



Boise Cascade®
ENGINEERED WOOD PRODUCTS

Specifier Guide | Canada
AJS® Joist



AJS® JOIST SPECIFIER GUIDE

Featuring
AJS® 140, 20, and 25 Joists

bc.com/ewp

Reorder #JOI-CE1600

What You're Made of Matters

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.

The Boise Cascade Difference

- ▶ Full line of EWP solutions for residential, multi-family and light commercial projects.
- ▶ More than 60 years of proven performance.
- ▶ Reliable distribution network.
- ▶ 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.

AJS® Joist Advantages

- ▶ Engineered to handle long spans for added design versatility.
- ▶ Lightweight and easy to handle for quick installation.
- ▶ Can be cut on-site without specialized skills or tools.
- ▶ Deep depths up to 24" to handle high loads and large holes in multi-family construction.
- ▶ Wide flanges make nailing quick and easy.
- ▶ BC FloorValue® software helps optimize floor performance before the first nail is driven.

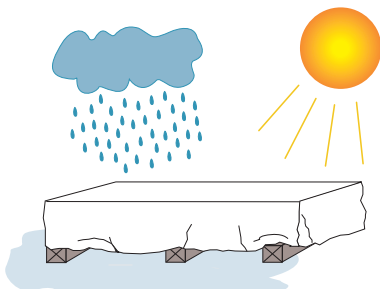
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CCMC Report Number 12787-R

Information in this document is for use **only in Canada (Limit States Design)**. For use in the United States, refer to the AJS® 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.

AJS JOISTS



Architectural Specifications

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

Materials — AJS® joists shall be manufactured by Boise Cascade Engineered Wood Products with oriented strand board webs, machine stress rated (MSR) 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. 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 AJS® 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 12787-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 AJS® 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 AJS® 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 AJS® 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 AJS® joists straight and plumb as required and to assure adequate lateral support for the individual AJS® 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). AJS® 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.

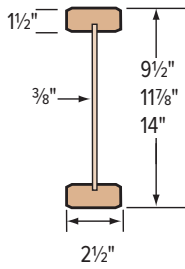
Boise Cascade engineered wood products build better homes with stronger, stiffer floors using only wood purchased in compliance with a number of green building programs.

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

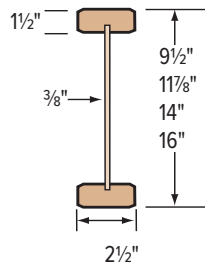
Boise Cascade engineered wood products throughout North America participate in SFI® Fiber Sourcing, SFI Chain of Custody, PEFC® Chain of Custody, and/or FSC® Chain-of-Custody and Controlled Wood certification programs. These programs offer the opportunity for homebuilders to achieve LEED® points in residential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

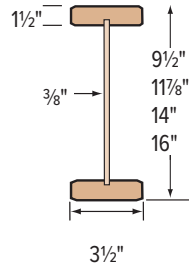
AJS Joist Product Profiles



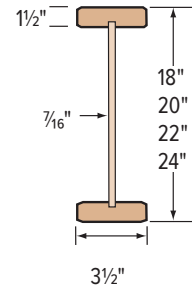
AJS® 140



AJS® 20



AJS® 25



AJS® 25
Deeper Depths

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

Factored Resistances (Limit States Design)

AJS® 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									
140	9 1/2"	4,095	1,830	182	5.2	2.2	1,500	1,955	3,705	3,865
	11 7/8"	5,305	2,350	311	6.6	2.5	1,505	2,105	3,770	4,415
	14"	6,390	2,825	458	7.8	2.7	1,515	2,240	3,835	4,940
20	9 1/2"	5,675	1,830	232	5.2	2.5	1,500	1,955	3,705	3,865
	11 7/8"	7,350	2,350	394	6.6	2.8	1,505	2,105	3,770	4,415
	14"	8,850	2,825	579	7.8	3.0	1,515	2,240	3,835	4,940
	16"	10,265	3,255	789	8.9	3.3	1,530	2,365	3,890	5,420
25	9 1/2"	8,935	1,830	322	5.3	3.1	1,500	1,955	4,100	4,495
	11 7/8"	11,575	2,350	545	6.7	3.4	1,505	2,105	4,245	5,035
	14"	13,940	2,825	798	7.9	3.7	1,515	2,240	4,370	5,520
	16"	16,165	3,255	1,082	9.1	3.9	1,530	2,365	4,495	5,995
	18" ⁽²⁾	18,260	4,750	1,427	12.3	4.6	—	3,535	—	7,450
	20" ⁽²⁾	20,405	5,110	1,813	13.7	4.9	—	3,930	—	8,065
	22" ⁽²⁾	22,375	5,475	2,249	15.0	5.1	—	3,930	—	8,255
	24" ⁽²⁾	24,325	5,820	2,738	16.5	5.4	—	3,930	—	8,435

(1) Minimum end bearing length is 1 1/2" for 9 1/2" to 16" depths and 1 3/4" for 18" and deeper.

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

NOTES

- All resistance factors, as per CSA O86-19 have been applied.
- AJS® 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)

Allowable Uniform Floor Load (PLF)

Design Span	Loading	AJS® 140 Depth			AJS® 20 Depth				AJS® 25 Depth							
		9½"	11⅞"	14"	9½"	11⅞"	14"	16"	9½"	11⅞"	14"	16"	18"	20"	22"	24"
6'	Unfactored Live Load for L/360 (plf)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Unfactored Total Load for L/240 (plf)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Factored Total Load (plf)	488	501	505	488	501	505	510	488	501	505	510	993	1,075	1,100	1,124
8'	Unfactored Live Load for L/360 (plf)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Unfactored Total Load for L/240 (plf)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Factored Total Load (plf)	366	376	378	366	376	378	382	366	376	378	382	745	806	825	843
10'	Unfactored Live Load for L/360 (plf)	227	—	—	277	—	—	—	—	—	—	—	—	—	—	—
	Unfactored Total Load for L/240 (plf)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Factored Total Load (plf)	292	301	303	292	301	303	306	292	301	303	306	596	645	660	674
12'	Unfactored Live Load for L/360 (plf)	138	227	—	170	—	—	—	225	—	—	—	—	—	—	—
	Unfactored Total Load for L/240 (plf)	207	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Factored Total Load (plf)	227	250	252	244	250	252	255	244	250	252	255	496	537	550	562
14'	Unfactored Live Load for L/360 (plf)	89	148	213	111	182	—	—	149	—	—	—	—	—	—	—
	Unfactored Total Load for L/240 (plf)	134	—	—	167	—	—	—	—	—	—	—	—	—	—	—
	Factored Total Load (plf)	167	215	216	209	215	216	218	209	215	216	218	425	460	471	482
16'	Unfactored Live Load for L/360 (plf)	61	102	147	76	126	181	—	103	168	—	—	—	—	—	—
	Unfactored Total Load for L/240 (plf)	92	153	—	115	—	—	—	155	—	—	—	—	—	—	—
	Factored Total Load (plf)	127	165	189	177	188	189	191	183	188	189	191	372	403	412	421
18'	Unfactored Live Load for L/360 (plf)	43	73	106	54	91	131	—	74	122	—	—	304	—	—	—
	Unfactored Total Load for L/240 (plf)	65	109	—	82	136	—	—	111	—	—	—	—	—	—	—
	Factored Total Load (plf)	101	130	157	140	167	168	170	162	167	168	170	331	358	366	374
20'	Unfactored Live Load for L/360 (plf)	—	54	78	40	67	97	130	55	91	130	—	228	285	—	—
	Unfactored Total Load for L/240 (plf)	—	81	117	60	101	146	—	82	136	—	—	—	—	—	—
	Factored Total Load (plf)	—	106	127	113	147	151	153	146	150	151	153	298	322	330	337
22'	Unfactored Live Load for L/360 (plf)	—	41	59	—	51	74	100	41	69	99	133	176	220	268	—
	Unfactored Total Load for L/240 (plf)	—	61	89	—	77	111	—	62	104	—	—	264	—	—	—
	Factored Total Load (plf)	—	87	105	—	121	137	139	133	136	137	139	270	293	300	306
24'	Unfactored Live Load for L/360 (plf)	—	—	46	—	40	58	78	—	54	78	104	138	173	211	254
	Unfactored Total Load for L/240 (plf)	—	—	69	—	60	87	117	—	81	117	—	207	259	—	—
	Factored Total Load (plf)	—	—	88	—	102	122	127	—	125	126	127	248	268	275	281
26'	Unfactored Live Load for L/360 (plf)	—	—	—	—	—	46	62	—	43	62	83	110	138	169	204
	Unfactored Total Load for L/240 (plf)	—	—	—	—	—	69	93	—	64	93	—	165	207	—	—
	Factored Total Load (plf)	—	—	—	—	—	104	117	—	115	116	117	216	241	254	259
28'	Unfactored Live Load for L/360 (plf)	—	—	—	—	—	—	50	—	—	50	67	89	112	137	166
	Unfactored Total Load for L/240 (plf)	—	—	—	—	—	—	75	—	—	75	101	133	168	206	—
	Factored Total Load (plf)	—	—	—	—	—	—	104	—	—	108	109	186	208	228	241
30'	Unfactored Live Load for L/360 (plf)	—	—	—	—	—	—	41	—	—	41	55	73	92	113	136
	Unfactored Total Load for L/240 (plf)	—	—	—	—	—	—	61	—	—	61	83	109	138	169	205
	Factored Total Load (plf)	—	—	—	—	—	—	91	—	—	101	102	162	181	198	216

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 for joist depths of 16" or less. 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 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 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

AJS® Joist		Simple Span								Continuous Span							
Series	Depth	No Gypsum Ceiling Attached				1/2" Gypsum Ceiling Attached				No Gypsum Ceiling Attached				1/2" Gypsum Ceiling Attached			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"
140	9 1/2"	15'-7"	14'-9"	14'-3"	N/D	16'-0"	15'-2"	14'-8"	N/D	16'-3"	15'-4"	14'-10"	N/D	16'-9"	15'-10"	15'-4"	N/D
	11 7/8"	17'-6"	16'-6"	16'-0"	N/D	18'-0"	17'-0"	16'-5"	N/D	18'-4"	17'-3"	16'-8"	N/D	19'-0"	17'-9"	17'-2"	N/D
	14"	19'-3"	17'-11"	17'-4"	N/D	20'-0"	18'-7"	17'-11"	N/D	20'-4"	18'-11"	18'-2"	N/D	21'-2"	19'-8"	18'-10"	N/D
20	9 1/2"	16'-3"	15'-4"	14'-10"	N/D	16'-8"	15'-9"	15'-2"	N/D	17'-0"	16'-0"	15'-6"	N/D	17'-5"	16'-5"	15'-11"	N/D
	11 7/8"	18'-3"	17'-2"	16'-7"	N/D	18'-10"	17'-8"	17'-0"	N/D	19'-3"	17'-11"	17'-4"	N/D	19'-11"	18'-6"	17'-10"	N/D
	14"	20'-3"	18'-10"	18'-0"	N/D	21'-0"	19'-6"	18'-8"	N/D	21'-5"	19'-11"	19'-0"	N/D	22'-2"	20'-7"	19'-9"	N/D
	16"	22'-1"	20'-6"	19'-7"	N/D	22'-10"	21'-3"	20'-4"	N/D	23'-4"	21'-8"	20'-9"	N/D	24'-2"	22'-6"	21'-6"	N/D
25	9 1/2"	17'-3"	16'-2"	15'-8"	N/D	17'-7"	16'-7"	16'-0"	N/D	18'-0"	16'-11"	16'-4"	N/D	18'-6"	17'-4"	16'-9"	N/D
	11 7/8"	19'-8"	18'-2"	17'-6"	N/D	20'-2"	18'-8"	17'-11"	N/D	20'-9"	19'-2"	18'-4"	N/D	21'-5"	19'-10"	18'-11"	N/D
	14"	21'-10"	20'-2"	19'-3"	N/D	22'-6"	20'-10"	19'-10"	N/D	23'-1"	21'-4"	20'-5"	N/D	23'-9"	22'-0"	21'-1"	N/D
	16"	23'-9"	21'-11"	21'-0"	N/D	24'-6"	22'-8"	21'-8"	N/D	25'-2"	23'-3"	22'-2"	N/D	25'-11"	24'-0"	22'-11"	N/D
	18"	25'-10"	23'-10"	22'-9"	N/D	26'-7"	24'-7"	23'-6"	N/D	27'-3"	25'-3"	24'-1"	N/D	28'-1"	26'-0"	24'-11"	N/D
	20"	27'-7"	25'-6"	24'-4"	N/D	28'-5"	26'-4"	25'-2"	N/D	29'-2"	26'-11"	25'-9"	N/D	30'-1"	27'-10"	26'-7"	N/D
	22"	29'-4"	27'-1"	25'-10"	N/D	30'-2"	27'-11"	26'-8"	N/D	31'-0"	28'-8"	27'-4"	N/D	31'-11"	29'-7"	28'-3"	N/D
	24"	31'-0"	28'-7"	27'-4"	N/D	31'-11"	29'-7"	28'-3"	N/D	32'-10"	30'-3"	28'-10"	N/D	34'-2"	31'-3"	29'-10"	N/D

3/4" Plywood Subfloor — Glued and Nailed

AJS® Joist		Simple Span								Continuous Span							
Series	Depth	No Gypsum Ceiling Attached				1/2" Gypsum Ceiling Attached				No Gypsum Ceiling Attached				1/2" Gypsum Ceiling Attached			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"
140	9 1/2"	16'-7"	15'-7"	15'-1"	14'-3"	17'-0"	16'-0"	15'-6"	14'-3"	17'-3"	16'-4"	15'-9"	14'-2"	17'-9"	16'-9"	15'-10"	14'-2"
	11 7/8"	18'-8"	17'-6"	16'-10"	16'-2"	19'-3"	18'-0"	17'-4"	16'-3"	19'-8"	18'-4"	17'-7"	16'-2"	20'-5"	19'-0"	18'-2"	16'-2"
	14"	20'-9"	19'-3"	18'-4"	17'-7"	21'-5"	19'-11"	19'-1"	17'-10"	21'-11"	20'-4"	19'-5"	17'-9"	22'-8"	21'-1"	19'-11"	17'-9"
20	9 1/2"	17'-3"	16'-3"	15'-8"	15'-0"	17'-7"	16'-7"	16'-0"	15'-4"	18'-0"	16'-11"	16'-4"	15'-8"	18'-6"	17'-4"	16'-9"	16'-1"
	11 7/8"	19'-7"	18'-2"	17'-6"	16'-10"	20'-2"	18'-9"	17'-11"	17'-3"	20'-9"	19'-3"	18'-4"	17'-6"	21'-4"	19'-10"	18'-11"	18'-0"
	14"	21'-10"	20'-2"	19'-3"	18'-3"	22'-5"	20'-10"	19'-11"	18'-11"	23'-0"	21'-4"	20'-4"	19'-4"	23'-9"	22'-1"	21'-1"	19'-5"
	16"	23'-9"	22'-0"	20'-11"	19'-10"	24'-5"	22'-9"	21'-8"	20'-7"	25'-1"	23'-3"	22'-2"	19'-9"	25'-10"	24'-0"	22'-11"	19'-9"
25	9 1/2"	18'-3"	17'-2"	16'-6"	15'-10"	18'-8"	17'-6"	16'-10"	16'-2"	19'-3"	17'-11"	17'-3"	16'-6"	19'-9"	18'-4"	17'-7"	16'-10"
	11 7/8"	21'-1"	19'-6"	18'-7"	17'-8"	21'-7"	20'-0"	19'-1"	18'-1"	22'-3"	20'-7"	19'-8"	18'-7"	22'-10"	21'-2"	20'-2"	19'-2"
	14"	23'-5"	21'-8"	20'-7"	19'-6"	24'-0"	22'-3"	21'-2"	20'-1"	24'-9"	22'-10"	21'-9"	20'-7"	25'-4"	23'-6"	22'-5"	21'-3"
	16"	25'-6"	23'-6"	22'-5"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"	27'-7"	25'-7"	24'-5"	22'-10"
	18"	27'-7"	25'-6"	24'-4"	23'-0"	28'-4"	26'-3"	25'-0"	23'-8"	29'-2"	27'-0"	25'-8"	24'-4"	29'-11"	27'-9"	26'-6"	25'-1"
	20"	29'-6"	27'-3"	26'-0"	24'-7"	30'-3"	28'-1"	26'-9"	25'-4"	31'-2"	28'-10"	27'-5"	25'-11"	32'-0"	29'-8"	28'-4"	26'-10"
	22"	31'-4"	29'-0"	27'-7"	26'-1"	32'-2"	29'-10"	28'-5"	26'-11"	33'-4"	30'-7"	29'-2"	27'-7"	34'-5"	31'-6"	30'-1"	28'-5"
	24"	33'-4"	30'-7"	29'-1"	27'-6"	34'-5"	31'-6"	30'-0"	28'-5"	35'-10"	32'-4"	30'-9"	29'-1"	37'-1"	33'-7"	31'-9"	30'-1"

