



Boise Cascade®
ENGINEERED WOOD PRODUCTS

Specifier Guide | Canada West
BCI® Joist



BCI® JOIST SPECIFIER GUIDE | WEST

Featuring
BCI® 5000, 6000, 6500, 60, and 90 Joists

bc.com/ewp

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What You're Made of Matters

When specifying products, choices matter. Finding the right balance of durability, cost-effectiveness, and proven performance is no small task. With Boise Cascade, you're choosing a product that's backed by our commitment to quality and reliability that has earned the trust of specifiers for over 60 years.

The Boise Cascade Difference

- ▶ Full line of EWP solutions for residential, multi-family and light commercial projects
- ▶ Reliable nationwide distribution network
- ▶ More than 60 years of proven performance
- ▶ Peace of mind with our limited lifetime warranty
- ▶ EWP product support from knowledgeable engineers
- ▶ Boise Cascade® suite of software helps design, size and analyze projects
- ▶ BC FloorValue® software helps optimize floor performance before the first nail is driven.

BCI® Joist Advantages

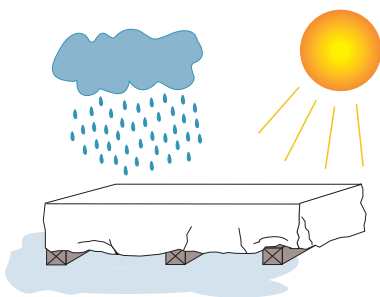
- ▶ Flat, quiet, and sturdy floors
- ▶ Lightweight and easy to handle for quick installation
- ▶ Flanges made with Versa-Lam® LVL for strong floors that last
- ▶ Long spans allow for cost-efficient floor and roof layouts
- ▶ Cut large holes, up to 24" in the web to easily run mechanicals and HVAC
- ▶ Can be trimmed on-site without specialized skills or tools
- ▶ 20% stronger than comparably sized dimension lumber.

TABLE OF CONTENTS	
Product Storage and Handling	2
Architectural Specifications	3
Boise Cascade Chain-Of-Custody Certifications	3
BCI Joist Product Profiles	4
Factored Resistances (Limit States Design)	4
Allowable Uniform Floor Load (PLF)	5
Residential Floor Span Tables	6–7
Floor Framing	8
Floor Framing Details	9
Web Stiffener Requirements	10
Connection Details	10
Hole Charts for Residential Applications (40/15)	11
Cantilevers	12
Reinforced Load-Bearing Cantilever Tables	13
Roof Framing	14
Roof Framing Details	15
Roof Span Tables	16–19
Roof Allowable Uniform Loads, PLF	20
Rim Board Product Profiles and Details	21
Framing Connectors	22–26
Weights of Building Materials	27
Limited Lifetime Warranty	28

CCMC Report Number 13300-R

Information in this document is for use only in Canada (Limit States Design). For use in the United States, refer to the BCI® Joist Specifier Guide applicable to your region.

Protect product from rain and sun.



Keep product level and off the ground.

PRODUCT STORAGE AND HANDLING

- ▶ BCI® and AJS® joists and Versa-Lam® LVL
 - must be stored, installed and used in accordance with the Boise Cascade EWP Installation Guide, building codes and, to the extent not inconsistent with the Boise Cascade EWP Installation Guide, usual and customary building practices and standards.
 - must be wrapped, covered, and stored off of the ground on stickers at all times prior to installation.
 - are intended only for applications that ensure no exposure to weather or the elements and an environment that is free from moisture from any source, or any pest, organism or substance which degrades or damages wood or glue bonds.
- ▶ Unload products carefully and support to reduce excessive bowing. Use forklifts and cranes carefully to avoid damaging product.
- ▶ Do not use a visibly damaged product. Contact your local Boise Cascade representative for assistance.
- ▶ Failure to correctly store, use, or install BCI® and AJS® joists or Versa-Lam® LVL in accordance with the Boise Cascade EWP Installation Guide will void the limited warranty.

BCI JOISTS



Architectural Specifications

Scope — This work includes the complete furnishing and installation of all BCI® joists as shown on the drawings, herein specified and necessary to complete the work.

Materials — BCI® joists shall be manufactured by Boise Cascade Engineered Wood Products with oriented strand board webs, Versa-Lam® laminated veneer lumber flanges, and waterproof, structural adhesives.

Joist webs shall be rated Structural I Exposure 1 by an agency listed by a model code evaluation service. Strands on the face layers of the web panels shall be oriented vertically in the joist. The web panels shall be glued together to form a continuous web member. The web panels shall be machined to fit into a groove in the center of the wide face of the flange members so as to form a pressed glue joint at that junction.

Design — The BCI® joists shall be sized and detailed to fit the dimensions and loads indicated on the plans. All designs shall be in accordance with allowable values and section properties developed in accordance with ASTM D5055, CSA O86-19, and listed under a CCMC 13300-R product evaluation report.

Drawing — Additional drawings showing layout and detail necessary for determining fit and placement in the building are (are not) to be provided by the supplier.

Fabrication — The BCI® joists and section properties shall be manufactured in a plant evaluated for fabrication by the governing code evaluation service and under the supervision of a third-party inspection agency listed by the corresponding evaluation service.

Storage and Installation — The BCI® joists, if stored prior to erection, shall be stored in a vertical and level position and protected from the weather. They shall be handled with care so they are not damaged.

The BCI® joists are to be installed in accordance with the plans and the Boise Cascade Engineered Wood Products Installation Guide. Temporary construction loads which cause stresses beyond design limits are not permitted. Erection bracing shall be provided to keep the BCI® joists straight and plumb as required and to assure adequate lateral support for the individual BCI® joists and the entire system until the sheathing material has been applied.

Codes — The design shall be based on CSA O86-19 and the National Building Code of Canada 2020 (NBCC). BCI® joists shall be evaluated by the CCMC evaluation service.

Boise Cascade Chain-Of-Custody Certifications

Boise Cascade Engineered Wood Products (EWP) 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.

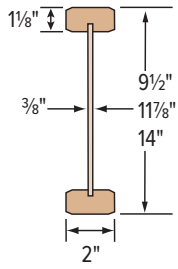
Boise Cascade engineered wood products build better homes with stronger, stiffer floors using only wood purchased in compliance with a number of green building programs.

Take a moment to view our sustainability certification at bc.com/portal/sustainability/certification-audits/ or go to bc.com/sustainability for more information.

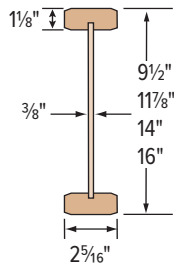
Boise Cascade engineered wood products throughout North America participate in SFI® Fiber Sourcing, SFI Chain of Custody, PEFC® Chain of Custody, and/or FSC® Chain-of-Custody and Controlled Wood certification programs. These programs offer the opportunity for homebuilders to achieve LEED® points in residential and commercial green building programs including LEED for Homes and LEED for New Construction.

Boise Cascade engineered wood products are also NAHB Research Center Green Approved, enabling homebuilders to also obtain green building points through the Green Building Standards.

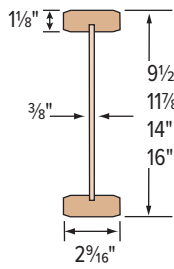
BCI Joist Product Profiles



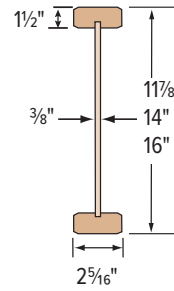
BCI® 5000



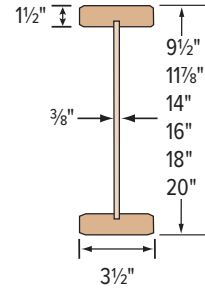
BCI® 6000



BCI® 6500



BCI® 60



BCI® 90

BCI® joists shall be installed in dry-use applications only, per their respective evaluation reports.

Factored Resistances (Limit States Design)

BCI® Joist		Factored Moment Resistance (lbs-ft)	Factored Shear Resistance (lbs)	Joist Stiffness EI (x10 ⁶ lbs-in ²)	Shear Deformation Coefficient, K (x10 ⁶ lbs)	Joist Weight (lbs/ft)	Factored End Bearing Resistance (lbs)		Factored Intermediate Bearing Resistance (lbs)	
							1 1/2" Min. Bearing Length ⁽¹⁾		3 1/2" Min. Bearing Length	
							No Web Stiffeners (lbs)	WITH Web Stiffeners (lbs)	No Web Stiffeners (lbs)	WITH Web Stiffeners (lbs)
Series	Depth									
5000	9 1/2"	4,130	2,330	160	5.2	2	1,500	1,780	3,310	3,710
	11 7/8"	5,300	2,560	265	6.4	2.3	1,500	2,250	3,550	4,500
	14"	6,280	2,880	390	7.6	2.5	1,500	2,410	3,710	4,810
6000	9 1/2"	5,310	2,490	190	5.2	2.2	1,850	2,170	3,790	4,180
	11 7/8"	6,810	2,640	320	6.5	2.5	1,850	2,250	3,950	4,500
	14"	8,080	3,040	470	7.6	2.7	1,850	2,410	4,100	4,970
	16"	9,220	3,430	635	8.7	2.9	1,850	2,560	4,180	5,290
6500	9 1/2"	5,880	2,490	210	5.3	2.3	1,850	2,170	3,790	4,180
	11 7/8"	7,540	2,640	350	6.5	2.6	1,850	2,250	3,950	4,500
	14"	8,950	3,040	515	7.7	2.9	1,850	2,410	4,100	4,970
	16"	10,210	3,430	690	8.7	3.1	1,850	2,560	4,180	5,290
60	11 7/8"	10,370	2,640	430	6.6	2.9	1,850	2,250	3,950	4,500
	14"	12,370	3,040	635	7.7	3.1	1,850	2,410	4,110	4,970
	16"	14,170	3,430	860	8.7	3.3	1,850	2,560	4,180	5,290
90	9 1/2"	12,250	2,640	380	5.4	3.6	1,850	2,250	4,190	4,970
	11 7/8"	15,870	3,390	645	6.7	3.9	1,970	2,920	4,780	5,840
	14"	18,940	3,710	940	7.8	4.1	1,970	3,080	4,810	6,080
	16"	21,700	4,020	1,275	8.9	4.4	2,050	3,390	4,900	6,310
	18" ⁽²⁾	24,430	4,340	1,660	10.0	4.6	N/A	3,630	N/A	6,550
	20" ⁽²⁾	27,130	4,500	2,100	11.1	4.8	N/A	3,950	N/A	6,790

(1) Minimum bearing length at end support is 1 1/2".

(2) BCI® joists deeper than 16" require web stiffeners at all bearing locations.

NOTES

► All resistance factors, as per CSA O86-19 have been applied.

► BCI® joist deflection under uniform load may be calculated with this equation:

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

Δ = deflection (in)

w = uniform load (lb/in)

l = clear span (in)

EI = bending stiffness (lb-in²)

K = shear deformation coefficient (lb)

Building Code Evaluation Report: CCMC 13300-R

Allowable Uniform Floor Load (PLF)

Design Span	Specified Loads (PLF)	BCI® 5000 Depth			BCI® 6000 Depth				BCI® 6500 Depth				BCI® 60 Depth			BCI® 90 Depth					
		9½"	11⅞"	14"	9½"	11⅞"	14"	16"	9½"	11⅞"	14"	16"	11⅞"	14"	16"	9½"	11⅞"	14"	16"	18"	20"
6'	Unfactored Live Load for L/360	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Unfactored Total Load for L/240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Factored Total Load	441	473	494	505	526	546	557	505	526	546	557	526	548	557	558	637	641	653	873	905
8'	Unfactored Live Load for L/360	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Unfactored Total Load for L/240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Factored Total Load	331	355	371	379	395	410	418	379	395	410	418	395	411	418	419	478	481	490	655	679
10'	Unfactored Live Load for L/360	203	-	-	235	-	-	-	256	-	-	-	-	-	-	-	-	-	-	-	-
	Unfactored Total Load for L/240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Factored Total Load	264	284	296	303	316	328	334	303	316	328	334	316	328	334	335	382	384	392	524	543
12'	Unfactored Live Load for L/360	123	196	-	143	232	-	-	157	250	-	-	-	-	258	-	-	-	-	-	-
	Unfactored Total Load for L/240	184	-	-	215	-	-	-	235	-	-	-	-	-	-	-	-	-	-	-	-
	Factored Total Load	220	236	247	252	263	273	278	252	263	273	278	263	274	278	279	318	320	326	436	452
14'	Unfactored Live Load for L/360	79	128	184	93	152	217	-	102	164	-	-	197	-	-	172	-	-	-	-	-
	Unfactored Total Load for L/240	119	192	-	139	-	-	-	153	-	-	-	-	-	-	-	-	-	-	-	-
	Factored Total Load	168	202	212	216	225	234	238	216	225	234	238	225	234	238	239	273	274	280	374	388
16'	Unfactored Live Load for L/360	54	88	127	63	104	150	199	70	113	163	-	136	195	-	119	194	-	-	-	-
	Unfactored Total Load for L/240	81	132	-	95	157	-	-	105	170	-	-	-	-	-	179	-	-	-	-	-
	Factored Total Load	129	165	185	165	197	205	209	183	197	205	209	197	205	209	209	239	240	245	327	339
18'	Unfactored Live Load for L/360		63	91	45	75	108	144	50	81	117	155	98	142	-	86	141	199	-	-	-
	Unfactored Total Load for L/240		94	137	68	112	162	-	75	122	176	-	147	-	-	129	212	-	-	-	-
	Factored Total Load		130	155	131	168	182	185	145	175	182	185	175	182	185	186	212	213	217	291	301
20'	Unfactored Live Load for L/360		46	67		55	80	107		60	87	115	73	105	140	64	105	149	-	251	-
	Unfactored Total Load for L/240		69	101		83	120	160		90	131	-	109	158	-	96	158	-	-	-	-
	Factored Total Load		106	125		136	161	167		150	164	167	158	164	167	167	191	192	196	262	271
22'	Unfactored Live Load for L/360			51		42	61	81		45	66	88	55	80	107	49	81	115	153	195	241
	Unfactored Total Load for L/240			77		63	91	122		68	100	132	83	121	-	73	121	173	-	-	-
	Factored Total Load			103		112	133	152		124	147	152	143	149	152	152	173	174	178	238	246
24'	Unfactored Live Load for L/360						47	63			51	68	43	63	84		63	90	120	154	191
	Unfactored Total Load for L/240						71	95			77	103	65	94	126		95	135	-	-	-
	Factored Total Load						112	128			124	139	131	137	139		159	160	163	218	226
26'	Unfactored Live Load for L/360							50			41	54		50	67		50	72	96	123	154
	Unfactored Total Load for L/240							75			61	82		75	100		75	108	144	185	-
	Factored Total Load							109			105	120		126	128		147	148	150	201	208
28'	Unfactored Live Load for L/360							40				44		40	54		40	58	78	100	125
	Unfactored Total Load for L/240							61				66		60	81		61	87	117	150	188
	Factored Total Load							94				104		117	119		136	137	140	187	194
30'	Unfactored Live Load for L/360														44			48	64	82	103
	Unfactored Total Load for L/240														66			72	96	124	155
	Factored Total Load														111			128	130	174	181

NOTES

- ▶ Loading conditions:
 - Unfactored live load values are limited by deflection equal to L/360. For deflections limited to L/480, multiply live load values by 0.75 (to reduce vibration).
 - Unfactored total load values are limited by deflection equal to L/240.
 - Factored total load values are limited by shear, end/interior reactions or bending moment. Values assume minimum bearing lengths without web stiffeners. 18" to 24" joists require web stiffeners.
 - All three loading cases must be checked. Where a live load value is not shown, the factored total load value will control.
- ▶ For 2-ply, double all loading values (unfactored live load, unfactored total load, or factored total load).
- ▶ Table values:
 - represent the most restrictive of simple or continuous span beams applications and assume an uniform loading. Span is measured center-to-center of the supports. Analyse continuous span beams with the BC Calc® software if the length of any span is less than half the length of an adjacent span.
 - assume that lateral support is provided at each support and continuously along the compression edge of the beam.
 - do not consider composite action from gluing and nailing floor sheathing.
- ▶ This table was designed to apply to a broad range of applications. It may be possible to exceed these limitations by analysing a specific application with the BC Calc® software.

Actual Deflection (in inches) Based on Span and Limit

Deflection Limit	Span													
	6'	8'	10'	12'	14'	16'	18'	20'	22'	24'	26'	28'	30'	
L/480	0.15"	0.20"	0.25"	0.30"	0.35"	0.40"	0.45"	0.50"	0.55"	0.60"	0.65"	0.70"	0.75"	
L/360	0.20"	0.27"	0.33"	0.40"	0.47"	0.53"	0.60"	0.67"	0.73"	0.80"	0.87"	0.93"	1.00"	
L/240	0.30"	0.40"	0.50"	0.60"	0.70"	0.80"	0.90"	1.00	1.10"	1.20"	1.30"	1.40"	1.50"	

Residential Floor Span Tables (40 PSF Live Load, 15 PSF Dead Load)

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 flange of the joists.**

5/8" Plywood Subfloor — Glued and Nailed

BCI® Joist		Simple Span								Continuous Span							
		No Gypsum Ceiling Attached				½" Gypsum Ceiling Attached				No Gypsum Ceiling Attached				½" Gypsum Ceiling Attached			
Series	Depth	12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"
5000	9½"	15'-2"	14'-4"	13'-11"	N/A	15'-8"	14'-10"	14'-4"	N/A	15'-10"	15'-0"	14'-6"	N/A	16'-4"	15'-6"	15'-0"	N/A
	11⅞"	17'-0"	16'-1"	15'-6"	N/A	17'-7"	16'-7"	16'-1"	N/A	17'-9"	16'-9"	16'-2"	N/A	18'-5"	17'-4"	16'-9"	N/A
	14"	18'-7"	17'-5"	16'-10"	N/A	19'-4"	18'-0"	17'-5"	N/A	19'-7"	18'-3"	17'-7"	N/A	20'-6"	19'-1"	18'-3"	N/A
6000	9½"	15'-8"	14'-10"	14'-4"	N/A	16'-2"	15'-3"	14'-9"	N/A	16'-5"	15'-6"	14'-11"	N/A	16'-10"	15'-11"	15'-5"	N/A
	11⅞"	17'-7"	16'-7"	16'-0"	N/A	18'-1"	17'-1"	16'-6"	N/A	18'-5"	17'-3"	16'-8"	N/A	19'-1"	17'-10"	17'-3"	N/A
	14"	19'-4"	18'-0"	17'-4"	N/A	20'-1"	18'-8"	17'-11"	N/A	20'-5"	18'-11"	18'-2"	N/A	21'-3"	19'-9"	18'-11"	N/A
6500	9½"	16'-0"	15'-1"	14'-7"	N/A	16'-5"	15'-6"	14'-11"	N/A	16'-8"	15'-9"	15'-2"	N/A	17'-1"	16'-2"	15'-8"	N/A
	11⅞"	17'-10"	16'-10"	16'-3"	N/A	18'-5"	17'-4"	16'-9"	N/A	18'-9"	17'-7"	17'-0"	N/A	19'-6"	18'-1"	17'-6"	N/A
	14"	19'-9"	18'-3"	17'-8"	N/A	20'-5"	19'-0"	18'-2"	N/A	20'-10"	19'-4"	18'-6"	N/A	21'-7"	20'-1"	19'-3"	N/A
60	11⅞"	18'-7"	17'-5"	16'-10"	N/A	19'-2"	17'-10"	17'-3"	N/A	19'-8"	18'-3"	17'-7"	N/A	20'-4"	18'-10"	18'-1"	N/A
	14"	20'-8"	19'-2"	18'-4"	N/A	21'-4"	19'-10"	18'-11"	N/A	21'-10"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-1"	N/A
	16"	22'-6"	20'-10"	19'-11"	N/A	23'-3"	21'-7"	20'-8"	N/A	23'-9"	22'-0"	21'-1"	N/A	24'-7"	22'-10"	21'-10"	N/A
90	9½"	17'-9"	16'-8"	16'-1"	N/A	18'-1"	17'-0"	16'-5"	N/A	18'-8"	17'-5"	16'-10"	N/A	19'-2"	17'-10"	17'-2"	N/A
	11⅞"	20'-5"	18'-10"	18'-0"	N/A	20'-11"	19'-4"	18'-6"	N/A	21'-7"	19'-11"	19'-0"	N/A	22'-2"	20'-6"	19'-7"	N/A
	14"	22'-8"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-7"	N/A	24'-0"	22'-2"	21'-1"	N/A	24'-8"	22'-9"	21'-9"	N/A
	16"	24'-8"	22'-9"	21'-8"	N/A	25'-4"	23'-5"	22'-4"	N/A	26'-1"	24'-1"	23'-0"	N/A	26'-10"	24'-10"	23'-8"	N/A
20"	28'-4"	26'-2"	24'-11"	N/A	29'-2"	27'-0"	25'-9"	N/A	30'-0"	27'-8"	26'-5"	N/A	30'-11"	28'-7"	27'-3"	N/A	

