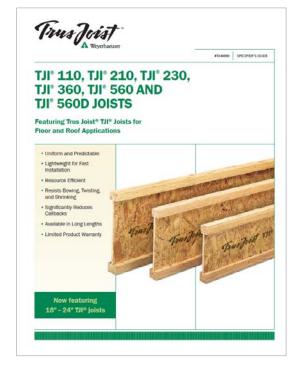
Engineered Wood Standard Installation Details

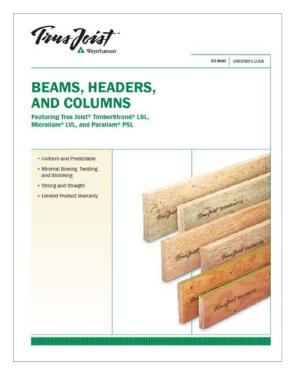
Holly Woitovich ... Trus Joist by Weyerhaeuser



Primary Handouts



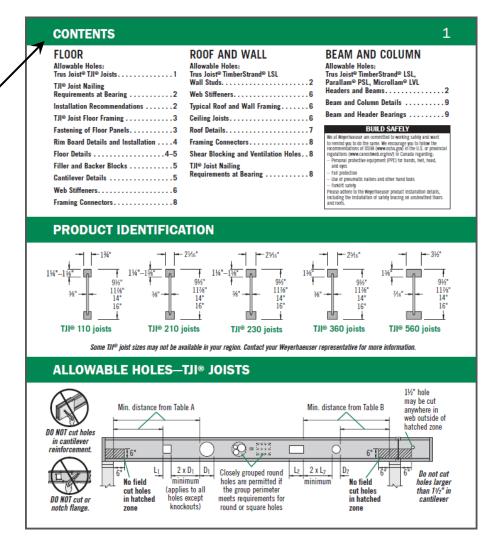




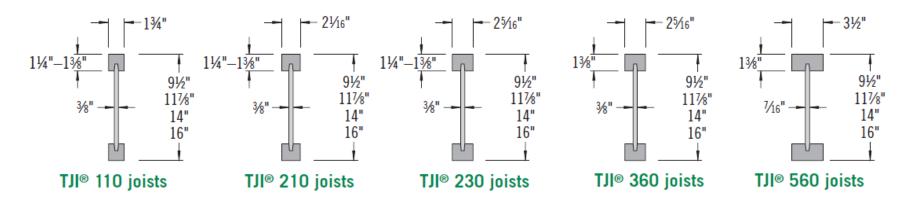


Installation Guide for Roof and Floor Framing

Always a great place to start when searching for info.



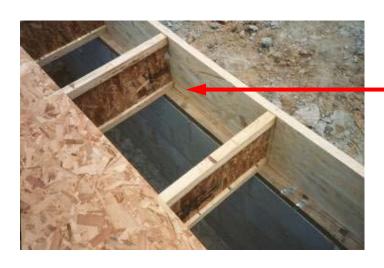










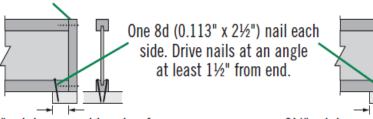




- Minimum at joist ends: 1³/₄"
- Minimum intermediate supports: 3½"

TJI® Joist to Bearing Plate

11/8" TJ® Rim Board or 11/4" TimberStrand® LSL



1¾" minimum end bearing for single-family applications

3½" minimum intermediate bearing; 5¼" may be required for maximum capacity

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



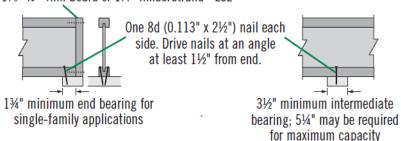
Nailing the Joist to the Plate DEMO Page 2



- Nailing joist to the plate are 1 8d 2-1/2"
 box nails each side of flange.
- The equivalent pneumatic nail is 2-1/2" x 0.128 diameter.
- Nail 1-1/2" back from the edge to keep the end of the joist from splitting.
- * Nailing only one side may cause a rub-point and an unpleasant sound.

