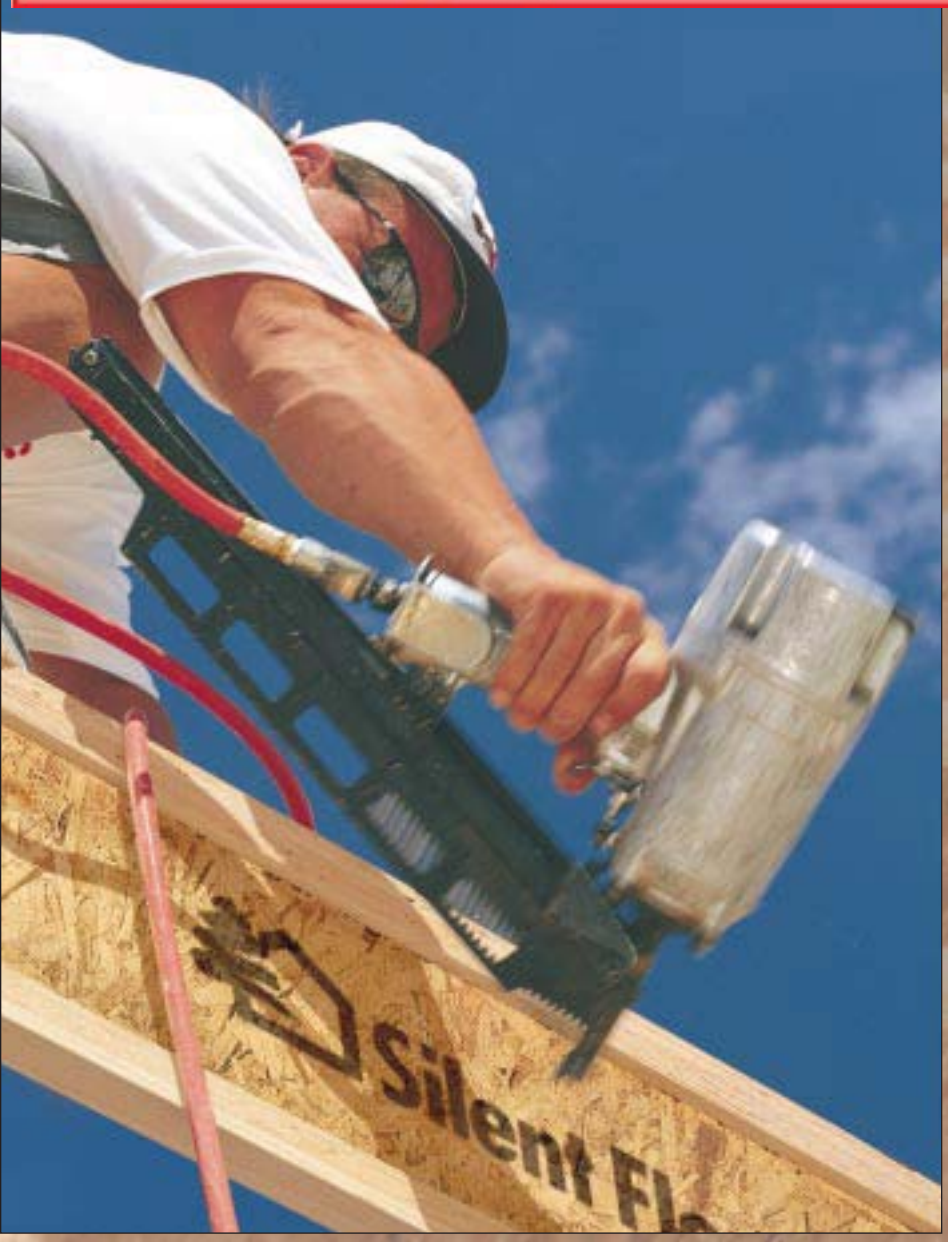
Trus Joist MacMillan®

This literature is for legacy Trus Joist® products only and is not intended for use in current specification. Visit www.woodbywy.com for the most current Trus Joist® product offering and specification information.



- Environmentally Responsible
- Uniform and Predictable
- Resists Bowing, Twisting and Shrinking
- Lightweight for Fast Installation
- Significantly Reduces Callbacks
- Available in Long Lengths
- Product Warranty

1-800-628-3997

TJI®/Pro™
150, 250, 350 & 550 Joists
Featuring
the Silent Floor® System
for Residential Applications

TJI® Joist
Trus Joist MacMillan®

The Silent Floor® System is the benchmark of quality. When integrated into the frame of a house, it significantly increases the value and structural quality of the home.

The residential products in this brochure are primarily intended for use in single and multi-family dwellings. These products are readily available through our nationwide network of distributors and dealers.

For commercial applications such as retail stores, office buildings, schools, restaurants, hotels, nursing homes, etc., please refer to the COMMERCIAL PRODUCT MANUAL or the Commercial section of our STRUCTURAL PRODUCTS DESIGN MANUAL. Commercial products are typically designed, manufactured and sold by Trus Joist MacMillan for each specific job.

For more information on any Trus Joist MacMillan products, please call 1-800-628-3997.

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TJI® JOISTS

Trus Joist MacMillan's Silent Floor® System continues to set the standard for engineered solutions to residential framing challenges. At the heart of the system is the TJI® joist which was created and marketed by Trus Joist MacMillan more than 25 years ago as the first commercially available wood "I" joist. Over the past quarter century, we have continued to test, develop and improve our product line with more than 400 refinements in order to better serve our customers, while more efficiently utilizing forest resources.

A healthy future for the building industry depends on sustaining a predictable supply of wood fiber – fiber Trus Joist MacMillan uses to develop structural building products. In the face of a diminishing supply of quality structural lumber and changing forest resources, Trus Joist MacMillan is dedicated to giving you top quality products that optimize wood fiber utilization.

Our goal is to provide you with the best possible products today, through advanced manufacturing technology and resource utilization that also assure you the best possible products tomorrow.

Length and strength add a whole new dimension to structural systems. Long length TJI® joists make for faster, easier installation with no length price premium.

CODE EVALUATIONS:
NER-200
FHA/HUD 689

Legacy Literature
See Note on Front Cover

Service you can count on

Unparalleled Technical Support

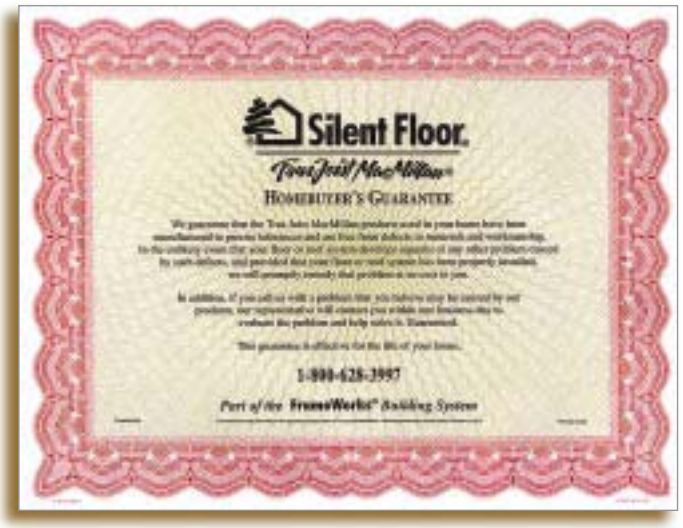
Our goal is to help you build solid, durable and comfortable homes by providing strong technical support to specifiers, dealers and builders located throughout North America. With a staff of over 175 Trus Joist MacMillan technical representatives, we are uniquely prepared to train our partners in providing comprehensive specification and installation. We enhance our training with cutting edge automation tools; these products include:

TJ-Beam™ software – produces single-member sizing options in floor and roof applications for Microllam® LVL, TimberStrand® LSL and Parallam® PSL beams, headers and columns and TJI® joists.

TJ-Xpert™ software – automatically tracks loads throughout the structure and develops sizing solutions, material lists, framing plans and installation details.

TJ-Dealer™ and TJ-Cut™ software – produces inventory solutions and cut lists for each home package with the least amount of cutting and waste.

Our support doesn't stop there. The skilled team of Trus Joist MacMillan representatives – the industry's largest – isn't afraid to get involved and make things happen. If you call us with a problem that you believe may be caused by our products, our representative will contact you within one business day to evaluate the problem and help solve it. — *GUARANTEED.*



Specify Trus Joist MacMillan's FrameWorks® Building System

The FrameWorks® Building System is innovative technology designed to optimize the limited forest resource. Combine this core engineering strength with unmatched service and the best product guarantee in the business and you have a company — and products — that you can depend on.

If you have questions, are planning an unusual residential installation, need information on multi-family or commercial applications, or just want to talk about the future of the industry, call the Trus Joist MacMillan representative nearest you.

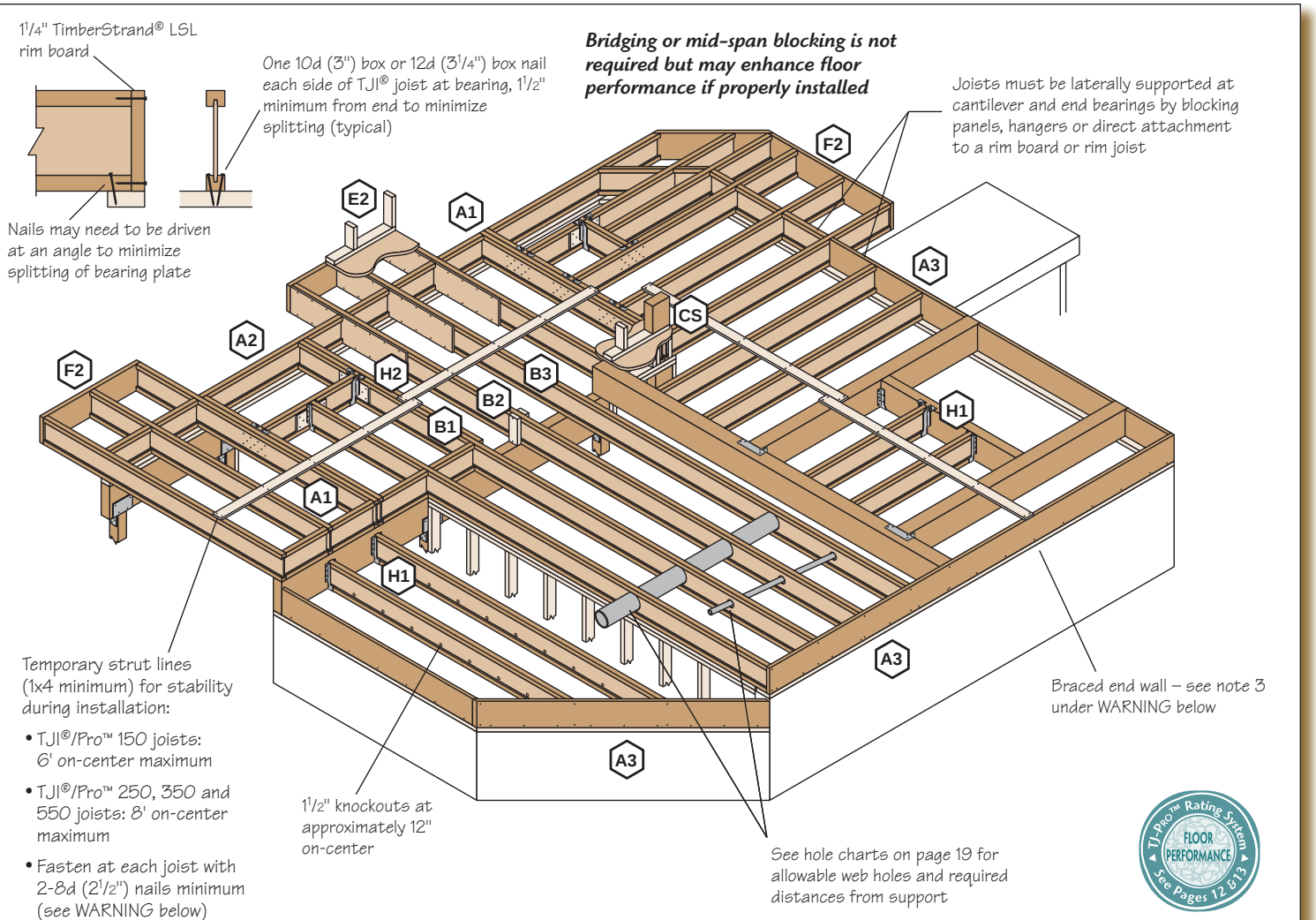
1-800-628-3997

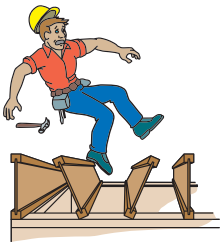
TJ-Pro™ Rating System FLOOR PERFORMANCE See Pages 12 & 13

Legacy Literature
See Note on Front Cover

Legacy Literature
See Note on Front Cover

TYPICAL Silent Floor® SYSTEM



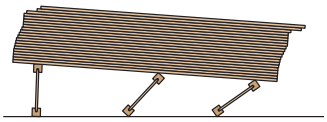


DO NOT allow workers to walk on joists until braced. INJURY MAY RESULT. See notes 1, 2 & 3 below.

WARNING
JOISTS ARE UNSTABLE UNTIL BRACED LATERALLY

BRACING INCLUDES:

- **Blocking**
- **Hangers**
- **Rim Board**
- **Sheathing**
- **Rim Joist**
- **Strut Lines**



DO NOT stack building materials on unsheathed joists. Stack only over beams or walls. See note 4 below.

WARNING NOTES:

Lack of concern for proper bracing during construction can result in serious accidents.
Under normal conditions if the following guidelines are observed, accidents will be avoided.

1. All blocking, hangers, rim boards and rim joists at the end supports of the TJI® joists must be completely installed and properly nailed.
2. Lateral strength, like a braced end wall or an existing deck, must be established at the ends of the bay. This can also be accomplished by a temporary or permanent deck (sheathing) nailed to the first 4 feet of joists at the end of the bay.
3. Temporary strut lines of 1x4 (minimum) must be nailed to a braced end wall or sheathed area as in note 2 and to each joist. Without this bracing, buckling sideways or rollover is highly probable under light construction loads – like a worker and one layer of unnailed sheathing.
4. Sheathing must be totally attached to each TJI® joist before additional loads can be placed on the system.
5. Ends of cantilevers require strut lines on both the top and bottom flanges.
6. The flanges must remain straight within a tolerance of ½" from the true alignment.

HOW TO USE THESE TABLES

1. Determine the live load deflection criteria (MINIMUM CRITERIA PER CODE – L/360 or IMPROVED PERFORMANCE SYSTEM – L/480) and locate the appropriate table.
2. Identify the loading condition (40 PSF LIVE LOAD/10 PSF DEAD LOAD or 40 PSF LIVE LOAD/20 PSF DEAD LOAD) and move to the appropriate section of the table.
3. Select the on-center spacing you prefer.
4. Scan down the column until you meet or exceed the span of your application.
5. Scan left in the row to locate the TJI® joist series and depth which satisfies your condition.

