

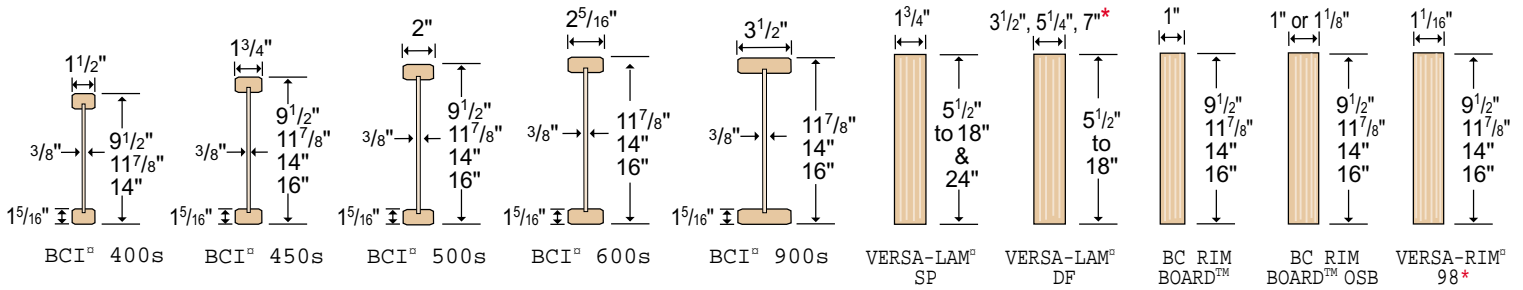
EASTERN ENGINEERED WOOD PRODUCTS

THE BUILDERS GUIDE

for Residential Construction
with BCI[®], VERSA-LAM[®] and VERSA-RIM[®] Products



Engineered Wood Products
Engineered to Build Reputations



*Product may not be available. Check with supplier or Boise representative for availability.

Residential Floor Span Table

Joist Depth	BCI [®] Joist Series	★★★ THREE STAR ★★★					★★★★ FOUR STAR ★★★★★					CAUTION	★ MINIMUM STIFFNESS ALLOWED BY CODE ★	CAUTION		
		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.
9 1/2"	400s	17'-3"	15'-9"	14'-11"	13'-10"	12'-3"	11'-5"	11'-5"	11'-1"	10'-9"	9'-9"	19'-0"	17'-5"	16'-2"	14'-5"	12'-3"
	450s	17'-11"	16'-5"	15'-6"	14'-5"	13'-2"	11'-10"	11'-10"	11'-5"	11'-2"	10'-2"	19'-10"	18'-2"	17'-2"	15'-8"	13'-4"
	500s	18'-7"	17'-0"	16'-0"	14'-11"	13'-7"	12'-3"	12'-3"	11'-10"	11'-6"	10'-5"	20'-7"	18'-10"	17'-9"	16'-7"	14'-3"
11 7/8"	400s	20'-5"	18'-8"	17'-8"	16'-6"	14'-1"	14'-10"	14'-7"	13'-9"	12'-9"	11'-7"	22'-7"	20'-5"	18'-8"	16'-8"	14'-1"
	450s	21'-4"	19'-6"	18'-5"	17'-2"	15'-0"	15'-4"	15'-2"	14'-4"	13'-4"	12'-1"	23'-7"	21'-7"	20'-3"	18'-1"	15'-0"
	500s	22'-2"	20'-3"	19'-1"	17'-9"	15'-0"	15'-10"	15'-9"	14'-10"	13'-9"	12'-6"	24'-6"	22'-4"	21'-2"	19'-5"	15'-0"
	600s	23'-0"	21'-0"	19'-9"	18'-5"	16'-9"	17'-11"	16'-4"	15'-4"	14'-3"	12'-11"	25'-5"	23'-3"	21'-11"	20'-5"	17'-3"
	900s	26'-0"	23'-8"	22'-3"	20'-9"	18'-10"	20'-3"	18'-5"	17'-3"	16'-0"	14'-5"	28'-9"	26'-2"	24'-8"	23'-0"	19'-4"
14"	400s	23'-3"	21'-3"	20'-1"	18'-5"	14'-3"	18'-2"	16'-7"	15'-7"	14'-6"	13'-2"	25'-8"	22'-7"	20'-7"	18'-5"	14'-3"
	450s	24'-2"	22'-1"	20'-11"	19'-6"	15'-2"	18'-11"	17'-3"	16'-3"	15'-1"	13'-8"	26'-9"	24'-6"	22'-5"	20'-0"	15'-2"
	500s	25'-1"	22'-11"	21'-8"	20'-2"	15'-2"	19'-8"	17'-10"	16'-10"	15'-7"	14'-2"	27'-9"	25'-4"	23'-11"	20'-3"	15'-2"
	600s	26'-1"	23'-9"	22'-5"	20'-10"	17'-5"	20'-4"	18'-6"	17'-5"	16'-2"	14'-7"	28'-10"	26'-4"	24'-10"	23'-1"	17'-5"
	900s	29'-5"	26'-9"	25'-3"	23'-6"	19'-6"	23'-0"	20'-10"	19'-7"	18'-2"	16'-5"	32'-6"	29'-8"	28'-0"	26'-0"	19'-6"
16"	450s	26'-10"	24'-6"	23'-2"	20'-5"	15'-4"	21'-0"	19'-1"	18'-0"	16'-9"	15'-2"	29'-8"	26'-7"	24'-3"	20'-5"	15'-4"
	500s	27'-9"	25'-4"	23'-11"	20'-5"	15'-4"	21'-9"	19'-9"	18'-8"	17'-4"	15'-4"	30'-8"	28'-1"	25'-7"	20'-5"	15'-4"
	600s	28'-10"	26'-4"	24'-10"	23'-1"	17'-7"	22'-7"	20'-6"	19'-4"	17'-11"	16'-2"	31'-11"	29'-1"	27'-6"	23'-5"	17'-7"
	900s	32'-6"	29'-7"	27'-11"	25'-11"	19'-7"	25'-5"	23'-1"	21'-8"	20'-1"	18'-2"	36'-0"	32'-9"	30'-11"	26'-2"	19'-7"

