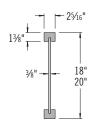
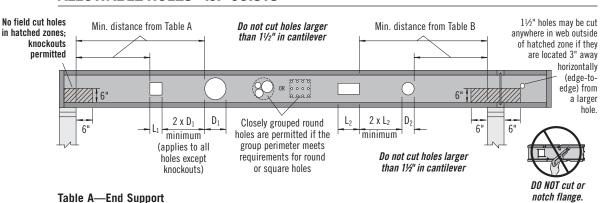


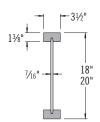
# DEEP DEPTH TRUS JOIST® TJI® 360, 560, & 560D JOIST INSTALLATION GUIDE

#### **ALLOWABLE HOLES—TJI® JOISTS**

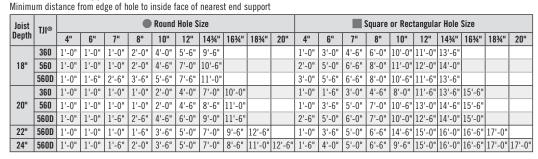


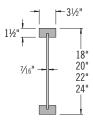
**TJI® 360 JOIST** 





TJI® 560 JOIST





TJI® 560D JOIST

#### Table B-Intermediate or Cantilever Support

Minimum distance from edge of hole to inside face of nearest intermediate or cantilever support

	minimum distance from suge of fisher to mode face of fisher face of such fisher of support																				
Joist	TJI®					Round	Hole S	ize							Square	or Rec	tangula	r Hole	Size		
Depth	','	4"	6"	7"	8"	10"	12"	14¾"	16¾"	18¾"	20"	4" 6" 7" 8" 10" 12" 14¾"					16¾"	18¾"	20"		
	360	1'-0"	1'-0"	1'-6"	3'-0"	6'-0"	9'-0"	14'-6"				1'-0"	4'-0"	6'-6"	9'-0"	14'-6"	16'-6"	19'-0"			
18"	560	1'-0"	1'-0"	1'-0"	2'-0"	6'-0"	10'-0"	15'-6"				1'-0"	6'-0"	8'-6"	11'-6"	16'-6"	18'-0"	19'-6"			
	560D	1'-0"	1'-0"	2'-6"	4'-6"	7'-6"	11'-0"	16'-6"				3'-0"	7'-6"	9'-6"	11'-6"	16'-0"	17'-0"	19'-0"			
	360	1'-0"	1'-0"	1'-0"	1'-0"	3'-0"	6'-0"	11'-0"	15'-0"			1'-0"	1'-6"	4'-0"	7'-0"	12'-6"	16'-6"	19'-0"	20'-6"		
20"	560	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	5'-6"	11'-6"	15'-6"			1'-0"	3'-0"	6'-0"	8'-6"	14'-0"	17'-6"	19'-0"	20'-6"		
	560D	1'-0"	1'-0"	1'-0"	1'-0"	4'-6"	8'-6"	13'-6"	17'-0"			1'-0"	5'-6"	8'-0"	10'-0"	15'-0"	18'-0"	19'-6"	20'-6"		
22"	560D	1'-0"	2'-6"	3'-6"	4'-6"	6'-6"	8'-0"	11'-0"	14'-6"	17'-6"		3'-6"	6'-6"	8'-6"	10'-0"	19'-0"	20'-0"	21'-0"	21'-6"	22'-0"	
24"	560D	2'-6"	4'-0"	5'-0"	5'-6"	7'-0"	8'-6"	11'-0"	13'-6"	16'-0"	17'-6"	5'-0"	7'-6"	9'-0"	10'-6"	14'-0"	20'-0"	21'-0"	21'-6"	22'-0"	22'-0"

TJI® joists and products in this guide are intended for dry-use applications.

- Leave 1/8" of web (minimum) at top and bottom of hole. **DO NOT cut or notch joist flanges.**
- Tables are based on maximum uniform load tables in current design literature.
- For simple span (5' minimum), uniformly loaded joists used in residential applications, one maximum size round hole may be located at the center of the joist span provided that no other holes occur in the joist.
- Knockouts are located in web at approximately 12" on-center; they do not affect hole placement.