MINIMUM CRITERIA PER CODE

L/360 LIVE LOAD DEFLECTION

	DEPTH	TJI®/Pro™	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
40 PSF LIVE LOAD / 10 PSF DEAD LOAD 12 PSF DEAD LOAD AT TJI®/Pro™ 550	9½"	150	18'-8"	17'-1"	16'-2"	14'-11"
		250	19'-6"	17'-10"	16'-10"	15'-8"
	11⅞"	150	22'-3"	20'-4"	18'-10"	15'-0"
		250	23'-3"	21'-3"	20'-0"	18'-8"(1)
		350	24'-10"	22'-8"	21'-4"	19'-11"(1)
		550	28'-2"	25'-8"	24'-2"	22'-6"
	14"	250	26'-5"	24'-1"	22'-9"(1)	18'-11"(1)
		350	28'-2"	25'-8"	24'-3"(1)	21'-4"(1)
		550	32'-0"	29'-1"	27'-5"	25'-6"
	16"	250	29'-3"	26'-8"(1)	23'-8"(1)	18'-11"(1)
		350	31'-2"	28'-5"(1)	26'-8"(1)	21'-4"(1)
		550	35'-5"	32'-3"	30'-4"	26'-9"(1)
40 PSF LIVE LOAD / 20 PSF DEAD LOAD 22 PSF DEAD LOAD AT TJI®/Pro™ 550	9½"	150	18'-8"	16'-8"	15'-3"	12'-6"
		250	19'-6"	17'-10"	16'-6"	13'-5"
	11⅞"	150	22'-3"	19'-10"	15'-8"	12'-6"
		250	23'-3"	20'-8"(1)	19'-1"(1)	15'-9"(1)
		350	24'-10"	22'-8"	20'-8"(1)	17'-9"(1)
		550	27'-11"	25'-4"	23'-11"	22'-3"(1)
	14"	250	28'-3"	23'-2"(1)	19'-9"(1)	15'-9"(1)
		350	28'-2"	25'-1"(1)	22'-2"(1)	17'-9"(1)
		550	31'-7"	28'-9"	27'-1"(1)	22'-5"(1)
	16"	250	28'-11"(1)	23'-8"(1)	19'-9"(1)	15'-9"(1)
		350	31'-2"(1)	26'-8"(1)	22'-2"(1)	17'-9"(1)
		550	35'-0"	31'-10"	28'-1"(1)	22'-5"(1)

IMPROVED PERFORMANCE SYSTEM

L/480 LIVE LOAD DEFLECTION

	DEPTH	TJI®/Pro™	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
40 PSF LIVE LOAD / 10 PSF DEAD LOAD 12 PSF DEAD LOAD AT TJI®/Pro™ 550	9½"	150	16'-11"	15'-5"	14'-7"	13'-7"
		250	17'-8"	16'-1"	15'-2"	14'-2"
	11⅞"	150	20'-1"	18'-4"	17'-4"	15'-0"
		250	21'-0"	19'-2"	18'-1"	16'-10"(1)
		350	22'-5"	20'-5"	19'-3"	17'-11"
		550	25'-6"	23'-2"	21'-10"	20'-3"
	14"	250	23'-10"	21'-9"	20'-6"(1)	18'-11"(1)
		350	25'-6"	23'-2"	21'-10"	20'-4"(1)
		550	28'-11"	26'-3"	24'-9"	23'-0"
	16"	250	26'-5"	24'-1"	22'-9"(1)	18'-11"(1)
		350	28'-2"	25'-8"	24'-2"(1)	21'-4"(1)
		550	32'-0"	29'-1"	27'-5"	25'-5"
40 PSF LIVE LOAD / 20 PSF DEAD LOAD 22 PSF DEAD LOAD AT TJI®/Pro™ 550	9½"	150	16'-11"	15'-5"	14'-7"	12'-6"
		250	17'-8"	16'-1"	15'-2"	13'-5"
	11⅞"	150	20'-1"	18'-4"	15'-8"	12'-6"
		250	21'-0"	19'-2"	18'-1"(1)	15'-9"(1)
		350	22'-5"	20'-5"	19'-3"(1)	17'-9"(1)
		550	25'-6"	23'-2"	21'-10"	20'-3"
	14"	250	23'-10"	21'-9"(1)	19'-9"(1)	15'-9"(1)
		350	25'-6"	23'-2"(1)	21'-10"(1)	17'-9"(1)
		550	28'-11"	26'-3"	24'-9"	22'-5"(1)
	16"	250	26'-5"	23'-8"(1)	19'-9"(1)	15'-9"(1)
		350	28'-2"	25'-8"(1)	22'-2"(1)	17'-9"(1)
		550	32'-0"	29'-1"	27'-5"(1)	22'-5"(1)

- Long term deflection under dead load which includes the effect of creep, common to all wood members, has not been considered for any of the above applications. Shaded spans reflect initial dead load deflection exceeding 0.33", which may be unacceptable. For additional information, refer to our TJ-Beam™ or TJ-Xpert™ software or contact your Trus Joist MacMillan representative.

(1) Web stiffeners are required at intermediate supports of continuous span joists in conditions where the intermediate bearing width is **less** than 5¼" **and** the span on either side of the intermediate bearing is greater than the spans shown in the following table:

TJI®/Pro™	40 PSF LIVE LOAD, 10 PSF DEAD LOAD*				40 PSF LIVE LOAD, 20 PSF DEAD LOAD**			
	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
150	Web Stiffener Not Required				Web Stiffener Not Required			
250	Not Required	24'-3"	20'-2"	16'-1"	26'-11"	20'-2"	16'-9"	13'-5"
350	Not Required	27'-8"	23'-1"	18'-5"	30'-9"	23'-1"	19'-2"	15'-4"
550	Not Required			25'-8"	Not Required		26'-11"	21'-6"

*12 PSF Dead Load at TJI®/Pro™ 550 joists.
**22 PSF Dead Load at TJI®/Pro™ 550 joists.

TJ-Pro™ Rating System FLOOR PERFORMANCE See Pages 12 & 13

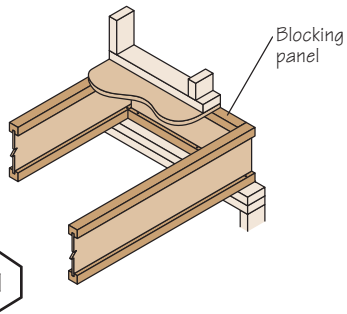
GENERAL NOTES

Tables are based on:

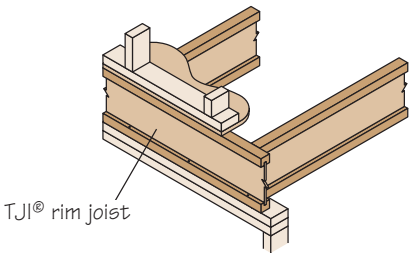
- Assumed composite action with a single layer of appropriate span-rated glue-nailed wood sheathing for deflection only (**spans shall be reduced 5" when sheathing panels are nailed only**).
- Uniformly loaded joists.
- Increase for repetitive member use has been included.
- Spans shown are clear distance between supports.
- Most restrictive of simple or multiple span.
- For loading conditions not shown, refer to PLF tables on page 11.

WEB STIFFENER REQUIREMENTS

- Required if the sides of the hanger do not laterally support the TJI® joist top flange or per footnotes on pages 20 and 21.
- **End Bearings:** Not required
- **Intermediate Bearings:** Not required at intermediate bearing where joists are continuous in span and the intermediate bearing is at least 5¼" wide. For intermediate supports less than 5¼" wide, web stiffeners may be required (see footnote 1 above).

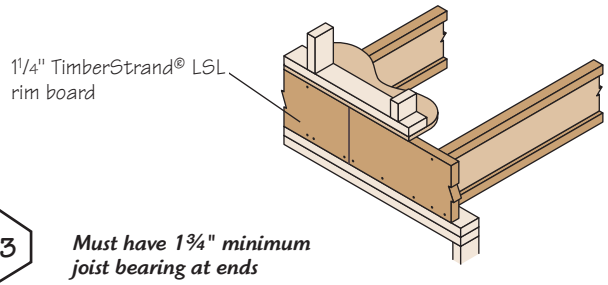


A1



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

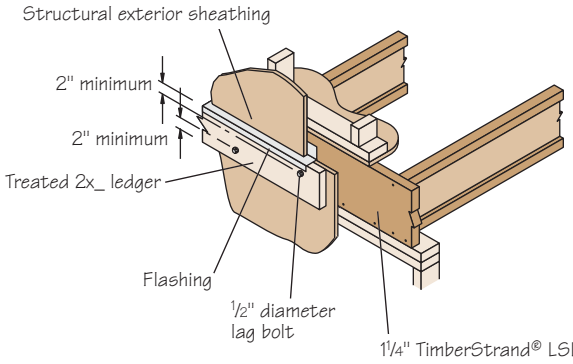
TIMBERSTRAND® LSL RIM BOARD



For information on lateral load capacities refer to current TimberStrand® LSL rim board literature

A3 ***Must have 1¾" minimum joist bearing at ends***

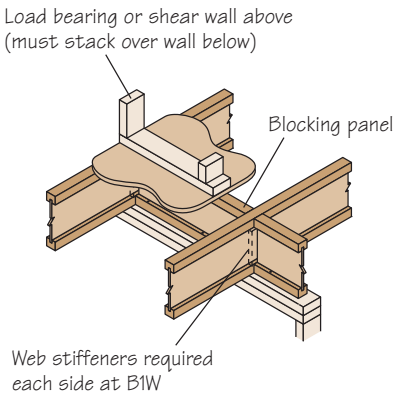
EXTERIOR DECK ATTACHMENT

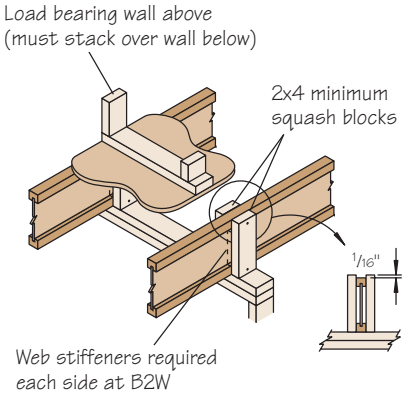


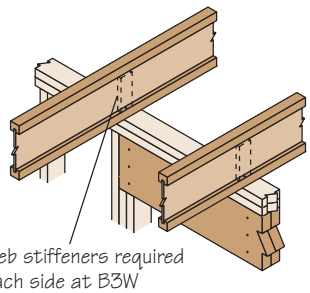
Allowable load is 325 lbs. per ½" diameter lag bolt

LA

INTERMEDIATE BEARING – NO LOAD BEARING WALL ABOVE







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

B1 B1W ***See FLOOR SPAN TABLES and GENERAL NOTES for exceptions***

B2 B2W ***See FLOOR SPAN TABLES and GENERAL NOTES for exceptions***

B3 B3W ***See FLOOR SPAN TABLES and GENERAL NOTES for exceptions***

GENERAL NOTES

MINIMUM BEARING LENGTH

- **At joist ends:** 1¾".
- **At intermediate supports:** 3½".

BLOCKING PANELS, RIM BOARDS OR RIM JOISTS

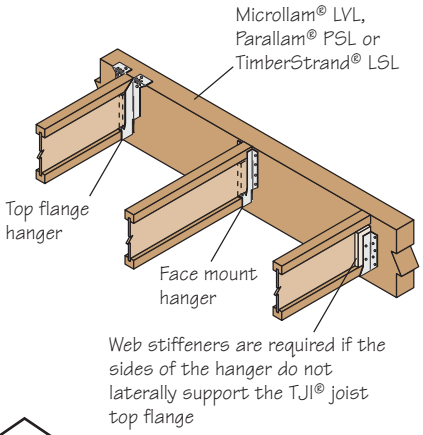
- Vertical load transfer at bearings must be checked for each application. Capacities of rim details shown are as follows:
  TJI® blocking .....2000 plf
  TJI® rim joist .....2000 plf
  TimberStrand® LSL – 1¼" .....4250 plf
- Bracing complying with the code shall be carried to the foundation.

NAILING REQUIREMENTS

- **TJI® joists at bearings:** 2-10d (3") box or 12d (3¼") box nails (1 each side), 1½" minimum from end.
- **Blocking panels, rim joist or rim board to bearing plate:**
  TJI® blocking panels or rim joist: 10d (3") box nails at 6" on-center.
  TimberStrand® LSL rim board: Toenail with 10d (3") box nails at 6" on-center or 16d (3½") box nails at 12" on-center.
  Shear transfer: Connections equivalent to decking nail schedule.
- **Rim board, rim joist or closure to TJI® joist:**
  1¾" width or less: 2-10d (3") box nails, one each at top and bottom flange.
  TJI®/Pro™ 350 rim joist: 2-16d (3½") box nails, one each at top and bottom flange.
  TJI®/Pro™ 550 rim joist: Toenail joist to rim joist with 1-10d (3") box nail each side of joist top flange.
- **2x4 minimum squash blocks:** 2-10d (3") box nails, one each at top and bottom flange.

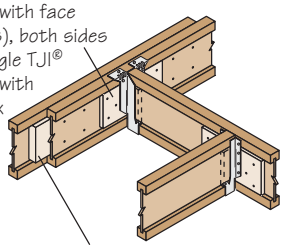
WEB STIFFENER REQUIREMENTS

- Required if the sides of the hanger do not laterally support the TJI® joist top flange or per footnotes on pages 20 and 21.
- **TJI®/Pro™ 250, 350 and 550 joists:** Required per footnote 1 under FLOOR SPAN TABLES.



H1

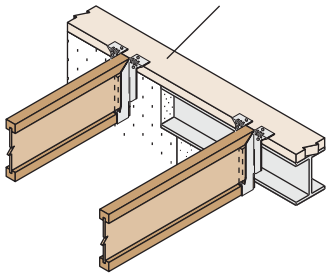
Backer block: Install tight to top flange (tight to bottom flange with face mount hangers), both sides of web with single TJI® joists. Attach with 10-10d (3") box nails, clinched when possible.



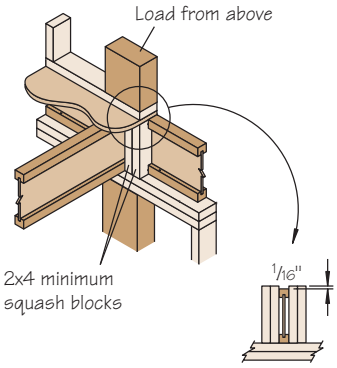
Filler block: Nail with 10-10d (3") box nails, clinched. Use 10-16d (3½") box nails from each side with TJI®/Pro™ 550 joists.

H2 ***With top flange hangers, backer block required only for downward loads exceeding 250 lbs. or for uplift conditions***

Bearing plate: Flush plate with inside face of wall or beam



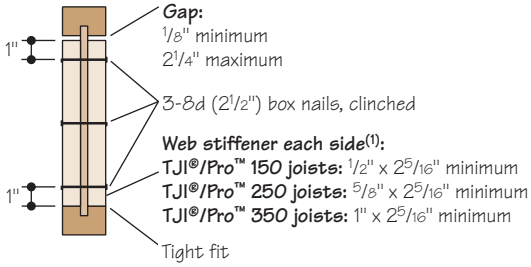
H3



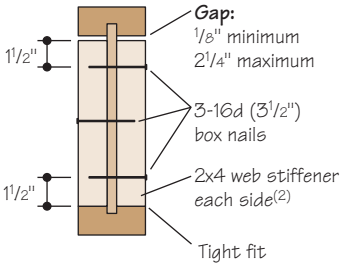
CS ***Use 2x4 minimum squash blocks to transfer load from above to bearing plate below***

WEB STIFFENER ATTACHMENT

TJI®/PRO™ 150, 250, 350 JOISTS



TJI®/PRO™ 550 JOISTS

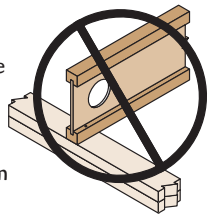


W ***(1) Web stiffener material shall be sheathing meeting the requirements of PS 1 or PS 2 with face grain vertical***
(2) 2x4 construction grade or better

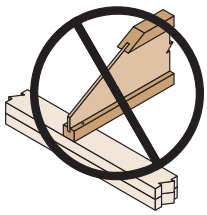
THESE CONDITIONS ARE NOT PERMITTED

DO NOT cut holes too close to support.

Refer to hole charts on page 19 for minimum distance from support.

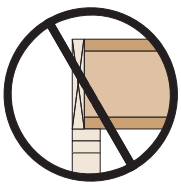


DO NOT bevel cut joist beyond inside face of wall.



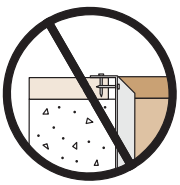
DO NOT use solid-sawn dimension lumber for rim board or blocking.

Dimension lumber may shrink after installation.



DO NOT install hanger over-hanging face of plate or beam.

Flush bearing plate with inside face of wall or beam.