- Table values assume that 23/32" min. plywood/ OSB rated sheathing is glued and nailed to the joists.
- Table values represent the most restrictive of simple or multiple span applications.
- Table values are based on residential floor loads of **40 PSF live load and 10 PSF dead load**.
- Table values are the maximum allowable clear distance between supports.

- Table values assume minimum bearing lengths without web stiffeners for joist depths of 16 inches and less.
- This table was designed to apply 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[®] software.

- ★★★ Live Load deflection limited to L/480.
- ★★★★ Live Load deflection limited to L/960 to provide a floor that is much stiffer for the more discriminating purchaser.
- ★ Live Load deflection limited to L/360 as allowed by the building code. (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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Additional details available with BC FRAMER® software. (See page 39 of the Eastern Specifier Guide)

Slope cut joist reinforcement
Connection of rafter to wall/reinforced joist per local building code requirements. 2x blocking required at bearing (not shown for clarity).

Min. Heel Depth (See Table Below)

12"
6" min.
16" maximum joist depth
24"

2 3/2" min. plywood/OSB rated sheathing. Cut reinforcement as shown below. Install on both sides of the joist, snug to the bottom flange. Coat contact faces with rated sub-floor/joist adhesive and fasten with 3 rows of minimum 10d box nails at 6" o.c. Alternate nailing from each side and clinch.

End Wall Bearing	Roof Pitch					
	6/12	7/12	8/12	9/12	10/12	12/12
2 x 4	4 3/8"	4 5/16"	4 1/4"	4 1/4"	4 1/4"	4 1/4"
2 x 6	3 3/8"	3 3/16"	2 9/16"	2 3/4"	2 9/16"	2 1/4"

Minimum Heel Depth

To avoid splitting flange, start nails at least 1 1/2" from end. Nails may need to be driven at an angle to prevent splitting of bearing plate.

One 8d common nail each side at bearing.
1 3/4" minimum bearing length at all floor and roof details.

Solid block all posts from above to bearing below.

Load bearing wall above (stacked over wall below).
1/16"
2x block.

Nail BC RIM BOARD™ to BCI® Joists with 2 - 8d nails, one at the top and one at the bottom.

Exterior sheathing
1/2" dia through bolts (grade 5 or higher) with washers and nuts or 1/2" dia lag screws (full penetration) See page 31 of the Eastern Specifier Guide for fastener design values
Treated ledger
VERSA-RIM® or BC RIM BOARD™
Design of moisture control by others (only structural components shown above)

LATERAL SUPPORT

- BCI® Joists must be laterally supported at the ends with hangers, BCI® rim joists, rim boards, BCI® blocking panels or x-bracing. BCI® blocking panels or x-bracing are required at cantilever supports.

MINIMUM BEARING LENGTH FOR BCI® JOISTS

- 1 3/4 inches is required at end supports. 3/2 inches 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 panels 1 3/4 inches wide and less: 2-8d box nails, one each in the top and bottom flange.
 - BCI® 500s rim joist: 2-10d box nails, one each in the top and bottom flange.
 - BCI® 600s rim joist: 2-16d box nails, one each in the top and bottom flange.
 - BCI® 900s 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 1 1/2 inches minimum from the end of the BCI® Joist to avoid splitting.

