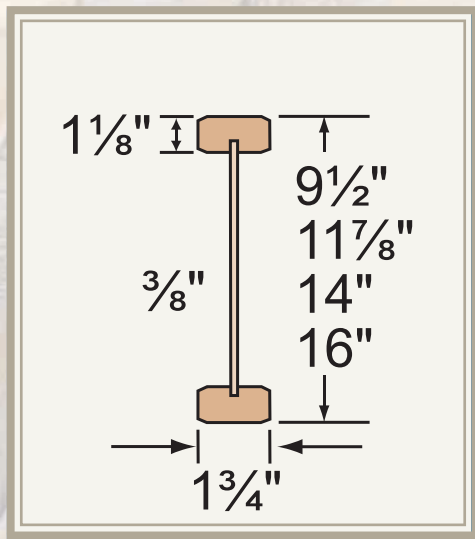




Boise Cascade
Engineered Wood Products

BCI[®] 4500s 1.8

... a series to meet your needs



LENGTHS
AVAILABLE —
60 foot only

Features and Benefits

Consistent, Stable Dimension	Straighter walls, flatter floors and ceilings, fewer squeaks, less nail pops, fewer callbacks
Faster Framing	Up to 40% less pieces
Light Weight But Stronger than Dimensional Lumber	Easier to handle; quick construction; lower labor costs; fewer posts, bigger, wider rooms, more open space
Little Waste	Saves material costs, less labor
Predictable, Stable Material Pricing	Allows accurate material use planning, budgets and reduces interim financing
Environmentally Friendly (Green Product)	Uses half the wood fiber of dimensional lumber (build "green" into the product)

Eastern BCI® Residential Floor Span Tables

About Floor Performance

Homeowner's expectations and opinions vary greatly due to the subjective nature of rating a new floor. Communication with the ultimate end user to determine their expectation is critical. **Vibration** is usually the cause of most complaints. Installing lateral bridging may help; however, squeaks may occur if not installed properly. Spacing the joists closer together does little to affect the perception of the floor's performance. The most common methods used to increase

the performance and reduce vibration of wood floor systems is to **increase the joist depth, limit joist deflections, glue and screw a thicker, tongue-and-groove subfloor, install the joists vertically plumb with level-bearing supports, and install a direct-attached ceiling to the bottom flanges of the joists.**

The floor span tables listed below offer three very different performance options, based on performance requirements of the homeowner.

BCI® 4500s 1.8 — Allowable Floor Span Tables

Joist Depth	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	32" o.c.
★★★THREE STAR - L/480 ★★★					
Live Load deflection limited to L/480: The common industry and design community standard for residential floor joists, 33% stiffer than L/360 code minimum. However, floor performance may still be an issue in certain applications, especially with 9 1/2" and 11 7/8" deep joists without a direct-attached ceiling.					
9 1/2"	16'-11"	15'-6"	14'-8"	13'-7"	11'-9"
11 7/8"	20'-0"	18'-4"	17'-3"	15'-5"	13'-4"
14"	22'-9"	20'-7"	18'-9"	16'-9"	13'-11"
16"	25'-2"	22'-0"	20'-1"	17'-11"	14'-1"
★★★★FOUR STAR - L/960 ★★★★★					
Live Load deflection limited to L/960+: In addition to providing a floor that is 100% stiffer than the three star floor , field experience has been incorporated into the values to provide a floor with a premium performance level for the more discriminating homeowner.					
9 1/2"	11'-6"	11'-6"	10'-0"	10'-0"	9'-7"
11 7/8"	15'-6"	14'-3"	13'-5"	12'-6"	11'-4"
14"	17'-10"	16'-3"	15'-4"	14'-3"	13'-0"
16"	19'-9"	18'-0"	17'-0"	15'-10"	14'-1"
★MINIMUM STIFFNESS ALLOWED BY CODE - L/360 ★					
Live Load deflection limited to L/360: Floors that meet the minimum building code L/360 criteria are structurally sound to carry the specified loads; however, there is a much higher risk of floor performance issues. This table should only be used for applications where floor performance is not a concern.					
9 1/2"	18'-9"	16'-8"	15'-3"	13'-7"	11'-9"
11 7/8"	21'-10"	18'-11"	17'-3"	15'-5"	13'-4"
14"	23'-10"	20'-7"	18'-9"	16'-9"	13'-11"
16"	25'-5"	22'-0"	20'-1"	17'-11"	14'-1"