¾" Plywood Subfloor — Glued and Nailed

BCI® Joist		Simple Span								Continuous Span							
		No Gypsum Ceiling Attached				½" Gypsum Ceiling Attached				No Gypsum Ceiling Attached				½" Gypsum Ceiling Attached			
Series	Depth	12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"
5000	9½"	16'-2"	15'-3"	14'-8"	13'-11"	16'-7"	15'-8"	15'-0"	13'-11"	16'-10"	15'-10"	15'-4"	14'-3"	17'-4"	16'-5"	15'-10"	14'-3"
	11⅞"	18'-0"	17'-0"	16'-5"	15'-9"	18'-8"	17'-7"	16'-11"	16'-3"	19'-0"	17'-9"	17'-1"	16'-2"	19'-9"	18'-5"	17'-8"	16'-2"
	14"	20'-0"	18'-7"	17'-9"	17'-1"	20'-9"	19'-4"	18'-6"	17'-8"	21'-1"	19'-7"	18'-8"	17'-7"	21'-11"	20'-5"	19'-7"	17'-7"
6000	9½"	16'-8"	15'-8"	15'-2"	14'-6"	17'-1"	16'-2"	15'-7"	14'-9"	17'-4"	16'-5"	15'-9"	15'-2"	17'-10"	16'-10"	16'-3"	15'-7"
	11⅞"	18'-9"	17'-6"	16'-11"	16'-2"	19'-4"	18'-0"	17'-5"	16'-8"	19'-9"	18'-4"	17'-8"	16'-11"	20'-6"	19'-1"	18'-2"	17'-5"
	14"	20'-9"	19'-3"	18'-4"	17'-7"	21'-6"	20'-0"	19'-1"	18'-1"	21'-11"	20'-4"	19'-5"	18'-5"	22'-9"	21'-2"	20'-2"	19'-2"
6500	9½"	16'-11"	15'-11"	15'-4"	14'-9"	17'-4"	16'-4"	15'-9"	15'-2"	17'-8"	16'-8"	16'-0"	15'-5"	18'-1"	17'-1"	16'-6"	15'-10"
	11⅞"	19'-1"	17'-10"	17'-2"	16'-5"	19'-9"	18'-4"	17'-8"	16'-11"	20'-2"	18'-9"	17'-11"	17'-2"	20'-10"	19'-5"	18'-6"	17'-8"
	14"	21'-2"	19'-8"	18'-9"	17'-10"	21'-11"	20'-4"	19'-5"	18'-5"	22'-5"	20'-9"	19'-9"	18'-9"	23'-2"	21'-6"	20'-7"	19'-6"
60	11⅞"	20'-0"	18'-6"	17'-9"	17'-0"	20'-7"	19'-1"	18'-2"	17'-5"	21'-1"	19'-7"	18'-8"	17'-9"	21'-9"	20'-2"	19'-3"	18'-3"
	14"	22'-2"	20'-6"	19'-7"	18'-7"	22'-10"	21'-2"	20'-2"	19'-2"	23'-5"	21'-8"	20'-8"	19'-7"	24'-2"	22'-5"	21'-5"	20'-3"
	16"	24'-2"	22'-4"	21'-3"	20'-2"	24'-10"	23'-1"	22'-0"	20'-10"	25'-6"	23'-7"	22'-6"	21'-2"	26'-3"	24'-5"	23'-3"	21'-2"
90	9½"	18'-11"	17'-8"	17'-0"	16'-3"	19'-4"	18'-0"	17'-3"	16'-7"	20'-0"	18'-6"	17'-9"	17'-0"	20'-6"	19'-0"	18'-1"	17'-4"
	11⅞"	21'-10"	20'-2"	19'-3"	18'-2"	22'-4"	20'-8"	19'-8"	18'-8"	23'-1"	21'-4"	20'-4"	19'-3"	23'-8"	21'-11"	20'-10"	19'-9"
	14"	24'-3"	22'-5"	21'-4"	20'-2"	24'-10"	23'-0"	21'-10"	20'-8"	25'-8"	23'-8"	22'-7"	21'-4"	26'-3"	24'-4"	23'-2"	21'-11"
	16"	26'-5"	24'-4"	23'-2"	21'-11"	27'-0"	25'-0"	23'-10"	22'-6"	27'-11"	25'-9"	24'-6"	23'-2"	28'-7"	26'-5"	25'-2"	23'-10"
20"	30'-4"	28'-0"	26'-7"	25'-1"	31'-1"	28'-9"	27'-5"	25'-11"	32'-1"	29'-7"	28'-2"	26'-7"	33'-0"	30'-5"	29'-0"	27'-5"	

NOTES FOR TABLES ON PAGES 6 AND 7

- ▶ Tables are based on:
 - deflection limits of L/240 total load and L/360 live load.
 - uniform loads of 40 PSF live load and 15 PSF dead load (for standard term load duration).
 - minimum end bearing length is 1½"; minimum interior bearing length is 3½".
 - clear spans between supports.
- ▶ Joists deeper than 16" require web stiffeners at all bearing locations

- ▶ Spans shown are in accordance with NBCC2020.
- ▶ Tabulated values shown assume a glued and nailed subfloor and are in compliance with the CCMC Vibration Criteria "Concluding" Report (dated September 4, 1997), in accordance with CSA O86-19 Clause A.5.4.5.2 b) provision.
- ▶ Lateral support must be provided for the compression edge and also at the bearings to prevent lateral displacement or rotation.

(continued on page 7)

WARNING: Use of Span Tables for Commercial Projects (NBCC 2020: Part 4): All projects within the scope of Part 4 of the National Building Code of Canada (NBCC) must consider the effects of concentrated loads, as stipulated in article 4.1.5.9. The designer of record must verify the effects of a concentrated load on the joists on all projects within the scope of Part 4 of NBCC. Table 4.1.5.9 lists concentrated loads that shall be analysed with respect to the intended use of the floor. Given the numerous possible permutations, the span tables listed above do not take the effects of concentrated loads into consideration.

Residential Floor Span Tables (40 PSF Live Load, 15 PSF Dead Load)

¹⁹/₃₂" Oriented Strand Board (OSB) Subfloor – Glued and Nailed

BCI® Joist		Simple Span								Continuous Span							
		No Gypsum Ceiling Attached				½" Gypsum Ceiling Attached				No Gypsum Ceiling Attached				½" Gypsum Ceiling Attached			
Series	Depth	12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"
5000	9½"	15'-5"	14'-6"	14'-1"	N/A	15'-11"	15'-0"	14'-6"	N/A	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-8"	15'-2"	N/A
	11⅞"	17'-3"	16'-3"	15'-8"	N/A	17'-9"	16'-10"	16'-3"	N/A	18'-0"	17'-0"	16'-5"	N/A	18'-8"	17'-7"	17'-0"	N/A
	14"	18'-10"	17'-8"	17'-1"	N/A	19'-8"	18'-4"	17'-8"	N/A	19'-11"	18'-6"	17'-10"	N/A	20'-9"	19'-4"	18'-7"	N/A
6000	9½"	15'-11"	15'-0"	14'-6"	N/A	16'-4"	15'-5"	14'-11"	N/A	16'-7"	15'-8"	15'-2"	N/A	17'-1"	16'-2"	15'-7"	N/A
	11⅞"	17'-9"	16'-9"	16'-2"	N/A	18'-4"	17'-3"	16'-8"	N/A	18'-8"	17'-6"	16'-11"	N/A	19'-5"	18'-1"	17'-5"	N/A
	14"	19'-7"	18'-2"	17'-7"	N/A	20'-4"	18'-11"	18'-2"	N/A	20'-9"	19'-3"	18'-5"	N/A	21'-6"	20'-0"	19'-2"	N/A
	16"	21'-4"	19'-9"	18'-11"	N/A	22'-2"	20'-7"	19'-9"	N/A	22'-7"	20'-11"	20'-0"	N/A	23'-5"	21'-10"	20'-11"	N/A
6500	9½"	16'-2"	15'-3"	14'-9"	N/A	16'-7"	15'-8"	15'-2"	N/A	16'-10"	15'-11"	15'-4"	N/A	17'-4"	16'-4"	15'-10"	N/A
	11⅞"	18'-1"	17'-0"	16'-5"	N/A	18'-8"	17'-6"	16'-11"	N/A	19'-1"	17'-9"	17'-2"	N/A	19'-9"	18'-4"	17'-8"	N/A
	14"	20'-0"	18'-7"	17'-10"	N/A	20'-9"	19'-3"	18'-5"	N/A	21'-2"	19'-7"	18'-9"	N/A	21'-11"	20'-5"	19'-6"	N/A
60	11⅞"	18'-10"	17'-7"	17'-0"	N/A	19'-6"	18'-1"	17'-5"	N/A	19'-11"	18'-6"	17'-9"	N/A	20'-7"	19'-1"	18'-3"	N/A
	14"	20'-11"	19'-5"	18'-7"	N/A	21'-8"	20'-1"	19'-2"	N/A	22'-2"	20'-6"	19'-7"	N/A	22'-11"	21'-3"	20'-4"	N/A
	16"	22'-10"	21'-1"	20'-2"	N/A	23'-7"	21'-10"	20'-11"	N/A	24'-1"	22'-4"	21'-4"	N/A	24'-11"	23'-2"	22'-2"	N/A
90	9½"	17'-11"	16'-10"	16'-3"	N/A	18'-4"	17'-3"	16'-7"	N/A	18'-11"	17'-7"	17'-0"	N/A	19'-5"	18'-0"	17'-4"	N/A
	11⅞"	20'-8"	19'-1"	18'-3"	N/A	21'-3"	19'-7"	18'-9"	N/A	21'-10"	20'-2"	19'-3"	N/A	22'-5"	20'-9"	19'-10"	N/A
	14"	22'-11"	21'-2"	20'-2"	N/A	23'-7"	21'-10"	20'-10"	N/A	24'-3"	22'-5"	21'-5"	N/A	24'-11"	23'-1"	22'-0"	N/A
	16"	24'-11"	23'-0"	22'-0"	N/A	25'-8"	23'-9"	22'-7"	N/A	26'-5"	24'-4"	23'-3"	N/A	27'-2"	25'-1"	24'-0"	N/A
	18"	26'-11"	24'-9"	23'-8"	N/A	27'-8"	25'-7"	24'-4"	N/A	28'-5"	26'-3"	25'-0"	N/A	29'-3"	27'-1"	25'-10"	N/A
20"	28'-9"	26'-6"	25'-3"	N/A	29'-6"	27'-4"	26'-0"	N/A	30'-5"	28'-0"	26'-9"	N/A	31'-3"	28'-11"	27'-7"	N/A	

²³/₃₂" Oriented Strand Board (OSB) Subfloor – Glued and Nailed

BCI® Joist		Simple Span								Continuous Span							
		No Gypsum Ceiling Attached				½" Gypsum Ceiling Attached				No Gypsum Ceiling Attached				½" Gypsum Ceiling Attached			
Series	Depth	12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"
5000	9½"	16'-3"	15'-4"	14'-9"	13'-11"	16'-8"	15'-9"	15'-0"	13'-11"	16'-11"	16'-0"	15'-5"	14'-3"	17'-5"	16'-6"	15'-11"	14'-3"
	11⅞"	18'-1"	17'-1"	16'-6"	15'-10"	18'-10"	17'-8"	17'-0"	16'-4"	19'-2"	17'-10"	17'-2"	16'-2"	19'-11"	18'-6"	17'-9"	16'-2"
	14"	20'-1"	18'-8"	17'-11"	17'-2"	20'-11"	19'-6"	18'-7"	17'-9"	21'-3"	19'-9"	18'-10"	17'-7"	22'-1"	20'-7"	19'-8"	17'-7"
6000	9½"	16'-9"	15'-9"	15'-2"	14'-7"	17'-2"	16'-3"	15'-8"	14'-9"	17'-6"	16'-6"	15'-10"	15'-3"	17'-11"	16'-11"	16'-4"	15'-8"
	11⅞"	18'-10"	17'-7"	17'-0"	16'-3"	19'-6"	18'-1"	17'-6"	16'-9"	19'-11"	18'-6"	17'-9"	17'-0"	20'-7"	19'-2"	18'-4"	17'-6"
	14"	20'-11"	19'-5"	18'-6"	17'-8"	21'-8"	20'-1"	19'-3"	18'-3"	22'-1"	20'-6"	19'-6"	18'-6"	22'-10"	21'-3"	20'-4"	19'-4"
	16"	22'-9"	21'-1"	20'-1"	19'-1"	23'-6"	21'-11"	20'-11"	19'-10"	24'-0"	22'-3"	21'-3"	20'-2"	24'-11"	23'-2"	22'-2"	21'-0"
6500	9½"	17'-0"	16'-0"	15'-5"	14'-10"	17'-5"	16'-5"	15'-10"	15'-2"	17'-9"	16'-9"	16'-1"	15'-5"	18'-3"	17'-2"	16'-7"	15'-11"
	11⅞"	19'-3"	17'-11"	17'-3"	16'-6"	19'-10"	18'-5"	17'-9"	17'-0"	20'-4"	18'-10"	18'-0"	17'-3"	21'-0"	19'-6"	18'-8"	17'-9"
	14"	21'-4"	19'-9"	18'-10"	17'-11"	22'-0"	20'-6"	19'-7"	18'-6"	22'-6"	20'-11"	19'-11"	18'-11"	23'-3"	21'-8"	20'-8"	19'-7"
	16"	23'-2"	21'-6"	20'-6"	19'-5"	23'-11"	22'-3"	21'-3"	20'-2"	24'-6"	22'-8"	21'-8"	20'-6"	25'-4"	23'-7"	22'-6"	21'-2"
60	11⅞"	20'-1"	18'-7"	17'-10"	17'-1"	20'-8"	19'-2"	18'-4"	17'-6"	21'-3"	19'-8"	18'-9"	17'-10"	21'-10"	20'-4"	19'-4"	18'-4"
	14"	22'-4"	20'-8"	19'-8"	18'-8"	23'-0"	21'-4"	20'-4"	19'-3"	23'-7"	21'-10"	20'-10"	19'-9"	24'-3"	22'-7"	21'-6"	20'-5"
	16"	24'-4"	22'-6"	21'-5"	20'-3"	25'-0"	23'-3"	22'-2"	21'-0"	25'-8"	23'-9"	22'-8"	21'-2"	26'-5"	24'-7"	23'-5"	21'-2"
90	9½"	19'-1"	17'-9"	17'-1"	16'-4"	19'-6"	18'-1"	17'-5"	16'-8"	20'-2"	18'-8"	17'-10"	17'-1"	20'-7"	19'-1"	18'-2"	17'-5"
	11⅞"	22'-0"	20'-4"	19'-4"	18'-3"	22'-6"	20'-10"	19'-10"	18'-9"	23'-3"	21'-6"	20'-5"	19'-4"	23'-10"	22'-0"	21'-0"	19'-10"
	14"	24'-5"	22'-7"	21'-5"	20'-3"	25'-0"	23'-2"	22'-0"	20'-10"	25'-10"	23'-10"	22'-8"	21'-5"	26'-5"	24'-6"	23'-4"	22'-0"
	16"	26'-7"	24'-6"	23'-4"	22'-0"	27'-2"	25'-2"	23'-11"	22'-8"	28'-1"	25'-11"	24'-8"	23'-3"	28'-9"	26'-8"	25'-4"	24'-0"
	18"	28'-7"	26'-5"	25'-1"	23'-8"	29'-3"	27'-1"	25'-9"	24'-4"	30'-3"	27'-11"	26'-7"	25'-1"	30'-11"	28'-8"	27'-4"	25'-10"
20"	30'-7"	28'-2"	26'-9"	25'-3"	31'-3"	28'-11"	27'-7"	26'-0"	32'-4"	29'-10"	28'-4"	26'-9"	33'-3"	30'-8"	29'-2"	27'-7"	

(Continued from page 6)

- Concentrated and/or additional partial uniform loads such as, but not limited to, heavier floor coverings, kitchen islands, or partition walls, may increase dead load beyond the limit of these tables. Specific deflection limits may also apply depending upon the type of floor covering. Such applications are beyond the scope of these tables and must be analysed individually.
- The subfloor shall be CSA or APA rated, Canadian Softwood Plywood (CSP), Douglas Fir Plywood (DFP) or Oriented Strand Board (OSB).
- Subfloor adhesive shall comply with CGSB standard CAN-CGSB 71.26-M88 "Adhesive for Field-gluing Plywood to Lumber Framing for Floor Systems" or APA Performance Specification AFG-01.
- It may be possible to exceed the limitations of these tables by analysing a specific application with Boise Cascade BC Calc® or BC Framr® Software.
- Floor tile will increase the dead load and specific deflection limits may apply.

- For continuous spans over intermediate bearings, the shortest span shall not be less than 50% of the longest adjacent span. The end of the short span should be anchored to resist the uplift equal to:

Uplift = $L_2^2(\text{factor}_1 + W_{FD} - W_{FL})/\text{factor}_2$, where:

W_{FD} = Factored dead load (lb/ft) $\text{Factor}_1 = 4a^2 + 3a - 1$
 W_{FL} = Factored live load (lb/ft) $\text{Factor}_2 = 8a(1+a)$
 L_1 = Length of shorter span (ft) a = Short span/long span
 L_2 = Length of longer span (ft)

Short/Long span ratio = a	0.50	0.60	0.70	0.80	0.90	1.00
factor ₁	0.38	1.09	1.99	3.10	4.43	6.00
factor ₂	6.00	7.68	9.52	11.52	13.68	16.00

Actual Deflection Based on Span and Limit

Deflection limit	Span						
	15'	17'	19'	21'	25'	30'	35'
L/360	0.50"	0.57"	0.63"	0.70"	0.83"	1.00"	1.17"
L/240	0.75"	0.85"	0.95"	1.05"	1.25"	1.50"	1.75"

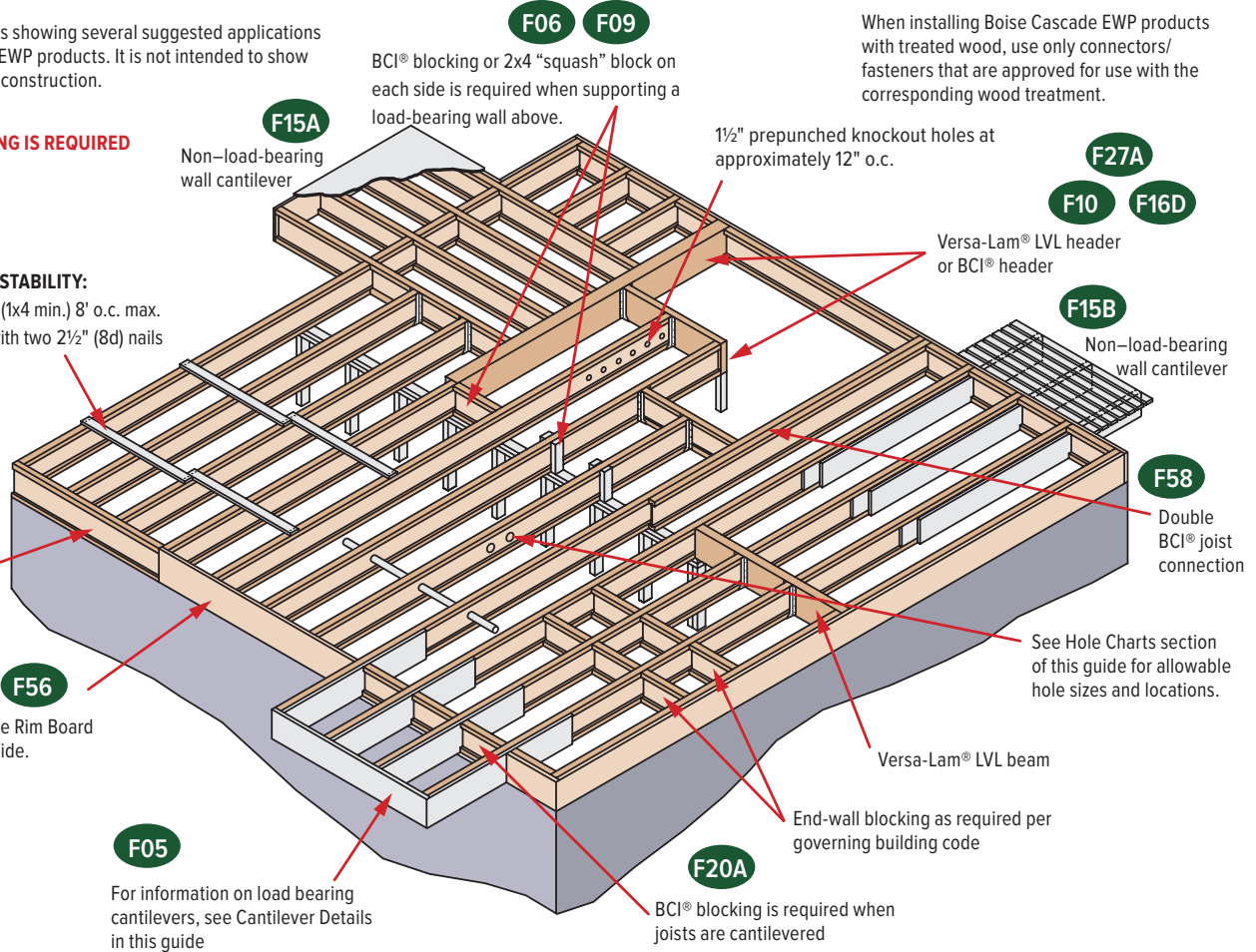
Floor Framing

The illustration below is showing several suggested applications for the Boise Cascade EWP products. It is not intended to show an actual house under construction.

NO MIDSPAN BRIDGING IS REQUIRED FOR BCI® JOISTS

FOR INSTALLATION STABILITY:

Temporary strut lines (1x4 min.) 8' o.c. max. Fasten at each joist with two 2½" (8d) nails minimum.



When installing Boise Cascade EWP products with treated wood, use only connectors/fasteners that are approved for use with the corresponding wood treatment.

Dimension lumber is not suitable for use as a rim board in BCI® floor systems.

SAFETY WARNING

DO NOT ALLOW WORKERS ON BCI® JOISTS UNTIL ALL HANGERS, BCI® RIM JOISTS, RIM BOARDS, BCI® BLOCKING PANELS, X-BRACING AND TEMPORARY 1x4 STRUT LINES ARE INSTALLED AS SPECIFIED BELOW. SERIOUS ACCIDENTS CAN RESULT FROM INSUFFICIENT ATTENTION TO PROPER BRACING DURING CONSTRUCTION. ACCIDENTS CAN BE AVOIDED UNDER NORMAL CONDITIONS BY FOLLOWING THESE GUIDELINES:

- ▶ Build a braced end wall at the end of the bay, or permanently install the first eight feet of BCI® joists and the first course of sheathing. As an alternate, temporary sheathing may be nailed to the first four feet of BCI® joists at the end of the bay.
- ▶ All rim joists, rim boards, x-bracing, blocking panels and hangers must be completely installed and properly nailed as each BCI® joist is set.
- ▶ Install temporary 1x4 strut lines at 8' on-center or closer as additional BCI® joists are set. Nail the strut lines to the sheathed area or braced end wall, and to each BCI® joist with two 2½" (8d) nails.
- ▶ The ends of cantilevers must be temporarily secured by strut lines on both the top and bottom flanges.
- ▶ Straighten the BCI® joists to within 1/2" of true alignment before attaching strut lines and sheathing.
- ▶ Remove the temporary strut lines only as required to install the permanent sheathing.
- ▶ Failure to install temporary bracing may result in sideways buckling or roll-over under light construction loads.
- ▶ Do not stack construction materials (sheathing, drywall, etc.) in the middle of BCI® joist spans. Contact Boise Cascade EWP Engineering for proper storage and shoring information.

