Weyerhaeuser

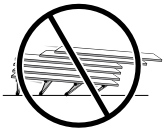
iLevel™ by Weyerhaeuser

Trus Joist®
TJI® 110
TJI® 210
TJI® 230
TJI® 360
TJI® 560
Joists

FRAMING DETAILS FOR FLOOR AND ROOF

Structural Framer's Pocket Guide

WARNING:
DO NOT walk on joists until braced. Injury may result.



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

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

IMPORTANT: PLEASE READ CAREFULLY!

JOISTS ARE UNSTABLE UNTIL BRACED LATERALLY

Bracing Includes: Blocking, Hangers, Strut Lines, Sheathing, Rim Board, Rim Joist

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

1. Properly install all blocking, hangers, rim boards, or rim joists at TJI® joist end supports.
2. Establish a permanent deck (sheathing), nailed 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.
4. Sheathing must be properly nailed to each TJI® 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. TJI® joist flanges must remain straight within ½" from true alignment.

This guide is intended for the products shown, and untreated Parallam® PSL, in dry-use conditions.

La Sécurité Avant Tout

AVERTISSEMENT

Veuillez Lire Attentivement

- Les solives sont instables si elles ne sont pas contreventées et en position verticale. Voir le guide d'installation **avant** la pose des solives TJI®.
- Ne pas circuler sur les solives TJI® **avant** qu'elles ne soient adéquatement contreventées.
- Il est dangereux de déposer des matériaux de construction sur les solives TJI® si le sous-plancher n'est pas installé.

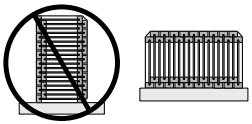
La Seguridad Ante Todo

ADVERTENCIA

Por Favor Lea Cuidadosamente

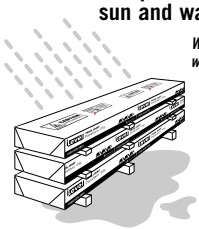
- Las viguetas son inestables hasta que se refuercen lateralmente. Vea la guía de instalaciones **antes** de instalar las viguetas TJI®.
- No permita que los trabajadores caminen sobre las viguetas TJI® **antes** de ser reforzadas lateralmente.
- No ponga materiales de construccion sobre las viguetas TJI® antes de instalar el triplay. Coloque los materials únicamente sobre vigas o muros.

Product Storage



Store and handle joists in vertical orientation.

Protect products from sun and water.



Wrap is slippery when wet or icy.

Use support blocks at 10' on-center to keep products out of mud and water.

CONTENTS

Floor

Roof and Wall

Beam and Column

BUILD SAFELY

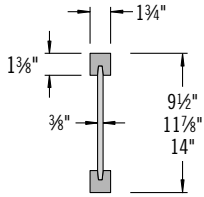
We at iLevel are committed to working safely and want to remind you to do the same.

We encourage you to follow the recommendations of OSHA (www.osha.gov) in the U.S. or provincial regulations (www.canoshweb.org/en/) in Canada regarding:

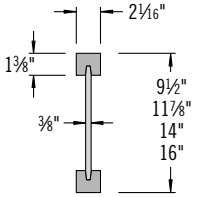
- Personal protective equipment (PPE) for hands, feet, head, and eyes
- Fall protection
- Use of pneumatic nailers and other hand tools
- Forklift safety

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

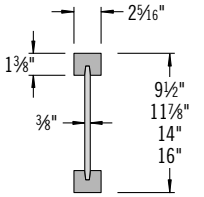
PRODUCT IDENTIFICATION



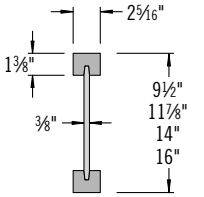
TJI® 110 joists



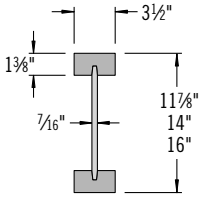
TJI® 210 joists



TJI® 230 joists

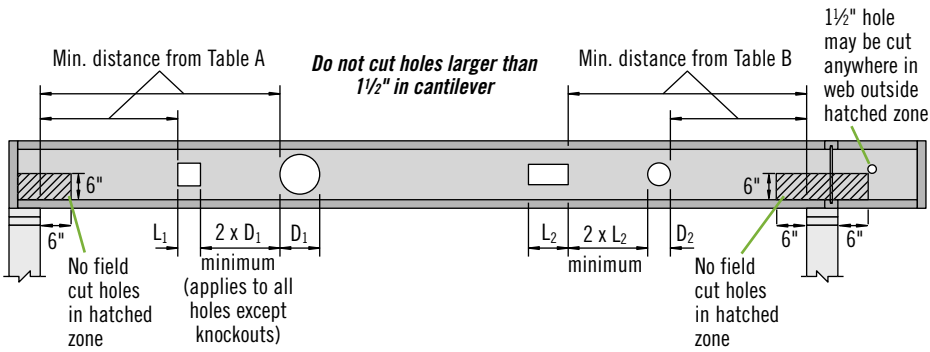


TJI® 360 joists

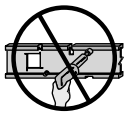


TJI® 560 joists

ALLOWABLE HOLES—TJI® JOISTS *Does not apply to vented 16" 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"	6½"	8⅞"	11"	13"	2"	3"	4"	6½"	8⅞"	11"	13"
9½"	110	1'-0"	1'-6"	2'-0"	5'-0"				1'-0"	1'-6"	2'-6"	4'-6"			
	210	1'-0"	1'-6"	2'-0"	5'-0"				1'-0"	2'-0"	2'-6"	5'-0"			
	230	1'-0"	2'-0"	2'-6"	5'-6"				1'-0"	2'-0"	3'-0"	5'-0"			
	360	1'-6"	2'-0"	3'-0"	6'-0"				1'-6"	2'-6"	3'-6"	5'-6"			
11⅞"	110	1'-0"	1'-0"	1'-0"	2'-6"	5'-0"			1'-0"	1'-0"	1'-6"	4'-6"	6'-0"		
	210	1'-0"	1'-0"	1'-0"	2'-6"	5'-6"			1'-0"	1'-0"	2'-0"	5'-0"	6'-6"		
	230	1'-0"	1'-0"	1'-0"	3'-0"	6'-0"			1'-0"	1'-0"	2'-0"	5'-6"	7'-0"		
	360	1'-0"	1'-0"	1'-6"	4'-6"	7'-0"			1'-0"	1'-0"	2'-6"	6'-6"	7'-6"		
	560	1'-0"	1'-0"	1'-6"	5'-0"	8'-0"			1'-0"	2'-0"	3'-6"	7'-0"	8'-0"		
14"	110	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	5'-0"		1'-0"	1'-0"	1'-0"	3'-6"	6'-0"	8'-0"	
	210	1'-0"	1'-0"	1'-0"	1'-0"	3'-0"	6'-0"		1'-0"	1'-0"	1'-0"	4'-0"	6'-6"	8'-6"	
	230	1'-0"	1'-0"	1'-0"	1'-6"	3'-6"	6'-6"		1'-0"	1'-0"	1'-0"	4'-0"	7'-0"	9'-0"	
	360	1'-0"	1'-0"	1'-0"	2'-6"	5'-6"	8'-0"		1'-0"	1'-0"	1'-0"	5'-6"	8'-0"	9'-6"	
	560	1'-0"	1'-0"	1'-0"	2'-6"	6'-0"	9'-0"		1'-0"	1'-0"	1'-6"	6'-6"	9'-0"	10'-0"	
16"	210	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	3'-6"	6'-0"	1'-0"	1'-0"	1'-0"	2'-6"	6'-6"	8'-0"	10'-6"
	230	1'-0"	1'-0"	1'-0"	1'-0"	2'-0"	4'-0"	6'-6"	1'-0"	1'-0"	1'-0"	3'-0"	7'-0"	9'-0"	11'-0"
	360	1'-0"	1'-0"	1'-0"	1'-0"	3'-0"	6'-0"	9'-0"	1'-0"	1'-0"	1'-0"	4'-0"	9'-0"	10'-0"	11'-6"
	560	1'-0"	1'-0"	1'-0"	1'-0"	3'-0"	6'-6"	10'-0"	1'-0"	1'-0"	1'-0"	5'-0"	10'-0"	11'-0"	12'-0"