#### IMPORTANT: PLEASE READ CAREFULLY!

#### WARNING: JOISTS ARE UNSTABLE UNTIL BRACED LATERALLY

BRACING INCLUDES: Blocking, Hangers, Rim Board, Sheathing, Rim Joist, Strut Lines



**DO NOT** walk on joists until braced. **INJURY MAY RESULT.** 



**DO NOT** stack building materials on unsheathed joists. Stack only over beams or walls.



**DO NOT** walk on joists that are lying flat.

Lack of proper bracing during construction can result in serious accidents. Observe the following guidelines:

- 1. Properly install all blocking, hangers, rim boards, and rim joists at  ${\rm TJI}^{\oplus}$  joist end supports.
- Establish a permanent deck (sheathing), fastened to the first 4 feet of joists at the end of the bay or braced end wall.
- Safety bracing of 1x4 (minimum) must be nailed to a braced end wall or sheathed area and to each joist.
- Sheathing must be completely attached to each TJI® joist before additional loads can be placed on the system.
- $\textbf{5.} \ \, \textbf{Ends of cantilevers require safety bracing on both the top and bottom flanges} \\$
- 6. The flanges must remain straight within 1/2" from true alignment.

#### La Seguridad Ante Todo

#### ADVERTENCIA

Por Favor Lea Cuidadosamente

- Las viguetas son inestables hasta que sean reforzadas lateralmente. Vea la guía de instalaciones antes de instalar las viguetas TJI®.
   No camine sobre las viguetas hasta que sean apuntaladas.
- no camine soore las viguetas nasta que sean apuntanaas.
   No ponga materiales de construcción sobre las viguetas TJI® antes de instalar el triplay. Ponga materials únicamente sobre vigas o muros.

