



**TJI<sup>®</sup> s31**  
**TJI<sup>®</sup> s33**  
**TJI<sup>®</sup> s47**  
**Joists**

December 2016 • Reorder TJ-9510

# INSTALLATION GUIDE FOR FLOOR AND ROOF FRAMING



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



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



**WARNING:**  
**DO NOT** stack building materials on unbraced joists. Stack only over beams or walls.

**IMPORTANT: PLEASE READ CAREFULLY!**

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

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

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 TJI<sup>®</sup> joist end supports.
2. Establish a permanent deck (sheathing), fastened to the first 4 feet of joists at the end of the bay or braced end wall.
3. Safety bracing of 1x4 (minimum) must be nailed to a braced end wall or sheathed area and to each joist.
4. Sheathing must be completely attached to each TJI<sup>®</sup> joist before additional loads can be placed on the system.
5. 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.

*This guide is intended for the products shown in dry-use conditions.*

La Sécurité Avant Tout  
**AVERTISSEMENT**  
*Lire Attentionnement*

- 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<sup>®</sup> **avant** qu'elles ne soient adéquatement contreventées. Risque de blessure.
- Ne pas empilées des matériaux sur des solives avant d'avoir installé le sous-plancher. Les entreposer temporairement au-dessus des poutres et murs.

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<sup>®</sup>.
- No camine sobre las viguetas hasta que sean apuntaladas.
- No ponga materiales de construcción sobre las viguetas TJI<sup>®</sup> antes de instalar el triplay. Ponga materiales únicamente sobre vigas o muros.

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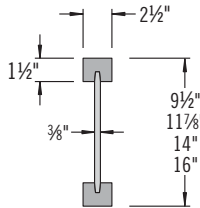
### BUILD SAFELY

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 provincial regulations ([www.canoshweb.org/en/](http://www.canoshweb.org/en/)) in Canada regarding:

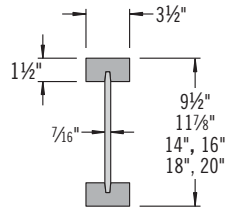
- Personal protective equipment (PPE) for hands, feet, head, and eyes
- Fall protection
- Use of pneumatic nailers and other hand tools
- Forklift safety

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

## PRODUCT IDENTIFICATION



TJI® s31 and s33 joists



TJI® s47 joists

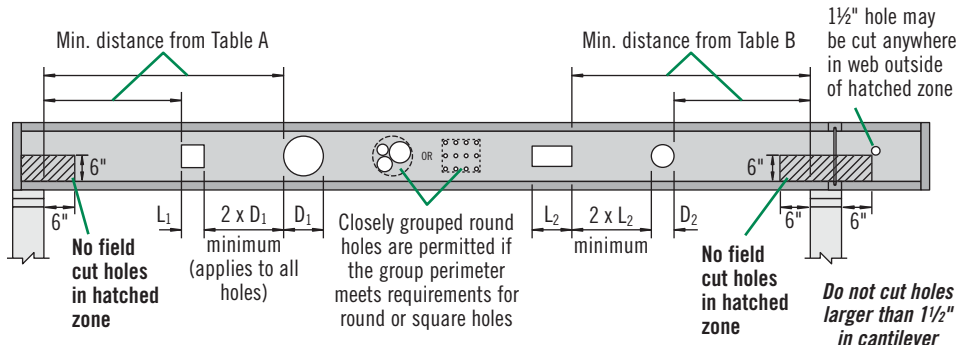
## ALLOWABLE HOLES—TJI® JOISTS



**DO NOT** cut holes in cantilever reinforcement.



**DO NOT** cut or notch flange.



**Table A—End Support**

Minimum distance from edge of hole to inside face of nearest end support

Joist Depth	TJI®	Round Hole Size									Square or Rectangular Hole Size								
		2"	3"	4"	6¼"	8½"	10¾"	12¾"	14¾"	16¾"	2"	3"	4"	6¼"	8½"	10¾"	12¾"	14¾"	16¾"
9½"	s31	1'-0"	2'-0"	2'-6"	5'-6"						1'-0"	1'-6"	2'-6"	4'-6"					
	s33	1'-6"	2'-6"	3'-0"	6'-0"						1'-0"	2'-0"	3'-0"	5'-0"					
	s47	1'-0"	1'-0"	2'-6"	6'-0"						1'-6"	2'-6"	3'-6"	5'-6"					
11½"	s31	1'-0"	1'-6"	1'-6"	3'-0"	6'-0"					1'-0"	1'-6"	2'-6"	4'-6"	6'-0"				
	s33	1'-0"	1'-6"	2'-6"	3'-6"	7'-0"					1'-0"	2'-0"	3'-0"	5'-6"	7'-0"				
	s47	1'-0"	1'-0"	2'-0"	4'-0"	7'-0"					2'-0"	3'-0"	3'-6"	6'-6"	7'-6"				
14"	s31	1'-0"	1'-0"	1'-0"	2'-0"	3'-0"	6'-0"				1'-0"	1'-6"	2'-0"	3'-6"	6'-0"	7'-6"			
	s33	1'-0"	1'-0"	1'-6"	2'-6"	4'-6"	8'-0"				1'-0"	1'-6"	2'-6"	4'-6"	7'-0"	8'-6"			
	s47	1'-0"	1'-0"	1'-0"	2'-6"	5'-0"	8'-6"				1'-0"	2'-0"	3'-0"	5'-6"	8'-6"	9'-6"			
16"	s31	1'-0"	1'-0"	1'-0"	1'-6"	2'-6"	3'-6"	6'-0"			1'-0"	1'-0"	1'-6"	3'-0"	6'-0"	7'-0"	9'-6"		
	s33	1'-0"	1'-0"	1'-0"	1'-6"	3'-6"	5'-0"	8'-0"			1'-0"	1'-0"	1'-6"	4'-0"	7'-0"	9'-0"	10'-6"		
	s47	1'-0"	1'-0"	1'-0"	1'-6"	3'-6"	5'-6"	9'-0"			1'-0"	1'-0"	2'-6"	4'-6"	8'-6"	10'-0"	11'-0"		
18"	s47	1'-0"	1'-0"	1'-0"	1'-0"	2'-0"	4'-0"	6'-0"	9'-6"		1'-0"	1'-0"	1'-0"	4'-0"	7'-0"	10'-6"	12'-0"	13'-6"	
20"	s47	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	2'-6"	4'-6"	6'-6"	10'-0"	1'-0"	1'-0"	1'-0"	2'-6"	6'-0"	10'-0"	11'-6"	13'-0"	14'-6"

**Table B—Intermediate or Cantilever Support**

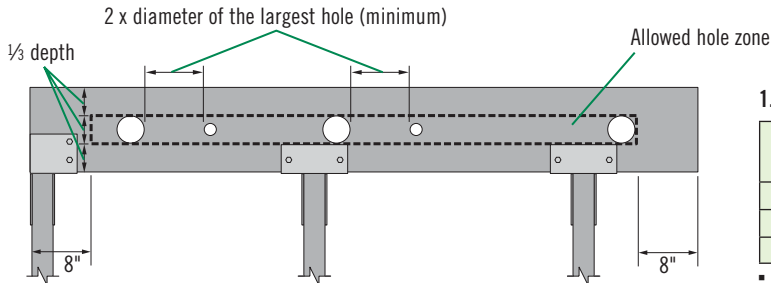
Minimum distance from edge of hole to inside face of nearest intermediate or cantilever support

