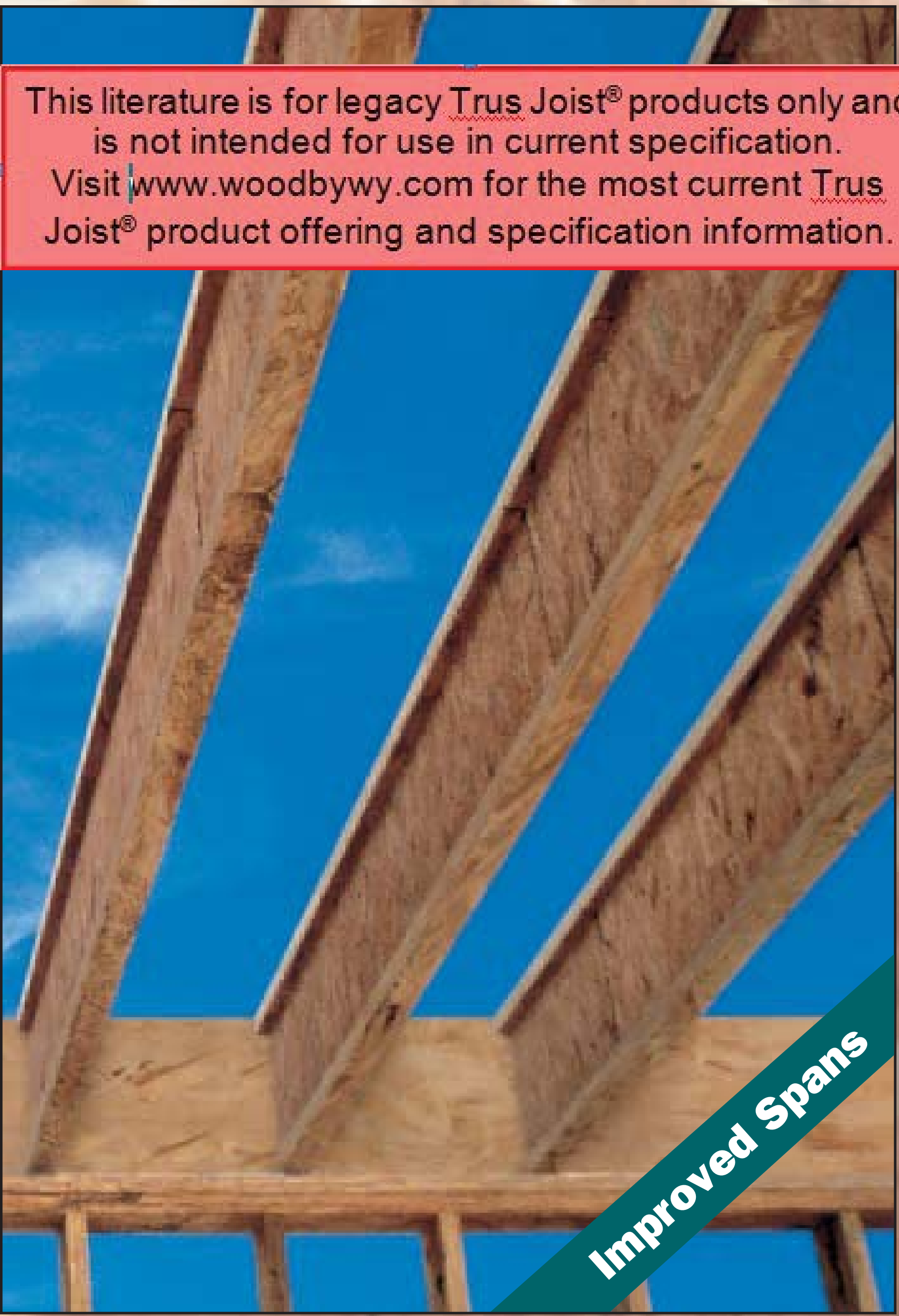
Trus Joist®
A Weyerhaeuser Business

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.



SPECIFIER'S GUIDE

TJI®/Pro™ 100TS & 130 Joists

Featuring the Silent Floor® System for Residential Applications

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

TJI® Joist
Trus Joist™

1-800-628-3997
www.trusjoist.com

Legacy Literature
See Note on Front Cover

TJI® Joists

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.

Trus Joist'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 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 uses to develop structural building products. In the face of a diminishing supply of quality structural lumber and changing forest resources, Trus Joist 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.

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 for each specific job.

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

Specify Trus Joist'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 representative nearest you.

1-800-628-3997
www.trusjoist.com

TABLE OF CONTENTS

CODE EVALUATIONS
ICBO ES PFC-4354
ICBO ES PFC-5676P
FHA/HUD 689
NER-200

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 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 TJI® joists and Microllam® LVL, TimberStrand® LSL and Parallam® PSL beams, headers and columns.

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

TJ-YardMate™ 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 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.*

Understanding Floor Noise

Any homeowner knows there are many sounds that emanate from a house's walls and floors: boards creak and squeak, ductwork flexes and nails rub. In many cases, these noises are difficult to prevent and should be expected.

However, there is a cure for the most common cause of floor squeaks—the inconsistent size of sawn lumber. Floor joists of sawn lumber are unlikely to be the same depth when they're installed, and subsequent drying can magnify unevenness. When floor sheathing flexes over these joists, squeaks occur.

The Silent Floor® Joist, on the other hand, is manufactured to precise specifications to ensure that all joists are the same depth and won't shrink after installation. The natural defects found in sawn lumber are engineered out, and dimensional stability is manufactured in. Using the Silent Floor® Joist virtually eliminates floor noise caused by dimensional instability.

A builder that uses the Silent Floor® Joist has made a significant effort to eliminate annoying floor squeaks. While it won't prevent all the normal sounds that come from a structure, homes built with the Silent Floor® Joist are much quieter than those framed with sawn lumber—*GUARANTEED.*

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

Silent Floor® Joist
Trus Joist™

HOMEBUYER'S GUARANTEE

We guarantee that the Trus Joist products used in your home have been manufactured to precise tolerances and are free from defects in materials and workmanship. In the unlikely event that your Silent Floor® joist develops squeaks or any other problem caused by such defects, and provided that your floor joists have been properly installed, we will promptly remedy that problem at no cost to you.

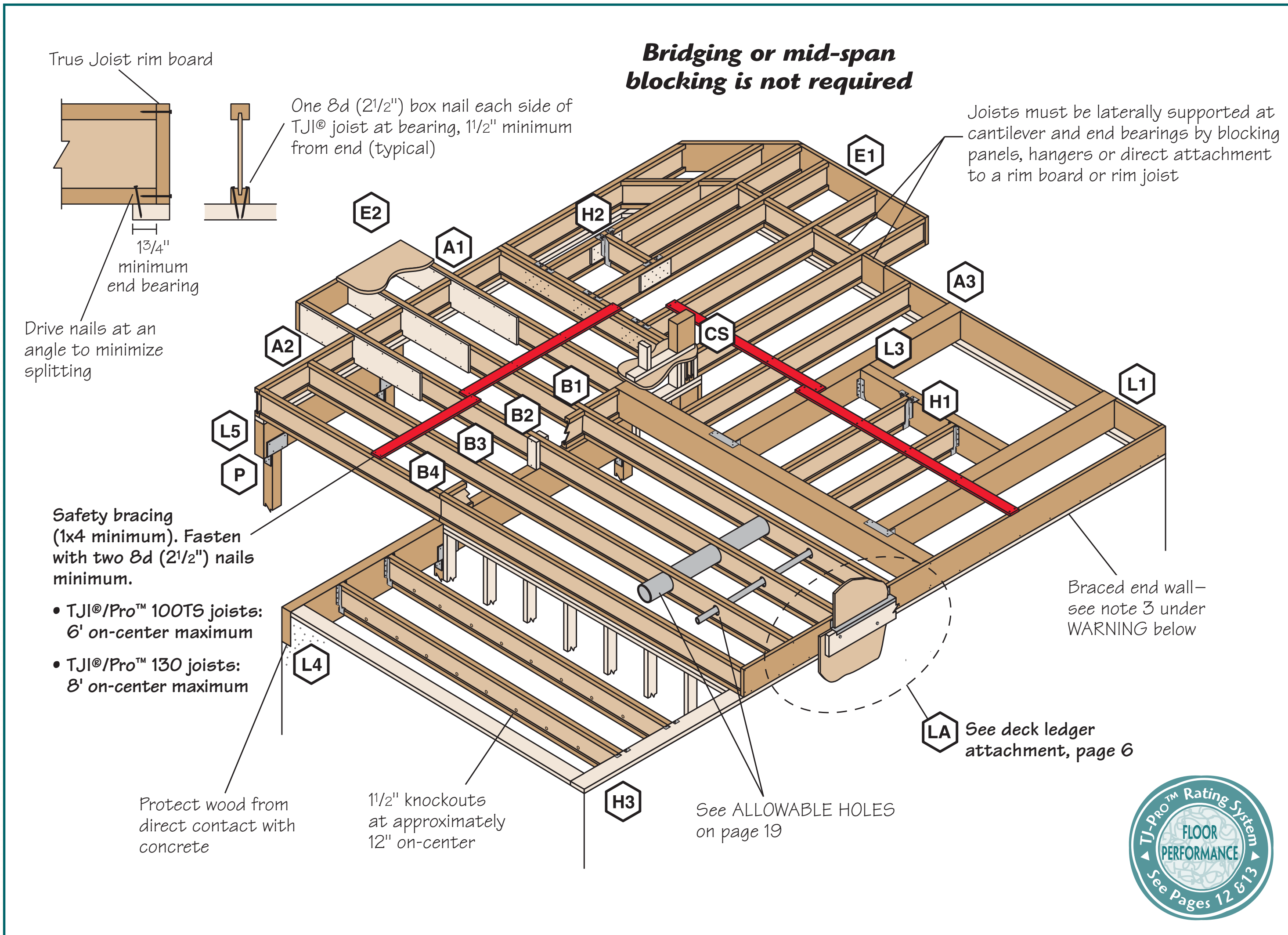
In addition, if you call us with a problem that you believe may be caused by our products, our representative will contact you within one business day to evaluate the problem and help solve it. Guaranteed.

This guarantee is effective for the life of your home.

1-800-628-3997

Part of the **FrameWorks®** *Building System*

Typical Silent Floor® System



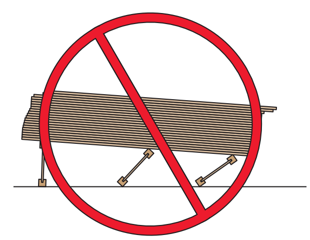
WARNING

Joists are unstable until braced laterally

Bracing Includes:

- Blocking
- Hangers
- Rim Board
- Sheathing
- Rim Joist
- Safety Bracing

DO NOT allow workers to walk on joists until braced. INJURY MAY RESULT.