TJI® Joist to Bearing Plate

11/8" TJ® Rim Board or 11/4" TimberStrand® LSL



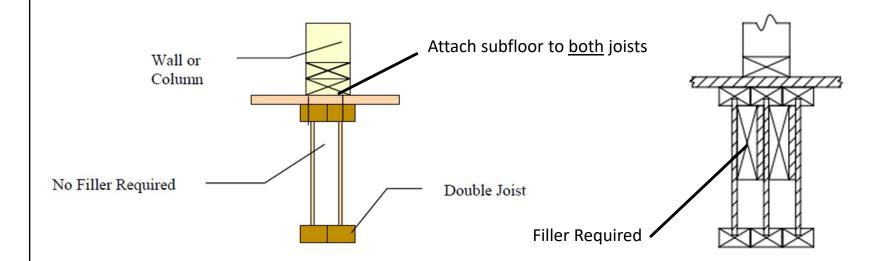
 Increased bearing capacities may be achieved with increased bearing lengths. See plans for required bearing lengths.



Double TJI® Joists - Top Loaded

Top-Loaded Double I-joists

Top-Loaded Triple I-joists



DO NOT NAIL FLANGES TOGETHER on Edge



Issue Prevention

Do

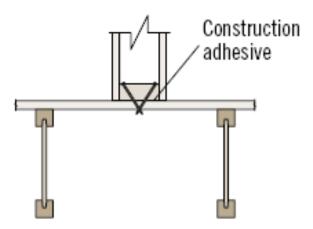


Figure 17

Don't

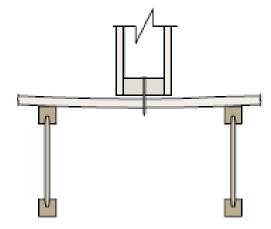
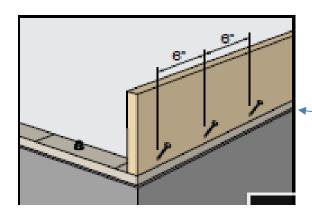
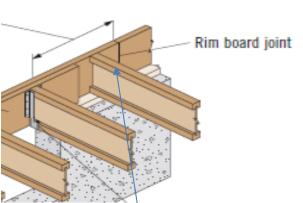


Figure 14

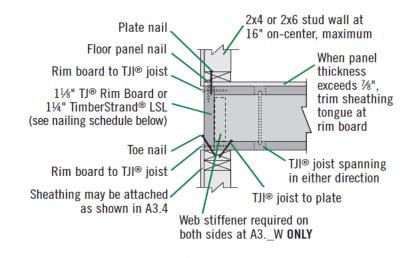


A3.1 A3.2 A3.3 A3.1 A3.2 A3.3 W





Locate rim board joint between joists



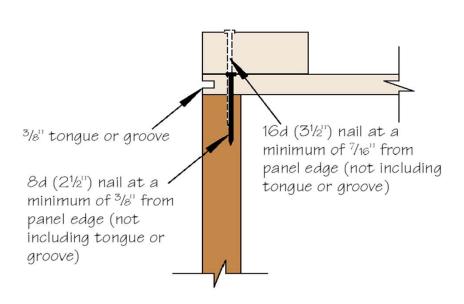


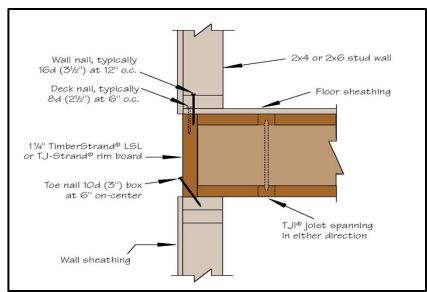
DO NOT use sawn lumber for rim board or blocking as it may shrink after installation. Use only engineered lumber.



TJ Rim Board Installation

Page 4

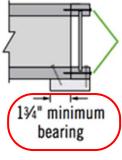




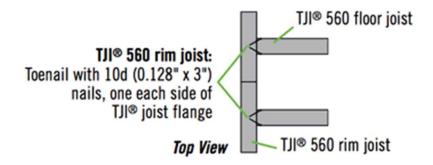
Specifications Minimum Rim Board Thickness		Rim Board Installation Detail(1)(2)					
		A3.1	A3.2	A3.3	A3.4		
		11/8"	1¼"	1¼"	1¼"		
Plate Nail-16d (0.135" x 3½")		16" o.c.	16" o.c.	16" o.c.	16" o.c.		
Floor Panel	Nail-8d (0.131" x 2½")	6" o.c.					
Rim Board to T	'JI® Joist—10d (0.131" x 3")	One into each flange					
Toe Nail-10d (0.131" x 3")		6" o.c.	6" o.c.	4" o.c.	6" o.c.		
TJI® Joist to	Plate-8d (0.113" x 2½")	Two nails driven at an angle into bottom flange, one each side of web at least 1½" from end					
	Sheathing		Per code	1/16" structural 1 sheathing ⁽³⁾	3/4" structural 1 sheathing in all areas ⁽⁴⁾		
Wall Framing	Boundary Nailing	Per code		8d (0.131" x 2½") at 6" o.c.	8d (0.131" x 2½") at 4" o.c.		
	Intermediate Nailing			8d (0.131" x 2½") at 12" o.c.			
Maximum Lateral Load (plf)		220(5)	300(5)	350(6)	560 ⁽⁶⁾		