Joist Depth	TJI®	Round Hole Size									Square or Rectangular Hole Size								
		2"	3"	4"	6¼"	8½"	10¾"	12¾"	14¾"	16¾"	2"	3"	4"	6¼"	8½"	10¾"	12¾"	14¾"	16¾"
9½"	s31	2'-0"	3'-0"	4'-0"	8'-6"						2'-0"	3'-0"	4'-0"	6'-6"					
	s33	2'-6"	3'-6"	5'-0"	9'-0"						2'-0"	3'-6"	4'-6"	7'-6"					
	s47	1'-6"	3'-0"	4'-6"	8'-6"						3'-0"	4'-6"	5'-6"	8'-0"					
11½"	s31	1'-6"	2'-0"	2'-6"	4'-6"	9'-0"					1'-6"	2'-6"	3'-6"	7'-0"	9'-0"				
	s33	2'-0"	3'-0"	3'-6"	5'-6"	10'-6"					2'-0"	3'-0"	4'-0"	8'-6"	10'-0"				
	s47	1'-0"	1'-0"	2'-0"	5'-6"	11'-0"					2'-0"	3'-6"	5'-0"	9'-6"	11'-0"				
14"	s31	1'-0"	1'-0"	1'-6"	3'-0"	5'-0"	9'-0"				1'-0"	1'-6"	2'-6"	5'-6"	8'-0"	11'-6"			
	s33	1'-0"	1'-0"	2'-0"	4'-0"	6'-6"	12'-0"				1'-0"	2'-0"	3'-6"	6'-6"	11'-0"	13'-0"			
	s47	1'-0"	1'-0"	1'-0"	4'-0"	7'-6"	12'-6"				1'-0"	2'-6"	4'-0"	8'-0"	12'-0"	13'-6"			
16"	s31	1'-0"	1'-0"	1'-0"	2'-0"	3'-6"	5'-6"	9'-6"			1'-0"	1'-0"	1'-6"	4'-6"	9'-0"	11'-0"	14'-0"		
	s33	1'-0"	1'-0"	1'-0"	2'-6"	5'-0"	7'-6"	12'-6"			1'-0"	1'-0"	2'-0"	5'-6"	11'-0"	13'-6"	15'-6"		
	s47	1'-0"	1'-0"	1'-0"	2'-0"	5'-6"	9'-0"	14'-0"			1'-0"	1'-6"	3'-0"	7'-0"	13'-0"	15'-0"	16'-6"		
18"	s47	1'-0"	1'-0"	1'-0"	1'-0"	3'-0"	6'-6"	9'-6"	14'-6"		1'-0"	1'-0"	1'-6"	6'-0"	11'-0"	15'-6"	17'-0"	18'-6"	
20"	s47	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	3'-6"	7'-0"	10'-6"	15'-0"	1'-0"	1'-0"	1'-0"	4'-0"	9'-0"	15'-0"	16'-6"	18'-0"	19'-6"

**GENERAL NOTES**

- Leave ⅛" of web (minimum) at top and bottom of hole. **DO NOT** cut joist flanges.
- Tables are based on 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 centre of the joist span **provided that no other holes occur in the joist.**

## 1.55E TimberStrand® LSL Headers and Beams



1.55E TimberStrand® LSL

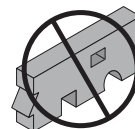
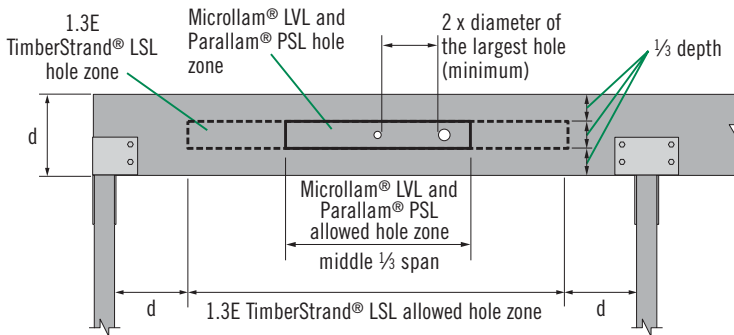
Header or Beam Depth	Maximum Round Hole Size
9½"	3"
11½"	3½"
14"–16"	4½"

▪ See illustration for allowed hole zone.

### GENERAL NOTES

- 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.

## Other Trus Joist® Headers and Beams



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

Other Trus Joist® Beams

Header or Beam Depth	Maximum Round Hole Size
5½"	1¾"
7¼"–20"	2"

▪ See illustration for allowed hole zone.

### GENERAL NOTES

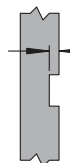
- Allowed hole zone suitable for headers and beams with **uniform loads only**.
- Round holes only.
- No holes in cantilevers.
- No holes in headers or beams in plank orientation.

## TimberStrand® LSL Wall Studs

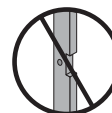
**One notch may be cut anywhere except the middle ½ of the length of the stud or column.  
One hole may be drilled anywhere along the length of the stud or column but must be at least ⅝" from the edge.**



**Maximum diameter:**  
1½" for 3½" thick walls  
1⅜" for 5½"–7¼" thick walls



**Maximum notch:**  
⅞" for 3½" thick walls  
1⅜" for 5½"–7¼" thick walls

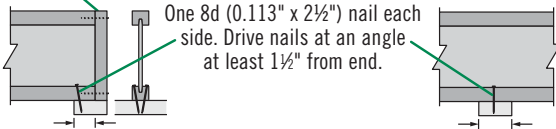


**DO NOT cut a notch and a hole in the same cross section.**

# TJI® JOIST NAILING REQUIREMENTS AT BEARING

## TJI® Joist to Bearing Plate

1 1/8" TJI® Rim Board or 1/4" TimberStrand® LSL



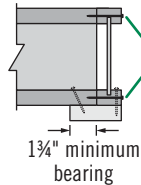
One 8d (0.113" x 2 1/2") nail each side. Drive nails at an angle at least 1 1/2" from end.

1 3/4" minimum end bearing for single-family applications

3 1/2" minimum intermediate bearing; 5 1/4" may be required for maximum capacity

- Increased bearing capacities may be achieved with increased bearing lengths. See plans for required bearing lengths.

**Shear transfer nailing:** Use connections equivalent to floor panel nailing schedule. See page 4.



1 1/8" TJI® Rim Board or 1/4" TimberStrand® LSL:

One 10d (0.131" x 3") nail into each flange

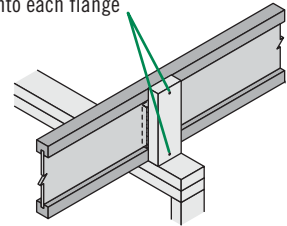
**TJI® s31 or s33 rim joist:**

One 16d (0.135" x 3 1/2") nail into each flange

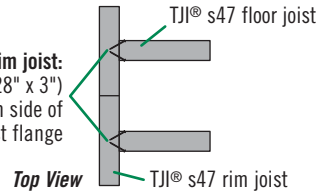
1 3/4" minimum bearing

## Rim to TJI® Joist

**TJI® s47 rim joist:**  
Toenail with 10d (0.128" x 3") nails, one each side of TJI® joist flange



Also see detail B2, page 5

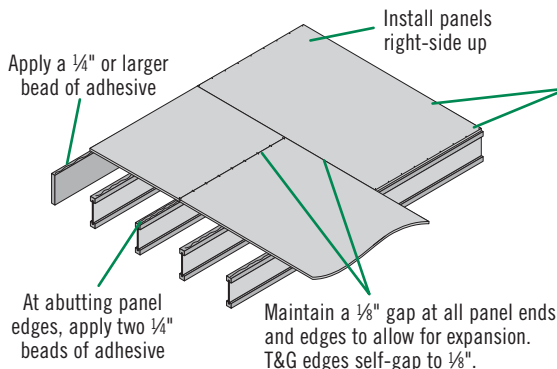


Locate rim board joint between joists

# INSTALLATION RECOMMENDATIONS

## RECOMMENDED COMPONENTS

- Weyerhaeuser Edge Gold™ floor panels
- TJI® joists
- 1 1/8" TJI® Rim Board or 1/4" TimberStrand® LSL



## RECOMMENDED ADHESIVES

- Weyerhaeuser recommends using solvent-based subfloor adhesives that meet ASTM D3498 (AFG-01) performance standards. When latex subfloor adhesive is required, careful selection is necessary due to a wide range of performance between brands.

Nail panel to joist at 12" on-centre in field and 6" on-centre along panel edges. Apply fasteners 3/8" from panel edges.

- For 3/4" panels, use 8d (0.131" x 2 1/2") or 6d (0.120" x 2") deformed-shank nails or other code-approved fasteners.
- For 7/8" panels, use 8d (0.131" x 2 1/2") or 8d (0.120" x 2 1/2") deformed-shank nails or other code-approved fasteners.
- Fully nail floor panel within 10 minutes of applying adhesive (or sooner if required by adhesive manufacturer).
- Screws may be substituted for the nails noted above if the screws have equivalent lateral load capacity.