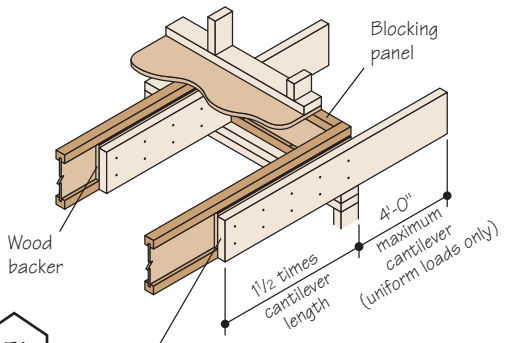
REFER TO PAGE 6 FOR GENERAL NOTES FOR DETAILS

FILLER AND BACKER BLOCK SIZES

TJI®/Pro™	150	250		350		550	
DEPTH	9½" or 11⅞"	9½" or 11⅞"	14" or 16"	11⅞"	14" or 16"	11⅞"	14" or 16"
FILLER BLOCK* (Detail H2)	1⅛" net	2x6	2x8	2x6 + ½" plywood	2x8 + ½" plywood	2-2x6	2-2x8
CANTILEVER FILLER (Detail E4)	2x6 4'-0" long	2x6 4'-0" long	2x10 6'-0" long	2x6 + ½" plywood 4'-0" long	2x10 + ½" plywood 6'-0" long	Not applicable	
BACKER BLOCK* (Detail F1 or H2)	½" or ⅝"	⅝" or ¾"	⅝" or ¾"	1" net	1" net	2x6	2x8

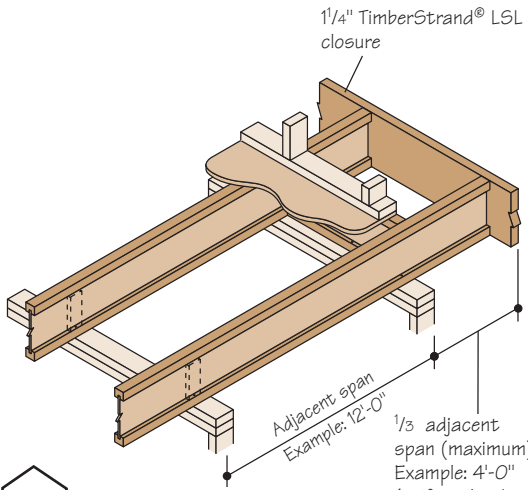
* If necessary, increase filler and backer block height for face mount hangers. Maintain ⅛" gap at top of joist; see detail W. Filler and backer block dimensions should accommodate required nailing without splitting.

NON-LOAD BEARING CANTILEVER DETAILS



F1

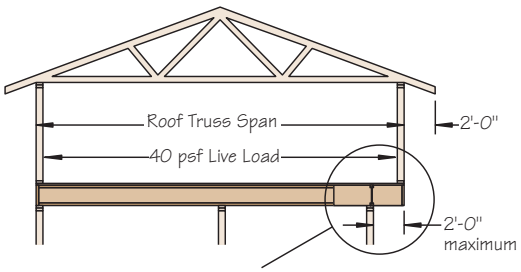
2x__ nailed to the side of the TJI® joist with wood backer. Nail through the TJI® joist web and backer into the 2x__ with 2 rows 10d (3") common nails at 6" on-center and clinch. Use 16d (3½") nails with TJI®/Pro™ 550 joists.



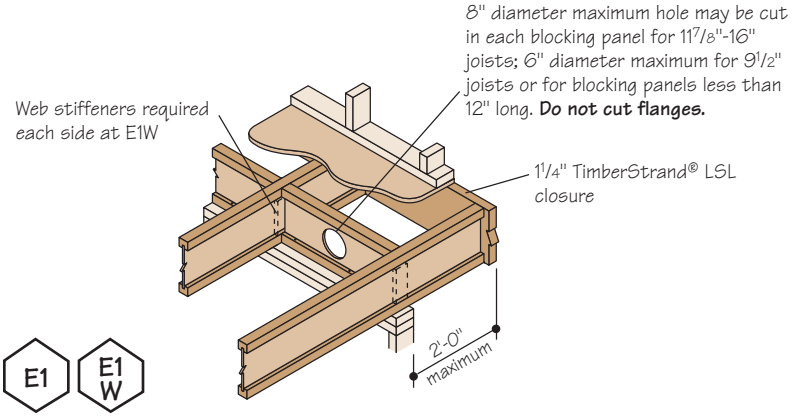
F2

TJI® joists may be cantilevered up to ⅓ the adjacent span if not supporting concentrated loads on the cantilever. Cantilevers exceeding 4 feet may require special consideration. Refer to our TJ-Beam™ or TJ-Xpert™ software or contact your Trus Joist MacMillan representative for assistance.

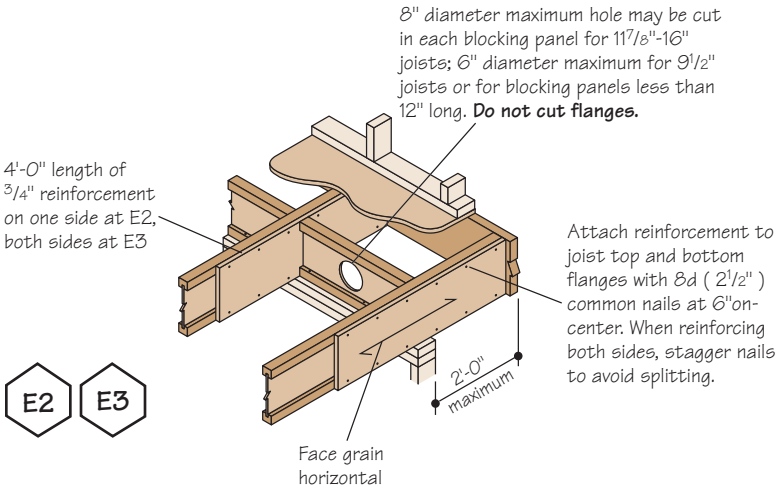
LOAD BEARING CANTILEVER DETAILS



TJI® joists may be cantilevered up to a maximum of 2'-0" when supporting roof load, but may require reinforcement. **Consult tables on page 9 to determine required reinforcement.** See details below for methods of reinforcement.

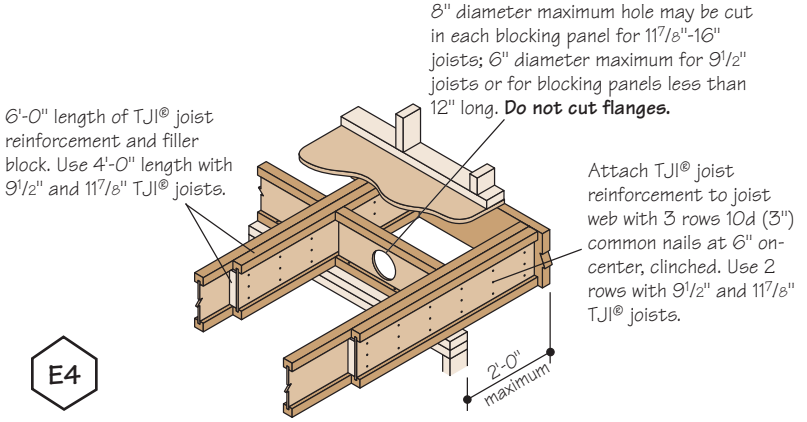


E1 E1W



E2 E3

TJI®/PRO™ 150, 250 AND 350 JOISTS ONLY



E4

TJI® JOISTS ARE INTENDED FOR DRY-USE, NON-TREATED APPLICATIONS

Legacy Literature
See Note on Front Cover

HOW TO USE THESE TABLES

1. Use the first two columns to identify the TJI® joist used in your application.
2. Locate the ROOF TRUSS SPAN (horizontal measurement) that meets or exceeds your condition.
3. Scan right across the row until you intersect the column which contains the ROOF TOTAL LOAD and ON-CENTER JOIST SPACING for your application.
4. Note the contents of the cell and use the LEGEND at right to determine the reinforcement (if any) required.

LEGEND

- **0** No reinforcement required.
- **W** Web stiffener required each side of joist at bearing. See detail E1W.
- **1** ¾" x 48" reinforcement required on one side of joist (see detail E2) or double the joists (see detail E4). Do not use detail E4 with TJI®/Pro™ 550 joists.
- **2** ¾" x 48" reinforcement required on both sides of joist (see detail E3) or double the joists (see detail E4). Do not use detail E4 with TJI®/Pro™ 550 joists.
- **X** Will not work. Reduce spacing of joists and recheck on table.

DEPTH	TJI®/Pro™	ROOF TRUSS SPAN	ROOF TOTAL LOAD 35 PSF ON-CENTER JOIST SPACING 16"	19.2"	24"	45 PSF 16"	19.2"	24"	55 PSF 16"	19.2"	24"
9½"	150	24'	0	0	1	0	1	1	1	1	X
		26'	0	0	1	0	1	X	1	1	X
		28'	0	0	1	1	1	X	1	X	X
		30'	0	1	1	1	1	X	1	X	X
		32'	0	1	1	1	1	X	1	X	X
		34'	0	1	X	1	X	X	X	X	X
		36'	0	1	X	1	X	X	X	X	X
	250	24'	0	0	1	0	0	1	0	1	1
		26'	0	0	1	0	1	1	1	1	X
		28'	0	0	1	0	1	1	1	1	X
		30'	0	0	1	0	1	1	1	1	X
		32'	0	0	1	1	1	X	1	1	X
		34'	0	1	1	1	1	X	1	X	X
		36'	0	1	1	1	1	X	1	X	X
11⅞"	150	26'	0	0	1	0	1	1	1	1	1
		28'	0	0	1	1	1	1	1	1	1
		30'	0	1	1	1	1	1	1	1	X
		32'	0	1	1	1	1	1	1	1	X
		34'	0	1	1	1	1	1	1	1	X
		36'	0	1	1	1	1	1	1	1	X
		38'	1	1	1	1	1	X	1	1	X
	250	26'	0	0	W	0	W	1	W	1	1
		28'	0	W	W	W	W	1	W	1	1
		30'	0	W	W	W	W	1	W	1	1
		32'	0	W	1	W	1	1	1	1	1
		34'	0	W	1	W	1	1	1	1	1
		36'	W	W	1	W	1	1	1	1	X
		38'	W	W	1	W	1	1	1	1	X
	350	26'	0	0	0	0	0	W	0	W	1
		28'	0	0	W	0	W	1	W	W	1
		30'	0	0	W	0	W	1	W	1	1
		32'	0	0	W	0	W	1	W	1	1
		34'	0	0	W	0	W	1	W	1	1
		36'	0	0	1	W	1	1	1	1	2
		38'	0	W	1	W	1	1	1	1	2
	550	26'	0	0	0	0	0	0	0	0	0
		28'	0	0	0	0	0	0	0	0	0
		30'	0	0	0	0	0	0	0	0	0
		32'	0	0	0	0	0	0	0	0	1
		34'	0	0	0	0	0	0	0	0	1
		36'	0	0	0	0	0	0	0	0	1
		38'	0	0	0	0	0	0	0	0	1

DEPTH	TJI®/Pro™	ROOF TRUSS SPAN	ROOF TOTAL LOAD 35 PSF ON-CENTER JOIST SPACING 16"	19.2"	24"	45 PSF 16"	19.2"	24"	55 PSF 16"	19.2"	24"
14"	250	26'	0	0	W	0	W	1	W	1	1
		28'	0	W	W	W	W	1	W	1	1
		30'	0	W	1	W	W	1	W	1	1
		32'	0	W	1	W	1	1	1	1	1
		34'	0	W	1	W	1	1	1	1	1
		36'	W	W	1	W	1	1	1	1	2
		38'	W	W	1	W	1	1	1	1	2
	350	26'	0	0	W	0	W	W	W	W	1
		28'	0	0	W	0	W	1	W	W	1
		30'	0	0	W	0	W	1	W	1	1
		32'	0	0	W	0	W	1	W	1	1
		34'	0	W	W	W	W	1	W	1	1
		36'	0	W	1	W	1	1	W	1	2
		38'	0	W	1	W	1	1	1	1	2
	550	28'	0	0	0	0	0	0	0	0	0
		30'	0	0	0	0	0	0	0	0	0
		32'	0	0	0	0	0	0	0	0	W
		34'	0	0	0	0	0	0	0	0	W
		36'	0	0	0	0	0	0	0	0	1
		38'	0	0	0	0	0	0	0	0	1
		40'	0	0	0	0	0	0	0	0	1
16"	250	28'	0	W	W	W	W	1	W	1	1
		30'	0	W	1	W	W	1	W	1	1
		32'	0	W	1	W	1	1	1	1	1
		34'	0	W	1	W	1	1	1	1	1
		36'	W	W	1	W	1	1	1	1	2
		38'	W	W	1	W	1	1	1	1	2
		40'	W	W	1	1	1	1	1	1	2
	350	28'	0	0	W	0	W	1	W	W	1
		30'	0	0	W	0	W	1	W	1	1
		32'	0	0	W	0	W	1	W	1	1
		34'	0	W	W	W	W	1	W	1	1
		36'	0	W	1	W	1	1	W	1	2
		38'	0	W	1	W	1	1	1	1	2
		40'	0	W	1	W	1	1	1	1	2
	550	28'	0	0	0	0	0	0	0	0	0
		30'	0	0	0	0	0	0	0	0	W
		32'	0	0	0	0	0	0	0	0	W
		34'	0	0	0	0	0	0	0	0	W
		36'	0	0	0	0	0	0	0	0	W
		38'	0	0	0	0	0	W	0	0	W
		40'	0	0	0	0	0	W	0	W	1

GENERAL NOTES

Tables are based on:

- 15 psf roof dead load.
- 80 plf exterior wall load with 3'-0" maximum width window or door openings. For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" on-center, additional joists beneath the opening's trimmers may be required.
- TimberStrand® LSL or spruce-pine-fir bearing plate or equivalent.

Legacy Literature
See Note on Front Cover

- Roof truss with 24" soffits.
- ¾" reinforcement refers to ¾" "Exposure 1" plywood or other ¾" "Exposure 1" 48/24 rated sheathing that is cut to match the full depth of the TJI® joist. Install with face grain horizontal. Reinforcing member must bear fully on the wall plate. Minimum wall plate width is 3½".
- For conditions beyond the scope of this table, use our TJ-Beam™ or TJ-Xpert™ software programs or contact your Trus Joist MacMillan representative for assistance.

HOW TO USE THIS TABLE

1. Use the first two columns to identify the TJI® joist used in your application.
2. Locate the ROOF TRUSS SPAN (horizontal measurement) that meets or exceeds your condition.
3. Scan right across the row until you intersect the column which contains the ROOF TOTAL LOAD and ON-CENTER JOIST SPACING for your application.
4. Note the contents of the cell and use the LEGEND at right to determine the reinforcement (if any) required.