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 requirement of 1 1/2" for 9 1/2"—16" depths and 1 3/4" for 18"—24" depths. **Shaded** spans require 3 1/2" minimum end bearing length.
 - minimum interior bearing length of 3 1/2".
 - clear spans between supports.
- Joists deeper than 16" require web stiffeners at all bearing locations

- Spans shown are in accordance with NBCC 2020.
- 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)

1 9/32" Oriented Strand Board (OSB) Subfloor — Glued and Nailed

AJS® Joist		Simple Span								Continuous Span							
		No Gypsum Ceiling Attached				1/2" Gypsum Ceiling Attached				No Gypsum Ceiling Attached				1/2" 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"
140	9 1/2"	15'-10"	14'-11"	14'-5"	N/D	16'-3"	15'-4"	14'-10"	N/D	16'-6"	15'-7"	15'-1"	N/D	17'-0"	16'-0"	15'-6"	N/D
	11 7/8"	17'-8"	16'-9"	16'-2"	N/D	18'-3"	17'-3"	16'-8"	N/D	18'-7"	17'-5"	16'-10"	N/D	19'-4"	18'-0"	17'-5"	N/D
	14"	19'-7"	18'-2"	17'-7"	N/D	20'-4"	18'-11"	18'-1"	N/D	20'-8"	19'-2"	18'-5"	N/D	21'-6"	20'-0"	19'-2"	N/D
20	9 1/2"	16'-5"	15'-6"	15'-0"	N/D	16'-10"	15'-11"	15'-4"	N/D	17'-2"	16'-2"	15'-8"	N/D	17'-7"	16'-8"	16'-1"	N/D
	11 7/8"	18'-6"	17'-4"	16'-9"	N/D	19'-2"	17'-10"	17'-3"	N/D	19'-7"	18'-2"	17'-6"	N/D	20'-3"	18'-10"	18'-0"	N/D
	14"	20'-7"	19'-1"	18'-3"	N/D	21'-3"	19'-9"	18'-11"	N/D	21'-9"	20'-2"	19'-4"	N/D	22'-6"	20'-11"	20'-0"	N/D
	16"	22'-5"	20'-9"	19'-10"	N/D	23'-2"	21'-6"	20'-7"	N/D	23'-8"	22'-0"	21'-0"	N/D	24'-6"	22'-10"	21'-10"	N/D
25	9 1/2"	17'-5"	16'-5"	15'-10"	N/D	17'-9"	16'-9"	16'-2"	N/D	18'-2"	17'-1"	16'-6"	N/D	18'-9"	17'-6"	16'-11"	N/D
	11 7/8"	19'-11"	18'-5"	17'-9"	N/D	20'-6"	19'-0"	18'-1"	N/D	21'-1"	19'-6"	18'-7"	N/D	21'-8"	20'-1"	19'-2"	N/D
	14"	22'-1"	20'-5"	19'-6"	N/D	22'-9"	21'-1"	20'-2"	N/D	23'-5"	21'-8"	20'-8"	N/D	24'-1"	22'-4"	21'-4"	N/D
	16"	24'-1"	22'-3"	21'-3"	N/D	24'-9"	22'-11"	21'-11"	N/D	25'-6"	23'-6"	22'-6"	N/D	26'-3"	24'-4"	23'-3"	N/D
	18"	26'-2"	24'-2"	23'-1"	N/D	26'-11"	24'-11"	23'-10"	N/D	27'-8"	25'-6"	24'-5"	N/D	28'-5"	26'-4"	25'-2"	N/D
	20"	27'-11"	25'-10"	24'-8"	N/D	28'-9"	26'-8"	25'-5"	N/D	29'-6"	27'-4"	26'-1"	N/D	30'-5"	28'-2"	26'-11"	N/D
	22"	29'-8"	27'-5"	26'-2"	N/D	30'-7"	28'-4"	27'-0"	N/D	31'-5"	29'-0"	27'-8"	N/D	32'-4"	29'-11"	28'-7"	N/D
	24"	31'-4"	29'-0"	27'-8"	N/D	32'-3"	29'-11"	28'-7"	N/D	33'-5"	30'-8"	29'-3"	N/D	34'-8"	31'-8"	30'-3"	N/D

2 3/32" Oriented Strand Board (OSB) Subfloor — Glued and Nailed

AJS® Joist		Simple Span								Continuous Span							
		No Gypsum Ceiling Attached				1/2" Gypsum Ceiling Attached				No Gypsum Ceiling Attached				1/2" 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"
140	9 1/2"	16'-8"	15'-8"	15'-2"	14'-3"	17'-1"	16'-2"	15'-7"	14'-3"	17'-4"	16'-5"	15'-10"	14'-2"	17'-10"	16'-10"	15'-10"	14'-2"
	11 7/8"	18'-9"	17'-7"	16'-11"	16'-3"	19'-5"	18'-1"	17'-5"	16'-3"	19'-10"	18'-5"	17'-8"	16'-2"	20'-6"	19'-1"	18'-3"	16'-2"
	14"	20'-10"	19'-4"	18'-6"	17'-8"	21'-7"	20'-1"	19'-2"	17'-10"	22'-0"	20'-6"	19'-6"	17'-9"	22'-10"	21'-3"	19'-11"	17'-9"
20	9 1/2"	17'-4"	16'-4"	15'-9"	15'-1"	17'-8"	16'-9"	16'-1"	15'-5"	18'-1"	17'-0"	16'-5"	15'-9"	18'-7"	17'-5"	16'-10"	16'-2"
	11 7/8"	19'-9"	18'-4"	17'-7"	16'-10"	20'-4"	18'-11"	18'-1"	17'-4"	20'-10"	19'-4"	18'-5"	17'-7"	21'-6"	20'-0"	19'-1"	18'-1"
	14"	21'-11"	20'-4"	19'-5"	18'-4"	22'-7"	21'-0"	20'-0"	19'-0"	23'-2"	21'-6"	20'-6"	19'-5"	23'-11"	22'-3"	21'-2"	19'-5"
	16"	23'-11"	22'-2"	21'-1"	20'-0"	24'-7"	22'-11"	21'-10"	20'-8"	25'-3"	23'-5"	22'-3"	19'-9"	26'-0"	24'-2"	23'-1"	19'-9"
25	9 1/2"	18'-4"	17'-3"	16'-7"	15'-11"	18'-10"	17'-7"	16'-11"	16'-3"	19'-5"	18'-0"	17'-4"	16'-7"	19'-11"	18'-5"	17'-8"	16'-11"
	11 7/8"	21'-3"	19'-7"	18'-8"	17'-9"	21'-9"	20'-2"	19'-2"	18'-2"	22'-5"	20'-9"	19'-9"	18'-9"	23'-0"	21'-4"	20'-4"	19'-3"
	14"	23'-7"	21'-9"	20'-9"	19'-7"	24'-2"	22'-4"	21'-4"	20'-2"	24'-11"	23'-0"	21'-11"	20'-9"	25'-6"	23'-8"	22'-7"	21'-4"
	16"	25'-8"	23'-8"	22'-7"	21'-4"	26'-3"	24'-4"	23'-3"	22'-0"	27'-1"	25'-1"	23'-10"	22'-7"	27'-9"	25'-9"	24'-7"	22'-10"
	18"	27'-9"	25'-8"	24'-5"	23'-1"	28'-6"	26'-5"	25'-2"	23'-10"	29'-4"	27'-2"	25'-10"	24'-5"	30'-1"	27'-11"	26'-8"	25'-2"
	20"	29'-8"	27'-6"	26'-2"	24'-8"	30'-5"	28'-3"	26'-11"	25'-6"	31'-5"	29'-0"	27'-7"	26'-1"	32'-2"	29'-10"	28'-6"	26'-11"
	22"	31'-7"	29'-2"	27'-9"	26'-2"	32'-4"	30'-0"	28'-7"	27'-0"	33'-7"	30'-10"	29'-4"	27'-8"	34'-9"	31'-9"	30'-3"	28'-7"
	24"	33'-7"	30'-10"	29'-4"	27'-8"	34'-9"	31'-8"	30'-2"	28'-7"	36'-2"	32'-7"	31'-0"	29'-3"	37'-4"	33'-10"	31'-11"	30'-3"

NOTES FOR TABLES ON PAGES 6 AND 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 Framer® 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 = $L_2 \times (\text{factor}_1 \times W_{FD} - W_{FL}) / \text{factor}_2$, 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"

Floor Framing

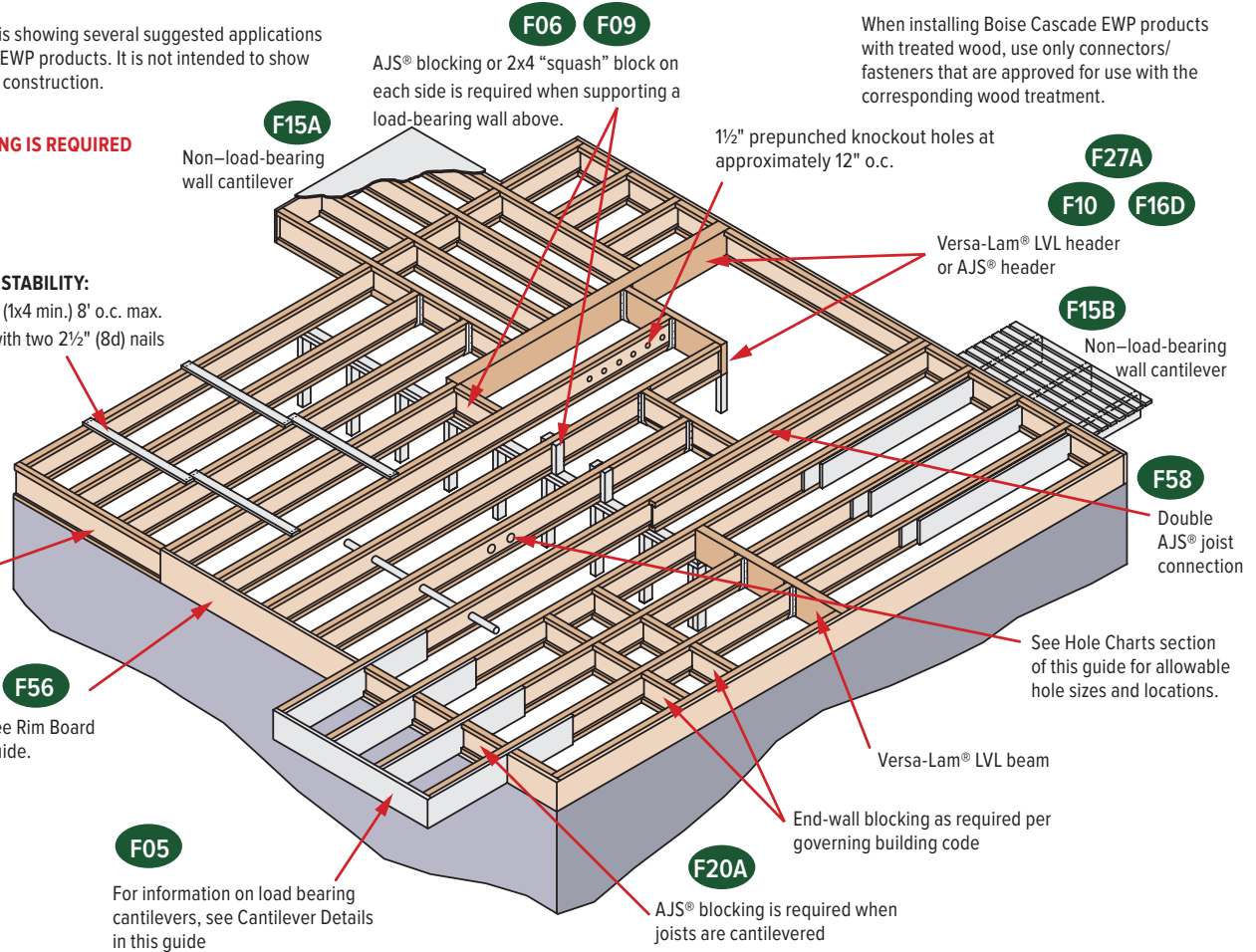
The illustration below is showing several suggested applications for the Boise Cascade EWP products. It is not intended to show an actual house under construction.

NO MIDSPAN BRIDGING IS REQUIRED FOR AJS® JOISTS

FOR INSTALLATION STABILITY:

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

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



SAFETY WARNING

DO NOT ALLOW WORKERS ON AJS® JOISTS UNTIL ALL HANGERS, AJS® RIM JOISTS, RIM BOARDS, AJS® 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 AJS® joists and the first course of sheathing. As an alternate, temporary sheathing may be nailed to the first four feet of AJS® 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 AJS® joist is set.
- Install temporary 1x4 strut lines at 8' on-center or closer as additional AJS® joists are set. Nail the strut lines to the sheathed area or braced end wall, and to each AJS® 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 AJS® joists 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.
- Do not stack construction materials (sheathing, drywall, etc.) in the middle of AJS® joist spans. Contact Boise Cascade EWP Engineering for proper storage and shoring information.

Nailing Requirements

- **AJS® rim joist, rim board or closure panel to AJS® joist:**
 - Rims or closure panel 1½" thick and less: Two 2½" (8d) nails, one each in the top and bottom flange.
 - AJS® 140/20 rim joist: Two 3½" (16d) nails, one each in the top and bottom flange.
 - AJS® 25 rim joist: Toe-nail top flange to rim joist with two 3" (10d) nails, one each side of flange.
- **AJS® rim joist, rim board or AJS® blocking panel to support:**
 - 2½" (8d) nails at 6" o.c. as per code.
 - Connection per design professional of record's specification for shear transfer.
- **AJS® joist to support:**
 - Two 2½" (8d) nails, one on each side of the web, placed 1½" minimum from the end of the AJS® joist to limit splitting.
- **Sheathing to AJS® 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 minimum lateral stability is 24".
 - 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.

Lateral Support

- AJS® joists shall be laterally supported at the ends with hangers, rim board, AJS® rim joists or AJS® blocking panels. AJS® 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 AJS® Joists

- 1½" is required at end supports (1¾" for 18"-24" deep 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.

Web Stiffeners

- See Web Stiffener Requirements on page 14.

PROTECT AJS® JOISTS FROM THE WEATHER

AJS® 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.

Floor Framing Details

Additional floor framing details are available in BC Framers® software

End Bearing Details

F07

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

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

F07A

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

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

Rim board

F01

AJS® joist blocking

F02

AJS® rim joist

AJS® 25 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

Use solid blocking under all posts above for support to the bearing plate.

F03

AJS® rim joist

AJS® 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

AJS® 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)

AJS® 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)

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

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

Joist hanger

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

AJS® 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 AJS® 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 AJS 25). 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.

Backer and Filler Block Dimensions

Series	Backer Block Thickness	Filler Block Thickness
140	1½" or two ½" wood panels	2 x ½" + 5/8" wood panel
20	1½" or two ½" wood panels	2 x ½" + 5/8" wood panel
25	2 x ½" lumber	Double 2 x ½" lumber

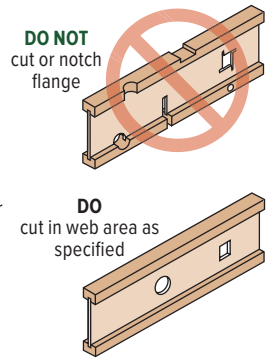
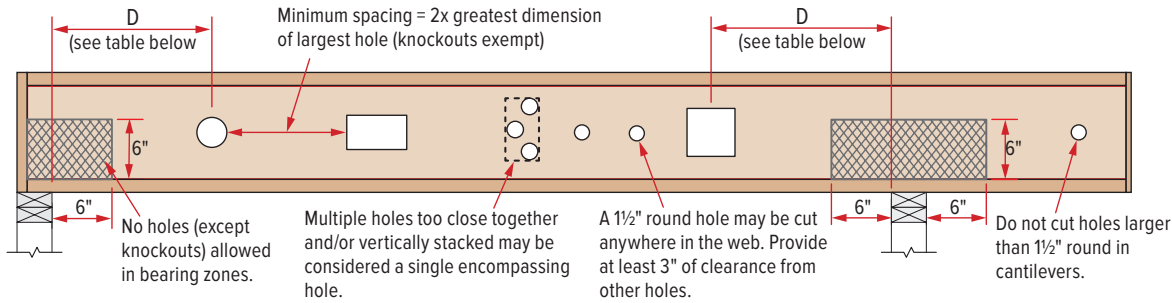
- Cut backer and filler blocks to a maximum depth equal to the web depth minus ¼" to avoid a forced fit.
- For deeper AJS® 25 joists, stack 2x lumber or use multiple pieces of ¾" wood panels.