*TJI® joist floor framing does not require bridging or mid-span blocking*

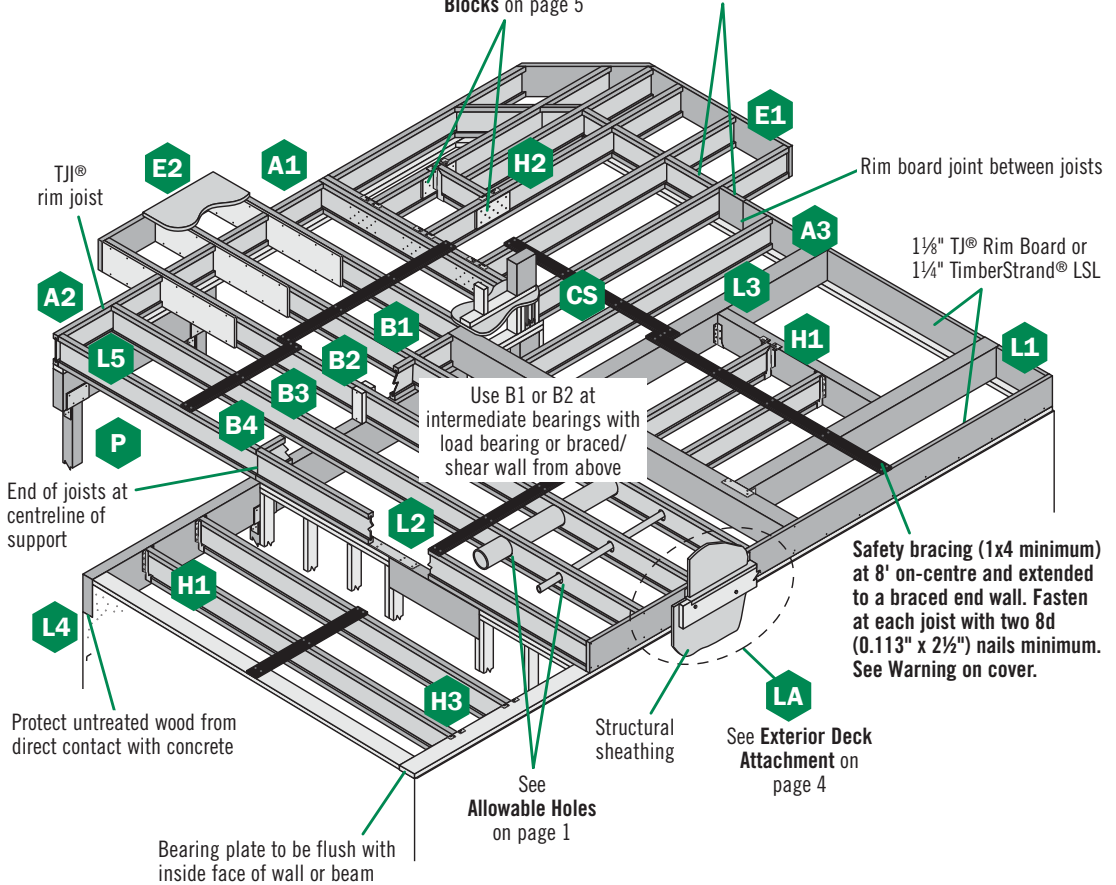
**WARNING**  
 Joists are unstable until laterally braced.  
 See Warning on cover.



**DO NOT** use sawn lumber for rim board or blocking as it may shrink after installation. Use only engineered lumber.

Joists must be laterally supported at cantilever and end bearings by blocking panels, hangers, or direct attachment to a rim board or rim joist.

See **Filler and Backer Blocks** on page 5



Rim board joint between joists

1 1/8" TJ® Rim Board or 1/4" TimberStrand® LSL

Use B1 or B2 at intermediate bearings with load bearing or braced/shear wall from above

Safety bracing (1x4 minimum) at 8' on-centre and extended to a braced end wall. Fasten at each joist with two 8d (0.113" x 2 1/2") nails minimum. See Warning on cover.

See **Exterior Deck Attachment** on page 4

See **Allowable Holes** on page 1

Protect untreated wood from direct contact with concrete

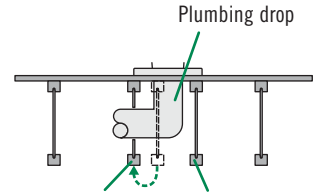
Bearing plate to be flush with inside face of wall or beam

Structural sheathing

End of joists at centreline of support

## INSTALLATION TIPS

- Subfloor adhesive will improve floor performance, but may not be required.
- Squash blocks and blocking panels carry stacked vertical loads (details B1 and B2). Packing out the web of a TJI® joist (with web stiffeners) is not a substitute for squash blocks or blocking panels.
- When joists are doubled at non-load bearing parallel partitions, space joists apart the width of the wall for plumbing or HVAC.
- Additional joist at plumbing drop (see detail at right).



Joist may be shifted up to 3" if floor panel edge is supported and span rating is not exceeded.  
**Do not cut joist flanges.**

Additional joist is required if floor panel edge is unsupported or if span rating is exceeded.

## DETAIL SCHEDULE

### End bearings (see page 4)

- A1** with blocking panels
- A2** with TJI® rim joist
- A3** with rim board

### Intermediate bearings\* (see page 5)

- B1** with blocking panels to support load bearing wall above
- B2** with squash blocks to support load bearing wall above
- B3** without blocking panels or squash blocks (no wall above)

### Cantilever details (see page 5)

- E1** no reinforcement
- E2** ¾" reinforcement on one side

**E3** ¾" reinforcement both sides

**E4** joist reinforcement

**F1** deck cantilever

**PB1** permanent bracing

### Cantilevers less than 5" (see page 5)

**E5** ¾" reinforcement on one side, with vertical blocking

**E6** ¾" reinforcement both sides, with vertical blocking

**E7** ¾" reinforcement on one side, with horizontal blocking

**E8** ¾" reinforcement on both sides, with horizontal blocking

**E9** horizontal blocking, no reinforcement

### Hanger Details

(more connector information on page 8)

**H1** TJI® joist to beam (see page 8)

**H2** TJI® joist to joist (see page 5)

**H3** TJI® joist on masonry wall or steel beam (see page 8)

### Other details

**B4** butting joists with blocking panels (see above)

**CS** column support (see page 4)

**LA** exterior deck attachment (see page 4)

**W** web stiffeners (see page 6)

**L** beam details (see page 9)

**P** column details (see page 9)

*\*Load bearing wall must stack over wall below. Blocking panels may be required at braced/shear walls above or below.*

## JAVELIN® SOFTWARE FRAMING PLANS

**A<sub>W</sub>** **B<sub>W</sub>** **E<sub>W</sub>** Web stiffeners required on each side of joist at bearing. Refer to your Javelin® framing plan.

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

## Guidelines for Closest On-Centre Spacing per Row

Nail Size	TJI®	Rim board		1½" TimberStrand® LSL or wider	Microllam® LVL	Parallam® PSL
	s31, s33, and s47	1½" TJI® Rim Board	1¼" TimberStrand® LSL			
8d (0.113" x 2½"), 8d (0.131" x 2½")	3" (1)	6"	4"	3"	4"	4"
10d (0.148" x 3"), 12d (0.148" x 3¼")	4" (1)(2)	6"	4"	4"	5"	4"
16d (0.162" x 3½")	6"	16" (3)	6" (4)	6" (4)	8" (3)	6"

(1) Stagger nails when using 4" on-centre spacing or less and maintain ¾" joist and panel edge distance. One row of fasteners is permitted (two at abutting panel edges) for diaphragms. For other applications, multiple rows of fasteners are permitted if the rows are offset at least ½" and staggered.

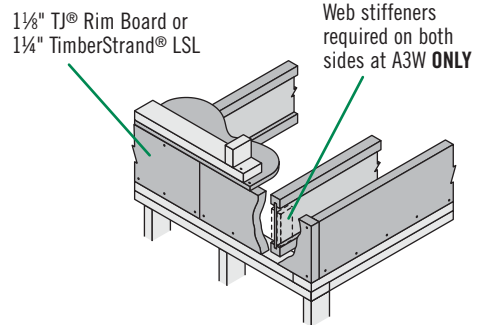
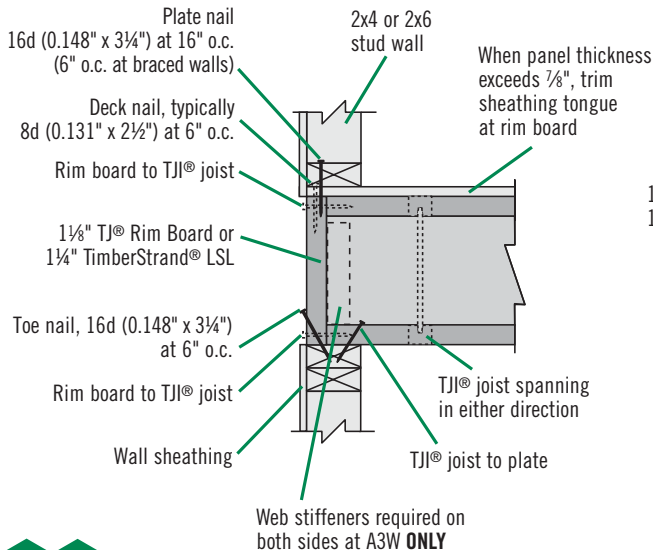
(2) With 10d (0.148" x 1½") nails spacing can be reduced to 3" on-centre for light gauge steel straps.