- Sheathing to BCI® Joist:

- See *Closest Allowable Nail Spacing* on page 4.
- BCI® 400s, 450s & 500s Joist: Maximum nail spacing is 18 inches on-center.
- BCI® 600s & 900s Joist: Maximum nail spacing is 24 inches on-center.
- 14-gauge staples may be substituted for 8d nails if the staples penetrate at least 1 inch into the joist.

BACKER AND FILLER BLOCK DIMENSIONS

Series	Backer Block Thickness	Filler Block Thickness
400s	1/2" or 5/8" wood panel	Two 1/2" wood panels or 2 x _
450s	5/8" or 3/4" wood panel	Two 3/8" wood panels or 2 x _
500s	3/4" or 7/8" wood panel	Two 3/4" wood panels or 2 x _
600s	Two 1/2" wood panels	2 x _ + 1/2" wood panel
900s	2 x _ lumber	Double 2 x _ lumber

- Cut backer and filler blocks to a maximum depth equal to the joist depth minus 3/4 inches to avoid a forced fit.

WEB STIFFENER REQUIREMENTS

- See *Web Stiffener Requirements* on page 10.

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 (ALL SERIES)

Joist Depth [in]	Capacity [plf]
9 1/2	2800
11 7/8	2775
14	2750
16	2450

BOISE RIM BOARD

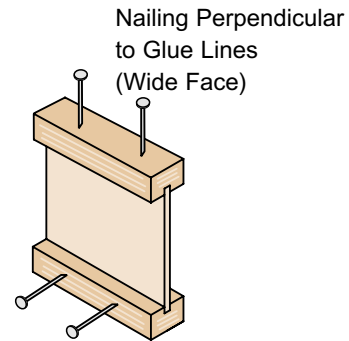
Type ⁽¹⁾	Thickness [in]	Depth [in]	Vertical Load Capacity [plf] ⁽²⁾
VERSA-RIM® ⁽³⁾	1 1/16"	16 & less	4250
BC OSB RIM BOARD™ ⁽⁴⁾	1"	16 & less	3300
	1 1/8"	16 & less	4400
BC RIM BOARD™ ⁽⁴⁾	1"	16 & less	3300

- Dimension lumber is not suitable for use as rim board in BCI® Joist floor systems.
- Vertical load capacity when set between a wall above and support below.
- VERSA-RIM® is not intended for use as headers or beams across openings.
- Please contact Boise EWP Engineering for BC RIM BOARD™ OSB & BC RIM BOARD™ span capabilities.

BCI® Joists

Nail Size	All BCI® Joists			
	Nailing Perpendicular to Glue Lines (Wide Face)		Nailing Parallel to Glue Lines (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.



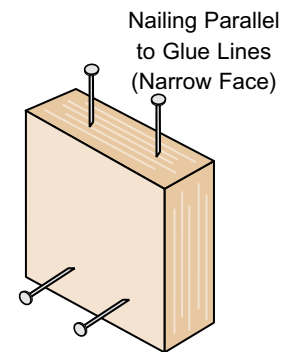
Nailing Perpendicular to Glue Lines (Wide Face)

Nailing Parallel to Glue Lines (Narrow Face)

VERSA-LAM® & VERSA-RIM® Allowable Nail Spacing

Nail Size	Nailing Parallel to Glue Lines (Narrow Face)						Nailing Perpendicular to Glue Lines (Wide Face)	
	VERSA-RIM® (1½")		VERSA-LAM® SP (1¾")		VERSA-LAM® DF (3½")		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	4	3	3	2	2	1	2	1
10d & 12d Box	4	3	3	2	2	1	2	1
16d Box	4	3	3	2	2	1	2	1
10d & 12d Common	6	4	4	3	2	2	2	2
16d Sinker	6	4	4	3	2	2	2	2
16d Common	6	4	6	3	2	2	2	2
Simpson A35F							Use 8d x 1½" Nails	
Simpson LTP4								

• If more than one row of nails is used, the rows must be offset at least ½ inch.



Nailing Parallel to Glue Lines (Narrow Face)

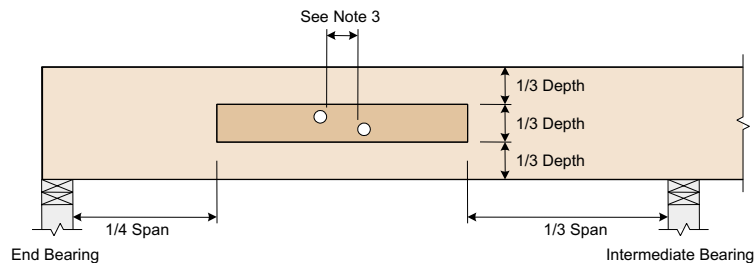
Nailing Perpendicular to Glue Lines (Wide Face)