AJS® Rim Joists and Blocking

Joist Depth	Maximum Vertical Load Transfer (plf)
9½"	2,700
11½"	2,400
14"	2,150
16"	1,900
18"-20"	4,600 ⁽¹⁾
20"-24"	3,900 ⁽¹⁾

(1) Web stiffeners required at each end of blocking panel. Distance between stiffeners must be less than 24".

Hole Charts for Residential Applications (40/15)



AJS® 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

	Span Hole Size	9½" Joist Depth				11⅞" Joist Depth				14" Joist Depth				16" Joist Depth			
		3"	4"	6"	6½"	3"	6"	8"	8⅞"	3"	6"	9"	11"	6"	9"	12"	13"
		8'	10'	12'	14'	16'	18'	20'	22'	24'	26'	28'	30'	32'	34'	36'	38'
Round Holes ○	8'	0'-8"	0'-8"	1'-4"	2'-0"	0'-8"	0'-9"	0'-10"	1'-3"	0'-8"	0'-9"	0'-11"	1'-0"	0'-9"	0'-11"	1'-0"	1'-1"
	10'	0'-8"	0'-8"	2'-5"	3'-3"	0'-8"	0'-9"	1'-3"	2'-5"	0'-8"	0'-9"	0'-11"	1'-9"	0'-9"	0'-11"	1'-0"	1'-2"
	12'	0'-8"	0'-9"	3'-8"	4'-5"	0'-8"	0'-9"	2'-4"	3'-7"	0'-8"	0'-9"	0'-11"	2'-11"	0'-9"	0'-11"	1'-1"	2'-3"
	14'	0'-8"	1'-10"	4'-10"	5'-9"	0'-8"	0'-11"	3'-6"	4'-10"	0'-8"	0'-9"	1'-5"	4'-1"	0'-9"	0'-11"	2'-2"	3'-5"
	16'	1'-7"	2'-11"	6'-1"	7'-0"	0'-8"	2'-0"	4'-9"	6'-1"	0'-8"	0'-9"	2'-6"	5'-4"	0'-9"	0'-11"	3'-3"	4'-7"
	18'	2'-8"	4'-1"	7'-4"	8'-3"	0'-8"	3'-1"	5'-11"	7'-4"	0'-8"	0'-9"	3'-8"	6'-6"	0'-9"	0'-11"	4'-5"	5'-10"
	20'	3'-9"	5'-3"	8'-8"	9'-7"	0'-8"	4'-2"	7'-2"	8'-7"	0'-8"	1'-0"	4'-10"	7'-9"	0'-9"	1'-9"	5'-7"	7'-1"
	22'	4'-11"	6'-6"	9'-11"	10'-10"	1'-5"	5'-4"	8'-5"	9'-11"	0'-8"	2'-1"	6'-0"	9'-0"	0'-9"	2'-10"	6'-10"	8'-4"
	24'	6'-1"	7'-8"	11'-2"	*	2'-6"	6'-7"	9'-8"	11'-2"	0'-8"	3'-2"	7'-2"	10'-4"	0'-9"	4'-0"	8'-0"	9'-7"
	26'	—	—	—	—	3'-7"	7'-9"	10'-11"	12'-6"	0'-8"	4'-3"	8'-5"	11'-7"	1'-6"	5'-1"	9'-3"	10'-10"
	28'	—	—	—	—	4'-8"	8'-11"	12'-2"	13'-9"	1'-8"	5'-5"	9'-8"	12'-11"	2'-6"	6'-3"	10'-6"	12'-1"
	30'	—	—	—	—	—	—	—	—	2'-9"	6'-7"	10'-10"	14'-2"	3'-7"	7'-5"	11'-9"	13'-5"
	32'	—	—	—	—	—	—	—	—	3'-10"	7'-9"	12'-1"	15'-6"	4'-8"	8'-7"	13'-0"	14'-8"
	34'	—	—	—	—	—	—	—	—	—	—	—	—	5'-10"	9'-10"	14'-4"	15'-11"
Square Holes □	8'	0'-8"	0'-8"	1'-6"	1'-11"	0'-8"	0'-9"	1'-2"	1'-11"	0'-8"	0'-9"	0'-11"	2'-1"	0'-9"	0'-11"	1'-0"	2'-6"
	10'	0'-8"	1'-0"	2'-8"	3'-1"	0'-8"	0'-9"	2'-3"	3'-0"	0'-8"	0'-9"	1'-5"	3'-3"	0'-9"	0'-11"	1'-9"	3'-8"
	12'	1'-4"	2'-1"	3'-10"	4'-4"	0'-8"	1'-8"	3'-5"	4'-3"	0'-8"	0'-9"	2'-6"	4'-5"	0'-9"	1'-0"	2'-10"	4'-11"
	14'	2'-5"	3'-3"	5'-1"	5'-7"	0'-8"	2'-9"	4'-7"	5'-6"	0'-8"	1'-0"	3'-8"	5'-8"	0'-9"	2'-1"	4'-0"	6'-2"
	16'	3'-6"	4'-5"	6'-4"	6'-10"	1'-5"	3'-11"	5'-10"	6'-9"	0'-8"	2'-1"	4'-10"	6'-11"	0'-9"	3'-2"	5'-2"	7'-5"
	18'	4'-8"	5'-7"	7'-7"	8'-1"	2'-6"	5'-1"	7'-1"	8'-0"	0'-8"	3'-2"	6'-0"	8'-2"	1'-7"	4'-4"	6'-5"	8'-8"
	20'	5'-11"	6'-10"	8'-10"	9'-5"	3'-7"	6'-4"	8'-4"	9'-3"	1'-8"	4'-4"	7'-3"	9'-6"	2'-8"	5'-6"	7'-8"	10'-0"
	22'	7'-1"	8'-1"	10'-1"	10'-8"	4'-9"	7'-6"	9'-7"	10'-7"	2'-9"	5'-6"	8'-6"	10'-9"	3'-9"	6'-8"	8'-11"	*
	24'	8'-4"	9'-4"	11'-5"	12'-0"	5'-10"	8'-9"	10'-10"	11'-10"	3'-10"	6'-8"	9'-9"	*	4'-11"	7'-11"	10'-2"	*
	26'	—	—	—	—	7'-1"	10'-0"	12'-2"	*	5'-0"	7'-10"	11'-0"	*	6'-1"	9'-2"	11'-5"	*
	28'	—	—	—	—	8'-3"	11'-3"	13'-5"	*	6'-2"	9'-1"	12'-3"	*	7'-3"	10'-4"	12'-8"	*
	30'	—	—	—	—	—	—	—	—	7'-3"	10'-3"	13'-7"	*	8'-5"	11'-7"	14'-0"	*
	32'	—	—	—	—	—	—	—	—	8'-6"	11'-6"	14'-10"	*	9'-7"	12'-10"	15'-3"	*
	34'	—	—	—	—	—	—	—	—	—	—	—	—	10'-10"	14'-2"	16'-7"	*
Rectangular Holes □	8'	2'-0"	2'-7"	2'-6"	3'-1"	1'-3"	1'-10"	2'-6"	3'-2"	0'-11"	1'-7"	2'-4"	3'-2"	0'-11"	1'-1"	1'-3"	2'-0"
	10'	3'-3"	3'-9"	3'-8"	4'-3"	2'-4"	3'-0"	3'-8"	4'-5"	1'-3"	2'-9"	3'-6"	4'-5"	0'-11"	1'-6"	2'-4"	3'-2"
	12'	4'-5"	5'-0"	4'-11"	5'-7"	3'-6"	4'-2"	4'-11"	5'-8"	2'-4"	3'-11"	4'-9"	5'-8"	1'-0"	2'-7"	3'-5"	4'-4"
	14'	5'-8"	6'-3"	6'-2"	6'-10"	4'-8"	5'-5"	6'-2"	7'-0"	3'-6"	5'-1"	6'-0"	6'-11"	2'-0"	3'-9"	4'-7"	5'-7"
	16'	6'-11"	7'-7"	7'-6"	*	5'-11"	6'-8"	7'-5"	*	4'-8"	6'-4"	7'-3"	*	3'-1"	4'-11"	5'-10"	6'-10"
	18'	8'-2"	8'-10"	8'-9"	*	7'-2"	7'-11"	8'-9"	*	5'-10"	7'-7"	8'-6"	*	4'-3"	6'-1"	7'-1"	8'-1"
	20'	9'-6"	*	10'-0"	*	8'-5"	9'-2"	10'-0"	*	7'-1"	8'-10"	9'-10"	*	5'-5"	7'-4"	8'-4"	9'-4"
	22'	10'-9"	*	*	*	9'-8"	10'-6"	*	*	8'-4"	10'-2"	*	*	6'-7"	8'-6"	9'-7"	10'-7"
	24'	*	*	*	*	10'-11"	11'-9"	*	*	9'-7"	11'-5"	*	*	7'-10"	9'-9"	10'-10"	11'-11"
	26'	—	—	—	—	12'-3"	*	*	*	10'-10"	12'-8"	*	*	9'-0"	11'-1"	12'-1"	*
	28'	—	—	—	—	13'-6"	*	*	*	12'-1"	14'-0"	*	*	10'-3"	12'-4"	13'-5"	*
	30'	—	—	—	—	—	—	—	—	13'-4"	*	*	*	11'-6"	13'-7"	14'-8"	*
	32'	—	—	—	—	—	—	—	—	14'-8"	*	*	*	12'-9"	14'-10"	16'-0"	*
	34'	—	—	—	—	—	—	—	—	—	—	—	—	14'-0"	16'-2"	*	*

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

NOTES

► Tables assume

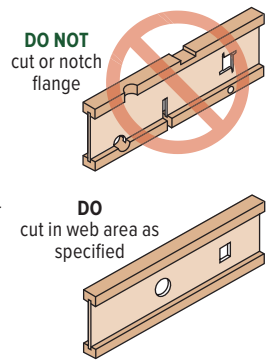
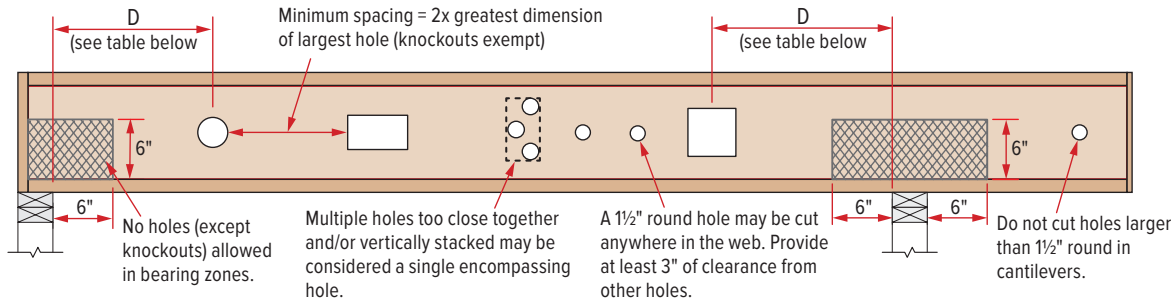
- simple span application
- uniformly loaded joists
- maximum loads of 40 psf live and 15 psf dead.

► 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.

Hole Charts for Residential Applications (40/15)