(3) Can be reduced to 5" on-centre if nail penetration into the narrow edge is no more than 1¼" (to minimize splitting).

(4) Can be reduced to 4" on-centre if nail penetration into the narrow edge is no more than 1¼" (to minimize splitting).

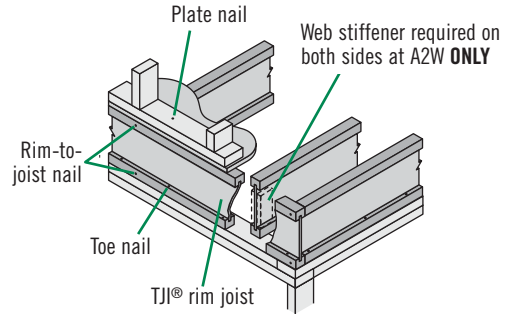
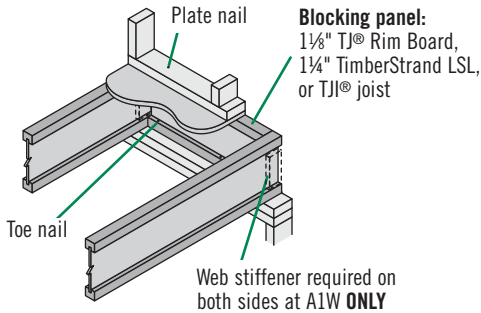
- Recommended nailing is 12" on-centre in field and 6" on-centre along panel edge. Fastening requirements on engineered drawings supersede recommendations listed above.
- Maximum nail spacing for TJI® joists is 24" on-centre.
- 14 ga. staples may be substituted for 8d (0.113" x 2½") nails if minimum penetration of 1" into the TJI® joist or rim board is achieved.
- To minimize splitting, maintain edge distance and row spacing of 2½ x nail diameter or ¾", whichever is greater. Multiple rows must be staggered and equally spaced from the centreline of the narrow face axis.
- For recommended nailing and adhesives, see **INSTALLATION RECOMMENDATIONS** on page 2.

## RIM BOARD DETAILS



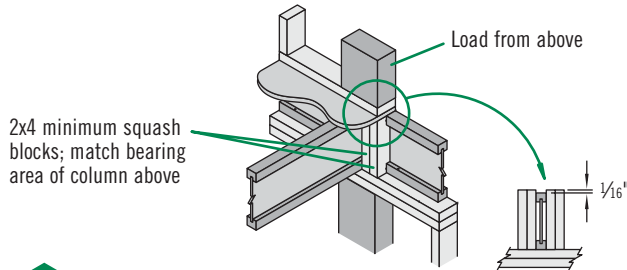


# FLOOR DETAILS



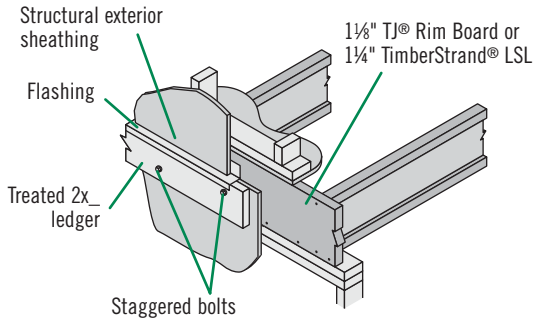
**A1** **A1 W** Attach blocking per fastening instructions in detail A3.

**A2** **A2 W** Must have 1/4" minimum joist bearing at ends. Attach rim joist per fastening instructions in detail A3.

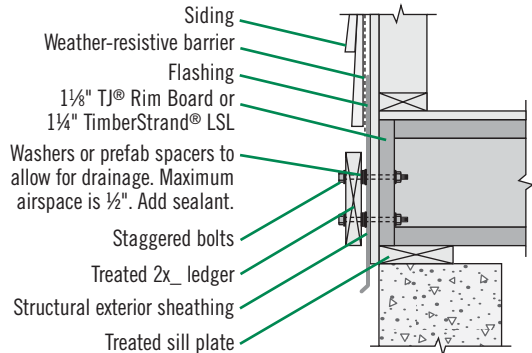


**CS** Use 2x4 minimum squash blocks to transfer load around TJI® joist

## Exterior Deck Attachment



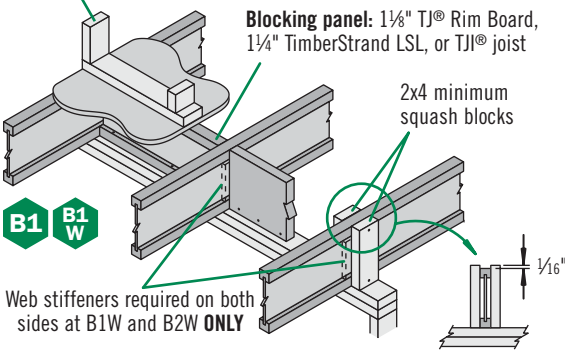
## Shimmed Deck Attachment



**LA** Corrosion-resistant fasteners required for wet-service applications

Maintain 2" distance (minimum) from edge of ledger to edge of fastener. Stagger bolts.

**Load bearing or braced/shear wall above (must stack over wall below)**



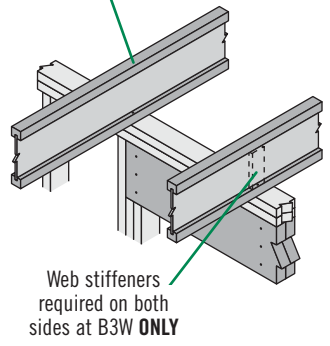
**B1 B1 W**

Web stiffeners required on both sides at B1W and B2W **ONLY**

**B2 B2 W**

Blocking panels may be required with braced/shear walls above or below—see detail B1

**No load bearing wall above**

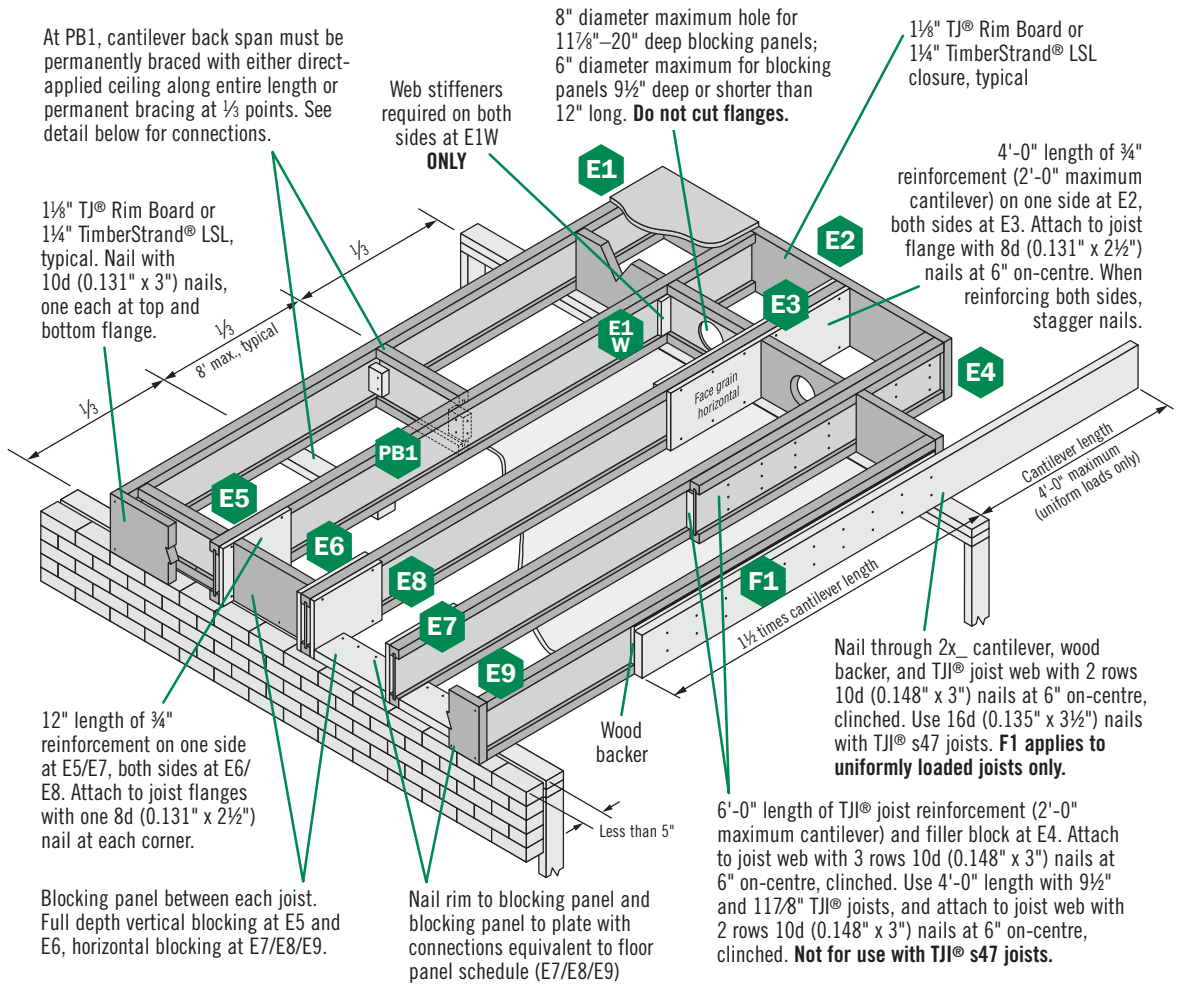


**B3 B3 W**

Blocking panels may be required with braced/shear walls above or below—see detail B1

**CANTILEVER DETAILS**

At PB1, cantilever back span must be permanently braced with either direct-applied ceiling along entire length or permanent bracing at 1/3 points. See detail below for connections.