Allowable Holes in VERSA-LAM® Beams

Notes

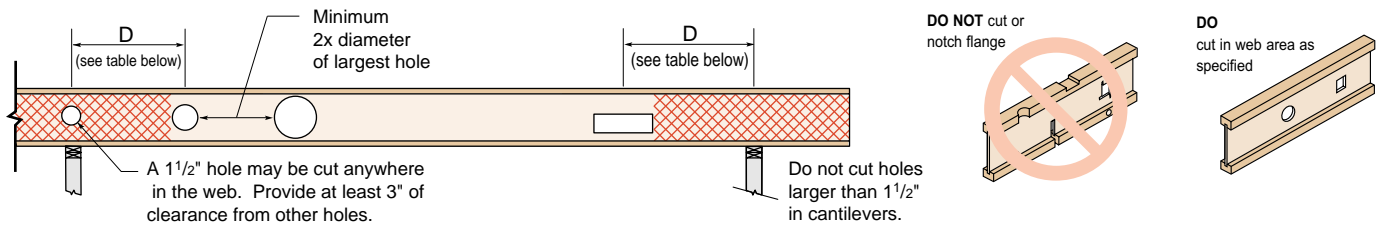
1. Square and rectangular holes are not permitted.
2. Round holes may be drilled or cut with a hole saw anywhere within the shaded area of the beam.
3. The horizontal distance between adjacent holes must be at least two times the size of the larger hole.
4. Do not drill more than three access holes in 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 EWP Engineering.

BCI[®] Joists are manufactured with 1/2" round perforated knockouts in the web at approximately 12" on center



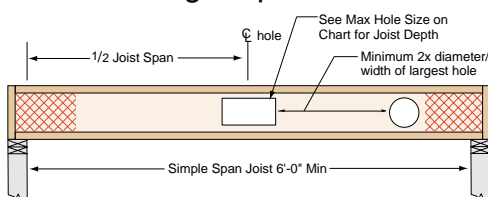
MINIMUM DISTANCE (D) FROM ANY SUPPORT TO THE CENTERLINE OF THE HOLE

Round Hole Diameter (in)	2	3	4	5	6	6 1/2	7	8	8 7/8	9	10	11	12	13		
Rectangular Hole Side (in)	-	-	2	4	6	6	-	-	-	-	-	-	-	-		
Any 9 1/2" Joist	Span (ft)	8	1'-0"	1'-4"	2'-0"	2'-7"	3'-3"	3'-7"								
		12	1'-2"	2'-1"	3'-0"	3'-11"	4'-10"	5'-4"								
		16	1'-6"	2'-9"	4'-0"	5'-3"	6'-6"	7'-2"								
Round Hole Diameter (in)	2	3	4	5	6	6 1/2	7	8	8 7/8	9	10	11	12	13		
Rectangular Hole Side (in)	-	-	-	2	3	4	5	7	8	-	-	-	-	-		
Any 11 7/8" Joist	Span (ft)	8	1'-0"	1'-2"	1'-7"	2'-0"	2'-6"	2'-8"	2'-11"	3'-4"	3'-8"					
		12	1'-1"	1'-9"	2'-5"	3'-1"	3'-9"	4'-0"	4'-4"	5'-0"	5'-7"					
		16	1'-6"	2'-5"	3'-3"	4'-1"	5'-0"	5'-5"	5'-10"	6'-8"	7'-5"					
		20	1'-11"	3'-0"	4'-1"	5'-2"	6'-3"	6'-9"	7'-3"	8'-4"	9'-4"					
Round Hole Diameter (in)	2	3	4	5	6	6 1/2	7	8	8 7/8	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'-2"	1'-7"	1'-9"	2'-0"	2'-5"	2'-9"	2'-9"	3'-2"	3'-7"		
		12	1'-0"	1'-1"	1'-2"	1'-10"	2'-5"	2'-8"	3'-0"	3'-7"	4'-1"	4'-2"	4'-9"	5'-4"		
		16	1'-0"	1'-1"	1'-7"	2'-5"	3'-2"	3'-7"	4'-0"	4'-10"	5'-6"	5'-7"	6'-5"	7'-2"		
		20	1'-0"	1'-1"	2'-0"	3'-0"	4'-0"	4'-6"	5'-0"	6'-0"	6'-10"	7'-0"	8'-0"	9'-0"		
		24	1'-0"	1'-3"	2'-5"	3'-8"	4'-10"	5'-5"	6'-0"	7'-3"	8'-3"	8'-5"	9'-7"	10'-9"		
Round Hole Diameter (in)	2	3	4	5	6	6 1/2	7	8	8 7/8	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'-5"	1'-9"	2'-1"	2'-1"	2'-6"	2'-10"	3'-2"	3'-6"
		12	1'-0"	1'-1"	1'-2"	1'-2"	1'-7"	1'-10"	2'-1"	2'-8"	3'-1"	3'-2"	3'-9"	4'-3"	4'-9"	5'-4"
		16	1'-0"	1'-1"	1'-2"	1'-5"	2'-2"	2'-6"	2'-10"	3'-7"	4'-2"	4'-3"	5'-0"	5'-8"	6'-5"	7'-1"
		20	1'-0"	1'-1"	1'-2"	1'-9"	2'-8"	3'-1"	3'-7"	4'-5"	5'-3"	5'-4"	6'-3"	7'-1"	8'-0"	8'-10"
		24	1'-0"	1'-1"	1'-2"	2'-2"	3'-3"	3'-9"	4'-3"	5'-4"	6'-3"	6'-5"	7'-6"	8'-6"	9'-7"	10'-8"

