Boise Cascade
Engineered Wood Products

EASTERN BUILDER GUIDE

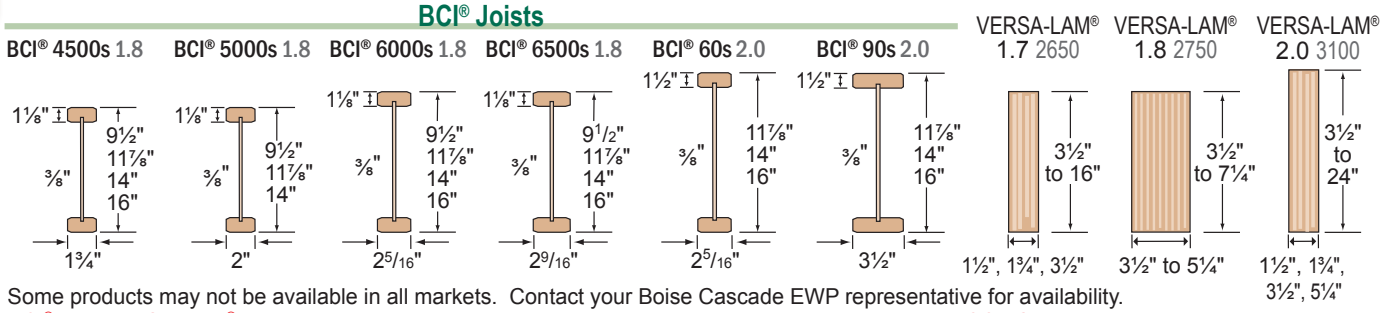
for products manufactured in Alexandria [Lena], Louisiana

for Residential Construction with BCI® Joists, VERSA-LAM® and BC Rimboard Products

EBG 04/25/2011
r 07/18/2011

Eastern Product Profiles

BCI® Joists



Some products may not be available in all markets. Contact your Boise Cascade EWP representative for availability.
BCI® and VERSA-LAM® products shall be installed in dry-use applications only, per their respective ICC ESR evaluation reports.

Residential Floor Span Tables

About Floor Performance

Homeowner's expectations and opinions vary greatly due to the subjective nature of rating a new floor. Communication with the ultimate end user to determine their expectation is critical. ***Vibration*** is usually the cause of most complaints. Installing lateral bridging may help; however, squeaks may occur if not installed properly. Spacing the joists closer together does little to affect the perception of the floor's performance. The most common methods used to increase the performance and reduce vibration of wood floor systems is to ***increase the joist depth, limit joist deflections, glue and screw a thicker, tongue-and-groove subfloor, install the joists vertically plumb with level-bearing supports, and install a direct-attached ceiling to the bottom flanges of the joists***.

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

		★★★ THREE STAR ★★★					★★★★ FOUR STAR ★★★★					CAUTION	★ MINIMUM STIFFNESS ALLOWED BY CODE ★			CAUTION
		Live Load deflection limited to L/480: The common industry and design community standard for residential floor joists, **33% stiffer than L/360 code minimum.** However, floor performance may still be an issue in certain applications, especially with 9½" and 11⅞" deep joists without a direct-attached ceiling.					**Live Load deflection limited to L/960+:** In addition to providing a floor that is **100% stiffer than the three star floor**, field experience has been incorporated into the values to provide a floor with a premium performance level for the more discriminating homeowner.					**Live Load deflection limited to L/360:** Floors that **meet the minimum building code** L/360 criteria are structurally sound to carry the specified loads; however, there is a much higher risk of floor performance issues. This table should only be used for applications where floor performance is not a concern.				
Joist Depth	BCI® Joist Series	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	32" o.c.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	32" o.c.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	32" o.c.
9½"	4500s 1.8	16'-11"	15'-6"	14'-8"	13'-7"	11'-9"	11'-6"	11'-6"	10'-0"	10'-0"	9'-7"	18'-9"	16'-8"	15'-3"	13'-7"	11'-9"
	5000s 1.8	17'–6"	16'–0"	15–2"	14'–1"	12'–5"	11'–6"	11'–6"	10'–0"	10'–0"	9'–11"	19'–4"	17'–9"	16'–4"	14'–7"	12'–5"
	6000s 1.8	18'–2"	16'–8"	15'–8"	14'–8"	13'–4"	11'–6"	11'–6"	10'–0"	10'–0"	10'–0"	20'–2"	18'–5"	17'–5"	15'–9"	13'–8"
	6500s 1.8	18'–8"	17'–1"	16'–1"	15'–0"	13'–8"	11'–6"	11'–6"	10'–0"	10'–0"	10'–0"	20'–8"	18'–11"	17'–10"	16'–7"	14'–3"
11⅞"	4500s 1.8	20'-0"	18'-4"	17'-3"	15'-5"	13'-4"	15'-6"	14'-3"	13'-5"	12'-6"	11-4"	21'-10"	18'-11"	17'-3"	15'-5"	13'-4"
	5000s 1.8	20'–9"	19'–0"	17'–11"	16'–7"	13'–4"	15'–6"	14'–9"	13'–11"	12'–11"	11'–9"	23'–0"	20'–4"	18'–6"	16'–7"	13'–4"
	6000s 1.8	21'–7"	19'–8"	18'–7"	17'–4"	14'–10"	15'–6"	15'–4"	14'–5"	13'–5"	12'–1"	23'–10"	21'–10"	20'–0"	17'–11"	14'–10"
	6500s 1.8	22'–2"	20'–3"	19'–2"	17'–10"	14'–10"	16'–0"	15'–10"	14'–11"	13'–10"	12'–7"	24'–6"	22'–5"	21'–1"	18'–10"	14'–10"
	60s 2.0	23'–7"	21'–6"	20'–4"	18'–11"	17'–3"	18'–0"	16'–9"	15'–9"	14'–8"	13'–3"	26'–1"	23'–10"	22'–6"	21'–0"	17'–3"
	90s 2.0	26'–7"	24'–3"	22'–10"	21'–3"	19'–4"	19'–0"	18'–10"	17'–8"	16'–5"	14'–10"	29'–5"	26'–10"	25'–3"	23'–6"	19'–4"
14"	4500s 1.8	22'-9"	20'-7"	18'-9"	16'-9"	13'-11"	17'-10"	16'-3"	15'-4"	14'-3"	13'-0"	23'-10"	20'-7"	18'-9"	16'-9"	13'-11"
	5000s 1.8	23'–7"	21'–7"	20'–2"	18'–0"	13'–11"	18'–6"	16'–10"	15'–11"	14'–9"	13'–5"	25'–7"	22'–1"	20'–2"	18'–0"	13'–11"
	6000s 1.8	24'–6"	22'–5"	21'–2"	19'–6"	15'–5"	19'–2"	17'–6"	16'–6"	15'–4"	13'–11"	27'–1"	23'–11"	21'–10"	19'–6"	15'–5"
	6500s 1.8	25'–2"	23'–0"	21'–8"	20'–2"	15'–5"	19'–8"	17'–11"	16'–11"	15'–8"	14'–3"	27'–9"	25'–2"	22'–11"	20'–6"	15'–5"
	60s 2.0	26'–9"	24'–5"	23'–0"	21'–5"	17'–5"	20'–11"	19'–0"	17'–11"	16'–7"	15'–1"	29'–7"	27'–0"	25'–6"	23'–3"	17'–5"
	90s 2.0	30'–1"	27'–5"	25'–10"	24'–0"	19'–6"	23'–6"	21'–4"	20'–0"	18'–6"	16'–9"	33'–3"	30'–4"	28'–7"	26'–0"	19'–6"
16"	4500s 1.8	25'-2"	22'-0"	20'-1"	17'-11"	14'-1"	19'-9"	18'-0"	17'-0"	15'-10"	14'-1"	25'-5"	22'-0"	20'-1"	17'-11"	14'-1"
	6000s 1.8	27'–0"	24'–9"	23'–4"	20'–10"	15'–9"	21'–2"	19'–4"	18'–2"	16'–11"	15'–4"	29'–6"	25'–6"	23'–4"	20'–10"	15'–9"
	6500s 1.8	27'–9"	25'–4"	23'–11"	21'–1"	15'–9"	21'–9"	19'–9"	18'–8"	17'–4"	15'–8"	30'–8"	26'–11"	24'–6"	21'–1"	15'–9"
	60s 2.0	29'–7"	27'–0"	25'–6"	23'–5"	17'–7"	23'–2"	21'–1"	19'–10"	18'–5"	16'–8"	32'–8"	29'–10"	28'–2"	23'–5"	17'–7"
	90s 2.0	33'–4"	30'–4"	28'–7"	26'–2"	19'–7"	26'–0"	23'–7"	22'–2"	20'–6"	18'–7"	36'–10"	33'–7"	31'–8"	26'–2"	19'–7"

- Span table is based on a residential floor load of 40 psf live load and 10 psf dead load (12 psf dead load for 90s 2.0 joists).
- Span values assume $^{23}/_{32}$" minimum plywood/OSB rated sheathing is glued and nailed to joists for composite action (joists spaced at 32" o.c. require sheathing rated for such spacing - $^{7}/_{8}$" plywood/OSB).
- Span values represent the most restrictive of simple or multiple span applications. Analyze multiple span joists with BC CALC® sizing software if the length of any span is less than half the length of an adjacent span.
- Span values are the maximum allowable clear distance between supports.
- Table values assume minimum bearing lengths without web stiffeners for joist depths of 16" inches and less.
- Floor tile will increase dead load and may require specific deflection limits, contact Boise Cascade EWP Engineering for further information.
- This table was designed to apply to a broad range of applications. It may be possible to exceed the limitations of this table by analyzing a specific application with the BC CALC® sizing software.