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

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) fastened to the first 4 feet of joists at the end of the bay.
3. Safety bracing 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 or 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 safety bracing on both the top and bottom flanges.
6. The flanges must remain straight within a tolerance of $^1/_2$" from true alignment.

How to Use These Tables

1. Determine the appropriate LIVE LOAD DEFLECTION.
2. Identify the LIVE and DEAD LOAD condition.
3. Select on-center spacing.
4. Scan down the column until you meet or exceed the span of your application.
5. Select TJI® joist and depth.

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

Minimum Criteria Per Code
L/360 Live Load Deflection

MAXIMUM ALLOWABLE SPANS PER CODE

Load	Depth	TJI®/Pro™	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
40 PSF Live Load / 10 PSF Dead Load	9 1/2"	100TS	18'-1"	15'-8"	14'-4"	12'-9"
		130	19'-6"	17'-10"	16'-7"	14'-9"
	11 7/8"	100TS	20'-11"	18'-1"	16'-6"	14'-9"
		130	23'-3"	20'-11"	19'-1"	17'-1"
	14"	130	26'-5"	23'-2"	21'-1"	18'-10"(1)
	16"	130	29'-0"	25'-1"	22'-10"(1)	20'-5"(1)
40 PSF Live Load / 20 PSF Dead Load	9 1/2"	100TS	16'-6"	14'-4"	13'-0"	11'-8"
		130	19'-2"	16'-7"	15'-1"	13'-6"
	11 7/8"	100TS	19'-1"	16'-6"	15'-0"	13'-5"
		130	22'-1"	19'-1"	17'-5"	15'-7"(1)
	14"	130	24'-5"	21'-1"	19'-3"(1)	17'-2"(1)
	16"	130	26'-5"	22'-10"(1)	20'-10"(1)	17'-2"(1)

Improved Performance System
L/480 Live Load Deflection

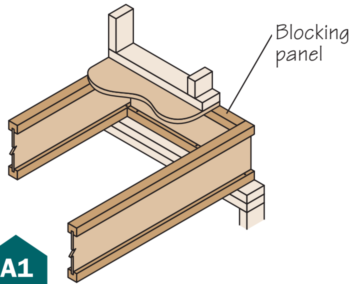
Load	Depth	TJI®/Pro™	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
40 PSF Live Load / 10 PSF Dead Load	9 1/2"	100TS	16'-5"	15'-0"	14'-3"	12'-9"
		130	17'-7"	16'-1"	15'-2"	14'-2"
	11 7/8"	100TS	19'-7"	17'-11"	16'-6"	14'-9"
		130	21'-0"	19'-2"	18'-2"	16'-11"
	14"	130	23'-11"	21'-10"	20'-8"	18'-10"(1)
	16"	130	26'-7"	24'-3"	22'-10"(1)	20'-5"(1)
40 PSF Live Load / 20 PSF Dead Load	9 1/2"	100TS	16'-5"	14'-4"	13'-0"	11'-8"
		130	17'-7"	16'-1"	15'-1"	13'-6"
	11 7/8"	100TS	19'-1"	16'-6"	15'-0"	13'-5"
		130	21'-0"	19'-1"	17'-5"	15'-7"(1)
	14"	130	23'-11"	21'-1"	19'-3"(1)	17'-2"(1)
	16"	130	26'-5"	22'-10"(1)	20'-10"(1)	17'-2"(1)

(1) Web stiffeners are required at intermediate supports of continuous span joists in conditions where the intermediate bearing length is **less** than 5 1/4" **and** the span on either side of the intermediate bearing is greater than the following spans:

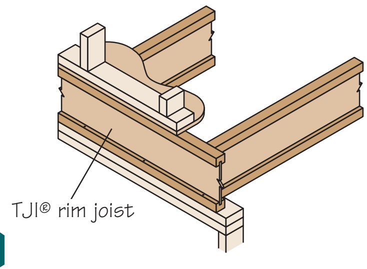
TJI®/Pro™	40 PSF Live Load, 10 PSF Dead Load				40 PSF Live Load, 20 PSF Dead Load			
	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
100TS	Web Stiffener Not Required				Web Stiffener Not Required			
130	Not Required		22'-2"	17'-9"	Not Required	22'-2"	18'-6"	14'-9"

General Notes

- Tables are based on:
  - Uniform loads.
  - More restrictive of simple or continuous span.
  - Clear distance between supports (1 3/4" minimum end bearing).
  - Assumed composite action with a single layer of 24" on-center span-rated, glue-nailed wood sheathing for deflection only (**spans shall be reduced 5" when sheathing panels are nailed only**).
  - A code-allowed increase for repetitive member use.
- For loading conditions not shown, refer to the load table on page 11.

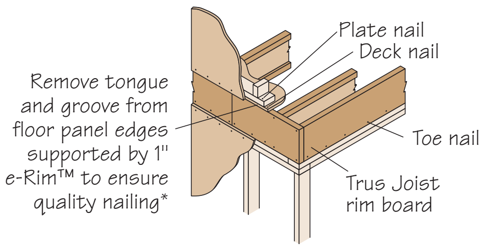


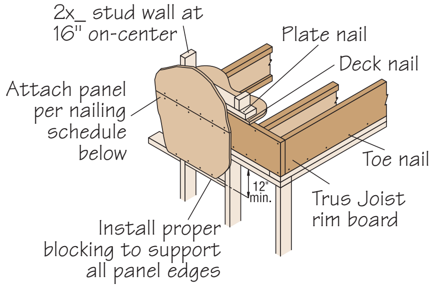
A1



A2

For information on lateral load capacities refer to current Trus Joist rim board literature

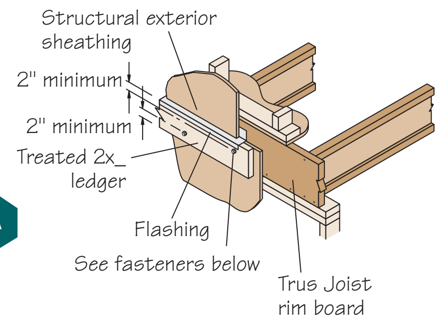




**** Trimming edges of panels used with 1 1/8" or thinner rim board recommended by ICBO Evaluation Services, Inc.***

A3 A3.1 A3.2 A3.3 A3.4

Exterior Deck Attachment



LA

Fastener	Allowable Load (lbs) 1 1/4" Rim Board(1)	Allowable Load (lbs) 1" e-Rim™
1/4" screw(2)	250	N.A.
3/8" lag bolt	400	N.A.
1/2" lag bolt	475	325

(1) Allowable load determined in accordance with AC 124.

(2) Screws must have self-drilling tip and a minimum bending yield strength of 217,000 psi. Lead holes may be required by local building official.

Rim Board Installation

Specifications			A3	A3.1(1)	A3.2(1)	A3.3(1)	A3.4(1)
Rim Board Thickness			1" or 1 1/4"	1"	1 1/4"	1 1/4"	1 1/4"
Plate Nail—16d (3 1/2") box			16" o.c.	16" o.c.	12" o.c.	8" o.c.	12" o.c.
Deck Nail—8d (2 1/2") common			6" o.c.	6" o.c.	6" o.c.	6" o.c.	6" o.c.
Toe Nail—10d (3") box			6" o.c.	6" o.c.	6" o.c.	4" o.c.	6" o.c.
Sill Plate Anchor Bolt			1/2" dia. at 6' o.c.	1/2" dia. at 6' o.c.	1/2" dia. at 6' o.c.	5/8" dia. at 6' o.c.	5/8" dia. at 4' o.c.
Wall Framing	Exterior Face	Sheathing	Per code	Per code	Per code	3/8" structural 1 sheathing at corners and every 25' o.c. 1/2" fiberboard in all other areas(2)	3/8" structural 1 sheathing in all areas(3)
		Boundary Nailing				8d common at 6" o.c.	8d common at 4" o.c.
		Intermediate Nailing				8d common at 12" o.c.	8d common at 12" o.c.
		Max. Wall Opening Height				5'-4"(4)	5'-4"(4)
		% of Wall with Full Height Sheathing				70%	70%
	Interior Face	Sheathing	Per code	Per code	Per code	1/2" gypsum	1/2" gypsum
		Boundary Nailing				5d cooler at 7" o.c.	5d cooler at 7" o.c.
		Intermediate Nailing				5d cooler at 10" o.c.	5d cooler at 10" o.c.
Hold-Downs (if required)			Per code	16" o.c. within 10' of corners(5)	16" o.c. within 6' of corners(5)	16" o.c. within 4' of corners(5)	N.A.

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

(2) Detail A3.3 shall be a segmented wall, constructed per the 1995 SBC Wood Frame Construction Manual.

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

(4) One 6'-8" standard door opening is allowed.

(5) If required, hold-downs shall be Simpson Strong-Tie® CS20 straps attached with four 8d common nails at each end or equivalent. As an alternative to hold-down straps, wall sheathing may be attached as shown in A3.4 (refer to footnote 3).

General Notes

Minimum Bearing Length

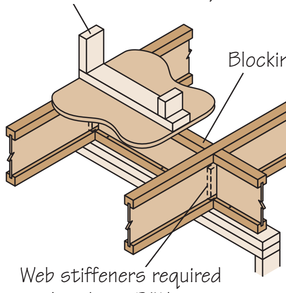
- **At joist ends:** 1 3/4".
- **At intermediate supports:** 3 1/2".

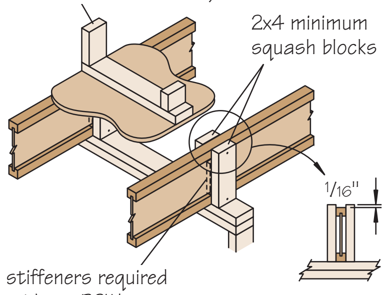
Blocking Panels, Rim Boards or Rim Joists

- Check vertical load transfer at bearings.
  Allowable uniform vertical loads:
  TJI® blocking . . . . .2000 plf
  TJI® rim joist . . . . .2000 plf
  TimberStrand® LSL — 1 1/4" . . . . .4250 plf
  TJ-Strand® rim board — 1 1/4" . . . . .4250 plf
  e-Rim™ — 1" . . . . .4250 plf
  Loads may not be increased for duration of load.
- Bracing per code shall be carried to the foundation.

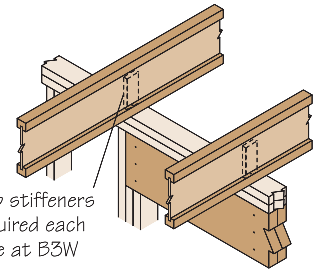
Nailing Requirements

- **TJI® joists at bearings:** Two 8d (2 1/2") box nails (1 each side), 1 1/2" minimum from end.
- **Blocking panels or rim joist to bearing plate:**
  TJI® blocking panels or rim joist: Equivalent to toe nail schedule.
- **Rim board, rim joist or closure to TJI® joist:**
  1 3/4" width or less: 10d (3") box nails, one each at top and bottom flange.
  TJI®/Pro™ 130 rim joist: 16d (3 1/2") box nails, one each at top and bottom flange.
- **2x4 minimum squash blocks:** 10d (3") box nails, one each at top and bottom flange.