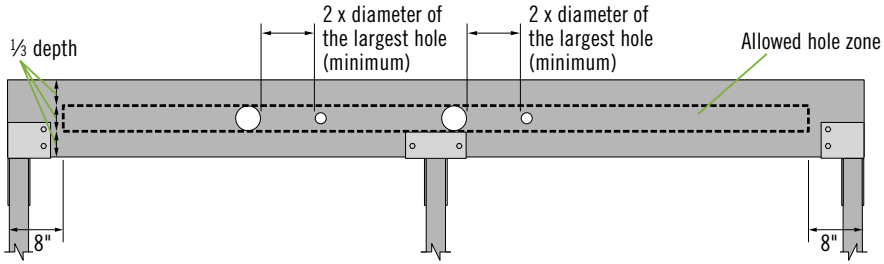
Table B—Intermediate or Cantilever Support

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"	6½"	8⅞"	11"	13"	2"	3"	4"	6½"	8⅞"	11"	13"
9½"	110	1'-6"	2'-6"	3'-0"	7'-6"				1'-6"	2'-6"	3'-6"	6'-6"			
	210	2'-0"	2'-6"	3'-6"	7'-6"				2'-0"	3'-0"	4'-0"	7'-0"			
	230	2'-6"	3'-0"	4'-0"	8'-0"				2'-6"	3'-0"	4'-6"	7'-6"			
	360	3'-0"	4'-0"	5'-6"	9'-0"				3'-0"	4'-6"	5'-6"	8'-0"			
11⅞"	110	1'-0"	1'-0"	1'-6"	4'-0"	8'-0"			1'-0"	1'-6"	2'-6"	6'-6"	9'-0"		
	210	1'-0"	1'-0"	2'-0"	4'-6"	9'-0"			1'-0"	2'-0"	3'-0"	7'-6"	10'-0"		
	230	1'-0"	2'-0"	2'-6"	5'-0"	9'-6"			1'-0"	2'-6"	3'-6"	8'-0"	10'-0"		
	360	2'-0"	3'-0"	4'-0"	7'-0"	11'-0"			2'-0"	3'-6"	5'-0"	9'-6"	11'-0"		
	560	1'-6"	3'-0"	4'-6"	8'-0"	12'-0"			3'-0"	4'-6"	6'-0"	10'-6"	12'-0"		
14"	110	1'-0"	1'-0"	1'-0"	2'-0"	4'-6"	8'-0"		1'-0"	1'-0"	1'-0"	5'-0"	9'-0"	12'-0"	
	210	1'-0"	1'-0"	1'-0"	2'-6"	5'-0"	9'-0"		1'-0"	1'-0"	2'-0"	6'-0"	10'-0"	12'-6"	
	230	1'-0"	1'-0"	1'-0"	3'-0"	5'-6"	10'-0"		1'-0"	1'-0"	2'-6"	6'-0"	10'-6"	13'-0"	
	360	1'-0"	1'-0"	2'-0"	5'-6"	8'-6"	12'-6"		1'-0"	2'-0"	4'-0"	9'-0"	12'-0"	14'-0"	
	560	1'-0"	1'-0"	1'-6"	5'-6"	9'-6"	13'-6"		1'-0"	3'-0"	5'-0"	10'-0"	13'-6"	15'-0"	
16"	210	1'-0"	1'-0"	1'-0"	1'-0"	3'-0"	5'-6"	9'-6"	1'-0"	1'-0"	1'-0"	4'-6"	9'-6"	12'-6"	15'-6"
	230	1'-0"	1'-0"	1'-0"	1'-6"	4'-0"	6'-6"	10'-6"	1'-0"	1'-0"	1'-0"	5'-0"	10'-6"	13'-0"	16'-0"
	360	1'-0"	1'-0"	1'-0"	3'-0"	6'-6"	10'-0"	13'-6"	1'-0"	1'-0"	2'-0"	7'-6"	13'-0"	14'-6"	17'-0"
	560	1'-0"	1'-0"	1'-0"	2'-6"	7'-0"	11'-0"	15'-0"	1'-0"	1'-0"	3'-6"	9'-0"	14'-6"	16'-0"	18'-0"

- Leave ⅛" web at top and bottom of hole. **DO NOT cut joist flanges.**
- Table is based on uniform load tables in current design literature.
- For simple-span (5' minimum), uniformly loaded joists meeting the requirements of this guide, one maximum size round hole may be located in the center of the joist span **provided no other holes occur in the joist.**

1.55E TimberStrand® LSL Headers and Beams

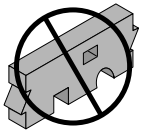


Header Depth	Maximum Round Hole Size
9¼"–9½"	3"
11¼"–11⅞"	3⅝"
14"–16"	4⅝"

See illustration for allowed hole zone

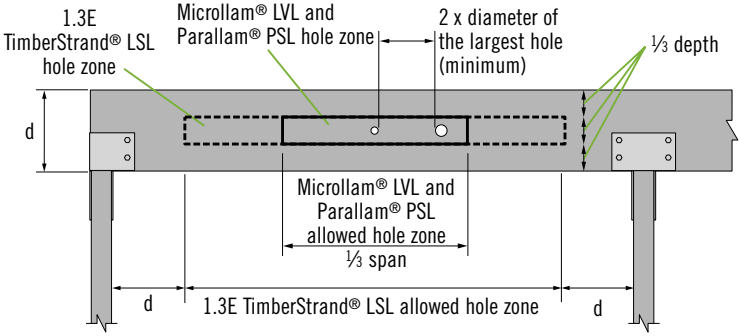
GENERAL NOTES

- No rectangular holes.
- No holes in headers or beams in plank orientation.



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

Other iLevel™ Trus Joist® Headers and Beams



Header Depth	Maximum Round Hole Size
4⅜"	1"
5½"	1¾"
7¼"–20"	2"

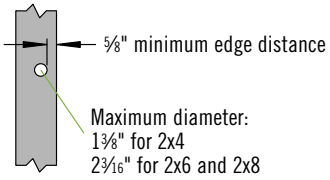
See illustration for allowed hole zone

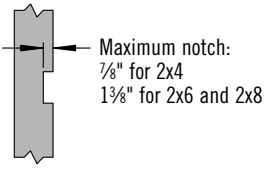
GENERAL NOTES

- Allowed hole zone suitable for **uniformly loaded headers and beams only**.
- No rectangular holes.
- No holes in cantilevers.
- No holes in headers or beams in plank orientation.

TimberStrand® LSL Wall Studs

The notch shown may be cut anywhere except the middle ⅓ of the length of the stud.
One hole may be cut anywhere along the length of the stud or column but must be no closer than ⅝" from the edge.

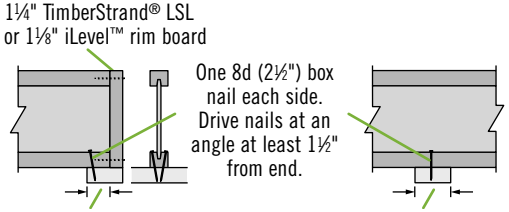




DO NOT cut a notch and a hole in the same cross section

TJI® JOIST NAILING REQUIREMENTS AT BEARING

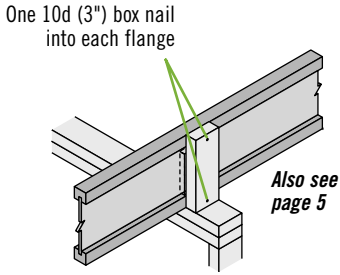
Connections to Bearing Plate



- 1¾" minimum end bearing for single-family applications
- 2¼" minimum end bearing for multi-family applications
- 3½" minimum intermediate bearing
- 5¼" may be required for maximum capacity

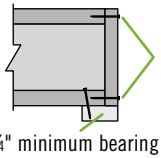
Shear transfer: Connections equivalent to deck nailing schedule. See page 4.