- 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.
- Holes may be positioned vertically anywhere in the web. The joist may be set with the 1/2" 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

Single Span Joist

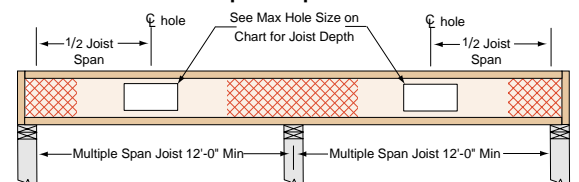


Notes:

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	Max Hole Size	
	Simple Span	Multiple Span
9 1/2"	6" x 14"	6" x 12"
11 7/8"	8" x 16"	8" x 13"
14"	9" x 18" 10" x 16"	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.

GENERAL NOTES

- Continuous lateral support at the top of the beam is assumed.
- 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.

Roof Notes (see pages 8, 9 & 10)

- 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 9)

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

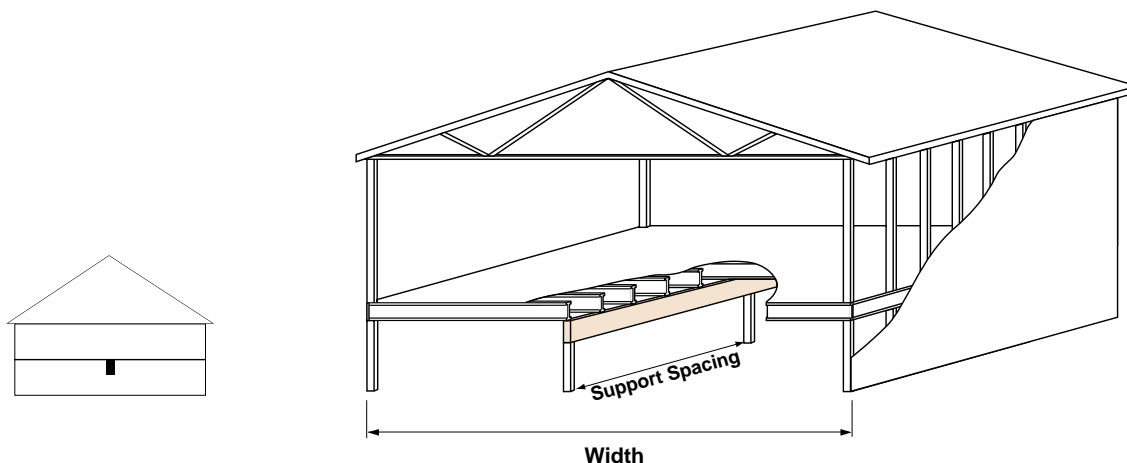
Floor Notes (see pages 6, 7, 10)

- 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 7,10).
- Interior floor support may vary a maximum of 4 feet from centerline (page 10).

Header (Roof) (see page 8)