La Sécurité Avant Tout

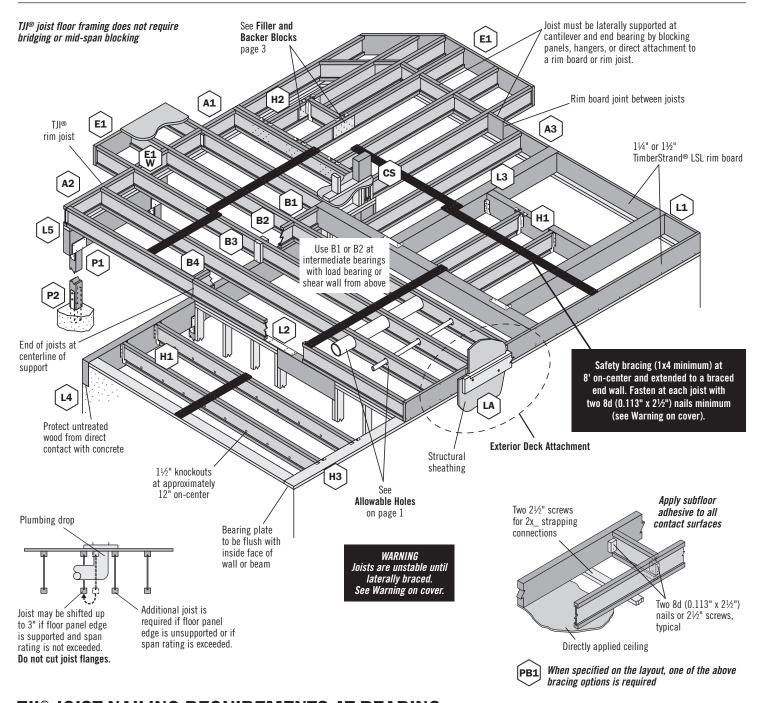
#### **AVERTISSEMENT**

Lire Attentivement

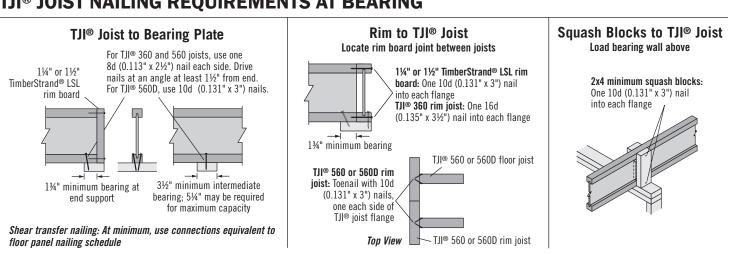
- Les solives non contreventées latéralement sont instables. Voir le guide d'installation avant la pose des solives TJI<sup>®</sup>.
- Ne pas circuler sur les solives TJI® avant qu'elles ne soient adéquatement contreventées. Risque de blessure.
- Ne pas empilées des matériaux sur des solives avant d'avoir installé les sousplancher. Les entreposer temporairement au-dessus des poutres et murs.

**A** Weyerhaeuser

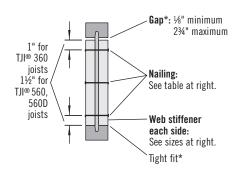
#### TJI® JOIST FLOOR FRAMING



# TJI® JOIST NAILING REQUIREMENTS AT BEARING



#### **WEB STIFFENERS**



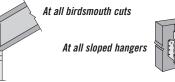
\* With a point load from above and no support below, install web stiffener tight to top flange (gap at bottom flange)

#### **Web Stiffener Requirements**

		Min. Web	Nailing Requirements					
TJI®	Depth (in.)	Stiffener	Tuno	# of Nails				
	(111.)	Size	Туре	End	Int.			
360	All	16" x 25/16"(1) //3 x 25/16"(1)	8d (0.113" x 2½")	3	3			
560	All	2x4 <sup>(2)</sup>	16d (0.135" x 3½")	٦	3	3		
	18"			4	4			
560D	20"	2x4 <sup>(2)</sup>	16d (0.135" x 3½")	5	5			
3000	22"(3)	ZX4 <sup>\c)</sup>	100 (0.133 \$ 372 )	6	11			
	24"(3)			6	13			

- (1) PS1 or PS2 sheathing, face grain vertical
- (2) Construction grade or better
- (3) Web stiffeners are always required for 22" and 24" TJI® 560D joists

Web stiffeners are always required for 22" and 24" TJI® 560D joists, AND when the following conditions occur:



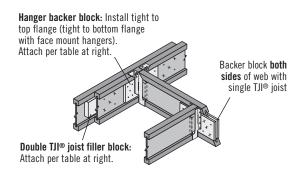
If the sides of the hanger do not extend to laterally support at least %" of the TJI® joist top flange





When intermediate bearing lengths are less than 5½" except where noted on framing plan

#### FILLER AND BACKER BLOCKS





With top mount hangers, backer block required only for downward loads exceeding 250 lbs or for uplift conditions

#### Filler and Backer Block Sizes(1)

TJI®	Depth	Туре	Filler/Backer	Nail <sup>(2)</sup>		
1,11-	Бериі	Турс	Size	Size	Quantity	
360 18"-20	10" 20"	Filler(3)	2x12 + ½" sheathing	(0.131'' x 3'')	15	
	10 -20	Backer	7⁄8" or 1" net	(0.131'' x 3'')	15	
560	18"-20"	Filler(3)	Two 2x12	(0.131'' x 3½'')	32	
300	10 -20	Backer	2x12	(0.131"x 3")	15	
ECUD	22"-24"	Filler(3)	Four ¾" x 15" sheathing	(0.131'' x 3½'')	50	
560D	22 –24	Backer	Two ¾" x 15" sheathing	(0.131'' x 3'')	15	

- If necessary, increase filler and backer block height for face mount hangers and maintain 1/4" gap at top of
  joist. See detail W on page 3. Filler and backer block dimensions should accommodate required nailing without
  splitting. The suggested minimum length is 24" for filler and 12" for backer blocks.
- (2) Clinch nails when possible.
- (3) For filler block connections, drive nails from alternating sides.

