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iLevel[®]

by Weyerhaeuser

TRUS JOIST[®]

TJI[®] 110 ▪ TJI[®] 210

TJI[®] 230 ▪ TJI[®] 360

TJI[®] 560 JOISTS

**Featuring Silent Floor[®] Joists for
Residential Applications**

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



#TJ-4000 SPECIFIER'S GUIDE

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WHY iLEVEL?

More solutions. Better service. Industry-leading support. You need products that you can trust to get the job done. From sill plates to floors to tall walls to complex roof lines, you need products that perform, are durable, and are easy to install. And iLevel offers the most trusted products in residential construction.

But products are only part of the picture. To get the best performance at the best value, everything has to work together from the ground up. That's why iLevel brings you services and resources like advanced design software, technical support, customized training, and an extensive library of technical information, code reports, and CAD details.

What does that mean for you? Consistent product performance. More efficient installation. Time and labor savings. Less jobsite waste. Fewer red tags and callbacks. And the support you need to maximize your productivity while making the most of your budget.

Why iLevel? For solutions, service, and support you can trust.



TJI® Joists Revolutionized the Way You Build Floors

Trus Joist® developed wooden I-joists nearly 40 years ago, and since then we've continually improved their quality and made them easier to work with. Engineered to provide strength and consistency, iLevel® Trus Joist® TJI® joists are a key part of our Silent Floor® System.

Here's Why so Many Specifiers and Builders Choose Silent Floor® Joists:

Design flexibility—longer lengths mean versatile design options.

Silent Floor® joists continue to set the standard for residential floor and roof joists. Their strength and long lengths give you the freedom to design the open, spacious floor plans that your customers want. Engineered for dimensional stability and predictable performance, Silent Floor® joists resist warping, twisting, and shrinking.

Easy installation—fewer surprises on the job. The precision engineering that makes Silent Floor® joists strong also makes them easier to install. Silent Floor® joists are designed for easy handling and fast installation. They are lightweight, easy to cut, and can be installed using standard construction tools. Silent Floor® joists come with pre-cut knockout holes, and additional holes for ductwork can be cut at the job site. These same features also make them a popular choice for roof joists.

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ABOUT THIS GUIDE

The products in this guide are readily available through our nationwide network of distributors and dealers. The applications provided in this guide are intended primarily for use in single-family dwellings. For information on how to use these products in multi-family dwellings, or for more information on any iLevel product, contact your iLevel representative.

Some TJI® joist series may not be available in your region.

Design Properties (100% Load Duration)

Depth	TJI®	Basic Properties				Reaction Properties		
		Joist Weight (lbs/ft)	Maximum Resistive Moment ⁽¹⁾ (ft-lbs)	Joist Only EI x 10 ⁶ (in. ² -lbs)	Maximum Vertical Shear (lbs)	1¾" End Reaction (lbs)	3½" Intermediate Reaction (lbs)	
							No Web Stiffeners	With Web Stiffeners
9½"	110	2.3	2,500	157	1,220	910	1,935	N.A.
	210	2.6	3,000	186	1,330	1,005	2,145	N.A.
	230	2.7	3,330	206	1,330	1,060	2,410	N.A.
11½"	110	2.5	3,160	267	1,560	910	1,935	2,295
	210	2.8	3,795	315	1,655	1,005	2,145	2,505
	230	3.0	4,215	347	1,655	1,060	2,410	2,765
	360	3.0	6,180	419	1,705	1,080	2,460	2,815
	560	4.0	9,500	636	2,050	1,265	3,000	3,475
14"	110	2.8	3,740	392	1,860	910	1,935	2,295
	210	3.1	4,490	462	1,945	1,005	2,145	2,505
	230	3.3	4,990	509	1,945	1,060	2,410	2,765
	360	3.3	7,335	612	1,955	1,080	2,460	2,815
	560	4.2	11,275	926	2,390	1,265	3,000	3,475
16"	210	3.3	5,140	629	2,190	1,005	2,145	2,505
	230	3.5	5,710	691	2,190	1,060	2,410	2,765
	360	3.5	8,405	830	2,190	1,080	2,460	2,815
	560	4.5	12,925	1,252	2,710	1,265	3,000	3,475

(1) **Caution:** Do not increase joist moment design properties by a repetitive member use factor.

TJI® joists are intended for dry-use applications

General Notes

- Design reaction includes all loads on the joist. Design shear is computed at the inside face of supports and includes all loads on the span(s). Allowable shear may sometimes be increased at interior supports in accordance with ICC ES ESR-1153, and these increases are reflected in span tables.
- The following formulas approximate the uniform load deflection of Δ (inches):

$$\Delta = \frac{22.5 wL^4}{EI} + \frac{2.67 wL^2}{d \times 10^5} \quad \text{For TJI® 110, 210, 230, and 360 Joists}$$

$$\Delta = \frac{22.5 wL^4}{EI} + \frac{2.29 wL^2}{d \times 10^5} \quad \text{For TJI® 560 Joists}$$

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 above

Material Weights

(Include TJI® weights in dead load calculations—see Design Properties table at left for joist weights)

Floor Panels

Southern Pine

½" plywood	1.7
⅝" plywood	2.0 psf
¾" plywood	2.5 psf
1⅛" plywood	3.8 psf
½" OSB	1.8 psf
⅝" OSB	2.2 psf
¾" OSB	2.7 psf
⅞" OSB	3.1 psf
1⅛" OSB	4.1 psf

Based on: Southern pine – 40 pcf for plywood, 44 pcf for OSB

Roofing

Asphalt shingles	2.5 psf
Wood shingles	2.0 psf
Clay tile	9.0 to 14.0 psf
Slate (¾" thick)	15.0 psf

Roll or Batt Insulation (1" thick):

Rock wool	0.2 psf
Glass wool	0.1 psf

Floor Finishes

Hardwood (nominal 1")	4.0 psf
Sheet vinyl	0.5 psf
Carpet and pad	1.0 psf
¾" ceramic or quarry tile	10.0 psf

Concrete:

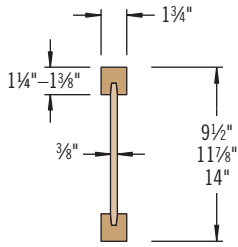
Regular (1")	12.0 psf
Lightweight (1")	8.0 to 10.0 psf
Gypsum concrete (¾")	6.5 psf

Ceilings

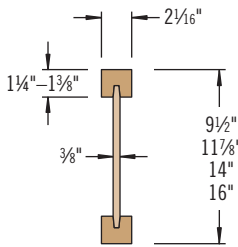
Acoustical fiber tile	1.0 psf
½" gypsum board	2.2 psf
⅝" gypsum board	2.8 psf
Plaster (1" thick)	8.0 psf

Code Evaluations: See ICC ES ESR-1387; updated ESR-1153 pending

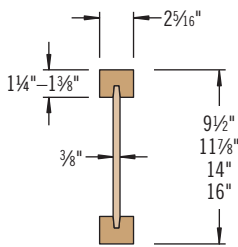
Some TJI® joist series may not be available in your region. Contact your iLevel representative for information.