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

One Floor Beam Span Tables

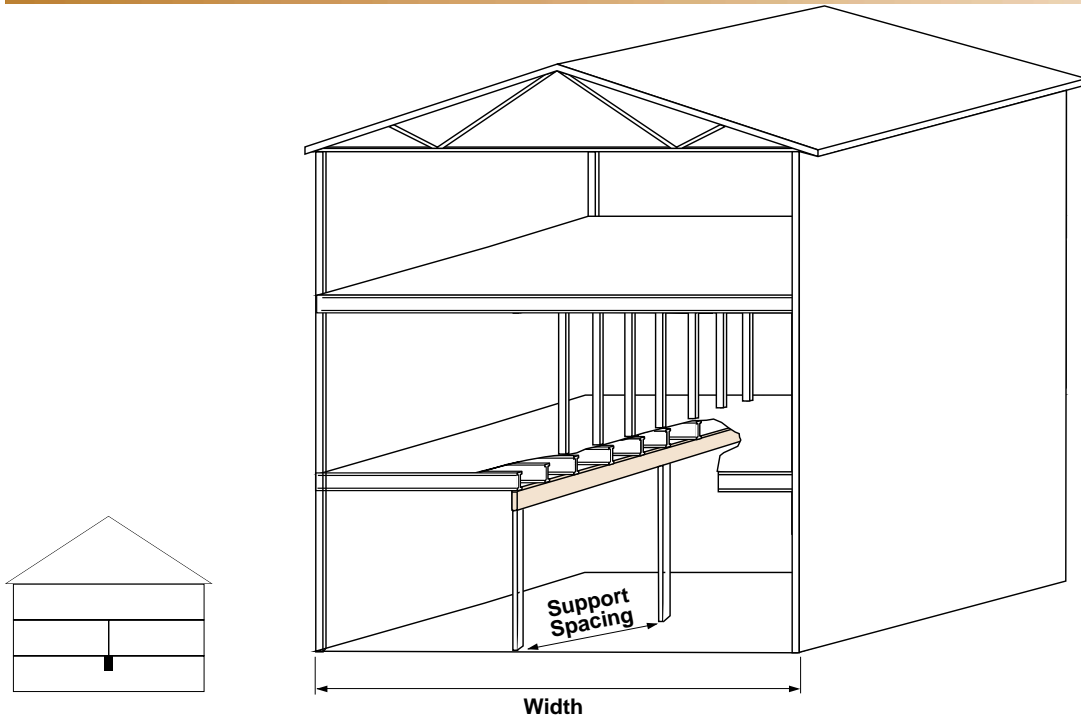


Required Beam Depths and Bearing Lengths [in]

3080 Fb DF - 3100 Fb SP

Load Duration %	Floor Load [psf]		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]																	
	Live	Dead		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 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	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	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 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	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 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	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 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 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	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	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	3/6	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	3/4.5	7 x 18	3/6	7 x 18	3/6

Two Floor Beam Span Tables



Required Beam Depths and Bearing Lengths [in]

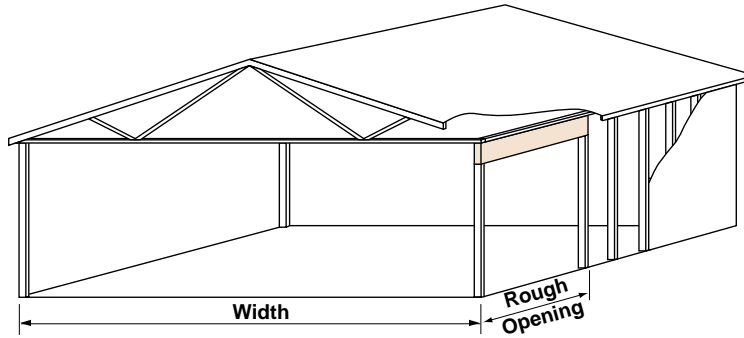
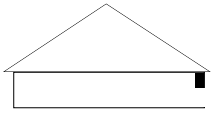
3080 Fb DF - 3100 Fb SP

Load Duration %	Floor Load [psf]		Beam Support Spacing [Feet]	Width of Building Segment [feet]																			
	Live	Dead		KEY: Beam Width [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	3/6	5.25 x 11.875	3/6	5.25 x 11.875	3/6	5.25 x 11.875	3/6	5.25 x 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 14	3/7.5	7 x 11.875	3/6
				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	5.25 x 14	3/7.5	7 x 11.875	3/6	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 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	3/6	7 x 14	3/7.5	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 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	3/7.5	7 x 16	4.5/9	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 16	3/7.5	7 x 18	4.5/9	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 6.





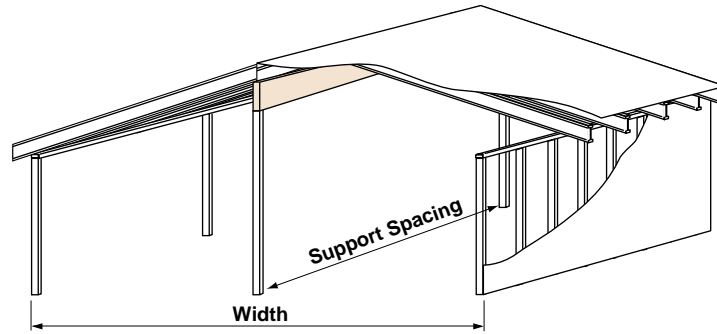
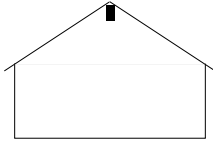
- Minimum end bearing 3 inches or see BC CALC® software requirement.
- 4.5 inch bearing length required in shaded areas
- See General Notes on page 6.

