g] | 1-2×6 | 3-5 | 2-10 | 2-5 | 2-2 | 2-0 | 1-10 | 1-9 |
| | 1-2×8 | 4-7 | 3-8 | 3-2 | 2-10 | 2-7 | 2-5 | 2-4 |
| | 1-2×10 | 5-8 | 4-9 | 4-1 | 3-8 | 3-4 | 3-1 | 2-11 |
| | 1-2×12 | 6-7 | 5-8 | 5-0 | 4-6 | 4-1 | 3-10 | 3-7 |
| | 2-2×6 | 5-2 | 4-6 | 4-0 | 3-5 | 3-1 | 2-10 | 2-7 |
| | 2-2×8 | 6-11 | 6-0 | 5-3 | 4-7 | 4-1 | 3-8 | 3-5 |
| | 2-2×10 | 8-5 | 7-4 | 6-6 | 5-10 | 5-2 | 4-9 | 4-5 |
| | 2-2×12 | 9-10 | 8-6 | 7-7 | 6-11 | 6-4 | 5-9 | 5-4 |
| | 3-2×6 | 6-6 | 5-7 | 5-0 | 4-7 | 4-2 | 3-9 | 3-5 |
| | 3-2×8 | 8-8 | 7-6 | 6-8 | 6-1 | 5-6 | 5-0 | 4-7 |
| | 3-2×10 | 10-7 | 9-2 | 8-2 | 7-6 | 6-11 | 6-4 | 5-10 |
| | 3-2×12 | 12-4 | 10-8 | 9-7 | 8-9 | 8-1 | 7-7 | 7-1 |

| ((~~BEAM SPECIES[d]~~ | ~~BEAM SIZE[e]~~ | ~~MAXIMUM BEAM SPAN[a,b,f] (feet-inches)~~ | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | ~~Deck Joist Span[a,i] (feet)~~ | | | | | | |
| | | ~~6~~ | ~~8~~ | ~~10~~ | ~~12~~ | ~~14~~ | ~~16~~ | ~~18~~)) |
| **BEAM SPECIES[d]** | **BEAM SIZE[e]** | **DECK JOIST SPAN[a,i] (feet)** | | | | | | |
| | | **6** | **8** | **10** | **12** | **14** | **16** | **18** |
| | | **MAXIMUM BEAM SPAN[a,b,f] (feet-inches)** | | | | | | |
| Redwood[h], Western Cedars[h], Ponderosa Pine[h], Red Pine[h] | 1-2×6 | 3-6 | 2-11 | 2-6 | 2-3 | 2-0 | 1-11 | 1-9 |
| | 1-2×8 | 4-6 | 3-10 | 3-3 | 2-11 | 2-8 | 2-6 | 2-4 |
| | 1-2×10 | 5-6 | 4-9 | 4-2 | 3-9 | 3-5 | 3-2 | 3-0 |
| | 1-2×12 | 6-4 | 5-6 | 4-11 | 4-6 | 4-2 | 3-11 | 3-8 |
| | 2-2×6 | 5-3 | 4-7 | 4-1 | 3-6 | 3-2 | 2-11 | 2-8 |
| | 2-2×8 | 6-8 | 5-9 | 5-2 | 4-8 | 4-2 | 3-10 | 3-6 |
| | 2-2×10 | 8-2 | 7-1 | 6-4 | 5-9 | 5-4 | 4-10 | 4-6 |
| | 2-2×12 | 9-5 | 8-2 | 7-4 | 6-8 | 6-2 | 5-9 | 5-5 |
| | 3-2×6 | 6-4 | 5-8 | 5-1 | 4-8 | 4-3 | 3-10 | 3-6 |
| | 3-2×8 | 8-4 | 7-3 | 6-5 | 5-11 | 5-5 | 5-1 | 4-8 |
| | 3-2×10 | 10-2 | 8-10 | 7-11 | 7-2 | 6-8 | 6-3 | 5-11 |
| | 3-2×12 | 11-10 | 10-3 | 9-2 | 8-4 | 7-9 | 7-3 | 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/Δ = 360 at mainspan, 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 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(1) MAXIMUM DECK BEAM SPAN – 40 PSF LIVE LOAD (NOT ADOPTED)~~