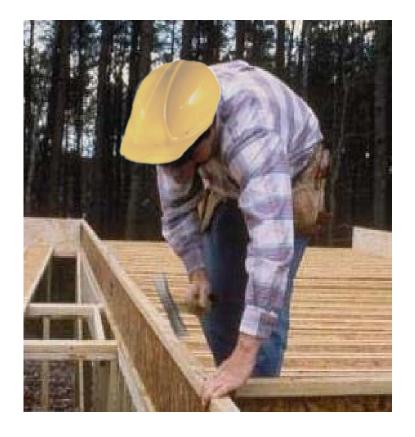


TJI® Rim Joist



1¼" TimberStrand® LSL rim board, 1½" TJ® rim board, or TJI® 110 rim joist: One 10d (0.131" x 3") nail into each flange TJI® 210, 230, and 360 rim joist: One 16d (0.135" x 3½") nail into each flange



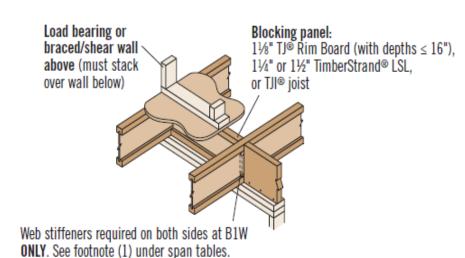




TJI[®] Blocking Panel

DEMO

Intermediate Bearing with Load Bearing Wall Above





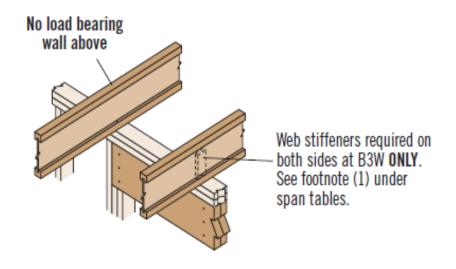
IRC 502.7 requires lateral restraint (blocking) at all intermediate supports in Seismic Design Categories D_0 , D_1 , and D_2 to strengthen the floor diaphragm

- 1. Carry load-bearing walls that stack
- 2. Lateral support for cantilever joists
- 3. Lateral support for lapped joists
- 4. Draft stopping





Intermediate Bearing with NO Load Bearing Wall Above



Continuous Joist +
No concentrated load from
above =
No blocking panels

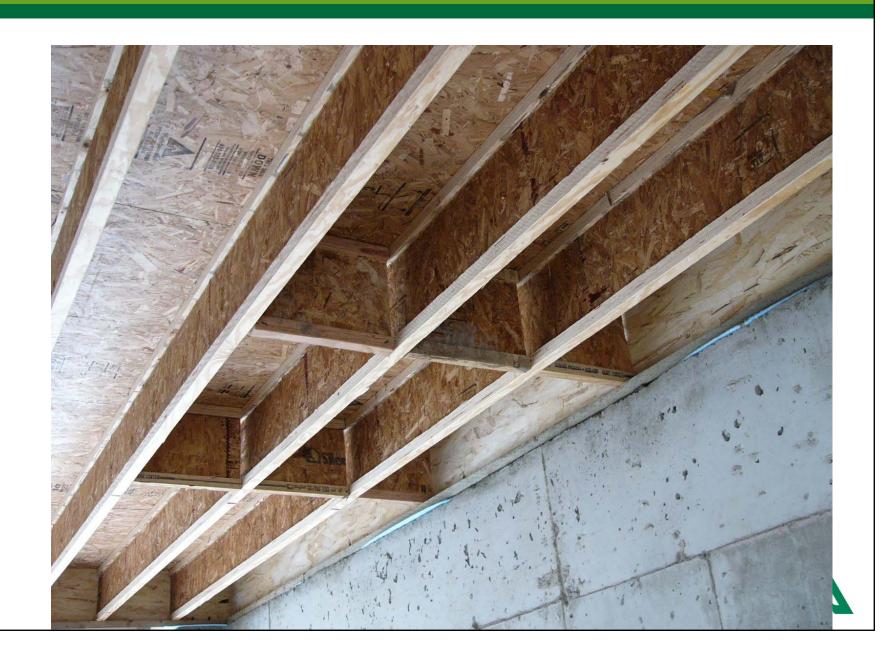


Blocking panels may be required with braced/shear walls above or below—see detail B1