#### RIM BOARD

#### 2x\_ stud wall at 16" on-center Plate nail Floor panel nail Rim board to When panel TJI® joist thickness exceeds 1/8" 1¼" or 1½" trim sheathing TimberStrand® LSL tongue at rim rim board board Toe nail TJI® joist spanning Rim board to in either direction TJI® joist TJI® joist to plate Web stiffener required on both sides at A3W ONLY

A3 At a minimum, attach TimberStrand® LSL rim board to bearing plate with connections equivalent to decking schedule.

#### **Javelin® Software Framing Plans**



At A1, joists require full bearing width. At A2 and A3, joists require full bearing width minus rim board or rim joist thickness.



Web stiffeners required on each side of joist at intermediate bearings. Refer to your Javelin® framing plan.

Bearing requirements as shown on the Javelin® framing plan are job specific and supersede minimum bearing requirements listed.

#### **FASTENER SPACING**

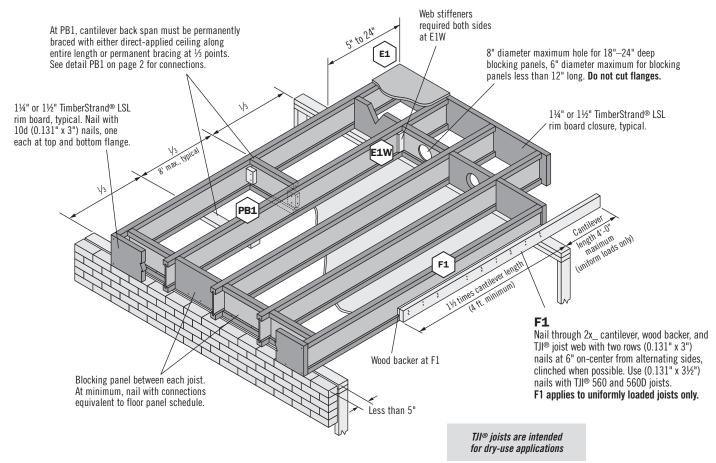
#### Fastenings into TJI® Joist Flanges (Wide Face) and TimberStrand® LSL Rim Board (Edge)

	Closest (	On-Center Spacing	per Row
Nail Size	TJI® 360, 560	TimberStrand®	LSL Rim Board
	and 560D(1)(2)	1¼"	1½"
8d (0.113" x 2½"), 8d (0.131" x 2½") 10d (0.128" x 3"), 12d (0.128" x 3¼")	3"	4"	3"
10d (0.148" x 3"), 12d (0.148" x 3¼"), 16d (0.135 x 3½")	4"(3)	4"	3"
16d (0.162" x 3½")	6"	6"(4)	6"(4)
(0.131 x 3"-3½")	3"	4"	3"

- (1) Stagger nails when using 4" on-center spacing and maintain %" joist and panel edge distance. One row of fasteners is permitted (two at abutting panel edges) for diaphragms. Fastener spacing for TJI® joists in diaphragm applications cannot be less than shown in table. When fastener spacing for blocking is less than spacing shown above, rectangular blocking must be used in lieu of TJI® joists.
- (2) For non-diaphragm applications, multiple rows of fasteners are permitted if the rows are offset at least ½" and staggered.
- (3) Can be reduced to 3" on-center for light gauge steel straps with 10d (0.148" x 1½") nails.
- (4) Can be reduced to 4" on-center if nail penetration into the narrow edge is no more than  $1\frac{1}{4}$ " (to avoid splitting).

#### **General Notes**

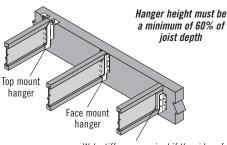
- Maximum spacing of nails is 18" on-center for TJI® joists.
- 14 ga. staples may be substituted for 8d (0.113" x 2½") nails if minimum penetration of 1" into the TJI® joist or rim board is achieved.
- Table also applies for the attachment of TJI® rim joists and blocking panels to the wall plate.
- Weyerhaeuser recommends using a subfloor adhesive that has been qualified as a Class 1/8 in., Type P/O subfloor adhesive in accordance with ASTM D3498-12.