~~TABLE R507.5(2) MAXIMUM DECK BEAM SPAN – 50 PSF LIVE LOAD (NOT ADOPTED)~~

~~TABLE R507.5(3) MAXIMUM DECK BEAM SPAN – 60 PSF LIVE LOAD[c]~~

| ~~BEAM SPECIES[d]~~ | ~~BEAM SIZE[e]~~ | ~~DECK JOIST SPAN[a,i] (feet)~~ | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | ~~6~~ | ~~8~~ | ~~10~~ | ~~12~~ | ~~14~~ | ~~16~~ | ~~18~~ |
| | | ~~MAXIMUM BEAM SPAN[a,b,f] (feet-inches)~~ | | | | | | |
| ~~Douglas fir-larch[g], Spruce-pine-fir[g]~~ | ~~1-2×6~~ | ~~3-8~~ | ~~3-1~~ | ~~2-8~~ | ~~2-4~~ | ~~2-2~~ | ~~2-0~~ | ~~1-10~~ |
| | ~~1-2×8~~ | ~~5-0~~ | ~~4-1~~ | ~~3-6~~ | ~~3-1~~ | ~~2-10~~ | ~~2-7~~ | ~~2-5~~ |
| | ~~1-2×10~~ | ~~6-1~~ | ~~5-2~~ | ~~4-6~~ | ~~4-0~~ | ~~3-7~~ | ~~3-4~~ | ~~3-2~~ |
| | ~~1-2×12~~ | ~~7-1~~ | ~~6-1~~ | ~~5-5~~ | ~~4-10~~ | ~~4-5~~ | ~~4-1~~ | ~~3-10~~ |
| | ~~2-2×6~~ | ~~5-6~~ | ~~4-9~~ | ~~4-3~~ | ~~3-10~~ | ~~3-5~~ | ~~3-1~~ | ~~2-10~~ |
| | ~~2-2×8~~ | ~~7-5~~ | ~~6-5~~ | ~~5-9~~ | ~~5-0~~ | ~~4-6~~ | ~~4-1~~ | ~~3-9~~ |
| | ~~2-2×10~~ | ~~9-0~~ | ~~7-10~~ | ~~7-0~~ | ~~6-4~~ | ~~5-9~~ | ~~5-2~~ | ~~4-10~~ |
| | ~~2-2×12~~ | ~~10-6~~ | ~~9-1~~ | ~~8-1~~ | ~~7-5~~ | ~~6-10~~ | ~~6-4~~ | ~~5-10~~ |
| | ~~3-2×6~~ | ~~6-11~~ | ~~6-0~~ | ~~5-4~~ | ~~4-11~~ | ~~4-6~~ | ~~4-2~~ | ~~3-10~~ |
| | ~~3-2×8~~ | ~~9-3~~ | ~~8-0~~ | ~~7-2~~ | ~~6-6~~ | ~~6-1~~ | ~~5-6~~ | ~~5-0~~ |
| | ~~3-2×10~~ | ~~11-4~~ | ~~9-10~~ | ~~8-9~~ | ~~8-0~~ | ~~7-5~~ | ~~6-11~~ | ~~6-5~~ |
| | ~~3-2×12~~ | ~~13-2~~ | ~~11-5~~ | ~~10-2~~ | ~~9-4~~ | ~~8-7~~ | ~~8-1~~ | ~~7-7~~ |

| BEAM SPECIES[d] | BEAM SIZE[c] | DECK JOIST SPAN[a,i] (feet) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 6 | 8 | 10 | 12 | 14 | 16 | 18 |
| | | MAXIMUM BEAM SPAN[a,b,f] (feet-inches) | | | | | | |
| Redwood[h], Western Cedars[h], Ponderosa Pine[h], Red Pine[h] | 1-2×6 | 6-9 | 3-2 | 2-9 | 2-5 | 2-2 | 2-0 | 1-11 |
| | 1-2×8 | 4-10 | 4-2 | 3-7 | 3-2 | 2-11 | 2-8 | 2-6 |
| | 1-2×10 | 5-10 | 5-1 | 4-6 | 4-1 | 3-8 | 3-5 | 3-3 |
| | 1-2×12 | 6-10 | 5-11 | 5-3 | 4-10 | 4-5 | 4-2 | 3-11 |
| | 2-2×6 | 5-7 | 4-10 | 4-4 | 3-11 | 3-6 | 3-2 | 2-11 |
| | 2-2×8 | 7-1 | 6-2 | 5-6 | 5-0 | 4-7 | 4-2 | 3-10 |
| | 2-2×10 | 8-8 | 7-6 | 6-9 | 6-2 | 5-8 | 5-4 | 4-11 |
| | 2-2×12 | 10-1 | 8-9 | 7-10 | 7-2 | 6-7 | 6-2 | 5-10 |
| | 3-2×6 | 6-8 | 6-1 | 5-5 | 5-0 | 4-7 | 4-3 | 3-11 |
| | 3-2×8 | 8-9 | 7-9 | 6-11 | 6-4 | 5-10 | 5-5 | 5-2 |
| | 3-2×10 | 10-11 | 9-5 | 8-5 | 7-8 | 7-2 | 6-8 | 6-3 |
| | 3-2×12 | 12-8 | 10-11 | 9-9 | 8-11 | 8-3 | 7-9 | 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[c]**

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

~~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.~~))

**R507.6 Deck joists.** Maximum allowable spans for wood deck joists, as shown in Figure R507.6, shall be in accordance with Table R507.6. The maximum joist spacing shall be limited by the decking materials in accordance with Table R507.7.