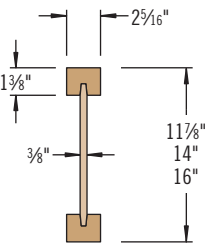
TJI® 110 Joists



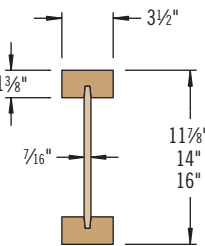
TJI® 210 Joists



TJI® 230 Joists



TJI® 360 Joists



TJI® 560 Joists

L/480 Live Load Deflection

Depth	TJI®	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.
9 1/2"	110	16'-11"	15'-6"	14'-7"	13'-7"	16'-11"	15'-6"	14'-3"	12'-9"
	210	17'-9"	16'-3"	15'-4"	14'-3"	17'-9"	16'-3"	15'-4"	14'-0"
	230	18'-3"	16'-8"	15'-9"	14'-8"	18'-3"	16'-8"	15'-9"	14'-8"
11 7/8"	110	20'-2"	18'-5"	17'-4"	15'-9" ⁽¹⁾	20'-2"	17'-8"	16'-1" ⁽¹⁾	14'-4" ⁽¹⁾
	210	21'-1"	19'-3"	18'-2"	16'-11"	21'-1"	19'-3"	17'-8"	15'-9" ⁽¹⁾
	230	21'-8"	19'-10"	18'-8"	17'-5"	21'-8"	19'-10"	18'-7"	16'-7" ⁽¹⁾
	360	22'-11"	20'-11"	19'-8"	18'-4"	22'-11"	20'-11"	19'-8"	17'-10" ⁽¹⁾
14"	560	26'-1"	23'-8"	22'-4"	20'-9"	26'-1"	23'-8"	22'-4"	20'-9" ⁽¹⁾
	110	22'-10"	20'-11"	19'-2"	17'-2" ⁽¹⁾	22'-2"	19'-2"	17'-6" ⁽¹⁾	15'-0" ⁽¹⁾
	210	23'-11"	21'-10"	20'-8"	18'-10" ⁽¹⁾	23'-11"	21'-11"	19'-2" ⁽¹⁾	16'-7" ⁽¹⁾
	230	24'-8"	22'-6"	21'-2"	19'-9" ⁽¹⁾	24'-8"	22'-2"	20'-3" ⁽¹⁾	17'-6" ⁽¹⁾
16"	360	26'-0"	23'-8"	22'-4"	20'-9" ⁽¹⁾	26'-0"	23'-8"	22'-4" ⁽¹⁾	17'-10" ⁽¹⁾
	560	29'-6"	26'-10"	25'-4"	23'-6"	29'-6"	26'-10"	25'-4" ⁽¹⁾	20'-11" ⁽¹⁾
	210	27'-3"	24'-10"	23'-6"	21'-1" ⁽¹⁾	27'-3"	23'-9"	21'-8" ⁽¹⁾	17'-6" ⁽¹⁾
	230	28'-9"	26'-3"	24'-8" ⁽¹⁾	21'-5" ⁽¹⁾	28'-9"	26'-3" ⁽¹⁾	22'-4" ⁽¹⁾	17'-10" ⁽¹⁾
16"	560	32'-8"	29'-8"	28'-0"	25'-2" ⁽¹⁾	32'-8"	29'-8"	26'-3" ⁽¹⁾	20'-11" ⁽¹⁾

L/360 Live Load Deflection (Minimum Criteria per Code)

Depth	TJI®	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.
9 1/2"	110	18'-9"	17'-2"	15'-8"	14'-0"	18'-1"	15'-8"	14'-3"	12'-9"
	210	19'-8"	18'-0"	17'-0"	15'-4"	19'-8"	17'-2"	15'-8"	14'-0"
	230	20'-3"	18'-6"	17'-5"	16'-2"	20'-3"	18'-1"	16'-6"	14'-9"
11 7/8"	110	22'-3"	19'-4"	17'-8"	15'-9" ⁽¹⁾	20'-5"	17'-8"	16'-1" ⁽¹⁾	14'-4" ⁽¹⁾
	210	23'-4"	21'-2"	19'-4"	17'-3" ⁽¹⁾	22'-4"	19'-4"	17'-8"	15'-9" ⁽¹⁾
	230	24'-0"	21'-11"	20'-5"	18'-3"	23'-7"	20'-5"	18'-7"	16'-7" ⁽¹⁾
	360	25'-4"	23'-2"	21'-10"	20'-4" ⁽¹⁾	25'-4"	23'-2"	21'-10"⁽¹⁾	17'-10" ⁽¹⁾
14"	560	28'-10"	26'-3"	24'-9"	23'-0"	28'-10"	26'-3"	24'-9"	20'-11" ⁽¹⁾
	110	24'-4"	21'-0"	19'-2"	17'-2" ⁽¹⁾	22'-2"	19'-2"	17'-6" ⁽¹⁾	15'-0" ⁽¹⁾
	210	26'-6"	23'-1"	21'-1"	18'-10" ⁽¹⁾	24'-4"	21'-1"	19'-2" ⁽¹⁾	16'-7" ⁽¹⁾
	230	27'-3"	24'-4"	22'-2"	19'-10" ⁽¹⁾	25'-8"	22'-2"	20'-3" ⁽¹⁾	17'-6" ⁽¹⁾
16"	360	28'-9"	26'-3"	24'-9" ⁽¹⁾	21'-5" ⁽¹⁾	28'-9"	26'-3"⁽¹⁾	22'-4" ⁽¹⁾	17'-10" ⁽¹⁾
	560	32'-8"	29'-9"	28'-0"	25'-2" ⁽¹⁾	32'-8"	29'-9"	26'-3"⁽¹⁾	20'-11" ⁽¹⁾
	210	28'-6"	24'-8"	22'-6" ⁽¹⁾	19'-11" ⁽¹⁾	26'-0"	22'-6" ⁽¹⁾	20'-7" ⁽¹⁾	16'-7" ⁽¹⁾
	230	30'-1"	26'-0"	23'-9"	21'-1" ⁽¹⁾	27'-5"	23'-9"	21'-8" ⁽¹⁾	17'-6" ⁽¹⁾
16"	360	31'-10"	29'-0"	26'-10" ⁽¹⁾	21'-5" ⁽¹⁾	31'-10"	26'-10"⁽¹⁾	22'-4" ⁽¹⁾	17'-10" ⁽¹⁾
	560	36'-1"	32'-11"	31'-0" ⁽¹⁾	25'-2" ⁽¹⁾	36'-1"	31'-6"⁽¹⁾	26'-3" ⁽¹⁾	20'-11" ⁽¹⁾