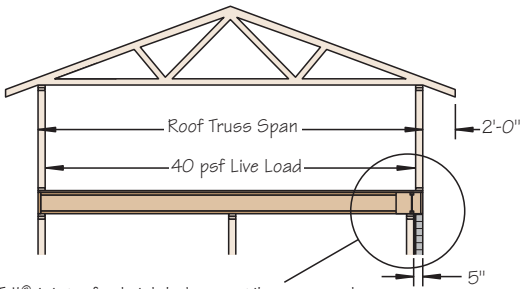
DEPTH	TJI®/Pro™	ROOF TRUSS SPAN	ROOF TOTAL LOAD 35 PSF ON-CENTER JOIST SPACING 16"	19.2"	24"	45 PSF 16"	19.2"	24"	55 PSF 16"	19.2"	24"
9½", 11⅞"	150	24'	0	0	0	0	0	1	1	1	1
		26'	0	0	1	0	0	1	1	1	1
		28'	0	0	1	0	0	1	1	1	1
		30'	0	0	1	0	0	1	1	1	2
		32'	0	1	1	0	1	1	1	1	2
		34'	0	1	1	0	1	1	1	1	2
		36'	0	1	1	0	1	1	1	1	2
9½", 11⅞"	250	24'	0	0	0	0	0	1	1	1	1
		26'	0	0	0	0	0	1	1	1	1
		28'	0	0	0	0	1	1	1	1	1
		30'	0	0	1	0	1	1	1	1	1
		32'	0	0	1	0	1	1	1	1	1
		34'	0	0	1	0	1	1	1	1	2
		36'	0	0	1	1	1	1	1	1	2
14"	250	24'	0	0	0	0	0	1	0	1	1
		26'	0	0	0	0	0	1	0	1	1
		28'	0	0	1	0	1	1	1	1	1
		30'	0	0	1	0	1	1	1	1	1
		32'	0	0	1	0	1	1	1	1	1
		34'	0	0	1	0	1	1	1	1	1
		36'	0	0	1	1	1	1	1	1	2
16"	250	24'	0	0	0	0	0	1	0	1	1
		26'	0	0	0	0	0	1	0	1	1
		28'	0	0	1	0	0	1	0	1	1
		30'	0	0	1	0	1	1	1	1	1
		32'	0	0	1	0	1	1	1	1	1
		34'	0	0	1	0	1	1	1	1	1
		36'	0	0	1	1	1	1	1	1	1
11⅞", 14", 16"	350	26'	0	0	0	0	0	1	0	0	1
		28'	0	0	0	0	0	1	0	1	1
		30'	0	0	0	0	0	1	0	1	1
		32'	0	0	0	0	0	1	0	1	1
		34'	0	0	1	0	1	1	1	1	1
		36'	0	0	1	0	1	1	1	1	2
		38'	0	0	1	0	1	1	1	1	2
11⅞", 14", 16"	550	26'	0	0	0	0	0	0	0	0	0
		28'	0	0	0	0	0	0	0	0	0
		30'	0	0	0	0	0	0	0	0	0
		32'	0	0	0	0	0	0	0	0	1
		34'	0	0	0	0	0	0	0	0	1
		36'	0	0	0	0	0	0	0	0	2
		38'	0	0	0	0	0	0	0	0	2

LEGEND

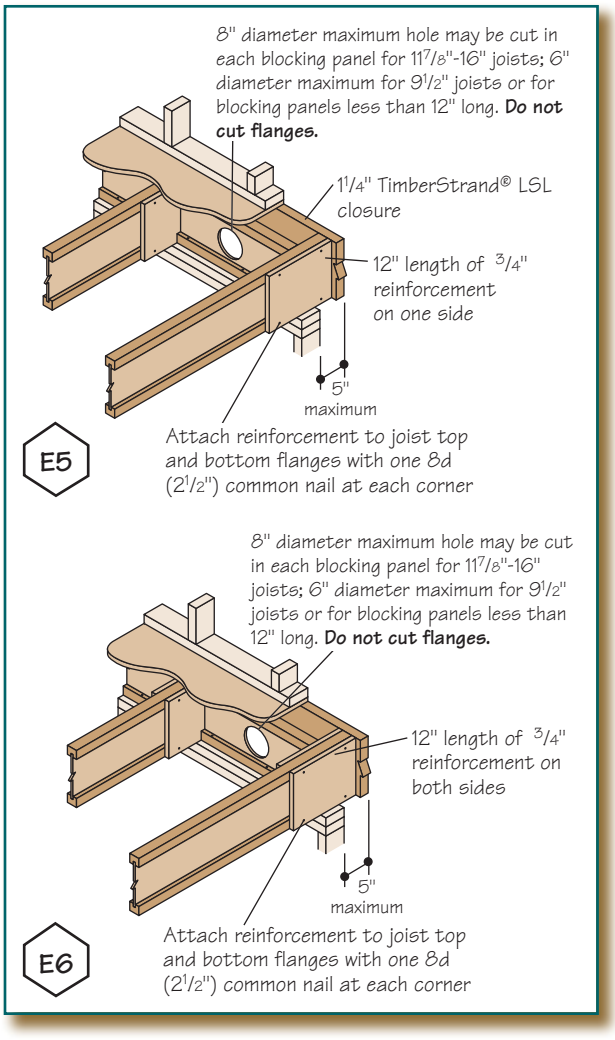
0 No reinforcement required.

1 ¾" x 12" reinforcement required on one side of joist. See detail E5.

2 ¾" x 12" reinforcement required on both sides of joist. See detail E6.



TJI® joists for brick ledge cantilevers may be cantilevered up to 5" when supporting roof load, but may require reinforcement. **Consult table to determine required reinforcement.** See details E5 and E6 below for method of reinforcement.



GENERAL NOTES

Tables are based on:

- 15 psf roof dead load.
- 80 plf exterior wall load with 3'-0" maximum width window or door openings. For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" on-center, additional joists beneath the opening's trimmers may be required.
- TimberStrand® LSL or spruce-pine-fir bearing plate or equivalent.
- Roof truss with 24" soffits.
- ¾" reinforcement refers to ¾" "Exposure 1" plywood or other ¾" "Exposure 1" 48/24 rated sheathing that is cut to match the full depth of the TJI® joist. Install with face grain horizontal. Reinforcing member must bear fully on the wall plate. Minimum wall plate width is 3½".
- For conditions beyond the scope of this table, use our TJ-Beam™ or TJ-Xpert™ software programs or contact your Trus Joist MacMillan representative for assistance.

HOW TO USE THESE TABLES

1. Determine the total load and live load on the joist in pounds per lineal foot (plf).
2. Locate under JOIST CLEAR SPAN a span that meets or exceeds the required joist span.
3. Scan right across the row until you find a cell where ***both*** the maximum TOTAL LOAD value and the maximum LIVE LOAD value meet or exceed the required loads. In cells where LIVE LOAD is not listed, TOTAL LOAD will control.
4. The series and depth of the appropriate TJI® joist is shown at the top of the column in which the cell is located.

JOIST CLEAR SPAN	TJI®/Pro™ 150				TJI®/Pro™ 250							
	9½"		11⅞"		9½"		11⅞"		14"		16"	
	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD
6'		246		246		264		264		264		264
8'		186		186		199		199		199		199
10'	142	149		149	160	160		160		160		160
12'	87	124		124	99	133		133		133		133
14'	57	107	95	107	65	114	108	114		114		114
16'	39	78	65	93	44	89	75	100		100		100
18'	28	56	47	83	32	64	54	89	78	89		89
20'	20	41	35	70	23	47	40	80	58	80	79	80
22'		31	26	53	18	36	30	61	44	73	60	73
24'		24	20	41		28	23	47	35	67	47	67
26'		19		33		22	18	37	27	55	37	62
28'				26				30	22	44	30	57
30'				21				25	18	36	25	50

JOIST CLEAR SPAN	TJI®/Pro™ 350						TJI®/Pro™ 550					
	11⅞"		14"		16"		11⅞"		14"		16"	
	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD	LIVE LOAD L/480	TOTAL LOAD
6'		301		301		301		436		436		436
8'		227		227		227		329		329		329
10'		182		182		182		264		264		264
12'		152		152		152		220		220		220
14'	129	131		131		131	185	189		189		189
16'	90	114		114		114	131	166		166		166
18'	65	102	94	102		102	95	147	136	147		147
20'	48	92	70	92		92	71	133	102	133		133
22'	37	74	54	83	73	83	55	110	79	121	105	121
24'	29	58	42	76	57	76	43	86	62	111	83	111
26'	23	46	33	67	45	70	34	68	49	99	66	102
28'	18	37	27	54	37	65	27	55	40	80	54	95
30'		30	22	44	30	61	22	45	33	66	44	89
32'		25	18	37	25	50	18	37	27	55	37	74
34'		21		31	21	42		31	23	46	31	62
36'		18		26	18	36		26	19	39	26	53

GENERAL NOTES

Tables are based on:

- Uniformly loaded joists.
- Values shown assume no composite action provided by sheathing.
- Most restrictive of simple or multiple span.
- TOTAL LOAD limits joist deflection to L/240.
- LIVE LOAD is based on joist deflection of L/480.
- If live load deflection limit of L/360 is desired, multiply value in LIVE LOAD column by 1.33. The resulting live load shall not exceed the TOTAL LOAD shown.

WEB STIFFENER REQUIREMENTS

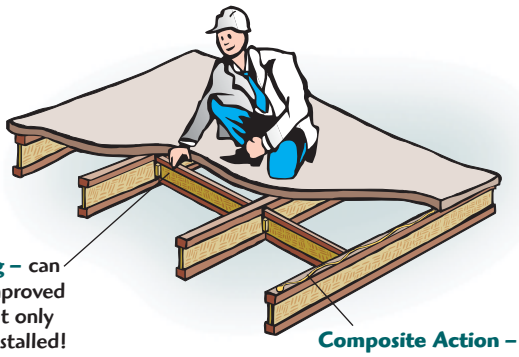
- Required if the sides of the hanger do not laterally support the TJI® joist top flange or per footnotes on pages 20 and 21.

A Word About Floor Performance

Floor performance is a very subjective issue that is influenced by many factors. Listed below are several suggestions that may help in the design of a floor system:

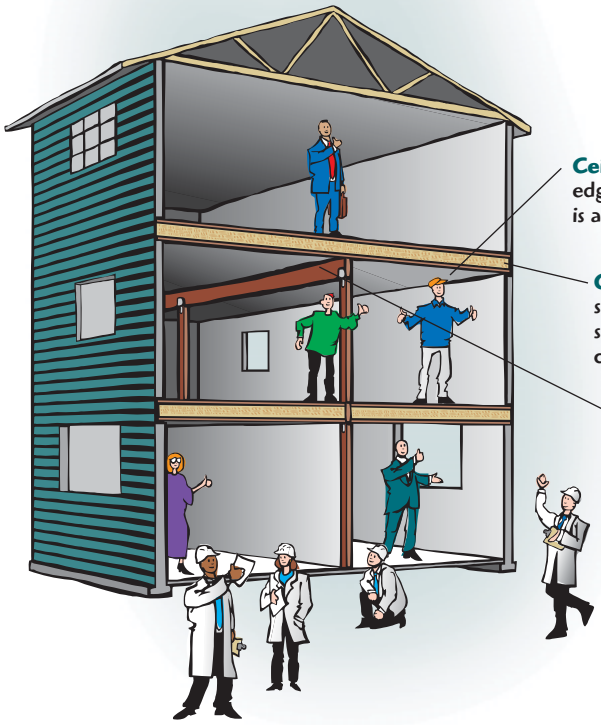
- Deeper joists will reduce deflection.
- Thicker floor sheathing and/or reducing the on-center spacing of the joists will improve load sharing.
- Adhesives that permanently bond the sheathing to the joists will improve the stiffness of the floor system, and will also prevent squeaks.
- Directly applied ceilings, bridging, bottom flange strapping or full depth blocking will improve floor performance.
- Framed partition walls, ceilings and other inherent random dead loads will dampen vibrations.
- Workmanship in the field is critical. Proper on-site storage of construction materials, full joist bearing, adequate and level supports, proper installation of the floor sheathing and care in the fastening (nailing, adhesives, etc.) are most essential.

It is extremely difficult to predict how a floor may feel; therefore, careful consideration must be made when trying to meet a particular level of satisfaction. The perception and expectation of an end user are important in determining the acceptable level of performance for any floor system. Adequate floor performance may require utilization of any of these factors, or others, depending upon the specific application.



Bridging or Blocking – can be a contributor to improved floor performance, but only when very carefully installed!

Composite Action – careful nailing in conjunction with construction adhesives increase basic stiffness.

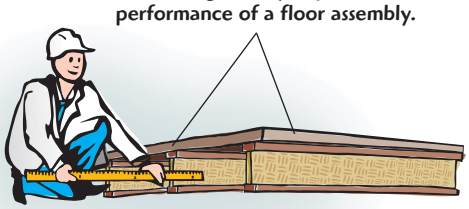


Ceiling – a ceiling directly applied to the bottom edge of floor members – or equivalent strapping – is a performance enhancement.

Continuity – continuous joists over several supports generally perform better than simple spans. Care must be taken if the joists continue into another occupancy.

Beams – generally, joists supported by beams (which are free to deflect) tend to feel a little less solid than joists supported from solid bearing walls.

Joist Spacing and Deck Stiffness – reduced spacing or increased deck thickness generally improves the performance of a floor assembly.



ADDITIONAL CONTRIBUTING FACTORS

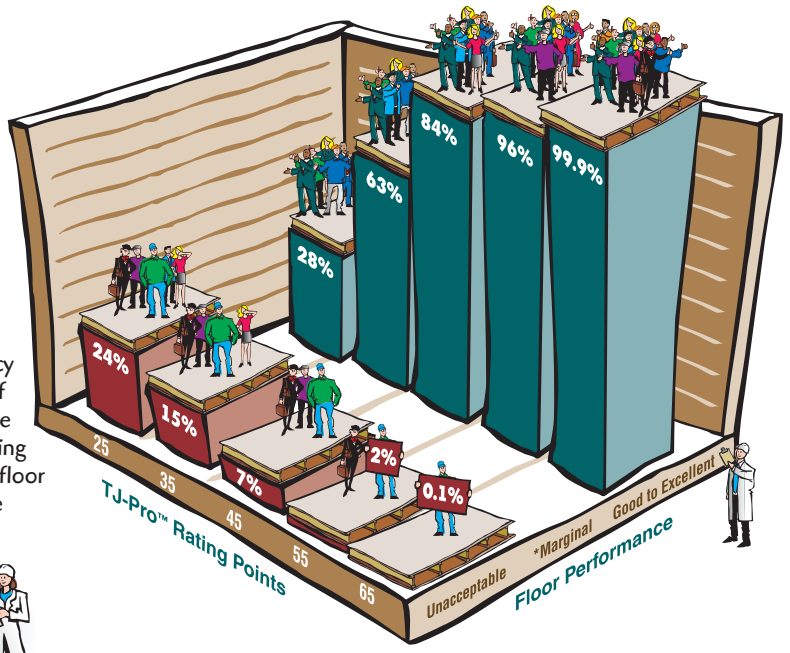
Partitions – non-bearing transverse partitions within the span and solidly connected to the floor help to dampen vibrations which contribute to the perception of a solid-feeling floor assembly (not available in TJ-Xpert™ software).

Poured Topping – poured toppings can effect the performance of a floor system. Depending on the type of topping and how it is connected to the deck surface, toppings can have either a positive or negative effect.

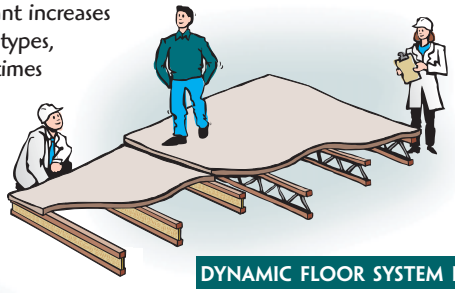
Materials and Construction – although not possible to quantify, the use of quality components and careful attention to construction details, may be equivalent to increasing the number of points to the performance rating of a floor assembly.

***Note:** The rating system considers floor movement caused by average-weight people moving about (not 30 # children or 300 # linemen). This rating system is not intended to provide performance ratings for large floors intended for rhythmic activities (i.e. public dance halls).*

Due to the many variables that contribute to floor performance, the TJ-Pro™ Rating System can only be assessed through the use of computer software and therefore is not included in our printed literature. Trus Joist MacMillan offers the TJ-Pro™ Rating System in its exclusive TJ-Beam™ and TJ-Xpert™ software programs.



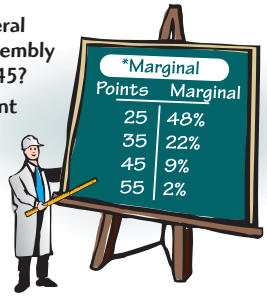
The TJ-Pro™ Rating System allows the user to describe not only the Trus Joist MacMillan product, but other components contributing to the assembly. Varying the components and developing relative performance ratings gives the user options for enhancing the floor's performance. You also get a comparison value to assist you in determining the cost efficiency of your selection. The comparison cost value is based on the input cost of decking and the volume of floor joist in your floor assembly. Thus, you are armed with the ability to utilize the comparison cost to gain relative costing of a floor assembly per square foot. This capability allows you to balance floor economics with the TJ-Pro™ Performance Value. Varying the quantifiable components can increase the Performance Value, often without significant increases in system cost. Different joist types, depth and spacing can sometimes even lower the cost while increasing the Performance Value.



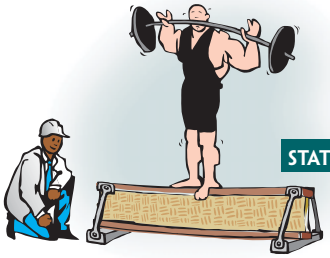
DYNAMIC FLOOR SYSTEM RESPONSE

Example: How does the general public "feel" about a floor assembly with a Performance Value of 45?

- 84% find it Good to Excellent
- 9% find it Marginal
- 7% find it Unacceptable



Basic Stiffness – a combination of joist depth and span.