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

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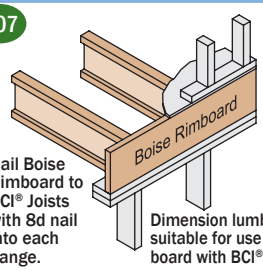
BCI® Floor Framing Details

Additional floor framing details available with BC FRAMER® software (visit www.bcewp.com software)

END BEARING DETAILS

F07



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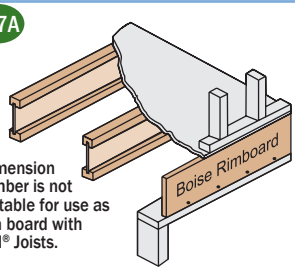

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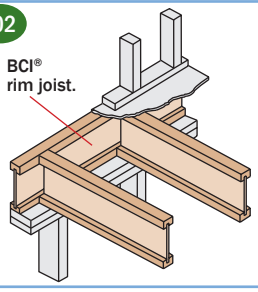

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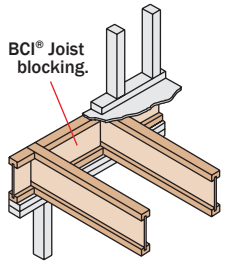

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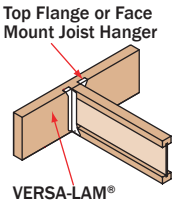

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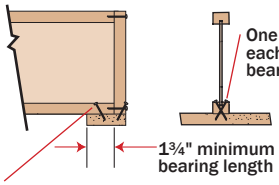
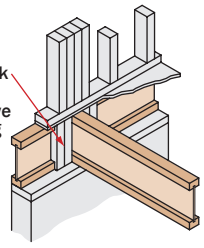


To limit splitting flange, start nails at least 1½" from end. Nails may need to be driven at an angle to limit splitting of bearing plate.

F08



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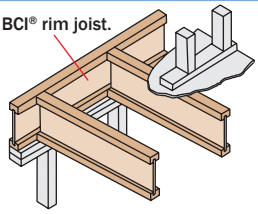
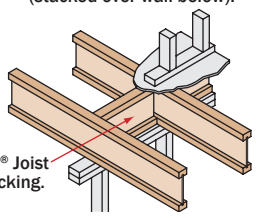


Note: BCI® floor joist must be designed to carry wall above when not stacked over wall below.

INTERMEDIATE BEARING DETAILS

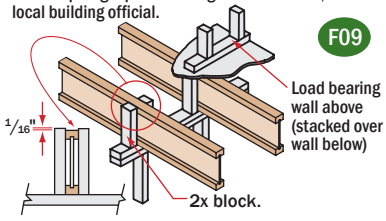
F06

For load bearing wall above (stacked over wall below).



Blocking may be required at intermediate bearings for floor diaphragm per IRC in high seismic areas, consult local building official.

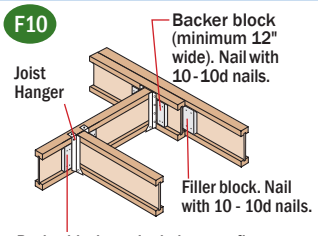
F09



Double Squash Block Vertical Load [lb/ft]				
Size	Joist Spacing [in]			
	12	16	19.2	24
2x4	4463	3347	2789	2231
2x6	7013	5259	4383	3506

1. Squash blocks are to be in full contact with upper floor and lower wall plate.
2. Capacities shown are for a double squash blocks at each joist, SPF or better.

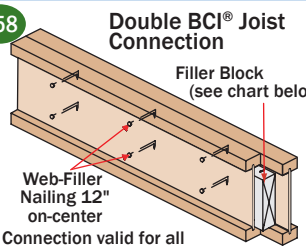
F10



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

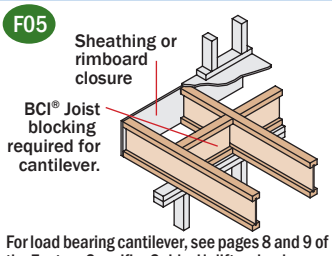
F58

Double BCI® Joist Connection



Connection valid for all applications. Contact Boise EWP Engineering for specific conditions.

F05

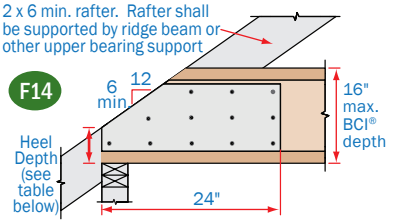


For load bearing cantilever, see pages 8 and 9 of the Eastern Specifier Guide. Uplift on backspan shall be considered in all cantilever designs.

BCI® Joist Slope Cut Reinforcement

Detail below restores original allowable shear/reaction value to cut end of BCI® joist. BCI® Joist shall not be used as a collar or rafter tension tie.

F14



2x blocking required at bearing (not shown for clarity). $^{23}/_{32}$" min. plywood/OSB rated sheathing as reinforcement. Install reinforcement with face grain horizontal. Install on both sides of the joist, tight to bottom flange. Leave minimum ¼" gap between reinforcement and bottom of top flange. Apply construction adhesive to contact surfaces and fasten with 3 rows of min. 10d box nails at 6" o.c. Alternate nailing from each side and clinch.

End Wall Bearing	Minimum Heel Depth					
	Roof Pitch					
	6/12	7/12	8/12	9/12	10/12	12/12
2 x 4	4⅜"	4⅝"	4¼"	4¼"	4¼"	4¼"
2 x 6	3⅜"	3⅜"	2⅝"	2¾"	2⅜"	2¼"

LATERAL SUPPORT

- BCI® Joists shall be laterally supported at the ends with hangers, rimboard, BCI® rim joist or blocking panels. BCI® blocking panels or rimboard are required at cantilever supports.
- Blocking may be required at intermediate bearings for floor diaphragm per IRC in high seismic areas, consult local building official.

MINIMUM BEARING LENGTH FOR BCI® JOISTS

- Minimum end bearing: 1½" for BCI® 4500s, 5000s, 6000s & 6500s; 1¾" for BCI® 60s & 90s. 3½" is required at cantilever and intermediate supports.
- Longer bearing lengths allow higher reaction values. Refer to the building code evaluation report or the BC CALC® software.

NAILING REQUIREMENTS

- BCI® rim joist, rim board or closure panel to BCI® joist:
  - Rims or closure panel 1¼ inches thick and less: 2-8d nails, one each in the top and bottom flange.
  - BCI® 4500s, 5000s rim joist: 2-10d box nails, one each in the top and bottom flange.
  - BCI® 6000s, 60s rim joist: 2-16d box nails, one each in the top and bottom flange.
  - BCI® 6500s, 90s rim joist: Toe-nail top flange to rim joist with 2-10d box nails, one each side of flange.
- BCI® rim joist, rim board or BCI® blocking panel to support:
  - 8d nails at 6 inches on center.
  - When used for shear transfer, follow the building designer's specification.
- BCI® joist to support:
  - 2-8d nails, one on each side of the web, placed 1½ inches minimum from the end of the BCI® Joist to limit splitting.
- Sheathing to BCI® joist:
  - Prescriptive residential floor sheathing nailing requires 8d common nails @ 6" o.c. on edges and @ 12" o.c. in the field (IRC Table R602.3(1)).
  - See closest allowable nail spacing limits on page 10 for floor diaphragm nailing specified at closer spacing than IRC.
  - Maximum nail spacing for minimum lateral stability: 18" for BCI® 4500s and 5000s, 24" for larger BCI® joist series.
  - 14 gauge staples may be substituted for 8d nails if the staples penetrate at least 1 inch into the joist.
  - Wood screws may be acceptable, contact local building official and/or Boise Cascade EWP Engineering for further information.

BACKER AND FILLER BLOCK DIMENSIONS

Series	Backer Block Thickness	Filler Block Thickness
4500s 1.8	⅝" or ¾" wood panels	Two ⅝" wood panels or 2 x _
5000s 1.8	¾" or 7/8" wood panels	Two ¾" wood panels or 2 x _
6000s 1.8	1⅛" or two ½" wood panels	2 x _ + 7/16" or ½" wood panel
6500s 1.8	1⅛" or two ⅝" wood panels	2 x _ + ⅝" or ¾" wood panel
60s 2.0	1⅛" or two ½" wood panels	2 x _ + 7/16" or ½" wood panel
90s 2.0	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.

WEB STIFFENER REQUIREMENTS

- See *Web Stiffener Requirements* on page 9 of the Eastern Specifier Guide.

PROTECT BCI® JOISTS FROM THE WEATHER

- BCI® Joists are intended only for applications that provide permanent protection from the weather. Bundles of BCI® Joists should be covered and stored off of the ground on stickers.

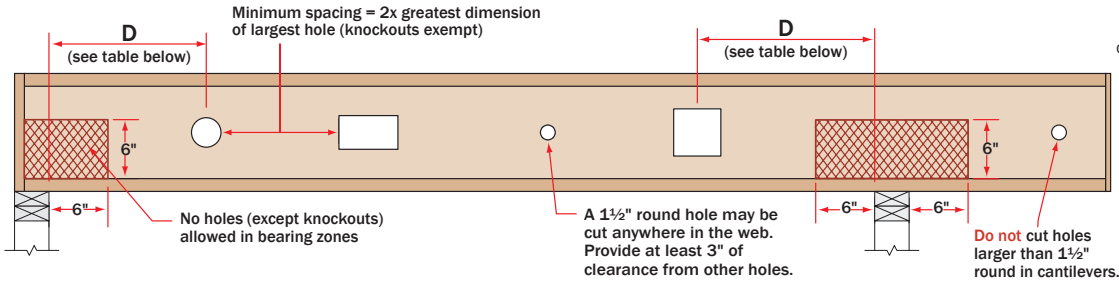
BCI® RIM JOISTS AND BCI® BLOCKING

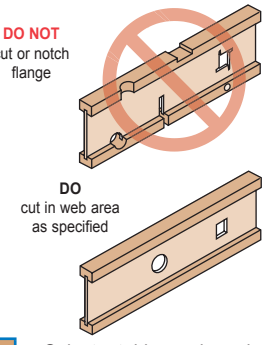
Depth [in]	Series	Vertical Load Capacity	
		No W.S.(1)	W.S.(2)
9½"	4500s 1.8, 5000s 1.8, 6000s 1.8, 6500s 1.8	2300	N/A
11⅞"	4500s 1.8, 5000s 1.8, 6000s 1.8, 6500s 1.8	2150	N/A
	60s 2.0, 90s 2.0	2500	N/A
14"	4500s 1.8, 5000s 1.8, 6000s 1.8, 6500s 1.8	2000	N/A
	60s 2.0, 90s 2.0	2400	N/A
16"	4500s 1.8, 6000s 1.8, 6500s 1.8	1900	2500
	60s 2.0, 90s 2.0	2300	2700

(1) No web stiffeners required.
(2) Web stiffeners required at each end of blocking, values not applicable for rim joists.
N/A: Not applicable.