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

TJI®	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.
110	N.A.	N.A.	N.A.	15'-4"	N.A.	N.A.	16'-0"	12'-9"
210	N.A.	N.A.	21'-4"	17'-0"	N.A.	21'-4"	17'-9"	14'-2"
230	N.A.	N.A.	N.A.	19'-2"	N.A.	N.A.	19'-11"	15'-11"
360	N.A.	N.A.	24'-5"	19'-6"	N.A.	24'-5"	20'-4"	16'-3"
560	N.A.	N.A.	29'-10"	23'-10"	N.A.	29'-10"	24'-10"	19'-10"

■ Long-term deflection under dead load, which includes the effect of creep, has not been considered. **Italic** spans reflect initial dead load deflection exceeding 0.33".

How to Use These Tables

- Determine the appropriate live load deflection criteria.
- Identify the live and dead load condition.
- Select on-center spacing.
- Scan down the column until you meet or exceed the span of your application.
- Select TJI® joist and depth.

Live load deflection is not the only factor that affects how a floor will perform. To more accurately predict floor performance, use our TJ-Pro™ Ratings.

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 floor panels for deflection only. **Spans shall be reduced 6" when floor panels are nailed only.**
- Spans generated from iLevel® software may exceed the spans shown in these tables because software reflects actual design conditions.
- For loading conditions not shown, refer to software or to the load table on page 5.

Floor—100% (PLF)

Depth	TJI®	Joist Clear Span																	
		8'		10'		12'		14'		16'		18'		20'		22'		24'	
		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	Live Load L/480	Total Load	Live Load L/480	Total Load	Live Load L/480	Total Load
9½"	110	*	190	140	152	85	127	56	99	38	76								
	210	*	210	161	169	99	141	65	119	45	90								
	230	*	236	175	190	108	158	71	133	49	99								
11⅞"	110	*	190	*	152	*	127	92	109	63	95	45	76						
	210	*	210	*	169	*	141	106	121	74	106	53	92						
	230	*	236	*	190	*	158	116	136	80	119	58	102	43	83				
	360	*	241	*	193	*	162	136	139	95	121	69	108	51	97	39	78		
	560	*	294	*	236	*	197	*	169	138	148	101	132	76	119	58	108	45	91
14"	110	*	190	*	152	*	127	*	109	91	95	66	85						
	210	*	210	*	169	*	141	*	121	*	106	76	94	57	85				
	230	*	236	*	190	*	158	*	136	115	119	83	106	62	95	47	81		
	360	*	241	*	193	*	162	*	139	*	121	98	108	73	97	56	88	44	81
	560	*	294	*	236	*	197	*	169	*	148	*	132	107	119	83	108	65	99
16"	210	*	210	*	169	*	141	*	121	*	106	*	94	76	85	58	77		
	230	*	236	*	190	*	158	*	136	*	119	*	106	83	95	64	87	50	78
	360	*	241	*	193	*	162	*	139	*	121	*	108	*	97	75	88	59	81
	560	*	294	*	236	*	197	*	169	*	148	*	132	*	119	*	108	86	99

* Indicates that **Total Load** value controls.

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 down the column to find a TJI® joist that meets or exceeds actual total and live loads.

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 a 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.

PSF to PLF Conversions

O.C. Spacing	Load in Pounds Per Square Foot (PSF)								
	20	25	30	35	40	45	50	55	60
	Load in Pounds Per Linear Foot (PLF)								
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



DO NOT walk on joists until braced.
INJURY MAY RESULT.



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



DO NOT walk on joists that are lying flat.

WARNING

Joists are unstable until braced laterally

Bracing Includes:

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

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

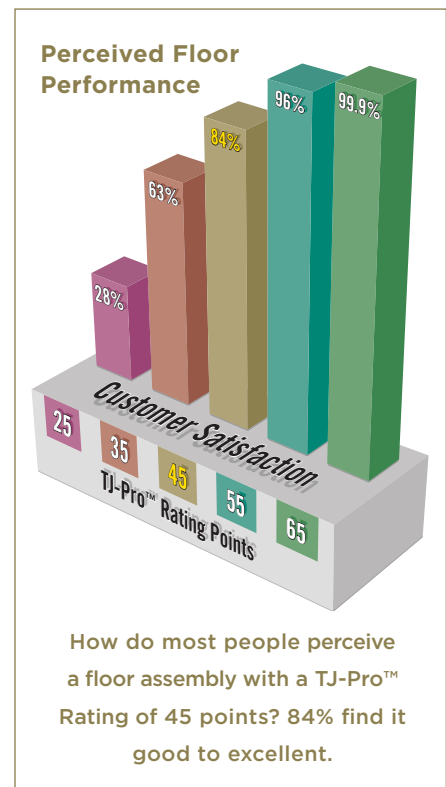
1. All blocking, hangers, rim boards, and rim joists at the end supports of the TJI® joists must be completely installed and properly nailed.
2. Lateral strength, like a braced end wall or an existing deck, must be established at the ends of the bay. This can also be accomplished by a temporary or permanent deck (sheathing) fastened to the first 4 feet of joists at the end of the bay.
3. Safety bracing 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—such as a worker or one layer of unnailed sheathing.
4. Sheathing must be completely 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 ½" from true alignment.

It's About Choice—

iLevel® Trus Joist® TJ-Pro™ Ratings are generated by a sophisticated computer model designed to predict floor performance and evaluate the relationship between the cost and the “feel” of any given floor system. The methodology is based on extensive laboratory research, more than one million installations, and the combined expertise of some of the best engineers in the field. TJ-Pro™ Ratings go beyond deflection criteria to consider job-specific needs and expectations. In many cases, using TJ-Pro™ Ratings will offer a system that improves performance while actually reducing costs!