#### FRAMING CONNECTORS

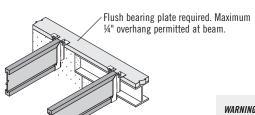
#### **Approved Hangers**

- The following manufacturers are approved to supply hangers for Trus Joist® products:
- Simpson Strong-Tie Co. Inc.: 1-800-999-5099
- Mitek, Inc.: 1-800-328-5934
- Hanger design loads differ by support type and may exceed the capacity of the support and/or supported member. Contact your Weyerhaeuser representative or refer to Weyerhaeuser software.





Web stiffeners required if the sides of the hanger do not laterally support at least 3/8" of the TJI® joist top flange



#### **Nailing Requirements**

- Fill all round, dimple, and positive angle holes with the proper nails. Hanger nails are usually a heavier gauge because of the higher loads they need to carry.
- Unless specified otherwise, full capacity of straps or connectors can only be achieved if the following nail penetration is provided:

	Face Mount	Top Mount
10d (0.148" x 1½")	1½" minimum	1½" minimum
10d (0.148" x 3")	1½" minimum, clinched	3" minimum
16d (0.162" x 3½")	1¾" minimum, clinched	3½" minimum

■ Top mount hangers should be fastened to TJI® joist headers with 10d (0.148" x 1½") nails. Fasten face mount hangers to 3½" or wider TJI® joist headers with 10d (0.148" x 3") or 16d (0.162" x 3½") nails.

#### **Connector Installation and Squeak Prevention Tips**

- Nails must be completely set.
- Leave 1/16" clearance between the member and the support member or hanger.
- Joist to beam connections require hangers; do not toenail.
- Install the supported member tight to the bottom of the hanger. Reduce squeaks by adding subfloor adhesive to the hanger seat.
- On Simpson Strong-Tie® VPA connectors, bend the bottom flange tabs over and nail to TJI® joist bottom flange.



WARNING: This product can expose you to chemicals including wood dust which are known to the State of California to cause cancer, and methanol, which are known to the State of California to cause birth defects or other reproductive harm. Drilling, sawing, sanding or machining wood products can expose you to wood dust. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to www.P65Warnings.ca.gov and www.P65Warnings.ca.gov/wood.

#### **MULTIPLE-MEMBER BEAMS**

#### **Multiple-Member Connections for Top-Loaded Beams**

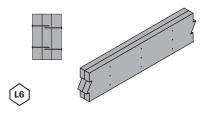
Load must be applied evenly across entire beam width. Otherwise, use connections for side-loaded beams.

Piece	# of	Fastener							
Width	Plies	Type <sup>(1)</sup>	Min. Length	Placement	# Rows	O.C. Spacing			
		10d nails	3"		3(2)	12"			
	2	12d-16d nails	31/4"	One face	2(2)	12			
		Screws	33/8" or 31/2"		2	24"			
		10d nails	3"	Both faces	3(2)	12"			
	3	12d-16d nails	31/4"	DULII IACES	1aces 2 <sup>(2)</sup>	12			
1¾"	3	Screws	33/8" or 31/2"	Both faces	2	24"			
		Sciews	5"	One face		24			
		10d nails <sup>(3)</sup>	3"	One face	3(2)	12"			
	4	12d-16d nails(3)	31/4"	(per ply)	2(2)	12			
	4	Screws	5" or 6"	Both faces	2	24"			
		Sciews	6¾"	One face	] 2	24			
		Screws	5" or 6"	Both faces	2	24"			
3½"	2	Sciews	6¾"	One face		24			
		½" bolts	8"	-	2	24"			

- 10d nails are 0.128"-0.131" diameter; 12d-16d nails are 0.148"-0.162" diameter; screws are SDS, WS, or SDW22.
- (2) An additional row of nails is required with depths of 14" or greater.
- (3) When connecting 4-ply members, nail each ply to the other and offset nail rows by 2" from rows in the ply below.