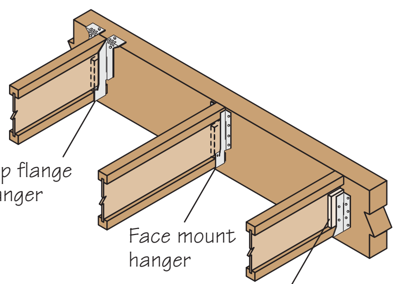


Intermediate Bearing – No Load Bearing Wall Above



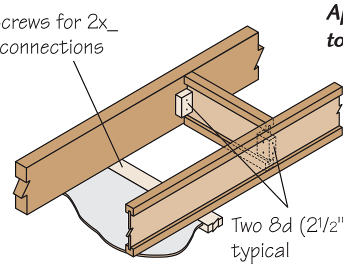
Blocking panels may be required with shear walls above or below – see detail B1

B1 B1W B2 B2W B3 B3W



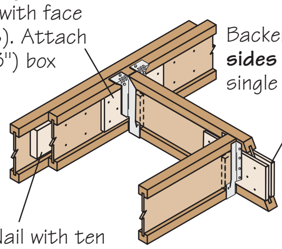
H1

Apply subfloor adhesive to all contact surfaces



PB1

Applications shown in this guide do not require blocking, strapping or a directly applied ceiling; however, backspan bracing of cantilever applications is required when specified by software

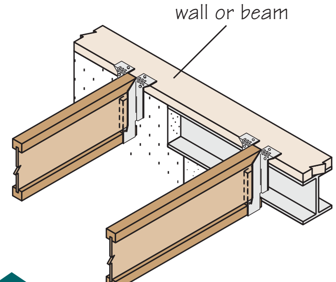


Filler and Backer Block Sizes

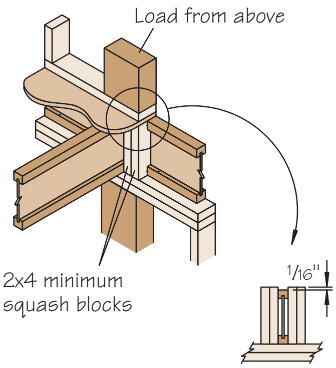
TJI®/Pro™ Depth	100TS 9½" or 11⅞"	130 9½" or 11⅞"	130 14" or 16"
Filler Block* (Detail H2)	2x6	2x6 + ½" sheathing	2x8 + ½" sheathing
Cantilever Filler (Detail E4)	2x6 4'-0" long	2x6 + ½" sheathing 4'-0" long	2x10 + ½" sheathing 6'-0" long
Backer Block* (Detail F1 or H2)	⅝" or ¾"	1" net	1" net

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

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

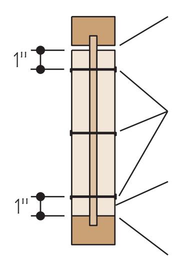


H3



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

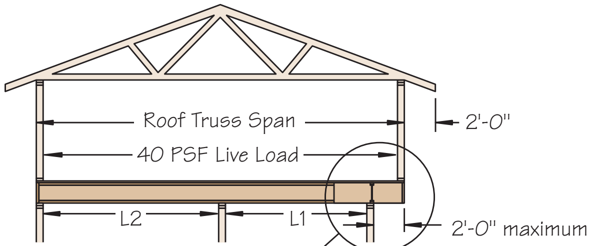
Web Stiffener Attachment



W ***Web stiffener material shall be PS1-95 or PS2-92 sheathing, face grain vertical***

See General Notes on page 6

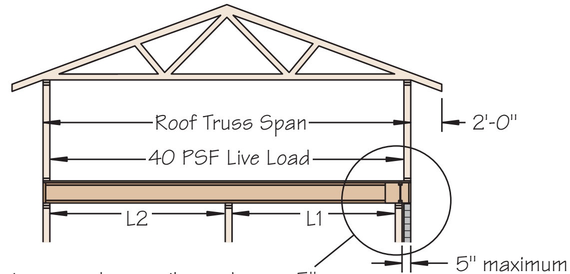
2' Cantilever



TJI® joists may be cantilevered up to 2'-0" when supporting roof load, assuming:
- simple or continuous span
- L1 ≤ L2*

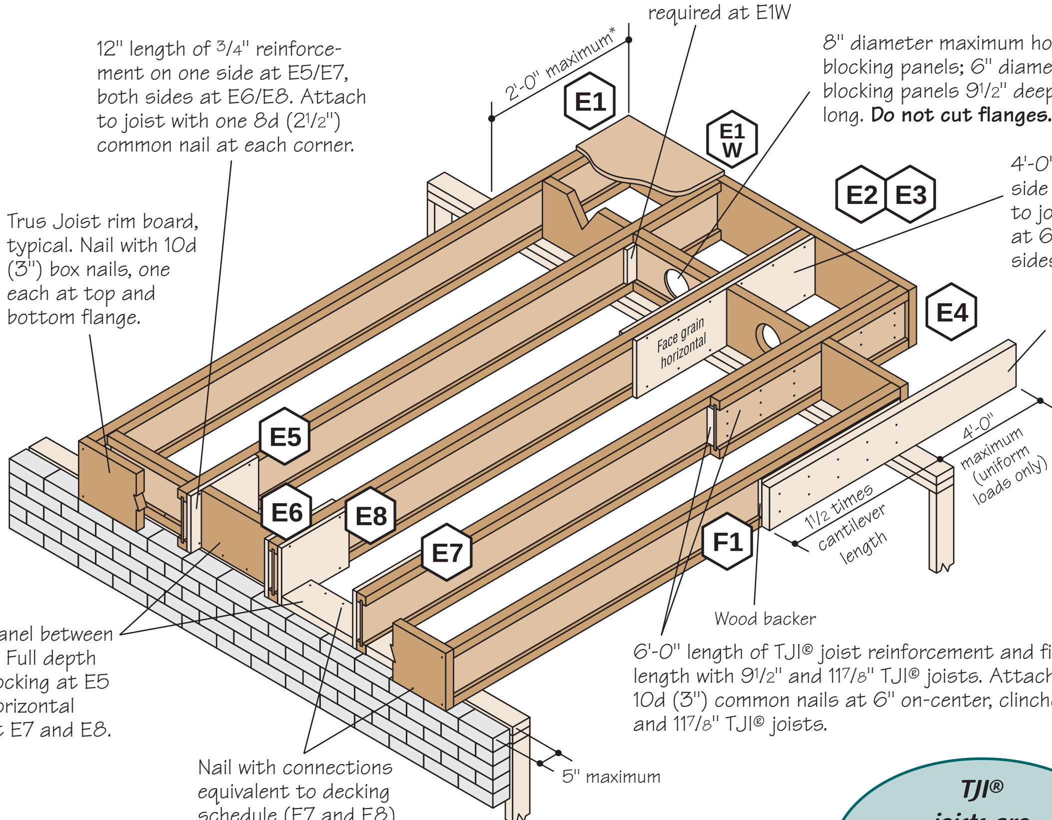
Consult tables on page 9 for required reinforcement.

Brick Ledge Cantilever



TJI® joists may be cantilevered up to 5" when supporting roof load, assuming:
- simple or continuous span
- L1 ≤ L2*

Consult tables on page 10 for required reinforcement.

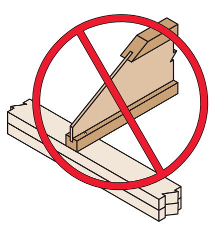


TJI® joists are intended for dry-use, non-treated applications

* For other conditions, contact your Trus Joist representative.

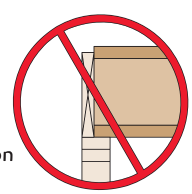
These Conditions Are NOT Permitted

DO NOT bevel cut joist beyond inside face of wall



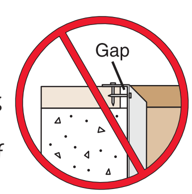
DO NOT use sawn lumber for rim board or blocking

Sawn lumber may shrink after installation



DO NOT install hanger overhanging face of plate or beam

Flush bearing plate with inside face of wall or beam



How to Use This Table

1. Identify TJI® joist and depth.
2. Locate the ROOF TRUSS SPAN (horizontal) that meets or exceeds your condition.
3. Find ROOF TOTAL LOAD and ON-CENTER JOIST SPACING for your application.
4. Use LEGEND to determine reinforcement required (if any). Refer to drawing on page 8 for details.

Legend

0 No reinforcement required.

W Web stiffener required each side of joist at bearing. See detail E1W.

1 3/4" x 48" reinforcement required on one side of joist (see detail E2) or double the joists (see detail E4).

2 3/4" x 48" reinforcement required on both sides of joist (see detail E3) or double the joists (see detail E4).

X Will not work. Reduce spacing of joists and recheck table.

2' Cantilever

Depth	TJI®/Pro™	Roof Truss Span	Roof Total Load 35 PSF			45 PSF			55 PSF		
			On-Center Joist Spacing 16"	19.2"	24"	16"	19.2"	24"	16"	19.2"	24"
9 1/2"	100TS	18	0	0	0	0	0	X	0	X	X
		20	0	0	0	0	0	X	0	X	X
		22	0	0	X	0	X	X	0	X	X
		24	0	0	X	0	X	X	X	X	X
		26	0	0	X	0	X	X	X	X	X
		28	0	1	X	1	X	X	X	X	X
		30	0	X	X	X	X	X	X	X	X
	130	20	0	0	0	0	0	1	0	1	X
		22	0	0	0	0	0	1	0	1	X
		24	0	0	1	0	1	X	0	1	X
		26	0	0	1	0	1	X	1	X	X
		28	0	0	1	0	1	X	1	X	X
		30	0	0	1	0	1	X	2	X	X
		32	0	1	X	1	2	X	2	X	X
		34	0	2	X	2	X	X	X	X	X
11 7/8"	100TS	24	0	0	0	0	0	X	0	0	X
		26	0	0	0	0	0	X	0	X	X
		28	0	0	0	0	0	X	0	X	X
		30	0	0	0	0	0	X	0	X	X
		32	0	0	X	0	0	X	0	X	X
		34	0	0	X	0	X	X	X	X	X
		36	0	X	X	0	X	X	X	X	X
		38	0	X	X	1	X	X	X	X	X
	130	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	X
		32	0	0	W	0	0	1	0	1	X
		34	0	0	1	0	1	1	1	1	X
		36	0	0	1	0	1	X	1	1	X
		38	0	0	X	0	1	X	1	X	X
14"	130	30	0	0	0	0	0	W	0	W	1
		32	0	0	W	0	0	1	0	W	2
		34	0	0	W	0	0	1	0	W	2
		36	0	0	W	0	W	1	0	1	2
		38	0	0	W	0	W	1	W	1	X
		40	0	0	X	0	W	X	W	1	X
16"	130	30	0	0	0	0	0	W	0	W	1
		32	0	0	W	0	0	1	0	W	1
		34	0	0	W	0	0	1	0	W	1
		36	0	0	W	0	W	1	0	1	2
		38	0	0	W	0	W	1	W	1	2
		40	0	0	1	0	W	1	W	1	2

General Notes

Table is based on:

- 15 psf roof dead load on a horizontal projection.
- 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.
- More restrictive of simple or continuous floor span.
- Roof truss with 24" soffits.
- 3/4" reinforcement refers to 3/4" "Exposure 1" plywood or other 3/4" "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.
- Designed for 2x4 and 2x6 plate widths.
- For conditions beyond the scope of this table, use our TJ-Beam® or TJ-Xpert® software.