BCI® Joist Hole Location & Sizing

BCI® Joists are manufactured with 1½" round perforated knockouts in the web at approximately 12" on center





Minimum distance from support, listed in table below, is required for all holes greater than 1½"

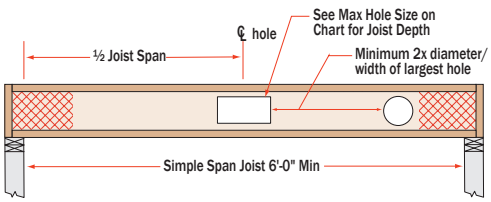
MINIMUM DISTANCE (D) FROM ANY SUPPORT TO THE CENTERLINE OF THE HOLE															
Round Hole Diameter [in]			2	3	4	5	6	6½	7	8	8⅞	9	10	11	12	13
Rectangular Hole Side [in]			-	-	-	3	5	6	7	-	-	-	-	-	-	-
Any 9½" Joist	Span [ft]	8	1'-0"	1'-1"	1'-5"	2'-1"	2'-9"	3'-1"	3'-5"							
		12	1'-0"	1'-2"	2'-2"	3'-2"	4'-2"	4'-8"	5'-2"							
		16	1'-0"	1'-7"	2'-11"	4'-3"	5'-7"	6'-3"	6'-11"							
Round Hole Diameter [in]			2	3	4	5	6	6½	7	8	8⅞	9	10	11	12	13
Rectangular Hole Side [in]			-	-	-	2	3	4	5	7	8	-	-	-	-	-
Any 11⅞" Joist	Span [ft]	8	1'-0"	1'-1"	1'-5"	1'-10"	2'-4"	2'-7"	2'-10"	3'-4"	3'-9"					
		12	1'-0"	1'-4"	2'-1"	2'-10"	3'-7"	3'-11"	4'-3"	5'-0"	5'-8"					
		16	1'-0"	1'-10"	2'-10"	3'-9"	4'-9"	5'-3"	5'-9"	6'-9"	7'-7"					
		20	1'-1"	2'-3"	3'-6"	4'-9"	5'-11"	6'-7"	7'-2"	8'-5"	9'-6"					
Round Hole Diameter [in]			2	3	4	5	6	6½	7	8	8⅞	9	10	11	12	13
Rectangular Hole Side [in]			-	-	-	-	2	3	3	5	6	6	8	9	-	-
Any 14" Joist	Span [ft]	8	1'-0"	1'-1"	1'-2"	1'-3"	1'-8"	1'-10"	2'-1"	2'-6"	2'-10"	2'-11"	3'-4"	3'-8"		
		12	1'-0"	1'-1"	1'-3"	1'-10"	2'-6"	2'-10"	3'-1"	3'-9"	4'-3"	4'-4"	5'-0"	5'-7"		
		16	1'-0"	1'-1"	1'-8"	2'-6"	3'-4"	3'-9"	4'-2"	5'-0"	5'-8"	5'-10"	6'-8"	7'-5"		
		20	1'-0"	1'-1"	2'-1"	3'-2"	4'-2"	4'-8"	5'-2"	6'-3"	7'-2"	7'-3"	8'-4"	9'-4"		
		24	1'-0"	1'-4"	2'-6"	3'-9"	5'-0"	5'-8"	6'-3"	7'-6"	8'-7"	8'-9"	10'-0"	11'-2"		
Round Hole Diameter [in]			2	3	4	5	6	6½	7	8	8⅞	9	10	11	12	13
Rectangular Hole Side [in]			-	-	-	-	-	-	2	3	5	5	6	8	9	10
Any 16" Joist	Span [ft]	8	1'-0"	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-7"	1'-11"	2'-0"	2'-5"	2'-9"	3'-2"	3'-7"
		12	1'-0"	1'-1"	1'-2"	1'-2"	1'-3"	1'-6"	1'-10"	2'-5"	2'-11"	3'-0"	3'-7"	4'-2"	4'-9"	5'-4"
		16	1'-0"	1'-1"	1'-2"	1'-2"	1'-8"	2'-1"	2'-6"	3'-3"	3'-11"	4'-0"	4'-10"	5'-7"	6'-4"	7'-2"
		20	1'-0"	1'-1"	1'-2"	1'-2"	2'-1"	2'-7"	3'-1"	4'-1"	4'-11"	5'-1"	6'-0"	7'-0"	8'-0"	8'-11"
		24	1'-0"	1'-1"	1'-2"	1'-4"	2'-6"	3'-1"	3'-9"	4'-11"	5'-11"	6'-1"	7'-3"	8'-5"	9'-7"	10'-9"

- Select a table row based on joist depth and the actual joist span rounded up to the nearest table span. Scan across the row to the column headed by the appropriate round hole diameter or rectangular hole side. Use the longest side of a rectangular hole. The table value is the closest that the centerline of the hole may be to the centerline of the nearest support.
- The entire web may be cut out. **DO NOT** cut the flanges. Holes apply to either single or multiple joists in repetitive member conditions.
- For multiple holes, the amount of uncut web between holes must equal at least twice the diameter (or longest side) of the largest hole.
- 1½" round knockouts in the web may be removed by using a short piece of metal pipe and hammer.
- Holes may be positioned vertically anywhere in the web. The joist may be set with the 1½" knockout holes turned either up or down.
- This table was designed to apply to the design conditions covered by tables elsewhere in this publication. Use the BC CALC® software to check other hole sizes or holes under other design conditions. It may be possible to exceed the limitations of this table by analyzing a specific application with the BC CALC® software.

Large Rectangular Holes in BCI® Joists

Hole size table based on maximum uniform load of 40 psf live load and 10 psf dead load, at maximum spacing of 24" on-center.

Single Span Joist

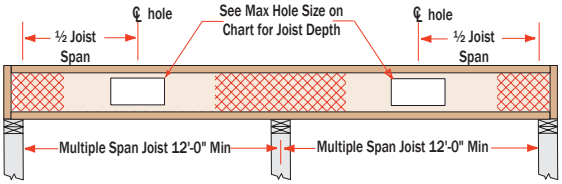


Notes:

Additional holes may be cut in the web provided they meet the specifications as shown in the hole distance chart shown above or as allowed using BC CALC® sizing software.

Joist Depth	Maximum Hole Size	
	Simple Span	Multiple Span
9½"	6" x 14"	6" x 12"
11⅞"	8" x 16"	8" x 13"
14"	9" x 18" 10" x 17"	8" x 16"
16"	11" x 18" 12" x 16"	10" x 14"

Multiple Span Joist



Larger holes may be possible for either Single or Multiple span joists; use BC CALC® sizing software for specific analysis.

VERSA-LAM® Floor & Roof Application Tables

GENERAL NOTES

- Table assumes that lateral support is provided at each support and continuously along the top edge and applicable compression edges of the beam.
- Minimum 3-inch end bearing or see BC CALC® software requirements.
- Bearing length specifications assume bearing across the full width of the beam.
- Uniform loading is assumed for all tables.
- Multiple member beams require proper connection schedules.
- Dry service conditions are assumed.
- It may be possible to exceed the limitations of this table by analyzing a specific application with the BC CALC® software.

Floor Notes (see pages 5, 6, 9)

- Floor loads are 40 psf live load and 10 psf dead load.
- Deflection is limited to L/360 live load and L/240 total load.
- Table based upon either simple or continuous floor joist spans.
- Tables assume a wall weight of 100 plf (pages 6, 9).
- Interior floor support may vary a maximum of 4 feet from centerline (page 9).

Roof Notes (see pages 7, 8 & 9)

- Always use roof live and dead loads that meet or exceed the required design loading.
- No roof load reductions have been taken.
- Table assumes 2'-0" roof overhang.

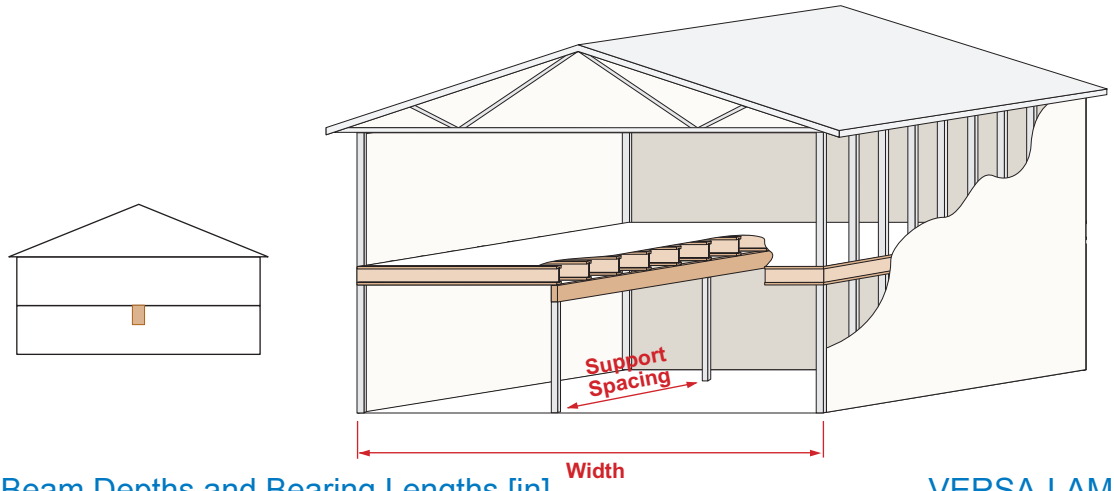
Ridge Beam (see page 8)

- Deflection is limited to L/240 live load and L/180 total load.
- Table based upon either simple or continuous beam span conditions.

Header (Roof) (see page 7)

- Deflection is limited to L/240 live load and L/180 total load.