AJS® 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

	Span	Hole Size	18" Joist Depth				20" Joist Depth				22" Joist Depth				24" Joist Depth			
			6"	9"	12"	14"	9"	12"	14"	16"	9"	12"	15"	18"	12"	15"	18"	20"
Round Holes	8'	8"	0'-9"	0'-11"	1'-0"	1'-1"	0'-11"	1'-0"	1'-1"	1'-2"	0'-11"	1'-0"	1'-2"	1'-3"	1'-0"	1'-2"	1'-3"	1'-4"
	10'	10"	0'-9"	0'-11"	1'-0"	1'-4"	0'-11"	1'-0"	1'-1"	1'-3"	0'-11"	1'-0"	1'-2"	1'-3"	1'-0"	1'-2"	1'-3"	1'-4"
	12'	12"	0'-9"	0'-11"	1'-0"	2'-5"	0'-11"	1'-0"	1'-1"	2'-4"	0'-11"	1'-0"	1'-2"	2'-3"	1'-0"	1'-2"	1'-3"	2'-1"
	14'	14"	0'-9"	0'-11"	1'-0"	3'-7"	0'-11"	1'-0"	1'-1"	3'-6"	0'-11"	1'-0"	1'-2"	3'-5"	1'-0"	1'-2"	1'-3"	3'-3"
	16'	16"	0'-9"	0'-11"	1'-0"	4'-9"	0'-11"	1'-0"	1'-1"	4'-8"	0'-11"	1'-0"	1'-2"	4'-7"	1'-0"	1'-2"	1'-3"	4'-5"
	18'	18"	0'-9"	0'-11"	1'-11"	6'-0"	0'-11"	1'-0"	2'-1"	5'-11"	0'-11"	1'-0"	1'-2"	5'-9"	1'-0"	1'-2"	2'-1"	5'-8"
	20'	20"	0'-9"	0'-11"	3'-0"	7'-3"	0'-11"	1'-0"	3'-2"	7'-1"	0'-11"	1'-0"	1'-6"	7'-0"	1'-0"	1'-2"	3'-3"	6'-10"
	22'	22"	0'-9"	0'-11"	4'-2"	8'-6"	0'-11"	1'-0"	4'-3"	8'-4"	0'-11"	1'-0"	2'-7"	8'-3"	1'-0"	1'-2"	4'-4"	8'-1"
	24'	24"	0'-9"	0'-11"	5'-4"	9'-9"	0'-11"	1'-10"	5'-5"	9'-8"	0'-11"	1'-0"	3'-8"	9'-6"	1'-0"	1'-2"	5'-6"	9'-4"
	26'	26"	0'-9"	0'-11"	6'-6"	11'-0"	0'-11"	2'-10"	6'-7"	10'-11"	0'-11"	1'-0"	4'-10"	10'-9"	1'-0"	1'-7"	6'-8"	10'-7"
	28'	28"	0'-9"	1'-10"	7'-8"	12'-3"	0'-11"	4'-0"	7'-9"	12'-2"	0'-11"	1'-0"	5'-11"	12'-0"	1'-0"	2'-8"	7'-10"	11'-11"
	30'	30"	0'-9"	2'-11"	8'-10"	13'-7"	0'-11"	5'-1"	9'-0"	13'-5"	0'-11"	1'-11"	7'-1"	13'-4"	1'-0"	3'-9"	9'-1"	13'-2"
	32'	32"	0'-9"	4'-0"	10'-1"	14'-10"	1'-0"	6'-3"	10'-2"	14'-9"	0'-11"	2'-11"	8'-3"	14'-7"	1'-0"	4'-10"	10'-3"	14'-5"
	34'	34"	0'-9"	5'-1"	11'-3"	16'-2"	2'-0"	7'-4"	11'-5"	16'-0"	0'-11"	4'-0"	9'-5"	15'-11"	1'-2"	6'-0"	11'-6"	15'-9"
Square Holes	8'	8"	0'-9"	0'-11"	1'-0"	2'-3"	0'-9"	0'-11"	1'-0"	2'-2"	0'-9"	0'-11"	1'-0"	1'-2"	0'-11"	1'-0"	1'-2"	2'-4"
	10'	10"	0'-9"	0'-11"	1'-0"	3'-5"	0'-9"	0'-11"	1'-0"	3'-4"	0'-9"	0'-11"	1'-0"	2'-0"	0'-11"	1'-0"	1'-2"	3'-6"
	12'	12"	0'-9"	0'-11"	2'-0"	4'-8"	0'-9"	0'-11"	1'-0"	4'-6"	0'-9"	0'-11"	1'-0"	3'-2"	0'-11"	1'-0"	2'-0"	4'-8"
	14'	14"	0'-9"	0'-11"	3'-1"	5'-10"	0'-9"	0'-11"	1'-9"	5'-9"	0'-9"	0'-11"	1'-0"	4'-4"	0'-11"	1'-0"	3'-1"	5'-11"
	16'	16"	0'-9"	0'-11"	4'-3"	7'-2"	0'-9"	0'-11"	2'-10"	7'-0"	0'-9"	0'-11"	1'-7"	5'-6"	0'-11"	1'-0"	4'-3"	7'-2"
	18'	18"	0'-9"	1'-8"	5'-5"	8'-5"	0'-9"	0'-11"	4'-0"	8'-3"	0'-9"	0'-11"	2'-8"	6'-9"	0'-11"	1'-7"	5'-5"	8'-5"
	20'	20"	0'-9"	2'-9"	6'-8"	9'-8"	0'-9"	1'-6"	5'-2"	9'-6"	0'-9"	0'-11"	3'-10"	7'-11"	0'-11"	2'-7"	6'-7"	9'-9"
	22'	22"	0'-9"	3'-11"	7'-10"	11'-0"	0'-9"	2'-6"	6'-4"	10'-10"	0'-9"	1'-3"	4'-11"	9'-2"	0'-11"	3'-9"	7'-10"	11'-0"
	24'	24"	1'-5"	5'-0"	9'-1"	*	0'-9"	3'-7"	7'-6"	*	0'-9"	2'-4"	6'-1"	10'-6"	1'-2"	4'-10"	9'-1"	*
	26'	26"	2'-6"	6'-2"	10'-4"	*	1'-2"	4'-9"	8'-9"	*	0'-9"	3'-5"	7'-3"	11'-9"	2'-2"	6'-0"	10'-3"	*
	28'	28"	3'-6"	7'-4"	11'-7"	*	2'-2"	5'-10"	9'-11"	*	0'-11"	4'-6"	8'-5"	13'-0"	3'-3"	7'-1"	11'-6"	*
	30'	30"	4'-8"	8'-6"	12'-10"	*	3'-3"	7'-0"	11'-2"	*	1'-11"	5'-7"	9'-8"	14'-4"	4'-4"	8'-4"	12'-10"	*
	32'	32"	5'-9"	9'-8"	14'-2"	*	4'-4"	8'-2"	12'-5"	*	3'-0"	6'-9"	10'-10"	15'-7"	5'-5"	9'-6"	14'-1"	*
	34'	34"	6'-11"	10'-11"	15'-5"	*	5'-5"	9'-4"	13'-8"	*	4'-1"	7'-11"	12'-1"	16'-11"	6'-7"	10'-8"	15'-4"	*
Rectangular Holes	8'	8"x14"	1'-1"	1'-3"	1'-1"	2'-1"	1'-1"	1'-3"	1'-1"	2'-3"	1'-3"	1'-1"	1'-3"	2'-4"	1'-1"	1'-3"	1'-4"	2'-6"
	10'	10"x14"	1'-1"	1'-11"	1'-1"	3'-2"	1'-1"	2'-1"	1'-1"	3'-5"	1'-3"	1'-1"	2'-4"	3'-6"	1'-1"	1'-4"	2'-5"	3'-8"
	12'	12"x14"	1'-1"	3'-0"	1'-11"	4'-5"	1'-1"	3'-3"	1'-11"	4'-7"	2'-3"	1'-1"	3'-5"	4'-9"	1'-1"	2'-5"	3'-7"	4'-10"
	14'	14"x14"	1'-9"	4'-2"	3'-0"	5'-7"	1'-10"	4'-5"	3'-0"	5'-10"	3'-4"	1'-10"	4'-7"	6'-0"	1'-1"	3'-7"	4'-9"	6'-1"
	16'	16"x14"	2'-10"	5'-4"	4'-2"	6'-10"	2'-11"	5'-7"	4'-2"	7'-1"	4'-6"	2'-11"	5'-10"	7'-3"	1'-10"	4'-9"	6'-0"	7'-4"
	18'	18"x14"	4'-0"	6'-7"	5'-4"	8'-1"	4'-1"	6'-10"	5'-4"	8'-4"	5'-8"	4'-1"	7'-0"	8'-6"	2'-11"	5'-11"	7'-3"	8'-8"
	20'	20"x14"	5'-2"	7'-9"	6'-6"	9'-5"	5'-2"	8'-1"	6'-6"	9'-7"	6'-11"	5'-2"	8'-3"	9'-9"	4'-0"	7'-1"	8'-6"	9'-11"
	22'	22"x14"	6'-4"	9'-0"	7'-9"	10'-8"	6'-4"	9'-4"	7'-9"	10'-11"	8'-1"	6'-5"	9'-6"	*	5'-2"	8'-4"	9'-9"	*
	24'	24"x14"	7'-6"	10'-3"	9'-0"	11'-11"	7'-7"	10'-7"	9'-0"	*	9'-4"	7'-7"	10'-10"	*	6'-4"	9'-7"	11'-0"	*
	26'	26"x14"	8'-8"	11'-7"	10'-3"	*	8'-9"	11'-10"	10'-3"	*	10'-7"	8'-9"	12'-1"	*	7'-6"	10'-10"	12'-3"	*
	28'	28"x14"	9'-11"	12'-10"	11'-6"	*	10'-0"	13'-1"	11'-6"	*	11'-10"	10'-0"	13'-4"	*	8'-8"	12'-1"	13'-7"	*
	30'	30"x14"	11'-2"	14'-1"	12'-9"	*	11'-3"	14'-5"	12'-9"	*	13'-1"	11'-3"	14'-8"	*	9'-11"	13'-4"	14'-10"	*
	32'	32"x14"	12'-5"	15'-5"	14'-0"	*	12'-6"	15'-8"	14'-0"	*	14'-5"	12'-6"	15'-11"	*	11'-1"	14'-8"	*	*
	34'	34"x14"	13'-8"	16'-8"	15'-3"	*	13'-9"	17'-0"	15'-3"	*	15'-8"	13'-9"	*	*	12'-4"	15'-11"	*	*

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

NOTES

► Tables assume

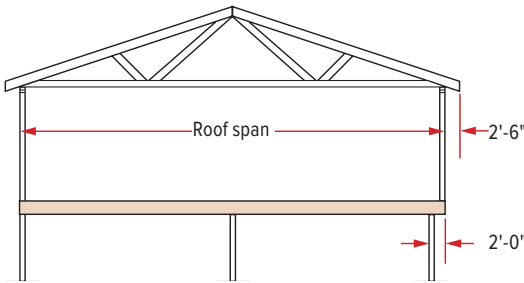
- simple span application
- uniformly loaded joists
- maximum loads of 40 psf live and 15 psf dead.

► Hole may be positioned vertically anywhere in the web.

► For other load conditions or hole sizes, contact your local distributor.

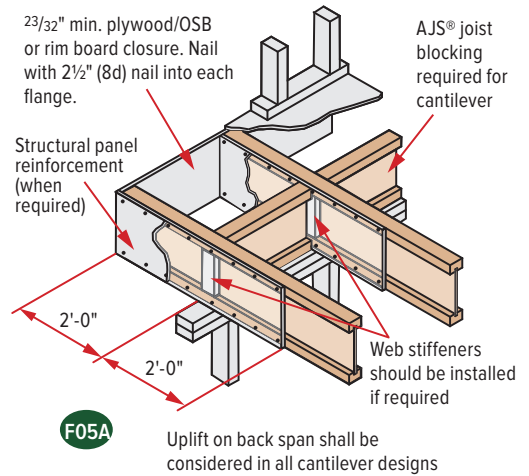
► It may be possible to exceed the limitations of those tables by analysing a specific situation with the BC Calc® Software.

Reinforced Load-Bearing Cantilever



Plywood/OSB Reinforcement (If required per table on page 13)

- $\frac{23}{32}$ " min. x 48" long plywood/OSB-rated sheathing must match the full depth of the AJS® Joist. Nail to the AJS® Joist with $2\frac{1}{2}$ " (8d) nails at 6" o.c. and nail with four $2\frac{1}{2}$ " (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 AJS® joist. Additional support may be required for other loadings; see BC Calc® software.
- For reinforcement requirements on AJS® joist depths greater than 16", contact Boise Cascade EWP Engineering.



- The tables and details on pages 12 and 13 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 allowed without reinforcement. Analyse specific applications with the BC Calc® software.

Brick Ledge Cantilever

F20A

12" min. length of $\frac{23}{32}$ " 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

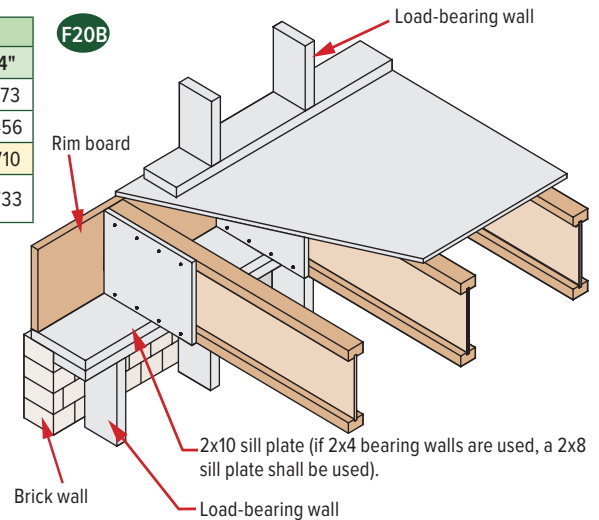
5" max.
3½" min.

Edge of hole shall be a min. of 3" from end of blocking panel

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

Joist Depth	Joist o.c. spacing			
	12"	16"	19.2"	24"
9½"	2,346	1,759	1,466	1,173
11⅞"	2,912	2,184	1,820	1,456
14"	3,420	2,565	2,138	1,710
16" or deeper	3,465	2,599	2,166	1,733

F20B

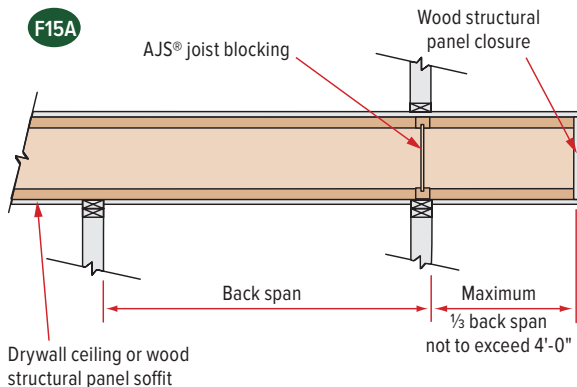


Non-Load-Bearing Wall Cantilever

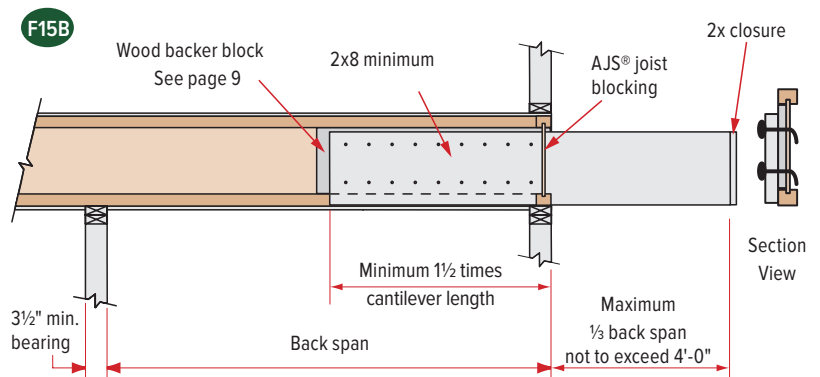
CAUTION: AJS® Joists are intended only for applications that provide permanent protection from the weather.

Fasten 2x8 (minimum) to the AJS® joist by nailing through the backer block and joist web with two rows of 3" (10d) nails at 6" on center. With AJS® 25 joists, use $3\frac{1}{2}$ " (16d) nails. Clinch all nails.

F15A



F15B



NOTES

- 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

AJS® Joist		Roof Truss Span	Specified Snow Load (psf)								
			30			40			50		
			Joist Spacing								
Depth	Series	16"	19.2"	24"	16"	19.2"	24"	16"	19.2"	24"	
9½"	140	24'	0	0	2	0	2	X	1	X	X
		26'	0	1	X	1	X	X	2	X	X
		28'	0	1	X	1	X	X	X	X	X
		30'	0	1	X	1	X	X	X	X	X
		32'	0	2	X	X	X	X	X	X	X
		34'	1	X	X	X	X	X	X	X	X
		36'	1	X	X	X	X	X	X	X	X
		38'	1	X	X	X	X	X	X	X	X
		40'	1	X	X	X	X	X	X	X	X
	42'	2	X	X	X	X	X	X	X	X	
	20	24'	0	0	2	0	2	X	1	X	X
		26'	0	1	X	1	X	X	2	X	X
		28'	0	1	X	1	X	X	X	X	X
		30'	0	1	X	2	X	X	X	X	X
		32'	0	2	X	2	X	X	X	X	X
		34'	1	2	X	X	X	X	X	X	X
		36'	1	X	X	X	X	X	X	X	X
		38'	1	X	X	X	X	X	X	X	X
		40'	2	X	X	X	X	X	X	X	X
	42'	2	X	X	X	X	X	X	X	X	
	25	24'	0	0	X	0	X	X	2	X	X
		26'	0	1	X	1	X	X	2	X	X
		28'	0	1	X	2	X	X	X	X	X
		30'	0	2	X	2	X	X	X	X	X
		32'	0	2	X	X	X	X	X	X	X
		34'	1	X	X	X	X	X	X	X	X
		36'	1	X	X	X	X	X	X	X	X
		38'	2	X	X	X	X	X	X	X	X
		40'	2	X	X	X	X	X	X	X	X
	42'	X	X	X	X	X	X	X	X	X	
11⅞"	140	24'	0	0	0	0	0	1	0	1	X
		26'	0	0	WS	0	0	X	0	1	X
		28'	0	0	1	0	1	X	0	1	X
		30'	0	0	1	0	1	X	1	X	X
		32'	0	0	1	0	1	X	1	X	X
		34'	0	0	2	0	2	X	1	X	X
		36'	0	0	X	1	X	X	1	X	X
		38'	0	1	X	1	X	X	X	X	X
		40'	0	1	X	1	X	X	X	X	X
	42'	0	1	X	1	X	X	X	X	X	
	20	24'	0	0	WS	0	0	X	0	1	X
		26'	0	0	WS	0	WS	X	0	1	X
		28'	0	0	1	0	1	X	0	2	X
		30'	0	0	1	0	1	X	1	X	X
		32'	0	0	X	0	1	X	1	X	X
		34'	0	0	X	0	2	X	1	X	X
		36'	0	WS	X	1	X	X	2	X	X
		38'	0	1	X	1	X	X	2	X	X
		40'	0	1	X	1	X	X	X	X	X
	42'	0	1	X	2	X	X	X	X	X	
	25	24'	0	0	0	0	0	2	0	1	X
		26'	0	0	0	0	0	X	0	1	X
		28'	0	0	1	0	1	X	0	2	X
		30'	0	0	1	0	1	X	1	X	X
		32'	0	0	2	0	2	X	1	X	X
		34'	0	0	2	0	2	X	2	X	X
		36'	0	0	X	1	X	X	2	X	X
		38'	0	1	X	1	X	X	X	X	X
		40'	0	1	X	2	X	X	X	X	X
	42'	0	1	X	2	X	X	X	X	X	