How to Use This Table

1. Identify TJI® joist and depth.
2. Locate the ROOF TRUSS SPAN (horizontal) that meets or exceeds your condition.
3. Find ROOF TOTAL LOAD and ON-CENTER JOIST SPACING for your application.
4. Use LEGEND to determine reinforcement required (if any). Refer to drawing on page 8 for details.

Legend

0 No reinforcement required.

1 3/4" x 12" reinforcement required on one side of joist. See detail E5/E7.

2 3/4" x 12" reinforcement required on both sides of joist. See detail E6/E8.

X Will not work. Reduce spacing of joists and recheck table.

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

Brick Ledge Cantilever

Depth	TJI®/Pro™	Roof Truss Span	Roof Total Load 35 PSF			45 PSF			55 PSF		
			On-Center Joist Spacing 16"	19.2"	24"	16"	19.2"	24"	16"	19.2"	24"
9 1/2"	100TS	24'	0	1	1	1	1	1	1	1	1
		26'	1	1	X	1	1	X	1	1	X
		28'	1	1	X	1	1	X	1	1	X
		30'	1	X	X	1	X	X	1	X	X
		32'	X	X	X	X	X	X	X	X	X
9 1/2"	130	24'	0	1	1	1	1	1	1	1	1
		26'	1	1	1	1	1	1	1	1	1
		28'	1	1	1	1	1	1	1	1	1
		30'	1	1	X	1	1	X	1	1	X
		32'	1	1	X	1	1	X	1	1	X
		34'	1	X	X	1	X	X	1	X	X
		36'	1	X	X	1	X	X	1	X	X
11 7/8"	100TS	24'	0	0	1	0	1	1	0	1	1
		26'	0	0	1	0	1	1	1	1	1
		28'	0	1	1	0	1	1	1	1	1
		30'	0	1	X	1	1	X	1	1	X
		32'	0	1	X	1	1	X	1	1	X
		34'	0	X	X	1	X	X	1	X	X
		36'	1	X	X	1	X	X	1	X	X
	130	24'	0	0	1	0	1	1	0	1	1
		26'	0	0	1	0	1	1	1	1	1
		28'	0	1	1	0	1	1	1	1	1
		30'	0	1	1	1	1	1	1	1	1
		32'	0	1	1	1	1	1	1	1	1
		34'	0	1	1	1	1	1	1	1	2
		36'	1	1	X	1	1	X	1	1	X
		38'	1	1	X	1	1	X	1	1	X
14"	130	26'	0	0	1	0	0	1	0	1	1
		28'	0	0	1	0	1	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	1	1	1	1	1	1	1	2
		36'	0	1	1	1	1	1	1	1	2
		38'	0	1	1	1	1	1	1	1	2
16"	130	28'	0	0	1	0	1	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	1	1	1	1	1	1	1	2
		36'	0	1	1	1	1	1	1	1	2
		38'	0	1	1	1	1	1	1	1	2

General Notes

Table is based on:

- 15 psf roof dead load on a horizontal projection.
- 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.
- More restrictive of simple or continuous floor span.
- Roof truss with 24" soffits.
- 3/4" reinforcement refers to 3/4" "Exposure 1" plywood or other 3/4" "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.
- Designed for 2x4 and 2x6 plate widths.
- For conditions beyond the scope of this table, use our TJ-Beam® or TJ-Xpert® software.

How to Use This Table

1. Calculate actual total and live load in pounds per linear foot (plf).
2. Select appropriate JOIST CLEAR SPAN.
3. Scan horizontally to find a TJI® joist that meets or exceeds actual total and live loads.

Floor—100% (PLF)

Joist Clear Span	TJI®/Pro™ 100TS				TJI®/Pro™ 130							
	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'		305		305		290		290		290		290
8'	226	230		230		219		219		219		219
10'	126	156		185	156	176		176		176		176
12'	77	109	128	144	96	145		147		147		147
14'	50	80	84	106	63	107	104	126		126		126
16'			58	82	43	82	72	109	104	110		110
18'							52	86	75	98		98
20'									56	85	76	88
22'											58	80

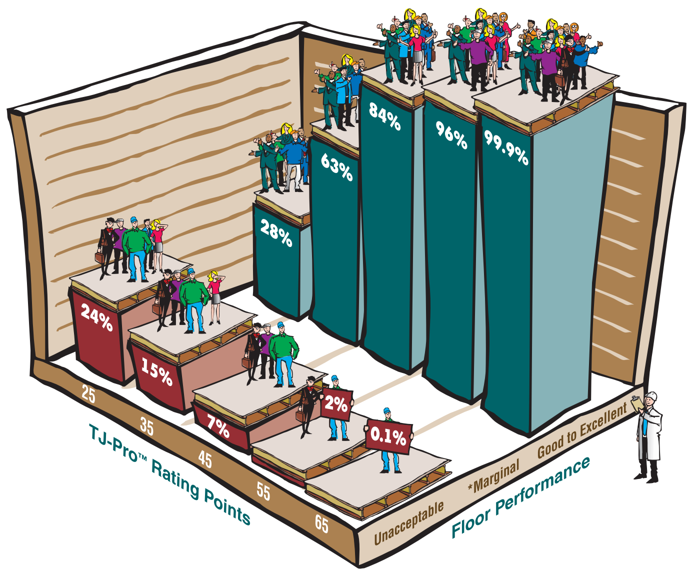
TJ-PRO™ Rating System
FLOOR PERFORMANCE
See Pages 12 & 13

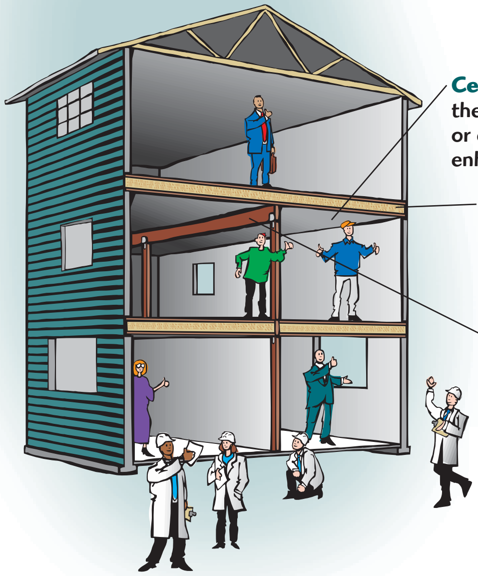
General Notes

- Table is based on:
  - Uniform loads.
  - No composite action provided by sheathing.
  - More restrictive of simple or continuous 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.

The TJ-Pro™ Rating System is a sophisticated computer model for predicting floor performance. Trus Joist offers the TJ-Pro™ Rating System in its exclusive TJ-Beam® and TJ-Xpert® software.

The TJ-Pro™ Rating System allows you to select not only Trus Joist products, but other components contributing to the assembly of a floor as well. Varying the components and developing relative performance ratings gives you options for enhancing the floor's performance. You also get a comparison cost value to assist you in determining the cost efficiency of your selection. This comparison cost value is based on the input cost of decking and the wood volume of floor joist in your floor assembly. 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, depths and spacings can sometimes even lower the cost while increasing the Performance Value.





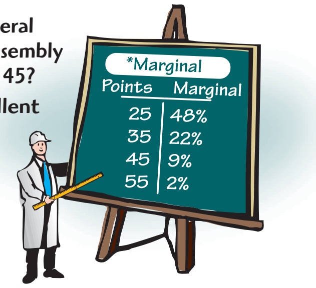
Ceiling – A ceiling directly applied to the bottom edge of the floor members—or equivalent strapping—is a performance enhancement.

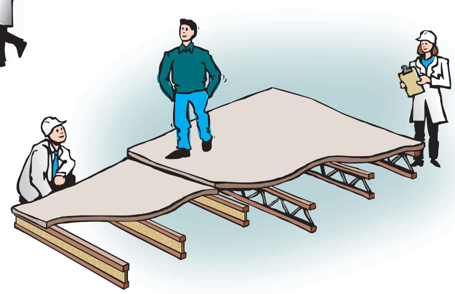
Continuity – Continuous joists over several supports generally perform better than simple spans. Care must be taken if the joists continue into another occupancy.

Beams – Generally, joists supported by beams that are free to deflect tend to feel a little less solid than joists supported by solid bearing walls.

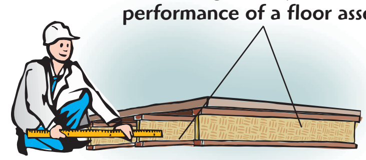
Example: How does the general public "feel" about a floor assembly with a Performance Value of 45?

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





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



Since the mid 1960s, Trus Joist 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 must 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.

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** should be a consideration.

In the early 1990s, Trus Joist began a research project to develop the desired design methodology for evaluating floor performance, including consideration of dynamic response. 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.

From our research and the information gathered from almost 1,000 field and laboratory floor applications of our products, we 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 **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 that finds each rating category acceptable can then be obtained from the chart. This new evaluation methodology from Trus Joist 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 TJ-Pro™ Rating System is intended for typically loaded floors (i.e., not for dance halls, weight rooms, etc.).

How high a percentage is "right"? All of us in this business have an experience base to draw upon. As a specifier, you have the advantage of knowing the level of expectation to which the floor assembly will need to perform. While neither you nor Trus Joist 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.

Floor Performance

Floor performance is a 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, 1x4 minimum bottom chord strapping or full-depth blocking will improve floor performance.
- Framed partition walls, ceilings and other inherent random dead loads will dampen vibrations. Non-bearing transverse partitions within the span, solidly connected to the floor, help dampen vibrations and contribute to the perception of a solid-feeling floor assembly (not available in TJ-Xpert® software).
- Workmanship in the field is critical. Protection of construction materials from exposure to moisture, full joist bearing, adequate and level supports, proper installation of the floor sheathing and care in the fastening (nailing, adhesives, etc.) are important details of construction.
- Poured toppings can have either a positive or negative effect, depending on variables such as the type of topping and how it is connected to the deck surface.

The perception and expectation of an end user is typically the most important variable to consider in selecting the components of a floor system.

Fire-Safe Construction

Fire-safe construction and life safety are major concerns for everyone in the building materials and construction industry. The 2000 statistics on residential fire in the U.S. alone include 3,445 fire fatalities and $5.7 billion in property damage. These numbers underscore the seriousness of the issue and the need for fire-safe construction.