1 1/8" TJ® Rim Board or 1 1/4" TimberStrand® LSL, typical. Nail with 10d (0.131" x 3") nails, one each at top and bottom flange.

Web stiffeners required on both sides at E1W **ONLY**

8" diameter maximum hole for 1 1/8"–20" deep blocking panels; 6" diameter maximum for blocking panels 9 1/2" deep or shorter than 12" long. **Do not cut flanges.**

1 1/8" TJ® Rim Board or 1 1/4" TimberStrand® LSL closure, typical

4'-0" length of 3/4" reinforcement (2'-0" maximum cantilever) on one side at E2, both sides at E3. Attach to joist flange with 8d (0.131" x 2 1/2") nails at 6" on-centre. When reinforcing both sides, stagger nails.

12" length of 3/4" reinforcement on one side at E5/E7, both sides at E6/E8. Attach to joist flanges with one 8d (0.131" x 2 1/2") nail at each corner.

Blocking panel between each joist. Full depth vertical blocking at E5 and E6, horizontal blocking at E7/E8/E9.

Nail rim to blocking panel and blocking panel to plate with connections equivalent to floor panel schedule (E7/E8/E9)

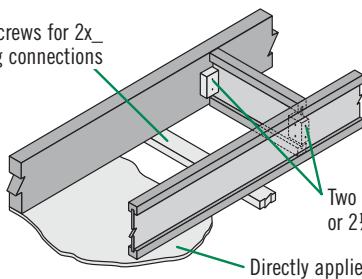
Nail through 2x\_ cantilever, wood backer, and TJ® joist web with 2 rows 10d (0.148" x 3") nails at 6" on-centre, clinched. Use 16d (0.135" x 3 1/2") nails with TJ® s47 joists. **F1 applies to uniformly loaded joists only.**

6'-0" length of TJ® joist reinforcement (2'-0" maximum cantilever) and filler block at E4. Attach to joist web with 3 rows 10d (0.148" x 3") nails at 6" on-centre, clinched. Use 4'-0" length with 9 1/2" and 11 7/8" TJ® joists, and attach to joist web with 2 rows 10d (0.148" x 3") nails at 6" on-centre, clinched. **Not for use with TJ® s47 joists.**

When specified on the layout, one of the bracing options shown at right is required

Two 2 1/2" screws for 2x\_ strapping connections

**PB1**

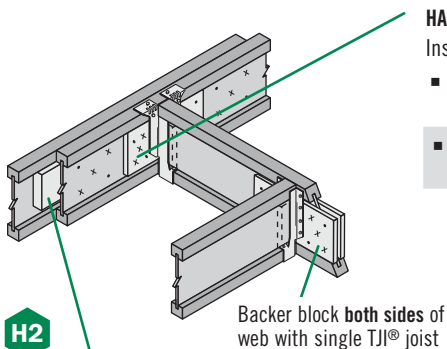


Apply subfloor adhesive to all contact surfaces

Two 8d (0.113" x 2 1/2") nails or 2 1/2" screws, typical

Directly applied ceiling

**FILLER AND BACKER BLOCKS**



**H2**

Backer block both sides of web with single TJ® joist

**DOUBLE TJ® JOIST FILLER BLOCK**

■ **Single-Family Applications:** Attach with ten 10d (0.128" x 3") nails, clinched. Use ten 16d (0.135" x 3 1/2") nails from each side with TJ® s47 joists.

■ **Multi-Family applications and depths greater than 16":** Attach with fifteen 10d (0.128" x 3") nails, clinched. Use fifteen 16d (0.135" x 3 1/2") nails from each side with TJ® s47 joists.

**HANGER BACKER BLOCK**

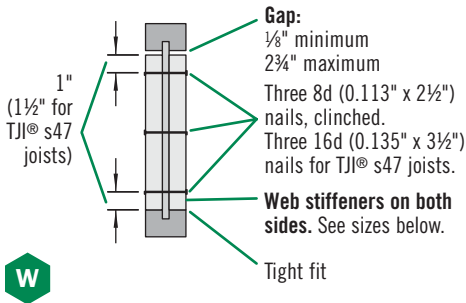
Install tight to top flange (tight to bottom flange with face mount hangers).

- **Single-Family Applications:** Attach with ten 10d (0.128" x 3") nails, clinched when possible.
- **Multi-Family applications and depths greater than 16":** Attach with fifteen 10d (0.128" x 3") nails, clinched when possible.

**Filler and Backer Block Sizes**

TJ®	s31 or s33		s47		
	9 1/2" or 11 7/8"	14" or 16"	9 1/2" or 11 7/8"	14" or 16"	18" or 20"
<b>Filler Block<sup>(1)</sup> (Detail H2)</b>	2x6 + 5/8" sheathing	2x8 + 5/8" sheathing	Two 2x6	Two 2x8	Two 2x12
<b>Cantilever Filler (Detail E4)</b>	2x6 + 5/8" sheathing 4'-0" long	2x10 + 5/8" sheathing 6'-0" long	Not applicable		
<b>Backer Block<sup>(1)</sup> (Detail F1 or H2)</b>	1" net		2x6	2x8	2x12

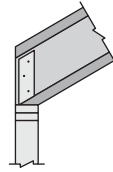
(1) If necessary, increase filler and backer block height for face mount hangers and maintain 1/8" gap at top of joist. See detail W. Filler and backer block dimensions should accommodate required nailing without splitting. The suggested minimum length is 24" for filler and 12" for backer blocks.



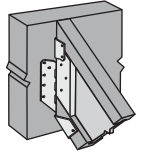
## WEB STIFFENER SIZES

- TJI® s31 and s33 joists: 1" x 2⅝" minimum
- TJI® s47 joists: 2x4, construction grade or better

## WEB STIFFENER REQUIREMENTS



*Required at all birdsmouth cuts.*

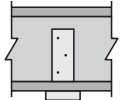


*Required at all sloped hangers.*



*Required if the sides of the hanger do not extend to laterally support at least ⅓" of the TJI® joist top flange.*