TJ-Pro™ Rating Advantages

- Works as part of iLevel® Trus Joist® TJ-Beam® and TJ-Xpert® software
- Provides a new method for accurately predicting floor performance
- Takes perceptions of the homeowner into account
- Provides cost comparison



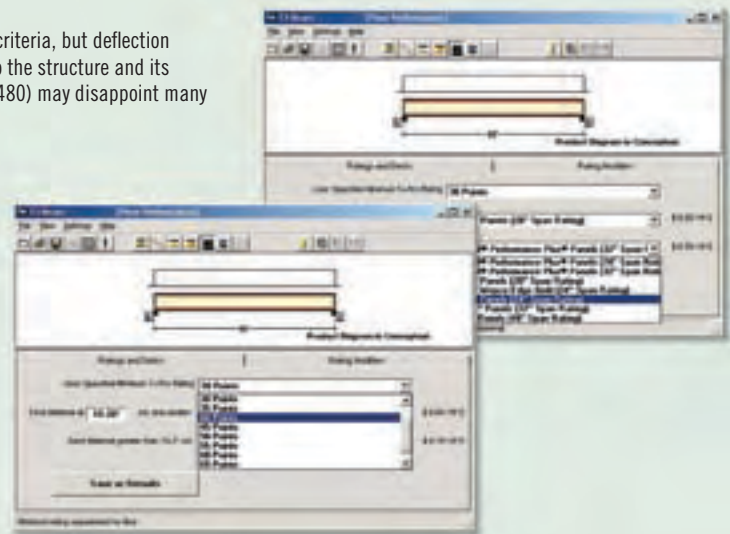
Design Smarter—Don't Over-Specify

The traditional way to specify a floor system is to use live load deflection criteria, but deflection explains only part of how a floor performs. Depending on factors unique to the structure and its use, the code minimum of L/360 (or even the more restrictive limits of L/480) may disappoint many customers.

TJ-Pro™ Ratings are a much better predictor of floor performance because they consider the many factors that affect floor performance, even taking into account the perceptions of the homeowner. With so many variables, you can deliver an economical solution tailored to your customer's expectations.

Factors That Affect Floor Performance

- TJI® joist series, depth, and spacing
- Deck thickness and quality
- Directly applied ceilings
- Location of partitions on floor
- Blocking
- Bearing conditions for the TJI® joists



Get the Support You Need—

We're here to help you make the most of TJ-Pro™ Ratings, whether it's help with setup, tips and tricks, or selecting the best rating for your project. Call your iLevel representative today.

THE iLEVEL® TJ-PRO™ RATED FLOOR SYSTEM— THE PREMIUM FLOOR SYSTEM



Design Your Floors to Suit Each Customer

With TJ-Pro™ Ratings and iLevel's proprietary materials, we can accurately predict what it will take to build a floor that satisfies even your most demanding customer. And you'll get the right balance of cost and performance in every system.

Fewer Callbacks and More Referrals

Satisfied customers mean more referrals. And the iLevel® TJ-Pro™ Rated Floor System is the best way to make sure that there's less to complain about. It takes the guesswork out of how to build a floor that will make your customers happy.



Now You Can Build a Strong and Stable Floor—Without Overbuilding

The performance of most commodity building products is unpredictable. But since we know the precise strength of every component in the iLevel® TJ-Pro™ Rated Floor System, we can comfortably build to your specifications while making sure that you don't use more material than you need.

Silent Floor® joists have very specific performance characteristics. iLevel® Edge Gold panels are made with a proprietary formula, meet precise thickness tolerances, and have a top-quality edge seal—making them more stable and consistent than other structural panels. iLevel® Trus Joist® TimberStrand® LSL rim board; TimberStrand® LSL, Microllam® LVL, and Parallam® PSL beams and columns; and our helpful installation guidelines give you more control, more strength, and more reliability than you could get with a package made up of typical framing materials.

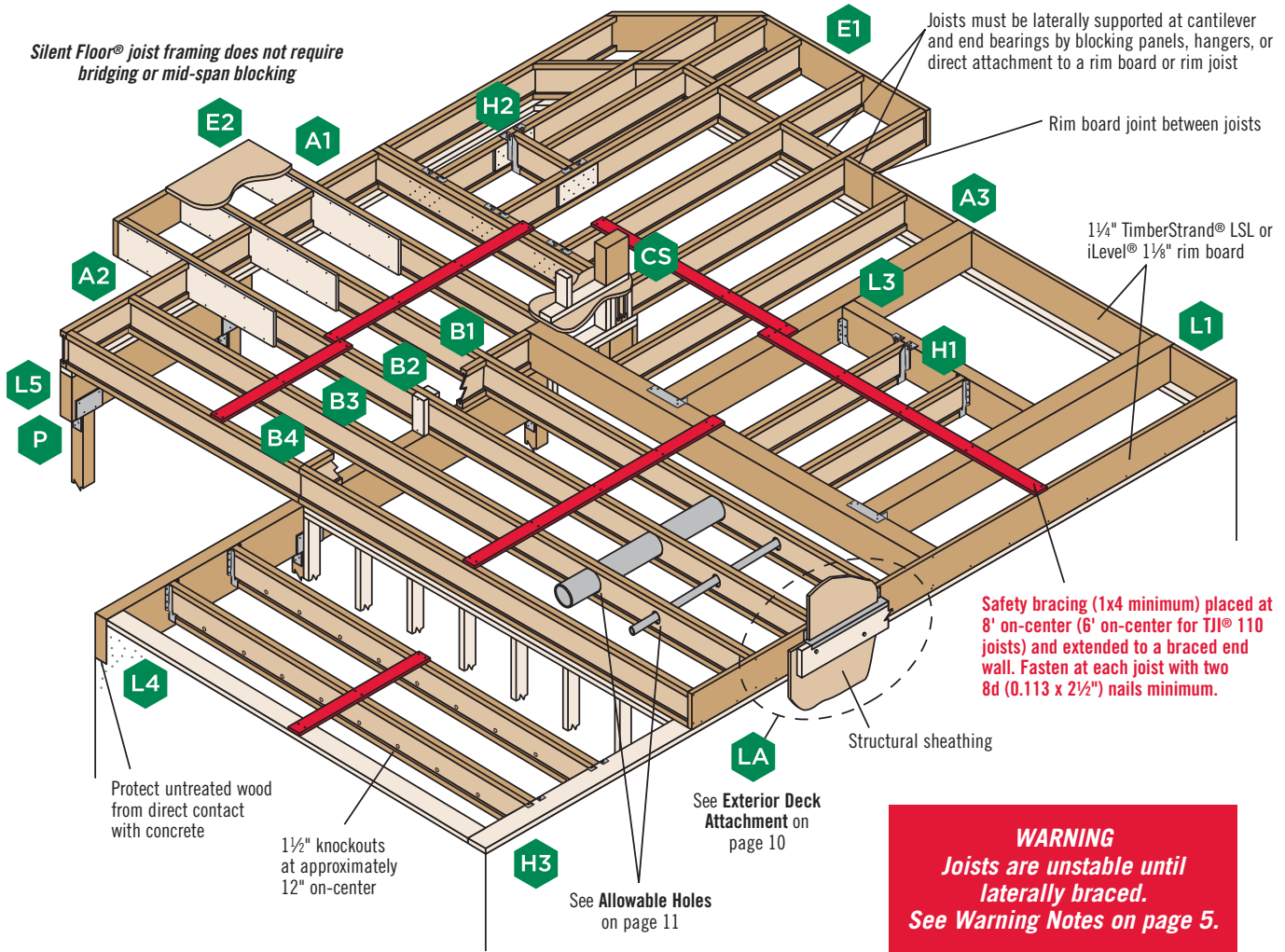
So next time you're building someone's dream home, don't rely on guesswork. Bring your plans to any iLevel location and we'll show you how to make the most of both your framing material and the labor it takes to turn it into a home.