"W" means Web stiffeners are required



Diaphragm Blocking



O.K. or Not O.K.?



Carrying load bearing wall-Add squash blocks

Carrying shear wall-Consult Engineer

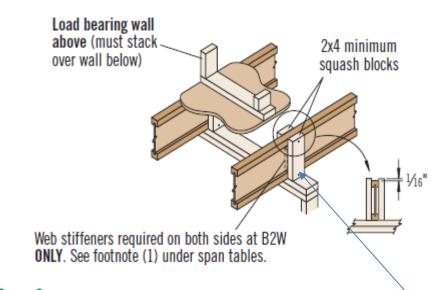


O.K. or Not O.K.?









- B2
 - B2 W

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

- 1. Vertical load transfer from bearing walls above
- 2. Vertical load transfer from concentrated loads above

Blocks cut short are USELESS!

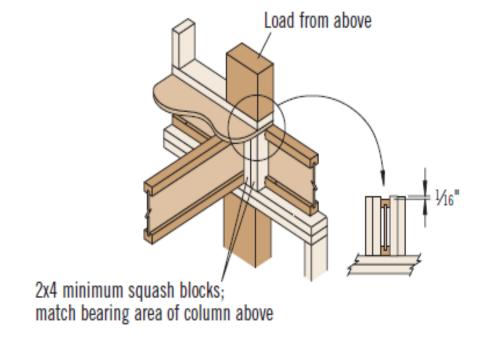




Squash Blocks and Concentrated Loads Page 4









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



Huh?



Blocking Panel and Squash Block Review

Blocking Panels

Vertical load transfer from bearing walls above

Lateral support of cantilever joists

Lateral support of lapped or butted joists

Draft stop

Squash Blocks

Vertical load transfer from bearing walls above

Vertical load transfer from concentrated loads above

Squash Blocks transfer the load around the joist to a load bearing surface below

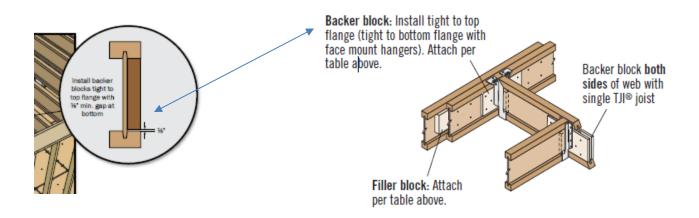
Cut 1/16" longer than adjacent joist



Framing an Opening



Page 5





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

Filler and Backer Block Sizes

TJI®	110		210		230 or 360		360	560		560D	
Depth	9½"-11%"	14"-16	9½"-11%"	14"-16"	9½"-11½"	14"-16"	18"-20"	117/8"	14"-16"	18"-20"	22"-24"
Filler Block ⁽¹⁾ (Detail H2)	2x6	2x8	2x6 + 3/8" sheathing	2x8 + 3/8" sheathing	2x6 + ½" sheathing	2x8 + ½" sheathing	2x12 + ½" sheathing	Two 2x6	Two 2x8	Two 2x12	Four ¾" x 15" sheathing
Cantilever Filler (Detail E4)	2x6 4'-0" long	2x10 6'-0" long	2x6 + 3/8" sheathing, 4'-0" long	2x10 + 3/8" sheathing, 6'-0" long	2x6 + ½" sheathing, 4'-0" long	2x10 + ½" sheathing, 6'-0" long	Not applicable	Not applicable			
Backer Block ⁽¹⁾ (Detail F1 or H2)	5/8" (or ¾"	3/4" 0	r ⅓8"	7⁄8" or 1" net		2x6	2x8	2x12	Two ¾" x 15" sheathing	
Nail Size Filler Backe		10d (0.128" x 3")				16d (0.135" x 3½") 10d (0.128" x 3")					
Nail Filler Quantity ⁽²⁾ Backe		10 (15 for multi-family applications) 15 one sid				15 one side 15		family) each side nulti-family)	15 each side 15	25 each side 15	

⁽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 on page 27. Filler and backer block dimensions should accommodate required nailing without splitting. The suggested minimum length is 24" for filler and 12" for backer blocks.

