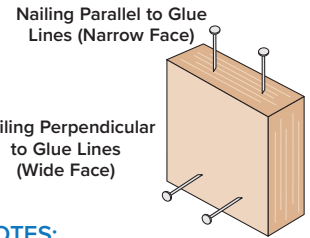


Nail Size	Nailing Parallel to Glue Lines (Narrow Face) <sup>(1) (2)</sup>											Nailing Perpendicular to Glue Lines (Wide Face)	
	Eastern Products					Western Products						All Products	
	Versa-Lam® 1¾"		Versa-Lam® 3½" & Wider			Versa-Lam® 1⅝"		Versa-Lam® 1¾"		Versa-Lam® 3½" & Wider			
	O.C. [inches]	End [inches]	O.C. [inches]	End [inches]	O.C. [inches]	End [inches]	O.C. [inches]	End [inches]	O.C. [inches]	End [inches]			
2½" (8d) Box	4	4	4	4	3	1½	2	1	2	½	2	½	
2½" (8d) Common	4	4	4	4	3	2	3	2	2	1	2	1	
3" (10d) & 3¼" (12d) Box	4	4	4	4	3	2	3	2	2	1	2	1	
3½" (16d) Box	4	4	4	4	3	2	3	2	2	1	2	1	
3" (10d) & 3¼" (12d) common	4	4	4	4	4	3	4	3	2	2	2	2	
3½" (16d) Sinker	4	4	4	4	4	3	4	3	2	2	2	2	
3½" (16d) Common	8	8	8	8	6	4	6	3	2	2	2	2	



**NOTES:**

- 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).
- Offset and stagger nail rows from floor sheathing and wall sole plate.

## Versa-Stud® & Versa-Lam® Column Details

### Multiple Ply Stud Connections

Staggered rows

9"

**NOTE:**  
The number of rows of fasteners should be as follows:

Stud/column depth	Rows of fasteners (staggered)
3½"	1
5½"	2
7¼"	2
9¼"	3
9½"	3
11¼"	3
11⅞"	3
14"	4

Thickness (in)	Number of plies	Fastener type	Fastener diameter (in)	Fastener length (in)	Min. end distance (in)	Min. edge distance (in)	
1¾"	2	Common Nail 3½" (16d)	0.162	3½	4.0	2.0	
		SDW 22338	0.220	3⅝			
		3⅝" TrussLok	0.228	3⅝			
		SDS ¼ x 3½	0.250	3½			
	3	Common Nail 5" (40d)	0.225	5			
		5" TrussLok	0.228	5			
		SDW 22500	0.220	5			
		4	½" dia. Bolts	0.500			7
			SDW 22634	0.220			6¾
			6¾" TrussLok	0.228			6¾
		SDS ¼ x 6 (on both sides)	0.250	6			

### Column to Top Plate

Double top plate

Framing angles for lateral support

Versa-Lam® Column

Trimmer Stud(s)

### Column to Bottom Plate

Versa-Lam® Column

Sole plate

Trimmer Stud(s)

Rimboard

Framing angles for lateral support

Blocking panel, per design professional of record

Sill Plate

Squash blocks required if column/trimmers do not extend to sill plate. Use same connections as column above.

### Header to Column

Versa-Lam® Column

Plate size to equal wall thickness

Framing angles for lateral support

Rotated Versa-Lam® Header

Versa-Lam® Header

Trimmer(s) for vertical support

## Versa-Stud® Allowable Holes and Notches

### Prescriptive Provisions

Hole Edge Distance  
Min. of ⅝"

**Max. Hole Diameter**  
 1½" x 3½" = 1⅜"  
 1½" x 5½" = 2⅛"  
 1½" x 7¼" & deeper = 2⅞"  
 (1) max. dia hole allowed per stud, located at any location along stud length. DO NOT cut hole and notch at same location.

**Max. Notch Depth**  
 1½" x 3½" = 7/8"  
 1½" x 5½" = 1⅜"  
 1½" x 7¼" & deeper = 1¾"

**Max. Notch Height**  
= 3"

(1) notch allowed per stud. DO NOT cut notch and hole at same location.