Over the past 30 years, prefabricated wood I-joists have established a record of safe and reliable performance in millions of structures. Many of these structures, such as one- or two-family residential dwellings, do not require specific fire-endurance ratings per the building codes. The following information is intended to help you specify and install Trus Joist products with fire safety in mind.

Active Fire Suppression

Trus Joist supports the position that homeowners, firefighters, insurers and the community at large benefit from the use of properly installed fire sprinkler systems. Automatic residential fire sprinkler systems have an excellent record of performance and offer the best available protection to occupants and their property. Today's modern systems are inconspicuous and efficient and can be installed for less cost than the typical homeowner will spend to carpet their floors. This type of fire suppression system provides:

- Early and unsupervised fire suppression
- Reduced smoke development
- Enhanced life safety
- Reduced potential for significant property damage

Passive Fire Protection

Independent tests have proven that unprotected lightweight framing systems, whether combustible or non-combustible, suffer serious and rapid structural degradation when exposed to heat and fire. All floor framing materials—sawn lumber, wood I-joists, trusses and light gauge steel—succumb quickly to fire if not protected. In fire scenarios, a protective membrane such as gypsum ceiling board will provide additional protection to the structural framing members. Passive fire-suppression methods provide:

- Delayed fire growth
- Reduced potential for significant property damage
- Enhanced market value of the home

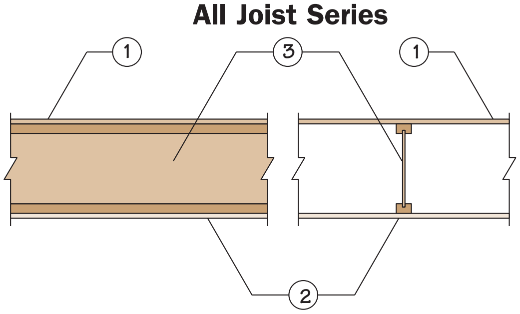
Smoke Detectors

Smoke detectors are universally recognized as the most cost-effective life-saving devices. While smoke detectors do not provide protection to the structure or to the contents in a home, they do alert occupants to potential fire hazards and allow them time to escape.

For more information on fire assemblies and fire-safe construction, please refer to Trus Joist's Fire Facts Guide (Reorder #5003) or visit www.trusjoist.com and www.i-joist.com

Minimum Membrane Construction

All Joist Series



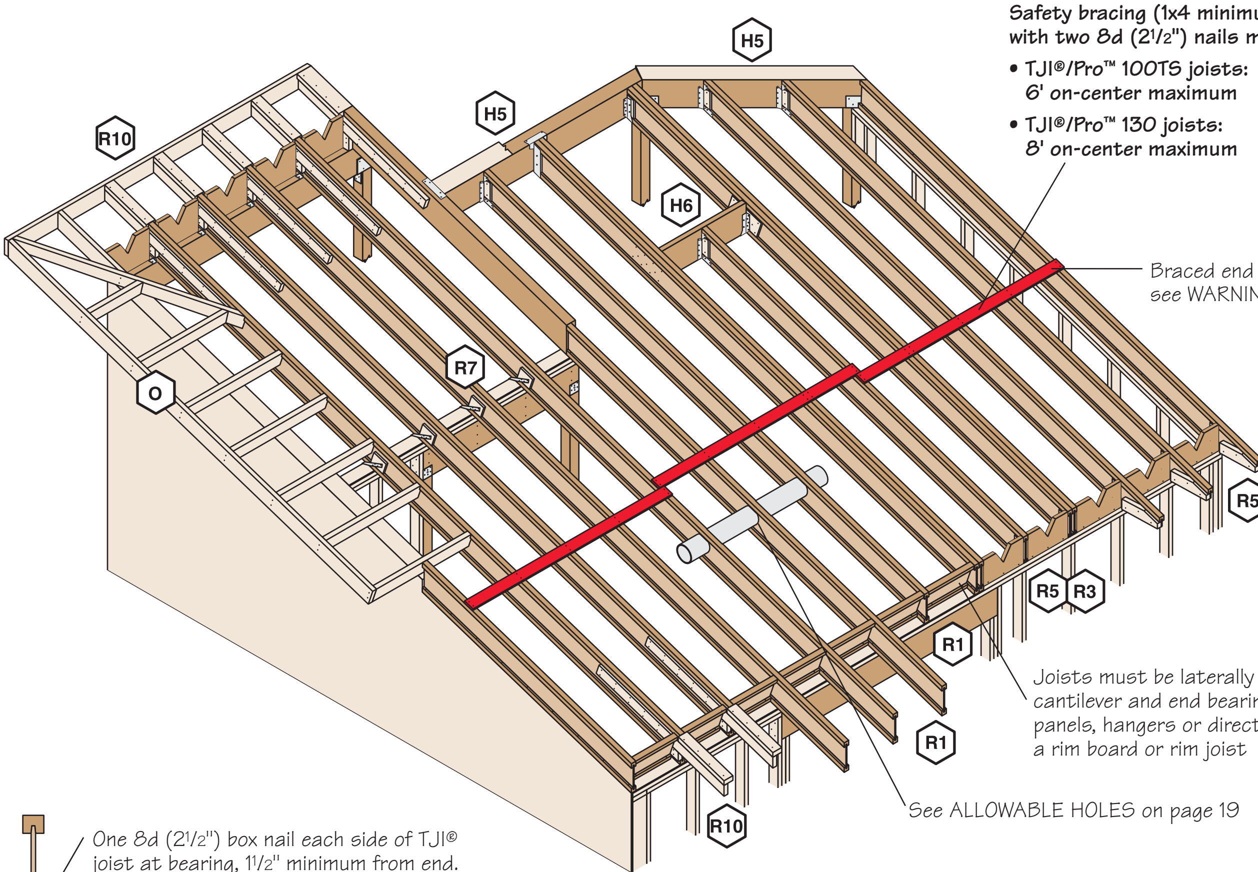
Trus Joist supports the idea that all combustible floor/ceiling and roof/ceiling assemblies in all habitable areas be protected by a minimum membrane protection consisting of or equivalent to 1/2" gypsum board

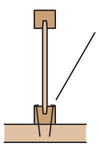
Trus Joist Suggestions

1. 48/24 tongue-and-groove span-rated sheathing ("Exposure 1")
2. Single layer 1/2" thick gypsum board
3. TJI® joists

Benefits of minimum membrane construction

- Improved life safety
- Reduced potential for fire damage by slowing fire growth
- Enhanced market value of the home



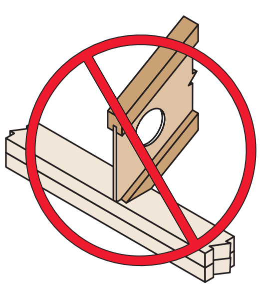


One 8d (2 1/2") box nail each side of TJI® joist at bearing, 1 1/2" minimum from end. Supplemental connections to the bearing plate may be required for slopes exceeding 4" per foot.

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

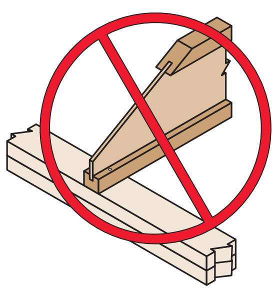
These Conditions Are NOT Permitted

DO NOT cut holes too close to support

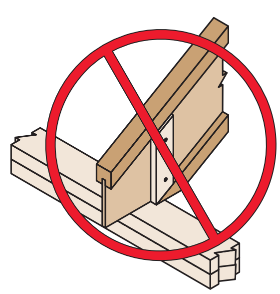


Refer to ALLOWABLE HOLES on page 19 for minimum distance from support

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.

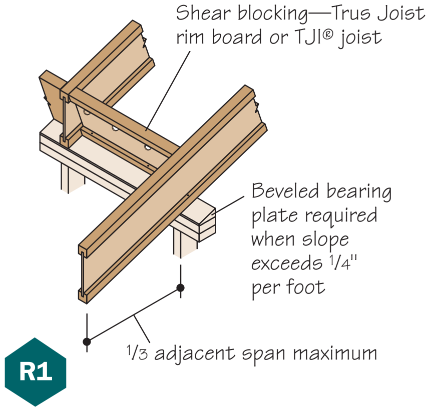
How to Use This Table

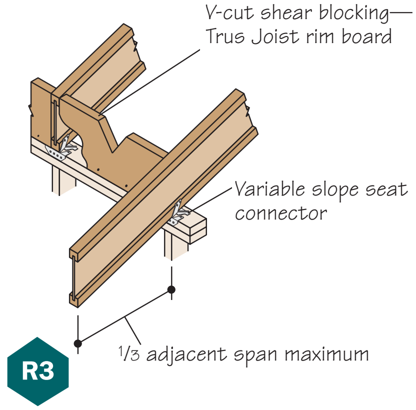
1. Determine appropriate LIVE and DEAD LOAD and load duration factor.
2. If your slope is 6"/12" or less, use the LOW slope column. If it is between 6"/12" and 12"/12", use the HIGH column.
3. Select appropriate span.
4. Select TJI® joist and on-center spacing.

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"	9 1/2"	100TS	19'-2"	17'-1"	18'-3"	16'-3"	18'-5"	16'-6"	17'-5"	15'-11"	15'-9"	14'-11"	14'-6"	14'-1"
		130	20'-11"	18'-8"	19'-11"	17'-8"	20'-0"	17'-11"	19'-3"	17'-3"	18'-0"	16'-3"	16'-10"	15'-5"
	11 7/8"	100TS	23'-1"	20'-7"	22'-0"	19'-6"	21'-3"	19'-9"	20'-1"	19'-1"	18'-2"	17'-6"	16'-9"	16'-3"
		130	25'-0"	22'-4"	23'-10"	21'-2"	24'-0"	21'-6"	23'-1"	20'-9"	21'-1"	19'-6"	19'-5"	18'-6"
	14"	130	28'-7"	25'-6"	27'-3"	24'-2"	27'-2"	24'-6"	25'-8"	23'-8"	23'-3"	22'-3"	21'-6"	20'-9"
	16"	130	31'-10"	28'-5"	30'-4"	26'-11"	29'-5"	27'-4"	27'-10"	26'-4"	25'-3"	24'-4"	23'-3"	22'-6"
19.2"	9 1/2"	100TS	18'-0"	16'-1"	17'-2"	15'-3"	16'-10"	15'-6"	15'-10"	14'-11"	14'-5"	13'-10"	13'-3"	12'-10"
		130	19'-7"	17'-6"	18'-8"	16'-7"	18'-9"	16'-10"	18'-0"	16'-3"	16'-8"	15'-3"	15'-4"	14'-6"
	11 7/8"	100TS	21'-6"	19'-4"	20'-1"	18'-4"	19'-4"	18'-5"	18'-4"	17'-6"	16'-7"	16'-0"	15'-3"	14'-10"
		130	23'-6"	21'-0"	22'-5"	19'-10"	22'-5"	20'-2"	21'-2"	19'-7"	19'-2"	18'-4"	17'-8"	17'-2"
	14"	130	26'-10"	24'-0"	25'-7"	22'-8"	24'-10"	23'-1"	23'-5"	22'-3"	21'-3"	20'-5"	19'-7"	18'-11"
	16"	130	29'-10"	26'-8"	27'-10"	25'-3"	26'-10"	25'-6"	25'-5"	24'-3"	23'-0"	22'-2"	19'-8"	20'-6"
24"	9 1/2"	100TS	16'-8"	14'-11"	15'-7"	14'-1"	15'-0"	14'-3"	14'-2"	13'-6"	12'-10"	12'-4"	11'-10"	11'-6"
		130	18'-2"	16'-2"	17'-3"	15'-4"	17'-4"	15'-7"	16'-5"	15'-0"	14'-11"	14'-1"	13'-9"	13'-3"
	11 7/8"	100TS	19'-3"	17'-11"	17'-11"	16'-9"	17'-4"	16'-5"	16'-4"	15'-7"	14'-10"	14'-3"	13'-8"	13'-3"
		130	21'-9"	19'-5"	20'-9"	18'-5"	20'-0"	18'-8"	18'-11"	18'-0"	17'-2"	16'-6"	15'-8"	15'-4"
	14"	130	24'-8"	22'-2"	22'-11"	21'-0"	22'-2"	21'-1"	20'-11"	20'-0"	18'-7"	18'-3"	15'-8"	16'-11"
	16"	130	26'-8"	24'-9"	24'-10"	23'-3"	24'-0"	22'-10"	22'-8"	21'-8"	18'-7"	19'-10"	15'-8"	17'-6"