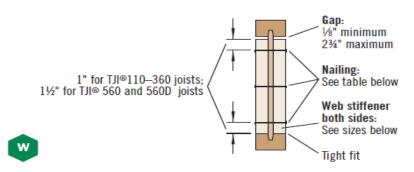
⁽²⁾ Clinch nails when possible.

Web Stiffener

DEMO

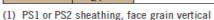
PAGE 6

Web Stiffener Attachment



Web Stiffener Requirements

TJI®	Depth	Minimum Web	Nail Type	# of Nails		
	(in.)	Stiffener Size	нан туре	End	Int.	
110	All	5/8" x 25/16"(1)		3	3	
210	All	¾" x 2 5/16"(1)	8d (0.113" x 2½")	3	3	
230, 360	All	7/8" x 25/16"(1)		3	3	
560	All	2x4 ⁽²⁾	16d (0.135" x 3½")	3	3	
	18"			4	4	
560D	20"	2x4(2)	16d (0.135" x 3½")	5	5	
3000	22"(3)	2X4 ⁴²⁷ 100 (0.133 X 372)	6	11		
	24"(3)			6	13	



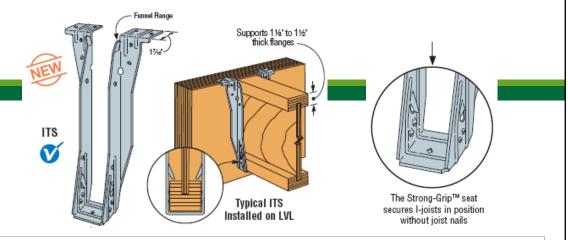
- (2) Construction grade or better
- (3) Web stiffeners are always required for 22" and 24" TJI® 560D joists.



Web Stiffeners Generally Increase the Reaction Capacity of I-Joists.



Hangers



Fastening Identification



Round Holes Purpose: To fasten

a connector.
Fill Requirements:

Always fill, unless noted otherwise.



Obround Holes

Purpose: To make fastening a connector in a tight location easier.

Fill Requirements: Always fill.



Hexagonal Holes

Purpose: To fasten a connector to concrete or masonry.

Fill Requirements: Always fill when

fastening a connector to concrete or masonry.



Triangular Holes

Purpose: To increase a connector's strength or to achieve max. strength.

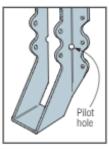
Fill Requirements: When the Designer specifies max, nailing.



Diamond Holes

Purpose: To temporarily fasten a connector to make installing it easier.

Fill Requirements: None.



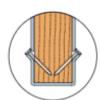
Pilot Holes

Tooling holes for manufacturing purposes. No fasteners required.



Speed Prongs

Used to temporarily position and secure the connector for easier and faster installation.



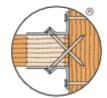
Positive Angle Nailing (PAN)

Provided when wood splitting may occur, and to speed installation.



Dome Nailing

This feature guides the nail into the joist and header at a 45° angle. U.S. Patent 5.603.580



Double-Shear Nailing

The nail is installed into the joist and header, distributing the load through two points on each joist nail for greater strength. Double-shear nailing must be full-length catalog nail.

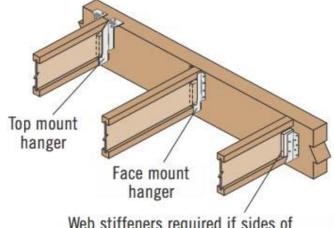


ITS/IUS Strong-Grip™

The Strong-Grip™ seat allows the I-joist to "snap" in securely without the need for joist nails.

UPDATED 04/17/17

Make sure the correct hanger and nails are used as specified.



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

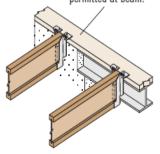


H1





Flush bearing plate required. Maximum ¼" overhang permitted at beam.