Squash Blocks to TJI® Joist
(Load bearing wall above)



Also see detail B2, page 5

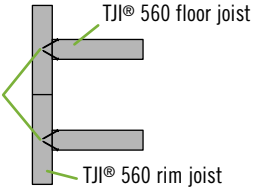
Rim to TJI® Joist



1¼" TimberStrand® LSL or 1⅛" iLevel™ rim board, or TJI® 110 rim joist:
One 10d (3") box nail into each flange

TJI® 210, 230, and 360 rim joist:
One 16d (3½") box nail into each flange

TJI® 560 rim joist:
Toenail with 10d (3") box nails, one each side of TJI® joist flange



Locate rim board joint between joists

iLEVEL™ TRUS JOIST® FRAMEWORKS® FLOOR SYSTEM

FrameWorks® FLOOR SYSTEM COMPONENTS

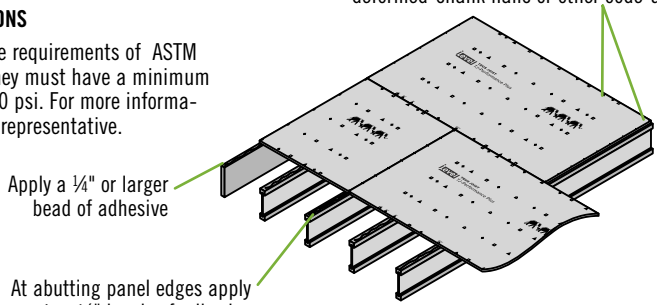
- TJ-Performance Plus® floor panels
- TJI® joists
- 1¼" TimberStrand® LSL or 1⅛" iLevel™ rim board

ADHESIVE RECOMMENDATIONS

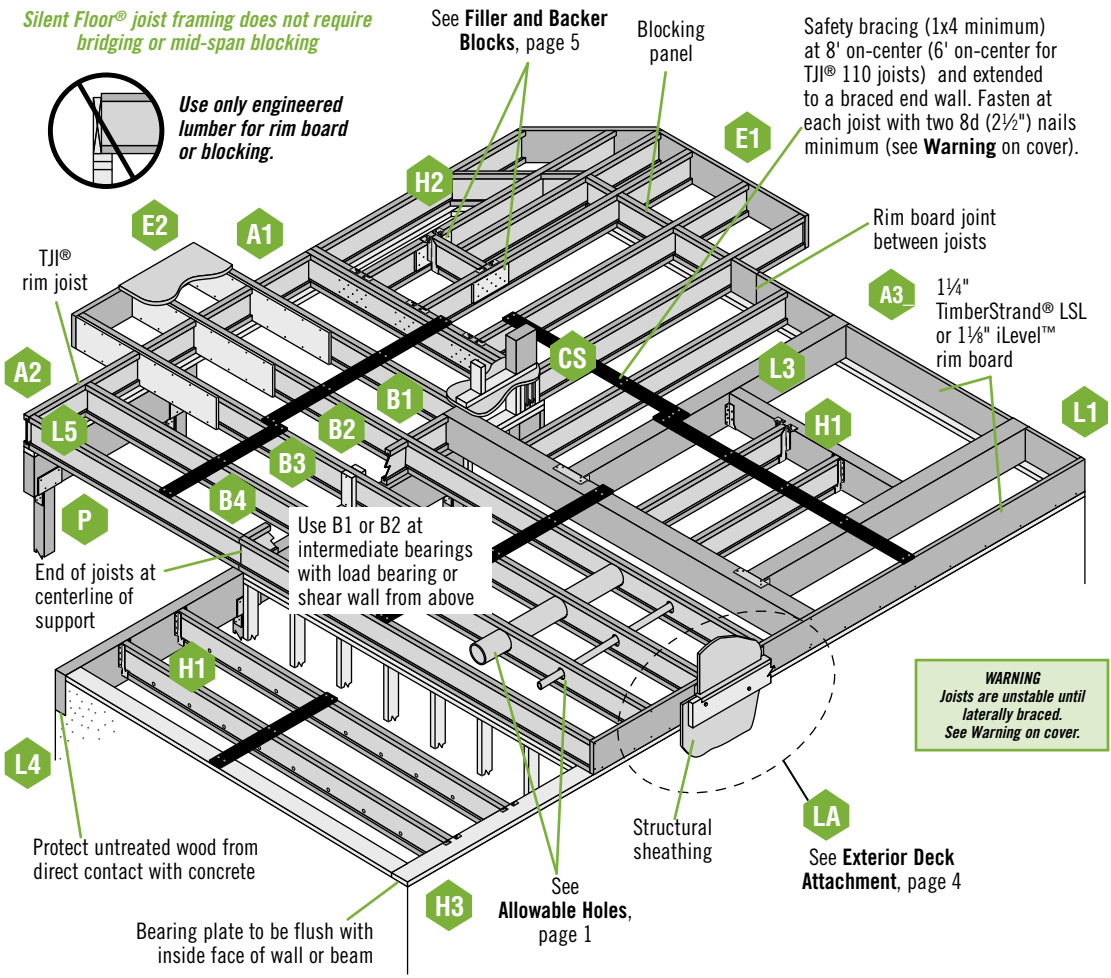
- Adhesives must meet the requirements of ASTM D 3498 (AFG-01), and they must have a minimum dry shear strength of 350 psi. For more information, contact your iLevel representative.

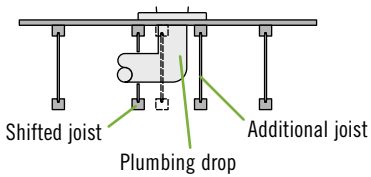
Nail to joist at 12" on-center in field and 6" on-center along panel edges. Apply fasteners ⅜" from panel edges.

- For ¾" panels, use 8d (2½") common or 6d (2") deformed-shank nails or other code-approved fasteners.
- For ⅞" panels, use 8d (2½") common or 8d (2½") 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 nails (above) if the screws have equivalent lateral load capacity.





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 above).

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
- E1W cantilever with reinforcement
- E2 ¾" reinforcement on one side
- E3 ¾" reinforcement both sides
- E4 joist reinforcement
- F1 deck cantilever
- PB1 permanent cantilever bracing

Cantilever over brick ledge (see page 5)

- E5 ¾" reinforcement on one side
- E6 ¾" reinforcement both sides
- E7 ¾" reinforcement on one side, with 2x_ blocking
- E8 ¾" reinforcement on both sides, with 2x_ blocking

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
- 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 shear walls above or below.

iLevel™ TJ-Xpert® SOFTWARE FRAMING PLANS

BW Web stiffeners required on each side of joist at intermediate bearings. Refer to your TJ-Xpert® framing plan.

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

FASTENING OF FLOOR PANELS

Guidelines for Closest On-Center Spacing per Row

Nail Size	TJI®		Rim board		TimberStrand® LSL 1½" or wider	Microllam® LVL	Parallam® PSL
	110 and 210	230, 360, and 560	1⅛" iLevel™	1¼" TimberStrand® LSL			
8d (2½") common	3½"	2"	6"	4"	3"	3"	3"
10d (3"), 12d (3¼") common	4½"	3"	6"	4"	4"	4"	4"
16d (3½") common	N.A.	4"	16"	6"(1)	6"(1)	8"	6"

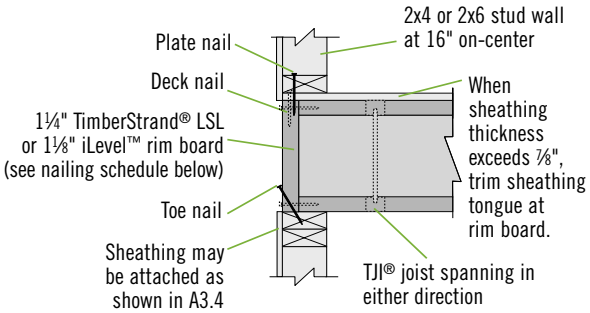
(1) Can be reduced to 4" on-center with maximum nail penetration of 1⅜" into the narrow edge.

- Recommended nailing is 12" on-center in field and 6" on-center along panel edge. Nailing requirements on engineered drawings supersede recommendations listed above.
- Nailing rows must be offset at least ½" and staggered.
- 14 ga. staples may be substituted for 8d (2½") nails if minimum penetration of 1" into the TJI® joist or rim board is achieved.