- Span table is based on a residential floor load of 40 psf live load and 10 psf dead load.
- Span values assume 23/32" minimum plywood/OSB rated sheathing is glued and nailed to joists for composite action (joists spaced at 32" o.c. require sheathing rated for such spacing - 7/8" plywood/OSB).
- Span values represent the most restrictive of simple or multiple span applications.
- Span values are the maximum allowable clear distance between supports.
- Table values assume minimum bearing lengths without web stiffeners for joist depths of 16" inches and less.
- This table was designed to apply to a broad range of applications. It may be possible to exceed the limitations of this table by analyzing a specific application with the BC CALC® sizing software.

(Shaded values do not satisfy the requirements of the North Carolina State Building Code. Refer to the THREE STAR table when spans exceed 20 feet.)

BCI® 4500s 1.8 — Design Values

Joist Series	Depth [in]	Weight [plf]	Moment [ft-lbs]	EI x 10 ⁶ [lbs-in ²]	K x 10 ⁶ [lbs]"	Shear [lbs]	End Reaction [lbs]				Intermediate Reaction [lbs]			
							1 3/4" Bearing		3 1/2" Bearing		3 1/2" Bearing		5 1/4" Bearing	
							No W.S. ⁽¹⁾	W.S. ⁽²⁾	No W.S. ⁽¹⁾	W.S. ⁽²⁾	No W.S. ⁽¹⁾	W.S. ⁽²⁾	No W.S. ⁽¹⁾	W.S. ⁽²⁾
4500s 1.8	9 1/2"	2.1	2360	155	5.0	1475	950	1125	1125	1275	2100	2350	2525	2750
	11 7/8"	2.4	3025	260	6.0	1625	950	1425	1425	1475	2250	2850	2525	3000
	14"	2.7	3585	380	8.0	1825	950	1525	1450	1725	2350	3050	2525	3200
	16"	3.0	4090	515	9.0	1975	950	1625	1475	1975	2400	3200	2525	3350

NOTES:

(1) No web stiffeners required.

(2) Web stiffeners required.

- Moment, shear and reactions values based upon a load duration of 100% and may be adjusted for other load durations.
- Design values listed are applicable for Allowable Stress Design (ASD).

$$\Delta = \frac{5wl^4}{384EI} + \frac{wl^2}{K}$$

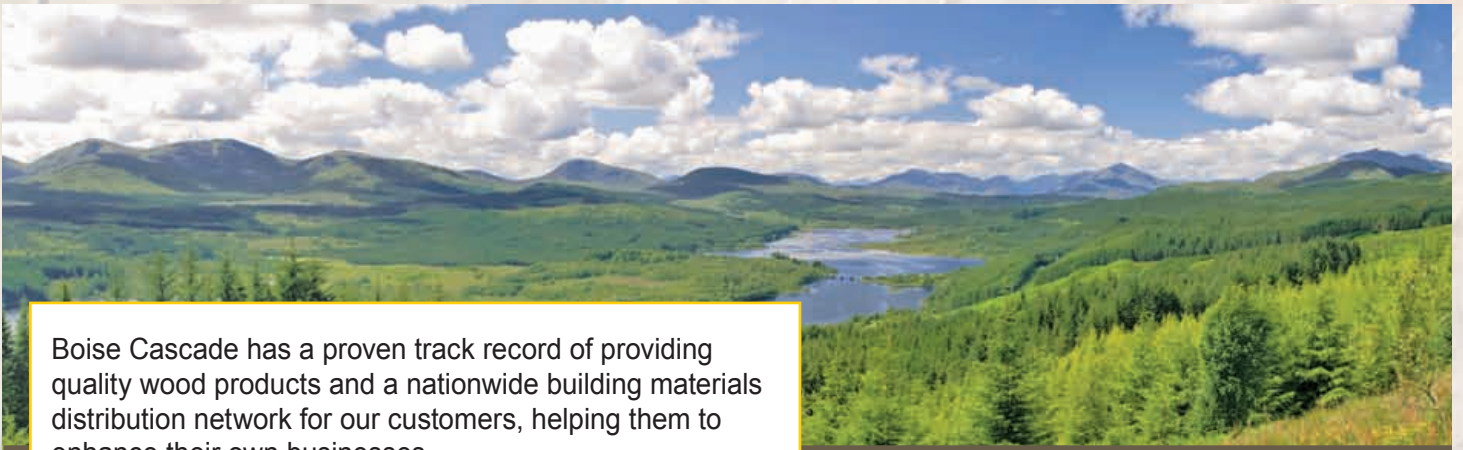
Δ = deflection [in]
 w = uniform load [lb/in]
 l = clear span [in]
 EI = bending stiffness [lb-in²]
 K = shear deformation coefficient [lb]