Connector Installation Tips



Do Not Pre-Nail Joists

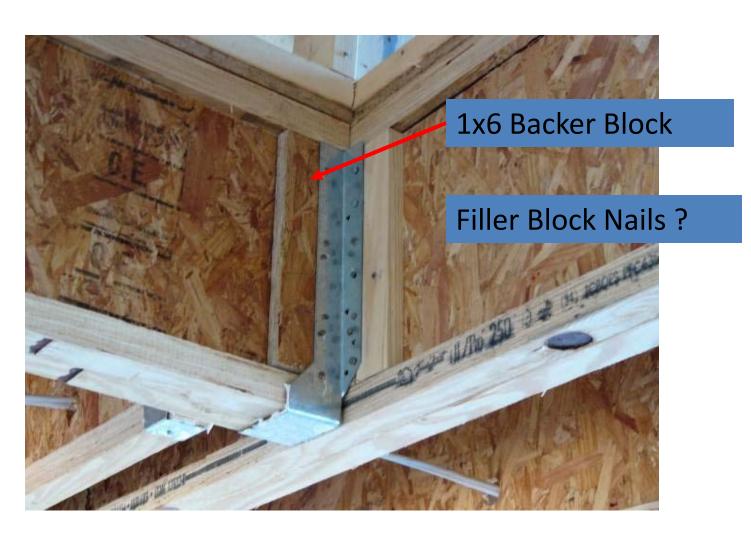
CONNECTOR INSTALLATION AND SQUEAK PREVENTION TIPS

- Correct 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.



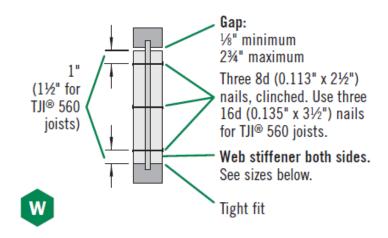


O.K. or Not O.K.?





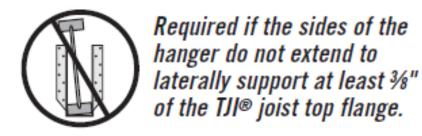
Hangers



WEB STIFFENER SIZES

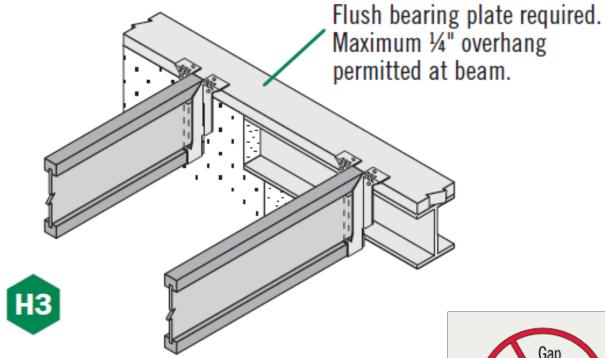
- TJI® 110 joists: 5/8" x 25/16" minimum(1)
- TJI® 210 joists: ¾" x 25/16" minimum(1)
- TJI® 230 and 360 joists: 1/8" x 25/16" minimum(1)
- TJI® 560 joists: 2x4, construction grade or better

(1) PS1 or PS2 sheathing, face grain vertical





Hangers





DO NOT install hanger overhanging face of plate or beam. Flush bearing plate with inside face of wall or beam.