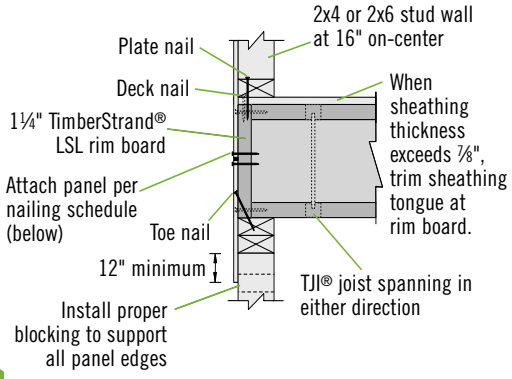
Farthest On-Center Spacing Per Row

Maximum spacing of nails is:

- 18" on-center for 1¾" joist widths.
- 24" on-center for joist widths greater than 1¾".



A3.1 A3.2 A3.3



A3.4

Specifications			Rim Board Installation Detail			
			A3.1[1][2]	A3.2[1][2]	A3.3[1]	A3.4[1]
Rim Board Thickness			1⅛"	1¼"	1¼"	1¼"
Plate Nail—16d (3½") box			16" o.c.	12" o.c.	8" o.c.	12" o.c.
Floor Panel Nail—8d (2½") common			6" o.c.	6" o.c.	6" o.c.	6" o.c.
Toe Nail—10d (3") box			6" o.c.	6" o.c.	4" o.c.	6" o.c.
Sill Plate Anchor Bolt			½" dia. at 6' o.c.	½" dia. at 6' o.c.[3]	⅝" dia. at 6' o.c.[4]	⅝" dia. at 4' o.c.
Wall Framing	Exterior Face	Sheathing	Per Code	Per Code	7/16" structural 1 sheathing[5]	⅜" structural 1 sheathing in all areas[6]
		Boundary Nailing			8d common at 6" o.c.	8d common at 4" o.c.
		Intermediate Nailing			8d common at 12" o.c.	8d common at 12" o.c.
		Max. Window Opening Height			5'-4"[7]	5'-4"[7]
		% of Wall with Full Height Sheathing			70%	70%
	Interior Face	Sheathing	Per Code	Per Code	½" gypsum	½" gypsum
		Boundary Nailing			5d cooler at 7" o.c.	5d cooler at 7" o.c.
		Intermediate Nailing			5d cooler at 10" o.c.	5d cooler at 10" o.c.
Hold-Downs		90 mph Wind Zone	none			
		120 mph Wind Zone	16" o.c. within 10' of corners[8]	16" o.c. within 6' of corners[8]	16" o.c. within 4' of corners[8]	none

(1) All sheathing shall be properly blocked and nailed.

(2) Verify the lateral capacity of the wall. Not all types of code-allowed wall construction provide the same lateral resistance. Check with your local building official or design professional.

(3) For 120 mph wind speed, place bolts at 3'-6" on-center.

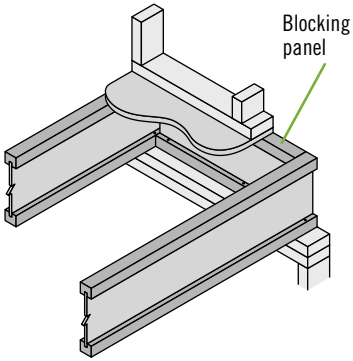
(4) For 120 mph wind speed, place bolts at 4' on-center.

(5) Detail A3.3 shall be a segmented wall, location of full-height structural sheathing per code.

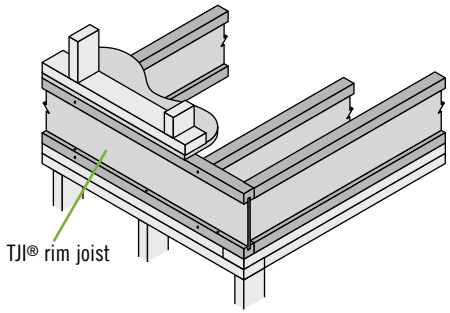
(6) Sheathing shall be continuous over all plate-to-plate and plate-to-rim board interfaces and may butt together at mid-depth of rim board as shown in A3.4. At foundation, fasten the bottom edge of the sheathing to the sill plate.

(7) In addition, one 6'-8" standard door opening is allowed.

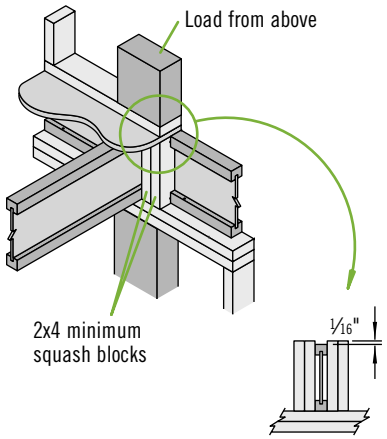
(8) If required, hold-downs shall be Simpson Strong-Tie™ CS20 (or equivalent) straps attached with four 8d common nails at each end. As an alternative to hold-down straps, wall sheathing may be attached as shown in A3.4. See footnote 6.