### Engineered Design Provisions

**Allowable Hole Zone**

- Middle ⅓<sup>rd</sup> of stud
- No holes within 8" of top or bottom

**Max. Hole Diameter**  
 1½" x 3½" = ¾"  
 1½" x 5½" = 1"  
 1½" x 7¼" & deeper = 1¼"

Notes:

- DO NOT drill more than 3 holes in any 4-foot-long section of stud.
- The vertical distance between adjacent holes must be at least 2 times the size of the larger hole
- Holes no greater than 3/4" dia may be cut in the hole zone shown in VERSA-LAM® columns.
- For notches and larger holes, contact Boise Cascade EWP Engineering.

<p><b>B01</b> Bearing at concrete/masonry walls</p>	<p><b>B02</b> Bearing for door or window header</p>	<p><b>B03</b> Beam to beam connector</p>
<p><b>B04</b> Bearing at column</p>	<p><b>B06</b> Slope seat cut</p>	<p><b>B07</b> Bevel cut</p>
<p><b>B08</b> Beam to concrete/masonry walls</p>	<p><b>B09</b> Bearing framing into wall</p>	<p><b>DO NOT</b> drill, notch, cut or alter Versa-Lam® beams</p>

**NOTES**

- Minimum of 1/2" 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 and bottom 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
5 1/2"	3/4"
7 1/4"	1"
Greater than 7 1/4"	2"

6. These limitations apply to holes drilled for plumbing or wiring access only. The size and location of holes drilled for fasteners are under the regulations of the CSA O86-14 Engineering Design in Wood.
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.

Rows	Depth Range	Spacing				
			3 1/2" (2 plies)	5 1/4" (3 plies)	5 1/4" (2 plies)	7" (3 plies)
			Maximum Factored <b>Uniform Load (PLF)</b> Applied to Either Outside Member			
			<b>3.5" Common Wire Nails (16d)</b>			
2	7 1/4" to 18"	24"	434	325	325	289
		12"	867	650	650	578
		6"	1734	1301	1301	1156
3	11 7/8" to 24"	24"	650	488	488	434
		12"	1301	976	976	867
		6"	2602	1951	1951	1734
4	14" to 24"	24"	867	650	650	578
		12"	1734	1301	1301	1156
		6"	3469	2602	2602	2312

Rows	Depth Range	Spacing				
			3 1/2" (2 plies)	5 1/4" (3 plies)	7" (2 plies)	7" (4 plies)
			Maximum Factored <b>Uniform Load (PLF)</b> Applied to Either Outside Member			
			SDW22338	SDW22500	SDW22634	SDW22634
2	7 1/4" to 18"	24"	680	623	1140	553
		12"	1360	1245	2280	1107
		6"	2720	2490	4560	2213
3	11 7/8" to 24"	24"	1020	934	1710	830
		12"	2040	1868	3420	1660
		6"	4080	3735	6840	3320
4	14" to 24"	24"	1360	1245	2280	1107
		12"	2720	2490	4560	2213
		6"	5440	4980	9120	4427

Rows	Depth Range	Spacing				
			3 1/2" (2 plies)	5 1/4" (3 plies)	7" (2 plies)	7" (4 plies)
			Maximum Factored <b>Uniform Load (PLF)</b> Applied to Either Outside Member			
			SDS 1/4"x3.5"	SDS 1/4"x3.5"	SDS 1/4"x6"	SDS 1/4"x6"
2	7 1/4" to 18"	24"	610	458	610	520
		12"	1220	915	1220	1040
		6"	2440	1830	2440	2080
3	11 7/8" to 24"	24"	915	686	915	780
		12"	1830	1373	1830	1560
		6"	3660	2745	3660	3120
4	14" to 24"	24"	1220	915	1220	1040
		12"	2440	1830	2440	2080
		6"	4880	3660	4880	4160