STATIC LIVE LOAD DEFLECTION

Legacy Literature
See Note on Front Cover

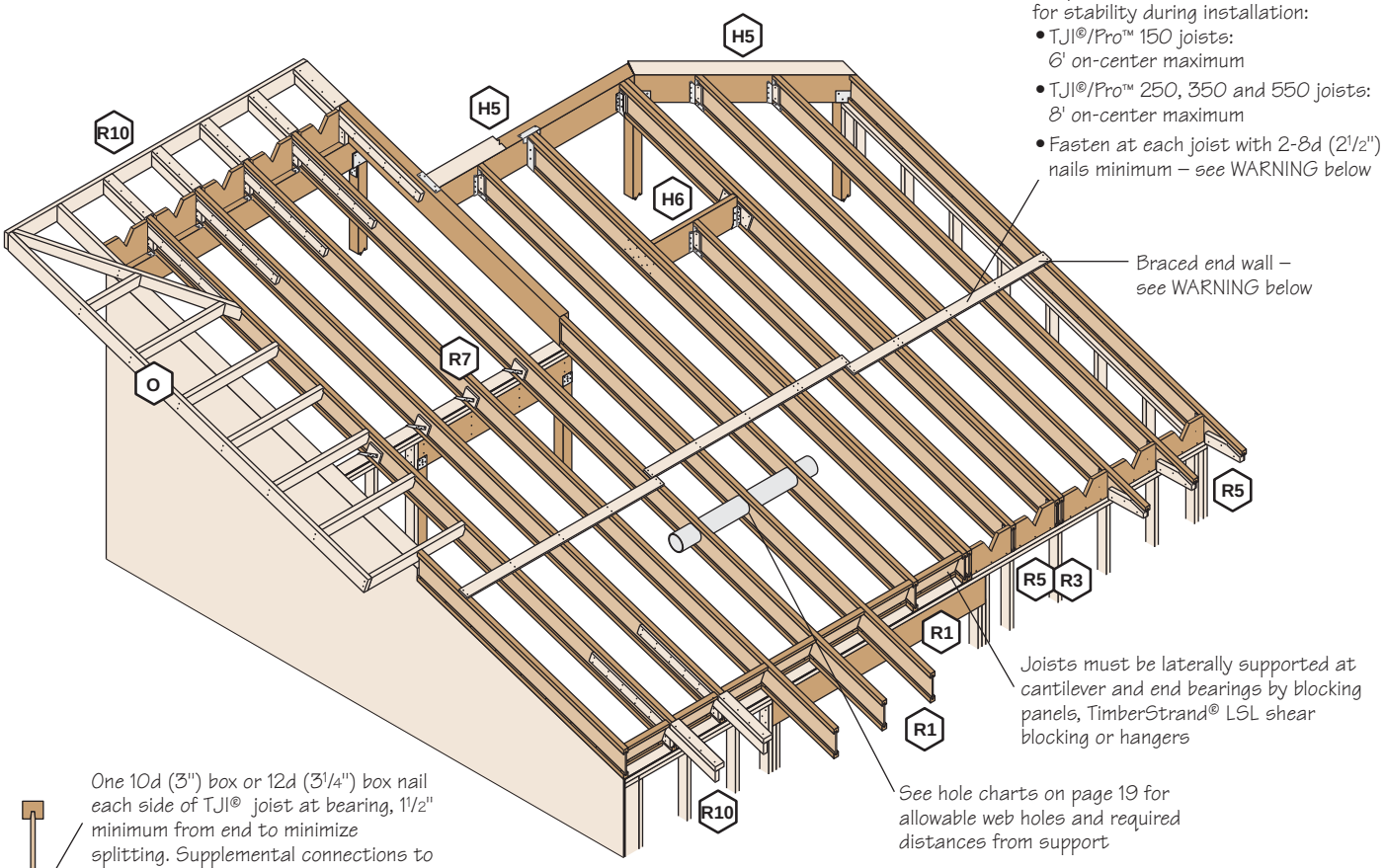
Since the mid 1960s, Trus Joist MacMillan has been involved in evaluating floor performance. Our early observations suggested that the minimum deflection criteria used by the industry (L/360 or less under live load) provided little assurance of an acceptable floor. In an effort to improve performance, we began recommending a stiffer static deflection limit of L/480 for longer span residential floors and L/600 for longer span commercial floors. Fundamental to this recommendation was our belief that the performance of the floor needed to also consider the use of the structure. Our recommended deflection criteria has resulted in a higher percentage of "acceptable" floors and remains a reasonable starting guideline.

We know from previous experience that a stiffer floor alone does not always assure a specifier or owner their desired level of performance. It has been well documented that historic **uniform live load deflection criteria** alone is not enough to produce consistent and predictable performance results and that **dynamic floor system response** needed to be a consideration. This led us to the conclusion that we needed to develop a design methodology for our customers that would provide a greater degree of assurance that a floor assembly using our products would produce a high degree of user satisfaction.

In the early 1990s, Trus Joist MacMillan began a research project to develop the desired design methodology for evaluating floor performance. Our objective was to combine the findings of our research and 30 years of experience into a tool that can be used to evaluate the potential for predictable floor performance. Ideally this tool could be incorporated into our industry-leading TJ-Beam™ and TJ-Xpert™ software. We reviewed state-of-the-art literature on the subject and conducted a range of research at universities, in our own facilities and in the field. We supplemented this knowledge with information gathered from 850 real world floor applications of our products and created a computer model to analyze these applications statically. The numerical results were correlated with subjective evaluations of dynamic field floor tests to develop the final design methodology.

The end result of our intensive testing and evaluation programs is the new **TJ-Pro™ Rating System.** This evaluation methodology allows the user to select various floor assembly components and options to produce a relative rating number (Performance Value) for the floor assembly. Usually the value will be between 25 and 60. An estimate of the percentage of the population expected with each rating category can then be obtained from the chart. Is this rating system perfect? No, because humans respond to floor motions in ways and degrees nearly as varied as their physical and emotional differences. This new evaluation methodology from Trus Joist MacMillan gives you the ability to truly "put yourself in the other person's shoes," by encouraging you to think about how others may want a floor to perform. The ultimate benefit is that for the first time you can now take your understanding of how others may want a floor to perform and specify a floor assembly with a probability approach that identifies the percentage of satisfied users.

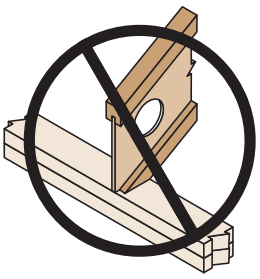
How high a percentage is "right"? This may not be as difficult a question as it appears. All of us in this business have an experience base from which to draw upon. As a specifier, you have the advantage of knowing the level of expectation the floor assembly will need to perform to. While neither you nor Trus Joist MacMillan can guarantee 100% positive results, applying this new tool with a little judgment lets you gain an unprecedented level of control over the expected performance of the floor assembly.



WARNING
Unbraced joists are unstable. See complete warning on page 4.

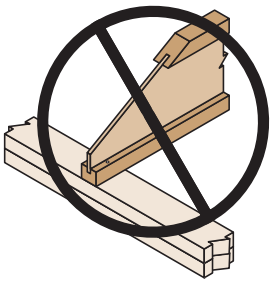
THESE CONDITIONS ARE NOT PERMITTED

DO NOT cut holes too close to support.

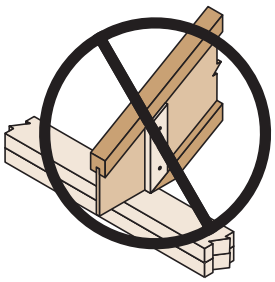


Refer to hole charts on page 19 for minimum distance from support.

DO NOT bevel cut joist beyond inside face of wall.



DO NOT overhang birdsmouth cut from inside face of plate.



TJI® joist flange must bear fully on the plate. See detail BC on page 17.

HOW TO USE THIS TABLE

1. Determine the roof loading (live load, dead load and load duration factor) and find the appropriate section of the table.
2. If your slope is 6"/12" or less use the LOW slope column. If your slope is greater than 6"/12" through 12"/12" use the HIGH slope column.
3. Move down in the column until you equal or exceed the horizontal span of your application.
4. Move left in the row to identify the TJI® joist and on-center spacing.

O.C. SPACING	DEPTH	TJI®/Pro™	DESIGN LIVE LOAD (LL) AND DEAD LOAD (DL) IN PSF											
			NON-SNOW (125%)				SNOW LOAD AREA (115%)							
			20LL + 15DL		20LL + 20DL		25LL + 15DL		30LL + 15DL		40LL + 15DL		50LL + 15DL	
			LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
16"	9½"	150	20'-1"	17'-11"	19'-2"	17'-0"	19'-3"	17'-3"	18'-6"	16'-8"	17'-4"	15'-8"	16'-4"	14'-10"
		250	21'-1"	18'-10"	20'-1"	17'-10"	20'-3"	18'-1"	19'-5"	17'-6"	18'-2"	16'-5"	17'-2"	15'-7"
	11⅞"	150	24'-2"	21'-7"	23'-0"	20'-5"	23'-2"	20'-9"	22'-3"	20'-0"	20'-10"	18'-10"	19'-7"	17'-10"
		250	25'-4"	22'-7"	24'-2"	21'-5"	24'-3"	21'-9"	23'-4"	21'-0"	21'-10"	19'-9"	20'-8"	18'-9"
		350	27'-3"	24'-3"	25'-11"	23'-0"	26'-1"	23'-4"	25'-1"	22'-6"	23'-5"	21'-2"	22'-2"	20'-1"
		550	31'-2"	27'-10"	29'-9"	26'-4"	29'-10"	26'-9"	28'-9"	25'-10"	26'-10"	24'-4"	25'-4"	23'-1"
	14"	250	29'-0"	25'-10"	27'-7"	24'-6"	27'-9"	24'-10"	26'-8"	24'-0"	24'-11"	22'-7"	21'-5"	21'-5"
		350	31'-1"	27'-8"	29'-7"	26'-3"	29'-9"	26'-8"	28'-7"	25'-9"	26'-9"	24'-2"	24'-6"	22'-11"
		550	35'-6"	31'-8"	33'-10"	30'-0"	34'-0"	30'-6"	32'-9"	29'-5"	30'-7"	27'-8"	28'-11"	26'-3"
	16"	250	32'-3"	28'-9"	30'-9"	27'-3"	30'-11"	27'-8"	29'-8"	26'-9"	25'-4"	25'-2"	21'-5"	23'-4"
		350	34'-6"	30'-10"	32'-11"	29'-2"	33'-0"	29'-7"	31'-9"	28'-7"	29'-0"	26'-11"	24'-6"	25'-6"
		550	39'-5"	35'-2"	37'-7"	33'-4"	37'-9"	33'-10"	36'-4"	32'-8"	34'-0"	30'-9"	32'-1"	29'-2"
19.2"	9½"	150	18'-11"	16'-10"	18'-0"	15'-11"	18'-1"	16'-2"	17'-5"	15'-8"	16'-3"	14'-8"	15'-4"	13'-11"
		250	19'-10"	17'-8"	18'-11"	16'-9"	19'-0"	17'-0"	18'-3"	16'-5"	17'-1"	15'-5"	16'-1"	14'-8"
	11⅞"	150	22'-9"	20'-3"	21'-8"	19'-2"	21'-9"	19'-6"	20'-11"	18'-10"	19'-5"	17'-8"	16'-7"	16'-9"
		250	23'-10"	21'-3"	22'-8"	20'-2"	22'-10"	20'-5"	21'-11"	19'-9"	20'-6"	18'-7"	17'-10"	17'-7"
		350	25'-7"	22'-10"	24'-4"	21'-7"	24'-5"	21'-11"	23'-6"	21'-2"	22'-0"	19'-11"	20'-5"	18'-11"
		550	29'-4"	26'-2"	27'-11"	24'-9"	28'-0"	25'-2"	26'-11"	24'-3"	25'-2"	22'-10"	23'-10"	21'-8"
	14"	250	27'-3"	24'-3"	25'-11"	23'-0"	26'-1"	23'-4"	25'-1"	22'-6"	21'-1"	21'-2"	17'-10"	19'-5"
		350	29'-2"	26'-0"	27'-9"	24'-8"	27'-11"	25'-0"	26'-10"	24'-2"	24'-1"	22'-8"	20'-5"	21'-7"
		550	33'-5"	29'-9"	31'-9"	28'-3"	31'-11"	28'-8"	30'-9"	27'-8"	28'-9"	26'-0"	27'-2"	24'-8"
	16"	250	30'-4"	27'-0"	28'-10"	25'-7"	29'-0"	26'-0"	25'-10"	25'-1"	21'-1"	22'-10"	17'-10"	19'-5"
		350	32'-5"	28'-11"	30'-11"	27'-5"	31'-0"	27'-10"	29'-6"	26'-10"	24'-1"	25'-3"	20'-5"	22'-2"
		550	37'-1"	33'-1"	35'-3"	31'-4"	35'-5"	31'-9"	34'-1"	30'-8"	31'-11"	28'-10"	29'-6"	27'-5"
24"	9½"	150	17'-6"	15'-7"	16'-8"	14'-9"	16'-9"	15'-0"	16'-1"	14'-6"	15'-0"	13'-7"	13'-3"	12'-11"
		250	18'-4"	16'-5"	17'-6"	15'-6"	17'-7"	15'-9"	16'-11"	15'-2"	15'-9"	14'-3"	14'-3"	13'-7"
	11⅞"	150	21'-0"	18'-9"	20'-0"	17'-9"	20'-1"	18'-0"	19'-1"	17'-5"	15'-8"	16'-4"	13'-3"	14'-5"
		250	22'-1"	19'-8"	21'-0"	18'-8"	21'-1"	18'-11"	20'-3"	18'-3"	16'-10"	17'-2"	14'-3"	15'-6"
		350	23'-8"	21'-1"	22'-6"	20'-0"	22'-8"	20'-4"	21'-9"	19'-7"	19'-3"	18'-5"	16'-3"	17'-6"
		550	27'-1"	24'-3"	25'-10"	22'-11"	25'-11"	23'-3"	24'-11"	22'-6"	23'-4"	21'-1"	22'-0"	20'-0"
	14"	250	25'-2"	22'-6"	24'-0"	21'-4"	23'-2"	21'-7"	20'-7"	20'-10"	16'-10"	18'-3"	14'-3"	15'-6"
		350	27'-0"	24'-1"	25'-8"	22'-10"	25'-10"	23'-2"	23'-7"	22'-4"	19'-3"	20'-10"	16'-3"	17'-9"
		550	30'-11"	27'-7"	29'-5"	26'-1"	29'-7"	26'-6"	28'-5"	25'-7"	26'-7"	24'-1"	23'-7"	22'-6"
	16"	250	28'-1"	25'-1"	25'-3"	23'-9"	23'-2"	24'-1"	20'-7"	22'-2"	16'-10"	18'-3"	14'-3"	15'-6"
		350	30'-0"	26'-10"	28'-7"	25'-5"	26'-6"	25'-9"	23'-7"	24'-10"	19'-3"	20'-10"	16'-3"	17'-9"
		550	34'-4"	30'-7"	32'-8"	29'-0"	32'-10"	29'-5"	31'-7"	28'-5"	27'-11"	26'-2"	23'-7"	22'-6"

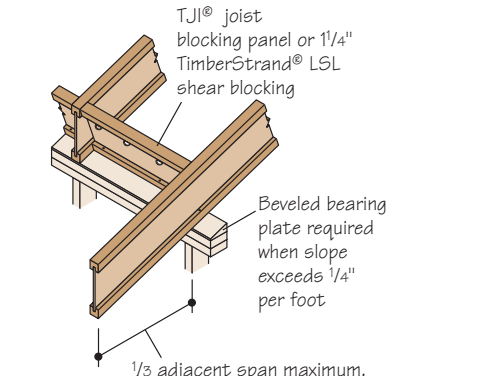
GENERAL NOTES

Table is based on:

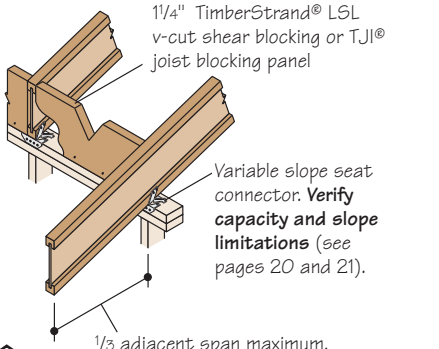
- Uniformly loaded joists.
- Roof surface slope of ¼" in 12" minimum.
- Total load joist deflection limit of L/180.
- Live load joist deflection limit of L/240.
- Horizontal clear distance between supports.
- Support beam or wall at high end is required (ridge board applications do not provide adequate support).
- Most restrictive of simple or multiple span.
- Increase for repetitive member use has been included.