Required Beam Depths [in]

3080 Fb DF - 3100 Fb SP

Load Duration %	Roof Load [psf]		Rough Opening [Feet]	Width of Building Segment [feet]									
	Live	Dead		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	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	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	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 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	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	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 11.875	5.25 x 14			
125	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 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	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	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	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 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	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 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 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	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	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	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	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	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	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	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	5.25 x 14			
115	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 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	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	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	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 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	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 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 11.875	5.25 x 14	5.25 x 14	5.25 x 14			
115	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 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	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	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	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 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 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 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	5.25 x 14			
115	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	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	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 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 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 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 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	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 14	5.25 x 16	7 x 14			
115	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	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 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 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	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 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 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	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	5.25 x 16	7 x 14	7 x 14	7 x 14			

Roof Ridge Beam Span Tables

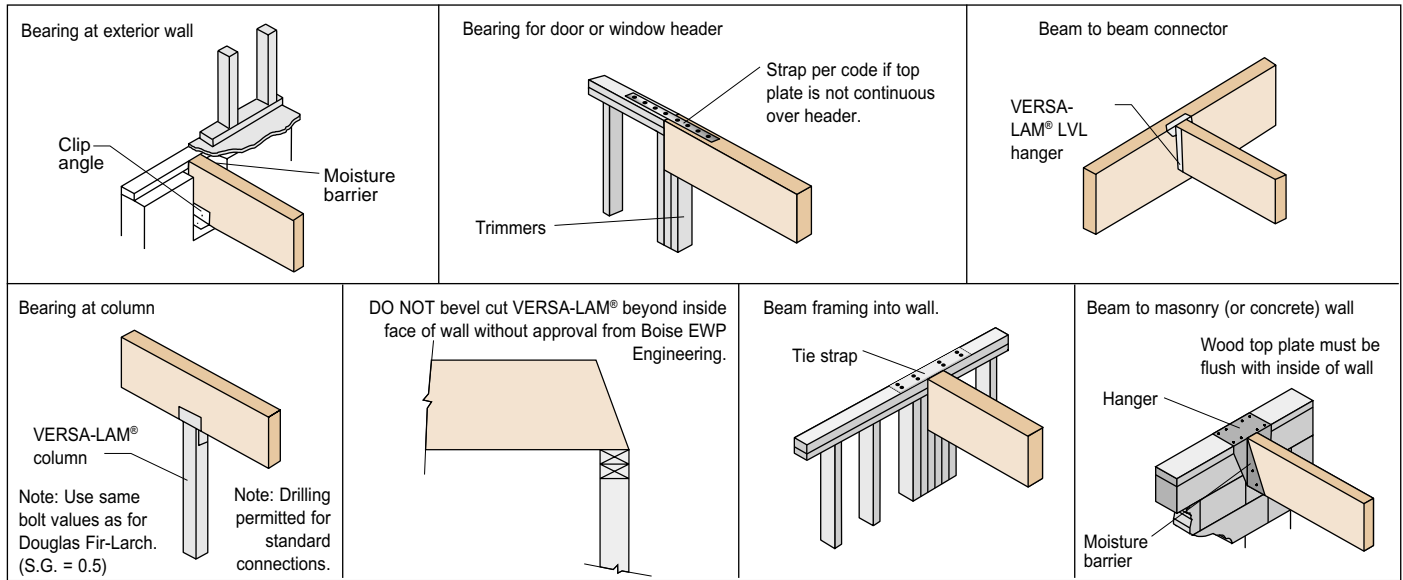


See General Notes on page 6.

Required Beam Depths and Bearing Lengths [in]

3080 Fb DF - 3100 Fb SP

Load Duration %	Roof Load [psf]		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	
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
			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
			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
			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
125	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
			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
			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
			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
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
			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
			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
			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
115	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
			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
			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
			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
115	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
			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
			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
			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
115	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 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	3/6
			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
			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
			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	-	-
115	50	15	12'	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	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
			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
			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 16	3/6	5.25 x 14	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	-	-	-	-	-	-



Multiple Member Connections

SIDE-LOADED APPLICATIONS

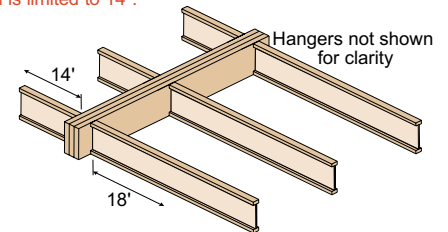
Number of Members	Maximum Uniform Side Load [plf]							
	Nailed		1/2" Dia. Through Bolt ⁽¹⁾			5/8" Dia. Through Bolt ⁽¹⁾		
	2 rows 16d Sinks @ 12" o.c.	3 rows 16d Sinks @ 12" o.c.	2 rows @ 24" o.c. staggered	2 rows @ 12" o.c. staggered	2 rows @ 6" o.c. staggered	2 rows @ 24" o.c. staggered	2 rows @ 12" o.c. staggered	2 rows @ 6" o.c. staggered
1 3/4" 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
3 1/2" VERSA-LAM®								
2 ⁽³⁾	use bolt schedule		855	1715	N/A	1125	2250	N/A
1 3/4" x 24" VERSA-LAM®								
	Nailed		1/2" Dia. Through Bolt ⁽¹⁾			5/8" Dia. Through Bolt ⁽¹⁾		
	3 rows 16d Sinks @ 12" o.c.	4 rows 16d Sinks @ 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

- Design values apply to common bolts that conform to ANSI/ASME standard B18.21-1981 (Grade 5 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 1/2" bolts and 2 1/2" for 5/8" bolts. Bolt holes shall be the same diameter as the bolt.
- The nail schedules shown apply to both sides of a three member beam.
- 7" wide beams must be top-loaded or loaded from both sides.