AJS® Joist		Roof Truss Span	Specified Snow Load (psf)								
			30			40			50		
			Joist Spacing								
Depth	Series		16"	19.2"	24"	16"	19.2"	24"	16"	19.2"	24"
14"	140	24'	0	0	0	0	0	WS	0	WS	1
		26'	0	0	WS	0	0	1	0	WS	1
		28'	0	0	WS	0	WS	1	0	WS	X
		30'	0	0	WS	0	WS	1	0	1	X
		32'	0	0	WS	0	WS	X	WS	1	X
		34'	0	0	WS	0	WS	X	WS	1	X
		36'	0	0	1	0	1	X	WS	1	X
		38'	0	WS	1	WS	1	X	1	X	X
		40'	0	WS	1	WS	1	X	1	X	X
		42'	0	WS	X	WS	1	X	1	X	X
	20	24'	0	0	WS	0	0	WS	0	WS	1
		26'	0	0	WS	0	WS	1	0	WS	X
		28'	0	0	WS	0	WS	1	0	WS	X
		30'	0	0	WS	0	WS	X	WS	1	X
		32'	0	0	WS	0	WS	X	WS	1	X
		34'	0	WS	WS	0	WS	X	WS	1	X
		36'	0	WS	1	WS	1	X	WS	X	X
		38'	0	WS	1	WS	1	X	1	X	X
		40'	0	WS	1	WS	1	X	1	X	X
		42'	0	WS	X	WS	X	X	1	X	X
	25	24'	0	0	0	0	0	WS	0	0	1
		26'	0	0	0	0	0	1	0	0	2
		28'	0	0	0	0	0	1	0	WS	2
		30'	0	0	0	0	0	2	0	1	X
		32'	0	0	WS	0	0	2	0	1	X
		34'	0	0	WS	0	WS	X	0	1	X
		36'	0	0	1	0	1	X	0	2	X
		38'	0	0	1	0	1	X	1	2	X
		40'	0	0	1	0	1	X	1	X	X
		42'	0	0	2	0	2	X	1	X	X
16"	20	24'	0	0	WS	0	0	WS	0	WS	WS
		26'	0	0	WS	0	WS	WS	0	WS	WS
		28'	0	0	WS	0	WS	WS	0	WS	1
		30'	0	0	WS	0	WS	WS	WS	WS	X
		32'	0	0	WS	0	WS	1	WS	WS	X
		34'	0	WS	WS	WS	WS	1	WS	WS	X
		36'	0	WS	WS	WS	WS	X	WS	WS	X
		38'	0	WS	WS	WS	WS	X	WS	1	X
		40'	0	WS	WS	WS	WS	X	WS	1	X
		42'	0	WS	WS	WS	WS	X	WS	X	X
	25	24'	0	0	0	0	0	0	0	0	WS
		26'	0	0	0	0	0	WS	0	0	WS
		28'	0	0	0	0	0	WS	0	0	1
		30'	0	0	0	0	0	WS	0	WS	1
		32'	0	0	0	0	0	1	0	WS	2
		34'	0	0	WS	0	WS	1	0	WS	2
		36'	0	0	WS	0	WS	1	0	WS	X
		38'	0	0	WS	0	WS	2	WS	1	X
		40'	0	0	WS	0	WS	2	WS	1	X
		42'	0	0	WS	0	WS	X	WS	2	X
18" to 24"	25	24'	WS	WS	WS	WS	WS	WS	WS	WS	WS
		26'	WS	WS	WS	WS	WS	WS	WS	WS	WS
		28'	WS	WS	WS	WS	WS	WS	WS	WS	WS
		30'	WS	WS	WS	WS	WS	WS	WS	WS	WS
		32'	WS	WS	WS	WS	WS	WS	WS	WS	WS
		34'	WS	WS	WS	WS	WS	WS	WS	WS	WS
		36'	WS	WS	WS	WS	WS	WS	WS	WS	WS
		38'	WS	WS	WS	WS	WS	WS	WS	WS	WS
		40'	WS	WS	WS	WS	WS	WS	WS	WS	WS
		42'	WS	WS	WS	WS	WS	WS	WS	WS	WS

NOTES

- ▶ 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 the face grain of the rebar is horizontal.
- ▶ Minimum bearing length is 3½".
- ▶ Fasten the rebar to the joist flanges with 2½" (8d) nails at 6" o.c. When reinforcing both sides, stagger nails to limit splitting the joist flanges.
- ▶ Attach web stiffeners per **Web Stiffener Nailing Schedule** in this guide.
- ▶ Use BC Calc® software to analyse conditions not covered by these tables. It may be possible to exceed table limitations by analysing specific applications with BC Calc® software.

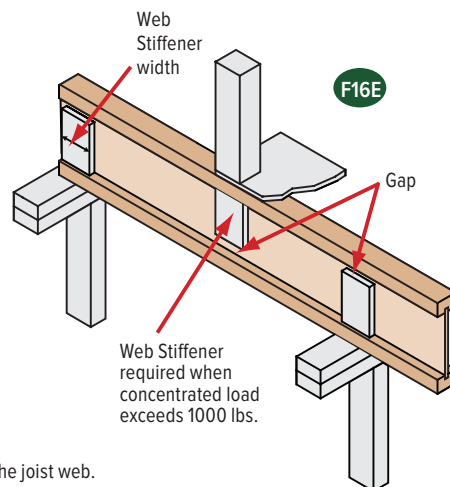
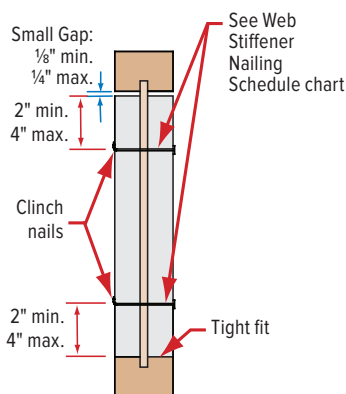
Tables are based on the following specified loads:

- ▶ 15 psf floor dead load
- ▶ 40 psf floor live load
- ▶ 100 plf wall dead load
- ▶ 10 psf roof dead load
- ▶ The listed specified snow load (standard term load duration).

KEY TO 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

Web Stiffener Requirements



Web stiffeners applied to both sides of the joist web.

Web Stiffener Nailing Schedule

AJS® Joist		Nailing
Series	Depth	
140, 20, and 25	9½"–11⅞"	Three 3" (10d)
	14"–24"	Five 3" (10d)

Web Stiffener Specifications

AJS® Joist Series	Minimum Thickness for Structural Capacity	Lateral Restraint in Hanger	Minimum Width
140, 20	1"	1"	2⅝"
25	2x4 lumber (vertical)		

NOTES

Web stiffeners are optional except as noted below.

► Web stiffeners are always required:

- at ALL bearing locations for 18" to 24" deep joists.
- in hangers that do not extend up to support the top flange of the AJS® joist
- under concentrated loads that exceed 1,000 pounds. Install 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 required with sloped or skewed hangers or to achieve uplift values. Refer to the hanger manufacturer's installation requirements.

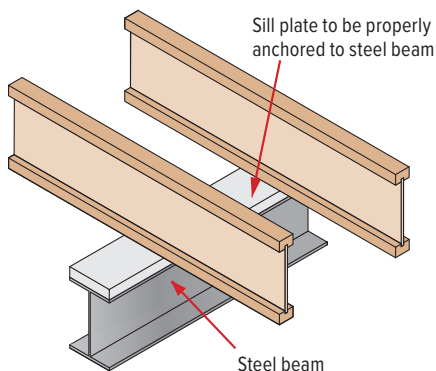
► **AJS® 25 only:** Web stiffeners may be cut from structural rated wood panels, engineered rim board, or 2x lumber.

► **For structural capacity:** Web stiffeners may be used to increase the reaction capacity of the AJS® joist at a specific bearing location. See the Factored Resistances section of this guide or use the BC Calc® software.

Connection Details

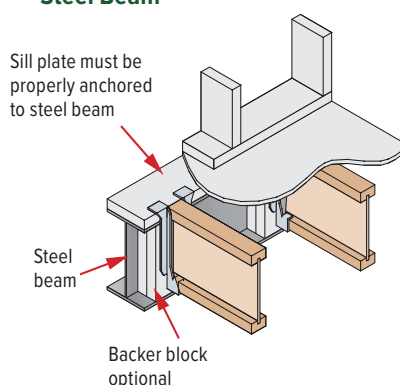
F15D

Connection on Steel Beam



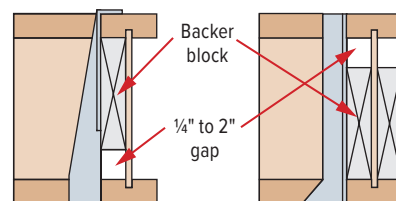
F15E

Connection with Hanger on Steel Beam



F16D

Hanger Connections to AJS® Headers



Top Mount

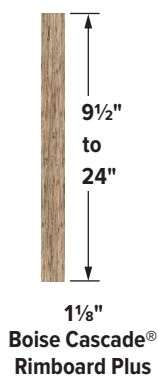
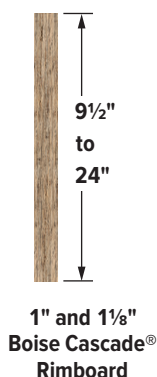
Backer block shall be tight to bottom of top flange with ¼" to 2" gap at top of bottom flange.

Face Mount

Backer block shall be tight to top of bottom flange with ¼" to 2" gap at bottom of top flange.

Rim Board Product Profiles and Details

Product Profiles



F56 Ledger Detail

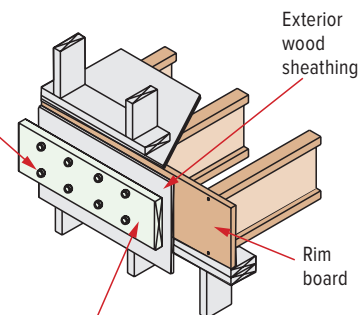
1/2" diameter through bolts (ASTM A307 Grades A&B, SAE J429 Grade 1 or higher) with washers and nuts;

or

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

Either option provides:

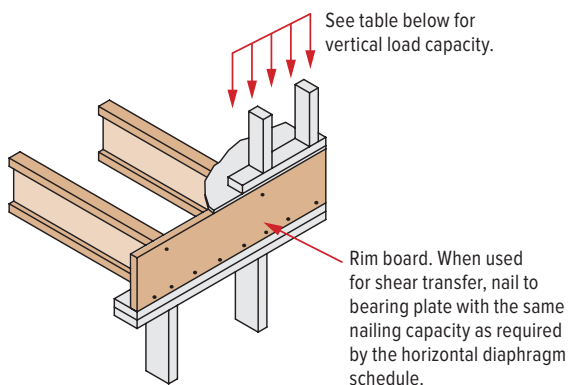
- 585 lbs per fastener with 1 1/8" or thicker rim
- 495 lbs per fastener with 1" rim



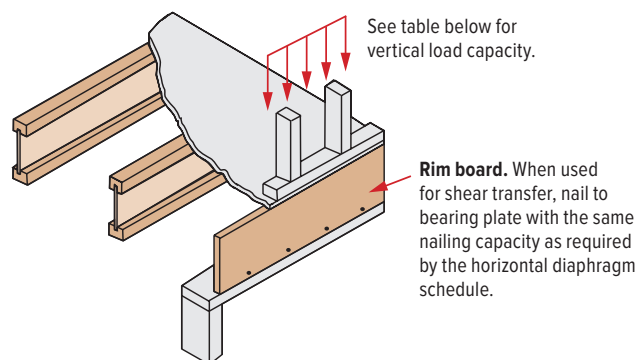
Treated ledger:
Use only fasteners approved for use with corresponding wood treatment.

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

F07 Rim Board Perpendicular to AJS® Joists



F07A Rim Board Parallel to AJS® 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	3,335	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

NOTES

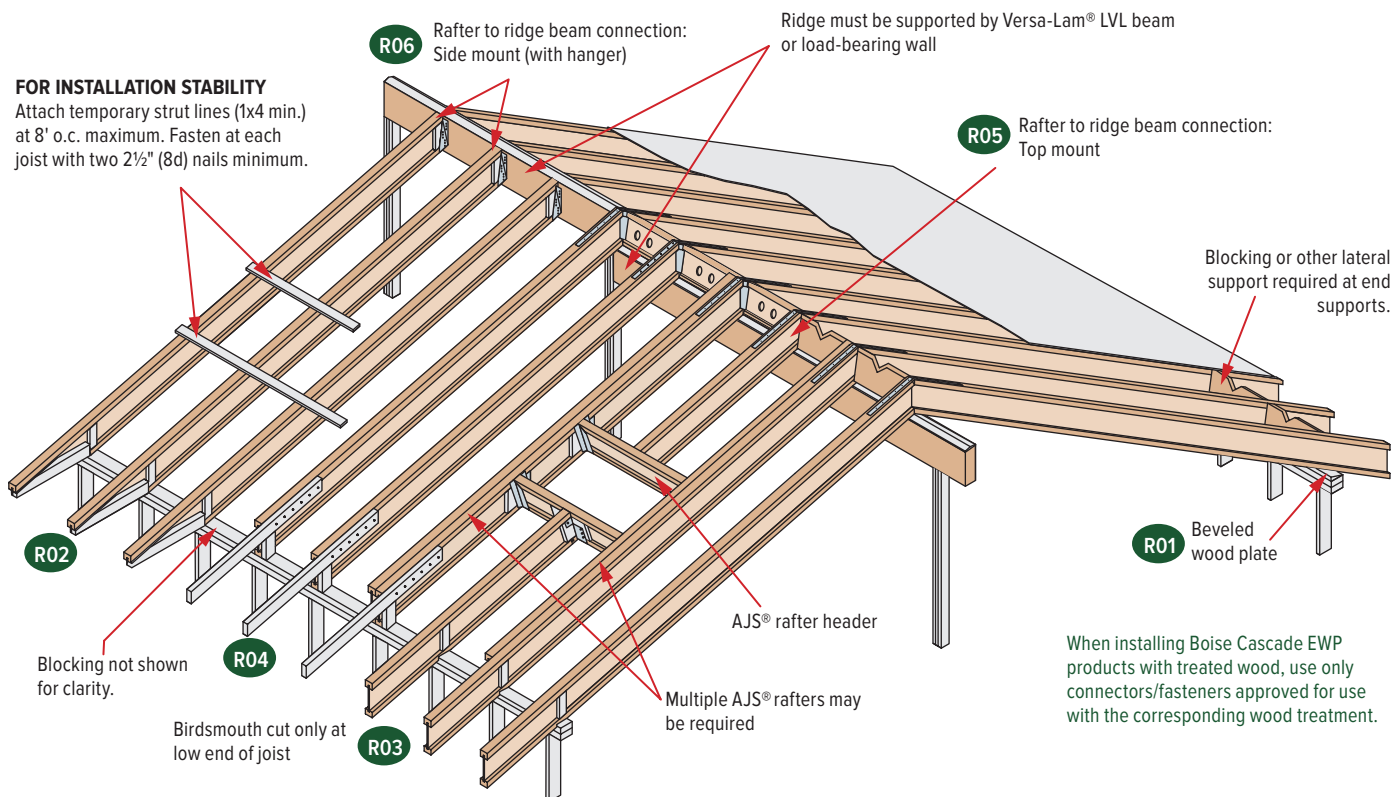
- (1) ϕH = Factored horizontal (shear) load transfer capacity is based on the minimum nailing attachment schedule specified in NBCC 2020 and APA document W345 CA.
 - (2) ϕV = Factored uniform bearing (vertical) load resistance. The uniform bearing load shall be simultaneously satisfied with the concentrated 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.
- All tabulated values apply to standard-term load duration and may be adjusted for other load durations in accordance with CSA O86-19.



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 AJS® JOISTS UNTIL ALL HANGERS, AJS® RIM JOISTS, RIM BOARDS, AJS® 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 AJS® joists and the first course of sheathing. As an alternate, temporary sheathing may be nailed to the first four feet of AJS® joists at the end of the bay.
- All hangers, AJS® rim joists, rim boards, AJS® blocking panels, and x-bracing must be completely installed and properly nailed as each AJS® joist is set.
- Install temporary 1x4 strut lines at no more than eight feet on-center as additional AJS® joists are set. Nail the strut lines to the sheathed area, or braced end wall, and to each AJS® 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 AJS® 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

- AJS® joists must be laterally supported at the ends with hangers, AJS® rim joists, rim boards, AJS® blocking panels or x-bracing. AJS® blocking panels or x-bracing 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 AJS® Joists

- 1½" is required at end supports (1¼" for 18" – 24" deep 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

- **AJS® rim joist, rim board or closure panel to AJS® joist:**
 - Rims or closure panel 1½" thick and less: Two 2½" (8d) nails, one each in the top and bottom flange.
 - AJS® 140/00 rim joist: Two 3½" (16d) nails, one each in the top and bottom flange.
 - AJS® 25 rim joist: Toe-nail top flange to rim joist with two 3" (10d) nails, one on each side of flange.
- **AJS® rim joist, rim board or AJS® blocking panel to support:**
 - Min. 2½" (8d) nails @ 6" o.c. per NBCC.
 - Connection per design professional of record's specification for shear transfer.
- **AJS® joist to support:**
 - Two 2½" (8d) nails, one on each side of the web, placed 1½" minimum from the end of the AJS® joist to limit splitting.
- **Sheathing to AJS® joist:**
 - Prescriptive 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 minimum lateral stability is 24".
 - 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** in this guide.

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

- AJS® joists may be birdsmouth cut only
 - at the low end support.
 - if joist is 16" deep or less
- AJS® 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
140	1½" or two ½" wood panels	2 x _ + ⅝" wood panel
20	1½" or two ½" wood panels	2 x _ + ⅝" wood panel
25	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.
- For deeper AJS® 25 joists, stack 2x lumber or use multiple pieces of ¾" wood panels.

Roof Framing Details

Additional roof framing details available with BC Framer® software

R01

2x beveled plate for slopes greater than 1/4:12

Simpson VPA or USP TMP connectors or equal can be used in lieu of beveled plate for slopes of 3:12 to 12:12.