WEB STIFFENER REQUIREMENTS

- Spans shown assume no web stiffeners at intermediate bearings.
- Required if the sides of the hanger do not laterally support the TJI® joist top flange or per footnotes on pages 20 and 21.
- **TJI®/Pro™ 150, 250 and 350 joists:** Required at all sloped hanger and birdsmouth cut locations.
- **TJI®/Pro™ 550 joists:** Required at all hanger and birdsmouth cut locations.

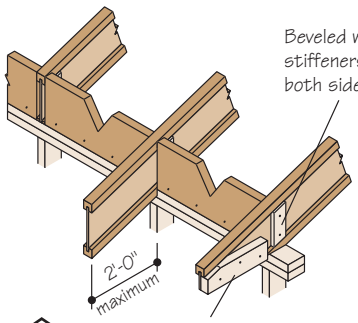


R1



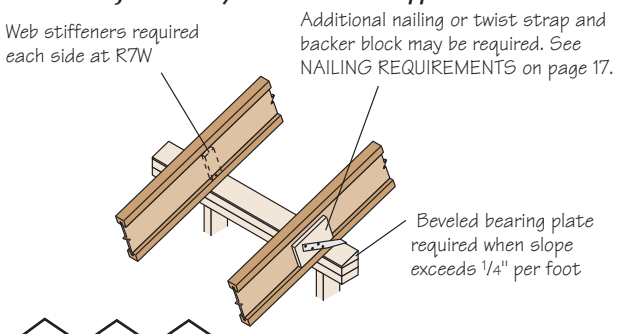
R3

BIRDSMOUTH CUT
Allowed at low end of joist only



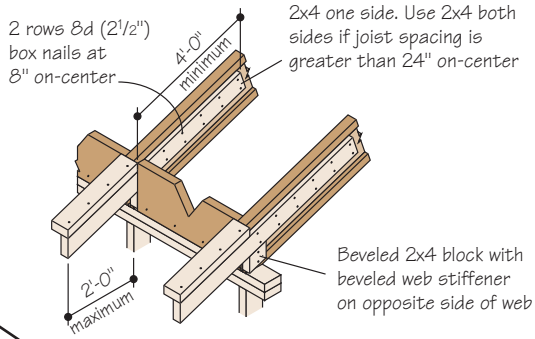
R5

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



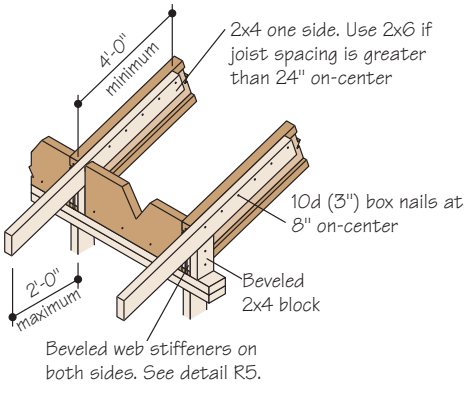
R7 R7W R74 R7S

BIRDSMOUTH CUT
Allowed at low end of joist only

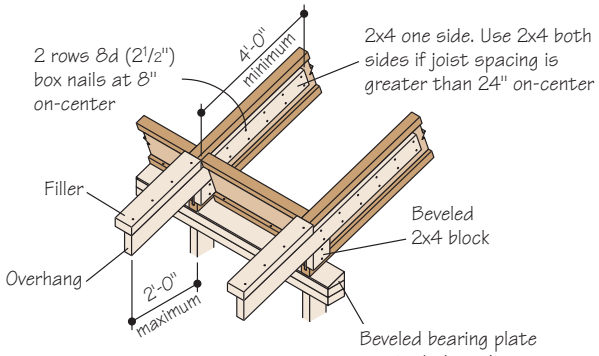


R8

BIRDSMOUTH CUT
Allowed at low end of joist only



R9



R10

GENERAL NOTES

MINIMUM BEARING LENGTH

- **At joist ends:** 1¾".
- **At intermediate supports:** 3½".

SLOPE/BEVEL PLATE CRITERIA

- Unless otherwise noted, all details are valid to maximum 12" per foot slope.
- Supplemental connections to the bearing plate may be required for slopes exceeding 4" per foot to resist sliding forces.
- **Wood bearing surfaces:** Sloped bearing surface required when slope exceeds ¼" per foot. This can be accomplished by using:
  - Beveled bearing plate.
  - Variable slope seat connector (verify connector capacity, see pages 20 and 21).
  - Birdsmouth cut (see detail BC). **Allowed at low end of joist only.**
- **Hangers:** Sloped seats and beveled web stiffeners required when slope exceeds ½" per foot.

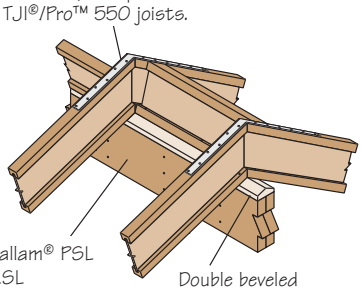
LATERAL SUPPORT TO PREVENT JOIST ROLLOVER

- All roof joists must be laterally supported at cantilever and end bearings. Use TJI® joist blocking panels, TimberStrand® LSL shear blocking or metal cross bracing. Attach metal cross bracing with 2-10d x 1½" nails at each end. **Metal cross bracing may not provide adequate lateral load transfer.**

WEB STIFFENER REQUIREMENTS

- Required if the sides of the hanger do not laterally support the TJI® joist top flange or per footnotes on pages 20 and 21.
- **TJI®/Pro™ 150, 250 and 350 joists:** Required at all sloped hanger and birdsmouth cut locations.
- **TJI®/Pro™ 550 joists:** Required at all sloped hanger and birdsmouth cut locations, as well as any hanger locations where joist reaction exceeds 1475 lbs.

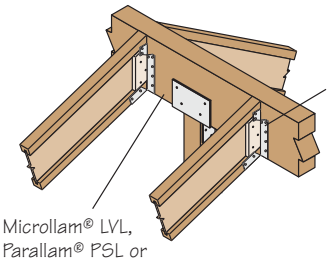
LSTA15 (Simpson or USP) strap with 12-10d x 1½" nails. Use LSTA24 (Simpson or USP) strap with 18-10d x 1½" nails at TJI®/Pro™ 550 joists.



Microllam® LVL, Parallam® PSL or TimberStrand® LSL

Double beveled bearing plate required when slope exceeds ¼" per foot

R14



Simpson LSSU hanger with beveled web stiffeners. LSSU hangers allowed with 9½" , 11⅞" and 14" TJI® joists only.

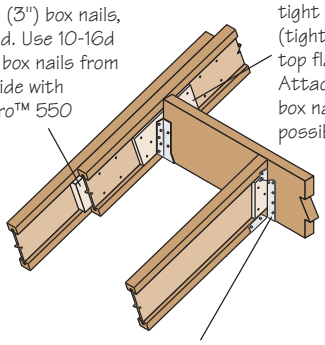
Microllam® LVL, Parallam® PSL or TimberStrand® LSL

H5

Simpson LSTA15 strap with 12-10d x 1½" nails may be required with hangers other than LSSU when slope exceeds 7"/12". Use LSTA24 strap with 18-10d x 1½" nails at TJI®/Pro™ 550 joists.

Filler block: Attach with 10-10d (3") box nails, clinched. Use 10-16d (3½") box nails from each side with TJI®/Pro™ 550 joists.

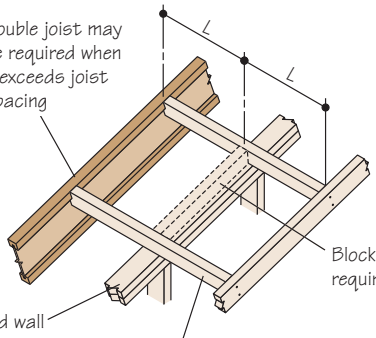
Backer block: Install tight to bottom flange (tight to top flange with top flange hangers). Attach with 10-10d (3") box nails, clinched when possible.



Simpson LSSU hanger with beveled web stiffeners. LSSU hangers allowed with 9½", 11⅞" and 14" TJI® joists only.

H6

Double joist may be required when L exceeds joist spacing



Blocking as required

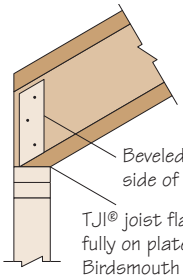
End wall

2x_ overhang. Notch around TJI® joist top flange.

O

BIRDSMOUTH CUT

Allowed at low end of joist only



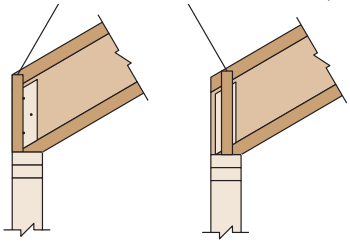
Beveled web stiffener each side of TJI® joist web

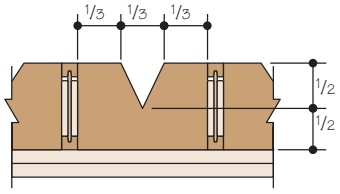
TJI® joist flange must bear fully on plate. Birdsmouth cut must not overhang inside face of plate.

BC

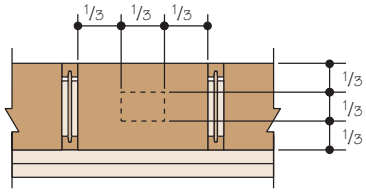
SHEAR BLOCKING AND VENTILATION HOLES
ROOF ONLY

1¼" TimberStrand® LSL shear blocking (between joists) may be field trimmed to match joist depth at outer edge of wall or located on wall to match joist depth





Maximum allowable V-cut



Allowed hole zone for round, square or rectangular holes

SB

Vertical depth at bearing of TJI® joists with high slopes (10"/12" to 12"/12") requires that TimberStrand® LSL shear blocking be one size deeper than the TJI® joist

NAILING REQUIREMENTS

- **TJI® joists at end bearings:** 2-10d (3") box or 12d (3¼") box nails (1 each side), 1½" minimum from end.
- **TJI® joists at intermediate bearings:**
  Roof slopes less than 4" per foot: 2-10d (3") box or 12d (3¼") box nails (1 each side). See detail R7.
  Roof slopes from 4" to 5" per foot: 4-10d (3") box or 12d (3¼") box nails (2 each side). See detail R74.
  Roof slopes greater than 5" per foot: 4-10d (3") box or 12d (3¼") box nails (2 each side) plus a twist strap and backer block. See detail R75.
- **Blocking panels or shear blocking to bearing plate:**
  TJI® joist blocking panels: 10d (3") box nails at 6" on-center.
  TimberStrand® LSL shear blocking: Toenail with 10d (3") box nails at 6" on-center or 16d (3½") box nails at 12" on-center.
  Shear transfer: Connections equivalent to decking nail schedule.

FILLER AND BACKER BLOCK SIZES

TJI®/Pro™	150	250		350		550	
DEPTH	9½" or 11⅞"	9½" or 11⅞"	14" or 16"	11⅞"	14" or 16"	11⅞"	14" or 16"
FILLER BLOCK (Detail H6)	1⅛" net	2x6	2x8	2x6 +½" plywood	2x8 +½" plywood	2-2x6	2-2x8
BACKER BLOCK (Detail H6)	½" or ⅝"	⅝" or ¾"	⅝" or ¾"	1" net	1" net	2x6	2x8

If necessary, increase filler and backer block height for face mount hangers. Maintain ⅛" gap at top of joist; see detail W.
Filler and backer block dimensions should accommodate required nailing without splitting.

HOW TO USE THESE TABLES

1. Determine the total load on the joist in pounds per lineal foot (plf).
2. Locate under JOIST CLEAR SPAN a span that meets or exceeds the required joist span.
   For slopes greater than 2" per foot, consideration must be given to the increased dead load and deflection caused by actual sloped length. Approximate this effect by multiplying the horizontal clear span by the slope factor from the SLOPE FACTOR TABLE to determine the joist clear span.
3. Scan right across the row until you find a cell where the maximum TOTAL LOAD value meets or exceeds the required loads. TOTAL LOAD values are limited to deflection of L/180. For stiffer deflection criteria, use the L/240 values. Check local code for other deflection criteria.
4. The series and depth of the appropriate TJI® joist is shown at the top of the column in which the cell is located.

JOIST CLEAR SPAN	TJI®/Pro™ 150						TJI®/Pro™ 250											
	9½"			11⅞"			9½"			11⅞"			14"			16"		
	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.
	SNOW 115%	NON-SNOW 125%	L/240	SNOW 115%	NON-SNOW 125%	L/240	SNOW 115%	NON-SNOW 125%	L/240	SNOW 115%	NON-SNOW 125%	L/240	SNOW 115%	NON-SNOW 125%	L/240	SNOW 115%	NON-SNOW 125%	L/240
6'	283	308		283	308		303	330		303	330		303	330		303	330	
8'	214	232		214	232		229	249		229	249		229	249		229	249	
10'	171	186		171	186		184	200		184	200		184	200		184	200	
12'	143	156		143	156		153	167		153	167		153	167		153	167	
14'	123	133	114	123	133		132	143	130	132	143		132	143		132	143	
16'	96	104	78	107	117		113	119	89	115	125		115	125		115	125	
18'	74	74	56	96	104	94	85	85	64	102	111	108	102	111		102	111	
20'	55	55	41	82	89	70	63	63	47	92	100	80	92	100		92	100	
22'	41	41	31	67	71	53	48	48	36	79	81	61	84	91	89	84	91	
24'	32	32	24	55	55	41	37	37	28	63	63	47	77	84	70	77	84	
26'	25	25	19	44	44	33	29	29	22	50	50	37	70	74	55	71	77	75
28'	20	20		35	35	26	23	23		40	40	30	59	59	44	66	72	61
30'				29	29	21	19	19		33	33	25	49	49	36	61	66	50
32'				24	24	18				27	27	20	40	40	30	54	55	41
34'				20	20					23	23		34	34	25	46	46	34

JOIST CLEAR SPAN	TJI®/Pro™ 350									TJI®/Pro™550								
	11⅞"			14"			16"			11⅞"			14"			16"		
	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.	TOTAL LOAD		DEFL.
	SNOW 115%	NON-SNOW 125%	L/240	SNOW 115%	NON-SNOW 125%	L/240	SNOW 115%	NON-SNOW 125%	L/240	SNOW 115%	NON-SNOW 125%	L/240	SNOW 115%	NON-SNOW 125%	L/240	SNOW 115%	NON-SNOW 125%	L/240
6'	347	377		347	377		347	377		502*	545*		502*	545*		502*	545*	
8'	262	284		262	284		262	284		378*	411*		378*	411*		378*	411*	
10'	210	228		210	228		210	228		304*	330*		304*	330*		304*	330*	
12'	175	191		175	191		175	191		254*	276*		254*	276*		254*	276*	
14'	150	164		150	164		150	164		218*	237*		218*	237*		218*	237*	
16'	132	143		132	143		132	143		191*	207*		191*	207*		191*	207*	
18'	117	127		117	127		117	127		170*	184*		170*	184*		170*	184*	
20'	105	115	97	105	115		105	115		153*	166*	143	153*	166*		153*	166*	
22'	93	99	74	96	104		96	104		139*	146*	110	139*	151*		139*	151*	
24'	77	77	58	88	96	85	88	96		114	114	86	127*	138*	124*	127*	138*	
26'	61	61	46	81	88	67	81	88		91	91	68	118*	128*	99	118*	128*	
28'	50	50	37	71	73	54	75	82	74	74	74	55	107*	107*	80	109*	119*	108*
30'	40	40	30	59	59	44	70	76	61	60	60	45	88	88	66	102*	111*	89
32'	33	33	25	49	49	37	64	67	50	50	50	37	73	73	55	96*	99*	74
34'	28	28	21	41	41	31	56	56	42	42	42	31	61	61	46	83	83	62
36'	24	24	18	35	35	26	48	48	36	35	35	26	52	52	39	70	70	53
38'	20	20		30	30	22	41	41	30	30	30	22	44	44	33	60	60	45
40'				25	25	19	35	35	26	26	26	19	38	38	28	52	52	39

* Joist reaction (simple span) exceeds 1475 lbs., web stiffeners are required at hanger locations. Web stiffeners may be required for other conditions, see notes below.