When fasteners are required on both sides, stagger fasteners on the second side so they fall halfway between fasteners on the first side.

Bearing length is extremely critical and must be considered for each application. See your Javelin® framing plan.



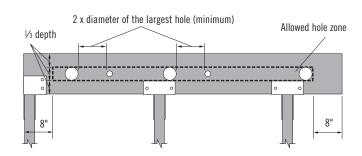
Multiple pieces can be nailed or bolted together to form a header or beam of the required size, up to a maximum width of 7"

#### Multiple-Member Connections for Side-Loaded Beams

 Additional nailing or bolting may be required with side-loaded multiple-member beams. Refer to current product literature.

### ALLOWABLE HOLES—BEAMS, HEADERS, AND WALL STUDS

#### 1.55E TimberStrand® LSL Headers and Beams



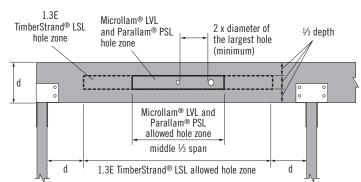
- Allowed hole zone suitable for headers and beams with uniform and/or concentrated loads anywhere along the member.
- Round holes only.
- No holes in headers or beams in plank orientation.

#### 1.55E TimberStrand® LSL

Header or Beam Depth	Max. Round Hole Size
9½"	3"
111%"	35/8"
14"-16"	45/8"

■ See allowed hole zone above.

#### Other Trus Joist® Headers and Beams



- Allowed hole zone suitable for headers and beams with uniform loads only.
- No holes in cantilevers.
- Round holes only.
- No holes in headers or beams in plank orientation.

#### Other Trus Joist® Beams

Header or Beam Depth	Max. Round Hole Size
43/8"	1"
5½"	13/4"
7¼"–20"	2"

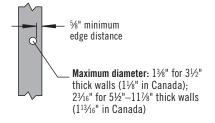
See allowed hole zone above.

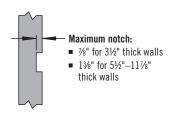


DO NOT cut, notch, or drill holes in headers or beams except as indicated in the illustrations and tables.

#### TimberStrand® LSL Wall Studs

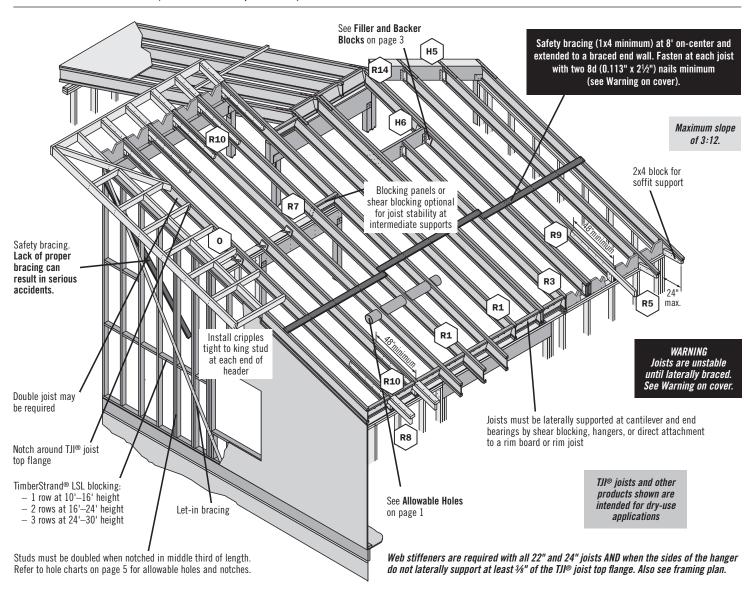
One notch may be cut anywhere except the middle ½ of the length of the stud or column. Holes may be drilled along the length of the stud or column but must be at least 5%" from the edge.