R02

Rim board/Versa-Lam blocking ventilation "V" cut: 1/3 of length, 1/2 of depth.

2x4 blocking for soffit support

Flange of AJS joists may be birdsmouth cut only at the low end of the joist. Birds mouth cut AJS joist flange must bear fully on plate, web stiffener required each side. Bottom flange shall be fully supported.

2'6" max.

16" max. joist depth for birdsmouth cut

R03

Rim board/Versa-Lam blocking ventilation "V" cut: 1/3 of length, 1/2 of depth.

Tight fit for lateral stability

Flange of AJS joists may be birdsmouth cut only at the low end of the joist. Birds mouth cut AJS joist flange must bear fully on plate, web stiffener required each side.

2'6" max.

R04

10d nails at 6" o.c.

2x4 one side for 135 plf max.

2x6 one side for 240 plf max.

Backer block: Thickness per corresponding AJS series

2x block

AJS blocking holes cut for ventilation

4'0" horiz.

2'6" horiz.

R05

Simpson or USP LSTA24 strap, nailing per governing building code

AJS blocking holes cut for ventilation

Blocking on both sides of ridge may be required for shear transfer per design professional of record.

Double-beveled wood plate

Versa-Lam LVL support beam

R06

Simpson or USP LSTA24 strap where slope exceeds 7:12 (straps may be required for lower slopes in high-wind areas). Nailing per building code.

Versa-Lam LVL support beam

Simpson LSSUI or USP TMU hanger

Beveled web stiffener on each side

R07

Joist hanger

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

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

Backer block required where top flange joist hanger load exceeds 250 lbs. Install tight to top flange.

R11

Double joist may be required when L exceeds rafter spacing.

Blocking as required

Nail outrigger through AJS web

2" x outrigger notched around AJS top flange. Outrigger spacing no greater than 24" o.c.

End wall

2'-0" max. L

2'-0" max. L

DN05

DO NOT bevel-cut joist beyond inside face of wall, except for specific conditions as shown in detail on page 16 of this guide.

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

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

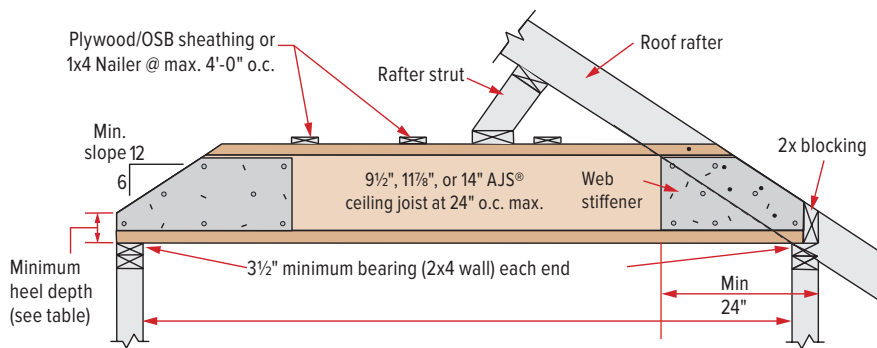
Maximum Span Lengths Without Roof Loads

9½" AJS® 140 / 20 / 25	19'-6"
11⅞" AJS® 140 / 20 / 25	22'-0"
14" AJS® 140 / 20 / 25	25'-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.
- AJS® 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 AJS® top flange with one 3½" (16d) sinker or box nail.
- 1x4 nailers must be continuous and nailed to a braced end wall.
- Install a web stiffener on each side of AJS® joist at beveled ends. Nail roof rafter to AJS® joist per building code requirements for ceiling joist to roof rafter connection.

PROTECT AJS® JOISTS FROM THE WEATHER

AJS® 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	AJS® 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	140	9½"	24'-8"	22'-4"	21'-0"	19'-0"	22'-1"	20'-0"	18'-10"	17'-5"
		11⅞"	29'-6"	26'-9"	24'-4"	21'-9"	26'-5"	23'-11"	22'-6"	20'-10"
		14"	33'-7"	29'-3"	26'-8"	23'-10"	30'-1"	27'-3"	25'-8"	22'-11"
	20	9½"	26'-8"	24'-2"	22'-9"	21'-1"	23'-11"	21'-8"	20'-5"	18'-10"
		11⅞"	31'-11"	28'-11"	27'-2"	25'-2"	28'-7"	25'-11"	24'-4"	22'-6"
		14"	36'-3"	32'-11"	30'-11"	28'-2"	32'-6"	29'-6"	27'-8"	25'-8"
	25	16"	40'-3"	36'-6"	33'-11"	30'-3"	36'-1"	32'-8"	30'-9"	28'-5"
		9½"	29'-9"	27'-0"	25'-4"	23'-6"	26'-8"	24'-2"	22'-8"	21'-0"
		11⅞"	35'-6"	32'-2"	30'-3"	28'-0"	31'-10"	28'-10"	27'-1"	25'-1"
		14"	40'-4"	36'-7"	34'-4"	31'-10"	36'-2"	32'-9"	30'-9"	28'-6"
		16"	44'-8"	40'-6"	38'-1"	35'-3"	40'-0"	36'-4"	34'-1"	31'-7"
		18"	49'-1"	44'-6"	41'-10"	38'-9"	44'-0"	39'-11"	37'-6"	34'-9"
		20"	53'-2"	48'-3"	45'-4"	42'-0"	47'-8"	43'-3"	40'-7"	37'-8"
		22"	57'-2"	51'-10"	48'-8"	44'-10"	51'-3"	46'-5"	43'-8"	40'-5"
		24"	60'-0"	55'-4"	52'-0"	46'-10"	54'-9"	49'-7"	46'-8"	43'-3"
Dead Load = 10 PSF Snow Load = 30 PSF	140	9½"	22'-5"	20'-4"	18'-4"	16'-5"	20'-3"	18'-4"	17'-2"	15'-11"
		11⅞"	26'-7"	23'-0"	21'-0"	18'-9"	24'-2"	21'-11"	20'-4"	18'-2"
		14"	29'-2"	25'-3"	23'-0"	20'-7"	27'-7"	24'-6"	22'-4"	19'-11"
	20	9½"	24'-3"	22'-0"	20'-8"	19'-1"	21'-11"	19'-10"	18'-8"	17'-3"
		11⅞"	29'-0"	26'-3"	24'-8"	22'-1"	26'-2"	23'-8"	22'-3"	20'-7"
		14"	33'-0"	29'-11"	27'-2"	24'-3"	29'-9"	27'-0"	25'-4"	23'-5"
	25	16"	36'-7"	32'-0"	29'-3"	26'-0"	33'-0"	29'-11"	28'-1"	24'-9"
		9½"	27'-1"	24'-6"	23'-0"	21'-3"	24'-5"	22'-1"	20'-9"	19'-2"
		11⅞"	32'-3"	29'-3"	27'-6"	25'-5"	29'-1"	26'-5"	24'-9"	22'-11"
		14"	36'-8"	33'-3"	31'-2"	28'-11"	33'-1"	30'-0"	28'-2"	26'-0"
		16"	40'-7"	36'-10"	34'-7"	30'-6"	36'-8"	33'-2"	31'-2"	28'-8"
		18"	44'-8"	40'-6"	38'-0"	34'-11"	40'-4"	36'-6"	34'-4"	31'-9"
		20"	48'-4"	43'-10"	41'-2"	36'-11"	43'-8"	39'-7"	37'-2"	34'-5"
		22"	52'-0"	47'-2"	43'-4"	38'-8"	46'-11"	42'-6"	40'-0"	37'-0"
		24"	55'-6"	49'-6"	45'-2"	40'-4"	50'-1"	45'-5"	42'-8"	39'-2"

NOTES

- Spans shown are in accordance with NBCC 2020.
- Maximum spans listed are the clear horizontal spans between supports (simple/multiple spans, or one span + 2' overhang).
- Minimum end bearing length is 1½" for 9½"–16" depths and 1¾" for 18"–24" depths. **Shaded** spans have a minimum end bearing length of 3½"
- 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.
- Spans shown have not been evaluated for snow drift.
- Lateral support must be provided for the compression edge and also at the bearings to prevent lateral displacement or rotation.
- 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 Framr® software.

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

$$W_{FD} = \text{Factored dead load (lb/ft)} \quad \text{Factor}_1 = 4a^2 + 3a^3 - 1$$

$$W_{RL} = \text{Factored live load (lb/ft)} \quad \text{Factor}_2 = 8a(1+a)$$

$$L_1 = \text{Length of shorter span (ft)} \quad a = \text{Short span/long span}$$

$$L_2 = \text{Length of longer span (ft)}$$

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"

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 in NBCC 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	AJS® 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	140	9½"	20'-6"	17'-11"	16'-4"	14'-7"	18'-10"	17'-1"	16'-0"	14'-3"
		11⅞"	23'-9"	20'-6"	18'-8"	16'-8"	22'-7"	20'-0"	18'-3"	16'-3"
		14"	26'-0"	22'-6"	20'-6"	18'-4"	25'-5"	22'-0"	20'-0"	17'-11"
	20	9½"	22'-2"	20'-1"	18'-10"	17'-5"	20'-5"	18'-6"	17'-4"	16'-0"
		11⅞"	26'-6"	24'-0"	22'-1"	19'-8"	24'-5"	22'-1"	20'-9"	19'-2"
		14"	30'-2"	26'-7"	24'-3"	20'-8"	27'-9"	25'-2"	23'-7"	19'-8"
		16"	33'-0"	28'-7"	26'-3"	21'-0"	30'-9"	27'-11"	25'-0"	20'-0"
	25	9½"	24'-9"	22'-5"	21'-0"	19'-5"	22'-9"	20'-7"	19'-4"	17'-10"
		11⅞"	29'-6"	26'-9"	25'-1"	22'-11"	27'-2"	24'-7"	23'-1"	21'-4"
		14"	33'-6"	30'-4"	28'-6"	23'-7"	30'-10"	27'-11"	26'-2"	22'-6"
		16"	37'-2"	33'-8"	30'-4"	24'-3"	34'-2"	30'-11"	28'-11"	23'-1"
		18"	40'-10"	37'-0"	34'-9"	31'-2"	37'-7"	34'-0"	32'-0"	29'-7"
		20"	44'-3"	40'-1"	36'-11"	32'-11"	40'-8"	36'-11"	34'-8"	32'-1"
		22"	47'-7"	42'-4"	38'-8"	34'-6"	43'-9"	39'-8"	37'-3"	33'-8"
		24"	50'-10"	44'-2"	40'-4"	36'-0"	46'-9"	42'-4"	39'-4"	35'-2"
Dead Load = 10 PSF Snow Load = 50 PSF	140	9½"	19'-0"	16'-4"	14'-11"	13'-4"	17'-6"	15'-10"	14'-7"	13'-0"
		11⅞"	21'-7"	18'-8"	17'-0"	15'-2"	20'-11"	18'-3"	16'-8"	14'-11"
		14"	23'-9"	20'-6"	18'-8"	16'-8"	23'-3"	20'-1"	18'-4"	16'-6"
	20	9½"	20'-7"	18'-7"	17'-5"	15'-8"	18'-11"	17'-1"	16'-1"	14'-10"
		11⅞"	24'-7"	22'-3"	20'-1"	16'-11"	22'-8"	20'-6"	19'-2"	16'-3"
		14"	27'-11"	24'-2"	21'-6"	17'-2"	25'-9"	23'-4"	20'-8"	16'-6"
		16"	30'-1"	26'-2"	21'-10"	17'-5"	28'-7"	25'-2"	20'-11"	16'-9"
	25	9½"	22'-11"	20'-8"	19'-5"	16'-2"	21'-1"	19'-1"	17'-10"	15'-7"
		11⅞"	27'-4"	24'-9"	23'-2"	19'-1"	25'-2"	22'-9"	21'-4"	18'-3"
		14"	31'-0"	28'-1"	24'-6"	19'-7"	28'-7"	25'-10"	23'-7"	18'-10"
		16"	34'-5"	30'-4"	25'-3"	20'-2"	31'-8"	28'-8"	24'-3"	19'-4"
		18"	37'-10"	34'-3"	31'-9"	28'-5"	34'-11"	31'-7"	29'-8"	27'-5"
		20"	41'-0"	36'-10"	33'-7"	30'-0"	37'-10"	34'-3"	32'-2"	29'-5"
		22"	44'-1"	38'-7"	35'-2"	31'-6"	40'-8"	36'-10"	34'-7"	30'-10"
		24"	46'-6"	40'-3"	36'-9"	32'-10"	43'-5"	39'-4"	36'-0"	32'-2"

NOTES

- Spans shown are in accordance with NBCC 2020.
- Maximum spans listed are the clear horizontal spans between supports (simple/multiple spans, or one span + 2' overhang).
- Minimum end bearing length is 1½" for 9½"–16" depths and 1¾" for 18"–24" depths.
- 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.
- Spans shown have not been evaluated for snow drift.
- Lateral support must be provided for the compression edge and also at the bearings to prevent lateral displacement or rotation.
- 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.

- 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 = $L_2 \times (\text{factor}_1 \times W_{FD} - W_{FL}) / \text{factor}_2$, 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"

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Roof Span Tables

Loads	AJS® 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 = 30 PSF Snow Load = 25 PSF	140	9½"	23'-4"	21'-1"	19'-10"	17'-8"	20'-9"	18'-9"	17'-8"	16'-4"
		11⅞"	27'-10"	24'-9"	22'-7"	20'-2"	24'-10"	22'-6"	21'-1"	19'-2"
		14"	31'-5"	27'-2"	24'-9"	22'-2"	28'-3"	25'-7"	23'-6"	21'-0"
	20	9½"	25'-3"	22'-11"	21'-6"	19'-11"	22'-6"	20'-4"	19'-1"	17'-8"
		11⅞"	30'-2"	27'-4"	25'-8"	23'-9"	26'-10"	24'-4"	22'-10"	21'-2"
		14"	34'-4"	31'-1"	29'-3"	26'-1"	30'-6"	27'-8"	26'-0"	24'-1"
	25	16"	38'-0"	34'-6"	31'-5"	28'-1"	33'-10"	30'-8"	28'-10"	26'-8"
		9½"	28'-2"	25'-6"	23'-11"	22'-2"	25'-0"	22'-8"	21'-4"	19'-9"
		11⅞"	33'-7"	30'-5"	28'-7"	26'-5"	29'-10"	27'-1"	25'-5"	23'-6"
		14"	38'-2"	34'-7"	32'-6"	30'-1"	33'-11"	30'-9"	28'-11"	26'-9"
		16"	42'-3"	38'-3"	36'-0"	33'-4"	37'-7"	34'-1"	32'-0"	29'-7"
		18"	46'-5"	42'-1"	39'-7"	36'-8"	41'-4"	37'-5"	35'-2"	32'-7"
		20"	50'-3"	45'-7"	42'-10"	39'-8"	44'-9"	40'-7"	38'-1"	35'-4"
		22"	54'-0"	49'-0"	46'-1"	41'-8"	48'-1"	43'-7"	41'-0"	38'-0"
		24"	57'-9"	52'-4"	48'-7"	43'-5"	51'-4"	46'-7"	43'-9"	40'-7"
Dead Load = 40 PSF Snow Load = 25 PSF	140	9½"	21'-5"	19'-0"	17'-4"	15'-6"	19'-3"	17'-5"	16'-4"	14'-10"
		11⅞"	25'-2"	21'-9"	19'-10"	17'-8"	23'-0"	20'-10"	19'-0"	17'-0"
		14"	27'-7"	23'-10"	21'-9"	19'-5"	26'-2"	22'-11"	20'-11"	18'-8"
	20	9½"	23'-3"	21'-1"	19'-9"	18'-4"	20'-10"	18'-10"	17'-9"	16'-5"
		11⅞"	27'-9"	25'-2"	23'-4"	20'-10"	24'-11"	22'-6"	21'-2"	19'-7"
		14"	31'-7"	28'-2"	25'-8"	22'-10"	28'-4"	25'-8"	24'-1"	21'-5"
	25	16"	35'-0"	30'-3"	27'-7"	23'-7"	31'-5"	28'-5"	26'-9"	21'-9"
		9½"	25'-11"	23'-6"	22'-0"	20'-4"	23'-3"	21'-0"	19'-9"	18'-3"
		11⅞"	30'-11"	28'-0"	26'-3"	24'-4"	27'-8"	25'-1"	23'-7"	21'-9"
		14"	35'-1"	31'-10"	29'-10"	26'-6"	31'-6"	28'-6"	26'-9"	24'-5"
		16"	38'-11"	35'-3"	33'-1"	27'-3"	34'-10"	31'-7"	29'-8"	25'-1"
		18"	42'-9"	38'-9"	36'-5"	33'-0"	38'-4"	34'-9"	32'-8"	30'-3"
		20"	46'-4"	42'-0"	39'-1"	34'-11"	41'-6"	37'-8"	35'-4"	32'-9"
		22"	49'-9"	44'-10"	40'-11"	36'-7"	44'-8"	40'-5"	38'-0"	35'-2"
		24"	53'-2"	46'-10"	42'-8"	38'-2"	47'-8"	43'-3"	40'-7"	36'-8"

NOTES

- ▶ Spans shown are in accordance with NBCC 2020.
- ▶ Maximum spans listed are the clear horizontal spans between supports (simple/multiple spans, or one span + 2' overhang).
- ▶ Minimum end bearing length is 1½" for 9½"–16" depths and 1¾" for 18"–24" depths.
- ▶ 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.
- ▶ Spans shown have not been evaluated for snow drift.
- ▶ Lateral support must be provided for the compression edge and also at the bearings to prevent lateral displacement or rotation.
- ▶ Slope roof joists at least ¼:12 to minimize ponding.
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- ▶ It may be possible to exceed the limitations of this table by analysing a specific application with the BC Calc® or BC Framer® software.