For projects that demand
quality, performance, and
customer satisfaction, upgrade
to the iLevel® TJ-Pro™ Rated
Floor System.

Contact your iLevel representative
or call 1-888-453-8358
for more information.

SILENT FLOOR® JOIST FRAMING

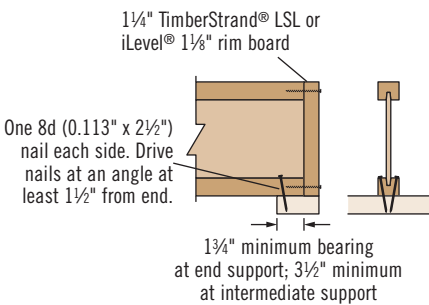
Silent Floor® joist framing does not require bridging or mid-span blocking



WARNING
Joists are unstable until laterally braced.
See Warning Notes on page 5.

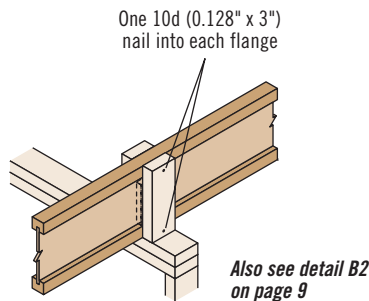
TJI® Joist Nailing Requirements at Bearing

TJI® Joist to Bearing Plate

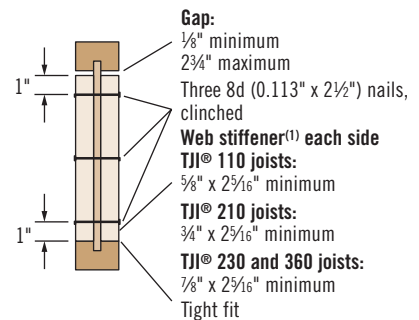


Shear transfer: Connections equivalent to floor panel nailing schedule

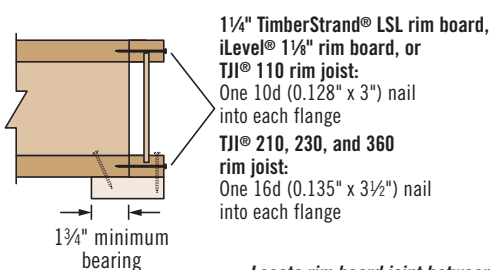
Squash Blocks to TJI® Joist (Load bearing wall above)



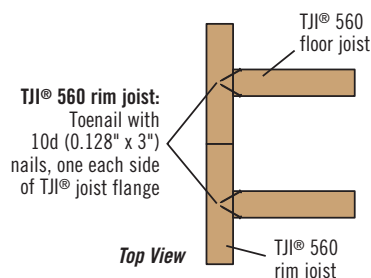
Web Stiffener Attachment



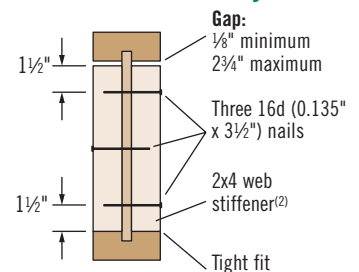
Rim to TJI® Joist



Locate rim board joint between joists

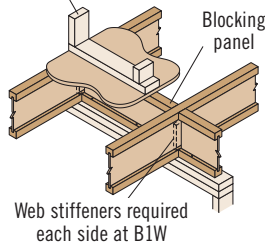


TJI® 560 Joists Only



W (1) PS1 or PS2 sheathing, face grain vertical
(2) Construction grade or better

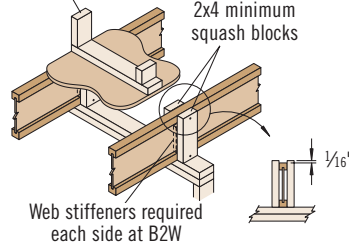
Load bearing or shear wall above
(must stack over wall below)



B1 **B1W**

IRC 502.7 requires lateral restraint (blocking) at all intermediate supports in Seismic Design Categories D₀, D₁, and D₂ to strengthen the floor diaphragm

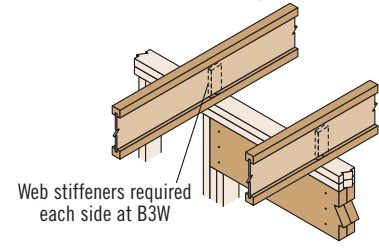
Load bearing wall above
(must stack over wall below)



B2 **B2W**

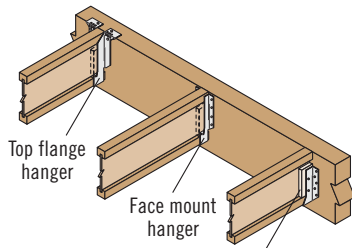
Blocking panels may be required with shear walls above or below—see detail B1

Intermediate Bearing – No Load Bearing Wall Above



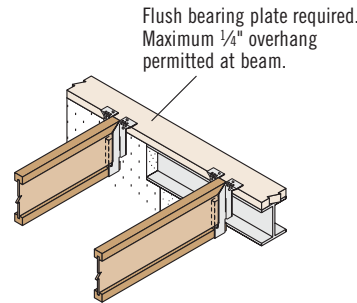
B3 **B3W**

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

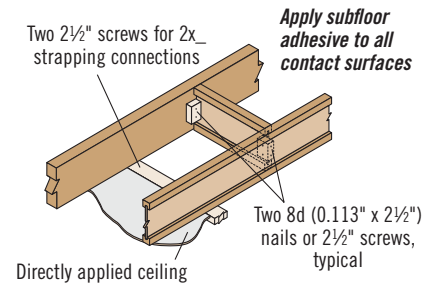


H1

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



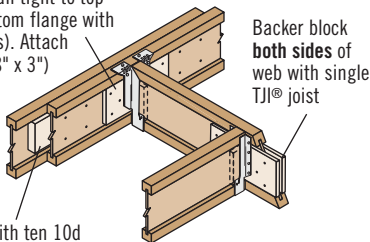
H3



PB1

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

Backer block: Install tight to top flange (tight to bottom flange with face mount hangers). Attach with ten 10d (0.128" x 3") nails, clinched when possible.