A1

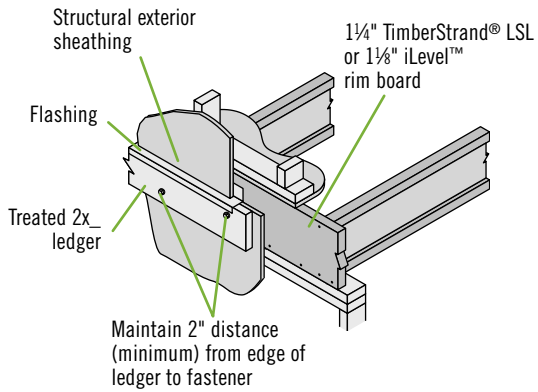


A2 ***Must have 1¾" minimum joist bearing at ends***

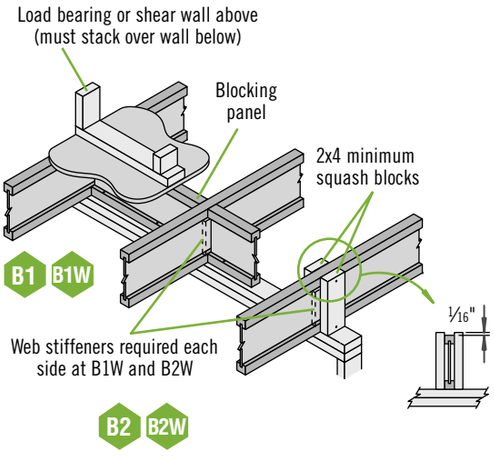


CS ***Use 2x4 minimum squash blocks to transfer load around TJI® joist***

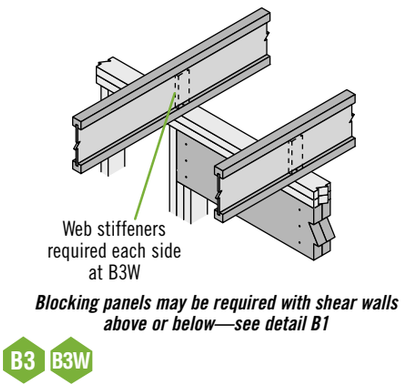
Exterior Deck Attachment



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

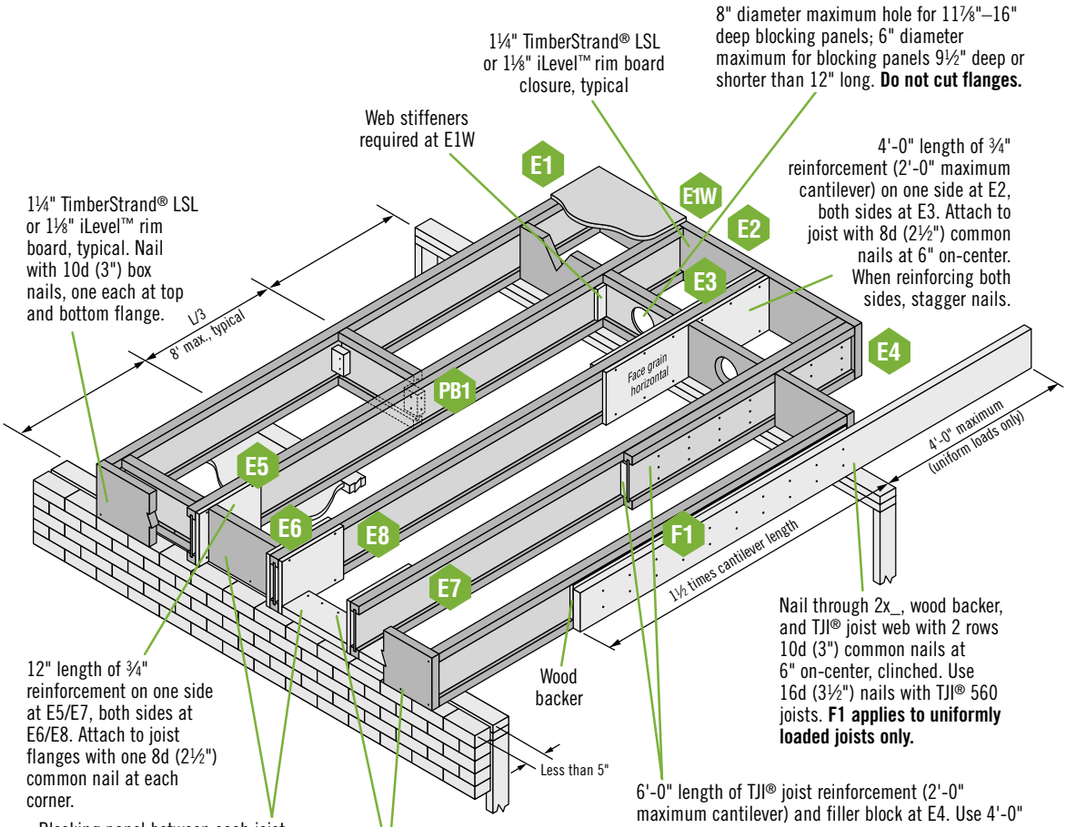


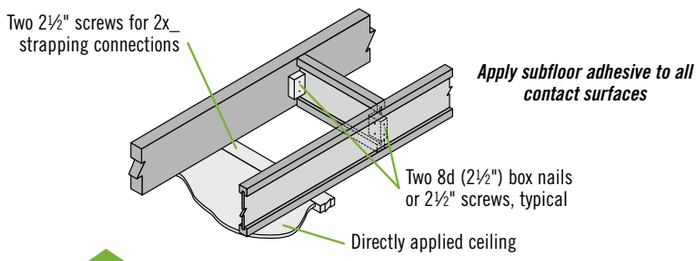
Intermediate Bearing — No Load Bearing Wall Above



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

CANTILEVER DETAILS

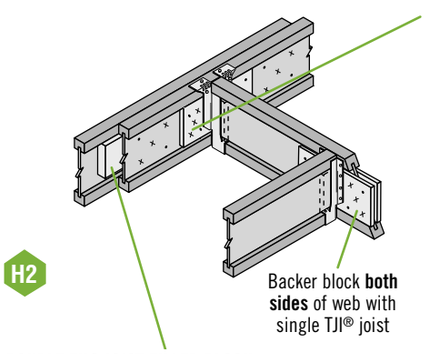




Apply subfloor adhesive to all contact surfaces

PB1 ***When specified on the layout, one of the above bracing options is required.***

FILLER AND BACKER BLOCKS



DOUBLE TJI® JOIST FILLER BLOCK

- **Single-Family Applications:** Attach with ten 10d (3") box nails, clinched. Use ten 16d (3½") box nails from each side with TJI® 560 joists.
- **Multi-Family Applications:** Attach with **fifteen** 10d (3") box nails, clinched. Use **fifteen** 16d (3½") box nails from each side with TJI® 560 joists.

HANGER BACKER BLOCK

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

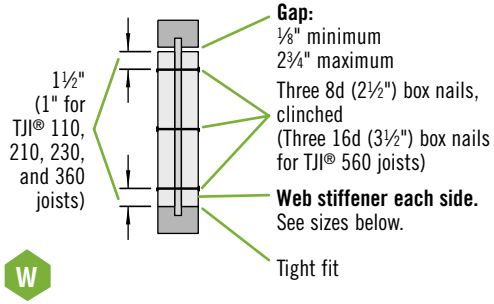
- **Single-Family Applications:** Attach with ten 10d (3") box nails, clinched when possible.
- **Multi-Family Applications:** Attach with **fifteen** 10d (3") box nails, clinched when possible.
- If necessary, increase filler and backer block height for face mount hangers and maintain ⅛" gap at top of joist; see detail W on page 6.
- Filler and backer block dimensions should accommodate required nailing without splitting. Suggested minimum length is 24" for filler and 12" for backer blocks.

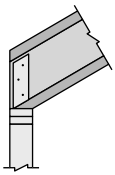
HANGER BACKER BLOCK SIZES

- **TJI® 110 joists:** ⅝", minimum length 12"
- **TJI® 210 joists:** ¾", minimum length 12"
- **TJI® 230 and 360 joists:** 1" net, minimum length 12"
- **TJI® 560 joists:** 2x_, minimum length 12"

DOUBLE TJI® JOIST FILLER SIZES

- **TJI® 110 joists:** 2x_, minimum length 24"
- **TJI® 210 joists:** 2x_ + ⅜" sheathing, minimum length 24"
- **TJI® 230 and 360 joists:** 2x_ + ½" sheathing, minimum length 24"
- **TJI® 560 joists:** Two 2x_, minimum length 24"

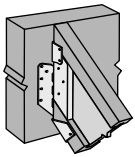




WEB STIFFENER REQUIREMENTS

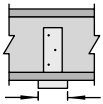
Required at all birdsmouth cuts.

Required at all sloped hangers. For TJI® 560 joists, web stiffeners are required at all hanger locations.



Required if the sides of the hanger do not extend to laterally support at least ⅜" of the TJI® joist top flange.

Web stiffeners are required when intermediate bearing lengths are less than 5¼" except where noted on framing plan.



WEB STIFFENER SIZES

- **TJI® 110 joists:** ⅝" x 2 5/16" minimum
- **TJI® 210 joists:** ¾" x 2 5/16" minimum
- **TJI® 230 and 360 joists:** ⅞" x 2 5/16" minimum
- **TJI® 560 joists:** 2x4

TYPICAL ROOF AND WALL FRAMING

DETAIL SCHEDULE

Bearings (see page 7)

- R1 on bevel plate
- R3 with variable slope seat connector
- R5 with birdsmouth cut
- R7 intermediate bearing
- R14 ridge detail

Outrigger details (see page 7)

- R8 2x4 outrigger and filler with birdsmouth cut
- R9 2x4 outrigger without filler
- R10 2x4 outrigger and filler