- ▶ 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 = $L_2 \times (\text{factor}_1 \times W_{F0} - W_{F1}) / \text{factor}_2$, where:

$$W_{F0} = \text{Factored dead load (lb/ft)} \quad \text{Factor}_1 = 4a^2 + 3a - 1$$

$$W_{F1} = \text{Factored live load (lb/ft)} \quad \text{Factor}_2 = 8a(1+a)$$

$$L_1 = \text{Length of shorter span (ft)} \quad a = \text{Short span/long span}$$

$$L_2 = \text{Length of longer span (ft)}$$

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"

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Loads	AJS® 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	140	9½"	19'-10"	17'-2"	15'-8"	13'-11"	18'-1"	16'-4"	15'-1"	13'-6"
		11⅞"	22'-8"	19'-7"	17'-10"	15'-11"	21'-8"	18'-11"	17'-3"	15'-5"
		14"	24'-10"	21'-6"	19'-7"	17'-6"	24'-1"	20'-10"	19'-0"	16'-11"
	20	9½"	21'-9"	19'-8"	18'-6"	16'-6"	19'-7"	17'-9"	16'-8"	15'-5"
		11⅞"	26'-0"	23'-1"	21'-4"	18'-7"	23'-5"	21'-2"	19'-11"	17'-5"
		14"	29'-4"	25'-4"	23'-1"	18'-11"	26'-7"	24'-1"	22'-1"	17'-8"
		16"	31'-7"	27'-4"	24'-0"	19'-2"	29'-6"	26'-4"	22'-5"	17'-11"
	25	9½"	24'-3"	21'-11"	20'-7"	17'-10"	21'-10"	19'-9"	18'-6"	16'-8"
		11⅞"	28'-11"	26'-2"	24'-7"	20'-11"	26'-0"	23'-7"	22'-1"	19'-7"
		14"	32'-10"	29'-9"	26'-11"	21'-7"	29'-7"	26'-9"	25'-2"	20'-2"
		16"	36'-5"	32'-11"	27'-9"	22'-2"	32'-9"	29'-8"	25'-11"	20'-9"
		18"	40'-0"	36'-3"	33'-4"	29'-9"	36'-1"	32'-8"	30'-8"	28'-5"
		20"	43'-4"	38'-8"	35'-3"	31'-6"	39'-1"	35'-5"	33'-3"	30'-5"
		22"	46'-7"	40'-6"	36'-11"	33'-0"	42'-0"	38'-0"	35'-9"	31'-11"
		24"	48'-9"	42'-3"	38'-6"	34'-5"	44'-10"	40'-8"	37'-3"	33'-3"
Dead Load = 15 PSF Snow Load = 50 PSF	140	9½"	18'-2"	15'-9"	14'-4"	12'-10"	17'-2"	15'-3"	13'-11"	12'-5"
		11⅞"	20'-9"	18'-0"	16'-5"	14'-7"	20'-2"	17'-6"	15'-11"	14'-2"
		14"	22'-10"	19'-9"	18'-0"	15'-11"	22'-2"	19'-2"	17'-6"	15'-1"
	20	9½"	20'-7"	18'-7"	16'-11"	15'-0"	18'-7"	16'-10"	15'-9"	14'-2"
		11⅞"	24'-7"	21'-2"	19'-4"	15'-8"	22'-2"	20'-1"	18'-6"	14'-10"
		14"	26'-11"	23'-3"	19'-11"	15'-11"	25'-3"	22'-8"	18'-10"	15'-1"
		16"	29'-0"	24'-3"	20'-3"	16'-2"	28'-0"	22'-11"	19'-1"	15'-3"
	25	9½"	22'-11"	20'-8"	18'-10"	15'-0"	20'-8"	18'-8"	17'-6"	14'-2"
		11⅞"	27'-4"	24'-9"	22'-1"	17'-8"	24'-8"	22'-4"	20'-10"	16'-8"
		14"	31'-0"	27'-4"	22'-9"	18'-2"	28'-1"	25'-5"	21'-6"	17'-2"
		16"	34'-5"	28'-1"	23'-5"	18'-9"	31'-1"	26'-7"	22'-1"	17'-8"
		18"	37'-10"	33'-6"	30'-7"	27'-4"	34'-2"	31'-0"	29'-1"	26'-7"
		20"	41'-0"	35'-5"	32'-4"	28'-11"	37'-1"	33'-7"	31'-6"	28'-1"
		22"	42'-11"	37'-2"	33'-11"	30'-3"	39'-10"	36'-1"	32'-11"	29'-5"
		24"	44'-9"	38'-9"	35'-4"	31'-7"	42'-7"	37'-8"	34'-4"	30'-8"

NOTES

- Spans shown are in accordance with NBCC 2020.
- Maximum spans listed are the clear horizontal spans between supports (simple/multiple spans, or one span + 2' overhang).
- Minimum end bearing length is 1½" for 9½"–16" depths and 1¾" for 18"–24" depths.
- 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.
- Spans shown have not been evaluated for snow drift.
- Lateral support must be provided for the compression edge and also at the bearings to prevent lateral displacement or rotation.
- 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.

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

W_{FD} = Factored dead load (lb/ft)

W_{FL} = Factored live load (lb/ft)

L_1 = Length of shorter span (ft)

L_2 = Length of longer span (ft)

$\text{Factor}_1 = 4a^2 + 3a^3 - 1$

$\text{Factor}_2 = 8a(1+a)$

a = Short span/long span

Short/Long span ratio = a	0.50	0.60	0.70	0.80	0.90	1.00
factor₁	0.38	1.09	1.99	3.10	4.43	6.00
factor₂	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"

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 in NBCC 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 Allowable Uniform Loads, PLF

Design Span	Loading	AJS® 140 Depth			AJS® 20 Depth				AJS® 25 Depth							
		9½"	11⅝"	14"	9½"	11⅝"	14"	16"	9½"	11⅝"	14"	16"	18"	20"	22"	24"
6'	Unfactored Snow Load for L/240 (plf)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Unfactored Load for L/180 (plf)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Factored Total Load (plf)	488	501	505	488	501	505	510	488	501	505	510	993	1,075	1,100	1,124
8'	Unfactored Snow Load for L/240 (plf)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Unfactored Total Load for L/180 (plf)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Factored Total Load (plf)	366	376	378	366	376	378	382	366	376	378	382	745	806	825	843
10'	Unfactored Snow Load for L/240 (plf)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Unfactored Total Load for L/180 (plf)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Factored Total Load (plf)	292	301	303	292	301	303	306	292	301	303	306	596	645	660	674
12'	Unfactored Snow Load for L/240 (plf)	207	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Unfactored Total Load for L/180 (plf)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Factored Total Load (plf)	227	250	252	244	250	252	255	244	250	252	255	496	537	550	562
14'	Unfactored Snow Load for L/240 (plf)	134	—	—	167	—	—	—	—	—	—	—	—	—	—	—
	Unfactored Total Load for L/180 (plf)	179	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Factored Total Load (plf)	209	215	216	209	215	216	218	209	215	216	218	425	460	471	482
16'	Unfactored Snow Load for L/240 (plf)	92	153	—	115	—	—	—	155	—	—	—	—	—	—	—
	Unfactored Total Load for L/180 (plf)	122	—	—	153	—	—	—	—	—	—	—	—	—	—	—
	Factored Total Load (plf)	127	165	189	177	188	189	191	183	188	189	191	372	403	412	421
18'	Unfactored Snow Load for L/240 (plf)	65	109	—	82	136	—	—	111	—	—	—	—	—	—	—
	Unfactored Total Load for L/180 (plf)	87	—	—	109	—	—	—	148	—	—	—	—	—	—	—
	Factored Total Load (plf)	101	130	157	140	167	168	170	162	167	168	170	331	358	366	374
20'	Unfactored Snow Load for L/240 (plf)	48	81	117	60	101	146	—	82	136	—	—	—	—	—	—
	Unfactored Total Load for L/180 (plf)	64	—	—	81	135	—	—	110	—	—	—	—	—	—	—
	Factored Total Load (plf)	81	106	127	113	147	151	153	146	150	151	153	298	322	330	337
22'	Unfactored Snow Load for L/240 (plf)	36	61	89	46	77	111	—	62	104	—	—	264	—	—	—
	Unfactored Total Load for L/180 (plf)	48	82	—	61	102	—	—	83	—	—	—	—	—	—	—
	Factored Total Load (plf)	67	87	105	93	121	137	139	133	136	137	139	270	293	300	306
24'	Unfactored Snow Load for L/240 (plf)	—	47	69	35	60	87	117	49	81	117	—	207	259	—	—
	Unfactored Total Load for L/180 (plf)	—	63	—	47	80	116	—	65	108	—	—	—	—	—	—
	Factored Total Load (plf)	—	73	88	78	102	122	127	122	125	126	127	248	268	275	281
26'	Unfactored Snow Load for L/240 (plf)	—	37	55	—	47	69	93	38	64	93	—	165	207	—	—
	Unfactored Total Load for L/180 (plf)	—	50	73	—	63	92	—	51	86	—	—	—	—	—	—
	Factored Total Load (plf)	—	62	75	—	86	104	117	105	115	116	117	216	241	254	259
28'	Unfactored Snow Load for L/240 (plf)	—	30	44	—	38	55	75	31	52	75	101	133	168	206	—
	Unfactored Total Load for L/180 (plf)	—	40	59	—	51	74	100	41	69	100	—	178	—	—	—
	Factored Total Load (plf)	—	54	65	—	75	90	104	91	107	108	109	186	208	228	241
30'	Unfactored Snow Load for L/240 (plf)	—	—	36	—	31	45	61	—	42	61	83	109	138	169	205
	Unfactored Total Load for L/180 (plf)	—	—	48	—	41	60	82	—	57	82	—	146	—	—	—
	Factored Total Load (plf)	—	—	56	—	65	78	91	—	100	101	102	162	181	198	216

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 beams 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 all loading values (unfactored live load, unfactored total load, or factored total load).

► 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).

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 concret ⁽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		1,000 lbs
Hot Tub (tub & water weight)		150
Acrylic soaking tub - 2 person - 80 gallon capacity (tub and 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)
11/32" or ¾" Plywood – OSB ⁽³⁾		1.0 – 1.2
15/32" or ½" Plywood – OSB ⁽³⁾		1.4 – 1.7
19/32" or ⅝" Plywood – OSB ⁽³⁾		1.8 – 2.1
23/32" or ¾" Plywood – OSB ⁽³⁾		2.2 – 2.5
⅞" Plywood – OSB ⁽³⁾		2.6 – 2.9
1⅞" 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)
5/16" x 7½" 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*.

Framing Connectors — MiTek



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

Joist Height	Top Mount Hangers ⁽⁴⁾							Face Mount Hangers					
	MiTek Hanger ⁽¹⁾	Fastener Schedule ⁽⁵⁾		Uplift (115%) ⁽³⁾	Down (100%) ⁽²⁾		MiTek Hanger ⁽¹⁾	Fastener Schedule ⁽⁵⁾		Uplift (115%) ⁽³⁾	Down (100%) ⁽²⁾		
		Header	Joist		DF	SPF		Header	Joist		DF	SPF	
AJS® 140, 20													
Joist Width 2½"													
9½"	TFL2595	(6) 10d	(2) 10d x 1½"	205	2,370	1,960	THFI2595	(8) 10d	–	90	1,845	1,700	
11⅞"	TFL25118						THFI25118	(10) 10d					
14"	TFL2514						THFI2514	(12) 10d					
16"	TFL2516						IHFL2516	(14) 10d					
(2) 10d x 1½"													
385													
4,420													
3,310													
AJS® 25													
Joist Width 3½"													
9½"	THO35950	(10) 10d	(2) 10d x 1½"	375	2,950	2,620	THFL35925	(10) 10d	(2) 10d x 1½"	385	4,420	3,310	
11⅞"	THO35118	(12) 10d			3,910	3,385	IHF3514	(28) 16d		585	5,655	4,280	
14"	THO35140						IHF3516	(30) 16d					
16"	THO35160						IHF3518	(30) 16d					
18"	TFI418	(6) 16d		390	3,685	3,290	HD414	(26) 16d	(12) 10d	3,640	7,540	6,965	
20"	TFI420	(10) 16d			4,675	4,175	HD416	(30) 16d	(14) 10d		7,210	6,660	
22"	TFI422						HD418	(28) 16d	(8) 10d		3,515	7,540	6,965
24"	TFI424												

Joist Height	Slope and Skew Hangers						Joist Height	Adjustable Height Hangers									
	MiTek Hanger ⁽¹⁾⁽⁸⁾	Fastener Schedule ⁽⁵⁾		Uplift (115%) ⁽³⁾	Down (100%) ⁽²⁾			MiTek Hanger ⁽¹⁾⁽⁶⁾	Fastener Schedule ⁽⁵⁾		Uplift (115%) ⁽³⁾	Down (100%) ⁽²⁾					
		Header	Joist		DF	SPF			Header	Joist		DF	SPF				
AJS® 140, 20														Joist Width 2½"			
9½" to 16"	LSSH25 Sloped Only	(18) 16d	(12) 10d x 1½"	1,575	3,735	2,980	9½" to 16"	MSH322	(6) 10d	(4) 10d x 1½"	–	3,370	2,750				
	LSSH25 Skewed and/or Sloped	(14) 16d			2,245	1,830											
AJS® 25														Joist Width 3½"			
9½" to 16"	LSSH35 Sloped Only	(18) 16d	(12) 10d x 1½"	2,145	4,505	3,860	9½" to 16"	MSH422	(6) 10d	(6) 10d	–	3,425	2,690				
	LSSH35 Skewed and/or Sloped	(14) 16d			2,670	2,195	18" to 24"	MSH426	(6) 16d		710	4,340	3,405				

Joist Height	Skewed 45° Hangers						Variable Pitch Connectors (Slope 12:12)					
	MiTek Hanger ⁽¹⁾	Fastener Schedule ⁽⁵⁾		Uplift (115%) ⁽³⁾	Down (100%) ⁽²⁾		MiTek Hanger ⁽¹⁾⁽⁹⁾	Fastener Schedule ⁽⁵⁾		Uplift (115%) ⁽³⁾	Down (100%) ⁽²⁾	
		Header	Joist		DF	SPF		Header	Joist		DF	SPF
AJS® 140, 20	Joist Width 2½"											
9½" to 11⅞"	SKH2520L/R	(14) 10d	(10) 10d x 1½"	2,240	3,440	2,700	TMP25	(6) 10d	(4) 10d x 1½"	315	2,770	2,175
14" to 16"	SKH2524L/R	(16) 10d			4,640	3,645	TMPH25	(10) 10d	(8) 10d x 1½"	295	4,120	3,235
AJS® 25	Joist Width 3½"											
9½" to 11⅞"	SKH410L/R	(16) 16d	(10) 16d	2,240	4,130	3,240	TMP4	(6) 10d	(4) 10d x 1½"	315	2,770	2,175
14" to 20"	SKH414L/R	(22) 16d			8,720	6,845	TMPH4	(10) 10d	(8) 10d x 1½"	295	4,120	3,235

NOTES

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

For further information please call 1.800.268.3434
or go to MiTek.ca

Framing Connectors — MiTek

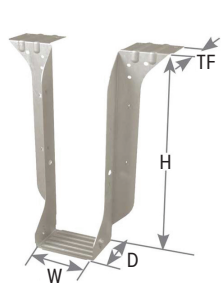


DOUBLE I-JOISTS – Canadian/Factored Resistance (lbs)