DO NOT cut a notch and a hole in the same cross section.



# TJI® JOIST NAILING REQUIREMENTS AT BEARING



End Bearing (1¾" minimum bearing required)



When slope exceeds 1/4:12, a beveled bearing plate, variable slope seat connector, or birdsmouth cut (at low end of joist only) is required.

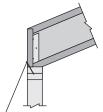
Intermediate Bearing (3½" minimum bearing required)



For TJI® 360 and 560 joists: Use 8d (0.113" x  $2^{1}$ /2") nails For TJI® 560D joists: Use (0.131" x 3") nails

When slope exceeds 14:12 for a 2x4 wall or 16:12 for a 2x6 wall, a beveled bearing plate or variable slope seat connector is required.

#### **Blocking to Bearing Plate**



1¼" or 1½" TimberStrand® LSL rim board: Toenail with (0.131" x 3") nails at 6" on-center TJI® joist blocking: (0.128" x 3") nails at 6" on-center Shear transfer nailing: Minimum, use connections equivalent to sheathing nail schedule

#### **These Conditions Are NOT Permitted:**



DO NOT cut holes too close to support. Refer to Allowable Holes on page 1 for minimum distance from support.



DO NOT bevel cut joist beyond inside face of wall.

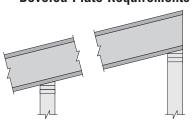


DO NOT overhang birdsmouth cut from inside face of plate. TJI® joist flange must bear fully on the plate.

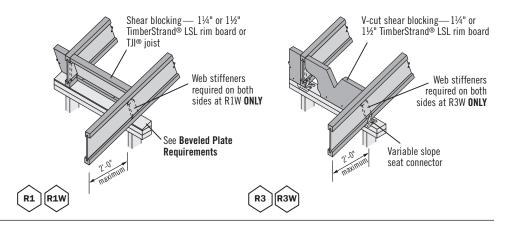


DO NOT overhang seat cuts on beams beyond inside face of support member



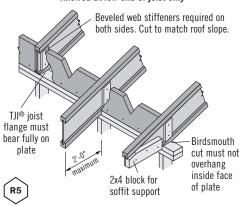


Required Bearing Length	Maximum Slope Without Beveled Plate
1¾"	1/2:12
3½"	1/4:12
5½"	1/8:12



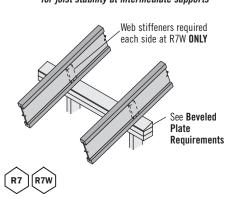
#### **Birdsmouth Cut**

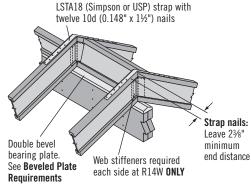
#### Allowed at low end of joist only



#### **Intermediate Bearing**

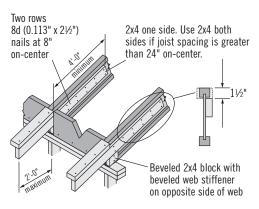
Blocking panels or shear blocking may be specified for joist stability at intermediate supports





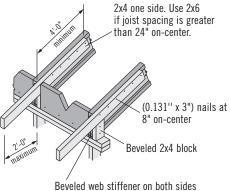


Additional blocking may be required for shear transfer



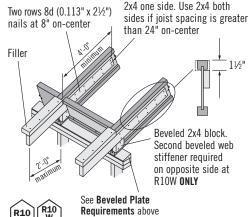


Birdsmouth cut allowed at low end of joist only



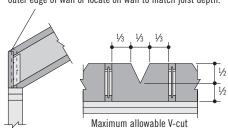


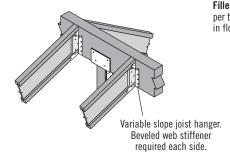
Birdsmouth cut allowed at low end of joist only



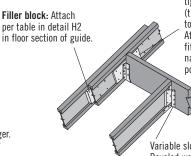
# Shear Blocking and Ventilation Holes (Roof Only)

1½" or 1½" TimberStrand® LSL rim board for shear blocking (between joists). Field trim to match joist depth at outer edge of wall or locate on wall to match joist depth.