One Floor Beam Span Table

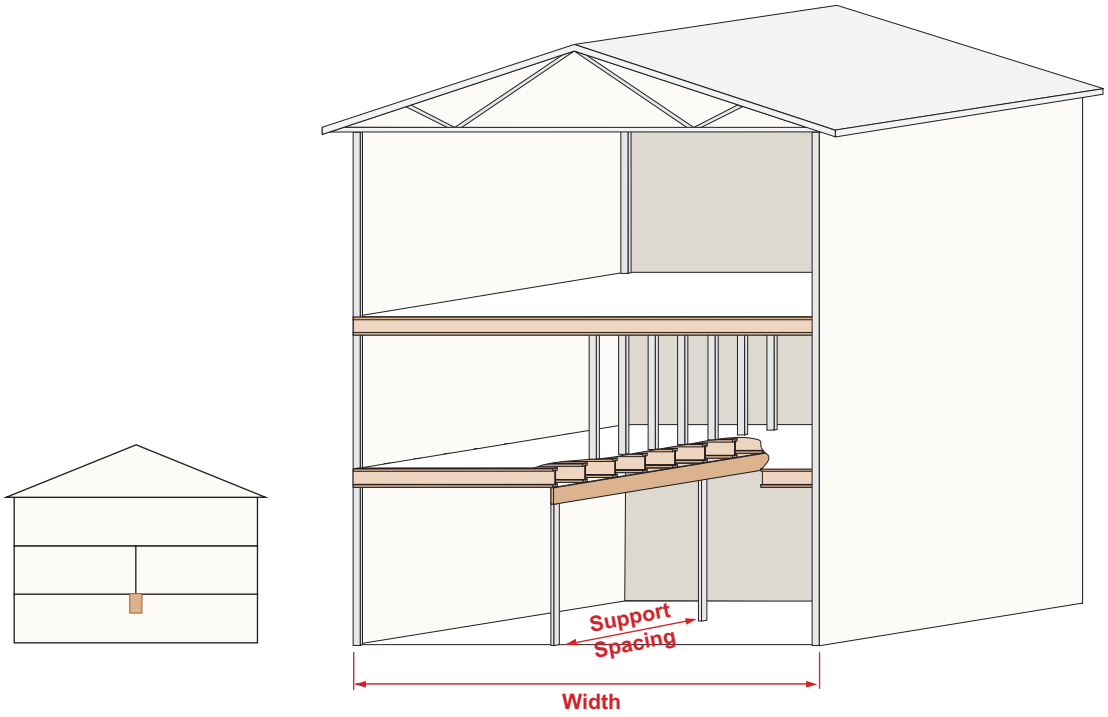


Required Beam Depths and Bearing Lengths [in]

VERSA-LAM 2.0 3100

Load Duration %	Floor Load [psf] Live	Floor Load [psf] Dead	Beam Support Spacing [Feet]	Width of Building Segment [feet] — KEY: Beam Breadth [in] X Beam Depth [in] End Support / Intermediate Support Bearing Length Requirements [in]							
				20	24	26	28	30	32	36	40
100%	40	10	8	3.5 x 7.25 1.5/3	3.5 x 7.25 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/4.5	3.5 x 9.5 1.5/4.5	3.5 x 9.5 3/4.5	3.5 x 9.5 3/4.5
				5.25 x 7.25 1.5/1.5	5.25 x 7.25 1.5/3	5.25 x 7.25 1.5/3	5.25 x 7.25 1.5/3	5.25 x 7.25 1.5/3	5.25 x 7.25 1.5/3	5.25 x 7.25 1.5/3	5.25 x 9.5 1.5/3
			10	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/4.5	3.5 x 9.5 1.5/4.5	3.5 x 9.5 1.5/4.5	3.5 x 11.875 3/4.5	3.5 x 11.875 3/4.5	3.5 x 11.875 3/6	3.5 x 11.875 3/6
				5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/4.5	5.25 x 9.5 1.5/4.5
			12	3.5 x 11.875 1.5/4.5	3.5 x 11.875 3/4.5	3.5 x 11.875 3/4.5	3.5 x 11.875 3/4.5	3.5 x 11.875 3/6	3.5 x 11.875 3/6	3.5 x 14 3/6	3.5 x 14 3/7.5
				5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/4.5	5.25 x 11.875 1.5/4.5	5.25 x 11.875 3/4.5	5.25 x 11.875 3/4.5
			14	3.5 x 11.875 1.5/4.5	3.5 x 14 3/4.5	3.5 x 14 3/6	3.5 x 14 3/6	3.5 x 14 3/6	3.5 x 14 3/6	3.5 x 16 3/7.5	3.5 x 16 3/7.5
				5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/4.5	5.25 x 11.875 1.5/4.5	5.25 x 11.875 1.5/4.5	5.25 x 14 3/4.5	5.25 x 14 3/4.5	5.25 x 14 3/6
			16	3.5 x 14 3/4.5	3.5 x 16 3/6	3.5 x 16 3/6	3.5 x 16 3/6	3.5 x 16 3/7.5	3.5 x 16 3/7.5	3.5 x 18 4.5/9	3.5 x 18 4.5/9
				5.25 x 11.875 1.5/3	5.25 x 14 1.5/4.5	5.25 x 14 1.5/4.5	5.25 x 14 1.5/4.5	5.25 x 14 3/4.5	5.25 x 14 3/4.5	5.25 x 16 3/6	5.25 x 16 3/6
			18	3.5 x 16 3/6	3.5 x 16 3/6	3.5 x 18 3/7.5	3.5 x 18 3/7.5	3.5 x 18 3/7.5	3.5 x 18 4.5/9	5.25 x 16 3/6	5.25 x 18 3/7.5
				5.25 x 14 1.5/4.5	5.25 x 14 3/4.5	5.25 x 16 3/4.5	5.25 x 16 3/4.5	5.25 x 16 3/6	5.25 x 16 3/6	7 x 16 3/4.5	7 x 16 3/6
			20	3.5 x 18 3/6	3.5 x 18 3/7.5	5.25 x 16 3/6	5.25 x 18 3/6	5.25 x 18 3/6	5.25 x 18 3/6	5.25 x 18 3/7.5	-
				5.25 x 16 1.5/4.5	5.25 x 16 3/4.5	7 x 16 1.5/4.5	7 x 16 1.5/4.5	7 x 16 3/4.5	7 x 16 3/4.5	7 x 18 3/6	7 x 18 3/6

Two Floor Beam Span Tables



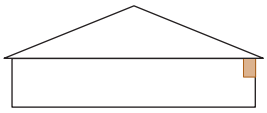
Required Beam Depths and Bearing Lengths [in]

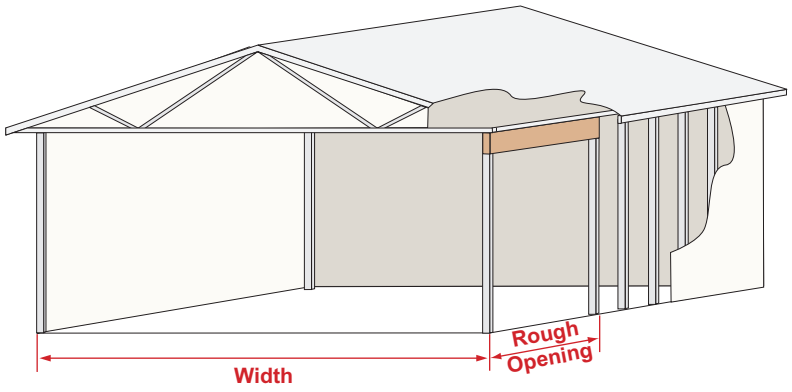
VERSA-LAM® 2.0 3100

Load Duration %	Floor Load [psf] Live	Floor Load [psf] Dead	Beam Support Spacing [Feet]	Width of Building Segment [feet] KEY: Beam Breadth [in] X Beam Depth [in] End Support / Intermediate Support Bearing Length Requirements [in]													
				20		24		26		28		30		32		36		40	
100%	40	10	8	3.5 x 9.5	3/4.5	3.5 x 11.875	3/6	3.5 x 11.875	3/6	3.5 x 11.875	3/6	3.5 x 11.875	3/7.5	3.5 x 14	3/7.5	3.5 x 14	4.5/9	3.5 x 16	4.5/9
				5.25 x 9.5	1.5/3	5.25 x 9.5	1.5/4.5	5.25 x 9.5	3/4.5	5.25 x 9.5	3/4.5	5.25 x 9.5	3/4.5	5.25 x 9.5	3/6	5.25 x 11.875	3/6	5.25 x 11.875	3/6
			10	3.5 x 11.875	3/6	3.5 x 14	3/7.5	3.5 x 14	3/7.5	3.5 x 14	3/7.5	3.5 x 16	4.5/9	3.5 x 16	4.5/9	3.5 x 18	4.5/10.5	5.25 x 14	3/7.5
				5.25 x 9.5	1.5/4.5	5.25 x 11.875	3/4.5	5.25 x 11.875	3/6	5.25 x 11.875	3/6	5.25 x 11.875	3/6	5.25 x 11.875	3/6	5.25 x 14	3/7.5	7 x 11.875	3/6
			12	3.5 x 14	3/7.5	3.5 x 16	4.5/9	3.5 x 16	4.5/9	3.5 x 18	4.5/9	3.5 x 18	4.5/10.5	5.25 x 14	3/7.5	5.25 x 16	4.5/9	5.25 x 16	4.5/9
				5.25 x 11.875	3/4.5	5.25 x 11.875	3/6	5.25 x 14	3/6	5.25 x 14	3/6	5.25 x 14	3/7.5	7 x 11.875	3/6	7 x 14	3/6	7 x 14	3/7.5
			14	3.5 x 16	4.5/9	3.5 x 18	4.5/10.5	5.25 x 16	3/7.5	5.25 x 16	3/7.5	5.25 x 16	4.5/9	5.25 x 16	4.5/9	5.25 x 18	4.5/10.5	-	
				5.25 x 14	3/6	5.25 x 14	3/7.5	7 x 14	3/6	7 x 14	3/6	7 x 14	3/6	7 x 14	3/7.5	7 x 16	3/7.5	7 x 16	4.5/9
			16	3.5 x 18	4.5/9	5.25 x 16	3/7.5	5.25 x 18	4.5/9	5.25 x 18	4.5/9	5.25 x 18	4.5/9	-		-		-	
				5.25 x 16	3/6	7 x 16	3/6	7 x 16	3/6	7 x 16	3/6	7 x 16	3/7.5	7 x 16	3/7.5	7 x 18	4.5/9	7 x 18	4.5/9
			18	5.25 x 18	3/7.5	5.25 x 18	4.5/9	-		-		-		-		-		-	
				7 x 16	3/6	7 x 16	3/6	7 x 18	3/7.5	7 x 18	3/7.5	7 x 18	3/7.5	7 x 18	4.5/9	-		-	
			20	-		-		-		-		-		-		-		-	
				7 x 18	3/6	7 x 18	3/7.5	-		-		-		-		-		-	

See General Notes on page 5.