*Only required at intermediate bearing locations when noted on framing plan.*



# TYPICAL FLOOR AND ROOF FRAMING

## DETAIL SCHEDULE

### Roof details (see page 7)

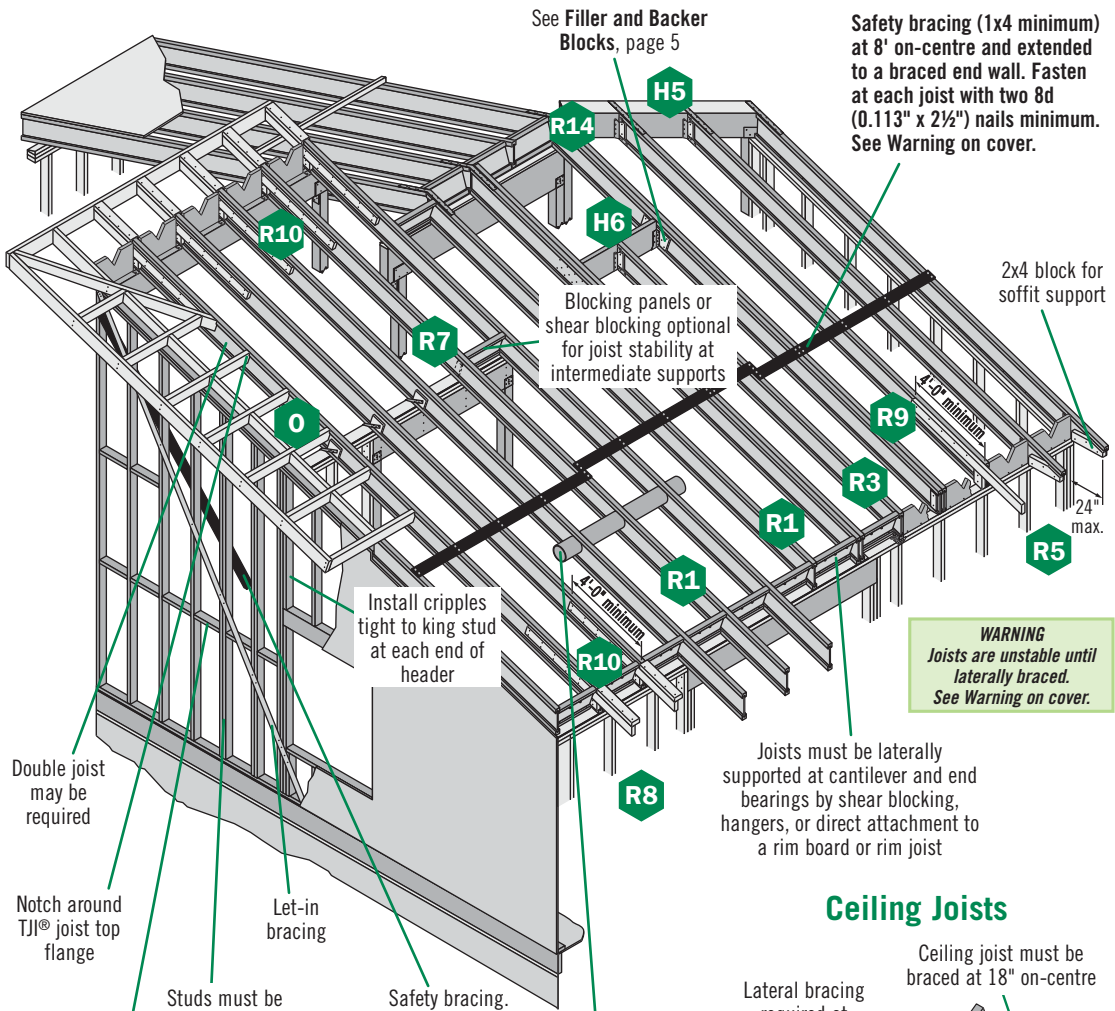
- R1** on bevel plate
- R1 W** on bevel plate with web stiffeners
- R3** with variable slope seat connector
- R3 W** with seat connector and web stiffeners
- R5** with birdsmouth cut
- R7** intermediate bearing
- R7 W** intermediate bearing with web stiffeners

- R8** 2x4 outrigger and filler with birdsmouth cut
- R9** 2x4 outrigger without filler
- R10** 2x4 outrigger with filler
- R10 W** 2x4 outrigger with filler and web stiffeners
- R14** ridge detail
- R14 W** ridge detail, with web stiffeners

### Other details

- O** 2x\_ overhang at end wall
  - SB** shear blocking (see page 8)
  - W** web stiffeners
- Hanger details (see page 8)**
- H5** slope adjusted hanger
  - H6** header on slope

*Joists must be laterally supported at cantilever and end bearings by blocking panels, hangers, or direct attachment to a rim board or rim joist.*



See **Filler and Backer Blocks**, page 5

**Safety bracing (1x4 minimum) at 8' on-centre and extended to a braced end wall. Fasten at each joist with two 8d (0.113" x 2½") nails minimum. See Warning on cover.**

Blocking panels or shear blocking optional for joist stability at intermediate supports

2x4 block for soffit support

Install cripples tight to king stud at each end of header

**WARNING**  
Joists are unstable until laterally braced. See Warning on cover.

Joists must be laterally supported at cantilever and end bearings by shear blocking, hangers, or direct attachment to a rim board or rim joist

Double joist may be required

Notch around TJI® joist top flange

Let-in bracing

Studs must be doubled when notched in middle third of length. Refer to hole charts for allowable holes and notches.

Safety bracing. Lack of proper bracing can result in serious accidents.

See **Allowable Holes**, page 1

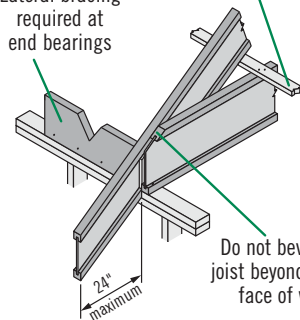
TimberStrand® LSL blocking:  
 – 1 row at 10'–16' height  
 – 2 rows at 16'–24' height  
 – 3 rows at 24'–30' height

**Maximum slope for 18" and 20" TJI® s47 joists is 3:12.**

### Ceiling Joists

Ceiling joist must be braced at 18" on-centre

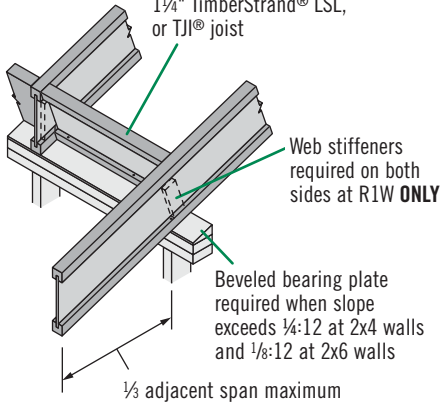
Lateral bracing required at end bearings



Do not bevel cut joist beyond inside face of wall

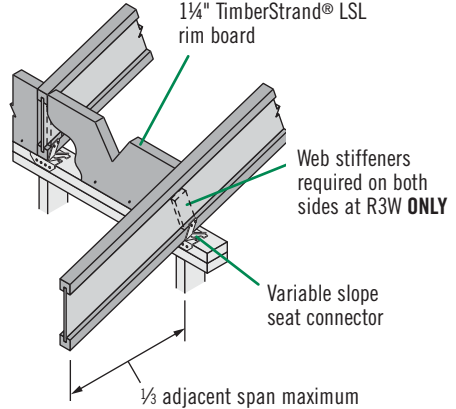
### Shear blocking:

1 1/8" TJI® Rim Board,  
1 1/4" TimberStrand® LSL,  
or TJI® joist



**R1**  
**R1**  
**W**

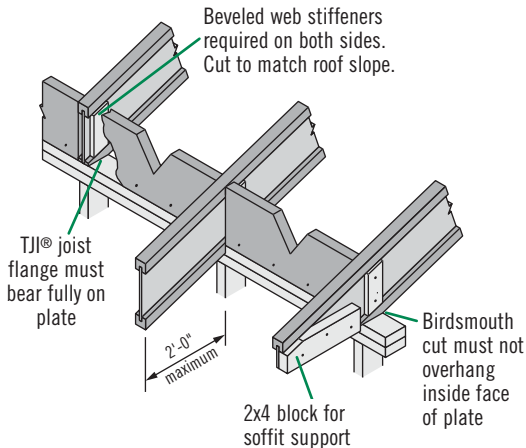
V-cut shear blocking—  
1 1/4" TimberStrand® LSL  
rim board



**R3**  
**R3**  
**W**

## Birdsmouth Cut

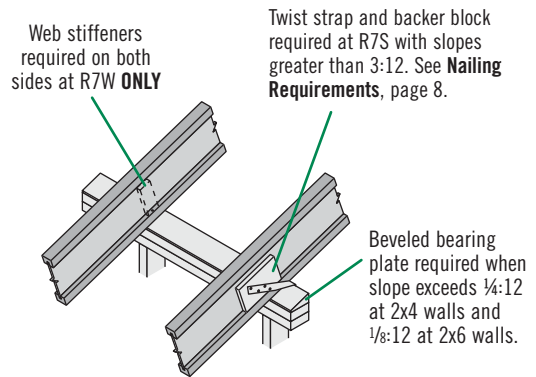
*Birdsmouth cut allowed at low end of joist only*



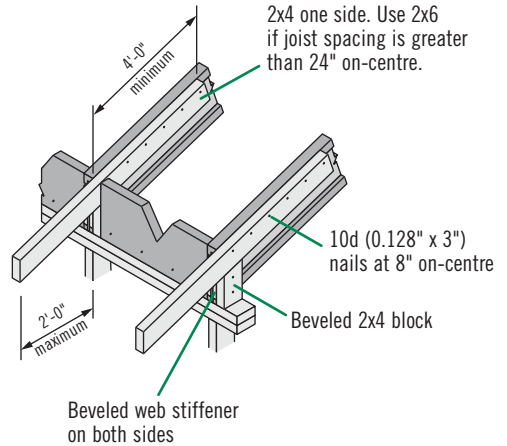
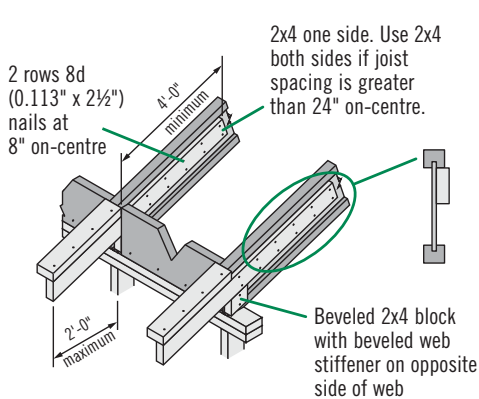
**R5**