PROTECT BCI® JOISTS FROM THE WEATHER

BCI® joists are intended only for applications that provide permanent protection from the weather. Product bundles should be covered and stored off of the ground on stickers. Also see Product Storage and Handling on page 2.

Backer and Filler Block Dimensions

Series	Backer Block Thickness	Filler Block Thickness
5000	¾" or 7/8" wood panels	Two ¾" wood panels or 2 x _
6000	1½" or two ½" wood panels	2 x _ + 7/16" or ½" wood panel
6500	1½" or two 5/8" wood panels	2 x _ + 5/8" or ¾" wood panel
60	1½" or two ½" wood panels	2 x _ + 7/16" or ½" wood panel
90	2 x _ lumber	Double 2 x _ lumber

- ▶ Cut backer and filler blocks to a maximum depth equal to the web depth minus ¼" to avoid a forced fit.

BCI® Rim Joists and Blocking

Depth	Series	Vertical Load Capacity (PLF)	
		No W.S. ⁽¹⁾	W.S. ⁽²⁾
9½"	5000, 6000, 6500	3,300	N/A
	90	3,800	N/A
11⅞"	5000, 6000, 6500	3,100	N/A
	60, 90	3,600	N/A
14"	5000, 6000, 6500	2,900	N/A
	60, 90	3,450	N/A
16"	6000, 6500	2,750	3,600
	60, 90	3,300	3,900
18"	90	N/A	3,900
20"	90	N/A	3,900

(1) No web stiffeners required.

(2) Web stiffeners required at each end of blocking panel, values not applicable for rim joists.

N/A = Not applicable

Floor Framing Details

Additional floor framing details are available in BC Framer® software

End Bearing Details

F07

Dimension lumber is not suitable for use as rim board with BCI® joists.

Rim board: Nail to BCI® joists with 2½" (8d) nail into each flange.

F07A

Dimension lumber is not suitable for use as rim board with BCI® joists.

Blocking may be required perpendicular to wall, consult design professional of record and/or local building official.

F01

BCI® joist blocking

F02

BCI® rim joist

BCI® 90s rim joist requires 2x6 wall for minimum bearing

F27A

Top flange or face mount joist hanger

Versa-Lam® LVL

F52

One 2½" (8d) nail each side at bearing

1½" minimum bearing length

To limit splitting flange, start nails at least 1½" from end. Nails may need to be driven at an angle to limit splitting of bearing plate.

F08

Solid block all posts from above to bearing below.

F03

BCI® rim joist

BCI® floor joist must be designed to carry wall above when not stacked over wall below.

Blocking required underneath braced wall panels and shear walls. Consult design professional of record.

Intermediate Bearing Details

F05

Sheathing or rim board closure

BCI® joist blocking required for cantilever

For load bearing cantilever, see pages 12 and 13. Uplift on backspan shall be considered in all cantilever designs.

F06

For load bearing wall above (stacked over wall below)

BCI® joist blocking

F09

Blocking may be required. Consult design professional of record and/or local building official.

Load bearing wall above (stacked over wall below)

1/16" gap

2x block: nail with one 3" (10d) nail into each flange

Double Squash Block Vertical Load (lb/ft)				
Size	Joist Spacing			
	12"	16"	19.2"	24"
2x4	6,460	4,840	4,030	3,230
2x6	10,140	7,600	6,330	5,070

► Squash blocks must be in full contact with upper floor and lower wall plate.

► Capacities shown are for double squash blocks at each joist, SPF or better.

F10

Joist hanger

Backer block (minimum 12" wide). Nail with ten 3" (10d) nails.

Filler block. Nail with ten 3" (10d) nails.

A backer block is required where top flange hanger load exceeds 350 lbs. All face mount hangers require backer blocks on both sides of the supporting joist's web.

For top flange hangers install tight to top flange. For face mount hangers, install tight to the bottom flange.

F28

BCI® joist or rim board blocking, nail per governing code.

Intermediate bearing

Joist blocking may be required in seismic areas for floor diaphragm strength. X-bracing is allowed as blocking only if the supporting wall is not a braced or shear wall and there is no wall above.

F58

Double BCI® joist connection filler block (if required)

Web filler nailing: 12" o.c.

► Filler block not required when all loads are top loaded and evenly applied to each ply (except BCI® 90). Side loads and/or uneven top loads require filler block.

► See Boise Cascade Technical Note IJ-13 for further information.

► Fasten floor sheathing to each ply per diaphragm nailing schedule.

Lateral Support

- BCI® joists shall be laterally supported at the ends with hangers, rim board, BCI® rim joist or blocking panels. BCI® blocking panels or rim board are required at cantilever supports.
- Blocking may be required at intermediate bearings for floor diaphragm as per code, consult local building official.

Minimum Bearing Length For BCI® Joists

- 1½" is required at end supports. 3½" is required at cantilever and intermediate supports.
- Longer bearing lengths allow higher reaction values. Refer to the building code evaluation report or the BC Calc® software.

Web Stiffeners

- See **Web Stiffener Requirements** on page 10.

Nailing Requirements

- **BCI® rim joist, rim board or closure panel to BCI® joist:**
 - Rims or closure panel 1½" thick and less: Two 2½" (8d) nails, one each in the top and bottom flange.
 - BCI® 5000 rim joist: Two 3" (10d) nails, one each in the top and bottom flange.
 - BCI® 6000/60 rim joist: Two 3½" (16d) nails, one each in the top and bottom flange.
 - BCI® 6500/90 rim joist: Toe-nail top flange to rim joist with two 3" (10d) nails, one each side of flange.
- **BCI® rim joist, rim board or BCI® blocking panel to support:**
 - Min. 2½" (8d) nails at 6" o.c. per NBCC. When used for shear transfer, connect as specified by the design professional of record.

► BCI® joist to support:

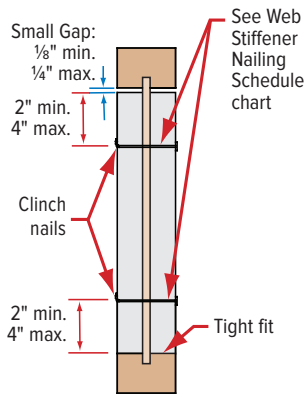
- Two 2½" (8d) nails, one on each side of the web, placed 1½" minimum from the end of the BCI® joist to limit splitting.

► Sheathing to BCI® joist:

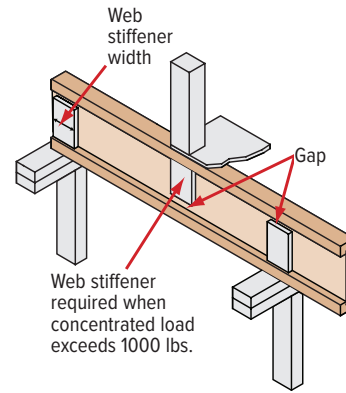
- Prescriptive nailing for residential floor sheathing requires 2½" (8d) common nails at 6" o.c. at edges and 12" o.c. in the field as per code.
- Maximum nail spacing for full lateral stability is 18" for BCI® 5000, 24" for larger BCI® joist series.
- 14 gauge staples may be substituted for 2½" (8d) nails if the staples penetrate at least 1" into the joist.
- Wood screws may be acceptable, contact local building official and/or Boise Cascade EWP Engineering for further information.

Web Stiffener Requirements

F16E



Web stiffeners applied to both sides of the joist web.



Web Stiffener Nailing Schedule

BCI® Joist		Bearing Location	
Series	Depth	End	Intermediate
5000	9½"	2-8d	2-8d
	11⅞"	2-8d	3-8d
	14"	2-8d	5-8d
6000	9½"	2-8d	2-8d
	11⅞"	2-8d	3-8d
	14"	2-8d	5-8d
	16"	2-8d	6-8d
6500	9½"	2-8d	2-8d
	11⅞"	2-8d	3-8d
	14"	2-8d	5-8d
	16"	2-8d	6-8d
60	11⅞"	2-8d	3-8d
	14"	2-8d	5-8d
	16"	2-8d	6-8d
90	9½"	2-16d	2-16d
	11⅞"	3-16d	3-16d
	14"	5-16d	5-16d
	16"	6-16d	6-16d
	18"	7-16d	7-16d
	20"	8-16d	8-16d

Web Stiffener Specifications

BCI® Joist Series	For Structural Capacity (Min. Thick)	Lateral Restraint in Hanger	Minimum Width
5000	5/8"	3/4"	2 5/16"
6000	3/4"	7/8"	2 5/16"
6500	3/4"	1" or 1 1/8"	2 5/16"
60	3/4"	7/8"	2 5/16"
90	2x4 lumber (vertical)		

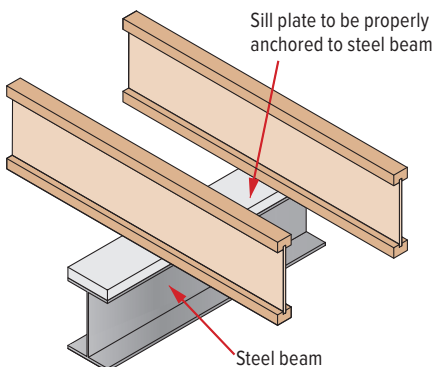
NOTES

Web stiffeners are optional except as noted below.

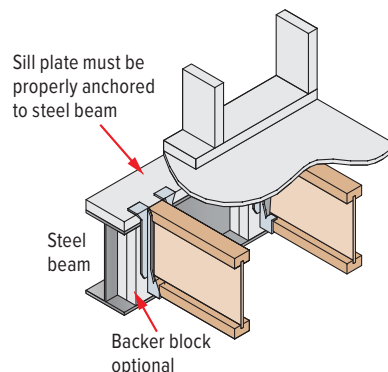
- Web stiffeners are always required:
 - at ALL bearing locations for 18" and 20" joists.
 - in hangers that do not extend up to support the top flange of the BCI® joist.
 - under concentrated loads that exceed 1,000 pounds. Install the web stiffeners snug to the top flange in this situation. Follow the nailing schedule for intermediate bearings.
 - in certain roof applications. See Roof Framing Details in this guide.
- Web stiffeners may be of multiple thickness (e.g., BCI® 6500, double 1/2" panel OK).
- Web stiffeners may be required with sloped or skewed hangers or to achieve uplift values. Refer to the hanger manufacturer's installation requirements.
- **For BCI® 90 only:** Web stiffeners may be cut from structural rated wood panels, engineered rim board or 2x lumber.
- **For structural capacity:** Web stiffeners may be used to increase allowable reaction values. See the Factored Resistances section of this guide or use the BC Calc® software.

Connection Details

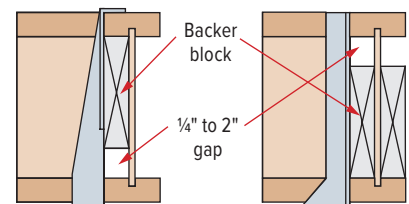
F15D Connection on Steel Beam



F15E Connection with Hanger on Steel Beam



F16D Hanger Connections to BCI® Headers



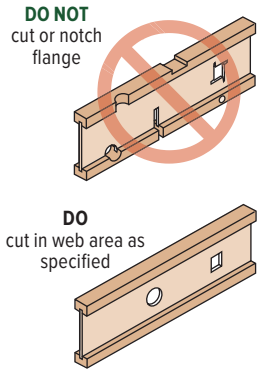
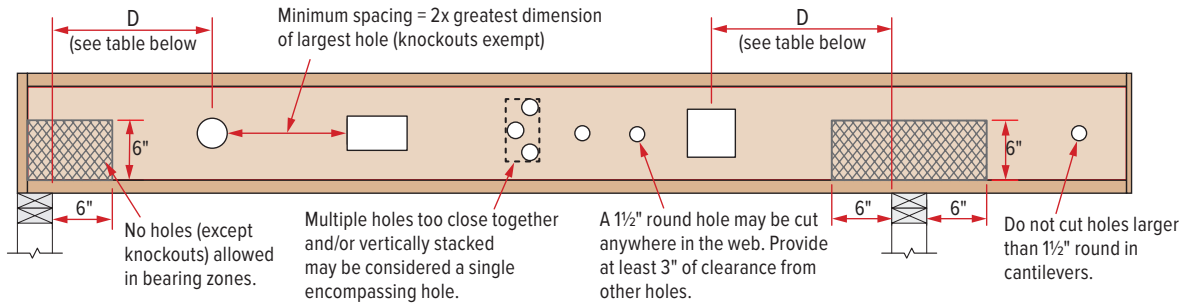
Top Mount

Backer block shall be tight to bottom of top flange with 1/4" to 2" gap at top of bottom flange.

Face Mount

Backer block shall be tight to top of bottom flange with 1/4" to 2" gap at bottom of top flange.

Hole Charts for Residential Applications (40/15)



BCI® joists are manufactured with 1½" round perforated knockouts in the web at approximately 12" on center. Minimum distance from support, listed in table below, is required for all holes greater than 1½".

Minimum Distance (D) From Inside Face of Any Support To Centerline Of Hole

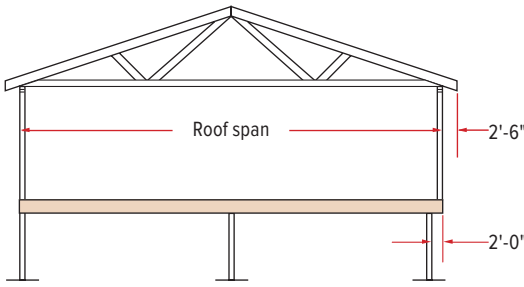
Hole Shape	Span / Hole Size	9½" Joist Depth				11⅞" Joist Depth				14" Joist Depth				16" Joist Depth			
		3"	4"	5"	7"	3"	6"	8"	9½"	3"	6"	9"	11½"	6"	9"	11"	13½"
Round Holes	8'	0'-8"	0'-8"	0'-9"	0'-11"	0'-8"	0'-9"	0'-10"	0'-11"	0'-8"	0'-9"	0'-11"	1'-0"	0'-9"	0'-11"	1'-0"	1'-1"
	10'	0'-8"	0'-8"	0'-9"	2'-0"	0'-8"	0'-9"	0'-10"	1'-11"	0'-8"	0'-9"	0'-11"	1'-4"	0'-9"	0'-11"	1'-0"	1'-1"
	12'	0'-8"	0'-8"	0'-9"	3'-2"	0'-8"	0'-9"	1'-1"	3'-1"	0'-8"	0'-9"	0'-11"	2'-6"	0'-9"	0'-11"	1'-0"	1'-9"
	14'	0'-8"	0'-8"	1'-1"	4'-5"	0'-8"	0'-9"	2'-2"	4'-4"	0'-8"	0'-9"	0'-11"	3'-8"	0'-9"	0'-11"	1'-0"	2'-10"
	16'	0'-8"	0'-8"	2'-2"	5'-7"	0'-8"	0'-9"	3'-4"	5'-6"	0'-8"	0'-9"	1'-8"	4'-10"	0'-9"	0'-11"	1'-0"	4'-0"
	18'	0'-8"	1'-9"	3'-3"	6'-10"	0'-8"	1'-10"	4'-6"	6'-9"	0'-8"	0'-9"	2'-9"	6'-1"	0'-9"	0'-11"	2'-0"	5'-2"
	20'	1'-3"	2'-10"	4'-5"	8'-1"	0'-8"	2'-11"	5'-8"	8'-0"	0'-8"	0'-9"	3'-11"	7'-4"	0'-9"	0'-11"	3'-1"	6'-5"
	22'	2'-4"	3'-11"	5'-7"	9'-5"	0'-8"	4'-0"	6'-10"	9'-3"	0'-8"	1'-5"	5'-1"	8'-7"	0'-9"	1'-9"	4'-2"	7'-8"
	24'	3'-5"	5'-1"	6'-9"	10'-8"	1'-3"	5'-2"	8'-1"	10'-7"	0'-8"	2'-6"	6'-3"	9'-10"	0'-9"	2'-10"	5'-4"	8'-10"
	26'	-	-	-	-	2'-4"	6'-4"	9'-4"	11'-10"	0'-8"	3'-7"	7'-5"	11'-1"	0'-9"	3'-11"	6'-6"	10'-2"
	28'	-	-	-	-	-	-	-	-	1'-2"	4'-8"	8'-7"	12'-4"	1'-6"	5'-1"	7'-8"	11'-5"
	30'	-	-	-	-	-	-	-	-	2'-3"	5'-10"	9'-10"	13'-8"	2'-6"	6'-2"	8'-11"	12'-8"
	32'	-	-	-	-	-	-	-	-	3'-4"	7'-0"	11'-1"	14'-11"	3'-7"	7'-4"	10'-1"	13'-11"
	34'	-	-	-	-	-	-	-	-	-	-	-	-	4'-8"	8'-6"	11'-4"	15'-3"
Square Holes	8'	0'-8"	0'-8"	0'-9"	1'-2"	0'-8"	0'-9"	0'-10"	1'-9"	0'-8"	0'-9"	0'-11"	1'-8"	0'-9"	0'-11"	1'-0"	1'-11"
	10'	0'-8"	0'-8"	0'-9"	2'-3"	0'-8"	0'-9"	1'-7"	2'-11"	0'-8"	0'-9"	1'-0"	2'-9"	0'-9"	0'-11"	1'-2"	3'-1"
	12'	0'-8"	0'-8"	1'-6"	3'-5"	0'-8"	1'-0"	2'-8"	4'-1"	0'-8"	0'-9"	2'-1"	3'-11"	0'-9"	0'-11"	2'-3"	4'-3"
	14'	0'-9"	1'-8"	2'-7"	4'-8"	0'-8"	2'-0"	3'-10"	5'-4"	0'-8"	0'-9"	3'-3"	5'-2"	0'-9"	1'-6"	3'-5"	5'-6"
	16'	1'-9"	2'-9"	3'-9"	5'-10"	0'-8"	3'-2"	5'-0"	6'-7"	0'-8"	1'-9"	4'-5"	6'-5"	0'-9"	2'-7"	4'-7"	6'-9"
	18'	2'-11"	3'-10"	4'-11"	7'-1"	1'-8"	4'-3"	6'-3"	7'-10"	0'-8"	2'-10"	5'-7"	7'-8"	1'-0"	3'-9"	5'-9"	8'-0"
	20'	4'-0"	5'-0"	6'-1"	8'-4"	2'-9"	5'-6"	7'-5"	9'-1"	1'-5"	4'-0"	6'-10"	8'-11"	2'-1"	4'-11"	7'-0"	9'-3"
	22'	5'-2"	6'-2"	7'-3"	9'-7"	3'-10"	6'-8"	8'-8"	10'-5"	2'-6"	5'-1"	8'-0"	10'-2"	3'-2"	6'-1"	8'-2"	10'-7"
	24'	6'-4"	7'-5"	8'-6"	10'-11"	5'-0"	7'-10"	10'-0"	11'-8"	3'-7"	6'-3"	9'-3"	11'-6"	4'-3"	7'-3"	9'-5"	11'-10"
	26'	-	-	-	-	6'-2"	9'-1"	11'-3"	13'-0"	4'-8"	7'-6"	10'-6"	12'-9"	5'-4"	8'-5"	10'-8"	*
	28'	-	-	-	-	7'-4"	10'-4"	12'-6"	*	5'-10"	8'-8"	11'-9"	*	6'-6"	9'-8"	12'-0"	*
	30'	-	-	-	-	-	-	-	-	7'-0"	9'-10"	13'-1"	*	7'-8"	10'-11"	13'-3"	*
	32'	-	-	-	-	-	-	-	-	8'-2"	11'-1"	14'-4"	*	8'-10"	12'-2"	14'-6"	*
	34'	-	-	-	-	-	-	-	-	-	-	-	-	10'-1"	13'-5"	15'-10"	*
Rectangular Holes	8'	1'-3"	1'-11"	2'-6"	2'-0"	0'-11"	1'-6"	2'-3"	3'-0"	0'-11"	1'-7"	2'-4"	3'-1"	0'-11"	1'-1"	1'-2"	1'-10"
	10'	2'-5"	3'-1"	3'-9"	3'-0"	2'-0"	2'-6"	3'-5"	4'-2"	1'-2"	2'-8"	3'-6"	4'-4"	0'-11"	1'-3"	2'-1"	3'-0"
	12'	3'-7"	4'-3"	5'-0"	4'-6"	3'-2"	3'-6"	4'-8"	5'-5"	2'-3"	3'-10"	4'-8"	5'-7"	0'-11"	2'-4"	3'-3"	4'-2"
	14'	4'-9"	5'-6"	6'-3"	5'-6"	4'-4"	5'-0"	5'-11"	6'-9"	3'-5"	5'-0"	5'-11"	6'-10"	1'-8"	3'-5"	4'-5"	5'-4"
	16'	6'-0"	6'-9"	7'-6"	7'-0"	5'-6"	6'-0"	7'-2"	8'-0"	4'-7"	6'-3"	7'-2"	*	2'-9"	4'-7"	5'-7"	6'-7"
	18'	7'-3"	8'-0"	8'-9"	8'-6"	6'-9"	7'-6"	8'-5"	*	5'-9"	7'-6"	8'-5"	*	3'-11"	5'-9"	6'-10"	7'-10"
	20'	8'-6"	9'-3"	*	9'-6"	8'-0"	8'-6"	9'-8"	*	7'-0"	8'-9"	9'-9"	*	5'-1"	7'-0"	8'-0"	9'-1"
	22'	9'-9"	10'-7"	*	*	9'-3"	10'-0"	11'-0"	*	8'-2"	10'-1"	11'-0"	*	6'-3"	8'-3"	9'-3"	10'-5"
	24'	11'-0"	11'-10"	*	*	10'-6"	11'-0"	*	*	9'-5"	11'-4"	*	*	7'-5"	9'-6"	10'-7"	11'-8"
	26'	-	-	-	-	11'-10"	12'-6"	*	*	10'-8"	12'-7"	*	*	8'-8"	10'-9"	11'-10"	13'-0"
	28'	-	-	-	-	13'-1"	13'-6"	*	*	12'-0"	13'-11"	*	*	9'-10"	12'-0"	13'-1"	*
	30'	-	-	-	-	-	-	-	-	13'-3"	*	*	*	11'-1"	13'-3"	14'-5"	*
	32'	-	-	-	-	-	-	-	-	14'-6"	*	*	*	12'-4"	14'-6"	15'-8"	*
	34'	-	-	-	-	-	-	-	-	-	-	-	-	13'-7"	15'-10"	17'-0"	*

* = Holes may be acceptable, contact your local distributor.