Roof Header Span Tables





- Minimum end bearing 3 inches or see BC CALC® software requirement.
- 4.5 inch bearing length required in shaded areas.
- See General Notes on page 5.

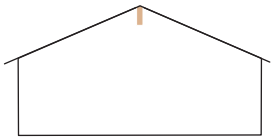
Required Beam Depths and Bearing Lengths [in]

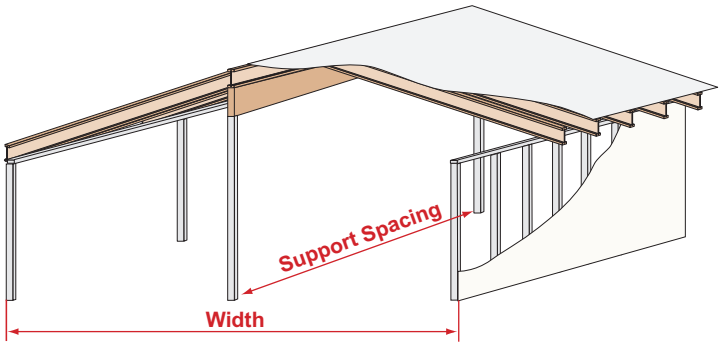
VERSA-LAM® 2.0 3100

Load Duration %	Roof Load [psf] Live	Roof Load [psf] Dead	Rough Opening [Feet]	Width of Building Segment [feet] KEY: Beam Breadth [in] X Beam Depth [in] 20	24	26	28	30	32	36	40
125%	20	15	9	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25
				5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25
			12	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5
				5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5
			16	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 14	3.5 x 14
				5.25 x 9.5	5.25 x 9.5	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875
			18	3.5 x 11.875	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 14
				5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 14
	20	20	9	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 9.5
				5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25
			12	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 11.875
				5.25 x 7.25	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5
			16	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 14
				5.25 x 9.5	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875
			18	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 16	3.5 x 16
				5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 14	5.25 x 14	5.25 x 14
115%	20	15	9	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25
				5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25
			12	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5
				5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5
			16	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 14	3.5 x 14
				5.25 x 9.5	5.25 x 9.5	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875
			18	3.5 x 11.875	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 16
				5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 14
	25	15	9	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 9.5
				5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25
			12	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 11.875	3.5 x 11.875
				5.25 x 7.25	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5
			16	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 14
				5.25 x 9.5	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875
			18	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 16	3.5 x 16
				5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 14	5.25 x 14	5.25 x 14
	30	15	9	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 7.25	3.5 x 9.5	3.5 x 9.5
				5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25
			12	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875
				5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5
			16	3.5 x 11.875	3.5 x 11.875	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 16
				5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875
			18	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 16	3.5 x 16	3.5 x 16	3.5 x 16	3.5 x 18
				5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 14	5.25 x 14	5.25 x 14	5.25 x 14	5.25 x 14
	40	15	9	3.5 x 7.25	3.5 x 7.25	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5
				5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25
			12	3.5 x 9.5	3.5 x 9.5	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 14
				5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 11.875
			16	3.5 x 11.875	3.5 x 14	3.5 x 14	3.5 x 14	3.5 x 16	3.5 x 16	3.5 x 16	3.5 x 18
				5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 14	5.25 x 14
			18	3.5 x 14	3.5 x 16	3.5 x 16	3.5 x 16	3.5 x 18	3.5 x 18	3.5 x 18	5.25 x 16
				5.25 x 11.875	5.25 x 14	5.25 x 14	5.25 x 14	5.25 x 14	5.25 x 14	5.25 x 16	7 x 14
	50	15	9	3.5 x 7.25	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 9.5	3.5 x 11.875
				5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 7.25	5.25 x 9.5	5.25 x 9.5
			12	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 11.875	3.5 x 14	3.5 x 14
				5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 9.5	5.25 x 11.875	5.25 x 11.875	5.25 x 11.875
			16	3.5 x 14	3.5 x 14	3.5 x 16	3.5 x 16	3.5 x 16	3.5 x 16	3.5 x 18	3.5 x 18
				5.25 x 11.875	5.25 x 11.875	5.25 x 11.875	5.25 x 14	5.25 x 14	5.25 x 14	5.25 x 14	5.25 x 16
			18	3.5 x 16	3.5 x 16	3.5 x 18	3.5 x 18	3.5 x 18	5.25 x 16	5.25 x 16	5.25 x 18
				5.25 x 14	5.25 x 14	5.25 x 14	5.25 x 14	5.25 x 16	7 x 14	7 x 14	7 x 14

Roof Ridge Beam Span Tables

See General Notes on page 5.





Required Beam Depths and Bearing Lengths [in]

VERSA-LAM® 2.0 3100

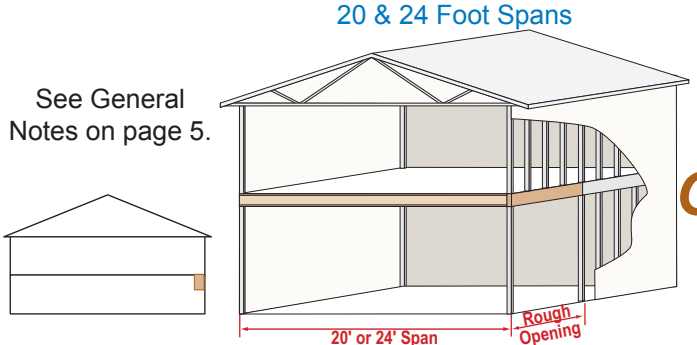
KEY: Beam Breadth [in] X Beam Depth [in] — End Support / Intermediate Support Bearing Length Requirements [in]