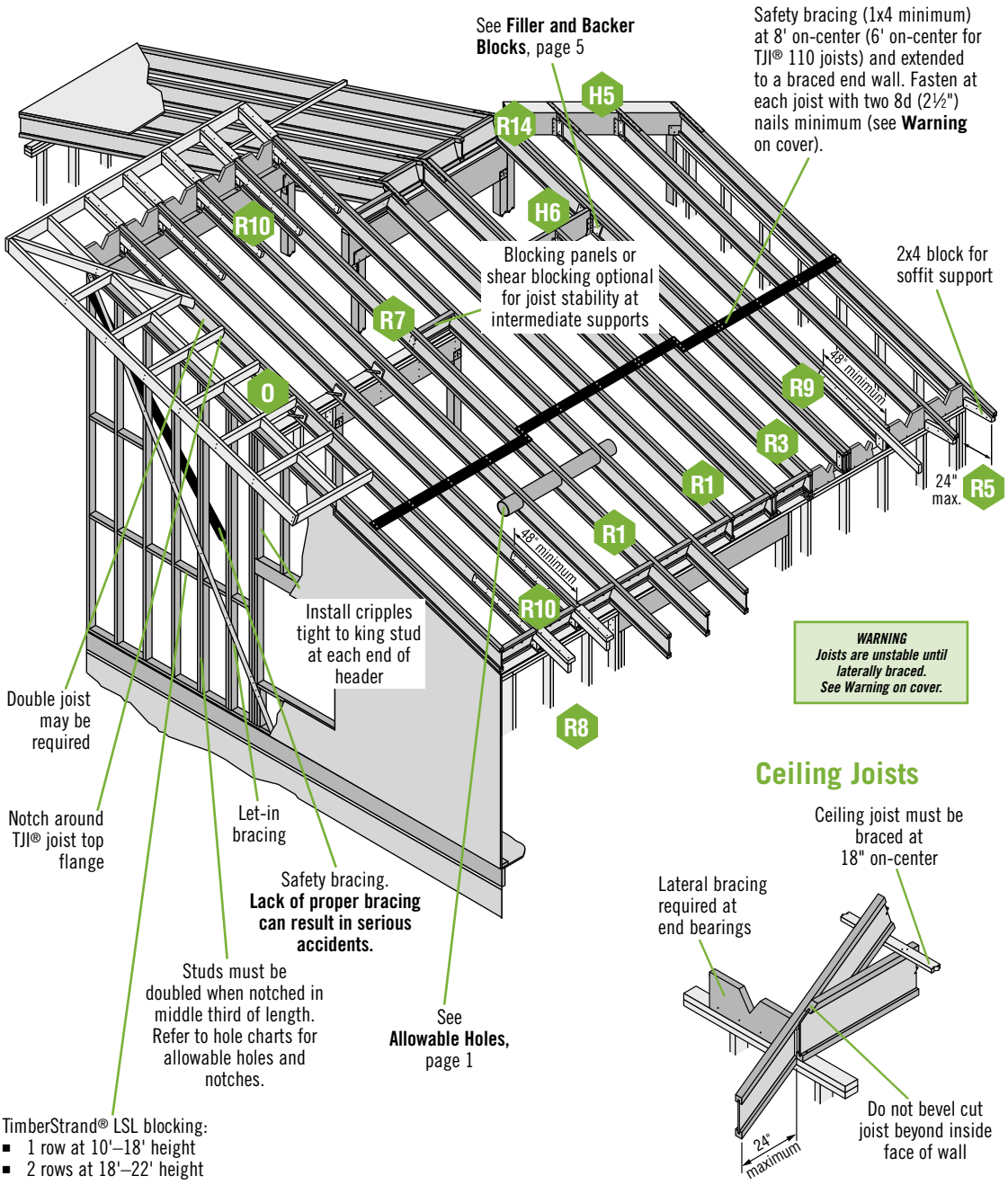
Other details

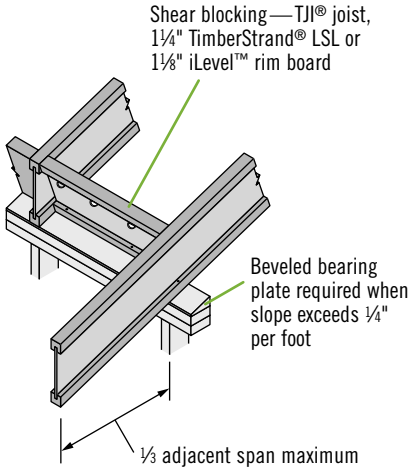
- O 2x_ overhang at end wall
- SB shear blocking (see page 8)
- W web stiffeners

Hanger details (see page 8)

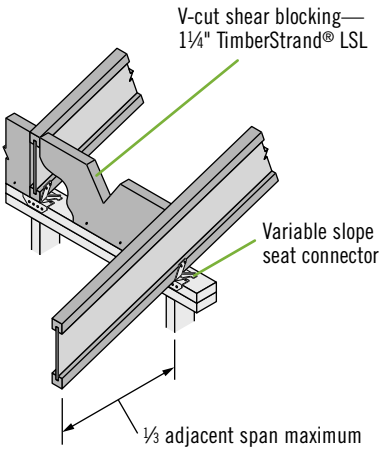
- H5 slope adjusted hanger
- H6 header on slope

Joists must be laterally supported at cantilever and end bearing 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-center (6' on-center for TJI® 110 joists) and extended to a braced end wall. Fasten at each joist with two 8d (2½") nails minimum (see **Warning** on cover).
H5
R14
H6
R10
Blocking panels or shear blocking optional for joist stability at intermediate supports
2x4 block for soffit support
R7
48" minimum
R9
0
R3
R1
24" max.
R5
R1
48" minimum
R10
Install cripples tight to king stud at each end of header
R8
WARNING
Joists are unstable until laterally braced.
See Warning on cover.
Double joist may be required
Notch around TJI® joist top flange
Let-in bracing
Safety bracing. **Lack of proper bracing can result in serious accidents.**
Studs must be doubled when notched in middle third of length. Refer to hole charts for allowable holes and notches.
See **Allowable Holes,** page 1
TimberStrand® LSL blocking:
- 1 row at 10'–18' height
- 2 rows at 18'–22' height
Ceiling Joists
Ceiling joist must be braced at 18" on-center
Lateral bracing required at end bearings
Do not bevel cut joist beyond inside face of wall
24" maximum



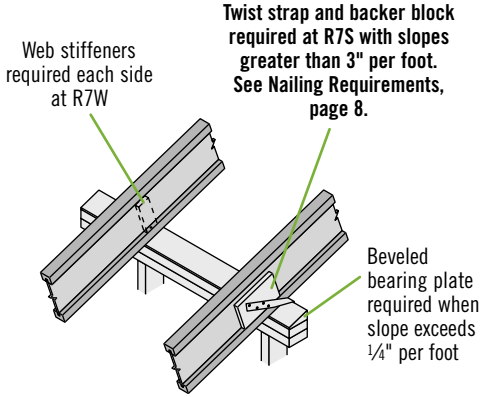
R1



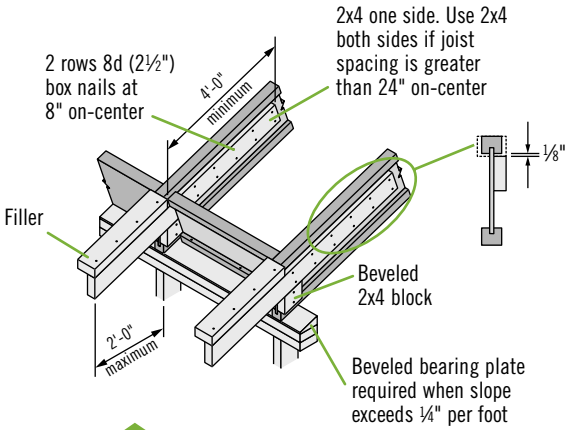
R3

Intermediate Bearing

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

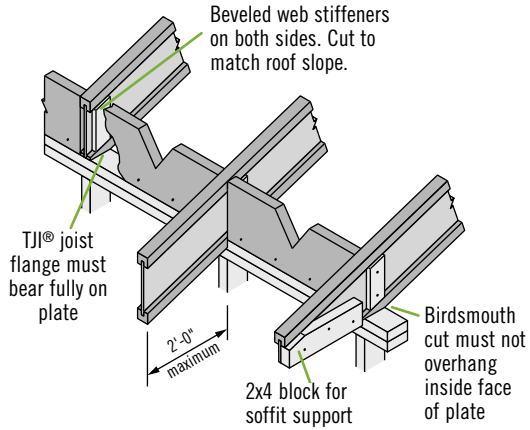


R7 R7W R7S

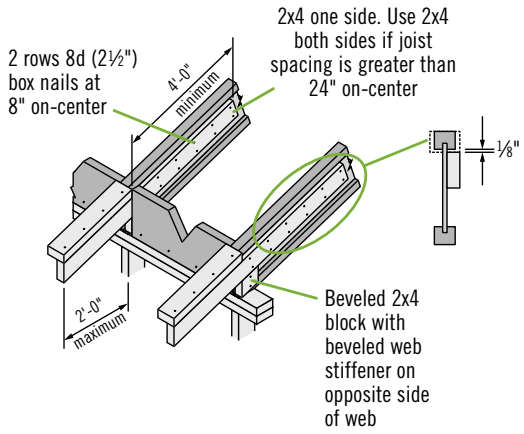


R10

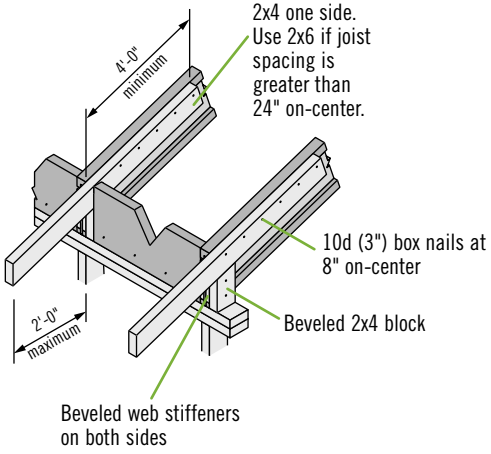
BIRDSMOUTH CUT—R5, R8, AND R9 *Allowed at low end of joist only*