NOTES

- ▶ Tables assume
 - simple span application
 - uniformly loaded joists
 - maximum loads of 40 PSF live and 15 PSF dead.
- ▶ Hole may be positioned vertically anywhere in the web.
- ▶ For other load conditions or hole sizes, contact your local distributor.
- ▶ It may be possible to exceed the limitations of those tables by analysing a specific situation with the BC Calc® Software.

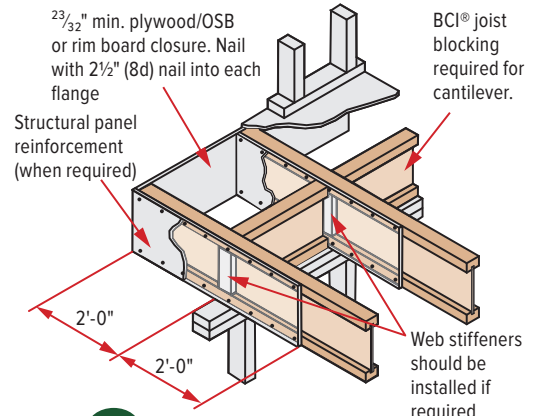
Reinforced Load-Bearing Cantilever



Plywood/OSB Reinforcement (If required per table on pages 14-15 or per BC Calc® analysis)

- ▶ $2\frac{3}{32}$ " min. x 48" long plywood/OSB-rated sheathing must match the full depth of the BCI® joist. Nail to the BCI® joist with $2\frac{1}{2}$ " (8d) nails at 6" o.c. and nail with four 8d nails into backer block. When reinforcing both sides, stagger nails to limit splitting. Install with face grain horizontal.
- ▶ These requirements assume a 100 PLF wall load is applied to the BCI® joist. Additional support may be required for other loadings; see BC Calc® software.
- ▶ For reinforcement requirements on BCI® joist depths greater than 16", contact Boise Cascade EWP Engineering.

- ▶ The tables and details on pages 13-15 indicate the type of reinforcements, if any, that are required for load-bearing cantilevers up to a maximum length of 2'-0". Cantilevers longer than 2'-0" cannot be reinforced. Longer cantilevers with lower loads may be allowable without reinforcement. Analyse specific applications with the BC Calc® software.



F05A

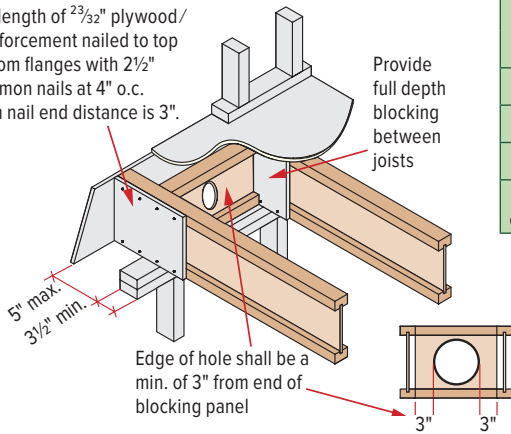
Uplift on back span shall be considered in all cantilever designs

Brick Ledge Cantilever

F20A

12" min. length of $2\frac{3}{32}$ " plywood/OSB reinforcement nailed to top and bottom flanges with $2\frac{1}{2}$ " (8d) common nails at 4" o.c. Minimum nail end distance is 3".

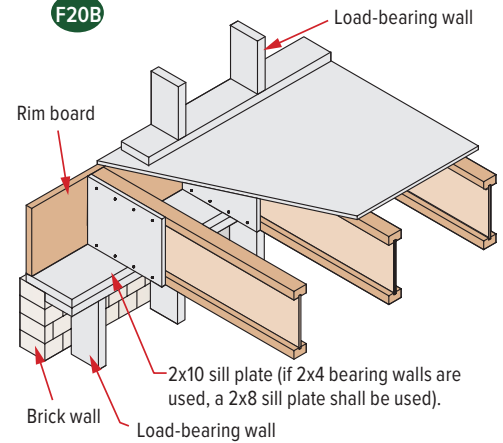
Provide full depth blocking between joists



Max. Factored Vertical Load (PLF) for off-set bearing wall

Joist Depth	Joist o.c. spacing			
	12"	16"	19.2"	24"
9 1/2"	2,846	2,135	1,779	1,423
11 1/8"	3,122	2,342	1,951	1,561
14"	3,450	2,588	2,156	1,725
16" or deeper	3,465	2,599	2,166	1,733

F20B

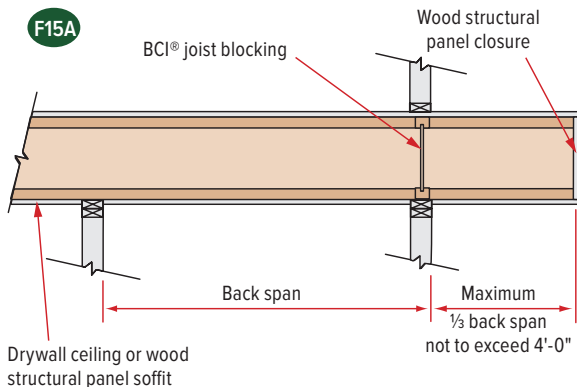


Non-Load-Bearing Wall Cantilever

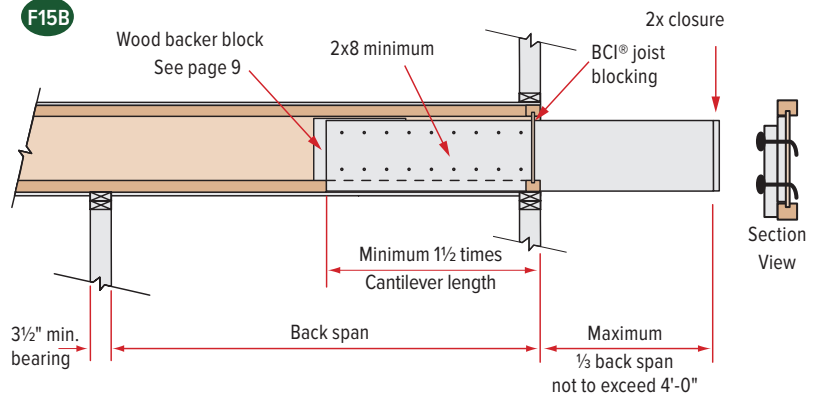
CAUTION: BCI® joists are intended only for applications that provide permanent protection from the weather.

Fasten the 2x8 minimum to the BCI® joist by nailing through the backer block and joist web with two rows of 3" (10d) nails at 6" on center. With BCI® 90 joists use $3\frac{1}{2}$ " (16d) nails. Clinch all nails.

F15A



F15B



- ▶ These details apply to cantilevers with uniform loads only.
- ▶ It may be possible to exceed the limitations of these details by analysing a specific application with the BC Calc® software.

Reinforced Load-Bearing Cantilever Tables

Depth	Series	Roof Truss Span	Specified Snow Load (PSF)										
			30			40			50				
			Joist Spacing (inches)										
			16	19.2	24	16	19.2	24	16	19.2	24		
9 1/2"	5000	24'	0	0	WS	0	0	X	0	X	X		
		26'	0	0	X	0	X	X	0	X	X		
		28'	0	0	X	0	X	X	X	X	X		
		30'	0	0	X	0	X	X	X	X	X		
		32'	0	WS	X	0	X	X	X	X	X		
		34'	0	X	X	X	X	X	X	X	X		
		36'	0	X	X	X	X	X	X	X	X		
		38'	0	X	X	X	X	X	X	X	X		
		40'	0	X	X	X	X	X	X	X	X		
		42'	0	X	X	X	X	X	X	X	X		
		6000	6000	24'	0	0	0	0	0	1	0	0	X
				26'	0	0	0	0	0	X	0	1	X
28'	0			0	WS	0	0	X	0	1	X		
30'	0			0	1	0	0	X	0	X	X		
32'	0			0	1	0	1	X	0	X	X		
34'	0			0	X	0	1	X	1	X	X		
36'	0			0	X	0	1	X	1	X	X		
38'	0			0	X	0	X	X	1	X	X		
40'	0			0	X	1	X	X	X	X	X		
42'	0			1	X	1	X	X	X	X	X		
6500	6500			24'	0	0	0	0	0	1	0	0	X
				26'	0	0	0	0	0	X	0	1	X
		28'	0	0	WS	0	0	X	0	1	X		
		30'	0	0	1	0	0	X	0	X	X		
		32'	0	0	1	0	1	X	0	X	X		
		34'	0	0	X	0	1	X	1	X	X		
		36'	0	0	X	0	1	X	1	X	X		
		38'	0	0	X	0	X	X	1	X	X		
		40'	0	0	X	1	X	X	2	X	X		
		42'	0	1	X	1	X	X	X	X	X		

Depth	Series	Roof Truss Span	Specified Snow Load (PSF)										
			30			40			50				
			Joist Spacing (inches)										
			16	19.2	24	16	19.2	24	16	19.2	24		
11 7/8"	60	24'	0	0	0	0	0	WS	0	0	X		
		26'	0	0	0	0	0	1	0	WS	X		
		28'	0	0	WS	0	0	X	0	1	X		
		30'	0	0	WS	0	0	X	0	1	X		
		32'	0	0	WS	0	WS	X	0	1	X		
		34'	0	0	1	0	1	X	0	X	X		
		36'	0	0	X	0	1	X	1	X	X		
		38'	0	0	X	0	1	X	1	X	X		
		40'	0	0	X	0	1	X	1	X	X		
		42'	0	WS	X	0	X	X	2	X	X		
		90	90	24'	0	0	0	0	0	0	0	0	WS
				26'	0	0	0	0	0	0	0	0	WS
28'	0			0	0	0	0	0	0	0	WS		
30'	0			0	0	0	0	0	WS	0	0	1	
32'	0			0	0	0	0	WS	0	0	2		
34'	0			0	0	0	0	WS	0	0	2		
36'	0			0	0	0	0	1	0	WS	X		
38'	0			0	WS	0	0	1	0	1	X		
40'	0			0	WS	0	0	2	0	1	X		
42'	0			0	WS	0	0	2	0	1	X		
5000	5000			24'	0	0	WS	0	0	WS	0	WS	1
				26'	0	0	WS	0	0	WS	0	WS	X
		28'	0	0	WS	0	WS	1	0	WS	X		
		30'	0	0	WS	0	WS	1	0	WS	X		
		32'	0	0	WS	0	WS	X	WS	1	X		
		34'	0	0	WS	0	WS	X	WS	1	X		
		36'	0	0	WS	0	WS	X	WS	1	X		
		38'	0	WS	1	0	1	X	WS	X	X		
		40'	0	WS	X	WS	1	X	1	X	X		
		42'	0	WS	X	WS	1	X	1	X	X		
		6000	6000	24'	0	0	0	0	0	WS	0	0	WS
				26'	0	0	0	0	0	WS	0	0	X
28'	0			0	WS	0	0	WS	0	WS	X		
30'	0			0	WS	0	0	WS	0	WS	X		
32'	0			0	WS	0	0	1	0	WS	X		
34'	0			0	WS	0	WS	X	0	1	X		
36'	0			0	WS	0	WS	X	0	1	X		
38'	0			0	WS	0	WS	X	WS	1	X		
40'	0			0	1	0	WS	X	WS	X	X		
42'	0			0	X	0	1	X	1	X	X		
6500	6500			24'	0	0	0	0	0	WS	0	0	WS
				26'	0	0	0	0	0	WS	0	0	X
		28'	0	0	WS	0	0	WS	0	WS	X		
		30'	0	0	WS	0	0	WS	0	WS	X		
		32'	0	0	WS	0	0	X	0	WS	X		
		34'	0	0	WS	0	WS	X	0	1	X		
		36'	0	0	WS	0	WS	X	0	1	X		
		38'	0	0	WS	0	WS	X	WS	X	X		
		40'	0	0	1	0	WS	X	WS	X	X		
		42'	0	WS	X	0	1	X	1	X	X		
		14"	60	24'	0	0	0	0	0	WS	0	0	WS
				26'	0	0	0	0	0	WS	0	0	X
28'	0			0	WS	0	0	WS	0	WS	X		
30'	0			0	WS	0	0	WS	0	WS	X		
32'	0			0	WS	0	0	1	0	WS	X		
34'	0			0	WS	0	0	X	0	WS	X		
36'	0			0	WS	0	WS	X	0	1	X		
38'	0			0	WS	0	WS	X	WS	X	X		
40'	0			0	1	0	WS	X	WS	X	X		
42'	0			WS	X	0	1	X	1	X	X		
90	90			24'	0	0	0	0	0	0	0	0	WS
				26'	0	0	0	0	0	0	0	0	WS
		28'	0	0	0	0	0	0	0	0	WS		
		30'	0	0	0	0	0	0	0	0	WS		
		32'	0	0	0	0	0	0	0	0	1		
		34'	0	0	0	0	0	0	0	0	1		
		36'	0	0	0	0	0	0	0	0	WS		
		38'	0	0	0	0	0	0	0	0	WS		
		40'	0	0	0	0	0	0	0	0	WS		
		42'	0	0	0	0	0	0	0	0	WS		

Depth	Series	Roof Truss Span	Specified Snow Load (PSF)										
			30			40			50				
			Joist Spacing (inches)										
			16	19.2	24	16	19.2	24	16	19.2	24		
16"	6000	24'	0	0	0	0	0	WS	0	0	WS		
		26'	0	0	0	0	0	WS	0	0	WS		
		28'	0	0	WS	0	0	WS	0	WS	WS		
		30'	0	0	WS	0	0	WS	0	WS	WS		
		32'	0	0	WS	0	0	WS	0	WS	X		
		34'	0	0	WS	0	WS	WS	0	WS	X		
		36'	0	0	WS	0	WS	X	0	WS	X		
		38'	0	0	WS	0	WS	X	WS	WS	X		
		40'	0	0	WS	0	WS	X	WS	1	X		
		42'	0	0	WS	0	WS	X	WS	X	X		
		6500	6500	24'	0	0	0	0	0	WS	0	0	WS
				26'	0	0	0	0	0	WS	0	0	WS
28'	0			0	WS	0	0	WS	0	WS	WS		
30'	0			0	WS	0	0	WS	0	WS	X		
32'	0			0	WS	0	0	WS	0	WS	X		
34'	0			0	WS	0	WS	WS	0	WS	X		
36'	0			0	WS	0	WS	X	0	WS	X		
38'	0			0	WS	0	WS	X	WS	WS	X		
40'	0			0	WS	0	WS	X	WS	1	X		
42'	0			WS	WS	0	WS	X	WS	X	X		
90	90			24'	0	0	0	0	0	0	0	0	WS
				26'	0	0	0	0	0	0	0	0	0
		28'	0	0	0	0	0	0	0	0	0	WS	
		30'	0	0	0	0	0	0	0	0	0	WS	
		32'	0	0	0	0	0	0	0	0	0	WS	
		34'	0	0	0	0	0	0	0	0	0	WS	
		36'	0	0	0	0	0	0	0	0	0	WS	
		38'	0	0	0	0	0	0	0	0	0	WS	
		40'	0	0	0	0	0	0	0	0	0	WS	
		42'	0	0	0	0	0	0	0	0	0	WS	

NOTES

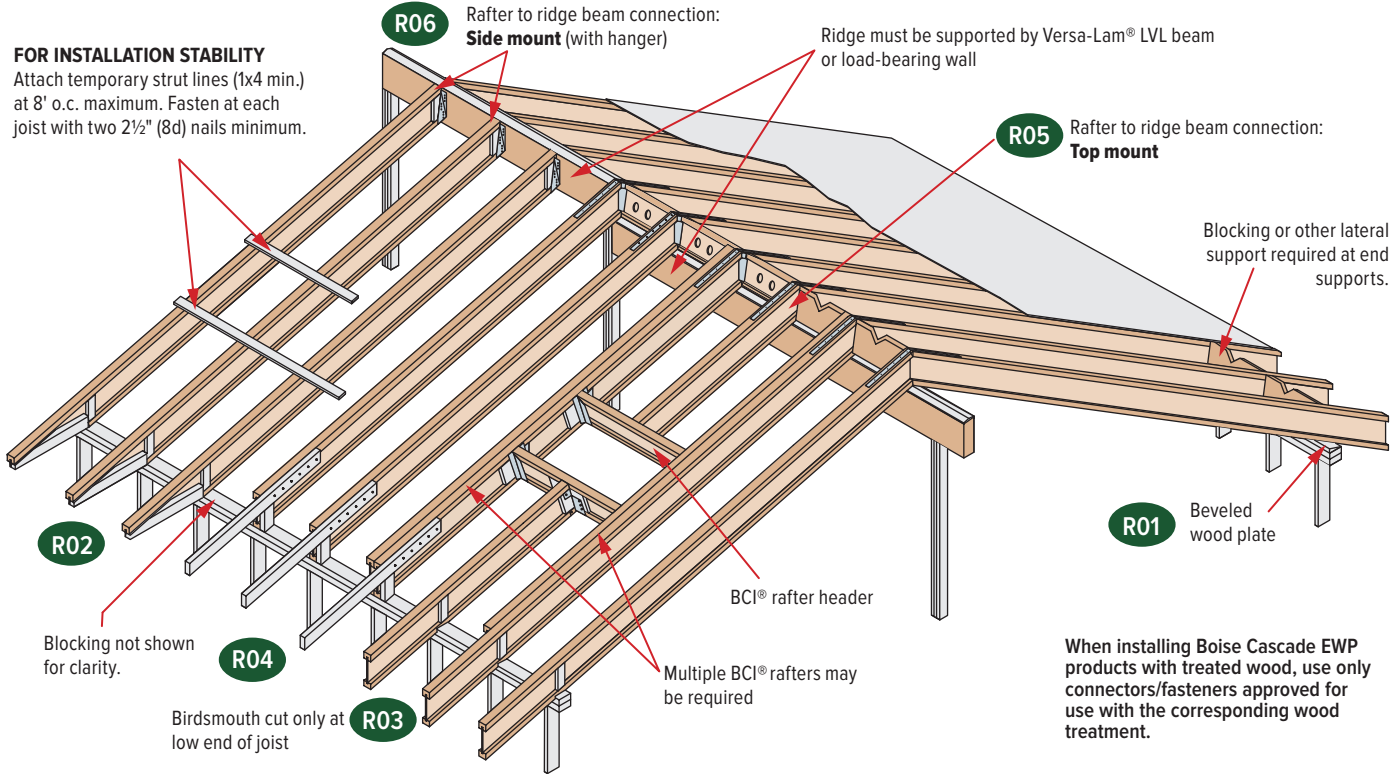
- ▶ Tables are based on the following specified loads: 15 PSF floor dead load, 40 PSF floor live load, 100 PLF wall dead load, 10 PSF roof dead load and the listed specified snow load (standard term load duration).
- ▶ Reinforcers must be 48" long and match joist depth. Use minimum 23/32" APA-rated, Exposure 1, 48/24 Span Rating panels. Cut the 48" length of rebar from the long (8') dimension of the sheathing panel so face grain of the rebar is horizontal.
- ▶ Minimum bearing length is 3 1/2".
- ▶ Fasten the rebar to the joist flanges with 2 1/2" (8d) nails at 6" o.c. When reinforcing both sides, stagger the nails to avoid splitting the joist flanges.
- ▶ Attach web stiffeners per intermediate Web Stiffener Nailing Schedule.
- ▶ Use the BC Calc® software to analyse conditions that are not covered by this table. It may be possible to exceed table limitations by analysing specific applications with BC Calc® software.

KEY TO CANTILEVER TABLES

- 0 No reinforcement required
- WS Web stiffeners at support
- 1 Web stiffeners plus one rebar
- 2 Web stiffeners plus two rebars
- X Use deeper joists or closer spacing

Roof Framing

FOR INSTALLATION STABILITY
Attach temporary strut lines (1x4 min.) at 8' o.c. maximum. Fasten at each joist with two 2½" (8d) nails minimum.



SAFETY WARNING

DO NOT ALLOW WORKERS ON BCI® JOISTS UNTIL ALL HANGERS, BCI® RIM JOISTS, RIM BOARDS, BCI® BLOCKING PANELS, X-BRACING AND TEMPORARY 1x4 STRUT LINES ARE INSTALLED AS SPECIFIED BELOW. SERIOUS ACCIDENTS CAN RESULT FROM INSUFFICIENT ATTENTION TO PROPER BRACING DURING CONSTRUCTION. ACCIDENTS CAN BE AVOIDED UNDER NORMAL CONDITIONS BY FOLLOWING THESE GUIDELINES:

- ▶ Build a braced end wall at the end of the bay, or permanently install the first eight feet of BCI® joists and the first course of sheathing. As an alternate, temporary sheathing may be nailed to the first four feet of BCI® joists at the end of the bay.
- ▶ All hangers, BCI® rim joists, rim boards, BCI® blocking panels, and x-bracing must be completely installed and properly nailed as each BCI® joist is set.
- ▶ Install temporary 1x4 strut lines at no more than eight feet on-center as additional BCI® joists are set. Nail the strut lines to the sheathed area, or braced end wall, and to each BCI® joist with two 2½" (8d) nails.
- ▶ The ends of cantilevers must be temporarily secured by strut lines on both the top and bottom flanges.
- ▶ Straighten the BCI® joist to within ½" of true alignment before attaching strut lines and sheathing.
- ▶ Remove the temporary strut lines only as required to install the permanent sheathing.
- ▶ Failure to install temporary bracing may result in sideways buckling or roll-over under light construction loads.