## Intermediate Bearing

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

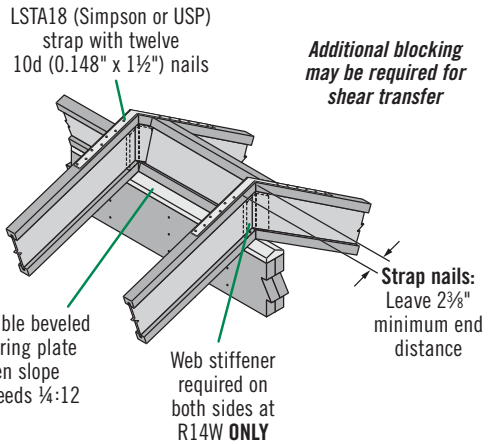
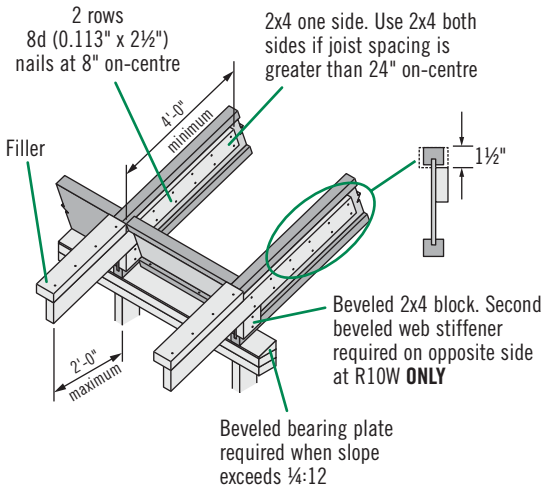


**R7**  
**R7**  
**W**  
**R7**  
**S**



**R8** Birdsmouth cut allowed at low end of joist only

**R9** Birdsmouth cut allowed at low end of joist only



**R10** **R10W**

**R14** **R14W**



## APPROVED HANGERS

- The following manufacturers are approved to supply hangers for Trus Joist® products:
  - Simpson Strong-Tie Co., Inc.: 1-800-999-5099
  - USP Structural Connectors: 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.

## NAILING REQUIREMENTS

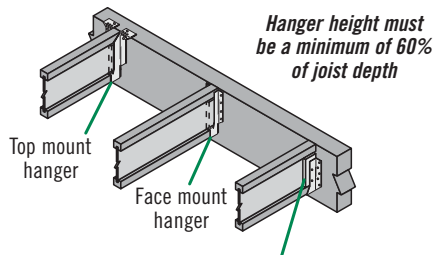
- Fill all round, dimple, and positive angle holes with the proper nails. Hanger nails are usually a heavier gauge because of the higher loads they need to carry.
- Unless specified otherwise, full capacity of straps or connectors can only be achieved if the following nail penetration is provided:

	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.

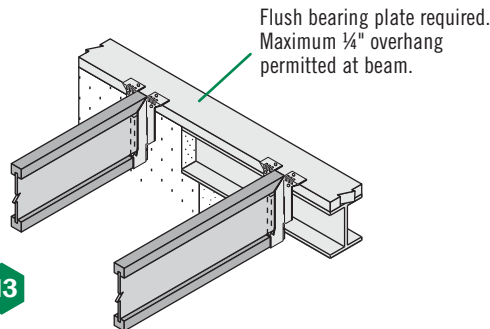
## CONNECTOR INSTALLATION AND SQUEAK PREVENTION TIPS

- 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.



H1

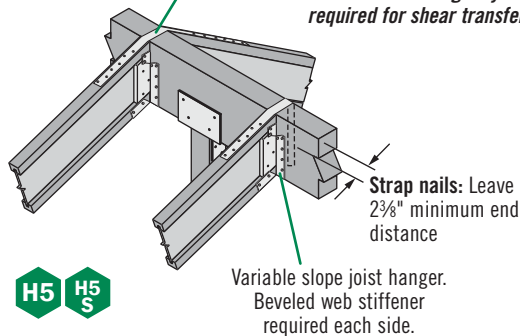
Web stiffeners required if the sides of the hanger do not laterally support at least 3/8" of the TJI® joist top flange



H3

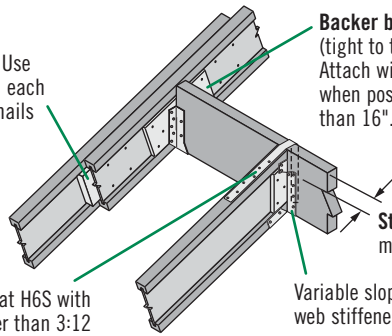
LSTA24 (Simpson or USP) strap with twelve 10d (0.148" x 1½") nails required at H5S with slopes greater than 3:12

Additional blocking may be required for shear transfer



H5 H5S

**Filler block:** Attach with ten 10d (0.128" x 3") nails, clinched. Use ten 16d (0.135" x 3½") nails from each side with TJI® s47 joists. Use 15 nails with depths greater than 16".



**Backer block:** Install tight to bottom flange (tight to top flange with top mount hangers). Attach with ten 10d (0.128" x 3") nails, clinched when possible. Use 15 nails with depths greater than 16".

**Strap nails:** Leave 2 3/8" minimum end distance

Variable slope joist hanger. Beveled web stiffeners required on both sides.

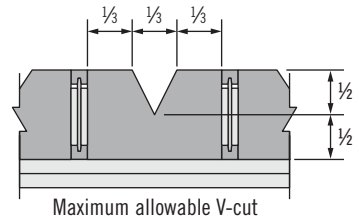
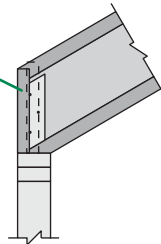
LSTA18 strap required at H6S with slopes greater than 3:12



## SHEAR BLOCKING AND VENTILATION HOLES (ROOF ONLY)

TimberStrand® LSL or TJI® 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.

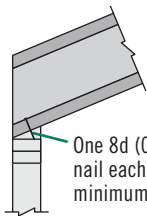
For TJI® joists with slopes of 10:12 to 12:12, the vertical depth of shear blocking at bearing will require 1 1/8" TJI® Rim Board or 1 1/4" TimberStrand® LSL or that is one size deeper than the TJI® joist.



## TJI® JOIST NAILING REQUIREMENTS AT BEARING

### TJI® Joist to Bearing Plate

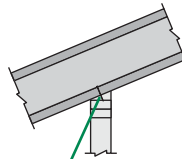
**END BEARING**  
(1 1/4" minimum bearing required)



One 8d (0.113" x 2 1/2") nail each side, 1 1/2" minimum from end

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**  
(3 1/2" minimum bearing required)

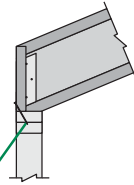


**Slopes 3:12 or less:**  
One 8d (0.113" x 2 1/2") nail each side. See detail R7.

**Slopes greater than 3:12:**  
Two 8d (0.113" x 2 1/2") nails each side, plus a twist strap and backer block. See detail R7S.

When slope exceeds 1/4:12 for a 2x4 wall or 1/8:12 for a 2x6 wall, a beveled bearing plate or variable slope seat connector is required.