SLOPE FACTOR TABLE

SLOPE	2½ in 12	3 in 12	3½ in 12	4 in 12	4½ in 12	5 in 12	6 in 12	7 in 12	8 in 12	9 in 12	10 in 12	11 in 12	12 in 12
FACTOR	1.021	1.031	1.042	1.054	1.068	1.083	1.118	1.158	1.202	1.250	1.302	1.357	1.414

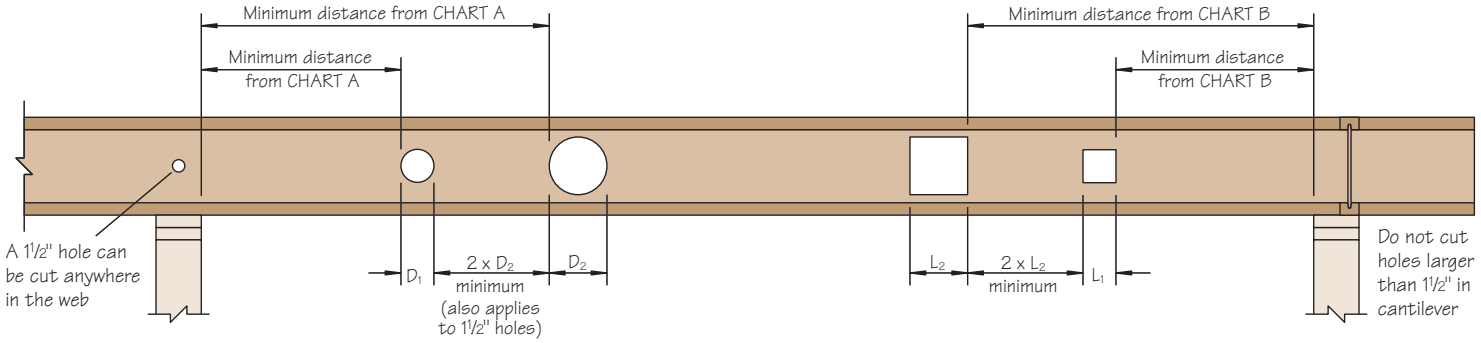
GENERAL NOTES

Tables are based on:

- Uniformly loaded joists.
- Values shown assume no composite action provided by sheathing.
- Most restrictive of simple or multiple span.
- TOTAL LOAD limits joist deflection to L/180.
- Live load is based on joist deflection of L/240.
- Roof surface slope of ¼" in 12" minimum.

WEB STIFFENER REQUIREMENTS

- Required if the sides of the hangers do not laterally support the TJI® joist top flange or per footnotes on pages 20 and 21.
- **TJI®/Pro™ 150, 250 and 350 joists:** Required at all sloped hanger and birdsmouth cut locations.
- **TJI®/Pro™ 550 joists:** Required at all sloped hanger and birdsmouth cut locations, as well as any hanger location where joist reaction exceeds 1475 lbs.



HOW TO USE THESE CHARTS

Legacy Literature
See Note on Front Cover

1. Determine the hole shape (round, square or rectangular) and select the appropriate chart – A or B.
2. Under HOLE SIZE, locate the column which meets or exceeds the size of hole you require.
3. Use the first two columns to identify the TJI® joist series and depth being used in your floor or roof system.
4. Scan right across the row until you intersect the column which contains the hole size you selected.
   The value shown is the **required minimum distance** from edge of the hole to the the inside face of the nearest support.

CHART A – ROUND HOLES

MINIMUM DISTANCE FROM INSIDE FACE OF ANY SUPPORT TO NEAREST EDGE OF HOLE

DEPTH	TJI®/Pro™	ROUND HOLE SIZE												
		2"	3"	4"	5"	6"	6¼"	7"	8"	8⅝"	9"	10"	10¾"	12"	12¾"
9½"	150	1'-0"	1'-6"	3'-0"	5'-0"	6'-6"	7'-6"								
	250	1'-0"	2'-6"	4'-0"	5'-6"	7'-6"	8'-0"								
11⅞"	150	1'-0"	1'-0"	1'-0"	2'-0"	3'-0"	3'-6"	5'-0"	7'-0"	8'-6"					
	250	1'-0"	1'-0"	2'-0"	3'-0"	4'-6"	5'-0"	6'-0"	8'-0"	9'-0"					
	350	1'-0"	2'-0"	3'-0"	4'-6"	5'-6"	6'-0"	7'-0"	9'-0"	10'-0"					
	550	1'-0"	1'-6"	3'-0"	4'-6"	6'-0"	6'-6"	7'-6"	9'-0"	10'-6"					
14"	250	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	2'-0"	3'-0"	5'-0"	6'-0"	6'-6"	8'-6"	10'-0"		
	350	1'-0"	1'-0"	1'-0"	1'-6"	3'-0"	3'-6"	4'-6"	6'-0"	7'-0"	8'-0"	9'-6"	11'-0"		
	550	1'-0"	1'-0"	1'-0"	2'-6"	4'-0"	4'-6"	5'-6"	7'-6"	8'-6"	9'-0"	10'-6"	12'-0"		
16"	250	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	2'-6"	3'-0"	5'-0"	6'-6"	9'-0"	11'-0"
	350	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	3'-0"	4'-0"	5'-0"	6'-6"	8'-0"	10'-6"	12'-6"
	550	1'-0"	1'-0"	1'-0"	1'-0"	2'-0"	2'-6"	3'-6"	5'-0"	6'-0"	7'-0"	8'-6"	10'-0"	12'-0"	13'-6"

CHART B – SQUARE OR RECTANGULAR HOLES

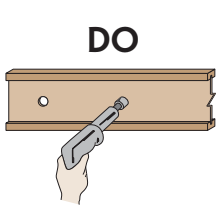
MINIMUM DISTANCE FROM INSIDE FACE OF ANY SUPPORT TO NEAREST EDGE OF HOLE

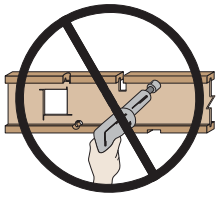
DEPTH	TJI®/Pro™	SQUARE OR RECTANGULAR HOLE SIZE												
		2"	3"	4"	5"	6"	6¼"	7"	8"	8⅝"	9"	10"	10¾"	12"	12¾"
9½"	150	1'-0"	2'-0"	4'-0"	6'-0"	6'-6"	6'-6"								
	250	1'-0"	2'-6"	4'-6"	6'-6"	7'-0"	7'-0"								
11⅞"	150	1'-0"	1'-0"	2'-0"	4'-0"	6'-6"	7'-6"	8'-0"	8'-6"	9'-0"					
	250	1'-0"	1'-6"	3'-6"	5'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"					
	350	1'-0"	2'-6"	4'-0"	5'-6"	7'-6"	8'-6"	9'-0"	9'-6"	9'-6"					
	550	3'-0"	4'-6"	6'-0"	7'-6"	9'-0"	9'-6"	9'-6"	10'-0"	10'-6"					
14"	250	1'-0"	1'-0"	1'-6"	3'-6"	6'-0"	6'-6"	8'-0"	10'-0"	10'-6"	10'-6"	11'-0"	12'-0"		
	350	1'-0"	1'-0"	2'-6"	4'-6"	6'-6"	7'-0"	9'-0"	10'-6"	10'-6"	11'-0"	11'-6"	12'-0"		
	550	1'-6"	3'-0"	4'-6"	6'-6"	8'-0"	8'-6"	10'-0"	11'-6"	11'-6"	12'-0"	12'-6"	13'-0"		
16"	250	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	2'-0"	4'-0"	6'-6"	8'-6"	8'-6"	9'-6"	10'-0"	11'-0"	11'-6"
	350	1'-0"	1'-0"	1'-0"	1'-0"	3'-0"	3'-6"	5'-6"	8'-0"	10'-0"	10'-0"	11'-0"	11'-6"	12'-6"	13'-0"
	550	1'-0"	1'-6"	3'-6"	5'-0"	7'-6"	8'-0"	9'-6"	11'-6"	13'-0"	13'-0"	13'-6"	14'-0"	15'-0"	15'-6"

Rectangular holes based on measurement of longest side.

GENERAL NOTES

- If more than one hole is cut into the web, the distance between the edges of the holes must be at least 2x the length of the largest hole.
- Holes may be located vertically anywhere within the web. Leave ⅛" of web minimum at top and bottom of hole.
- TJI® joists are manufactured with 1½" perforated knockouts in the web at approximately 12" on-center along the length of the joist.
- Distances in the charts above are based on uniformly loaded joists using the maximum loads shown for any of the tables listed within this brochure. For other load conditions or hole configurations not included in these charts, refer to our TJ-Beam™ software or contact your Trus Joist MacMillan representative.
- For simple span (5 foot minimum) uniformly loaded joists meeting the requirements of this brochure, one maximum size round hole may be located at the center of the joist span **provided no other holes occur in the joist. DO NOT cut into joist flanges when cutting out web.**





FULL WEB DEPTH RECTANGULAR HOLES ARE ALSO POSSIBLE. CONTACT YOUR TRUS JOIST MACMILLAN REPRESENTATIVE FOR ASSISTANCE.

GENERAL NOTES

The listed hangers are manufactured by either Simpson Strong-Tie® Company, Inc. or United Steel Products.

Shaded hangers require web stiffeners.

- Some hangers shown have less capacity than that of the TJI® joists. The joist hanger capacity must be checked for applications beyond the floor span tables or when maximum loads are given.
- All Hangers are assumed to resist downward floor loads (downward roof loads for LSSU or TMU hangers.
- Loads shown are the lesser of the joist(s) or the hanger capacity.
- Use sloped seat hangers when TJI® joist slope exceeds 3⁄8"/12"
- Leave 1⁄16" clearance between the end of the supported joist and the header or hanger.
- Fill all round holes. Hangers may have a greater capacity with different nailing criteria or other support conditions.

HEADER REQUIREMENTS

- Tables assume TJI® joist headers or beams comprised of Trus Joist MacMillan products, Douglas fir, or southern pine species.
- Minimum header width for single joist top flange hangers is 2 5⁄16" (1 1⁄2" for ITT hangers).
- Minimum header width for double joist top flange hangers is 3"
- Minimum header width for face mount hangers is 1 3⁄4" (2" for LSSU410 hangers).

SIMPSON STRONG-TIE®

SINGLE JOIST HANGER

	DEPTH	TJI®/Pro™	HANGER
TOP FLANGE HANGER	9 1⁄2"	150	ITT29.5
		250	ITT9.5
	11 7⁄8"	150	ITT211.88
		250	ITT11.88
		350	ITT3511.88(1)*
		550	MIT411.88(1)**
	14"	250	ITT14
		350	ITT3514(1)*
		550	MIT414(1)**
	16"	250	ITT16
		350	MIT3516
		550	MIT416(1)**
FACE MOUNT HANGER	9 1⁄2"	150	IUT29
		250	IUT9
	11 7⁄8"	150	IUT211
		250	IUT11
		350	IUT3512
		550	MIU411
	14"	250	IUT14
		350	IUT3514
		550	MIU414
	16"	250	IUT14
		350	IUT3514
		550	MIU416

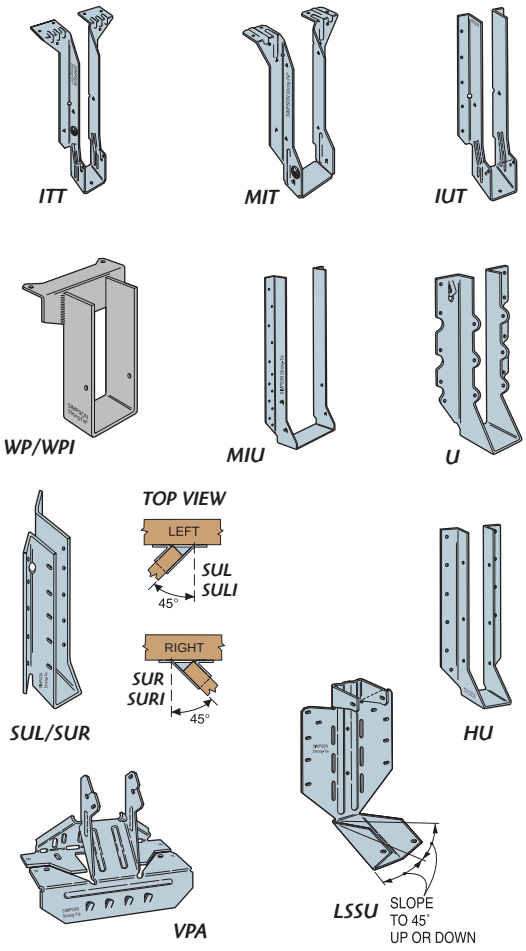
(1) Limit load for hangers supported by TJI® joist headers to 1050 lbs. for ITT and 1230 lbs. for MIT hangers OR:
* subtract 12" from floor span charts
** subtract 36" from floor span charts
Joist: 10d x 1 1⁄2" nails
Header: 10d (3") common nails
Top flange hangers require 10d x1 1⁄2" for TJI® joist headers or single 2x_ nailers.

DOUBLE JOIST HANGER

	DEPTH	TJI®/Pro™	HANGER	MAXIMUM LOAD (LBS.) FLOOR
TOP FLANGE HANGER	9 1⁄2"	150	MIT29.5-2	See Table A
		250	MIT49.5	
	11 7⁄8"	150	MIT211.88-2	
		250	MIT411.88	
		350	MIT3511.88-2	
		550	WPI411.88-2	
	14"	250	MIT414	
		350	MIT3514-2	
		550	WPI414-2	
	16"	250	MIT416	
		350	WP3516-2	
		550	WPI416-2	
FACE MOUNT HANGER	9 1⁄2"	150	U210-2	1560
		250	U410	1560
	11 7⁄8"	150	U210-2	1560
		250	U410	1560
		350	U3512-2	1800
		550	HU412-2	2480
	14"	250	U414	1790
		350	U3512-2	1790
		550	HU414-2	2250
	16"	250	U414	1790
		350	U3512-2	1790
		550	HU414-2	2250

- Face mount hanger loads may be increased 15% for snow roofs or 25% for non-snow roofs.

Joist: 10d x 1 1⁄2" nails
Header: 10d (3") common nails
Top flange hangers require 10d x 1 1⁄2" for TJI® joist headers or single 2x_ nailers.



FACE MOUNT SKEWED 45° JOIST HANGER

DEPTH	TJI®/Pro™	HANGER
9 1⁄2" and 11 7⁄8"	150	SUR210 or SUL210
9 1⁄2"	250	SURI9 or SULI9
11 7⁄8"–16"	250	SURI11 or SULI11
11 7⁄8"	350	SURI3510/12 or SULI3510/12
14" and 16"	350	SURI3514/20 or SULI3514/20
11 7⁄8"	550	SUR410 or SUL410
14" and 16"	550	SUR414 or SUL414

Joist: 10d x 1 1⁄2" nails
Header: 16d (3 1⁄2") common nails

- Please refer to General Notes on this page.
- Shaded hangers require web stiffeners.
- For additional information, refer to Simpson Strong-Tie® literature.
- Contact your Trus Joist MacMillan representative for assistance with other hanger or support conditions.

VARIABLE SLOPE SEAT JOIST HANGER

DEPTH	TJI®/Pro™	HANGER	SLOPED ONLY	SKEWED OR SLOPED AND SKEWED
9 1⁄2"	150	LSSU28	1275	885
	250	LSSUI25	1275	1065
11 7⁄8"	150	LSSU210	1275	1065
	250	LSSUI25	1275	1065
	350	LSSUI35	1275	1065
	550	LSSU410	2215	1865
14"	250	LSSUI25	1275	1065
	350	LSSUI35	1275	1065
	550	LSSU410	2215	1865

- LSSU hangers can be field adjusted for slopes and skews of up to 45 degrees.
- Loads have been increased 15% max. for short term roof loading.
- Supplemental lateral restraint is necessary for 16" deep TJI® joists. Contact your Trus Joist MacMillan representative for assistance.