Lateral Support

- ▶ BCI® joists must be laterally supported at the end supports (including supports adjacent to overhangs) with hangers, rim board, or blocking (Versa-Lam® LVL, Boise Cascade® Rimboard, or BCI® joist). Metal cross bracing or other x-bracing provides adequate lateral support for BCI® joists. Consult governing building code for roof diaphragm connection provisions.

Minimum Bearing Length For BCI® Joists

- ▶ 1½" for all BCI® joists. 3½" is required at cantilever and intermediate supports.
- ▶ Longer bearing lengths allow higher reaction values. Refer to the building code evaluation report or the BC Calc® software.

Nailing Requirements

- ▶ **BCI® rim joist, rim board or closure panel to BCI® joist:**
 - Rims or closure panel 1½" thick and less: Two 2½" (8d) nails, one each in the top and bottom flange.
 - BCI® 5000 rim joist: Two 3" (10d) nails, one each in the top and bottom flange.
 - BCI® 6000/60 rim joist: Two 3½" (16d) nails, one each in the top and bottom flange.
 - BCI® 6500/90 rim joist: Toe-nail top flange to rim joist with Two 3" (10d) nails, one each side of flange.
- ▶ **BCI® rim joist, rim board or BCI® blocking panel to support:**
 - Min. 2½" (8d) nails @ 6" o.c. per NBCC.
 - Connection per design professional of record's specification for shear transfer.
- ▶ **BCI® joist to support:**
 - Two 2½" (8d) nails, one on each side of the web, placed 1½" minimum from the end of the BCI® joist to limit splitting.
- ▶ **Sheathing to BCI® joist:**
 - Prescriptive residential roof sheathing requires 2½" (8d) common nails at 6" o.c. at edges and 12" o.c. in the field as per code.
 - Maximum nail spacing for full lateral stability is 18" for BCI® 5000, 24" for larger BCI® joist series.
 - 14 gauge staples may be substituted for 2½" (8d) nails if the staples penetrate at least 1" into the joist.
 - Wood screws may be acceptable, contact local building official and/or Boise Cascade EWP Engineering for further information.

Web Stiffeners

- ▶ See **Web Stiffener Requirements** on page 10.

Maximum Slope

- ▶ Unless otherwise noted, all roof details are valid for slopes of 12:12 or less.

Ventilation

- ▶ All 1½" prepunched knock-out holes (spaced at 12" o.c. along the joist) may be knocked out for cross ventilation. When designing ventilation, using deeper joists than what is structurally required may be an advantage. Consult local building officials and/or ventilation specialists for specific requirements.

Birdsmouth Cuts

- ▶ BCI® joists may be birdsmouth cut only at the low end support.
- ▶ BCI® joists with birdsmouth cuts may cantilever up to 2'-6" past the low end support.
- ▶ The bottom flange must sit fully on the support and may not overhang the inside face of the support.
- ▶ Birdsmouth cuts are **NOT** allowed at high end or intermediate supports.

Backer and Filler Block Dimensions

Series	Backer Block Thickness	Filler Block Thickness
5000	¾" or ⅞" wood panels	Two ¾" wood panels or 2 x
6000	1⅛" or two ½" wood panels	2 x _ + ⅞" or ½" wood panel
6500	1⅛" or two ⅝" wood panels	2 x _ + ⅝" or ¾" wood panel
60	1⅛" or two ½" wood panels	2 x _ + ⅞" or ½" wood panel
90	2 x _ lumber	Double 2 x _ lumber

- ▶ Cut backer and filler blocks to a maximum depth equal to the web depth minus ¼" to avoid a forced fit.

Roof Framing Details

Additional roof framing details available with BC FRAMER® software

<p>R01</p> <p>2x beveled plate for slopes greater than 1/4:12</p> <p>Simpson VPA or MiTek TMP connectors or equal can be used in lieu of beveled plate for slopes of 3:12 to 12:12.</p>	<p>R02</p> <p>Rim board / Versa-Lam® LVL blocking. "V" cut 1/3 of length, 1/2 of depth.</p> <p>2x4 blocking for soffit support</p> <p>BCI® joist flange may be birdsmouth cut only at the low end of the joist and the cut flange must bear fully on plate; web stiffener required each side. Bottom flange shall be fully supported.</p> <p>2'6" max.</p>	<p>R03</p> <p>Rim board / Versa-Lam® LVL blocking. "V" cut 1/3 of length, 1/2 of depth.</p> <p>Tight fit for lateral stability</p> <p>BCI® joist flange may be birdsmouth cut only at the low end of the joist and the cut flange must bear fully on plate; web stiffener required each side.</p> <p>2'6" max.</p>
<p>R04</p> <p>10d nails at 6" o.c.</p> <p>2x4 one side for 135 PLF max. 2x6 one side for 240 PLF max.</p> <p>Backer block: Thickness per corresponding BCI® series</p> <p>2x block</p> <p>BCI® blocking holes cut for ventilation</p> <p>4'0" horiz.</p> <p>2'6" horiz.</p>	<p>R05</p> <p>Simpson or MiTek LSTA24 strap, nailing per governing building code</p> <p>BCI® blocking holes cut for ventilation</p> <p>Blocking on both sides of ridge may be required for shear transfer per design professional of record.</p> <p>Versa-Lam® LVL support beam</p> <p>Double-beveled wood plate</p>	<p>R06</p> <p>Simpson or MiTek LSTA24 strap where slope exceeds 7:12 (<i>straps may be required for lower slopes in high-wind areas</i>). Nailing per building code.</p> <p>Versa-Lam® LVL support beam</p> <p>Simpson LSSUI or MiTek TMU hanger</p> <p>Beveled web stiffener on each side</p>
<p>R07</p> <p>Backer block (minimum 12" wide). Nail with ten 3" (10d) nails.</p> <p>Joist hanger</p> <p>Filler block: Nail with ten 3" (10d) nails.</p> <p>Backer block required where top flange joist hanger load exceeds 250 lbs. Install tight to top flange.</p>	<p>R11</p> <p>Double joist may be required when L exceeds rafter spacing.</p> <p>Blocking as required</p> <p>Nail outrigger through BCI® joist web</p> <p>2" x L outrigger notched around BCI® joist top flange. Outrigger spacing no greater than 24" o.c.</p> <p>End wall</p>	<p>DN05</p> <p>DO NOT bevel-cut joist beyond inside face of wall, except for specific conditions as shown below.</p>

BCI® Ceiling Joist with Bevel End Cut (For limited-access attics only)

CAUTION: DO NOT use BCI® joists as a collar/tension tie. Roof rafters shall be supported by ridge beam or other upper bearing support.

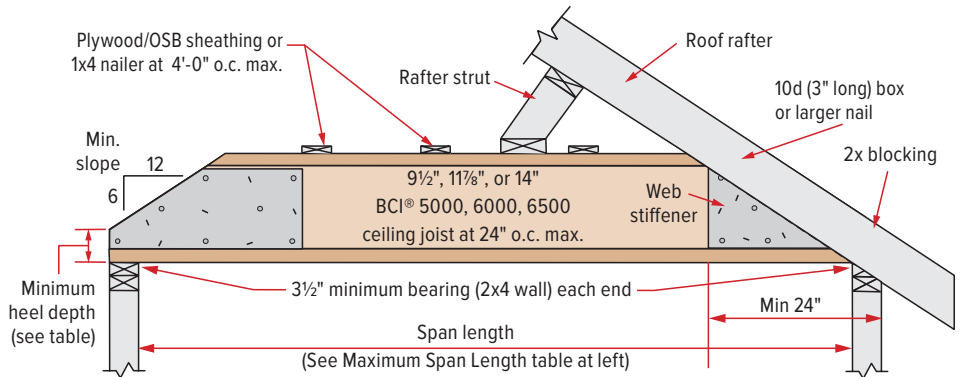
Maximum Span Lengths Without Roof Loads

9½" BCI® 5000, 6000, 6500, 90	19'-6"
11⅞" BCI® 5000, 6000, 6500	22'-0"
14" BCI® 6000, 6500	23'-0"

► If roof loads are present, see first two notes at right.

Minimum Heel Depths

Joist Depth	End Wall	
	2 x 4	2 x 6
9½"	2½"	1½"
11⅞"	3½"	2½"
14"	4½"	3½"



Ceiling loads: Live Load 10 PSF, Dead Load 7 PSF

NOTES:

- Ceiling joist must be designed to carry all roof load transferred through rafter struts as shown.
- BCI® ceiling joist end reaction may not exceed 550 pounds.
- Minimum roof slope is 6:12.
- Detail is to be used only for ceiling joists with no access to attic space.
- Nail roof rafter to BCI® top flange with one 3" (10d) sinker or box nail.
- 1x4 nailers must be continuous and nailed to a braced end wall.
- Install a web stiffener on each side of BCI® joist at beveled ends. Nail roof rafter to BCI® joist per building code requirements for ceiling joist to roof rafter connection.

PROTECT BCI JOISTS FROM THE WEATHER

BCI joists are intended only for applications that provide permanent protection from the weather. Product bundles should be covered and stored off of the ground on stickers.

Roof Span Tables

Loads	BCI® Joist		Low Roof Slope (¼:12 to 6:12)				High Roof Slope (< 6:12 to 12:12)				
	Series	Depth	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	
Dead Load = 10 PSF Snow Load = 20 PSF	5000	9½"	23'-8"	21'-6"	20'-2"	18'-9"	21'-4"	19'-4"	18'-2"	16'-10"	
		11⅞"	28'-0"	25'-5"	23'-11"	21'-9"	25'-2"	22'-11"	21'-6"	19'-11"	
		14"	31'-11"	28'-11"	26'-6"	23'-8"	28'-8"	26'-0"	24'-6"	22'-8"	
	6000	9½"	25'-1"	22'-9"	21'-5"	19'-10"	22'-7"	20'-6"	19'-3"	17'-10"	
		11⅞"	29'-10"	27'-1"	25'-5"	23'-7"	26'-10"	24'-4"	22'-11"	21'-3"	
		14"	33'-11"	30'-9"	28'-11"	26'-10"	30'-6"	27'-8"	26'-0"	24'-2"	
	6500	9½"	25'-11"	23'-6"	22'-1"	20'-6"	23'-4"	21'-2"	19'-11"	18'-5"	
		11⅞"	30'-9"	27'-11"	26'-2"	24'-3"	27'-8"	25'-1"	23'-7"	21'-10"	
		14"	35'-0"	31'-9"	29'-10"	27'-8"	31'-5"	28'-6"	26'-10"	24'-10"	
	60	16"	38'-7"	35'-0"	32'-10"	30'-6"	34'-8"	31'-5"	29'-7"	27'-5"	
		11⅞"	32'-11"	29'-10"	28'-0"	26'-0"	29'-7"	26'-10"	25'-3"	23'-5"	
		14"	37'-6"	34'-0"	31'-11"	29'-7"	33'-8"	30'-7"	28'-9"	26'-8"	
	90	16"	41'-6"	37'-7"	35'-4"	32'-9"	37'-3"	33'-10"	31'-10"	29'-6"	
		9½"	31'-6"	28'-7"	26'-10"	24'-11"	28'-4"	25'-9"	24'-2"	22'-5"	
		11⅞"	37'-7"	34'-1"	32'-1"	29'-8"	33'-10"	30'-8"	28'-10"	26'-9"	
	90	14"	42'-8"	38'-8"	36'-4"	33'-8"	38'-4"	34'-10"	32'-8"	30'-4"	
		16"	47'-3"	42'-10"	40'-3"	37'-3"	42'-6"	38'-6"	36'-3"	33'-7"	
		18"	51'-7"	46'-9"	44'-0"	40'-9"	46'-4"	42'-1"	39'-7"	36'-8"	
	90	20"	55'-10"	50'-7"	47'-7"	44'-1"	50'-2"	45'-6"	42'-9"	39'-8"	
		5000	9½"	21'-7"	19'-7"	18'-4"	16'-7"	19'-6"	17'-9"	16'-8"	15'-5"
			11⅞"	25'-6"	23'-2"	21'-0"	18'-9"	23'-1"	21'-0"	19'-9"	18'-3"
	14"		29'-0"	25'-1"	22'-10"	20'-5"	26'-3"	23'-10"	22'-2"	19'-10"	
	6000	9½"	22'-10"	20'-8"	19'-5"	18'-0"	20'-8"	18'-9"	17'-8"	16'-4"	
		11⅞"	27'-2"	24'-7"	23'-2"	21'-5"	24'-7"	22'-4"	21'-0"	19'-5"	
14"		30'-10"	28'-0"	26'-0"	23'-2"	27'-11"	25'-4"	23'-10"	22'-1"		
6500	16"	34'-1"	30'-5"	27'-9"	24'-10"	30'-11"	28'-0"	26'-4"	24'-1"		
	9½"	23'-7"	21'-5"	20'-1"	18'-7"	21'-4"	19'-5"	18'-3"	16'-11"		
	11⅞"	27'-11"	25'-4"	23'-10"	22'-1"	25'-4"	23'-0"	21'-7"	20'-0"		
60	14"	31'-10"	28'-10"	27'-1"	24'-5"	28'-10"	26'-2"	24'-7"	22'-9"		
	16"	35'-1"	31'-10"	29'-3"	26'-1"	31'-9"	28'-10"	27'-1"	25'-1"		
	11⅞"	29'-11"	27'-2"	25'-6"	23'-7"	27'-1"	24'-7"	23'-1"	21'-5"		
90	14"	34'-1"	30'-11"	29'-0"	26'-11"	30'-10"	28'-0"	26'-4"	24'-5"		
	16"	37'-9"	34'-2"	32'-2"	29'-9"	34'-2"	31'-0"	29'-2"	27'-0"		
	9½"	28'-8"	26'-0"	24'-5"	22'-7"	26'-0"	23'-7"	22'-2"	20'-6"		
90	11⅞"	34'-3"	31'-0"	29'-2"	27'-0"	31'-0"	28'-1"	26'-5"	24'-6"		
	14"	38'-10"	35'-2"	33'-0"	30'-7"	35'-2"	31'-11"	30'-0"	27'-9"		
	16"	43'-0"	38'-11"	36'-7"	33'-11"	38'-11"	35'-4"	33'-2"	30'-9"		
90	18"	46'-11"	42'-6"	40'-0"	37'-0"	42'-6"	38'-7"	36'-3"	33'-7"		
	20"	50'-9"	46'-0"	43'-3"	40'-1"	46'-0"	41'-8"	39'-2"	36'-4"		

NOTES FOR TABLES ON PAGES 16 AND 17

- ▶ Spans shown are in accordance with NBCC 2020.
- ▶ Maximum spans listed are the clear horizontal spans between supports (simple/multiple spans, or one span plus a 2-foot overhang).
- ▶ Minimum end bearing length at end support is 1½".
- ▶ Minimum interior bearing length is 3½".
- ▶ Joists deeper than 16" require web stiffeners at all bearing locations.
- ▶ Total load deflection is limited to L/180, live load deflection is limited to L/240. Check the local building code for other deflection limits that may apply.

- ▶ Lateral support must be provided for the compression edge and also at the bearings to prevent lateral displacement or rotation.
- ▶ Spans shown have not been evaluated for snow drift.
- ▶ Slope roof joists at least ¼:12 to minimize ponding.
- ▶ Allowable spans and loads shall be adjusted and checked for wind loads as required by local building code.
- ▶ It may be possible to exceed the limitations of this table by analysing a specific application with the BC Calc® or BC Framers® software.

(continued on page 17)

WARNING: Use of Span Tables for Commercial Projects (NBCC 2020: Part 4): All projects within the scope of Part 4 of the National Building Code of Canada (NBCC) must consider the effects of concentrated loads, as stipulated in article 4.1.5.9. The designer of record must verify the effects of a concentrated load on the joists on all projects within the scope of Part 4 of NBCC. Table 4.1.5.9 lists concentrated loads that shall be analysed with respect to the intended use of the floor. Given the numerous possible permutations, the span tables listed above do not take the effects of concentrated loads into consideration.

Roof Span Tables

Loads	BCI® Joist		Low Roof Slope (¼:12 to 6:12)				High Roof Slope (< 6:12 to 12:12)				
	Series	Depth	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	
Dead Load = 10 PSF Snow Load = 40 PSF	5000	9½"	19'-8"	17'-10"	16'-6"	14'-9"	18'-3"	16'-6"	15'-6"	14'-5"	
		11⅞"	23'-4"	20'-6"	18'-9"	16'-9"	21'-7"	19'-7"	18'-5"	16'-4"	
		14"	25'-10"	22'-4"	20'-5"	18'-3"	24'-6"	21'-10"	19'-11"	17'-9"	
	6000	9½"	20'-10"	18'-11"	17'-9"	16'-5"	19'-3"	17'-6"	16'-5"	15'-3"	
		11⅞"	24'-10"	22'-6"	21'-2"	19'-0"	22'-11"	20'-10"	19'-7"	18'-2"	
		14"	28'-3"	25'-5"	23'-2"	20'-8"	26'-1"	23'-8"	22'-3"	20'-2"	
		16"	31'-3"	27'-1"	24'-9"	22'-1"	28'-10"	26'-2"	24'-2"	21'-7"	
	6500	9½"	21'-7"	19'-6"	18'-4"	17'-0"	19'-11"	18'-1"	17'-0"	15'-9"	
		11⅞"	25'-7"	23'-2"	21'-9"	20'-2"	23'-8"	21'-5"	20'-2"	18'-8"	
		14"	29'-1"	26'-5"	24'-5"	21'-9"	26'-11"	24'-5"	22'-11"	21'-3"	
		16"	32'-1"	28'-7"	26'-1"	23'-3"	29'-8"	26'-11"	25'-3"	22'-9"	
	60	11⅞"	27'-4"	24'-10"	23'-3"	21'-7"	25'-3"	22'-11"	21'-7"	20'-0"	
		14"	31'-2"	28'-3"	26'-6"	24'-7"	28'-10"	26'-2"	24'-7"	22'-9"	
		16"	34'-6"	31'-3"	29'-5"	24'-9"	31'-10"	28'-11"	27'-2"	23'-7"	
	90	9½"	26'-3"	23'-9"	22'-3"	20'-7"	24'-3"	22'-0"	20'-8"	19'-2"	
		11⅞"	31'-3"	28'-4"	26'-7"	24'-7"	28'-11"	26'-3"	24'-8"	22'-10"	
		14"	35'-6"	32'-2"	30'-2"	26'-5"	32'-10"	29'-9"	27'-11"	25'-2"	
		16"	39'-4"	35'-7"	33'-5"	27'-6"	36'-4"	32'-11"	30'-11"	26'-2"	
		18"	42'-11"	38'-11"	36'-6"	33'-10"	39'-8"	36'-0"	33'-10"	31'-4"	
		20"	46'-6"	42'-1"	39'-7"	36'-7"	42'-11"	38'-11"	36'-7"	33'-10"	
	Dead Load = 10 PSF Snow Load = 50 PSF	5000	9½"	18'-3"	16'-6"	15'-0"	13'-5"	16'-11"	15'-4"	14'-5"	13'-4"
			11⅞"	21'-7"	18'-8"	17'-1"	15'-3"	20'-1"	18'-2"	16'-8"	14'-11"
			14"	23'-6"	20'-4"	18'-7"	16'-7"	22'-10"	19'-11"	18'-2"	16'-0"
		6000	9½"	19'-4"	17'-6"	16'-5"	15'-2"	17'-11"	16'-3"	15'-3"	14'-2"
11⅞"			23'-0"	20'-10"	19'-4"	17'-3"	21'-4"	19'-4"	18'-2"	16'-10"	
14"			26'-2"	23'-1"	21'-1"	18'-10"	24'-3"	22'-0"	20'-8"	18'-6"	
16"			28'-7"	24'-9"	22'-6"	20'-2"	26'-10"	24'-4"	22'-1"	19'-9"	
6500		9½"	20'-0"	18'-1"	17'-0"	15'-8"	18'-6"	16'-10"	15'-9"	14'-7"	
		11⅞"	23'-8"	21'-5"	20'-2"	18'-3"	22'-0"	19'-11"	18'-9"	17'-4"	
		14"	27'-0"	24'-5"	22'-2"	19'-10"	25'-0"	22'-8"	21'-4"	19'-5"	
		16"	29'-9"	26'-0"	23'-9"	20'-7"	27'-7"	25'-0"	23'-3"	19'-9"	
60		11⅞"	25'-4"	23'-0"	21'-7"	19'-11"	23'-6"	21'-4"	20'-0"	18'-7"	
		14"	28'-11"	26'-2"	24'-7"	20'-7"	26'-10"	24'-4"	22'-10"	19'-9"	
		16"	32'-0"	29'-0"	25'-9"	20'-7"	29'-8"	26'-11"	24'-9"	19'-9"	
90		9½"	24'-3"	22'-0"	20'-7"	19'-1"	22'-6"	20'-5"	19'-2"	17'-9"	
		11⅞"	29'-0"	26'-3"	24'-7"	21'-11"	26'-11"	24'-5"	22'-11"	21'-2"	
		14"	32'-11"	29'-9"	27'-5"	21'-11"	30'-6"	27'-8"	26'-0"	21'-0"	
		16"	36'-5"	33'-0"	28'-7"	22'-10"	33'-10"	30'-8"	27'-5"	21'-11"	
		18"	39'-9"	36'-0"	33'-10"	31'-4"	36'-11"	33'-6"	31'-5"	29'-1"	
		20"	43'-1"	39'-0"	36'-7"	33'-10"	39'-11"	36'-3"	34'-0"	31'-6"	

(CONTINUED FROM PAGE 16)

► For continuous spans over intermediate bearings, the shortest span shall not be less than 50% of the longest adjacent span. The end of the short span should be anchored to resist the uplift equal to:

Uplift = $L_2^2(\text{factor}_1 \cdot W_{FD} - W_{FL})/\text{factor}_2$, where:

W_{FD} = Factored dead load (lb/ft) $\text{Factor}_1 = 4a^2 + 3a^3 - 1$
 W_{FL} = Factored live load (lb/ft) $\text{Factor}_2 = 8a(1+a)$
 L_1 = Length of shorter span (ft) a = short span/long span
 L_2 = Length of longer span (ft)