Filler block: Nail with ten 10d (0.128" x 3") nails, clinched. Use ten 16d (0.135" x 3 1/2") nails from each side with TJI® 560 joists.

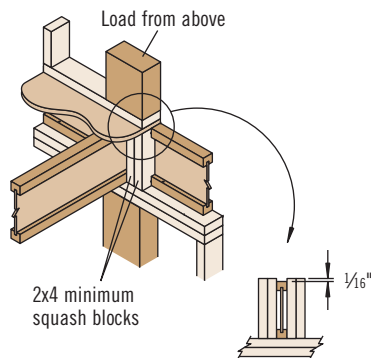
H2

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

Filler and Backer Block Sizes

TJI®	110		210		230 or 360		560	
Depth	9 1/2" or 11 7/8"	14"	9 1/2" or 11 7/8"	14" or 16"	9 1/2" or 11 7/8"	14" or 16"	11 7/8"	14" or 16"
Filler Block⁽¹⁾ (Detail H2)	2x6	2x8	2x6 + 3/8" sheathing	2x8 + 3/8" sheathing	2x6 + 1/2" sheathing	2x8 + 1/2" sheathing	Two 2x6	Two 2x8
Cantilever Filler (Detail E4)	2x6 4'-0" long	2x10 6'-0" long	2x6 + 3/8" sheathing 4'-0" long	2x10 + 3/8" sheathing 6'-0" long	2x6 + 1/2" sheathing 4'-0" long	2x10 + 1/2" sheathing 6'-0" long	Not applicable	
Backer Block⁽¹⁾ (Detail F1 or H2)	5/8" or 3/4"		3/4" or 7/8"		7/8" or 1" net		2x6	2x8

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



CS

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

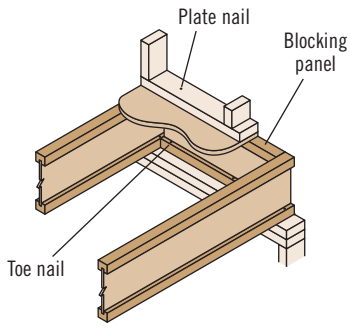
Fastener Spacing and Diaphragm Design Information for TJI® Joists

TJI®	Closest On-Center Spacing per Row ⁽¹⁾			Diaphragm Design Information ⁽²⁾	
	8d (0.113" x 2 1/2"), 8d (0.131" x 2 1/2"), 10d (0.128" x 3"), 12d (0.128" x 3 1/4")	10d (0.148" x 3"), 12d (0.148" x 3 1/4"), 16d (0.135" x 3 1/2")	16d (0.162" x 3 1/2")	Equivalent Nominal Framing Width	Maximum Capacity (plf)
110 and 210	4"	4" ⁽³⁾	6"	2"	425
230	4"	4" ⁽³⁾	6"	3"	480
360 and 560	3"	4" ⁽³⁾	6"	3"	720

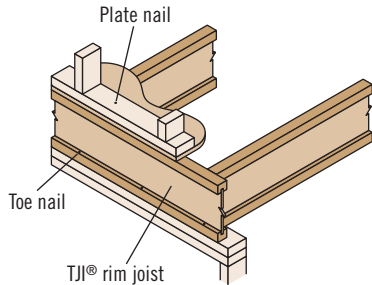
- One row of fasteners permitted (two at abutting panel edges) for diaphragms. Stagger nails when using 4" on-center spacing and maintain 3/8" joist and panel edge distance. For other applications, multiple rows of fasteners are permitted if the rows are offset at least 1/2" and staggered.
- To achieve code-tabulated, unblocked diaphragm design values for TJI® 110, 210, and 230 joists, use fasteners in combination with an ASTM D3498 non-polyurethane sub-floor adhesive. For nailed-only conditions, use 85% of code-tabulated values.
- Can be reduced to 3" on-center for light gauge steel straps with 10d (0.148" x 1 1/2") nails.
 - Maximum spacing of nails is 18" on-center.
 - 14 gauge staples may be substituted for 8d (0.113" x 2 1/2") nails if minimum penetration of 1" is achieved.
 - Table also applies to the attachment of TJI® rim joists and blocking panels to the wall plate.

Also see nailing requirements on page 8

RIM BOARD SELECTION AND INSTALLATION

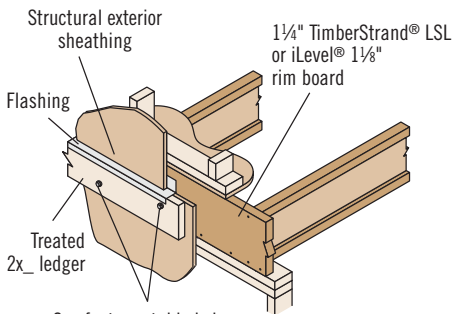


A1 Attach blocking per Rim Board Installation table below



A2 Must have 1 3/4" minimum joist bearing at ends. Attach rim joist per Rim Board Installation table below.

Exterior Deck Attachment



See fastener table below. Maintain 2" distance (minimum) from edge of ledger to fastener.