General Notes

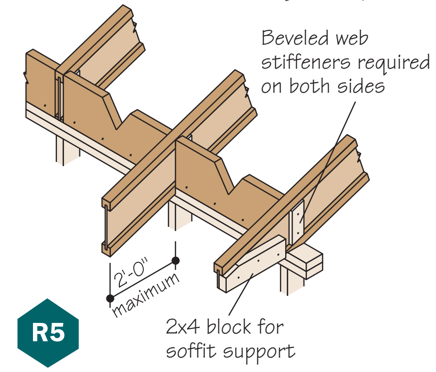
- Table is based on:
  - Uniform loads.
  - More restrictive of simple or continuous span.
  - Minimum roof surface slope of 1/4" in 12".
  - A code-allowed increase for repetitive member use.
  - Horizontal clear distance between supports (1 3/4" minimum end bearing).
- Total load limits joist deflection to L/180.
- Live load is based on joist deflection of L/240.
- Support beam or wall at high end is required (ridge board applications do not provide adequate support).
- Spans shown assume no web stiffeners at intermediate bearings (3 1/2").





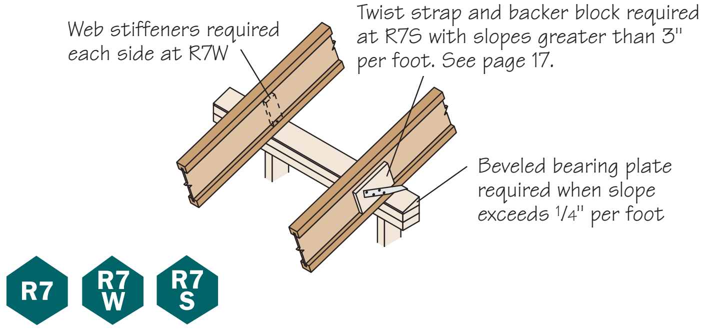
Birdsmouth Cut

Allowed at low end of joist only



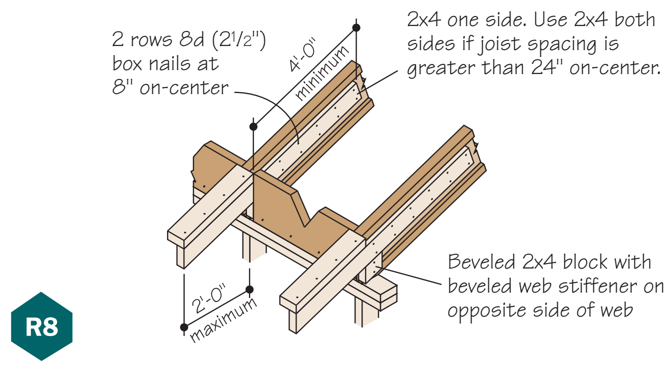
Intermediate Bearing

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



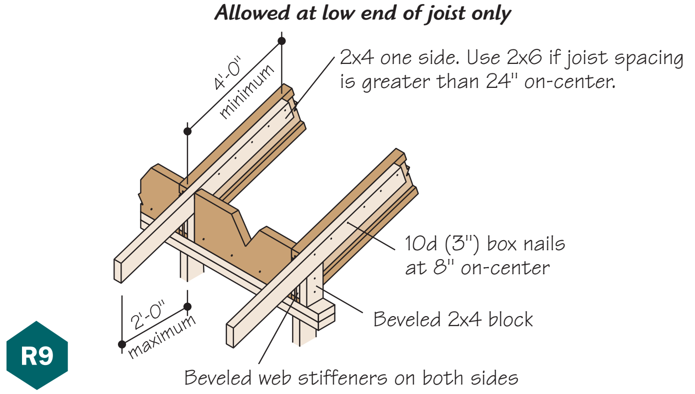
Birdsmouth Cut

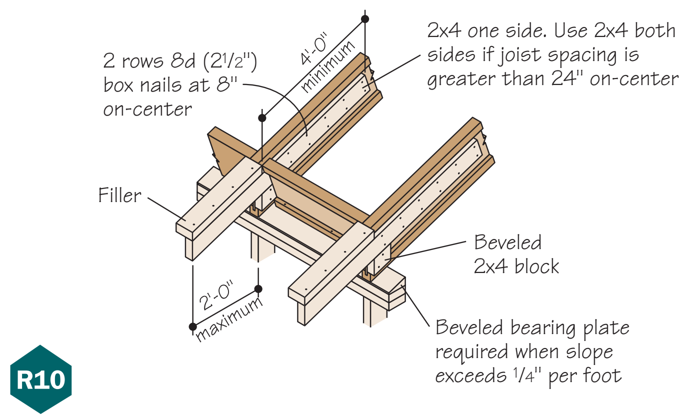
Allowed at low end of joist only



Birdsmouth Cut

Allowed at low end of joist only





General Notes

Minimum Bearing Length

- **At joist ends:** 1 3/4".
- **At intermediate supports:** 3 1/2".

Slope/Bevel Plate Criteria

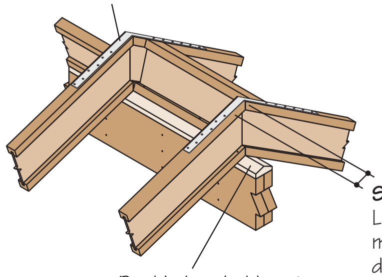
- Unless otherwise noted, all details are valid to maximum 12" per foot slope.
- Supplemental connections to the bearing plate may be required for slopes exceeding 4" per foot to resist sliding forces.
- **Wood bearing surfaces:** Sloped bearing surface required when slope exceeds 1/4" per foot. Use one of the following:
  – 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 1/2" per foot.

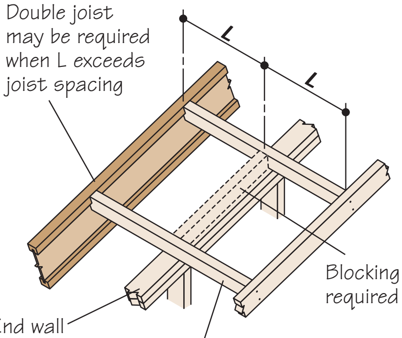
Lateral Support

- All roof joists must be laterally supported at cantilever and end bearings to prevent joist rollover.

Web Stiffener Requirements

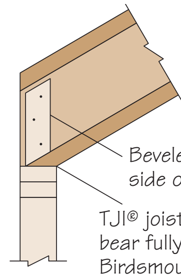
- Required if the sides of the hanger do not laterally support at least 3/8" of the TJI® joist top flange.
- Required at all sloped hanger and birdsmouth cut locations.

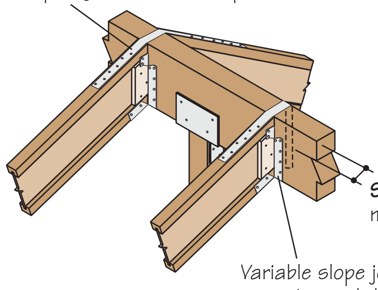


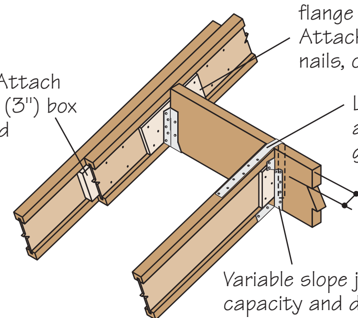


Birdsmouth Cut

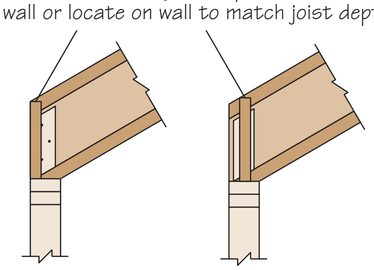
Allowed at low end of joist only

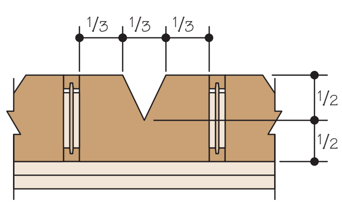




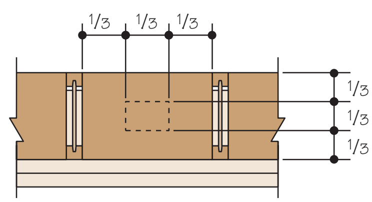


Shear Blocking and Ventilation Holes
Roof Only





Maximum allowable V-cut



Allowed hole zone

SB ***Vertical depth at bearing of TJI® joists with high slopes (10"/12" to 12"/12") requires that Trus Joist rim board for shear blocking be one size deeper than the TJI® joist***

Nailing Requirements

- **TJI® joists at end bearings:** Two 8d (2 1/2") box nails (1 each side), 1 1/2" minimum from end.
- **TJI® joists at intermediate bearings:**
  Roof slopes 3" or less per foot: Two 8d (2 1/2") box nails (1 each side). See detail R7.
  Roof slopes greater than 3" per foot: Four 8d (2 1/2") box nails (2 each side) plus a twist strap and backer block. See detail R7S.
- **Blocking panels or shear blocking to bearing plate:**
  TJI® joist blocking panels: 10d (3") box nails at 6" on-center.
  Trus Joist rim board for shear blocking: Toenail with 10d (3") box nails at 6" on-center or 16d (3 1/2") box nails at 12" on-center.
  Shear transfer: Connections equivalent to decking nail schedule.