Load Duration %	Roof Load [psf] Live	Roof Load [psf] Dead	Beam Support Spacing [Feet]	Width of Building Segment [feet] 20	24	26	28	30	32	36	40
125%	20	15	12	3.5 x 7.25 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/4.5	3.5 x 9.5 1.5/4.5
				5.25 x 7.25 1.5/1.5	5.25 x 7.25 1.5/1.5	5.25 x 7.25 1.5/3	5.25 x 7.25 1.5/3	5.25 x 7.25 1.5/3	5.25 x 7.25 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3
			16	3.5 x 9.5 1.5/3	3.5 x 11.875 1.5/3	3.5 x 11.875 1.5/4.5	3.5 x 11.875 1.5/4.5	3.5 x 11.875 1.5/4.5	3.5 x 11.875 3/4.5	3.5 x 11.875 3/4.5	3.5 x 11.875 3/6
				5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/4.5
			20	3.5 x 11.875 1.5/3	3.5 x 14 1.5/4.5	3.5 x 11.875 1.5/4.5	3.5 x 14 3/4.5	3.5 x 14 3/4.5	3.5 x 14 3/6	3.5 x 16 3/6	3.5 x 16 3/6
				5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 14 1.5/4.5	5.25 x 14 1.5/4.5	5.25 x 14 3/4.5
			24	3.5 x 16 1.5/4.5	3.5 x 16 3/4.5	3.5 x 16 3/6	3.5 x 16 3/6	3.5 x 18 3/6	3.5 x 18 3/6	3.5 x 18 3/7.5	3.5 x 18 3/7.5
				5.25 x 14 1.5/3	5.25 x 14 1.5/3	5.25 x 14 1.5/4.5	5.25 x 14 1.5/4.5	5.25 x 16 1.5/4.5	5.25 x 16 3/4.5	5.25 x 16 3/4.5	5.25 x 16 3/6
	20	20	12	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/4.5	3.5 x 9.5 1.5/4.5	3.5 x 9.5 1.5/4.5	3.5 x 9.5 3/4.5
				5.25 x 7.25 1.5/1.5	5.25 x 7.25 1.5/3	5.25 x 7.25 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3
			16	3.5 x 11.875 1.5/3	3.5 x 11.875 1.5/4.5	3.5 x 9.5 1.5/3	3.5 x 11.875 3/4.5	3.5 x 11.875 3/4.5	3.5 x 11.875 3/4.5	3.5 x 14 3/6	3.5 x 14 3/6
				5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/4.5	5.25 x 11.875 1.5/4.5
			20	3.5 x 14 1.5/4.5	3.5 x 14 3/4.5	3.5 x 14 3/4.5	3.5 x 14 3/4.5	3.5 x 16 3/6	3.5 x 16 3/6	3.5 x 16 3/7.5	3.5 x 16 3/7.5
				5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 14 1.5/4.5	5.25 x 14 1.5/4.5	5.25 x 14 1.5/4.5	5.25 x 14 3/4.5	5.25 x 14 3/4.5
			24	3.5 x 16 3/4.5	3.5 x 16 3/6	3.5 x 18 3/6	3.5 x 18 3/6	3.5 x 18 3/7.5	3.5 x 18 3/7.5	3.5 x 18 3/7.5	5.25 x 18 3/6
				5.25 x 14 1.5/3	5.25 x 14 1.5/4.5	5.25 x 16 1.5/4.5	5.25 x 16 1.5/4.5	5.25 x 16 3/4.5	5.25 x 16 3/4.5	5.25 x 16 3/6	7 x 16 3/4.5
115%	20	15	12	3.5 x 7.25 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/4.5	3.5 x 9.5 1.5/4.5
				5.25 x 7.25 1.5/1.5	5.25 x 7.25 1.5/1.5	5.25 x 7.25 1.5/3	5.25 x 7.25 1.5/3	5.25 x 7.25 1.5/3	5.25 x 7.25 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3
			16	3.5 x 9.5 1.5/3	3.5 x 11.875 1.5/3	3.5 x 11.875 1.5/4.5	3.5 x 11.875 1.5/4.5	3.5 x 11.875 1.5/4.5	3.5 x 11.875 3/4.5	3.5 x 11.875 3/4.5	3.5 x 14 3/6
				5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/4.5
			20	3.5 x 11.875 1.5/3	3.5 x 14 1.5/4.5	3.5 x 14 3/4.5	3.5 x 14 3/4.5	3.5 x 14 3/4.5	3.5 x 14 3/6	3.5 x 16 3/6	3.5 x 16 3/6
				5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 14 1.5/4.5	5.25 x 14 1.5/4.5	5.25 x 14 3/4.5
			24	3.5 x 16 1.5/4.5	3.5 x 16 3/4.5	3.5 x 16 3/6	3.5 x 16 3/6	3.5 x 18 3/6	3.5 x 18 3/6	3.5 x 18 3/7.5	5.25 x 16 3/6
				5.25 x 14 1.5/3	5.25 x 14 1.5/3	5.25 x 14 1.5/4.5	5.25 x 14 1.5/4.5	5.25 x 16 1.5/4.5	5.25 x 16 3/4.5	5.25 x 16 3/4.5	7 x 16 1.5/4.5
	25	15	12	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/4.5	3.5 x 9.5 1.5/4.5	3.5 x 9.5 1.5/4.5	3.5 x 9.5 3/4.5
				5.25 x 7.25 1.5/1.5	5.25 x 7.25 1.5/3	5.25 x 7.25 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3
			16	3.5 x 11.875 1.5/3	3.5 x 11.875 1.5/4.5	3.5 x 11.875 1.5/4.5	3.5 x 11.875 1.5/4.5	3.5 x 11.875 3/4.5	3.5 x 11.875 3/4.5	3.5 x 14 3/6	3.5 x 14 3/6
				5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/4.5	5.25 x 11.875 1.5/4.5
			20	3.5 x 14 1.5/4.5	3.5 x 14 3/4.5	3.5 x 14 3/4.5	3.5 x 14 3/4.5	3.5 x 16 3/6	3.5 x 16 3/6	3.5 x 16 3/7.5	3.5 x 18 3/7.5
				5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 14 1.5/4.5	5.25 x 14 1.5/4.5	5.25 x 14 1.5/4.5	5.25 x 14 3/4.5	5.25 x 14 3/4.5
			24	3.5 x 16 3/4.5	3.5 x 16 3/6	3.5 x 18 3/6	3.5 x 18 3/6	3.5 x 18 3/7.5	3.5 x 18 3/7.5	5.25 x 16 3/6	5.25 x 18 3/6
				5.25 x 14 1.5/3	5.25 x 14 1.5/4.5	5.25 x 16 1.5/4.5	5.25 x 16 1.5/4.5	5.25 x 16 3/4.5	5.25 x 16 3/4.5	7 x 16 1.5/4.5	7 x 16 3/4.5
	30	15	12	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/4.5	3.5 x 9.5 1.5/4.5	3.5 x 11.875 3/4.5	3.5 x 11.875 3/6
				5.25 x 7.25 1.5/3	5.25 x 7.25 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/4.5
			16	3.5 x 11.875 1.5/4.5	3.5 x 11.875 1.5/4.5	3.5 x 11.875 3/4.5	3.5 x 11.875 3/4.5	3.5 x 11.875 3/6	3.5 x 14 3/6	3.5 x 14 3/6	3.5 x 14 3/7.5
				5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/4.5	5.25 x 11.875 1.5/4.5	5.25 x 11.875 1.5/4.5	5.25 x 11.875 3/4.5
			20	3.5 x 14 3/4.5	3.5 x 14 3/6	3.5 x 14 3/6	3.5 x 16 3/6	3.5 x 16 3/6	3.5 x 16 3/7.5	3.5 x 18 3/7.5	3.5 x 18 4.5/9
				5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/4.5	5.25 x 14 1.5/4.5	5.25 x 14 1.5/4.5	5.25 x 14 3/4.5	5.25 x 14 3/4.5	5.25 x 14 3/6	5.25 x 16 3/6
			24	3.5 x 16 3/6	3.5 x 18 3/6	3.5 x 18 3/6	5.25 x 16 3/4.5	5.25 x 16 3/6	5.25 x 16 3/6	5.25 x 18 3/6	5.25 x 18 3/7.5
				5.25 x 14 1.5/4.5	5.25 x 16 1.5/4.5	5.25 x 16 3/4.5	7 x 14 1.5/4.5	7 x 14 1.5/4.5	7 x 16 1.5/4.5	7 x 16 3/4.5	7 x 16 3/6
	40	15	12	3.5 x 9.5 1.5/3	3.5 x 9.5 1.5/4.5	3.5 x 9.5 1.5/4.5	3.5 x 9.5 1.5/4.5	3.5 x 11.875 3/4.5	3.5 x 11.875 3/4.5	3.5 x 11.875 3/6	3.5 x 11.875 3/6
				5.25 x 7.25 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/4.5	5.25 x 9.5 1.5/4.5
			16	3.5 x 11.875 1.5/4.5	3.5 x 11.875 3/4.5	3.5 x 14 3/6	3.5 x 14 3/6	3.5 x 14 3/6	3.5 x 14 3/6	3.5 x 16 3/7.5	3.5 x 16 3/7.5
				5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/4.5	5.25 x 11.875 1.5/4.5	5.25 x 11.875 1.5/4.5	5.25 x 11.875 3/4.5	5.25 x 11.875 3/4.5	5.25 x 14 3/6
			20	3.5 x 14 3/6	3.5 x 16 3/6	3.5 x 16 3/7.5	3.5 x 18 3/7.5	3.5 x 18 3/7.5	3.5 x 18 3/7.5	5.25 x 16 3/6	5.25 x 16 3/7.5
				5.25 x 14 1.5/4.5	5.25 x 14 1.5/4.5	5.25 x 14 3/4.5	5.25 x 14 3/4.5	5.25 x 14 3/6	5.25 x 14 3/6	7 x 14 3/4.5	7 x 14 3/6
			24	3.5 x 18 3/6	3.5 x 18 3/7.5	5.25 x 16 3/6	5.25 x 18 3/6	5.25 x 18 3/6	5.25 x 18 3/6	5.25 x 18 3/7.5	-
				5.25 x 16 1.5/4.5	5.25 x 16 3/4.5	7 x 16 1.5/4.5	7 x 16 1.5/4.5	7 x 16 3/4.5	7 x 16 3/4.5	7 x 16 3/6	7 x 18 3/6
	50	15	12	3.5 x 9.5 1.5/4.5	3.5 x 9.5 3/4.5	3.5 x 11.875 3/4.5	3.5 x 11.875 3/4.5	3.5 x 11.875 3/6	3.5 x 11.875 3/6	3.5 x 11.875 3/6	3.5 x 14 3/7.5
				5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/3	5.25 x 9.5 1.5/4.5	5.25 x 9.5 1.5/4.5	5.25 x 9.5 3/4.5	5.25 x 11.875 3/4.5
			16	3.5 x 11.875 3/4.5	3.5 x 14 3/6	3.5 x 14 3/6	3.5 x 16 3/6	3.5 x 16 3/7.5	3.5 x 16 3/7.5	3.5 x 16 4.5/9	3.5 x 18 4.5/9
				5.25 x 11.875 1.5/3	5.25 x 11.875 1.5/4.5	5.25 x 11.875 3/4.5	5.25 x 11.875 3/4.5	5.25 x 11.875 3/4.5	5.25 x 14 3/6	5.25 x 14 3/6	5.25 x 14 3/6
			20	3.5 x 16 3/6	3.5 x 18 3/7.5	3.5 x 18 3/7.5	3.5 x 18 3/7.5	5.25 x 16 3/6	5.25 x 16 3/6	5.25 x 18 3/7.5	5.25 x 18 3/7.5
				5.25 x 14 1.5/4.5	5.25 x 14 3/4.5	5.25 x 14 3/6	7 x 14 1.5/4.5	7 x 14 3/4.5	7 x 14 3/4.5	7 x 16 3/6	7 x 16 3/6
			24	3.5 x 18 3/7.5	5.25 x 18 3/6	5.25 x 18 3/6	5.25 x 18 3/6	5.25 x 18 3/7.5	-	-	-
				5.25 x 16 3/4.5	7 x 16 3/4.5	7 x 16 3/4.5	7 x 16 3/4.5	7 x 16 3/6	7 x 18 3/6	7 x 18 3/6	7 x 18 3/7.5

Roof and One Floor Span Tables

See General Notes on page 5.

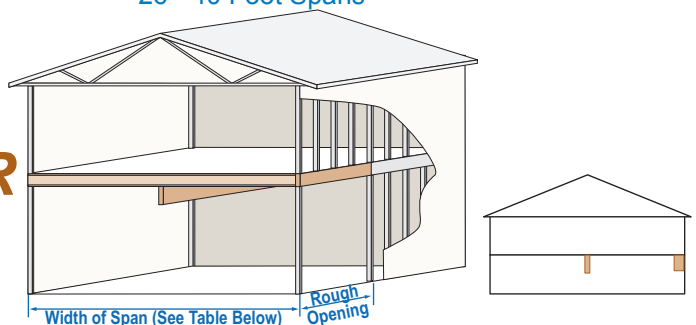
20 & 24 Foot Spans



*Assumes no intermediate support of floor joists

OR

26 - 40 Foot Spans



Interior floor support may vary a minimum of 4 feet from centerline.