BCI® 4500s 1.8 — Rafter Allowable Span Table

115% and 125% Load Duration

			BCI® 4500s 1.8 Series 1¾" Flange Width												
			9½" BCI® 4500s 1.8			11¾" BCI® 4500s 1.8			14" BCI® 4500s 1.8			16" BCI® 4500s 1.8			
	Live Load [psf]	Dead Load [psf]	4/12 or Less	4/12 to 8/12	8/12 to 12/12	4/12 or Less	4/12 to 8/12	8/12 to 12/12	4/12 or Less	4/12 to 8/12	8/12 to 12/12	4/12 or Less	4/12 to 8/12	8/12 to 12/12	
12" o.c.	Non-Snow 125%	20	10	23'-10"	22'-6"	20'-10"	28'-5"	26'-9"	24'-10"	32'-3"	30'-5"	28'-3"	35'-9"	33'-8"	31'-3"
		20	15	122'-7"	21'-3"	19'-7"	26'-11"	25'-3"	23'-4"	30'-7"	28'-9"	26'-6"	33'-6"	31'-10"	29'-4"
		20	20	21'-7"	20'-2"	18'-7"	25'-8"	24'-0"	22'-1"	29'-2"	27'-4"	25'-1"	31'-4"	30'-3"	27'-10"
	Snow 115%	25	10	22'-8"	21'-5"	19'-11"	26'-11"	25'-6"	23'-8"	30'-2"	29'-0"	26'-11"	32'-3"	31'-7"	29'-10"
		25	15	21'-7"	20'-4"	18'-10"	25'-9"	24'-2"	22'-5"	28'-2"	27'-5"	25'-6"	30'-1"	29'-4"	28'-3"
		30	10	21'-8"	20'-6"	19'-1"	25'-9"	24'-5"	22'-9"	28'-3"	27'-9"	25'-11"	30'-2"	29'-8"	28'-8"
		30	15	20'-9"	19'-7"	18'-2"	24'-5"	23'-4"	21'-8"	26'-7"	25'-11"	24'-7"	28'-5"	27'-9"	26'-10"
		40	10	19'-8"	18'-11"	17'-10"	23'-2"	22'-6"	21'-3"	25'-3"	24'-11"	24'-2"	27'-0"	26'-8"	26'-1"
		40	15	19'-5"	18'-4"	17'-1"	22'-1"	21'-8"	20'-4"	24'-1"	23'-7"	22'-11"	25'-8"	25'-2"	24'-6"
		50	10	18'-3"	17'-6"	16'-7"	21'-2"	20'-10"	19'-9"	23'-1"	22'-10"	22'-5"	24'-8"	24'-4"	24'-0"
50	15	17'-11"	17'-4"	16'-3"	20'-4"	20'-0"	19'-4"	22'-2"	21'-9"	21'-3"	23'-8"	23'-3"	22'-9"		
16" o.c.	Non-Snow 125%	20	10	21'-7"	20'-5"	18'-11"	25'-9"	24'-3"	22'-6"	29'-3"	27'-7"	25'-7"	31'-5"	30'-7"	28'-4"
		20	15	20'-6"	19'-3"	17'-9"	24'-4"	22'-11"	21'-1"	27'-2"	26'-0"	24'-0"	29'-0"	28'-2"	26'-7"
		20	20	19'-6"	18'-3"	16'-10"	23'-3"	21'-9"	20'-0"	25'-4"	24'-5"	22'-9"	27'-1"	26'-2"	24'-11"
	Snow 115%	25	10	20'-6"	19'-5"	18'-1"	24'-0"	23'-1"	21'-6"	26'-1"	25'-7"	24'-5"	27'-11"	27'-4"	26'-7"
		25	15	19'-7"	18'-5"	17'-1"	22'-4"	21'-9"	20'-4"	24'-4"	23'-9"	22'-11"	26'-0"	25'-4"	24'-5"
		30	10	19'-7"	18'-7"	17'-4"	22'-5"	22'-0"	20'-7"	24'-5"	24'-0"	23'-5"	26'-1"	25'-8"	25'-0"
		30	15	18'-7"	17'-9"	16'-6"	21'-1"	20'-7"	19'-7"	23'-0"	22'-5"	21'-9"	24'-7"	24'-0"	23'-3"
		40	10	17'-8"	17'-1"	16'-2"	20'-1"	19'-9"	19'-3"	21'-10"	21'-7"	21'-1"	23'-4"	23'-0"	22'-7"
		40	15	16'-10"	16'-6"	15'-6"	19'-1"	18'-8"	18'-2"	20'-10"	20'-5"	19'-10"	22'-3"	21'-10"	21'-3"