Short/Long span ratio = a	0.50	0.60	0.70	0.80	0.90	1.00
factor ₁	0.38	1.09	1.99	3.10	4.43	6.00
factor ₂	6.00	7.68	9.52	11.52	13.68	16.00

Actual Deflection Based on Span and Limit

Deflection Limit	Span						
	15'	17'	20'	25'	30'	35'	40'
L/240	0.75"	0.85"	1.00"	1.25"	1.50"	1.75"	2.00"
L/180	1.00"	1.13"	1.33"	1.67"	2.00"	2.33"	2.67"

Roof Span Tables

Loads	BCI® Joist		Low Roof Slope (¼:12 to 6:12)				High Roof Slope (< 6:12 to 12:12)				
	Series	Depth	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	
Dead Load = 15 PSF Snow Load = 20 PSF	5000	9½"	22'-5"	20'-4"	19'-2"	17'-9"	20'-0"	18'-2"	17'-1"	15'-10"	
		11⅞"	26'-6"	24'-1"	22'-7"	20'-3"	23'-8"	21'-6"	20'-2"	18'-9"	
		14"	30'-2"	27'-0"	24'-8"	22'-0"	26'-11"	24'-5"	23'-0"	20'-11"	
	6000	9½"	23'-9"	21'-6"	20'-3"	18'-9"	21'-2"	19'-3"	18'-1"	16'-9"	
		11⅞"	28'-3"	25'-7"	24'-1"	22'-4"	25'-2"	22'-10"	21'-6"	19'-11"	
		14"	32'-1"	29'-1"	27'-4"	25'-0"	28'-8"	26'-0"	24'-5"	22'-8"	
		16"	35'-6"	32'-2"	29'-11"	26'-9"	31'-8"	28'-9"	27'-0"	25'-0"	
	6500	9½"	24'-6"	22'-3"	20'-11"	19'-5"	21'-11"	19'-10"	18'-8"	17'-4"	
		11⅞"	29'-1"	26'-4"	24'-9"	23'-0"	25'-11"	23'-7"	22'-2"	20'-6"	
		14"	33'-1"	30'-0"	28'-2"	26'-2"	29'-6"	26'-9"	25'-2"	23'-4"	
		16"	36'-6"	33'-1"	31'-1"	28'-2"	32'-6"	29'-6"	27'-9"	25'-9"	
	60	11⅞"	31'-1"	28'-3"	26'-6"	24'-7"	27'-9"	25'-2"	23'-8"	22'-0"	
		14"	35'-5"	32'-2"	30'-2"	28'-0"	31'-7"	28'-8"	27'-0"	25'-0"	
		16"	39'-3"	35'-7"	33'-5"	31'-0"	35'-0"	31'-9"	29'-10"	27'-8"	
	90	9½"	29'-10"	27'-0"	25'-5"	23'-6"	26'-7"	24'-2"	22'-8"	21'-0"	
		11⅞"	35'-7"	32'-3"	30'-4"	28'-1"	31'-9"	28'-10"	27'-1"	25'-1"	
		14"	40'-4"	36'-7"	34'-4"	31'-10"	36'-0"	32'-8"	30'-8"	28'-5"	
		16"	44'-8"	40'-6"	38'-1"	35'-3"	39'-10"	36'-2"	34'-0"	31'-6"	
		18"	48'-9"	44'-3"	41'-7"	38'-6"	43'-6"	39'-6"	37'-1"	34'-5"	
		20"	52'-9"	47'-10"	45'-0"	41'-8"	47'-1"	42'-8"	40'-2"	37'-3"	
	Dead Load = 15 PSF Snow Load = 30 PSF	5000	9½"	20'-8"	18'-9"	17'-7"	15'-8"	18'-7"	16'-10"	15'-10"	14'-9"
			11⅞"	24'-5"	21'-9"	19'-10"	17'-9"	22'-0"	19'-11"	18'-9"	17'-1"
			14"	27'-5"	23'-8"	21'-8"	19'-4"	25'-0"	22'-8"	20'-9"	18'-7"
		6000	9½"	21'-10"	19'-10"	18'-7"	17'-3"	19'-8"	17'-10"	16'-9"	15'-7"
11⅞"			26'-0"	23'-7"	22'-2"	20'-2"	23'-5"	21'-3"	20'-0"	18'-6"	
14"			29'-7"	26'-10"	24'-7"	21'-11"	26'-7"	24'-2"	22'-8"	21'-0"	
16"			32'-8"	28'-9"	26'-3"	23'-5"	29'-5"	26'-8"	25'-1"	22'-6"	
6500		9½"	22'-7"	20'-6"	19'-3"	17'-10"	20'-4"	18'-5"	17'-4"	16'-1"	
		11⅞"	26'-9"	24'-3"	22'-10"	21'-2"	24'-1"	21'-10"	20'-7"	19'-1"	
		14"	30'-6"	27'-8"	26'-0"	23'-1"	27'-5"	24'-10"	23'-5"	21'-8"	
		16"	33'-7"	30'-6"	27'-8"	24'-8"	30'-3"	27'-5"	25'-9"	23'-11"	
60		11⅞"	28'-8"	26'-0"	24'-5"	22'-7"	25'-9"	23'-5"	22'-0"	20'-5"	
		14"	32'-8"	29'-7"	27'-10"	25'-9"	29'-4"	26'-8"	25'-1"	23'-3"	
		16"	36'-2"	32'-9"	30'-9"	27'-10"	32'-6"	29'-6"	27'-8"	25'-8"	
90		9½"	27'-6"	24'-11"	23'-4"	21'-8"	24'-9"	22'-5"	21'-1"	19'-6"	
		11⅞"	32'-9"	29'-8"	27'-11"	25'-10"	29'-6"	26'-9"	25'-2"	23'-3"	
		14"	37'-2"	33'-8"	31'-8"	29'-3"	33'-5"	30'-4"	28'-6"	26'-5"	
		16"	41'-2"	37'-3"	35'-0"	30'-10"	37'-0"	33'-7"	31'-7"	28'-6"	
		18"	44'-11"	40'-9"	38'-3"	35'-5"	40'-5"	36'-8"	34'-5"	31'-11"	
		20"	48'-7"	44'-1"	41'-5"	38'-4"	43'-9"	39'-8"	37'-3"	34'-6"	

NOTES FOR TABLES ON PAGES 18 AND 19

- ▶ Spans shown are in accordance with NBCC 2020.
- ▶ Maximum spans listed are the clear horizontal spans between supports (simple/multiple spans, or one span plus a 2-foot overhang).
- ▶ Minimum end bearing length at end support is 1½".
- ▶ Minimum interior bearing length is 3½".
- ▶ Joists deeper than 16" require web stiffeners at all bearing locations.
- ▶ Total load deflection is limited to L/180, live load deflection is limited to L/240. Check the local building code for other deflection limits that may apply.

- ▶ Lateral support must be provided for the compression edge and also at the bearings to prevent lateral displacement or rotation.
- ▶ Spans shown have not been evaluated for snow drift.
- ▶ Slope roof joists at least ¼:12 to minimize ponding.
- ▶ Allowable spans and loads shall be adjusted and checked for wind loads as required by local building code.
- ▶ It may be possible to exceed the limitations of this table by analysing a specific application with the BC Calc® or BC Framer® software.

(continued on page 19)

WARNING: Use of Span Tables for Commercial Projects (NBCC 2020: Part 4): All projects within the scope of Part 4 of the National Building Code of Canada (NBCC) must consider the effects of concentrated loads, as stipulated in article 4.1.5.9. The designer of record must verify the effects of a concentrated load on the joists on all projects within the scope of Part 4 of NBCC. Table 4.1.5.9 lists concentrated loads that shall be analysed with respect to the intended use of the floor. Given the numerous possible permutations, the span tables listed above do not take the effects of concentrated loads into consideration.

Roof Span Tables

Loads	BCI® Joist		Low Roof Slope (¼:12 to 6:12)				High Roof Slope (< 6:12 to 12:12)				
	Series	Depth	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	
Dead Load = 15 PSF Snow Load = 40 PSF	5000	9½"	19'-4"	17'-4"	15'-9"	14'-1"	17'-6"	15'-10"	14'-11"	13'-10"	
		11⅞"	22'-10"	19'-7"	17'-11"	16'-0"	20'-8"	18'-9"	17'-4"	15'-6"	
		14"	24'-8"	21'-4"	19'-6"	17'-5"	23'-6"	20'-8"	18'-10"	16'-10"	
	6000	9½"	20'-5"	18'-6"	17'-5"	16'-2"	18'-6"	16'-10"	15'-9"	14'-8"	
		11⅞"	24'-4"	22'-1"	20'-4"	18'-2"	22'-0"	20'-0"	18'-9"	17'-5"	
		14"	27'-8"	24'-3"	22'-2"	19'-9"	25'-0"	22'-8"	21'-4"	19'-2"	
		16"	30'-0"	25'-11"	23'-8"	21'-2"	27'-8"	25'-1"	22'-11"	20'-5"	
	6500	9½"	21'-2"	19'-2"	18'-0"	16'-8"	19'-2"	17'-4"	16'-4"	15'-1"	
		11⅞"	25'-1"	22'-9"	21'-4"	19'-1"	22'-8"	20'-7"	19'-4"	17'-11"	
		14"	28'-6"	25'-7"	23'-4"	20'-10"	25'-10"	23'-5"	22'-0"	20'-2"	
		16"	31'-5"	27'-4"	24'-11"	22'-3"	28'-5"	25'-10"	24'-3"	21'-2"	
	60	11⅞"	26'-10"	24'-4"	22'-10"	21'-2"	24'-3"	22'-0"	20'-8"	19'-2"	
		14"	30'-7"	27'-8"	26'-0"	22'-8"	27'-8"	25'-1"	23'-7"	21'-2"	
		16"	33'-10"	30'-8"	28'-4"	22'-8"	30'-7"	27'-9"	26'-1"	21'-2"	
	90	9½"	25'-8"	23'-3"	21'-10"	20'-3"	23'-3"	21'-1"	19'-10"	18'-4"	
		11⅞"	30'-8"	27'-9"	26'-1"	24'-2"	27'-9"	25'-2"	23'-8"	21'-11"	
		14"	34'-9"	31'-6"	29'-7"	24'-2"	31'-6"	28'-6"	26'-10"	22'-7"	
		16"	38'-6"	34'-11"	31'-5"	25'-1"	34'-10"	31'-7"	29'-5"	23'-6"	
		18"	42'-1"	38'-1"	35'-9"	33'-2"	38'-1"	34'-6"	32'-5"	30'-0"	
		20"	45'-6"	41'-3"	38'-9"	35'-10"	41'-2"	37'-4"	35'-1"	32'-6"	
	Dead Load = 15 PSF Snow Load = 50 PSF	5000	9½"	18'-3"	15'-10"	14'-6"	12'-11"	16'-7"	15'-1"	14'-2"	12'-7"
			11⅞"	20'-10"	18'-0"	16'-5"	14'-8"	19'-8"	17'-6"	16'-0"	14'-3"
			14"	22'-8"	19'-7"	17'-11"	15'-5"	22'-1"	19'-1"	17'-5"	14'-7"
		6000	9½"	19'-4"	17'-6"	16'-5"	14'-8"	17'-7"	15'-11"	15'-0"	13'-11"
11⅞"			23'-0"	20'-5"	18'-8"	16'-8"	20'-11"	19'-0"	17'-10"	16'-2"	
14"			25'-9"	22'-3"	20'-4"	18'-2"	23'-9"	21'-7"	19'-9"	17'-8"	
16"			27'-6"	23'-10"	21'-9"	19'-1"	26'-3"	23'-2"	21'-1"	18'-0"	
6500		9½"	20'-0"	18'-1"	17'-0"	15'-6"	18'-2"	16'-6"	15'-6"	14'-4"	
		11⅞"	23'-8"	21'-5"	19'-8"	17'-6"	21'-6"	19'-6"	18'-4"	17'-0"	
		14"	27'-0"	23'-5"	21'-5"	19'-1"	24'-6"	22'-3"	20'-11"	18'-0"	
		16"	29'-0"	25'-1"	22'-10"	19'-1"	27'-0"	24'-6"	22'-3"	18'-0"	
60		11⅞"	25'-4"	23'-0"	21'-7"	19'-1"	23'-1"	20'-11"	19'-8"	18'-2"	
		14"	28'-11"	26'-2"	23'-11"	19'-1"	26'-3"	23'-10"	22'-4"	18'-0"	
		16"	32'-0"	28'-8"	23'-11"	19'-1"	29'-1"	26'-4"	22'-7"	18'-0"	
90		9½"	24'-3"	22'-0"	20'-7"	19'-1"	22'-1"	20'-0"	18'-10"	17'-5"	
		11⅞"	29'-0"	26'-3"	24'-7"	20'-4"	26'-4"	23'-11"	22'-5"	19'-3"	
		14"	32'-11"	29'-9"	25'-5"	20'-4"	29'-11"	27'-1"	24'-1"	19'-3"	
		16"	36'-5"	31'-10"	26'-6"	21'-2"	33'-1"	30'-0"	25'-0"	20'-0"	
		18"	39'-9"	36'-0"	33'-10"	31'-4"	36'-2"	32'-9"	30'-9"	28'-6"	
		20"	43'-1"	39'-0"	36'-7"	33'-5"	39'-1"	35'-5"	33'-3"	30'-10"	

(CONTINUED FROM PAGE 18)

► For continuous spans over intermediate bearings, the shortest span must not be less than 50% of the longest adjacent span. The end of the short span should be anchored to resist the uplift equal to:

Uplift = $L_2^2(\text{factor}_1 \cdot W_{FD} - W_{FL})/\text{factor}_2$, where:

W_{FD} = Factored dead load (lb/ft) $\text{Factor}_1 = 4a^2 + 3a^3 - 1$
 W_{FL} = Factored live load (lb/ft) $\text{Factor}_2 = 8a(1+a)$
 L_1 = Length of shorter span (ft) a = Short span/long span
 L_2 = Length of longer span (ft)

Short/Long span ratio = a	0.50	0.60	0.70	0.80	0.90	1.00
factor ₁	0.38	1.09	1.99	3.10	4.43	6.00
factor ₂	6.00	7.68	9.52	11.52	13.68	16.00

Actual Deflection Based on Span and Limit

Deflection Limit	Span						
	15'	17'	20'	25'	30'	35'	40'
L/240	0.75"	0.85"	1.00"	1.25"	1.50"	1.75"	2.00"
L/180	1.00"	1.13"	1.33"	1.67"	2.00"	2.33"	2.67"

Roof Allowable Uniform Loads, PLF

Design Span	Specified Loads (PLF)	BCI® 5000			BCI® 6000				BCI® 6500				BCI® 60			BCI® 90					
		9½"	11½"	14"	9½"	11½"	14"	16"	9½"	11½"	14"	16"	11½"	14"	16"	9½"	11½"	14"	16"	18"	20"
6'	Unfactored Snow Load for L/240	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Unfactored Total Load for L/180	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Factored Total Load	441	473	494	505	526	546	557	505	526	546	557	526	548	557	558	637	641	653	873	905
8'	Unfactored Snow Load for L/240	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Unfactored Total Load for L/180	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Factored Total Load	331	355	371	379	395	410	418	379	395	410	418	395	411	418	419	478	481	490	655	679
10'	Unfactored Snow Load for L/240	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Unfactored Total Load for L/180	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Factored Total Load	264	284	296	303	316	328	334	303	316	328	334	316	328	334	335	382	384	392	524	543
12'	Unfactored Snow Load for L/240	184	–	–	215	–	–	–	235	–	–	–	–	–	–	–	–	–	–	–	–
	Unfactored Total Load for L/180	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	Factored Total Load	220	236	247	252	263	273	278	252	263	273	278	263	274	278	279	318	320	326	436	452
14'	Unfactored Snow Load for L/240	119	192	–	139	–	–	–	153	–	–	–	–	–	–	–	–	–	–	–	–
	Unfactored Total Load for L/180	159	–	–	186	–	–	–	204	–	–	–	–	–	–	–	–	–	–	–	–
	Factored Total Load	168	202	212	216	225	234	238	216	225	234	238	225	234	238	239	273	274	280	374	388
16'	Unfactored Snow Load for L/240	81	132	–	95	157	–	–	105	170	–	–	–	–	–	179	–	–	–	–	–
	Unfactored Total Load for L/180	108	–	–	127	–	–	–	140	–	–	–	–	–	–	–	–	–	–	–	–
	Factored Total Load	129	165	185	165	197	205	209	183	197	205	209	197	205	209	209	239	240	245	327	339
18'	Unfactored Snow Load for L/240	58	94	137	68	112	162	–	75	122	176	–	147	–	–	129	212	–	–	–	–
	Unfactored Total Load for L/180	77	126	–	91	150	–	–	100	163	–	–	–	–	173	–	–	–	–	–	–
	Factored Total Load	101	130	155	131	168	182	185	145	175	182	185	212	182	185	186	212	213	217	291	301
20'	Unfactored Snow Load for L/240	42	69	101	50	83	120	160	55	90	131	–	109	158	–	96	158	–	–	–	–
	Unfactored Total Load for L/180	56	93	–	67	111	160	–	73	120	–	–	146	–	–	128	–	–	–	–	–
	Factored Total Load	82	106	125	106	136	161	167	117	150	164	167	158	164	167	167	191	192	196	262	271
22'	Unfactored Snow Load for L/240	32	52	77	38	63	91	122	41	68	100	132	83	121	–	73	121	173	–	–	–
	Unfactored Total Load for L/180	43	70	102	50	84	122	–	55	91	133	–	111	–	–	98	162	–	–	–	–
	Factored Total Load	68	87	103	87	112	133	152	97	124	147	152	143	149	152	152	173	174	178	238	246
24'	Unfactored Snow Load for L/240	25	41	59	29	49	71	95	32	53	77	103	65	94	126	57	95	135	–	–	–
	Unfactored Total Load for L/180	33	54	79	39	65	95	127	43	71	103	137	86	126	–	76	126	–	–	–	–
	Factored Total Load	57	73	87	73	94	112	128	81	104	124	139	131	137	139	139	159	160	163	218	225
26'	Unfactored Snow Load for L/240	–	32	47	23	38	56	75	25	42	61	82	51	75	100	45	75	108	144	–	–
	Unfactored Total Load for L/180	–	43	63	31	51	75	101	34	56	82	109	68	100	–	60	101	144	–	–	–
	Factored Total Load	–	62	74	62	80	95	109	69	89	105	120	121	126	128	128	147	148	150	201	208
28'	Unfactored Snow Load for L/240	–	26	38	–	31	45	61	20	34	49	66	41	60	81	36	61	87	117	150	188
	Unfactored Total Load for L/180	–	34	50	–	41	60	81	27	45	66	88	55	81	108	48	81	117	–	–	–
	Factored Total Load	–	54	64	–	69	82	94	60	76	91	104	105	117	119	119	136	137	140	187	194
30'	Unfactored Snow Load for L/240	–	–	31	–	25	37	50	–	27	40	54	34	49	66	30	50	72	96	124	155
	Unfactored Total Load for L/180	–	–	41	–	34	49	66	–	37	54	72	45	66	89	40	66	96	128	165	–
	Factored Total Load	–	–	55	–	60	71	81	–	67	79	90	92	109	111	108	127	128	130	174	181

NOTES

- ▶ Loading conditions:
 - Unfactored snow load values are limited by deflection equal to L/240. For deflections limited to L/360, multiply snow load values by 0.67.
 - Unfactored total load values are limited by deflection equal to L/180.
 - Factored total load values are limited by shear, end/interior reactions or bending moment. Values also assume minimum bearing lengths without web stiffeners for joist depths of 16" or less. 18" to 24" joists require web stiffeners.
 - All three loading cases must be checked. Where a snow load value is not shown, the factored total load value will control.
- ▶ Table values:
 - represent the most restrictive of simple or continuous span beam applications and assume uniform loading. Span is measured center-to-center of the supports. Analyse continuous span beams with the BC Calc® software if the length of any span is less than half the length of an adjacent span.
 - assume that lateral support is provided at each support and continuously along the compression edge of the beam.
 - do not consider composite action from gluing and nailing floor sheathing.
- ▶ For 2-ply, double the factored total load, unfactored snow and total load values.
- ▶ This table was designed to apply to a broad range of applications. It may be possible to exceed the limitations of this table by analysing a specific application with the BC Calc® software.

Actual Deflection (in inches) Based on Span and Limit

Deflection Limit	Span														
	6'	8'	10'	12'	14'	16'	18'	20'	22'	24'	26'	28'	30'		
L/360	0.20	0.27	0.33	0.40	0.47	0.53	0.60	0.67	0.73	0.80	0.87	0.93	1.00		
L/240	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50		
L/180	0.40	0.53	0.67	0.80	0.93	1.07	1.20	1.33	1.47	1.60	1.73	1.87	2.00		

Dead Load Slope Factor

Joist Pitch	2:12	3:12	4:12	5:12	6:12	7:12	8:12	9:12	10:12	11:12	12:12
Slope Factor	1.014	1.031	1.054	1.083	1.118	1.158	1.202	1.250	1.302	1.357	1.414

PSF to PLF Conversion Table

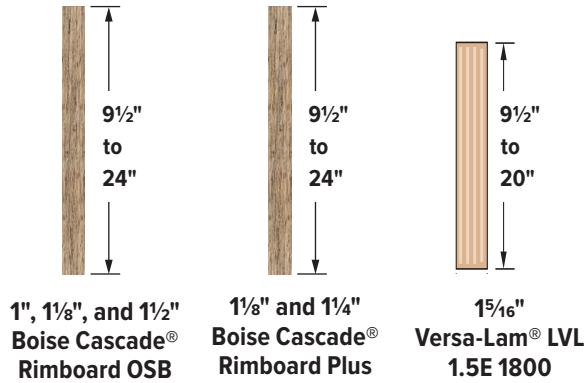
Joist Spacing	Load Per Square Foot (psf)							
	20	25	30	35	40	45	50	60
	Load in Pounds per Linear Foot (plf)							
12"	20	25	30	35	40	45	50	60
16"	27	33	40	47	53	60	67	80
19.2"	32	40	48	56	64	72	80	96
24"	40	50	60	70	80	90	100	120

To Convert From Specified Load (plf) To Factored Load (plf)

Factored (PLF) = 1.25 x Specified Dead Load (PLF) + 1.50 x Specified Live/Snow Load (PLF).