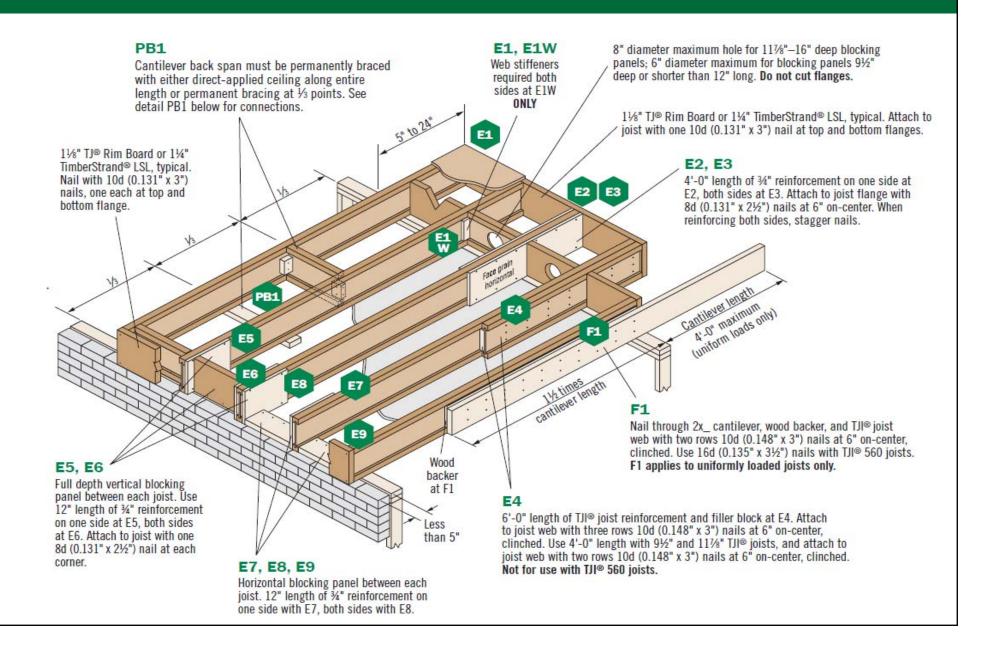


O.K. or Not O.K.?

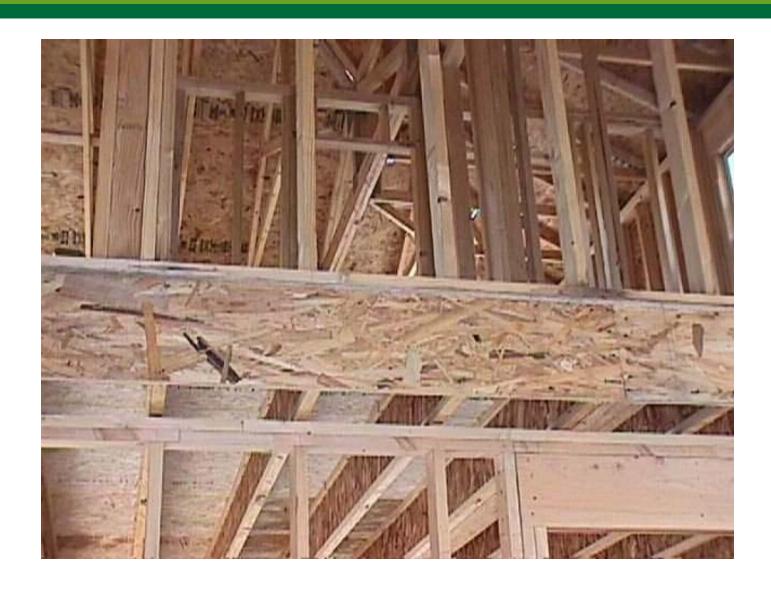




Cantilevers *Blocking required

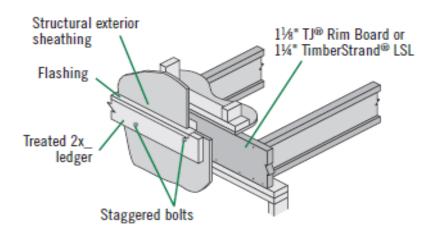


O.K. or Not O.K.?





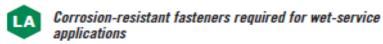
Exterior Deck Attachment



Ledger Fastener⁽¹⁾ Capacities

		Fastener Allowable Load ⁽²⁾ (lbs/bolt)				
	Rim Board Material	½" Lag Bolt	½" Through Bolt	½" Through Bolt with Air Space		
ľ	11/8"TJ® Rim Board ⁽³⁾	480	695			
	1¼" TimberStrand® LSL	610	725	615(4)		
	1½" TimberStrand® LSL	675	725			

- (1) Corrosion-resistant fasteners required in wet-service applications.
- (2) Allowable load determined in accordance with ASTM D7672.
- (3) 1½" TJ[®] Rim Board is allowed with joist depths ≤ 16" only.
- (4) Maximum ½" shimmed air space.



Caution: Local attachment requirements vary. Confirm local code prior to proceeding.

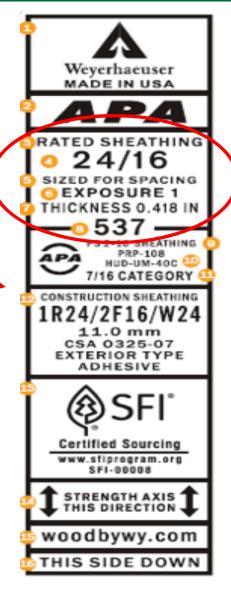




Flooring & Sheathing Grade Stamp



Stamp side down.





Questions and Follow Up?