### Blocking to Bearing Plate



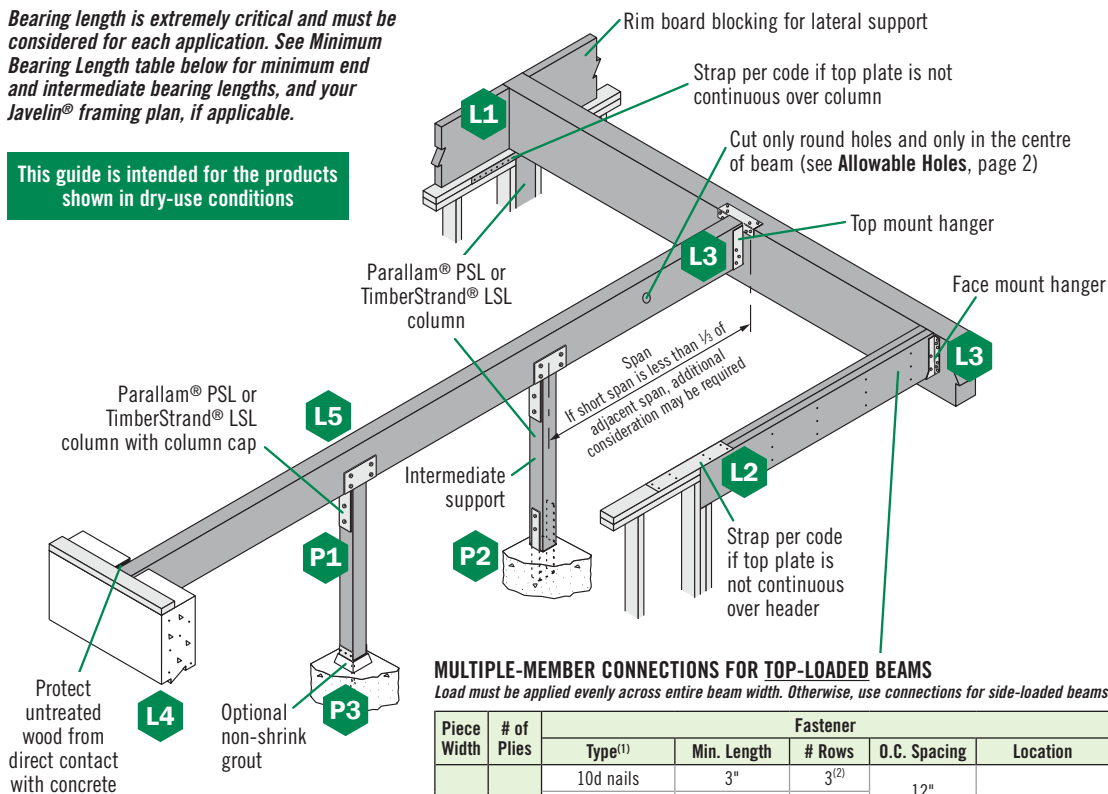
1 1/8" TJI® Rim Board or 1 1/4" TimberStrand® LSL:  
Toenail with 10d (0.131" x 3") nails at 6" on-centre or 16d (0.135" x 3 1/2") nails at 12" on-centre

**TJI® joist blocking:**  
10d (0.128" x 3") nails at 6" on-centre  
**Shear transfer nailing:**  
Minimum, use connections equivalent to sheathing nail schedule



*Bearing length is extremely critical and must be considered for each application. See Minimum Bearing Length table below for minimum end and intermediate bearing lengths, and your Javelin® framing plan, if applicable.*

This guide is intended for the products shown in dry-use conditions



### MULTIPLE-MEMBER CONNECTIONS FOR TOP-LOADED BEAMS

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

Piece Width	# of Plies	Fastener					
		Type <sup>(1)</sup>	Min. Length	# Rows	O.C. Spacing	Location	
1 3/4"	2	10d nails	3"	3 <sup>(2)</sup>	12"	One side	
		12d–16d nails	3 3/4"	2 <sup>(2)</sup>			
		Screws	3 3/8" or 3 1/2"	2	24"		
	3	3	10d nails	3"	3 <sup>(2)</sup>	12"	Both sides
			12d–16d nails	3 3/4"	2 <sup>(2)</sup>		
		Screws	3 3/8" or 3 1/2"	2	24"	Both sides	
			5"			One side	
	4	4	10d nails <sup>(3)</sup>	3"	3 <sup>(2)</sup>	12"	One side (per ply)
			12d–16d nails <sup>(3)</sup>	3 3/4"	2 <sup>(2)</sup>		
		Screws	5" or 6"	2	24"	Both sides	
			6 3/4"			One side	
			6 3/4"			Both sides	
3 1/2"	2	Screws	5" or 6"	2	24"	Both sides	
			6 3/4"			One side	
		1/2" bolts	8"	2	24"	—	

**L6** Multiple pieces can be nailed or bolted together, 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.

(1) 10d nails are 0.128" diameter; 12d–16d nails are 0.148"–0.162" diameter; screws are SDS, SDW, USP WS, or TrussLOK-EWP™.

(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.

## DETAIL SCHEDULE

### Beam and header details

- L1** bearing at wood wall
- L2** bearing for door or window header
- L3** beam to beam connection

- L4** bearing at concrete wall
- L5** bearing at wood or steel column
- L6** connection of multiple pieces

### Column details

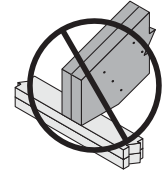
- P1** beam on column cap
- P2** column base
- P3** elevated column base

## BEAM AND HEADER BEARINGS

### Minimum Bearing Length for Beams and Headers

Beam Depth	Bearing	Span of Header or Beam								
		4'	6'	8'	10'	12'	16'	20'	24'	28'
5½"	End/Int.	2¼" / 4½"	1½" / 3½"	1½" / 3½"	1½" / 3½"	1½" / 3½"				
7¼"	End/Int.	3½" / 6¼"	2½" / 5½"	1¾" / 4¼"	1½" / 3½"	1½" / 3½"	1½" / 3½"			
8¾"	End/Int.	3¼" / 8"	2¼" / 5½"	1¾" / 4"	1½" / 3½"	1½" / 3½"	1½" / 3½"	1½" / 3½"	1½" / 3½"	
9¼", 9½"	End/Int.			3¾" / 8¾"	3" / 7½"	2½" / 6¼"	1¾" / 4¾"	1½" / 3¾"	1½" / 3½"	1½" / 3½"
11¼", 11¾"	End/Int.					4" / 9½"	2¾" / 7¼"	2¼" / 5¾"	1¾" / 4¾"	1½" / 4¼"
14"	End/Int.						4" / 9¾"	3" / 8"	2½" / 6½"	2¼" / 5¾"
16"	End/Int.							4" / 10"	3¼" / 8½"	2¾" / 7¼"
18"	End/Int.								4¼" / 10½"	3½" / 9"
20"	End/Int.									4¼" / 11"

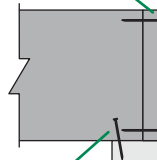
- **Minimum bearing length:** 1½" at ends, 3½" at intermediate supports.
- Bearing across full beam width is required.
- Bearing lengths shown are based on bearing stress for TimberStrand® LSL, Microllam® LVL, or Parallam® PSL. If the support member's allowable bearing stress is lower (e.g., when bearing on a flat wood plate), bearing lengths may need to be increased.
- Table assumes maximum allowable uniform load. For other conditions, contact your Weyerhaeuser representative.
- Beams and headers require lateral support at bearing points and along the top (or compression edge) at 24" on-centre or closer.
- 1¾"-thick members that are 16" or deeper must be used in multiple-ply units only.



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

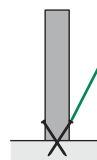
### Beam Attachment at Bearing

1½" TJ® Rim Board or 1¼" TimberStrand® LSL



Drive nails at an angle to minimize splitting of plate

One 10d (0.128" x 3") nail each side of member at bearing, 1½" minimum from end



## OUR GARANTEE

### LIMITED LIFETIME PRODUCT WARRANTY

Weyerhaeuser provides a limited warranty for the expected life of the structure for all Trus Joist® branded products. Product information, installation instructions, and the full text of each product's limited warranty (including limitations and exclusions) are available on the Weyerhaeuser website, from your Weyerhaeuser representative, or by calling toll free: 888-453-8358.

Additionally, Weyerhaeuser offers limited warranties on a broad variety of its other products. To see complete details of all Weyerhaeuser product warranties, visit [weyerhaeuser.com/woodproducts/warranty](http://weyerhaeuser.com/woodproducts/warranty).

1.888.453.8358 WEYERHAEUSER.COM/WOODPRODUCTS



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

**1-888-453-8358**

#### CODE EVALUATIONS, See

**TJJ® Joists**  
CCMC 13132-R  
(excluding TJJ® 9½" s47 joists)

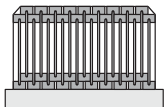
**TimberStrand® LSL**  
CCMC 12627-R

**Parallam® PSL**  
CCMC 11161-R

**Microllam® LVL**  
CCMC 08675-R

**TJ® Rim Board**  
CCR 0222C

## PRODUCT STORAGE



*Store and handle  
joists in vertical  
orientation.*



**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](http://weyerhaeuser.com/woodproducts/support).

*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.*



Weyerhaeuser

[weyerhaeuser.com/woodproducts](http://weyerhaeuser.com/woodproducts)



Certified Sourcing  
[www.sfi-program.org](http://www.sfi-program.org)  
SFI-0008

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This document supersedes all previous versions. If this is more than one year old, contact your dealer or Weyerhaeuser rep.

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