		50	10	16'-2"	15'-10"	15'-0"	18'-4"	18'-1"	17'-9"	19'-11"	19'-9"	19'-5"	21'-4"	21'-1"	20'-9"
50	15	15'-6"	15'-3"	14'-8"	17'-7"	17'-3"	16'-10"	19'-2"	18'-10"	18'-5"	20'-5"	20'-1"	19'-8"		
19.2" o.c.	Non-Snow 125%	20	10	20'-4"	19'-2"	17'-9"	24'-2"	22'-10"	21'-2"	26'-10"	25'-11"	24'-1"	28'-8"	28'-0"	26'-8"
		20	15	19'-3"	18'-1"	16'-8"	22'-9"	21'-6"	19'-10"	24'-9"	24'-0"	22'-7"	26'-5"	25'-8"	24'-8"
		20	20	18'-4"	17'-2"	15'-9"	21'-2"	20'-5"	18'-9"	23'-1"	22'-4"	21'-3"	24'-8"	23'-10"	22'-9"
	Snow 115%	25	10	19'-3"	18'-3"	17'-0"	21'-10"	21'-5"	20'-2"	23'-10"	23'-4"	22'-8"	25'-6"	24'-11"	24'-3"
		25	15	18'-0"	17'-4"	16'-0"	20'-5"	19'-10"	19'-1"	22'-3"	21'-8"	20'-10"	23'-9"	23'-1"	22'-4"
		30	10	18'-0"	17'-5"	16'-3"	20'-5"	20'-1"	19'-5"	22'-3"	21'-11"	21'-4"	23'-10"	23'-5"	22'-10"
		30	15	16'-11"	16'-7"	15'-6"	19'-3"	18'-9"	18'-2"	20'-11"	20'-5"	19'-10"	22'-5"	21'-10"	21'-2"
		40	10	16'-2"	15'-11"	15'-2"	18'-3"	18'-0"	17'-8"	19'-11"	19'-8"	19'-3"	21'-4"	21'-0"	20'-7"
		40	15	15'-4"	15'-0"	14'-6"	17'-5"	17'-1"	16'-7"	18'-11"	18'-7"	18'-1"	20'-3"	19'-10"	19'-4"
		50	10	14'-9"	14'-6"	14'-1"	16'-8"	16'-6"	16'-2"	18'-2"	18'-0"	17'-8"	19'-5"	19'-3"	18'-11"
50	15	14'-1"	13'-10"	13'-7"	16'-0"	15'-9"	15'-4"	17'-5"	17'-2"	16'-9"	18'-8"	18'-4"	17'-11"		
24" o.c.	Non-Snow 125%	20	10	18'-10"	17'-9"	16'-6"	22'-0"	21'-1"	19'-7"	24'-0"	23'-5"	22'-4"	25'-7"	25'-0"	24'-3"
		20	15	17'-10"	16'-9"	15'-5"	20'-3"	19'-8"	18'-4"	22'-1"	21'-5"	20'-7"	23'-8"	22'-11"	22'-0"
		20	20	16'-8"	15'-11"	14'-7"	18'-11"	18'-3"	17'-5"	20'-8"	19'-11"	19'-0"	22'-1"	21'-3"	20'-4"
	Snow 115%	25	10	17'-3"	16'-10"	15'-9"	19'-6"	19'-2"	18'-7"	21'-3"	20'-10"	20'-3"	22'-9"	22'-3"	21'-8"
		25	15	16'-1"	15'-7"	14'-10"	18'-2"	17'-9"	17'-1"	19'-10"	19'-4"	18'-8"	21'-3"	20'-8"	19'-11"
		30	10	16'-1"	15'-10"	15'-1"	18'-3"	17'-11"	17'-6"	19'-11"	19'-7"	19'-1"	21'-3"	20'-11"	20'-5"
		30	15	15'-2"	14'-9"	14'-4"	17'-2"	16'-9"	16'-3"	18'-9"	18'-3"	17'-8"	20'-0"	19'-6"	18'-11"
		40	10	14'-5"	14'-2"	13'-11"	16'-4"	16'-1"	15'-9"	17'-10"	17'-7"	17'-2"	19'-0"	18'-9"	18'-5"
		40	15	13'-8"	13'-5"	13'-1"	15'-6"	15'-3"	14'-10"	16'-11"	16'-7"	16'-2"	18'-1"	17'-9"	17'-3"
		50	10	13'-2"	13'-0"	12'-9"	14'-11"	14'-9"	14'-6"	16'-3"	16'-1"	15'-9"	17'-4"	17'-2"	16'-10"
50	15	12'-7"	12'-4"	12'-1"	14'-3"	14'-0"	13'-9"	15'-7"	15'-4"	14'-11"	16'-6"	16'-0"	15'-3"		