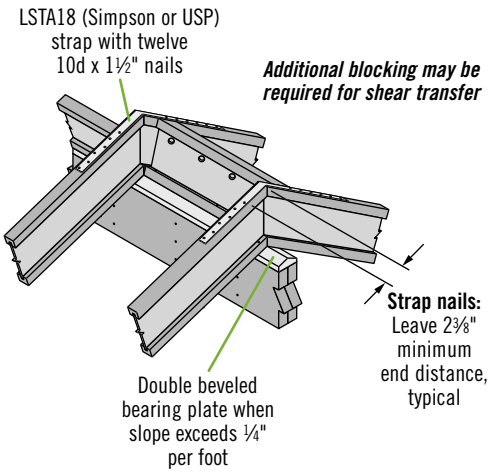
R5



R8



R9



R14

APPROVED HANGERS

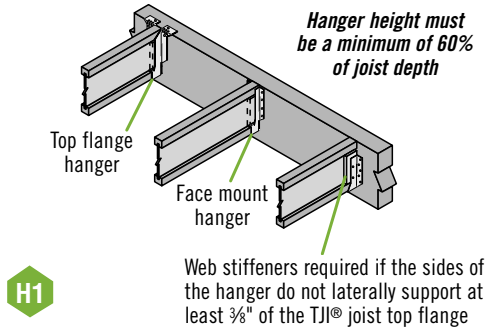
- The following three manufacturers are approved to supply hangers for iLevel products:
  - Simpson Strong-Tie™ 1-800-999-5099
  - USP Structural Connectors™ 1-800-328-5934
- Hanger design loads differ by support type and may exceed the capacity of the support and/or supported member. Contact your iLevel representative or refer to iLevel™ software.

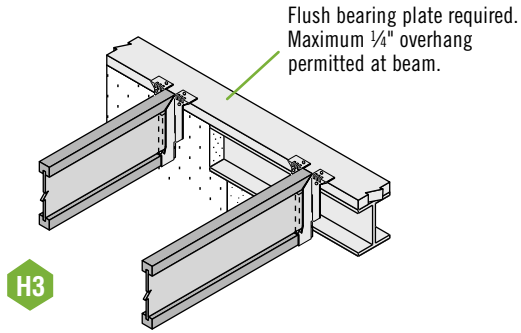
NAILING REQUIREMENTS

- Fill all round 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 FLANGE
10d x 1½"	1½" minimum	1½" minimum
10d (3") common	1¾" minimum	3" minimum
16d (3½") common	2" minimum	3½" minimum

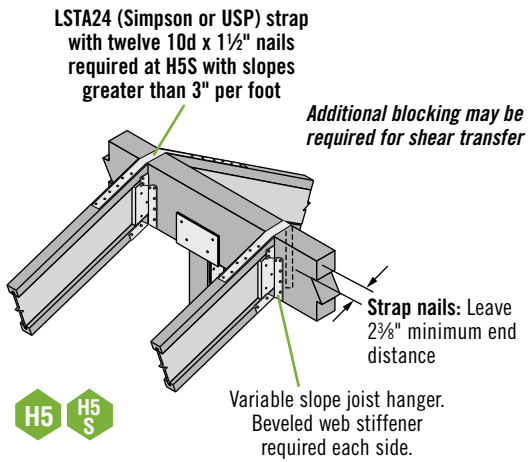
- Top flange hangers should be fastened to TJI® joist headers with 10d x 1½" nails. Fasten face mount hangers to 3½" or wider TJI® joist headers with 10d (3") common or 16d (3½") common nails.





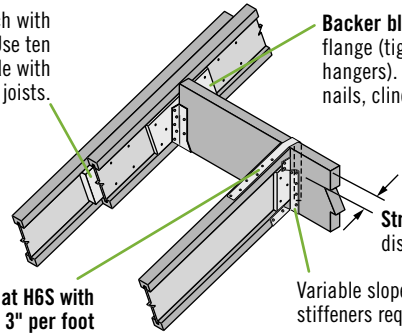
CONNECTOR INSTALLATION AND SQUEAK PREVENTION TIPS

- 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.
- Seat the supported member tight to the bottom of the hanger. On Simpson Strong-Tie™ ITT, IUT, and VPA connectors, bend the bottom flange tabs over and nail to TJI® joist bottom flange.
- Reduce squeaks by adding subfloor adhesive to the hanger seat.



Filler block: Attach with ten 10d (3") box nails, clinched. Use ten 16d (3½") box nails from each side with TJI® 560 joists.

Backer block: Install tight to bottom flange (tight to top flange with top flange hangers). Attach with ten 10d (3") box nails, clinched when possible.



Strap nails: Leave 2⅜" minimum end distance, typical

Variable slope joist hanger. Beveled web stiffeners required on each side.

H6 H6S

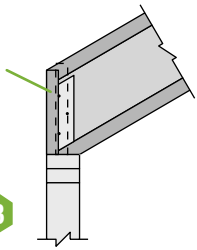
LSTA18 strap required at H6S with slopes greater than 3" per foot

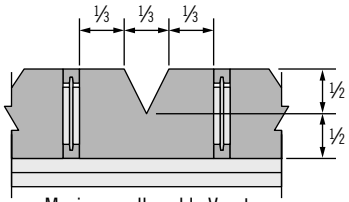
SHEAR BLOCKING AND VENTILATION HOLES *Roof Only*

1¼" 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.

For TJI® joists with slopes of 10/12 to 12/12, the vertical depth at bearing will require 1¼" TimberStrand® LSL or 1⅛" iLevel™ rim board (for shear blocking) that is one size deeper than the TJI® joist

SB



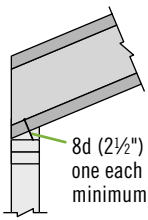


Maximum allowable V-cut

TJI® JOIST NAILING REQUIREMENTS AT BEARING

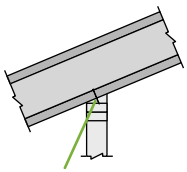
TJI® Joist to Bearing Plate

END BEARING
(1¾" minimum bearing required)



8d (2½") box nail, one each side, 1½" minimum from end

INTERMEDIATE BEARING
(3½" minimum bearing required)

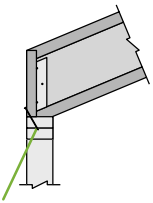


Slopes 3/12 or less:
One 8d (2½") box nail each side (see detail R7)

Slopes greater than 3/12:
Two 8d (2½") box nails each side, plus a twist strap and backer block (see detail R7S).

When slope exceeds ¼" per foot, a beveled bearing plate, variable slope seat connector, or birdsmouth cut (at low end of joist only) is required

Blocking to Bearing Plate



1¼" TimberStrand® LSL or 1⅛" iLevel™ rim board:
Toenail with 10d (3") box nails at 6" on-center or 16d (3½") box nails at 12" on-center