Required Beam Depths and Bearing Lengths [in]

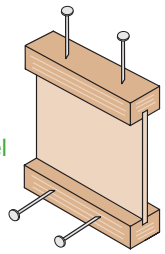
VERSA-LAM® 2.0 3100

Load Duration %	Roof Load [psf] Live	Roof Load [psf] Dead	Rough Opening [Feet]	Width of Building Segment [feet] — KEY: Beam Breadth [in] X Beam Depth [in] 20	24	26	28	30	32	36	40
125%	20	15	6	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25
			9	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5
			12	3.5 x 11.875 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 11.875 5.25 x 11.875	3.5 x 11.875 5.25 x 11.875	3.5 x 11.875 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875
			16	3.5 x 16 5.25 x 14	3.5 x 16 5.25 x 14	3.5 x 16 5.25 x 14	3.5 x 16 5.25 x 14	3.5 x 16 5.25 x 14	3.5 x 16 5.25 x 14	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 16
			18	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 16	5.25 x 18 7 x 16	5.25 x 18 7 x 16
	20	20	6	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25
			9	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5
			12	3.5 x 11.875 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 11.875 5.25 x 11.875	3.5 x 11.875 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875
			16	3.5 x 16 5.25 x 14	3.5 x 18 5.25 x 16	3.5 x 16 5.25 x 14	3.5 x 16 5.25 x 14	3.5 x 16 5.25 x 14	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 16
			18	3.5 x 18 5.25 x 16	5.25 x 16 7 x 16	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 16	5.25 x 18 7 x 16	5.25 x 18 7 x 16
115%	20	15	6	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25
			9	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5
			12	3.5 x 11.875 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 11.875 5.25 x 11.875	3.5 x 11.875 5.25 x 11.875	3.5 x 11.875 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875
			16	3.5 x 16 5.25 x 14	3.5 x 18 5.25 x 14	3.5 x 16 5.25 x 14	3.5 x 16 5.25 x 14	3.5 x 16 5.25 x 14	3.5 x 18 5.25 x 14	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 16
			18	3.5 x 18 5.25 x 16	5.25 x 16 7 x 16	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 16	5.25 x 16 7 x 16	5.25 x 18 7 x 16	5.25 x 18 7 x 16
	25	15	6	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25
			9	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5
			12	3.5 x 11.875 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 11.875 5.25 x 11.875	3.5 x 11.875 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875
			16	3.5 x 16 5.25 x 14	3.5 x 18 5.25 x 16	3.5 x 16 5.25 x 14	3.5 x 18 5.25 x 14	3.5 x 18 5.25 x 14	3.5 x 18 5.25 x 16	5.25 x 16 7 x 16	5.25 x 16 7 x 14
			18	3.5 x 18 5.25 x 16	5.25 x 16 7 x 16	3.5 x 18 5.25 x 16	5.25 x 16 7 x 16	5.25 x 16 7 x 16	5.25 x 18 7 x 16	5.25 x 18 7 x 16	5.25 x 18 7 x 16
	30	15	6	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25
			9	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5
			12	3.5 x 11.875 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 16 5.25 x 11.875
			16	3.5 x 16 5.25 x 14	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 14	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 16	5.25 x 16 7 x 14	5.25 x 16 7 x 16
			18	3.5 x 18 5.25 x 16	5.25 x 18 7 x 16	5.25 x 16 7 x 16	5.25 x 16 7 x 16	5.25 x 16 7 x 16	5.25 x 18 7 x 16	5.25 x 18 7 x 16	5.25 x 18 7 x 16
	40	15	6	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 9.5 5.25 x 7.25
			9	3.5 x 9.5 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5	3.5 x 9.5 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5
			12	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 16 5.25 x 14	3.5 x 16 5.25 x 14
			16	3.5 x 18 5.25 x 16	5.25 x 16 7 x 14	3.5 x 18 5.25 x 16	3.5 x 18 5.25 x 16	5.25 x 16 7 x 14	5.25 x 16 7 x 14	5.25 x 16 7 x 16	5.25 x 18 7 x 16
			18	5.25 x 18 7 x 16	5.25 x 18 7 x 16	5.25 x 18 7 x 16	5.25 x 18 7 x 16	5.25 x 18 7 x 16	5.25 x 18 7 x 16	5.25 x 20 7 x 18	5.25 x 20 7 x 18
	50	15	6	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 7.25 5.25 x 7.25	3.5 x 9.5 5.25 x 7.25	3.5 x9.5 5.25 x 7.25
			9	3.5 x 11.875 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5	3.5 x 11.875 5.25 x 9.5	3.5 x 14 5.25 x 11.875
			12	3.5 x 14 5.25 x 11.875	3.5 x 16 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 14 5.25 x 11.875	3.5 x 16 5.25 x 11.875	3.5 x 16 5.25 x 14	3.5 x 16 5.25 x 14	3.5 x 18 5.25 x 14
			16	3.5 x 18 5.25 x 16	5.25 x 16 7 x 16	5.25 x 16 7 x 14	5.25 x 16 7 x 16	5.25 x 16 7 x 16	5.25 x 18 7 x 16	5.25 x 18 7 x 16	5.25 x 18 7 x 16
			18	5.25 x 18 7 x 16	5.25 x 18 7 x 16	5.25 x 18 7 x 16	5.25 x 18 7 x 16	5.25 x 18 7 x 18	5.25 x 20 7 x 18	5.25 x 20 7 x 18	5.25 x 20 7 x 18

- Minimum end bearing 3 inches or see BC CALC® software requirement.
- 4.5 inch bearing length required in shaded areas.
- See General Notes on page 5.

BCI® Closest Allowable Nail Spacing

Nailing Perpendicular to Glue Lines (Wide Face)



Nailing Parallel to Glue Lines (Narrow Face)

Nail Size	All BCI® Joists			
	Nailing Perpendicular to Glue Line (Wide Face)		Nailing Parallel to Glue Line (Narrow Face)	
	O.C. Spacing [inches]	End of Joist [inches]	O.C. Spacing [inches]	End of Joist [inches]
8d Box	2	1½	4	1½
8d Common	2	1½	4	3
10d & 12d Box	2	1½	4	3
16d Box	2	1½	4	3
10d & 12d Common	3	2	6	4
16d Sinker	3	2	6	4
16d Common	3	2	6	4

- If more than one row of nails is used, the rows must be offset at least ½ inch.
- Simpson Strong-Tie A35 connectors may be attached to the side of BCI® 60s & 90s joist flanges only. Use nails as specified by Simpson Strong-Tie; do not attach connectors on both sides of a flange at the same location.

BCI® Diaphragm Table (1)

BCI® Series	Diaphragm Capacity (2) (3) [lb/ft]	
	Unblocked	Blocked
4500s, 5000s	As permitted for 2x framing in building code	320 lb/ft for 6" o.c. nailing @ panel edges
		425 lb/ft for 4" o.c. nailing, staggered, @ panel edges
6000s, 6500s	As permitted for 3x framing in building code	360 lb/ft for 6" o.c. nailing @ panel edges
		480 lb/ft for 4" o.c. nailing, staggered @ panel edges
60s, 90s	As permitted for 3x framing in building code	As permitted for 3x framing in building code with nail spacing no closer than 3" o.c.

NOTES:

(1) See table 6 of ICC ESR 1336.

(2) BCI joists may be substituted for solid sawn framing in horizontal wood diaphragms as shown in Table 2306.3.1 of the IBC or Table 23-II-H of the UBC.

(3) Diaphragm nailing shall not exceed BCI closest allowable nail spacing limits.

Multiple Member Connectors

Side-Loaded Applications

Number of Members	Maximum Uniform Side Load [plf]							
	Nailed		½" Dia. Through Bolt(1)			⅝" Dia. Through Bolt(1)		
	2 rows 16d Sinkers @ 12" o.c.	3 rows 16d Sinkers @ 12" o.c.	2 rows @ 24" o.c. staggered	2 rows @ 12" o.c. staggered	2 rows @ 6" o.c. staggered	2 rows @ 24" o.c. staggered	2 rows @ 12" o.c. staggered	2 rows @ 6" o.c. staggered
1¾" VERSA-LAM® (Depths of 18" and less)								
2	470	705	505	1010	2020	560	1120	2245
3(2)	350	525	375	755	1515	420	840	1685
4(3)	use bolt schedule		335	670	1345	370	745	1495
3½" VERSA-LAM®								
2(3)	use bolt schedule		855	1715	N/A	1125	2250	N/A
1¾" VERSA-LAM® (Depths of 24")								
Number of Members	Nailed		½" Dia. Through Bolt(1)			⅝" Dia. Through Bolt(1)		
	3 rows 16d Sinkers @ 12" o.c.	4 rows 16d Sinkers @ 12" o.c.	3 rows @ 24" o.c. 8" staggered	3 rows @ 18" o.c. 6" staggered	3 rows @ 12" o.c. 4" staggered	3 rows @ 24" o.c. 8" staggered	3 rows @ 18" o.c. 6" staggered	3 rows @ 12" o.c. 4" staggered
2	705	940	755	1010	1515	840	1120	1685
3(2)	525	705	565	755	1135	630	840	1260
4(3)	use bolt schedule		505	670	1010	560	745	1120

1. Design values apply to common bolts that conform to ANSI/ASME standard B18.21-1981 (ASTM A307 Grades A&B, SAE J429 Grades 1 or 2, or higher). A washer not less than a standard cut washer shall be between the wood and the bolt head and between the wood and the nut. The distance from the edge of the beam to the bolt holes must be at least 2" for ½" bolts and 2½" for ⅝" bolts. Bolt holes shall be the same diameter as the bolt.
2. The nail schedules shown apply to both sides of a 3-member beam.
3. 7" wide beams must be top-loaded or loaded from both sides (lesser side shall be no less than 25% of opposite side).