- Spans limited by following controls: Bending moment, end & continuous shear, L/240 live load deflection and L/180 total load deflection.
- Spans are a clear horizontal distance between supports.
- Table values represent the most restrictive of simple or multiple span applications.
- Table values assume minimum bearing lengths without web stiffeners for joist depths of 16" or less.
- Higher slope spans valid up to a 12/12 slope.
- BCI® joists shall be installed per Boise Cascade EWP Installation Guide provisions, including temporary bracing.
- Serviceability of deflection in longer spans shall be considered by the project's design professional of record.
- For low slope applications, proper drainage design shall be considered by the project's design professional of record.



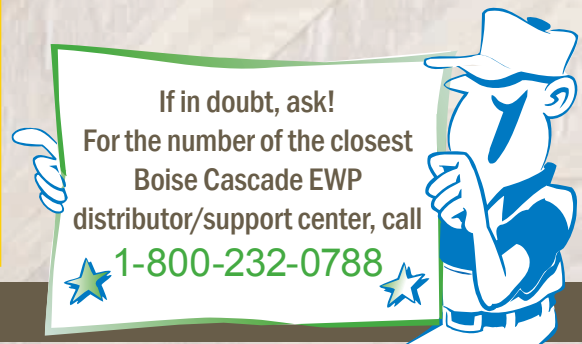
Boise Cascade has a proven track record of providing quality wood products and a nationwide building materials distribution network for our customers, helping them to enhance their own businesses.

Boise Cascade Engineered Wood Products build better homes with stronger, stiffer floors using only wood purchased in compliance with a number of green building programs. Take a moment to view our sustainability certification site at <http://www.bc.com/sustainability/certification.html> or view our green brochure at http://www.bc.com/wood/ewp/Boise_EWP_Green.html.

Boise Cascade Engineered Wood Products throughout North America can now be ordered FSC® Chain-of-Custody (COC) certified, enabling homebuilders to achieve LEED® points under U.S. Green Building Council® residential and commercial green building programs including LEED for Homes and LEED for New Construction. Boise Cascade Engineered Wood Products are available as PEFC® Chain-of-Custody certified, SFI® Chain-of-Custody certified and SFI Fiber-Sourcing certified, as well as NAHB Research Center Green Approved, enabling homebuilders to also obtain green building points through the National Green Building Standard.

Lifetime Guaranteed Quality and Performance

Boise Cascade warrants its BCI® Joist, VERSA-LAM®, and ALLJOIST® products to comply with our specifications, to be free from defects in material and workmanship, and to meet or exceed our performance specifications for the normal and expected life of the structure when correctly stored, installed and used according to our Installation Guide.



BOISE CASCADE, BCI, BC CALC, BC COLUMN, BC FRAMER, BC RIM BOARD, BOISE GLULAM, SIMPLE FRAMING SYSTEM, VERSA-LAM, VERSA-RIM, VERSA-STRAND, and VERSA-STUD are trademarks of Boise Cascade, L.L.C. or its affiliates.

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If no dealer is listed, call 1-800-232-0788



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Great products are only the beginning.™