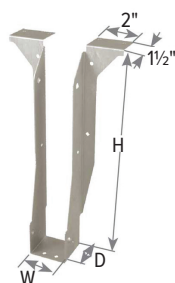
Joist Height	Top Mount Hangers ⁽⁴⁾						Face Mount Hangers								
	MiTek Hanger ⁽¹⁾	Fastener Schedule ⁽⁵⁾		Uplift (115%) ⁽³⁾	Down (100%) ⁽²⁾		MiTek Hanger ⁽¹⁾	Fastener Schedule ⁽⁵⁾		Uplift (115%) ⁽³⁾	Down (100%) ⁽²⁾				
		Header	Joist		DF	SPF		Header	Joist		DF	SPF			
Double AJS® 140, 20													Joist Width 2½"		
9½"	THO25950-2	(10) 16d	(6) 10d	1,670	5,090	3,785	IHF25925-2	(24) 16d	(2) 10d x 1½"	585	5,655	4,280			
11⅞"	THO25118-2						IHF25112-2	(20) 10d							
14"	THO25140-2	(12) 16d					THF25140-2	(24) 10d	(6) 10d				2,610	6,680	5,245
16"	THO25160-2						THF25160-2	(24) 10d							
Double AJS® 25													Joist Width 3½"		
9½"	BPH7195	(10) 16d	(6) 10d	2,290	5,300	4,340	HD7100	(14) 16d	(6) 16d	2,200	5,030	4,180			
11⅞"	BPH71118					4,305	HD7120	(16) 16d							
14"	BPH7114						HD7140	(20) 16d							
16"	BPH7116						HD7160	(24) 16d							
18"	BPH7118						HD7180	(28) 16d	(8) 16d	3,515	5,585	4,710			
20"	BPH7120														
22"	BPH7122														
24"	BPH7124														

Joist Height	Slope and Skew Hangers						Joist Height	Adjustable Height Hangers									
	MiTek Hanger ⁽¹⁾⁽⁶⁾	Fastener Schedule ⁽⁵⁾		Uplift (115%) ⁽³⁾	Down (100%) ⁽²⁾			MiTek Hanger ⁽¹⁾⁽⁹⁾	Fastener Schedule ⁽⁵⁾		Uplift (115%) ⁽³⁾	Down (100%) ⁽²⁾					
		Header	Rafter		DF	SPF			Header	Joist		DF	SPF				
Double AJS® 140, 20														Joist Width 2½"			
9½" to 11⅞"	SKH2520L/R-2	(14) 10d	(10) 10d	2,740	5,320	4,175	9½" to 16"	See current <i>MiTek Full Line</i> Catalogue or BC Framer® for specialty hanger selection.									
14" to 16"	SKH2524L/R-2	(16) 10d		2,735	4,950	3,885											
Double AJS® 25														Joist Width 3½"			
9½"	HD7100_SK45L/R_BV ⁽⁷⁾	(14) 16d	(6) 16d	1,650	5,030	4,180	9½"	MSH422-2	(8) 16d	(6) 16d	–	6,665	5,230				
11⅞"	HD7120_SK45L/R_BV ⁽⁷⁾	(16) 16d					11⅞"										
14"	HD7140_SK45L/R_BV ⁽⁷⁾	(20) 16d	(8) 16d	2,610	5,585	4,710	14"										
16"	HD7160_SK45L/R_BV ⁽⁷⁾	(24) 16d	(8) 10d	2,635	7,670	6,430	16"										
18"	HD7180_SK45L/R_BV ⁽⁷⁾	(28) 16d					18"										
20"							20"										
22"							22"										
24"			24"	MSH426-2													

► See Notes on page 24.



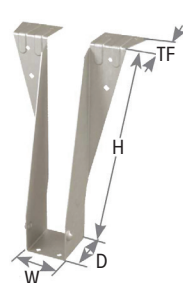
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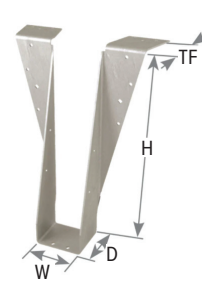
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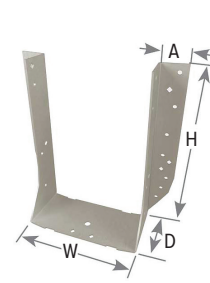
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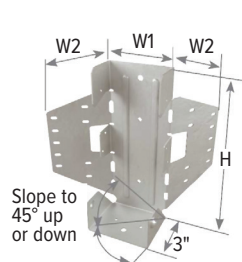
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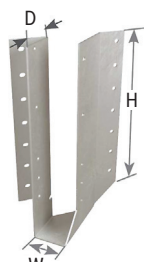
BPH



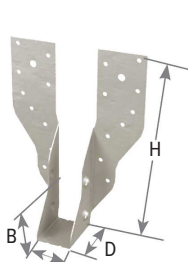
HD



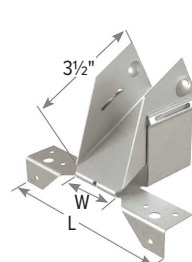
LSSH



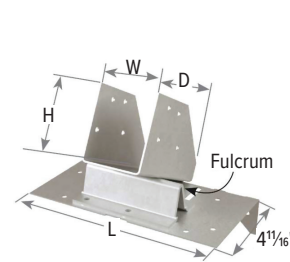
SKH



MSH



TMP



TMPH

Framing Connectors – Simpson Strong-Tie

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									
AJS® 140, 20									Joist Width = 2½"																					
9½	LT259	2	(6) 10d	(1) #8 x 1¼ ws	105	2,050	1,725	IUS2.56/9.5	2	(8) 10d	–	175	2,050	1,690	LF259	2	(10) 10d	(1) #8 x 1¼ ws	105	2,050										
11⅞	LT251188					2,205		IUS2.56/11.88		(10) 10d			2,205	1,820	LF2511		(12) 10d			2,205										
14	LT2514					2,350		IUS2.56/14		(12) 10d			2,350		LF2514		(14) 10d			2,350										
16	LT2516					2,480		IUS2.56/16		(14) 10d			2,480	1,935	MIU2.56/16		2½			(24) 16d	(2) 10d x 1½	375	2,480							
AJS® 25									Joist Width = 3½"																					
9½	LT359	2	(6) 10d	(2) #8 x 1¼ ws (2) 10d x 1½	105	2,050	1,725	IUS3.56/9.5	2	(10) 10d	–	175	2,050	1,685	LF359	2	(10) 10d	(2) #8 x 1¼ ws	105	2,050										
11⅞	LT351188					2,205		IUS3.56/11.88		(12) 10d			2,205				LF3511			(12) 10d	2,205									
14	LT3514					2,350		IUS3.56/14		(14) 10d			2,350				LF3514			(14) 10d	2,350									
16	LT3516					2,480		IUS3.56/16		(14) 10d			2,370				MIU3.56/16			2½	(24) 16d	(2) 10d x 1½	375	2,480						
18	MIT418	2½	(8) 16d	320	3,490	2,420	No IUS hanger for this size							MIU3.56/18	3,835															
20	MIT420						No IUS hanger for this size								4,315															
Joist Height	45° Skew							Adjustable Height							Field Slope & 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									
AJS® 140, 20									Joist Width = 2½"																					
9½	SUR/L2.56/9	3¾	(14) 16d	(2) 10d x 1½	385	2,275		THAI322	2¼	(6) 10d	(2) 10d x 1½	–	2,095		LSSR2.56Z	1⅞	(14) 10d x 2½	(12) 10d x 1½	510	2,025	1,560									
11⅞	SUR/L2.56/11		(16) 16d			2,450							2,255									2,180								
14	SUR/L2.56/14		(18) 16d			2,610							2,405									2,200								
16	SUR/L2.56/14		(18) 16d			2,765							See Canadian Wood Construction Connectors catalogue for hanger selection.							See Canadian Wood Construction Connectors catalogue for hanger selection.										
AJS® 25									Joist Width = 3½"																					
9½	SUR/L410	2⅝	(14) 16d	(6) 16d	1,540	2,165		THAI422	2¼	(6) 10d	(2) 10d x 1½	–	2,095		LSSU410Z	1⅞	(24) 16d x 2½	(16) 16d x 2½	705	2,025										
11⅞			(16) 16d			2,335							2,255									2,180								
14	SUR/L414		(18) 16d			2,485							2,405									2,320								
16						2,630							See Canadian Wood Construction Connectors catalogue for hanger selection.							See Canadian Wood Construction Connectors catalogue for hanger selection.										
18						4,095	2,895						See Canadian Wood Construction Connectors catalogue for hanger selection.							See Canadian Wood Construction Connectors catalogue for hanger selection.										
20						4,095	2,895						See Canadian Wood Construction Connectors catalogue for hanger selection.							See Canadian Wood Construction Connectors catalogue for hanger selection.										

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 AJS® 40, 20																						Joist Width = 5"										
9½	MIT39.5-2	2½	(8) 16d	(2) 10d x 1½	375	3,350	2,420	MIU5.12/9	2½	(16) 16d	(2) 10d x 1½	375	4,290	3,230	HSUR/L5.12/9	2¾	(12) 16d	(2) 10d x 1½	195	2,995	2,350											
11⅞	MIT311.88-2					3,420		MIU5.12/11		(20) 16d			4,550	HSUR/L5.12/11	(16) 16d		4,190			2,965												
14	MIT314-2					3,485		MIU5.12/14		(22) 16d			4,920	HSUR/L5.12/14	(20) 16d																	
16	MIT5.12/16					3,490		MIU5.12/16		(24) 16d			4,930	3,485	HSUR/L5.12/16		(24) 16d															
Double AJS® 25									Joist Width = 7"																							
9½	BA7.12/9.5	3	(16) 16d	(2) 10d x 1½	280	4,480	4,030	HU410-2	2½	(18) 16d	(8) 16d	2,280	4,290	HU410-2 x (2)	2½	(18) 16d	(8) 16d	1,710	4,290	3,050												
11⅞	BA7.12/11.88							HU412-2		(22) 16d			4,620			(22) 16d			4,335													
14	BA7.12/14							HU414-2		(26) 16d			(12) 16d			3,420			4,920		4,920											
16	BA7.12/16					4,535		HU414-2											5,205		5,205											
18	BA7.12/18							HU414-2											7,025		6,185						5,265	4,635				
20								HU414-2																								
Joist Height	Adjustable Height							Field Slope & Skew							TABLE NOTES (1) THAI-2 must be special ordered, specify hanger seat width between 3⅝" and 5⅝". (2) LSU5.12 skew options must be factory ordered. (3) Skewed option must be special ordered. Specify skew angle and direction (i.e. HU410-2X, SKR 45°). ► Bold 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																	
	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 AJS® 140, 20																						Joist Width = 5"										
9½	THAI-2 ⁽¹⁾	2½	(6) 10d	(2) 10d x 1½	–	2,800	2,800	LSU5.12 ⁽²⁾	3½	(24) 16d	(16) 10d x 1½	910	2,600	1,845																		
11⅞																																
14																																
16	See Canadian Wood Construction Connectors catalogue for hanger selection.							See Canadian Wood Construction Connectors catalogue for hanger selection.																								
Double AJS® 25"																						Joist Width = 7"										
9½ to 20"	See Canadian Wood Construction Connectors catalogue for hanger selection.							See Canadian Wood Construction Connectors catalogue for hanger selection.																								

For more information, call

General Notes

- ▶ See current *Canadian Wood Construction Connectors* catalogue for Important Information, General Notes section, and for hanger models, joist sizes, and header situations not shown. See *Simpson Strong-Tie Publication CSG-AJSCAN20* for installation information.
- ▶ Unless otherwise noted, factored resistances (downloads) listed in tables are in pounds and address the attachment of the hanger to a solid support member. Loads listed under the Factored Resistance DF heading cover Douglas fir, southern pine, or Douglas fir equivalents. Loads listed under Factored Resistance SPF cover SPF or LVL made primarily from low density material such as SPF. Load resistance shown is the lower of either the hanger capacity or the I-joist bearing capacity published by the manufacturer. Joist or beam reactions should be checked by a qualified designer to ensure proper hanger selection.
- ▶ Factored uplift resistances (uplift) listed assume SPF joist and header for solid sawn flanges and DF for all others. Loads 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 information in the Simpson guide referenced above.
- ▶ For this publication, carrying members are assumed to be at least 5½ inches 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 1¼ inches for 3" (10d) nails; 2 inches 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 inches. Backer blocks are required when the header is an I-joist. Install four top nails and two face nails. THAI hangers are not rated for uplift.
- ▶ NAILS: 3½" (16d) = 0.162" dia. x 3½" long
3" (10d) = 0.148" dia. x 3" long
3" (10d) x 1½" = 0.148" dia. x 1½" long

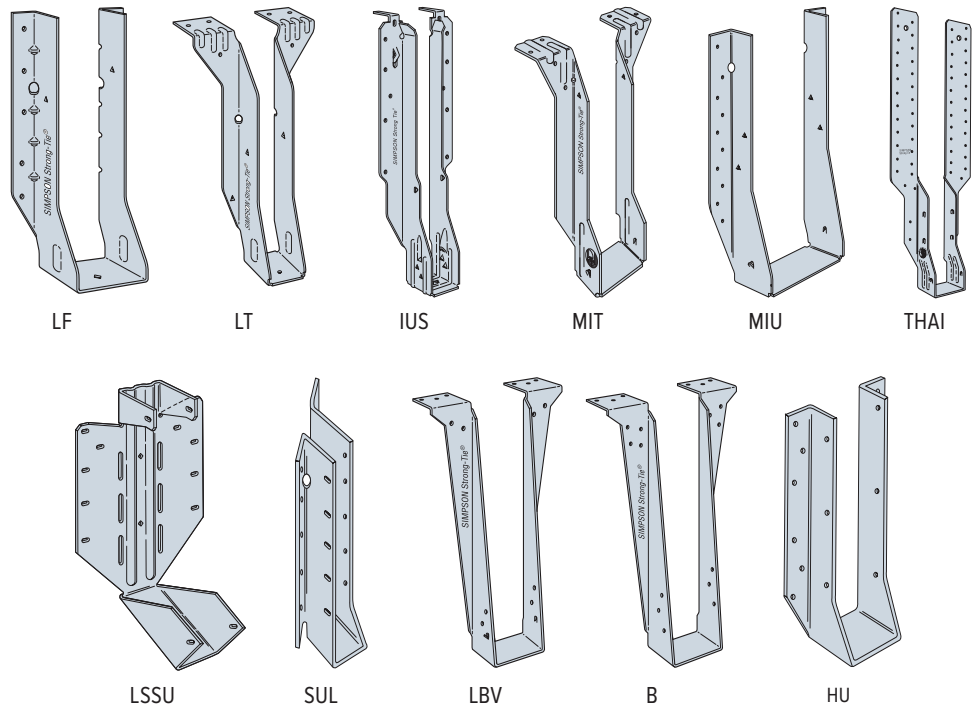
How To Pick A Hanger:

1. Find your joist size in this guide. (single I-joist, double I-joist, beam, etc.)
2. Locate your connector type in the table.
 - ▶ Face mount
 - ▶ Top flange,
 - ▶ Skewed,
 - ▶ Sloped, etc.
3. Select a hanger from the table.
4. Confirm that your factored joist reaction is less than the factored resistance of hanger.
5. 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.

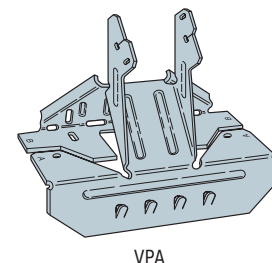
You will need the following information:

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



VPA Connector: 18 gauge

Joist Width	Model No.	Fasteners									
		Top Plate	Rafter	Uplift (160)	Download (100)		Lateral Load (160)				
							DF		SPF		
				SPF	DF	SPF	F1	F2	F1	F2	
2½"	VPA3	Nine 10d	Two 10d x 1½"	370	2,050	1,855	695	405	615	370	
3½"	VPA4	Eleven 10d	Two 10d x 1½"	370	2,050	1,855	695	405	615	370	



- ▶ The VPA variable pitch connector allows a sloped beam to sit on a top plate without having to notch, birdmouth, bevel, or toe-nail. It also provides uplift capacity. Adjustable from 3:12 to 12:12 pitch.
- ▶ VPAs are not appropriate for applications that require more than 2" of bearing, such as intermediate supports.

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View the complete warranty on our website.

www.bc.com/terms-conditions/sales-terms-and-conditions/

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