Top-Loaded Applications

For top-loaded beams and beams with side loads with less than those shown:

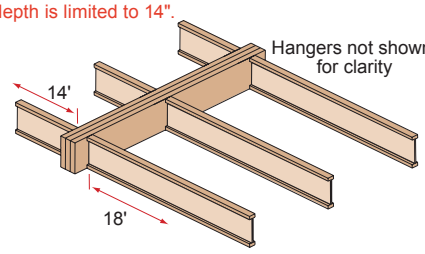
Plies	Depth	Nailing	Maximum Uniform Load From One Side
(2) 1¾" plies	Depths 11⅞" & less	2 rows 16d box/sinker nails @ 12" o.c.	400 plf
	Depths 14" - 18"	3 rows 16d box/sinker nails @ 12" o.c.	600 plf
	Depth = 24"	4 rows 16d box/sinker nails @ 12" o.c.	800 plf
(3) 1¾"" plies (2)	Depths 11⅞" & less	2 rows 16d box/sinker nails @ 12" o.c.	300 plf
	Depths 14" - 18"	3 rows 16d box/sinker nails @ 12" o.c.	450 plf
	Depth = 24"	4 rows 16d box/sinker nails @ 12" o.c.	600 plf
(4) 1¾" plies	Depths 18" & less	2 rows ½" bolts @ 24" o.c., staggered	335 plf
	Depth = 24"	3 rows ½" bolts @ 24" o.c., staggered every 8"	505 plf
(2) 3½" plies	Depths 18" & less	2 rows ½" bolts @ 24" o.c., staggered	855 plf
	Depth 20" - 24"	3 rows ½" bolts @ 24" o.c., staggered every 8"	1285 plf

1. Beams wider than 7" must be designed by the engineer of record.
2. All values in these tables may be increased by 15% for snow-load roofs and by 25% for non-snow load roofs where the building code allows.
3. Use allowable load tables or BC CALC® software to size beams.
4. An equivalent specific gravity of 0.5 may be used when designing specific connections with VERSA-LAM®.
5. Connection values are based upon the 2005 NDS.
6. ***FastenMaster TrussLok, Simpson Strong-Tie SDS and SDW, and USP WS screws may also be used to connect multiple member VERSA-LAM® beams, contact Boise Cascade EWP Engineering for further information.***

Designing Connections for Multiple VERSA-LAM® Members

When using multiple ply VERSA-LAM® beams to create a wider member, the connection of the plies is as critical as determining the beam size. When side loaded beams are not connected properly, the inside plies do not support their share of the load and thus the load-carrying capacity of the full member decreases significantly. The following is an example of how to size and connect a multiple-ply VERSA-LAM® floor beam.

Given: Beam shown below is supporting residential floor load (40 psf live load, 10 psf dead load) and is spanning 16'-0". Beam depth is limited to 14".



Find: A multiple 1¾" ply VERSA-LAM® that is adequate to support the design loads and the member's proper connection schedule.

1. Calculate the tributary width that beam is supporting:
   14' / 2 + 18' / 2 = 16'
2. Use PLF tables on pages 28-30 of ESG or BC CALC® to size beam.
   A Triple VERSA-LAM® 2.0 3100 1¾" x 14" is found to adequately support the design loads
3. Calculate the maximum plf load from one side (the right side in this case).
   Max. Side Load = (18' / 2) x (40 + 10 psf) = 450 plf
4. Go to the Multiple Member Connection Table, Side-Loaded Applications, 1¾" VERSA-LAM®, 3 members
5. The proper connection schedule must have a capacity greater than the max. side load:
   Nailed: 3 rows 16d sinkers @ 12" o.c:
   525 plf is greater than 450 plf OK
   Bolts: ½" diameter 2 rows @ 12" staggered:
   755 plf is greater than 450 plf OK

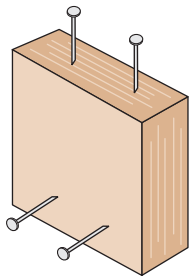
VERSA-LAM® Beams

Closest Allowable Nail Spacing

VERSA-LAM® Products								
Nail Size							Nailing Perpendicular to Glue Lines (Wide Face)	
	VERSA-LAM® 1.4 1800 Rimboard 1 5/16"		VERSA-LAM® 1¾"		VERSA-LAM® 3½" & Wider		All Products	
	O.C. [inches]	End [inches]	O.C. [inches]	End [inches]	O.C. [inches]	End [inches]	O.C. [inches]	End [inches]
8d Box	3	1½	2	1	2	½	2	½
8d Common	3	2	3	2	2	1	2	1
10d & 12d Box	3	2	3	2	2	1	2	1
16d Box	3	2	3	2	2	1	2	1
10d & 12d Common	4	3	4	3	2	2	2	2
16d Sinker	4	3	4	3	2	2	2	2
16d Common	6	4	6	3	2	2	2	2

- Offset and stagger nail rows from floor sheathing and wall sole plate.
- Simpson Strong-Tie A35 and LPT4 connectors may be attached to the side VERSA-LAM®. Use nails as specified by Simpson Strong-Tie.

Nailing Parallel to Glue Lines (Narrow Face)

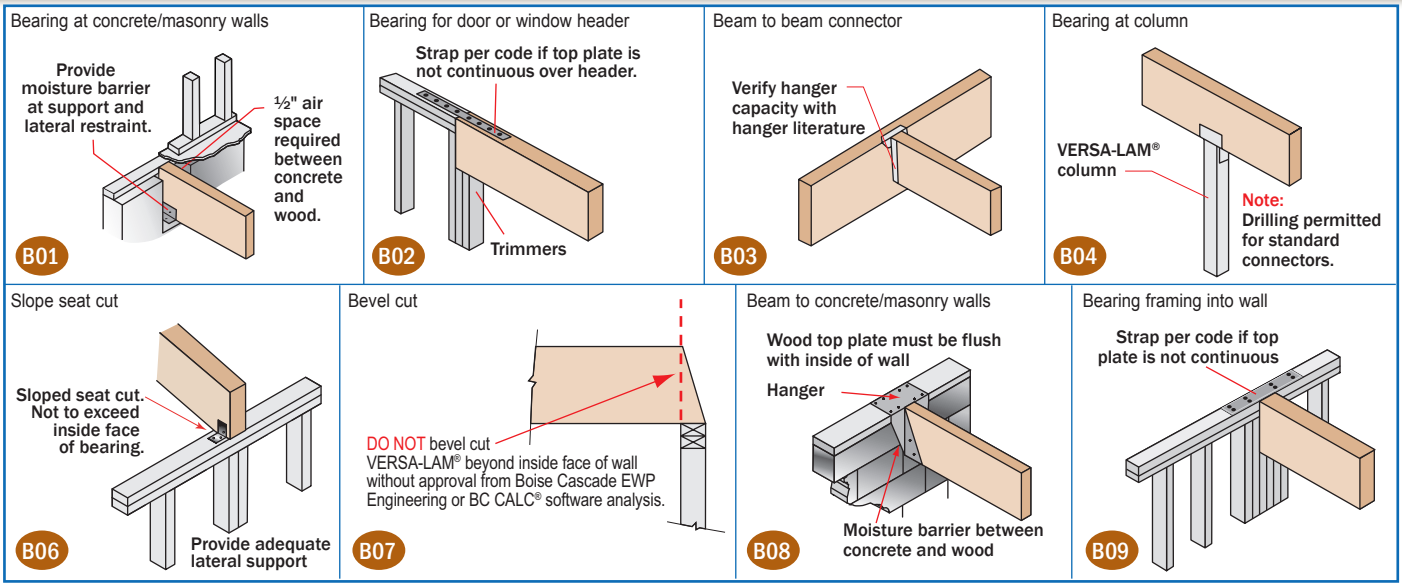


Nailing Perpendicular to Glue Lines (Wide Face)

Nailing Notes

1) For 1¾" thickness and greater, 2 rows of nails (such as for a metal strap) are allowed (use ½" minimum offset between rows and stagger nails).

VERSA-LAM® Beam Details



VERSA-LAM® Installation Notes

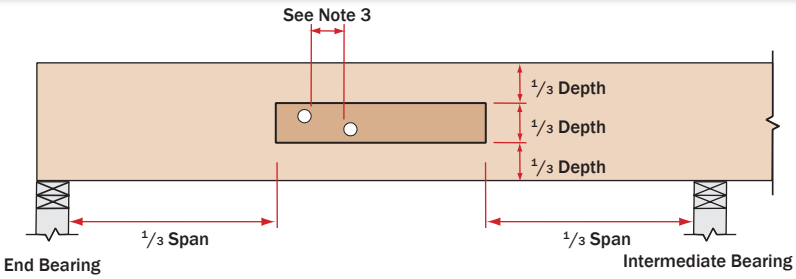
- Minimum of ½" air space between beam and wall pocket or adequate barrier must be provided between beam and concrete/masonry.
- Adequate bearing shall be provided. If not shown on plans, please refer to load tables in your region's Specifier Guide.
- VERSA-LAM® beams are intended for interior applications only and should be kept as dry as possible during construction.
- Continuous lateral support of top of beam shall be provided (side or top bearing framing).

Allowable Holes in VERSA-LAM® Beams

Notes

1. Square and rectangular holes are not permitted.
2. Round holes may be drilled or cut with a hole saw anywhere within the shaded area of the beam.
3. The horizontal distance between adjacent holes must be at least two times the size of the larger hole.
4. Do not drill more than three access holes in any four foot long section of beam.
5. The maximum round hole diameter permitted is:

Beam Depth	Max. Hole Diameter
5½"	¾"
7¼"	1"
9¼" and greater	2"



6. These limitations apply to holes drilled for plumbing or wiring access only. The size and location of holes drilled for fasteners are governed by the provisions of the *National Design Specification® for Wood Construction.*
7. Beams deflect under load. Size holes to provide clearance where required.
8. This hole chart is valid for beams supporting uniform load only. For beams supporting concentrated loads or for beams with larger holes, contact Boise Cascade EWP Engineering.

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Lifetime Guaranteed Quality and Performance

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

BCI® Joists, VERSA-LAM® and ALLJOIST® must be stored, installed and used in accordance with this Installation Guide, building codes and to the extent not inconsistent with this Installation Guide, usual and customary building practices and standards. VERSA-LAM®, ALLJOIST® and BCI® Joists must be wrapped, covered and stored off of the ground on stickers at all times prior to installation. VERSA-LAM®, ALLJOIST® and BCI® Joists are intended only for applications that assure 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. Failure to correctly store, use or install VERSA-LAM®, ALLJOIST®, and BCI® Joist in accordance with this Installation Guide will void the limited warranty.

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