Rows	Depth Range	Spacing				
			3 1/2" (2 plies)	5 1/4" (3 plies)	7" (2 plies)	7" (4 plies)
			Maximum Factored <b>Uniform Load (PLF)</b> Applied to Either Outside Member			
			3/8" TrussLok	5" TrussLok	6 3/4" TrussLok	6 3/4" TrussLok
2	7 1/4" to 18"	24"	864	675	849	600
		12"	1,728	1,350	1,698	1,200
		6"	3,456	2,700	3,396	2,400
3	11 7/8" to 24"	24"	1,296	1,013	1,274	900
		12"	2,592	2,025	2,547	1,800
		6"	5,184	4,050	5,094	3,600
4	14" to 24"	24"	1,728	1,350	1,698	1,200
		12"	3,456	2,700	3,396	2,400
		6"	6,912	5,400	6,792	4,800

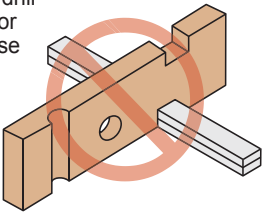
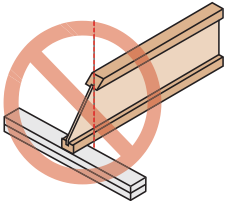
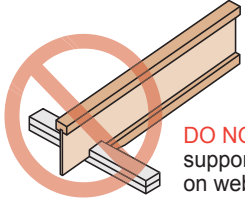
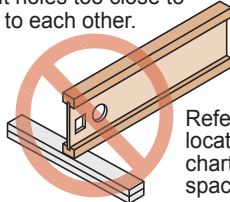
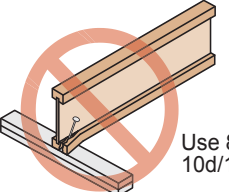
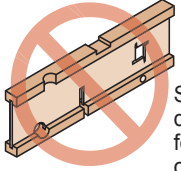
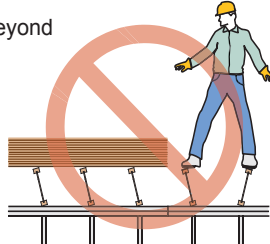
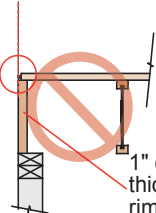
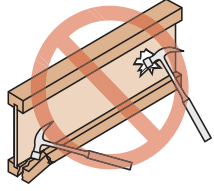
Rows	Depth Range	Spacing						
			3 1/2" (2 plies)	5 1/4" (3 plies)	5 1/4" (2 plies)	7" (3 plies)	7" (2 plies)	7" (4 plies)
			Maximum Factored <b>Uniform Load (PLF)</b> Applied to Either Outside Member					
			<b>1/2" Bolts</b>					
2	7 1/4" to 11 7/8"	12"	1560	1170	1755	1560	3120	1040
		6"	3120	2340	3510	3120	6240	2080
3	11 7/8" to 24"	12"	2340	1755	2632	2340	4680	1560
		6"	4680	3510	5265	4680	9360	3120

**NOTES**

- Design values apply to common bolts that conform to ASTM A307 Grades A&B, SAE J429 Grades 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 minimum edge distance for SDS/TrussLok screws and bolts shall be 2". The minimum end distance for SDS/TrussLok screws and bolts shall be 4", except for SDW screws where the end distance should not be less than 6". Bolt holes shall not be greater than 1/16 of the bolt diameter.
- When 3 1/4" sinker nails (16d) are used, multiply the maximum factored uniform load for the 3.5" common wire nails by 0.87 factor.
- When 3 1/4" pneumatic gun nails 0.122" diameter (10d) are used, multiply the maximum factored uniform load for the 3.5" common wire nails by 0.61 factor.
- The nail schedules shown apply to both sides of a 3-member beam.
- 4-ply beams must be loaded from both sides. Lesser side shall be no less than 25% of the opposite side.
- Beams wider than 7" must be designed by the professional engineer of record.
- An equivalent specific gravity of 0.5 may be used when designing specific connections with Versa-Lam. Connection design is based on CSA O86-14.
- Refer to current technical literature from FastenMaster TrussLok and Simpson Strong-Tie to confirm information herein has not been superseded.
- Other fasteners may also be used to connect multiple Versa-Lam beams. Contact Boise Cascade EWP Engineering for further information.