Diaphragm Blocking

- Details H5 and R14 may require additional blocking for shear transfer.

Filler and Backer Block Sizes

TJI®/Pro™	100TS	130	
Depth	9 1/2" or 11 7/8"	9 1/2" or 11 7/8"	14" or 16"
Filler Block (Detail H6)	2x6	2x6 + 1/2" sheathing	2x8 + 1/2" sheathing
Backer Block (Detail H6)	5/8" or 3/4"	1" net	1" net

If necessary, increase filler and backer block height for face mount hangers and maintain 1/8" gap at top of joist; see detail W. Filler and backer block dimensions should accommodate required nailing without splitting.

How to Use This Table

1. Calculate actual total load in pounds per linear foot (plf).
2. Select appropriate JOIST CLEAR SPAN. For slopes greater than 2" per foot, approximate the increased dead load and deflection by multiplying the horizontal clear span by the SLOPE FACTOR below.
3. Scan horizontally to find a TJI® joist that meets or exceeds actual total load. TOTAL LOAD values are limited to deflection of L/180. For stiffer deflection criteria, use the L/240 values.

Roof—115% and 125% (PLF)

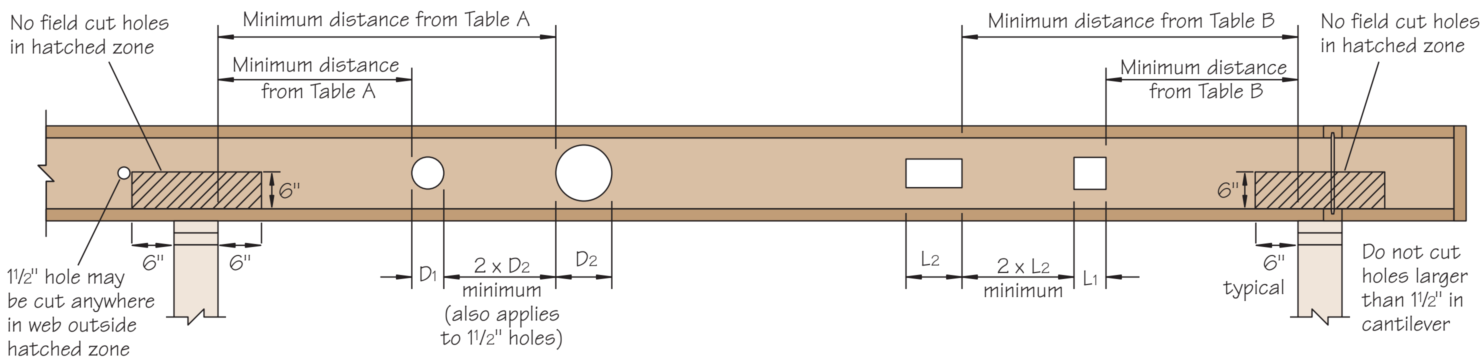
Joist Clear Span	TJI®/Pro™ 100TS						TJI®/Pro™ 130											
	9 1/2"			11 7/8"			9 1/2"			11 7/8"			14"			16"		
	Total Load		Defl.	Total Load		Defl.	Total Load		Defl.	Total Load		Defl.	Total Load		Defl.	Total Load		Defl.
	Snow 115%	Non-Snow 125%	L/240	Snow 115%	Non-Snow 125%	L/240	Snow 115%	Non-Snow 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'	350	381		350	381		334	363		334	363		334	363		334	363	
8'	264	287		264	287		252	274		252	274		252	274		252	274	
10'	179	195		212	231		202	220		202	220		202	220		202	220	
12'	125	136		166	180		167	181		169	184		169	184		169	184	
14'	92	100		122	133		123	133	126	145	157		145	157		145	157	
16'	71	77	68	94	102		94	102	87	125	136		127	138		127	138	
18'				74	81			81	62	99	107	104	113	123		113	123	
20'										80	87	77	98	107		102	110	
22'													81	88	86	92	100	
24'																80	87	

Slope Factors

Slope	2 1/2 in 12	3 in 12	3 1/2 in 12	4 in 12	4 1/2 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

- Table is based on:
  - Uniform loads.
  - No composite action provided by sheathing.
  - More restrictive of simple or continuous span.
  - Minimum roof surface slope of 1/4" in 12".
- TOTAL LOAD limits joist deflection to L/180.



How to Use These Tables

1. Locate the column that meets or exceeds the required hole size.
2. Identify the TJI® joist and depth being used.
3. Scan horizontally until you intersect the column that contains the hole size you selected. This value is the **required minimum distance** from the edge of the hole to the inside face of the nearest support.

Table 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"	100TS	1'-6"	2'-0"	2'-6"	3'-0"	4'-6"	5'-6"								
	130	2'-0"	2'-6"	3'-6"	4'-6"	6'-6"	7'-0"								
11⅞"	100TS	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-0"	3'-6"	4'-6"	6'-0"					
	130	1'-0"	1'-6"	2'-0"	3'-0"	4'-0"	4'-0"	5'-0"	6'-6"	8'-0"					
14	130	1'-0"	1'-0"	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	4'-0"	5'-0"	5'-0"	6'-6"	8'-6"		
16	130	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	2'-0"	3'-0"	3'-6"	4'-6"	5'-6"	7'-0"	8'-6"

Table B—Square or Rectangular Holes

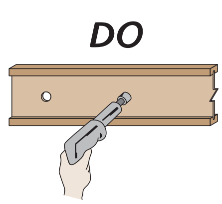
Minimum distance from inside face of any support to nearest edge of hole

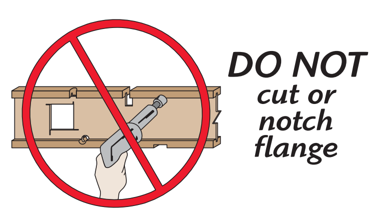
Depth	TJI®/Pro™	Square or Rectangular Hole Size													
		2"	3"	4"	5"	6"	6¼"	7"	8"	8⅝"	9"	10"	10¾"	12"	12¾"
9½"	100TS	1'-6"	2'-6"	3'-0"	5'-0"	5'-6"	5'-6"								
	130	2'-0"	3'-0"	4'-0"	6'-0"	6'-6"	7'-0"								
11⅞"	100TS	1'-6"	2'-0"	2'-6"	3'-6"	6'-0"	6'-0"	6'-6"	7'-6"	8'-0"					
	130	1'-0"	2'-0"	3'-6"	4'-6"	7'-0"	7'-6"	8'-0"	9'-0"	9'-6"					
14"	130	1'-0"	1'-0"	2'-6"	4'-0"	5'-0"	5'-6"	7'-0"	9'-0"	10'-0"	10'-0"	11'-0"	11'-6"		
16"	130	1'-0"	1'-0"	1'-0"	2'-6"	4'-0"	4'-6"	6'-0"	8'-0"	10'-0"	10'-6"	11'-0"	11'-6"	13'-0"	13'-6"

Rectangular holes based on measurement of longest side.

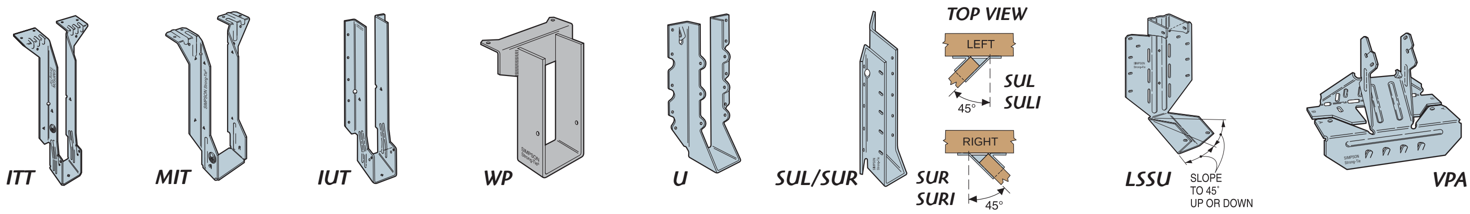
General Notes

- Multiple holes require spacing 2 times the length of the largest hole, including 1½" holes.
- 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. They do not affect hole placement.
- Distances are based on uniform loads using the maximum loads shown in this guide. For other load conditions or hole configurations, use TJ-Beam® software or contact your Trus Joist representative.
- For simple span (5 foot minimum) uniformly loaded joists meeting the requirements of this guide, one maximum size round hole may be located at the center of the joist span **provided no other holes occur in the joist.**





Full web depth rectangular holes are also possible. Contact your Trus joist representative for assistance.



Single Joist Hanger

	Depth	TJI®/Pro™	Hanger
Top Flange Hanger	9 1/2"	100TS	ITT9.5
		130	ITT359.5
	11 7/8"	100TS	ITT11.88
		130	ITT3511.88
	14"	130	ITT3514
	16"	130	MIT3516
Face Mount Hanger	9 1/2"	100TS	IUT9
		130	IUT3510
	11 7/8"	100TS	IUT11
		130	IUT3512
	14"	130	IUT3514
	16"	130	IUT3516

Joist: 10d x 1 1/2" nails.
Nails into bottom flange of joist must be angled.
Header: 10d (3") common nails.
Top flange hangers require 10d x 1 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"	100TS	MIT49.5	See Table A
		130	WP359.5-2	
	11 7/8"	100TS	MIT411.88	
		130	MIT3511.88-2	
	14"	130	MIT3514-2	
	16"	130	WP3516-2	
Face Mount Hanger	9 1/2"	100TS	U410	1560
		130	U3510-2	1560
	11 7/8"	100TS	U410	1560
		130	U3512-2	1780
	14"	130	U3512-2	1780
	16"	130	U3512-2	1780

- 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" if supported by TJI® joist headers or single 2x_ nailers.

Variable Slope Seat Joist Hanger

Depth	TJI®/Pro™	Hanger	Sloped Only	Skewed or Sloped and Skewed
9 1/2" and 11 7/8"	100TS	***LSSUI25***	1110	995
	130	***LSSUI35***	1110	995

- LSSU hangers can be field adjusted for slopes and skews of up to 45 degrees.
- Loads may be increased 15% max. for short term roof loading.
- Supplemental lateral restraint is necessary for 14" and 16" deep TJI® joists. Contact your Trus Joist representative for assistance.

Joist: 10d x 1 1/2" nails.
Header: 10d (3") common nails.

Face Mount Skewed 45° Joist Hanger

Depth	TJI®/Pro™	Hanger
9 1/2" and 11 7/8"	100TS	***SURI9 or SULI9***
	130	***SURI3510/12 or SULI3510/12***
14" and 16"	130	***SURI3514/20 or SULI3514/20***

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

Variable Slope Seat Connector

TJI®/Pro™	Connector	Maximum Load (lbs)
100TS	VPA25	1050
130	VPA35	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
Beam	1680	2730
TJI® Joist Header	1030	1705
Wood Nailer	1570	2500

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

General Notes

The listed hangers are manufactured by either Simpson Strong-Tie® Company, Inc. or United Steel Products Company. For additional information, please refer to their literature.