Rim Board Product Profiles and Details

Product Profiles



F56 Ledger Detail

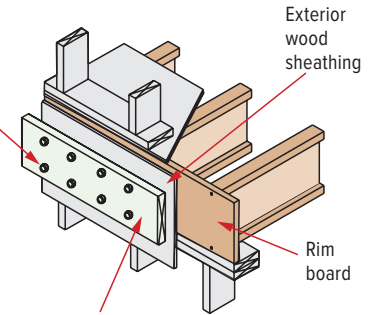
1/2" diameter through bolts (ASTM A307 Grades A&B, SAE J429 Grade 1 or higher) with washers and nuts;

or

1/2" diameter lag screws (full penetration).

Either option provides:

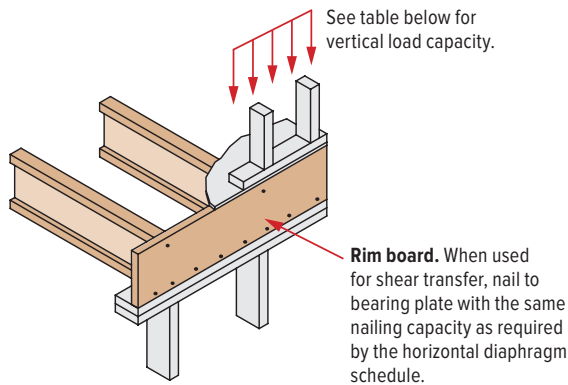
- ▶ 585 lbs per fastener with 1 1/8" or thicker rim
- ▶ 495 lbs per fastener with 1" rim



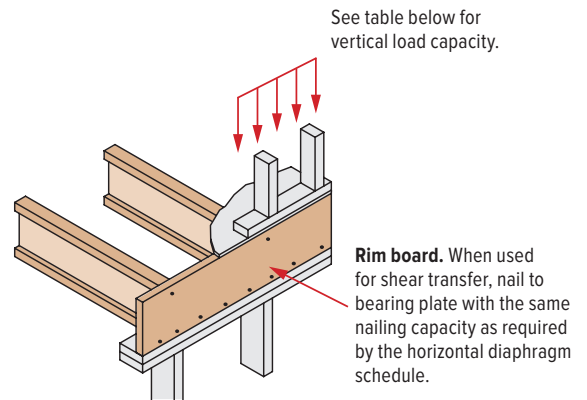
Treated ledger: Use only fasteners approved for use with corresponding wood treatment.

Design of moisture control by others; only structural components are shown above.

F07 Rim Board Perpendicular to BCI® Joists



F07 Rim Board Perpendicular to BCI® Joists



Rim Board Properties

Product	Thickness	$\phi H^{(1)}$ (lb/ft)	ϕV (lb/ft) ⁽²⁾			$\phi Z^{(3)}$ (lb)	$\phi P^{(4)}$ (lb)
			$d \leq 16"$	$16" < d \leq 20"$	$20" < d \leq 24"$		
Boise Cascade® Rimboard (C2)	1"	219	4,785	3,385	2,393	500	5,075
Boise Cascade® Rimboard (C1)	1 1/8"	219	7,033	6,018	4,640	584	5,075
Boise Cascade® Rimboard Plus (B2)	1 1/8"	243	7,033	6,018	4,640	584	5,075
Boise Cascade® Rimboard Plus (B1)	1 1/8"	243	7,468	6,018	4,640	584	5,075
Versa-Lam LVL 1.5E 1800	1 5/16"	(See note 5)	8,700	7,903	7,540	585	6,453

NOTES

- (1) ϕH = Factored horizontal (shear) load transfer capacity is based on the minimum nailing attachment schedule specified in NBCC 2020 and APA document W345 CA.
 - (2) ϕV = Factored uniform bearing (vertical) load resistance. The uniform bearing load shall be simultaneously satisfied with the concentrated vertical load resistance, when applicable.
 - (3) ϕZ = Factored lateral resistance of a 1/2" (12.7 mm) diameter lag screw.
 - (4) ϕP = Factored concentrated vertical load resistance is based on 4 1/2" (114 mm) bearing length. The concentrated vertical load shall be simultaneously satisfied with the uniform bearing load capacity, when applicable.
 - (5) Shall be evaluated as per section 11.5 of CSA O86-19
- ▶ All tabulated values apply to standard-term load duration and may be adjusted for other load durations in accordance with CSA O86-19.

Framing Connectors – MiTek



SINGLE I-JOIST – Canadian/Factored Resistance (lbs)

Joist Height	Top Mount Hangers ⁴						Face Mount Hangers					
	MiTek Stock No. ¹	Fastener Schedule ⁵		Uplift 115% ³	Down 100% ²		MiTek Stock No. ¹	Fastener Schedule ⁵		Uplift 115% ³	Down 100% ²	
		Header	Joist		DF	SPF		Header	Joist		DF	SPF
BCI® 5000												
Joist Width = 2"												
9½"	TFL2095						IHFL20925 Min IHFL20925 Max	(8) 10d	– (2) 10d x 1½	90 405	3,240	2,425
11⅞"	TFL20118	(6) 10d	(2) 10d x 1½	265	2,370	1,960	IHFL20112 Min IHFL20112 Max	(10) 10d	– (2) 10d x 1½	90 405	4,420	3,310
14"	TFL2014						IHFL2014 Min IHFL2014 Max	(12) 10d	– (2) 10d x 1½	90 405		
BCI® 60/6000												
Joist Width = 2⅝"												
9½"	TFL2395						IHFL23925 Min IHFL23925 Max	(8) 10d	– (2) 10d x 1½	90 405	3,240	2,425
11⅞"	TFL23118	(6) 10d	(2) 10d x 1½	265	2,370	1,960	IHFL23112 Min IHFL23112 Max	(10) 10d	– (2) 10d x 1½	90 405	4,420	3,310
14"	TFL2314						IHFL2314 Min IHFL2314 Max	(12) 10d	– (2) 10d x 1½	90 405		
16"	TFL2316						IHFL2316 Min IHFL2316 Max	(14) 10d	– (2) 10d x 1½	90 405		
BCI® 6500												
Joist Width = 2⅞"												
9½"	TFL2595						THFI2595	(8) 10d			1,845	1,700
11⅞"	TFL25118						THFI25118	(10) 10d			3,155	2,910
14"	TFL2514	(6) 10d	(2) 10d x 1½	265	2,370	1,960	THFI2514	(12) 10d	–	90	4,420	3,310
16"	TFL2516						IHFL2516 Min IHFL2516 Max	(14) 10d	– (2) 10d x 1½	90 405		
BCI® 90												
Joist Width = 3½"												
11⅞"	THO35118	(10) 10d			2,950	2,620	IHFL35112 Min IHFL35112 Max	(10) 10d	– (2) 10d x 1½	90 405		
14"	THO35140						IHFL3514 Min IHFL3514 Max	(12) 10d	– (2) 10d x 1½	90 405	4,420	3,310
16"	THO35160	(12) 10d	(2) 10d x 1½	485	3,910	3,385	IHFL3516 Min IHFL3516 Max	(14) 10d	– (2) 10d x 1½	90 405		
18"	TFI418						IHF3518 Min IHF3518 Max	(30) 10d	– (2) 10d x 1½	90 605	5,655	4,280
20"	TFI420	(6) 16d		505	3,685	3,290	IHF3518 Min IHF3518 Max	(14) 10d (30) 10d	– (2) 10d x 1½	90 605	4,420 5,655	3,310 4,280
Joist Height	Slope and Skew Hangers						Adjustable Height Hangers					
	MiTek Stock No. ^{1,6,9}	Fastener Schedule ⁵		Uplift 115% ³	Down 100% ²		MiTek Stock No. ^{1,7}	Fastener Schedule ⁵		Uplift 115% ³	Down 100% ²	
		Header	Joist		DF	SPF		Header	Joist		DF	SPF
BCI® 5000												
Joist Width = 2"												
9½" – 14"	LSSH20-TZ Sloped Only LSSH20-TZ Skewed and/or Slope	(10) 10d	(7) 10d x 1½	1,415	2,065	1,685	MSH2022	(6) 10d	(4) 10d	–	3,370	2,750
BCI® 60/6000												
Joist Width = 2⅝"												
9½" – 16"	LSSH23-TZ Sloped Only LSSH23-TZ Skewed and/or Slope	(10) 10d	(7) 10d x 1½	1,415	2,065	1,685	MSH2322	(6) 10d	(4) 10d x 1½	–	3,370	2,750
BCI® 6500												
Joist Width = 2⅞"												
9½" – 16"	LSSH25-TZ Sloped Only LSSH25-TZ Skewed and/or Slope	(18) 16d (14) 16d	(12) 10d x 1½	1,705	3,735 2,245	2,980 1,830	MSH322	(6) 10d	(4) 10d x 1½	–	3,370	2,750
BCI® 90												
Joist Width = 3½"												
11⅞" – 20"	LSSH35-TZ Sloped Only LSSH35-TZ Skewed and/or Slope	(18) 16d (14) 16d	(12) 10d x 1½	2,315	4,505 2,670	3,860 2,195	MSH422 MSH426 (20")	(6) 10d	(6) 10d	–	3,215 4,340	2,525 3,405
Joist Height	Skewed 45° Hangers						Variable Pitch Connectors (Slope 12:12)					
	MiTek Stock No. ¹	Fastener Schedule ⁵		Uplift 115% ³	Down 100% ²		MiTek Stock No. ^{1,10}	Fastener Schedule ⁴		Uplift 115% ³	Down 100% ²	
		Header	Rafter		DF	SPF		Plate	Joist		DF	SPF
BCI® 5000												
Joist Width = 2"												
9½" – 11⅞"	SKH2020L/R	(14) 10d			3,440	2,700	TMP21	(6) 10d	(4) 10d x 1½	400	1,815	1,425
14"	SKH2024L/R	(16) 10d	(10) 10d x 1½	2,855	4,640	3,645	TMPH21	(10) 10d	(8) 10d x 1½	375	4,120	3,235
BCI® 60/6000												
Joist Width = 2⅝"												
9½" – 11⅞"	SKH2320L/R	(14) 10d			3,440	2,700	TMP23	(6) 10d	(4) 10d x 1½	400	2,770	2,830
14" – 16"	SKH2324L/R	(16) 10d	(10) 10d x 1½	2,855	4,640	3,645	TMPH23	(10) 10d	(8) 10d x 1½	375	4,120	3,235
BCI® 6500												
Joist Width = 2⅞"												
9½" – 11⅞"	SKH2520L/R	(14) 10d			3,440	2,700	TMP25	(6) 10d	(4) 10d x 1½	400	2,770	2,175
14" – 16"	SKH2524L/R	(16) 10d	(10) 10d x 1½	2,855	4,640	3,645	TMPH25	(10) 10d	(8) 10d x 1½	375	4,120	3,235
BCI® 90												
Joist Width = 3½"												
11⅞"	HD410_SKH45L/R_BV ⁷	(20) 16d			5,870	4,625	TMP4	(6) 10d	(4) 10d x 1½	400	2,770	2,175
14" – 20"	HD414_SKH45L/R_BV ⁷	(26) 16d	(10) 10d	3,053	7,540	6,965	TMPH4	(10) 10d	(8) 10d x 1½	375	4,120	3,235

Framing Connectors – MiTek



DOUBLE I-JOIST – Canadian/Factored Resistance (lbs)

Joist Height	Top Mount Hangers ⁴						Face Mount Hangers								
	MiTek Stock No. ¹	Fastener Schedule ^{5,6}		Uplift 115% ³	Down 100% ²		MiTek Stock No. ¹	Fastener Schedule ^{5,6}		Uplift 115% ³	Down 100% ²				
		Header	Joist		DF	SPF		Header	Joist		DF	SPF			
Double BCI® 5000															
Joist Width = 4"															
9½"	THO20950-2	(10) 16d	(6) 10d	2,140	3,355	3,320	IHF20925-2 Max	(24) 16d	(2) 10d x 1½"	605	5,655	4,280			
11⅞"	THO20118-2					3,662	IHF20112-2 Max								
14"	THO20140-2					4,610	IHF2014-2 Max								
Double BCI® 60/6000															
Joist Width = 4⅝"															
9½"	THO23950-2	(10) 16d	(6) 10d	2,140	5,090	4,570	IHF23925-2 Max	(24) 16d	(2) 10d x 1½"	605	5,655	4,280			
11⅞"	THO23118-2					IHF23118-2 Max									
14"	THO23140-2					5,545	IHF23140-2 Max								
16"	THO23160-2	(12) 16d					IHF23160-2 Max								
Double BCI® 6500															
Joist Width = 5⅝"															
9½"	THO25950-2	(10) 16d	(6) 10d	2,140	5,090	4,570	IHF25925-2 Max	(24) 16d	(2) 10d x 1½"	605	5,655	4,280			
11⅞"	THO25118-2					IHF25112-2 Max									
14"	THO25140-2					5,545	THF25140-2						(20) 10d	(6) 10d	3,185
16"	THO25160-2	(12) 16d													
Double BCI® 90															
Joist Width = 7"															
11⅞"	BPH7118	(10) 16d	(6) 10d	2,935	5,300	4,305	HD7120	(16) 16d	(8) 10d	2,460	5,030	4,180			
14"	BPH7114						HD7140	(20) 16d					3,745		
16"	BPH7116						HD7160	(24) 16d					3,930	5,585	4,710
18"	BPH7118						HD7180	(28) 16d						7,670	6,430
20"	BPH7120														
Joist Height	Skewed 45° Hangers						Adjustable Height Hangers								
	MiTek Stock No. ^{1,7}	Fastener Schedule ^{5,6}		Uplift 115% ³	Down 100% ²		MiTek Stock No. ^{1,10}	Fastener Schedule ^{5,6}		Uplift 115% ³	Down 100% ²				
Header	Joist	DF	SPF		Header	Joist		DF	SPF						
Double BCI® 5000															
Joist Width = 4"															
9½"	SKH2020L/R-2	(14) 10d	(10) 10d	3,490	5,320	4,175	See current MiTek <i>Structural Products Catalog</i> or BC Framers for specialty hanger options								
11⅞"		(16) 10d											3,485	4,950	3,885
14"		(16) 10d											3,485	4,950	3,885
Double BCI® 60/6000															
Joist Width = 4⅝"															
9½"	SKH2320L/R-2	(14) 10d	(10) 10d	3,490	5,320	4,175	MSH2322-2 ⁸	(6) 10d	(4) 10d	-	3,475	2,830			
11⅞"		(16) 10d											3,485	4,950	3,885
14"		(16) 10d											3,485	4,950	3,885
16"	SKH2324L/R-2	(16) 10d													
Double BCI® 6500															
Joist Width = 5⅝"															
9½"	SKH2520L/R-2	(14) 10d	(10) 10d	3,490	5,320	4,175	See current MiTek <i>Structural Products Catalog</i> or BC Framers for specialty hanger options								
11⅞"		(16) 10d											3,485	4,950	3,885
14"		(16) 10d											3,485	4,950	3,885
16"	SKH2524L/R-2	(16) 10d													
Double BCI® 90															
Joist Width = 7"															
11⅞"	HD7120-SK45L/R ⁹	(16) 16d	(8) 10d	2,015			4,675	3,670	See current MiTek <i>Structural Products Catalog</i> or BC Framers for specialty hanger options						
14"	HD7140-SK45L/R ⁹	(20) 16d					7,485	5,875							
16"	HD7160-SK45L/R ⁹	(24) 16d					8,250	6,475							
18"	HD7180-SK45L/R ⁹	(28) 16d													
20"															

- (1) Shaded hangers require web stiffeners at joist ends. Web stiffeners may be required for non-shaded hangers by I-joist manufacturers.
- (2) Factored resistance is based on hanger attachment to a DF-L or SPF species solid sawn lumber, or Versa-Lam® header.
- (3) Factored uplift resistance have been increased 15% for short-term wind and seismic loading; reduce for other load durations in accordance with the code.
- (4) Top mount hangers assume supporting headers to have a minimum height of 5½" and a minimum thickness of the length of the header nails. For wood nailer options or header materials not included in these tables, refer to the current MiTek *Structural Products Catalog*.
- (5) 10d x 1½" nails are 0.148" diameter x 1½" long, 10d nails are 0.148" diameter x 3" long and 16d nails are 0.162" diameter x 3½" long.
- (6) Hangers utilizing 16d nails are not compatible with BCI® joists.
- (7) Bevel cut required on end of joist to achieve design loads.
- (8) Hangers are special order. Consult MiTek for pricing and lead times.
- (9) Supplemental lateral support connection recommended when hanger height is less than 60% of joist height.
- (10) For additional sizes, stock numbers, and modifications not shown, refer to the current MiTek *Structural Products Catalog*.

For more information, please call 1.800.268.3434
or go to www.mitek.ca

Framing Connectors – Simpson Strong-Tie



SINGLE I-JOISTS – Canadian/Factored Resistance (lbs)

Joist Height	Top Flange						Snap-In						Face Mount											
	Model	B Dim	Fastener Type		Uplift (115)	Down Load		Model	B Dim	Fastener Type		Uplift (115)	Down Load		Model	B Dim	Fastener Type		Uplift (115)	Down Load				
			Header	Joist		DF	SPF			Header	Joist		DF	SPF			Header	Joist		DF	SPF			
BCI® 5000																								
Joist Width = 2"																								
9½"	ITS2.06/9.5	2	(6) 10d	—	175	1,570	1,690	IUS2.06/9.5	2	(8) 10d	—	175	1,570	1,570	HU2.1/9	2½	(14) 6d	(6) 10d x 1½	1,470	1,640	1,640			
11⅞"	ITS2.06/11.88					IUS2.06/11.88		(10) 10d		1,690			1,690	LF2011	(12) 10d		1,688	1,688						
14"	ITS2.06/14					IUS2.06/14		(12) 10d		1,700			1,700	LF2014	(14) 10d		1,698	1,698						
BCI® 60/6000																								
Joist Width = 2⅝"																								
9½"	LT239	2	(6) 10d	(1) #8x1¼WS	105	2,625	1,725	IUS2.37/9.5	2	(8) 10d	—	175	1,930	1,690	LF239	2	(10) 10d	(1) #8x1¼WS	105	1,930	1,930			
11⅞"	LT231188							IUS2.37/11.88		(10) 10d			1,950	1,820	LF2311		(12) 10d			1,950	1,950			
14"	LT2314							IUS2.37/14		(12) 10d			1,990	1,990	LF2314		(14) 10d			1,990	1,990			
16"	LT2316							IUS2.37/16		(14) 10d			2,000	1,935	MIU2.37/16		(24) 16d			(2) 10dx1½	375	2,150	2,150	
BCI® 6500																								
Joist Width = 2⅝"																								
9½"	LT259	2	(6) 10d	(1) #8x1¼WS	105	1,930	1,725	IUS2.56/9.5	2	(8) 10d	—	175	1,930	1,690	LF259	2	(10) 10d	(1) #8x1¼WS	105	1,930	1,930			
11⅞"	LT251188							IUS2.56/11.88		(10) 10d			1,950	1,820	LF2511		(12) 10d			1,950	1,950			
14"	LT2514							IUS2.56/14		(12) 10d			1,990	1,990	LF2514		(14) 10d			1,990	1,990			
16"	LT2516							IUS2.56/16		(14) 10d			2,000	1,935	MIU2.56/16		(24) 16d			(2) 10dx1½	375	2,150	2,150	
BCI® 90																								
Joist Width = 3½"																								
9½"	LT359	2	(6) 10d	(2) #8x1¼WS	105	1,930	1,725	IUS3.56/11.88	2	(10) 10d	—	175	2,190	1,685	LF3511	2	(12) 10d	(1) #8x1¼WS	105	2,190	2,190			
11⅞"	LT351188					IUS3.56/11.88		(12) 10d		2,190					2,210		LF3514			(14) 10d	2,210	2,210		
14"	LT3514					IUS3.56/14		(14) 10d		2,210					2,290		MIU3.56/16			(24) 16d	(2) 10dx1½	375	2,525	2,525
16"	LT3516					IUS3.56/16				2,290					2,370		MIU3.56/18				(2) 10dx1½	3,825	3,485	
18"	MIT418	2½	(8) 16d	(2) 10dx1½	375	3,490	2,420	IUS3.56/16	2	(14) 10d	—	175	2,370	1,685	MIU3.56/20	2½	(24) 16d	(2) 10dx1½	375	4,065				
20"	MIT420							4,065																
45° Skew																								
Adjustable Height																								
Field Slope & Skew																								
Joist Height	Model	B Dim	Fastener Type		Uplift (115)	Down Load		Model	B Dim	Fastener Type		Uplift (115)	Down Load		Model	B Dim	Fastener Type		Uplift (115)	Down Load				
			Header	Joist		DF	SPF			Header	Joist		DF	SPF			Header	Joist		DF	SPF			
BCI® 5000																								
Joist Width = 2"																								
9½"	SUR/L2.06/9	3⅞	(14) 16d	(2) 10d x 1½	385	1,735	1,735	THAI2.06/22	2¼	(6) 10d	(2) 10d x 1½	—	1,865	1,865	LSSR2.1Z	3½	(14) 10d	(12) 10d x 1½	715	1,695	1,200			
11⅞"	SUR/L2.06/11		(16) 16d			2,135	2,135						2,280	2,280										
14"	SUR/L2.06/14		(18) 16d			2,165	2,165						2,525	2,385										
BCI® 60/6000																								
Joist Width = 2⅝"																								
9½"	SUR/L2.37/9	3⅞	(14) 16d	(2) 10d x 1½	385	2,120	2,120	THAI3522	2¼	(6) 10d	(2) 10d x 1½	—	2,200	2,200	LSSR2.37Z	3½	(14) 10d	(12) 10d x 1½	715	1,695	1,200			
11⅞"	SUR/L2.37/11		(16) 16d			2,190	2,190						2,280	2,280										
14"	SUR/L2.37/14		(18) 16d			2,325	2,325						2,525	2,385										
16"	SUR/L2.37/14		3,035			2,805	See Canadian Wood Construction Connectors catalogue for hanger selection.						See Canadian Wood Construction Connectors catalogue for hanger selection.											
BCI® 6500																								
Joist Width = 2⅝"																								
9½"	SUR/L2.56/9	3⅞	(14) 16d	(2) 10d x 1½	385	2,120	2,120	THAI322	2¼	(6) 10d	(2) 10d x 1½	—	2,200	2,200	LSSR2.56Z	3½	(14) 10d	(12) 10d x 1½	715	1,695	1,200			
11⅞"	SUR/L2.56/11		(16) 16d			2,190	2,190						2,280	2,280										
14"	SUR/L2.56/14		(18) 16d			2,325	2,325						2,525	2,385										
16"	SUR/L2.56/14		3,035			2,805	See Canadian Wood Construction Connectors catalogue for hanger selection.						See Canadian Wood Construction Connectors catalogue for hanger selection.											
BCI® 90																								
Joist Width = 3½"																								
9½"	SUR/L410	2⅞	(14) 16d	(6) 16d	1,695	2,275	2,275	THAI422	2¼	(6) 10d	(2) 10d x 1½	—	2,265	2,265	LSSR410Z	3½	(14) 10d	(12) 10d x 1½	990	2,265	1,835			
11⅞"			3,010			2,875	2,980						2,385											
14"			3,255			2,895	See Canadian Wood Construction Connectors catalogue for hanger selection.						See Canadian Wood Construction Connectors catalogue for hanger selection.											
16"			3,570																					
18"			3,850																					
20"	4,080																							