Fastener	Allowable Load ⁽¹⁾ (lbs)	
	1/4" TimberStrand® LSL Rim Board	iLevel® 1 1/8" Rim Board
3/8" lag bolt	400	N.A.
1/2" lag bolt	475	400

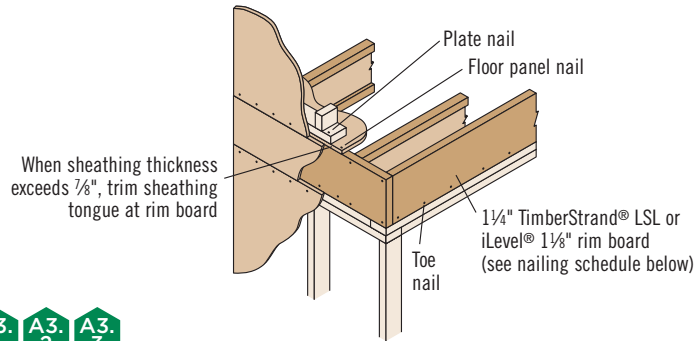
(1) Allowable load determined in accordance with AC 124.

- Corrosion-resistant fasteners required for wet-service applications.

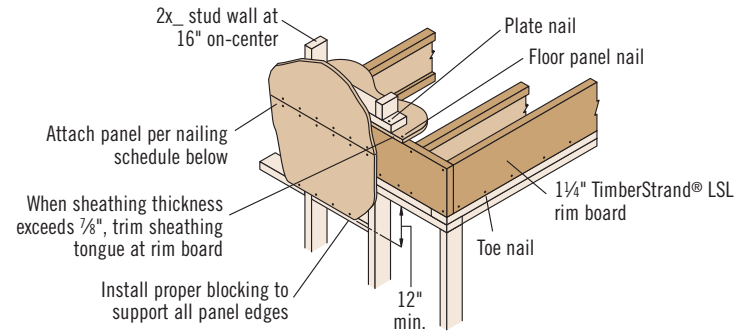


Rim board is often an important structural link in the ability of a home to resist lateral wind loads. It also transfers vertical load around the TJI® joists.

Rim board detail A3 (shown below) satisfies conventional construction requirements. But if your project requires a designed solution, see our iLevel *Rim Board Specifier's Guide for Lateral Wind Loads*. This easy-to-use guide for specifiers and code officials goes beyond conventional construction guidelines—which were based on the smaller, simpler homes of the past—and provides design information that considers today's larger, more complex homes.



A3.1 **A3.2** **A3.3**



A3.4

Fastening of Floor Panels to 1/4" TimberStrand® LSL or iLevel® 1 1/8" Rim Board

Nail Size	Closest On-Center Spacing per Row	
	Rim Board Thickness	
	1 1/8"	1 1/4"
8d (0.113" or 0.131" x 2 1/2"), 10d (0.128" or 0.148" x 3"), 12d (0.128" or 0.148" x 3 1/4")	6"	4"
16d (0.162" x 3 1/2")	16"	6" ⁽¹⁾

(1) Can be reduced to 4" on-center if nail penetration into the narrow edge is no more than 13% (to avoid splitting).

- If more than one row of nails is used, the rows must be offset at least 1/2" and staggered.
- 14 gauge staples may be substituted for 8d (0.113" x 2 1/2") nails if minimum penetration of 1" is achieved.

Rim Board Installation

Specifications	A3 Conventional Construction, Code Minimum	A3.1, A3.2, A3.3, A3.4 Designed Solution
Rim Board Thickness	1 1/8" or 1 1/4"	See the iLevel <i>Rim Board Specifier's Guide for Lateral Wind Loads</i> (Reorder #TJ-8000)
Plate Nail—16d (0.135" x 3 1/2")	16" o.c.	
Floor Panel Nail—8d (0.131" x 2 1/2")	6" o.c.	
Toe Nail—10d (0.128" x 3")	6" o.c.	
Wall Sheathing	Per code	

Vertical Load Transfer at Bearing

Allowable Uniform Vertical Loads (PLF)	
TJI® rim joist or blocking	2,100
1/4" TimberStrand® LSL rim board or blocking	4,250
iLevel® 1 1/8" rim board or blocking	4,000

- Loads may not be increased for duration of load.

Also see nailing requirements on page 8

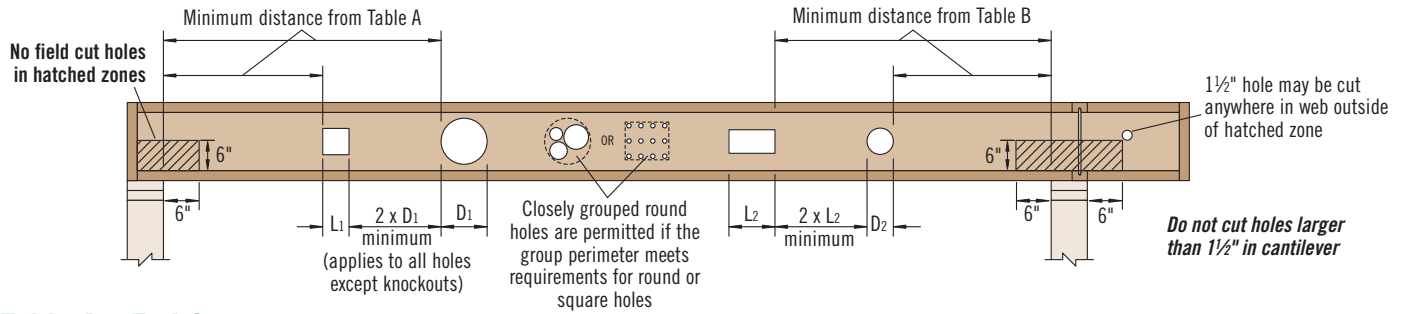


Table A—End Support
Minimum distance from edge of hole to inside face of nearest end support