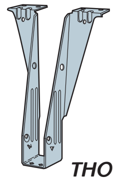
Contact your Trus Joist representative for assistance with other hanger or support conditions.

Bold italic hangers require web stiffeners.

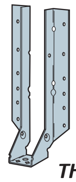
- Some hangers shown have less capacity than that of the TJI® joists. The joist hanger capacity must be checked for applications beyond the floor span tables or when maximum loads are given.
- All hangers are assumed to resist downward loads (downward roof loads for LSSU or TMU hangers).
- Use sloped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

Header Requirements

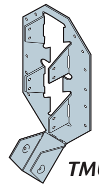
- Assumed header material is Trus Joist products (TJI® joist header or SCL), or sawn lumber (Douglas fir or southern pine species).
- Minimum header width for single joist top flange hangers is 3" (1 1/2" for ITT hangers).
- Minimum header width for double joist top flange hangers is 3".
- Minimum header width for face mount hangers is 1 3/4".



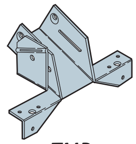
THO



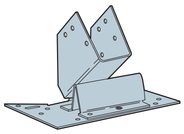
THF



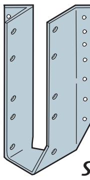
TMU



TMP

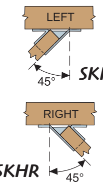


TMPH



SKH

TOP VIEW



SKHL

SKHR

Single Joist Hanger

	Depth	TJI®/Pro™	Hanger
Top Flange Hanger	9 1/2"	100TS	THO17950
		130	THO23950
	11 7/8"	100TS	THO17118
		130	THO23118
	14"	130	THO23140
	16"	130	THO23160
Face Mount Hanger	9 1/2"	100TS	THF17925
		130	THF23925
	11 7/8"	100TS	THF17112
		130	THF23118
	14"	130	THF23140
	16"	130	THF23160

Joist: 10d x 1 1/2" nails.

Header: 10d (3") common nails.
Use 10d x 1 1/2" for top flange hangers.

Double Joist Hanger

	Depth	TJI®/Pro™	Hanger	Maximum Load (lbs) Floor
Top Flange Hanger	9 1/2"	100TS	THO35950	See Table A
		130	THO23950-2	
	11 7/8"	100TS	THO35118	
		130	THO23118-2	
	14"	130	THO23140-2	
	16"	130	THO23160-2	
Face Mount Hanger	9 1/2"	100TS	THF35925	1345
		130	THF23925-2	1575
	11 7/8"	100TS	THF35112	1795
		130	THF23118-2	1800
	14"	130	THF23140-2	2370
	16"	130	THF23160-2	2845

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

Joist: 10d (3") common nails.

Header: 16d (3 1/2") common nails.

Use 10d (3") common nails for THF face mount hangers.

Top flange hangers require 10d x 1 1/2" if supported by TJI® joist headers or single 2x_ nailers.

Variable Slope Seat Joist Hanger

Depth	TJI®/Pro™	Hanger	Skewed or Sloped and Skewed
9 1/2" and 11 7/8"	100TS	***TMU179***	1165
	130	***TMU23***	1345

- 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).
- Loads may be increased 15% max. for short term roof loading.
- Supplemental lateral restraint is necessary for 14" and 16" deep TJI® joists. Contact your Trus Joist representative for assistance.

Joist: 10d x 1 1/2" nails.

Header: 10d (3") common nails, typical.

Face Mount Skewed 45º Joist Hanger

Depth	TJI®/Pro™	Hanger
9 1/2" and 11 7/8"	100TS	***SKH1720R or SKH1720L***
	130	***SKH2320R or SKH2320L***
14" and 16"	130	***SKH2324R or SKH2324L***

Joist: 10d x 1 1/2" nails.

Header: 10d (3") common nails.

Variable Slope Seat Connector

TJI®/Pro™	Connector	Maximum Load (lbs)
100TS	TMP175	1150
	TMPH175	1945
130	TMP23	1785
	TMPH23	1945

- TMP 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 1 1/2" nails.

Header: 10d (3") common nails.

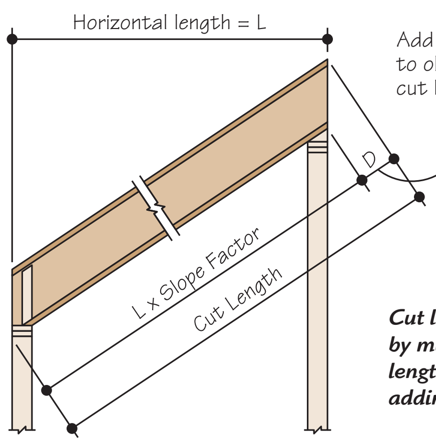
Table A
Maximum Load (lbs) for Top Flange Hangers

Header Material	THO	THO-2
Beam	2050	3535
TJI® Joist Header	2050	2050
Wood Nailer	1360	1455

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

Refer to page 20 for General Notes

TJI® Joist Cut Length Calculation



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 Factors

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

Fastening of Sheathing and PSF Conversion Table

Fastening of Sheathing to TJI® Joist Flanges and Trus Joist Rim Board

Nail Size	Closest On-Center Spacing per Row		
	TJI®/Pro™		Trus Joist Rim Board
	100TS	130(3)	
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.(1)	N.A.(1)	6"(2)

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

(2) When nailing through the wall sill plate and floor sheathing, closest on-center spacing is 3" (1⅜" max. penetration).

(3) Flange connections to be based on specific gravity of 0.50 for lateral and 0.48 for withdrawal.

General Notes

- Maximum spacing of nails is:

  18" on-center for TJI®/Pro™ 100TS joists.

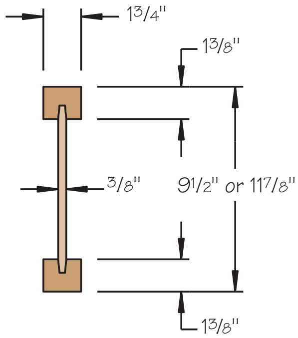
  24" on-center for TJI®/Pro™ 130 joists.

- 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" is achieved.
- Table also applies for the attachment of TJI® rim joists and blocking panels to the wall plate.

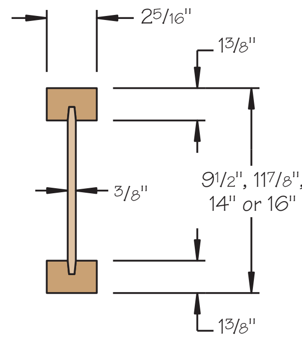
PSF to PLF Conversions

Load in pounds per linear 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™ 100TS joists
Top and bottom flanges of
1 3/4" x 1 3/8" TimberStrand® LSL with
3/8" Performance Plus® web.



TJI®/Pro™ 130 joists
Top and bottom flanges of
2 5/16" x 1 3/8" TimberStrand® LSL or
Microllam® LVL with 3/8" 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	Maximum Intermediate Reaction (lbs): With Web Stiffeners
100TS	9 1/2"	2.3	2005	139	1120	1120	2340	N.A.
	11 7/8"	2.5	2660	240	1420	1120	2340	2480
130	9 1/2"	2.7	2680	179	1120	1120	2235	N.A.
	11 7/8"	3.0	3555	307	1420	1120	2235	2595
	14"	3.3	4345	456	1710	1120	2235	2595
	16"	3.5	5095	627	1970	1120	2235	2595

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 ICBO ES PFC-4354 and NER-200 and these increases are reflected in span tables.
- Reaction values are based on a minimum bearing length of 1 3/4" at ends and 3 1/2" at intermediate supports.
- The following formula approximates the uniform load deflection of Δ (inches):

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

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

TJI® joists are intended for dry-use, non-treated applications

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
1/2" plywood	1.7 psf	1.5 psf
5/8" plywood	2.0 psf	1.8 psf
3/4" plywood	2.5 psf	2.3 psf
1 1/8" plywood	3.8 psf	3.4 psf
1/2" OSB	1.8 psf	1.7 psf
5/8" OSB	2.2 psf	2.0 psf
3/4" OSB	2.7 psf	2.5 psf
1 1/8" 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 (3/8" thick) . . . . . .15.0 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
3/4" ceramic or quarry tile . . . . . .10.0 psf
Gypsum concrete (3/4") . . . . .6.5 psf

Ceilings
Acoustical fiber tile . . . . .1.0 psf
1/2" gypsum board . . . . .2.2 psf
5/8" gypsum board . . . . .2.8 psf
Plaster (1" thick) . . . . .8.0 psf

Since the 1960s, builders and specifiers have relied on quality products from Trus Joist. Cutting-edge research and development have resulted in a product line that gives you the superior support you need in a structure, while our skilled sales and technical staff provides the additional support you need to get the best performance from those products.

Consistent, top quality Trus Joist building products use more and waste less of precious timber resources, resulting in buildings that are structurally—and environmentally—sound. Homes built on the exceptional strength and consistency of Microllam® LVL, Parallam® PSL, TimberStrand® LSL and Silent Floor® joists are homes where floors are quieter, walls don't crack and the entire structure is designed to work together for unparalleled performance.

Put all of these products together with Trus Joist sales and engineering services, and you have the FrameWorks® Building System, Changing the Way You Build™...


Product Warranty

Trus Joist warrants that its products will be free from manufacturing errors or defects in workmanship and material. In addition, provided the product is correctly installed and used, the company warrants the adequacy of its design for the normal and expected life of the building.

Trus Joist
A Weyerhaeuser Business

200 E. Mallard Drive • Boise, Idaho 83706
1-800-628-3997

Tom Denig, President

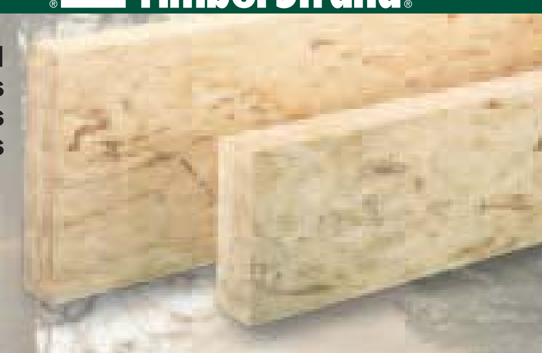
Trus Joist
A Weyerhaeuser Business

Silent Floor®

TJI® Floor Joists
TJI® Roof Joists

TimberStrand®

Rim Board
Headers
Beams
Studs and Columns



Parallam®

Headers
Beams
Columns

Microllam®

Headers
Beams

1-800-628-3997
www.trusjoist.com

200 E. Mallard Drive (83706)
P.O. Box 60 ◆ Boise, ID 83707 ◆ (208) 364-1200

Legacy Literature
See Note on Front Cover

April 2003 NW/30M
If this guide is more than one year old, contact your dealer or Trus Joist rep.

Reorder 2026