Joist: 10d x 1 1⁄2" nails
Header: 10d (3") common nails, typical 16d (3 1⁄2") common nails for LSSU410

VARIABLE SLOPE SEAT CONNECTOR

TJI®/Pro™	CONNECTOR	MAXIMUM LOAD (LBS.)
150	VPA2	1050
250	VPA25	1050
350	VPA35	1230
550	VPA4	1230

VPA connectors may be used only on slopes of 3"/12" through 12"/12".
Joist: 10d x 1 1⁄2" nails
Header: 10d (3") common nails

TABLE A MAXIMUM LOAD (LBS.) FOR TOP FLANGE HANGERS

HEADER MATERIAL	MIT	WP/WPI
BEAM	1565	2000
TJI® JOIST HEADER	1230	2030
WOOD NAILER	1570	2500

Loads in Table A cannot be increased for duration of load.

USP LUMBER CONNECTORS

SINGLE JOIST HANGER

	DEPTH	TJI®/Pro™	HANGER
TOP FLANGE HANGER	9½"	150	THO15950
		250	THO17950
	11⅞"	150	THO15118
		250	THO17118
		350	THO23118
		550	THO35118
	14"	250	THO17140
		350	THO23140
		550	THO35140
	16"	250	THO17160
		350	THO23160
		550	THO35160
FACE MOUNT HANGER	9½"	150	THF15925
		250	THF179.25
	11⅞"	150	THF15112
		250	THF17112
		350	THF23118
		550	THF35112
	14"	250	THF17140
		350	THF23140
		550	THF35140
	16"	250	THF17157
		350	THF23160
		550	THF35157

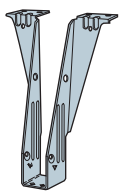
Joist: 10d x 1½" nails
Header: 10d (3") common nails
Use 10d x 1½" for top flange hangers.

DOUBLE JOIST HANGER

	DEPTH	TJI®/Pro™	HANGER	MAXIMUM LOAD (LBS.) FLOOR
TOP FLANGE HANGER	9½"	150	THO15950-2	See Table A
		250	THO35950	
	11⅞"	150	THO15118-2	
		250	THO3511.88	
		350	THO23118-2	
		550	BPH7118	
	14"	250	THO35140	
		350	THO23140-2	
		550	BPH7114	
	16"	250	THO35160	
		350	THO23160-2	
		550	BPH7116	
FACE MOUNT HANGER	9½"	150	THF15925-2	1355
		250	THF35925	1345
	11⅞"	150	THF15112-2	1580
		250	THF23118-2	1790
		350	THF23118-2	1810
		550	HD7120	2175
	14"	250	THF35140	2240
		350	THF23140-2	2380
		550	HD7140	2720
	16"	250	THF35157	2465
		350	THF23160-2	2855
		550	HD7140	2720

- Face mount hanger loads may be increased 15% for snow roofs or 25% for non-snow roofs. (Not to exceed 3035 lbs. for THF35157)

Joist: 10d (3") common nails
Header: 16d (3½") common nails
Use 10d x 1½" common nails for TJI®/Pro™ 250 top flange hangers
Use 10d (3") common nails for THF face mount hangers
Top flange hangers require 10d x 1½" if supported by TJI® joist headers or single 2x_ nailers.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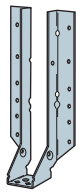
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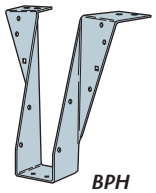
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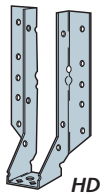
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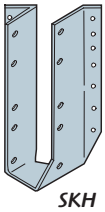
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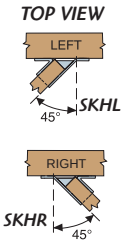

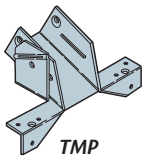
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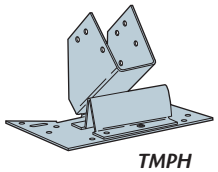
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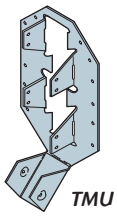

TMU

FACE MOUNT SKEWED 45° JOIST HANGER

DEPTH	TJI®/Pro™	HANGER
9½"	150	SKH1520R or SKH1520L
11⅞"	150	SKH1524R or SKH1524L
9½"	250	SKH1720R or SKH1720L
11⅞"–16"	250	SKH1724R or SKH1724L
11⅞"–16"	350	SKH2324R or SKH2324L
11⅞"	550	SKH410R(1) or SKH410L(1)

(1) Miter cut required on end of joist.
Joist: 10d x 1½" nails
16d (3½") common nails for SKH410L/R
Header: 10d (3") common nails
16d (3½") common nails for SKH410L/R

VARIABLE SLOPE SEAT JOIST HANGER

DEPTH	TJI®/Pro™	HANGER	SKEWED OR SLOPED AND SKEWED
9½"	150	TMU210	1290
	250	TMU179	1340
11⅞"	150	TMU210	1340
	250	TMU179	1340
	350	TMU23	1545
	550	TMU48	1545

- TMU hangers can be field adjusted for slopes from 8"/12" up to 12"/12" down.
- TMU hangers can be field adjusted for skews up to 45 degrees (up to 30 degrees for TMU23 and TMU48).
- Loads have been increased 15% max. for short term roof loading.
- Supplemental lateral restraint is necessary for 14" and 16" deep TJI® joists. Contact your Trus Joist MacMillan representative for assistance.

Joist: 10d x 1½" nails
Header: 10d (3") common nails, typical

VARIABLE SLOPE SEAT CONNECTOR

TJI®/Pro™	CONNECTOR	MAXIMUM LOAD (LBS.)
150	TMP2	990
	TMPH2	1475
250	TMP175	1150
	TMPH175	1900
350	TMP23	1970
	TMPH23	2165
550	TMP4	1970
	TMPH4	2165

- TMPH connectors may be used only on slopes of 1"/12" through 6"/12"
- TMPH connectors may be used only on slopes of 6"/12" through 12"/12"

Joist: 10d x 1½" nails
Header: 10d (3") common nails

TABLE A MAXIMUM LOAD (LBS.) FOR TOP FLANGE HANGERS

HEADER MATERIAL	THO	BPH
BEAM	2050	3510
TJI® JOIST HEADER	2050	2050
WOOD NAILER	1360	2080

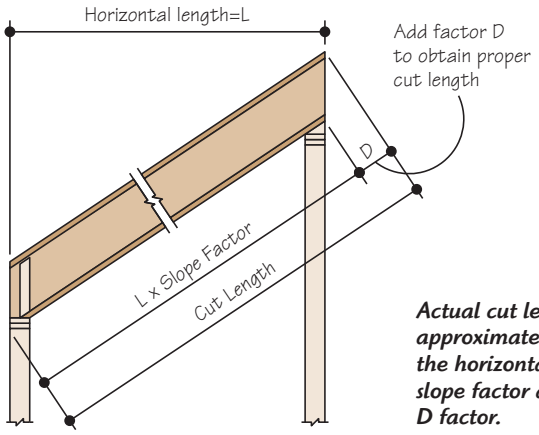
Loads in Table A cannot be increased for duration of load.

- Please refer to General Notes on this page.
- Shaded hangers require web stiffeners.
- For additional information, refer to USP Lumber Connectors™ literature.
- Contact your Trus Joist MacMillan representative for assistance with other hanger or support conditions.

Legacy Literature
See Note on Front Cover

Cut Length Calculation

TJI® Joist Cut Length Calculation



Actual cut length can be approximated by multiplying the horizontal length by the slope factor and adding the D factor.

D Factor

SLOPE	D FACTOR			
	9½"	11⅞"	14"	16"
2½ in 12	2"	2½"	3"	3⅜"
3 in 12	2⅜"	3"	3½"	4"
3½ in 12	2⅞"	3½"	4⅛"	4¾"
4 in 12	3¼"	4"	4¾"	5⅜"
4½ in 12	3⅝"	4½"	5¼"	6"
5 in 12	4"	5"	5⅞"	6¾"
6 in 12	4¾"	6"	7"	8"
7 in 12	5⅝"	7"	8¼"	9⅜"
8 in 12	6⅜"	8"	9⅜"	10¾"
9 in 12	7⅛"	9"	10½"	12"
10 in 12	8"	10"	11¾"	13⅜"
11 in 12	8¾"	11"	12⅞"	14¾"
12 in 12	9½"	11⅞"	14"	16"

Slope Factor Table

SLOPE	2½ in 12	3 in 12	3½ in 12	4 in 12	4½ in 12	5 in 12	6 in 12	7 in 12	8 in 12	9 in 12	10 in 12	11 in 12	12 in 12
FACTOR	1.021	1.031	1.042	1.054	1.068	1.083	1.118	1.158	1.202	1.250	1.302	1.357	1.414

Nailing of Sheathing and PSF Conversion Table

Nailing of Sheathing to TJI® Joist Flanges and TimberStrand® LSL Rim Board

NAIL SIZE	CLOSEST O.C. SPACING PER ROW		
	TJI®/Pro™		TimberStrand® LSL
	150	250 350 550	
8d (2½") BOX	2½"	2"	4"
8d (2½") COMMON	3½"	2"	4"
10d (3"), 12d (3¼") BOX	3"	2"	4"
10d (3"), 12d (3¼") COMMON	4½"	3"	4"
16d (3½") COMMON	N.A.	N.A.	6"(1)

(1) When nailing through the wall sill plate and floor sheathing, closest on-center spacing is 4" (1⅜" max. penetration).

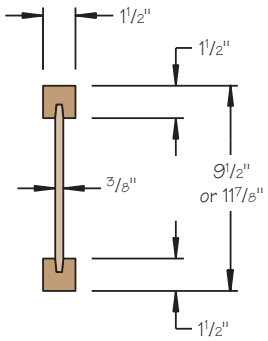
General Notes

- Maximum spacing of nails is:
  - 18" on-center for TJI®/Pro™ 150 and 250 joists.
  - 24" on-center for TJI®/Pro™ 350 and 550 joists.
- If more than one row of nails is used, the 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® joists or rim board is achieved.
- Table also applies for the attachment of TJI® rim joists and blocking panels to the wall plate.

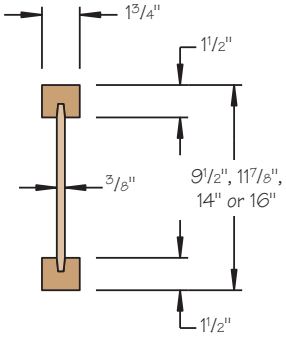
PSF to PLF Conversion Table

LOAD IN POUNDS PER LINEAL FOOT (PLF)

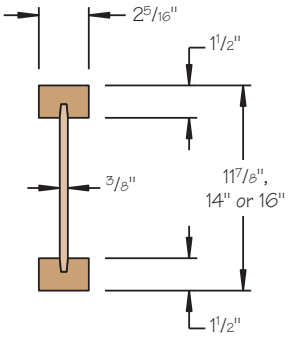
O.C. SPACING	LOAD IN POUNDS PER SQUARE FOOT (PSF)								
	20	25	30	35	40	45	50	55	60
12"	20	25	30	35	40	45	50	55	60
16"	27	34	40	47	54	60	67	74	80
19.2"	32	40	48	56	64	72	80	88	96
24"	40	50	60	70	80	90	100	110	120



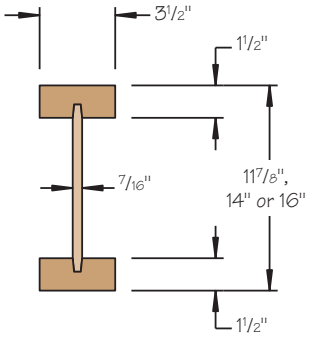
TJI®/Pro™ 150 joists
Top and bottom flanges of 1½" x 1½" Microllam® LVL with ⅜" Performance Plus® web.



TJI®/Pro™ 250 joists
Top and bottom flanges of 1¾" x 1½" Microllam® LVL with ⅜" Performance Plus® web.



TJI®/Pro™ 350 joists
Top and bottom flanges of 2⅝" x 1½" Microllam® LVL with ⅜" Performance Plus® web.



TJI®/Pro™ 550 joists
Top and bottom flanges of 3½" x 1½" Microllam® LVL with 7/16" Performance Plus® web.

DESIGN PROPERTIES (100% LOAD DURATION)

TJI®/Pro™	DEPTH	BASIC PROPERTIES				REACTION PROPERTIES		
		JOIST WEIGHT (lbs./ft.)	MAXIMUM RESISTIVE MOMENT (ft. lbs.)	JOIST ONLY EI x 10^6 ($in.^2$ lbs.)	MAXIMUM VERTICAL SHEAR (lbs.)	MAXIMUM END REACTION (lbs.)	MAXIMUM INTERMEDIATE REACTION (lbs.)	
							NO WEB STIFFENERS	WITH WEB STIFFENERS
150	9½"	2.0	2,730	160	1,120	945	1,895	N.A.
	11⅞"	2.3	3,620	276	1,420	945	1,895	N.A.
250	9½"	2.2	3,210	185	1,120	1,015	2,030	N.A.
	11⅞"	2.5	4,260	319	1,420	1,015	2,030	2,385
	14"	2.8	5,210	474	1,710	1,015	2,030	2,385
	16"	3.0	6,075	653	1,970	1,015	2,030	2,385
350	11⅞"	3.0	5,000	395	1,420	1,160	2,320	2,680
	14"	3.2	6,135	584	1,710	1,160	2,320	2,680
	16"	3.5	7,205	801	1,970	1,160	2,320	2,680
550	11⅞"	4.2	7,675	593	1,925	1,400	3,355	3,830
	14"	4.5	9,420	874	2,125	1,400	3,355	3,830
	16"	4.7	11,065	1,192	2,330	1,400	3,355	3,830

GENERAL NOTES

- Design reaction includes all loads on the joist. Design shear is computed at the face of supports including all loads on the span(s). Allowable shear may sometimes be increased at interior supports in accordance with NER-119 and NER-200 and these increases are reflected in span tables.
- The reaction values above are based on an assumed minimum bearing length of 1¾" at ends, 3½" at intermediate supports.
- Values shown throughout this brochure are applicable in dry-service conditions only.
- The following formula approximates the uniform load deflection of Δ (inches):

For TJI®/Pro™ 150, 250 and 350 Joists

$$\Delta = \frac{22.5\ wL^4}{EI} + \frac{2.67\ wL^2}{d \times 10^5}$$

For TJI®/Pro™ 550 Joists

$$\Delta = \frac{22.5\ wL^4}{EI} + \frac{2.29\ wL^2}{d \times 10^5}$$

w = uniform load in pounds per lineal foot
L = span in feet
d = out-to-out depth of the joist in inches
EI = value from table

MATERIAL WEIGHTS (Include TJI® joist weights in dead load calculations – see table above for JOIST WEIGHTS)

Sheathing
Based on: Southern pine – 40 pcf for plywood, 44 pcf for OSB
Douglas fir – 36 pcf for plywood, 40 pcf for OSB

	Southern Pine	Douglas Fir
½" plywood	1.7 psf	1.5 psf
⅝" plywood	2.0 psf	1.8 psf
¾" plywood	2.5 psf	2.3 psf
1⅛" plywood	3.8 psf	3.4 psf
½" OSB	1.8 psf	1.7 psf
⅝" OSB	2.2 psf	2.0 psf
¾" OSB	2.7 psf	2.5 psf
1⅛" OSB	4.1 psf	3.7 psf

Roofing Materials
Asphalt shingles . . . . . 2.5 psf
Wood shingles . . . . . 2.0 psf
Clay tile . . . . . 9.0 to 14.0 psf
Slate (⅜" thick) . . . . . 15 psf

Roll or Batt Insulation (1" thick)
Rock wool . . . . . 0.2 psf
Glass wool . . . . . 0.1 psf

Floors
Hardwood (Nominal 1") . . . 4.0 psf
Concrete (1" thick)
Regular . . . . . 12.0 psf
Lightweight . . . . . 8.0 to 10.0 psf
Sheet vinyl . . . . . 0.5 psf
Carpet and pad . . . . . 1.0 psf
¾" ceramic or quarry tile . . . 10.0 psf
Gypsum concrete (¾") . . . . . 6.5 psf

Ceilings
Acoustical fiber tile . . . . . 1.0 psf
½" gypsum board . . . . . 2.2 psf
⅝" gypsum board . . . . . 2.8 psf
Plaster (1" thick) . . . . . 8.0 psf

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Legacy Literature
See Note on Front Cover

NW0299/50M

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