DOUBLE I-JOISTS – Canadian/Factored Resistance (lbs)

Joist Height	Top Flange							Face Mount						45° Skew																
	Model	B Dim	Fastener Type		Uplift (115)	Down Load		Model	B Dim	Fastener Type		Uplift (115)	Down Load		Model	B Dim	Fastener Type		Uplift (115)	Down Load										
			Header	Joist		DF	SPF			Header	Joist		DF	SPF			Header	Joist		DF	SPF									
Double BCI® 5000																														
Joist Width = 4"																														
9½"	MIT4.12/9.5	2½	(8) 16d	(2) 10d x 1½	450	3,490	2,420	MIU4.12/9	2½	(16) 16d	(2) 10d x 1½	375	3,790	3,230	HSUR/L4.12/9	3	(18) 16d	(8) 16d	1,710	4,290	3,050									
11⅝"	MIT4.12/11.88							MIU4.12/11		(20) 16d					HSUR/L4.12/11		(22) 16d													
14"	MIT4.12/14							MIU4.12/14		(22) 16d					HSUR/L4.12/14		(26) 16d													
Double BCI® 60/6000																														
Joist Width = 4⅝"																														
9½"	MIT359.5-2	2½	(8) 16d	(2) 10d x 1½	450	3,490	2,420	MIU4.75/9	2½	(16) 16d	(2) 10d x 1½	375	4,420	3,230	HSUR/L4.75/9	2½	(26) 16d	(12) 16d	2,565	5,205	4,635									
11⅝"	MIT3511.88-2							MIU4.75/11		(20) 16d					HSUR/L4.75/11							(22) 16d								
14"	MIT3514-2							MIU4.75/14		(22) 16d					HSUR/L4.75/14							(26) 16d								
16"	MIT4.75/16							MIU4.75/16		(24) 16d					HSUR/L4.75/16							(26) 16d								
Double BCI® 6500																														
Joist Width = 5⅝"																														
9½"	MIT39.5-2	2½	(8) 16d	(2) 10d x 1½	450	3,490	2,420	MIU5.12/9	2½	(16) 16d	(2) 10d x 1½	375	4,420	3,230	HSUR/L5.12/9	2½	(26) 16d	(12) 16d	2,565	5,205	4,635									
11⅝"	MIT311.88-2							MIU5.12/11		(20) 16d					HSUR/L5.12/11							(22) 16d								
14"	MIT314-2							MIU5.12/14		(22) 16d					HSUR/L5.12/14							(26) 16d								
16"	MIT5.12/16							MIU5.12/16		(24) 16d					HSUR/L5.12/16							(26) 16d								
Double BCI® 90																														
Joist Width = 7"																														
9½"	BA7.12/9.5	3	(16) 16d	(8) 10d x 1½	1,740	4,560	4,030	HU410-2	2½	(18) 16d	(8) 16d	2,455	4,540	4,540	HU410-2X¹	2½	(18) 16d	(8) 16d	2,455	3,755	3,050									
11⅝"	BA7.12/11.88							HU412-2		(22) 16d					HU412-2X¹							(22) 16d								
14"	BA7.12/14							HU414-2		(26) 16d					(12) 16d							3,685	7,025	6,185	HU414-2X¹	(26) 16d	(12) 16d	3,685	4,565	4,020
16"	BA7.12/16																													
18"	BA7.12/18																													
20"	BA7.12/20																													

Joist Height	Adjustable Height							Field Slope & Skew						
	Model	B Dim	Fastener Type		Uplift (115)	Down Load		Model	B Dim	Fastener Type		Uplift (115)	Down Load	
			Header	Joist		DF	SPF			Header	Joist		DF	SPF
Double BCI® 5000														
Joist Width = 4"														
9½"	THAI-2²	2½	(6) 10d	(2) 10d x 1½	—	2,800	2,385	LSU4.12³	3½	(24) 16d	(16) 10d x 1½	1,960	2,450	2,030
11⅝"														
14"														
Double BCI® 60/6000														
Joist Width = 4⅝"														
9½"	THAI-2²	2½	(6) 10d	(2) 10d x 1½	—	2,800	2,385	LSU3510-2³	3½	(24) 16d	(16) 10d x 1½	1,960	2,450	2,030
11⅝"														
14"														
16"	See Canadian Wood Construction Connectors catalogue for hanger selection.							See Canadian Wood Construction Connectors catalogue for hanger selection.						
Double BCI® 6500														
Joist Width = 5⅝"														
9½"	THAI-2²	2½	(6) 10d	(2) 10d x 1½	—	2,800	2,385	LSU5.12³	3½	(24) 16d	(16) 10d x 1½	1,285	2,600	1,845
11⅝"														
14"														
16"	See Canadian Wood Construction Connectors catalogue for hanger selection.							See Canadian Wood Construction Connectors catalogue for hanger selection.						
Double BCI® 90														
Joist Width = 7"														
9½"-20"	See Canadian Wood Construction Connectors catalogue for hanger selection.							See Canadian Wood Construction Connectors catalogue for hanger selection.						

NOTES FOR SIMPSON HANGERS ON PAGES 28–29

- (1) Skewed option must be special ordered. Specify skew angle and direction (e.g. HU410-2x, SKR45).
 - (2) THAI-2 must be special ordered. Specify width between 4¼" and 5⅝".
 - (3) LSU skew options must be factory ordered.
- ▶ Shaded hangers require web stiffeners at joist ends. Web stiffeners may be required for non-shaded hangers.
 - ▶ B Dim is the depth of the hanger seat.
 - ▶ WS = wood screw.

How To Pick A Hanger

- Find your joist size in this guide. (single I-joist, double I-joist, beam, etc.)
- Locate your connector type in the table.
 - ▶ Face mount
 - ▶ Top flange
 - ▶ Skewed
 - ▶ Sloped, etc.
- Select a hanger from the table.
- Confirm that your factored joist reaction is less than the factored resistance of hanger.
- Check to see if the bearing length "B Dim" meets the bearing length requirement of the I-joist. If yes, you have successfully selected your hanger.

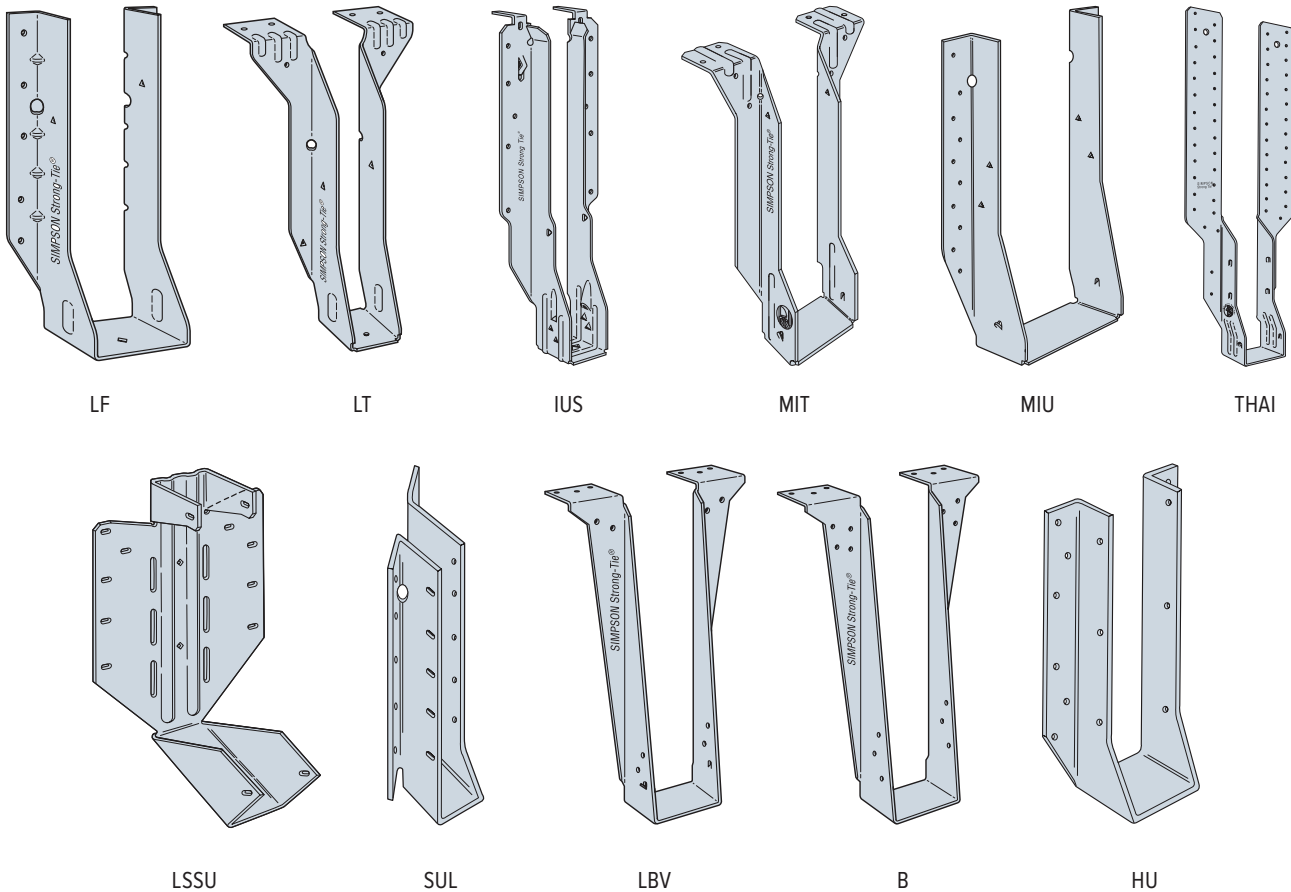
If you did not find a suitable hanger; please see the current *Canadian Wood Construction Connectors* catalogue or call Simpson Strong-Tie at 800-999-5099.

You will need the following information:

- ▶ Download
- ▶ Uplift
- ▶ Header condition
- ▶ Bearing length requirement.

General Notes

- ▶ See the current *Canadian Wood Construction Connectors* catalogue Important Information and General Notes sections, and for hanger models, joist sizes, and header situations not shown. Also see the Simpson Strong-Tie Publication *BCI I-JOISTS Connector Selection Guide*, Limit States Design version (CSG-BCCANBC12) for installation information.
- ▶ Unless otherwise noted, factored resistances (downloads) listed address hanger/header/fastener limitations assuming header material is Douglas fir-larch or spruce pine fir or LVL. Joist reaction should be checked by a qualified designer to ensure proper hanger selection.
- ▶ Factored uplift resistances (uplift) listed assume SPF joist and header and have been increased by 15% for earthquake and wind loading with no further increase allowed. Reduce loads according to code for normal duration loading such as cantilever construction.
- ▶ If hanger height is less than 60% of joist height, joist rotation may occur; see Prevent Rotation section of the Simpson guide referenced above.
- ▶ Top flange hanger configuration and thickness of top flange need to be considered for flush frame conditions, see the Simpson guide referenced above.
- ▶ For this publication, carrying members are assumed to be at least 5½" tall for top flange hangers. The horizontal thickness of the carrying member must be at least the length of nail being used or the hanger top flange dimension, whichever is greater. **Exception:** narrower carrying members may be used with face mount hangers but the horizontal thickness must be at least 1¾" for 3" (10d) nails; 2" for 3½" (16d) nails. Clinch nails on back side.
- ▶ THAI hangers in this publication are based on a "top flange" installation and require that the carrying member have a horizontal thickness of at least 2½". Backer blocks are required when the header is an I-joist. Install 4 top nails and 2 face nails. THAI hangers are not rated for uplift.
- ▶ NAILS: 3½" (16d) = 0.162" dia. x 3 ½" long
 3" (10d) = 0.148" dia. x 3" long
 3" (10d) x 1½" = 0.148" dia. x 1½" long



Weights of Building Materials

CEILING	Pounds Per Square Foot (PSF)
Acoustical fiber tile ⁽¹⁾	1
Suspended steel channel system ⁽¹⁾	2
Suspended wood channel system	2.5
2x8 ceiling joists @ 16" o.c., R-49 insulation, ½" gypsum board	7
1" Plaster	8
½" gypsum board	2.2
⅝" gypsum board	2.75
ROOF	Pounds Per Square Foot (PSF)
Fiberglass shingles	3
Asphalt shingles ⁽¹⁾	2
Wood shingles ⁽¹⁾	3
Spanish clay tile ⁽¹⁾	19
Concrete roof tile	12
Lightweight clay tile	6
Composition Roofing:	
Three-ply ready roofing ⁽¹⁾	1
Four-ply felt and gravel ⁽¹⁾	5.5
Five-ply felt and gravel ⁽¹⁾	6
20 gage metal deck ⁽¹⁾	2.5
18 gage metal deck ⁽¹⁾	3
0.05" thick polyvinyl chloride polymer membrane ⁽⁴⁾	0.35
1" fiberglass batt insulation	0.04
1" loose fiberglass insulation	0.04
1" loose cellulose insulation	0.14
1" rigid insulation ⁽¹⁾	1.5
Blowing wool insulation R-38 (16" deep)	0.62
⅜" slate ⁽¹⁾	7
¼" slate ⁽¹⁾	10
Single-ply (no ballast) ⁽¹⁾	0.7
Single-ply (ballasted)	11
Dry gravel ⁽¹⁾	8.7
2x8 rafters @ 16" o.c., fiberglass shingles, 15# felt, ⅜" sheathing	8
Skylight: metal frame w/ ⅜" wire glass ⁽¹⁾	8
FLOOR	Pounds Per Square Foot (PSF)
1" reinforced regular weight concrete	12.5
1" plain lightweight concrete ⁽¹⁾	8
7/16" cementitious backerboard	3
Ceramic or quarry tile (¾") on ½" mortar bed ⁽¹⁾	16
Ceramic or quarry tile (¾") on 1" mortar bed ⁽¹⁾	23
1" mortar bed	12
1" slate ⁽¹⁾	15
⅜" marble tile	6
⅜" ceramic floor tile	4.7
Hardwood flooring, 7/7-in ⁽¹⁾	4
¼" linoleum or asphalt tile ⁽¹⁾	1
BCI/AJS joists @ 16" o.c., ¾" sheathing, ½" gypsum board	10
¾" Gyp-Crete topping	6.5
Carpet & Pad	2.0
Waterproofing Membranes	
Bituminous, smooth surface ⁽¹⁾	1.5
Liquid applied ⁽¹⁾	1
MISCELLANEOUS	Pounds Per Square Foot (PSF)
1" of sand	8
1" of water	5.2
Hay: baled, dry ⁽²⁾	15 pcf
Straw: baled, dry ⁽²⁾	8 pcf
Saturated soil (garden/landscaped roof)	135 pcf
Grand piano	1000 lbs
Hot Tub (tub & water weight)	150
Acrylic soaking tub — 2 person-80 gallon capacity (tub & water weight) ⁽⁵⁾	40

NOTES

- Include at least 1.5 PSF in all dead load summations to account for incidentals such as plumbing, ducts, light fixtures, etc.

Information from the Boise Cascade CANADA Technical Note GE-01.

SHEATHING	Pounds Per Square Foot (PSF)
1 ¹ / ₃₂ " or 3 ⁸ / ₈ " Plywood – OSB ⁽³⁾	1.0 – 1.2
1 ⁵ / ₃₂ " or ½" Plywood – OSB ⁽³⁾	1.4 – 1.7
1 ⁹ / ₃₂ " or 5 ⁸ / ₈ " Plywood – OSB ⁽³⁾	1.8 – 2.1
2 ³ / ₃₂ " or ¾" Plywood – OSB ⁽³⁾	2.2 – 2.5
7 ⁸ / ₈ " Plywood – OSB ⁽³⁾	2.6 – 2.9
1 ¹ / ₈ " Plywood – OSB ⁽³⁾	3.3 – 3.6
½" cementitious backerboard	3
1½" softwood T & G decking	4.6
FRAMING	Pounds Per Square Foot (PSF)
2x4 @ 16" o.c.	1.1
2x6 @ 16" o.c.	1.7
2x8 @ 16" o.c.	2.2
2x10 @ 16" o.c.	2.9
2x12 @ 16" o.c.	3.5
BCI 4500s, 5000 or 5000s @ 12" o.c.	2.0 – 2.9
BCI 4500s, 5000 or 5000s @ 16" o.c.	1.5 – 2.2
BCI 4500s, 5000 or 5000s @ 19.2" o.c.	1.3 – 2.8
BCI 4500s, 5000 or 5000s @ 24" o.c.	1.0 – 1.5
BCI 6000 or 6000s @ 12" o.c.	2.2 – 3.4
BCI 6000 or 6000s @ 16" o.c.	1.7 – 2.6
BCI 6000 or 6000s @ 19.2" o.c.	1.4 – 2.1
BCI 6000 or 6000s @ 24" o.c.	1.1-1.7
BCI 60, 60s, 6500 or 6500s @ 12" o.c.	2.3 – 3.8
BCI 60, 60s, 6500 or 6500s @ 16" o.c.	1.7 – 2.9
BCI 60, 60s, 6000 or 6500s @ 19.2" o.c.	1.4 – 2.4
BCI 60, 60s, 6500 or 6500s @ 24" o.c.	1.2 – 1.9
BCI 90 or 90s @ 12" o.c.	3.9 – 4.9
BCI 90 or 90s @ 16" o.c.	2.9 – 3.7
BCI 90 or 90s @ 19.2" o.c.	2.4 – 3.1
BCI 90 or 90s @ 24" o.c.	1.9 – 2.5
AJS 140, 150, 190 or 20 @ 12" o.c.	2.2 – 3.3
AJS 140, 150, 190 or 20 @ 16" o.c.	1.7 – 2.5
AJS 140, 150, 190 or 20 @ 19.2" o.c.	1.4 – 2.1
AJS 140, 150, 190 or 20 @ 24" o.c.	1.1 – 1.7
AJS 24, 25 or 30 @ 12" o.c.	3.1 – 3.9
AJS 24, 25 or 30 @ 16" o.c.	2.3 – 2.9
AJS 24, 25 or 30 @ 19.2" o.c.	1.9 – 2.4
AJS 24, 25 or 30 @ 24" o.c.	1.6 – 2.0
AJS 24 FMJ @ 12" o.c.	3.4 – 4.3
AJS 24 FMJ @ 16" o.c.	2.6 – 3.2
AJS 24 FMJ @ 19.2" o.c.	2.1 – 2.7
AJS 24 FMJ @ 24" o.c.	1.7 – 2.1
WALL	Pounds Per Square Foot (PSF)
5 ¹ / ₁₆ " x 7 ¹ / ₂ " fiber cement lap siding	3
4" clay brick ⁽¹⁾	39
¼" ceramic wall tile	3.1
1¾" Cultured Stone [®]	12
2x4 studs @ 16" o.c., ⅝" gypsum, insulation, ⅜" siding ⁽¹⁾	11
2x6 studs @ 16" o.c., ⅝" gypsum, insulation, ⅜" siding ⁽¹⁾	12
Wood or steel studs, ½" gypsum board each side ⁽¹⁾	8
Exterior stud walls w/ brick veneer ⁽¹⁾	48
Windows: glass, frame and sash ⁽¹⁾	8
Stucco	10
Log Wall: 10" diameter	26
Glass Block:	
4" Thick-standard (hollow)	20
3" Thick-standard (hollow)	16
4" Thick-thin face	30
3" Thick-solid glass block	40

(1) *Minimum Design Loads for Buildings and Other Structures*, ASCE 7-05 Table C3.1-1a.

(2) *National Farm Building Code* (Canada) 1995. Value in pounds per cubic foot (pcf), multiply by maximum height to obtain PSF.

(3) *Approximate Engineering Dead Load Weight of Wood Structural Panels*, APA EWS TT-019, 998.

(4) *Duro-Last® General Specifications*, Duro-Last® Roofing, Inc. 2005.

(5) *Kohler® Specification Sheet K-1160-GLA 02/25/2018*.

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Boise Cascade AJS® joists are engineered to perform. With solid-sawn flanges manufactured with proprietary MSR (machine stress rated) lumber, they're made to deliver strength and consistency you can count on.

Boise Cascade® OSB Rimboard

Give floors the support they need with Boise Cascade® OSB Rimboard — a one-step, easy-to-install solution designed for use with BCI® and AJS® Joists.

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Whether tackling a grand stairway, tall window walls, or beyond, Versa-Stud LVL is manufactured with the reliability and strength needed to get the job done right.

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FASTER. STRONGER. EASIER.

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All Boise Cascade BCI® joist, Versa-Lam® LVL, and AJS® joist products are covered by a limited lifetime warranty for the expected life of the structure.

View the complete warranty on our website.

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