# WARNING

## THE FOLLOWING USES ARE NOT ALLOWED

<p><b>DO NOT</b> notch or drill beams without prior approval from Boise Cascade EWP Engineering.</p> 	<p><b>DO NOT</b> cut beyond inside edge of bearing.</p> 	<p><b>DO NOT</b> support joist on web.</p> 
<p><b>DO NOT</b> cut holes too close to supports or to each other.</p>  <p>Refer to hole location and sizing chart for size and spacing.</p>	<p><b>DO NOT</b> nail closer than 1 1/2" from end of joist.</p> <p><b>DO NOT</b> use 16d common nails.</p>  <p>Use 8d nails or 10d/16d box nails.</p>	<p><b>DO NOT</b> cut or notch flange.</p>  <p>See roof and floor details, this sheet, for allowed cutting of flange.</p>
<p><b>DO NOT</b> walk on joist until proper bracing is in place.</p> <p><b>DO NOT</b> load joist beyond design capacity.</p> <p><b>DO NOT</b> stack building materials on unbraced joists.</p> 	<p><b>DO NOT</b> install tongue of floor sheathing flush with either 1" or 1 1/16" thick Boise Cascade rimboard (tongue OK with 1 1/8" and thicker Boise Cascade rimboard).</p>  <p>1" or 1 1/16" thick Boise rimboard</p> <p>T&amp;G Floor Sheathing</p> <p>Trim tongue of 1 1/8" sheathing regardless of rimboard thickness.</p> <p>Trim tongue flush with rim.</p>	<p><b>DO NOT</b> hammer on web unless removing knockout holes.</p>  <p><b>DO NOT</b> hammer on flange.</p>

### SAFETY WARNING

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

- Build a braced end wall at the end of the bay, or permanently install the first eight feet of BCI® Joists and the first course of sheathing. As an alternate, temporary sheathing may be nailed to the first four feet of BCI® Joists at the end of the bay.
- All hangers, BCI® rim joists, rim boards, BCI® blocking panels, and x-bracing must be completely installed and properly nailed as each BCI® Joist is set.
- Install temporary 1x4 strut lines at no more than eight feet on center as additional BCI® Joists are set. Nail the strut lines to the sheathed area, or braced end wall, and to each BCI® Joist with two 8d nails.
- The ends of cantilevers must be temporarily secured by strut lines

### PRODUCT HANDLING TO AND AT JOB SITES

There are some differences between engineered wood products and traditional lumber products in terms of product handling: Avoid handling and storing BCI® joists in the flat direction. Versa-Lam® is heavier than solid sawn timber. Please consider these differences when transporting and handling engineered wood products.

- on both the top and bottom flanges.
- Straighten the BCI® Joists to within 1/2 inch of true alignment before attaching strut lines and sheathing.
- Remove the temporary strut lines only as required to install the permanent sheathing.
- Failure to install temporary bracing may result in sideways buckling or roll-over under light construction loads.
- Do not stack construction materials (sheathing, drywall, etc.) in the middle of BCI® Joist spans, contact Boise Cascade EWP Engineering for proper storage and shoring information.

### Lifetime Guaranteed Quality and Performance

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

**Boise Cascade has not evaluated the effects of any pressure or topical applications or treatments on its BCI® Joist, Versa-Lam®, and ALLJOIST® products.**

For information about Boise Cascade's engineered wood products, including sales terms and conditions, warranties and disclaimers, [visit our website at www.BC.com/ewp](http://www.BC.com/ewp)

To locate your nearest Boise Cascade Engineered Wood Products distributor, call **1-800-964-6999**