**TABLE R507.6**
**MAXIMUM DECK JOIST SPANS**

| LOAD[a] (psf) | JOIST SPECIES[b] | JOIST SIZE | ALLOWABLE JOIST SPAN[b,c] (feet-inches) | | | MAXIMUM CANTILEVER[f,g] (feet-inches) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Joist Spacing (inches) | | | Adjacent Joist Back Span[g] (feet) | | | | | | | |
| | | | 12 | 16 | 24 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 |
| 60 Live Load or 70 Ground Snow Load | Douglas fir-larch[e], Hem-fir[e], Spruce-pine-fir[e] | 2×6 | 7-11 | 7-1 | 5-9 | 1-0 | 1-6 | NP | NP | NP | NP | NP | NP |
| | | 2×8 | 10-5 | 9-5 | 7-8 | 1-0 | 1-6 | 2-0 | 2-1 | NP | NP | NP | NP |
| | | 2×10 | 13-3 | 11-6 | 9-5 | 1-0 | 1-6 | 2-0 | 2-6 | 2-8 | NP | NP | NP |
| | | 2×12 | 15-5 | 13-4 | 10-11 | 1-0 | 1-6 | 2-0 | 2-6 | 3-0 | 3-3 | NP | NP |
| | Redwood[f], Western Cedars[f], Ponderosa Pine[f], Red Pine[f] | 2×6 | 7-4 | 6-8 | 5-10 | 1-0 | 1-4 | NP | NP | NP | NP | NP | NP |
| | | 2×8 | 9-8 | 8-10 | 7-4 | 1-0 | 1-6 | 1-11 | NP | NP | NP | NP | NP |
| | | 2×10 | 12-4 | 11-0 | 9-0 | 1-0 | 1-6 | 2-0 | 2-6 | 2-6 | NP | NP | NP |
| | | 2×12 | 14-9 | 12-9 | 10-5 | 1-0 | 1-6 | 2-0 | 2-6 | 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.

**R507.9.1.2 Band joist details.** Band joists supporting a ledger shall be a minimum 2-inch-nominal (51 mm), solid-sawn, spruce-pine-fir or better lumber or minimum 1-inch (25 mm) nominal engineered wood rim boards in accordance with Section R502.1.7. Band joists shall bear fully on the primary structure capable of supporting all required loads.

**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] |
| 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 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.

**R507.9.2 Deck lateral load connections.** Lateral loads shall be transferred to the ground or to a structure capable of transmitting them to the ground. Where the lateral load connection is provided in accordance with Figure R507.9.2(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 1500 pounds (6672 N). Where the lateral load connections are provided in accordance with Figure R507.9.2(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 (3336 N).

EXCEPTION: Decks not more than 30 inches above grade at any point may be unattached.

**TABLE R507.9.1**
**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] | 3/4 inch | 2 inches[b] | 1 5/8 inches[b] |
| Band joist[c] | 3/4 inch | 2 inches[e] | 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(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 to the top edge of the ledger shall be in accordance with Figure R507.2.1(1).
e The 2 inches may be reduced to 3/4 inch when the band joist is directly supported by a mudsill, a header or by double top wall plates.

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

| LOAD[c] (psf) | JOIST SPAN[a] (feet) | 1/2-inch diameter leg 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] |
|---|---|---|---|---|
| | | ON-CENTER SPACING OF FASTENERS[b] (inches) | | |
| 60 Ground Snow Load | 6 | 25 | 36 | 36 |
| | 8 | 18 | 35 | 30 |
| | 10 | 15 | 28 | 24 |
| | 12 | 12 | 23 | 20 |
| | 14 | 10 | 20 | 17 |
| | 16 | 9 | 17 | 15 |
| | 18 | 8 | 15 | 13 |

| LOAD[c] (psf) | JOIST SPAN[a] (feet) | 1/2-inch diameter leg 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] |
|---|---|---|---|---|
| | | ON-CENTER SPACING OF FASTENERS[b] (inches) | | |
| 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.

[Statutory Authority: RCW 19.27.031 and 19.27.074. WSR 20-21-041, § 51-51-0507, filed 10/13/20, effective 11/13/20; WSR 20-03-023, § 51-51-0507, filed 1/6/20, effective 7/1/20; WSR 16-03-025, § 51-51-0507, filed 1/11/16, effective 7/1/16. Statutory Authority: RCW 19.27.031 and chapters 19.27 and 34.05 RCW. WSR 13-04-068, § 51-51-0507, filed 2/1/13, effective 7/1/13.]