TJI® joist blocking:
10d (3") box nails at 6" on-center

Shear transfer nailing:
Use connections equivalent to sheathing nail schedule

DETAIL SCHEDULE

Beam and header details

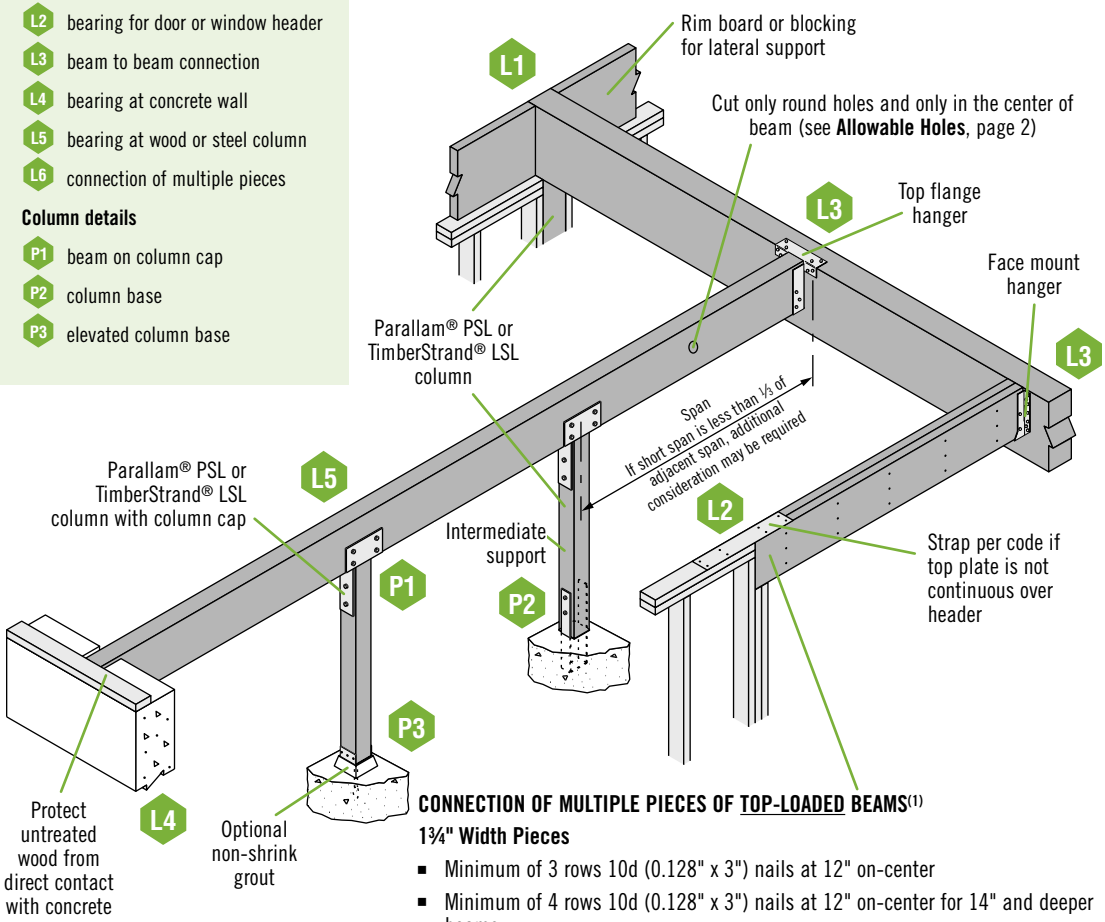
- L1 bearing at wood wall
- L2 bearing for door or window header
- L3 beam to beam connection
- L4 bearing at concrete wall
- L5 bearing at wood or steel column
- L6 connection of multiple pieces

Column details

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

Bearing length is extremely critical and must be considered for each application. See table below for minimum end and intermediate bearing lengths, and your iLevel™ TJ-Xpert® framing plan, if applicable.

This guide is intended for the products shown, and untreated Parallam® PSL in dry-use conditions



CONNECTION OF MULTIPLE PIECES OF TOP-LOADED BEAMS(1)

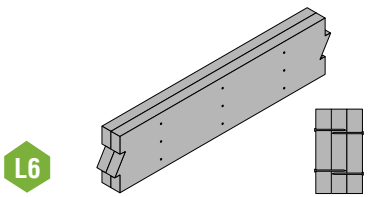
1¾" Width Pieces

- Minimum of 3 rows 10d (0.128" x 3") nails at 12" on-center
- Minimum of 4 rows 10d (0.128" x 3") nails at 12" on-center for 14" and deeper beams
- If using 12d–16d common nails, the number of nailing rows can be reduced by one

3½" Width Pieces

- Minimum of 2 rows ½" bolts at 24" on-center, staggered

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



CONNECTION OF MULTIPLE PIECES OF SIDE-LOADED BEAMS

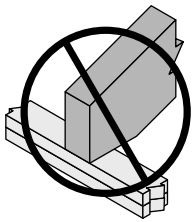
- Additional nailing or bolting may be required with side-loaded multiple-member beams. Refer to current product literature.

BEAM AND HEADER BEARINGS

Minimum Bearing Length for Beams and Headers

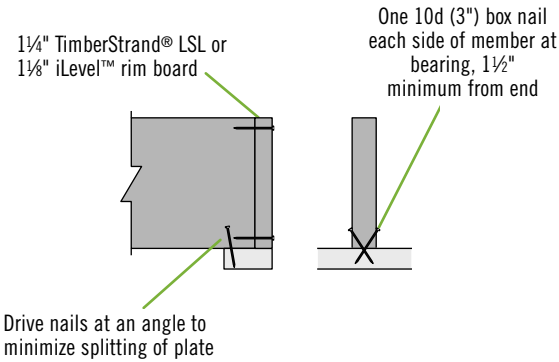
Beam Depth	Bearing	Span of Header or Beam								
		4'	6'	8'	10'	12'	16'	20'	24'	28'
5½"	End / Int.	2¼" / 4½"	1½" / 3½"	1½" / 3½"	1½" / 3½"	1½" / 3½"				
7¼"	End / Int.	3½" / 6¼"	2¼" / 5½"	1¾" / 4¼"	1½" / 3½"	1½" / 3½"	1½" / 3½"			
8⅝"	End / Int.	3½" / 8½"	2¼" / 5¾"	1¾" / 4¼"	1½" / 3½"	1½" / 3½"	1½" / 3½"	1½" / 3½"	1½" / 3½"	
9¼", 9½"	End / Int.		4¼" / 8"	3¼" / 7½"	2½" / 6¼"	2" / 5¼"	1½" / 4"	1½" / 3½"	1½" / 3½"	1½" / 3½"
11¼", 11⅞"	End / Int.				4" / 9¼"	3¼" / 8"	2¼" / 6"	1¾" / 4¾"	1½" / 4"	1½" / 3½"
14"	End / Int.					4½" / 10¾"	3¼" / 8¼"	2½" / 6½"	2" / 5½"	1¾" / 4¾"
16"	End / Int.						4¼" / 10½"	3¼" / 8½"	2¾" / 7"	2¼" / 6"
18"	End / Int.							4¼" / 10½"	3¼" / 8¾"	2¾" / 7½"
20"	End / Int.								4¼" / 10¾"	3½" / 9¼"

- Bearing across full beam width is required.
- 1½" minimum bearing length at ends, 3½" at intermediate supports.
- Bearing lengths are based on bearing stress for TimberStrand® LSL, Parallam® PSL, or Microllam® LVL. Lengths may need to be increased if support member's allowable bearing stress is less (e.g., flat wood plate).
- Table assumes maximum allowable uniform load. For other conditions, contact your iLevel representative.
- Beams and headers require lateral support at bearing points and along the top (or compression edge) at 24" on-center or closer.
- **1¾" x 16" and deeper beams and headers are to be used in multiple-member units only.**



Seat cuts must be within wall.

Beam Attachment at Bearing



YOUR GUARANTEE AND WARRANTY

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

***1-888-iLevel8** (888-453-8358)*

CODE EVALUATIONS, See

TJI® Joists
- HUD SEB 689 Rev. 9
- CCMC 13132-R
- ICC ES ESR 1153

TimberStrand® LSL
- HUD MR 1265d
- CCMC 12627-R
- ICC ES ESR 1387

Parallam® PSL
- HUD MR 1303b
- CCMC 11161-R
- ICC ES ESR 1387

Microllam® LVL
- HUD MR 925j
- CCMC 08675-R
- ICC ES ESR 1387

iLevel™ Rim Board
- ICC ES ESR 1387
- CCMC 13261-R

iLevel™ by Weyerhaeuser

www.iLevel.com

FOR MORE INFORMATION, CONTACT YOUR DEALER

October 2006
Reorder TJ-9001
This document supersedes all previous versions. If this is more than one year old, contact your dealer or iLevel rep.
NW

Weyerhaeuser®, FrameWorks®, Microllam®, Parallam®, Performance Plus®, Silent Floor®, TimberStrand®, TJ®, TJ-Beam®, TJI®, TJ-Xpert®, and Trus Joist® are registered trademarks and iLevel™ is a trademark of Weyerhaeuser Company. © 2006 Weyerhaeuser Company. All rights reserved.
Printed in USA on Weyerhaeuser Lynx uncoated recycled paper (10% post-consumer fiber).