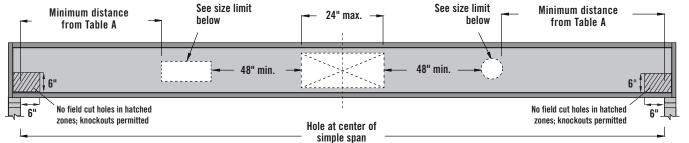
Backer block: Install tight to bottom flange (tight to top flange with top mount hangers). Attach with 15 10d fifteen (0.131" x 3") nails, clinched when possible.

Variable slope joist hanger. Beveled web stiffener required each side.



For filler and backer block sizes, see H2 table in floor section of guide.

## MAXIMUM MID-SPAN HOLE (TJI® 360 & 560 JOISTS)



#### **General Notes**

- Simple span, uniformly loaded joist only. Not for use for in applications that have code mandated concentrated load requirements.
- 24" maximum wide hole located at center of span, for a minimum 8' joist.
- Leave 1/8" of web (minimum) at top and bottom of hole.
- Two (2) additional holes may be added to the joist provided:
- Additional holes are a minimum of 48" (edge to edge) from middle hole.
- Rectangular: longest dimension is less than or equal to 0.65 x web depth.
- Circular: diameter is less than or equal 0.75 x web depth.
- Web depth (in.)= joist depth (in.) -2.75".
- See Table A for proper hole placement from end bearing for additional holes.

# MAXIMUM HOLE AT MID-SPAN FOR TJI® 360 AND TJI® 560 JOISTS

Depth of TJI	Maximum Hole at Mid-Span (height x length)				
Joist	TJI 360	TJI 560			
18"	13" x 24"	15" x 24"			
20"	15" x 24"	17" x 24"			

#### PRODUCT STORAGE

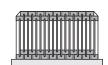
Protect products from sun and water.



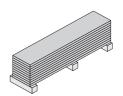
CAUTION: Wrap is slippery when wet or icy.

Align stickers (2x3 or larger) directly over support blocks.

Use support blocks (6x6 or larger) at 10' on-centre to keep products out of mud and water.



Store and handle TJI® joists in vertical orientation (wrapped)



Store and handle Parallam® PSL, Microllam® LVL, and TimberStrand® LSL in flat orientation (wrapped)

#### **OUR GUARANTEE**



Visit weyerhaeuser.com/woodproducts/warranty

for copies of this and other Trus Joist® Engineered Wood Product warranties.



#### **CONTACT US**

**1888.453.8358** • weyerhaeuser.com/woodproducts/contact

For conditions not shown in this guide, or other assistance, contact your Weyerhaeuser representative or call

1-888-453-8358

CODE EVALUATIONS, See				
TJI® Joists	ICC-ES ESR-1153			
TimberStrand® LSL	ICC-ES ESR-1387 CCMC 12627-R			
Parallam® PSL	ICC-ES ESR-1387 CCMC 11161-R			
Microllam® LVL	ICC-ES ESR-1387			
TimberStrand® LSL Rim Board	ICC-ES ESR-1153 CCRR 0222C			



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#### **BUILD SAFELY**

We at Weyerhaeuser are committed to working safely and want to remind you to do the same. We encourage you to follow the recommendations of OSHA (osha.gov) in the U.S. or provincial regulations (canoshweb.org/en/) in Canada regarding:

- Personal protective equipment (PPE) for hands, feet, head, and eyes
- Fall protection
- Use of pneumatic nailers and other hand tools
   Forklift safety
- Forklift safet

Please adhere to the Weyerhaeuser product installation details, including the installation of safety bracing on unsheathed floors and roofs.

#### Have a damaged joist or beam?

File a damage report online for prompt service from your regional technical office. Scan the QR code with your smartphone or go to weyerhaeuser.com/woodproducts/support

April 2023 · Reorder TJ-9006

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