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 1 3/4" ply VERSA-LAM® that is adequate to support the design loads and the member's proper connection schedule.

- Calculate the tributary width that beam is supporting:
 $14' / 2 + 18' / 2 = 16'$
- Use PLF tables on pages 30-35 of the Eastern Specifier Guide, pages 6-10 of this guide, or BC CALC® to size beam.
A Triple 1 3/4" x 14" VERSA-LAM® 3100 is found to adequately support the design loads.
- Calculate the maximum plf load from one side (the right side in this case).
 $Max. Side Load = (18' / 2) \times (40 + 10 psf) = 450 plf$
- Go to the Multiple Member Connection Table, Side-Loaded Applications, 1 3/4" VERSA-LAM®, 3 members
- The proper connection schedule must have a capacity greater than the max. side load:

Nailed: 3 rows 16d sinks @ 12" o.c.
525 plf is greater than 450 plf **OK**
Bolts: 1/2" diameter 2 rows @ 12" staggered:
755 plf is greater than 450 plf **OK**

TOP-LOADED APPLICATIONS

For top-loaded beams and beams with side loads with less than those shown:			
Ply	Depth	Nailing	Maximum Uniform Load from One Side
(2) 1 3/4" plies	Depth 11 7/8" & less	2 rows 16d box/sinker nails @ 12" o.c.	400 plf
	Depth 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) 1 3/4" plies ⁽²⁾	Depth 11 7/8" & less	2 rows 16d box/sinker nails @ 12" o.c.	300 plf
	Depth 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) 1 3/4" plies	Depth 18" & less	2 rows 1/2" bolts @ 24" o.c., staggered	335 plf
	Depth = 24"	3 rows 1/2" bolts @ 24" o.c., staggered every 8"	505 plf
(2) 3 1/2" plies	Depth 18" & less	2 rows 1/2" bolts @ 24" o.c., staggered	855 plf
	Depth 20" - 24"	3 rows 1/2" bolts @ 24" o.c., staggered every 8"	1285 plf

- Beams wider than 7" must be designed by the engineer of record.
- 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.
- Use allowable load tables or BC CALC® software to size beams.
- An equivalent specific gravity of 0.5 may be used when designing specific connections with VERSA-LAM®.
- Connection values are based upon the 1997 NDS.
- Contact Boise EWP Engineering for information on structural screw connections.

Understanding Floor Performance

To improve the performance of a floor system, a designer must evaluate appropriate deflection criteria to the builder's expectations. By reducing the on-center spacing of the joist, the load capacity of the joist system will be increased but the "feel" of the floor system will not be significantly changed. On the other hand, **the stiffness of the floor system** is significantly

increased and the vibrations reduced by increasing the joist depth. See BCI® residential floor span tables.

The performance of a floor is a matter of opinion. The "feel" that might be acceptable to one person may not be acceptable to another. The following factors affect the floor performance and need to be discussed with the builder and/or homeowner.

Meeting Customer Expectations

- | | |
|---------------------------------|--|
| ▶ Joist depth | ▶ On-center spacing of joist system |
| ▶ Continuous or simple spans | ▶ Lack of drywall attached to underside of joist |
| ▶ Decking and flooring material | ▶ Level bearings |
| ▶ Gluing and nailing decking | ▶ Location of walls and furniture |

Call on Boise for Support

All Included

- | | |
|--|---|
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| ▶ Effective and comprehensive sales/technical literature | ▶ Training for you and your builder customers |
| ▶ Easy to use design software | ▶ Aggressive advertising and promotion programs |



SUSTAINABLE
FORESTRY
INITIATIVE™

Boise embraces the American Forest and Paper Association's Sustainable Forestry Initiative (SFI). Additionally, Boise has established its own Forest Stewardship Advisory Council of nationally known conservation experts and has retained PricewaterhouseCoopers, an internationally known business advisory firm, to provide an independent audit of our timberlands.

For information about Boise's engineered wood products, including sales terms and conditions, warranties and disclaimers, visit our website at

www.BoiseBuilding.com/EWP

PRODUCT WARRANTY

Boise 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.

To locate your nearest Boise Engineered Wood Products distributor,
call 1-800-232-0788