Depth	TJI®	● Round Hole Size									■ Square or Rectangular Hole Size								
		2"	3"	4"	5"	6 1/2"	7"	8 7/8"	11"	13"	2"	3"	4"	5"	6 1/2"	7"	8 7/8"	11"	13"
9 1/2"	110	1'-0"	1'-6"	2'-0"	2'-6"	5'-0"					1'-0"	1'-6"	2'-6"	3'-6"	4'-6"				
	210	1'-0"	1'-6"	2'-0"	3'-0"	5'-0"					1'-0"	2'-0"	2'-6"	4'-0"	5'-0"				
	230	1'-0"	2'-0"	2'-6"	3'-6"	5'-6"					1'-0"	2'-0"	3'-0"	4'-6"	5'-0"				
11 7/8"	110	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	2'-6"	5'-0"			1'-0"	1'-0"	1'-6"	2'-6"	4'-6"	4'-6"	6'-0"		
	210	1'-0"	1'-0"	1'-0"	1'-6"	2'-6"	3'-0"	5'-6"			1'-0"	1'-0"	2'-0"	3'-0"	5'-0"	5'-6"	6'-6"		
	230	1'-0"	1'-0"	1'-0"	2'-0"	3'-0"	3'-6"	6'-0"			1'-0"	1'-0"	2'-0"	3'-0"	5'-6"	5'-6"	7'-0"		
	360	1'-0"	1'-0"	1'-6"	2'-6"	4'-6"	5'-0"	7'-0"			1'-0"	1'-0"	2'-6"	4'-0"	6'-6"	6'-6"	7'-6"		
	560	1'-0"	1'-0"	1'-6"	3'-0"	5'-0"	5'-6"	8'-0"			1'-0"	2'-0"	3'-6"	5'-0"	7'-0"	7'-6"	8'-0"		
14"	110	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	5'-0"		1'-0"	1'-0"	1'-0"	1'-6"	3'-6"	4'-0"	6'-0"	8'-0"	
	210	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	3'-0"	6'-0"		1'-0"	1'-0"	1'-0"	2'-0"	4'-0"	4'-6"	6'-6"	8'-6"	
	230	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	2'-0"	3'-6"	6'-6"		1'-0"	1'-0"	1'-0"	2'-0"	4'-0"	5'-0"	7'-0"	9'-0"	
	360	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	3'-0"	5'-6"	8'-0"		1'-0"	1'-0"	1'-0"	2'-6"	5'-6"	6'-6"	8'-0"	9'-6"	
	560	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	3'-0"	6'-0"	9'-0"		1'-0"	1'-0"	1'-6"	3'-6"	6'-6"	7'-0"	9'-0"	10'-0"	
16"	210	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	3'-6"	6'-0"	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	3'-6"	6'-6"	8'-0"	10'-6"
	230	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	2'-0"	4'-0"	6'-6"	1'-0"	1'-0"	1'-0"	1'-0"	3'-0"	3'-6"	7'-0"	9'-0"	11'-0"
	360	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	3'-0"	6'-0"	9'-0"	1'-0"	1'-0"	1'-0"	1'-0"	4'-0"	5'-0"	9'-0"	10'-0"	11'-6"
	560	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	3'-0"	6'-6"	10'-0"	1'-0"	1'-0"	1'-0"	1'-6"	5'-0"	6'-0"	10'-0"	11'-0"	12'-0"

Table B—Intermediate or Cantilever Support
Minimum distance from edge of hole to inside face of nearest intermediate or cantilever support

Depth	TJI®	● Round Hole Size									■ Square or Rectangular Hole Size								
		2"	3"	4"	5"	6 1/2"	7"	8 7/8"	11"	13"	2"	3"	4"	5"	6 1/2"	7"	8 7/8"	11"	13"
9 1/2"	110	1'-6"	2'-6"	3'-0"	4'-0"	7'-6"					1'-6"	2'-6"	3'-6"	5'-6"	6'-6"				
	210	2'-0"	2'-6"	3'-6"	4'-6"	7'-6"					2'-0"	3'-0"	4'-0"	6'-0"	7'-0"				
	230	2'-6"	3'-0"	4'-0"	5'-0"	8'-0"					2'-6"	3'-0"	4'-6"	6'-6"	7'-6"				
11 7/8"	110	1'-0"	1'-0"	1'-6"	2'-6"	4'-0"	4'-0"	8'-0"			1'-0"	1'-6"	2'-6"	4'-0"	6'-6"	7'-0"	9'-0"		
	210	1'-0"	1'-0"	2'-0"	3'-0"	4'-6"	5'-0"	9'-0"			1'-0"	2'-0"	3'-0"	4'-6"	7'-6"	8'-0"	10'-0"		
	230	1'-0"	2'-0"	2'-6"	3'-6"	5'-0"	5'-6"	9'-6"			1'-0"	2'-6"	3'-6"	5'-6"	8'-0"	8'-6"	10'-0"		
	360	2'-0"	3'-0"	4'-0"	5'-6"	7'-0"	7'-6"	11'-0"			2'-0"	3'-6"	5'-0"	7'-0"	9'-6"	9'-6"	11'-0"		
	560	1'-6"	3'-0"	4'-6"	5'-6"	8'-0"	8'-6"	12'-0"			3'-0"	4'-6"	6'-0"	8'-0"	10'-6"	11'-0"	12'-0"		
14"	110	1'-0"	1'-0"	1'-0"	1'-0"	2'-0"	2'-6"	4'-6"	8'-0"		1'-0"	1'-0"	1'-0"	2'-6"	5'-0"	6'-0"	9'-0"	12'-0"	
	210	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	3'-0"	5'-0"	9'-0"		1'-0"	1'-0"	2'-0"	3'-6"	6'-0"	7'-0"	10'-0"	12'-6"	
	230	1'-0"	1'-0"	1'-0"	2'-0"	3'-0"	3'-6"	5'-6"	10'-0"		1'-0"	1'-0"	2'-6"	4'-0"	6'-0"	7'-6"	10'-6"	13'-0"	
	360	1'-0"	1'-0"	2'-0"	3'-6"	5'-6"	6'-0"	8'-6"	12'-6"		1'-0"	2'-0"	4'-0"	5'-6"	9'-0"	10'-0"	12'-0"	14'-0"	
	560	1'-0"	1'-0"	1'-6"	3'-6"	5'-6"	6'-6"	9'-6"	13'-6"		1'-0"	3'-0"	5'-0"	7'-0"	10'-0"	11'-0"	13'-6"	15'-0"	
16"	210	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	3'-0"	5'-6"	9'-6"	1'-0"	1'-0"	1'-0"	2'-0"	4'-6"	5'-6"	9'-6"	12'-6"	15'-6"
	230	1'-0"	1'-0"	1'-0"	1'-0"	1'-6"	2'-0"	4'-0"	6'-6"	10'-6"	1'-0"	1'-0"	1'-0"	2'-6"	5'-0"	6'-0"	10'-6"	13'-0"	16'-0"
	360	1'-0"	1'-0"	1'-0"	1'-0"	3'-0"	4'-0"	6'-6"	10'-0"	13'-6"	1'-0"	1'-0"	2'-0"	4'-0"	7'-6"	8'-6"	13'-0"	14'-6"	17'-0"
	560	1'-0"	1'-0"	1'-0"	1'-0"	2'-6"	3'-6"	7'-0"	11'-0"	15'-0"	1'-0"	1'-0"	3'-6"	5'-6"	9'-0"	10'-0"	14'-6"	16'-0"	18'-0"

• Rectangular holes based on measurement of longest side.

How to Use These Tables

- Using **Table A**, **Table B**, or both if required, determine the hole shape/size and select the TJI® joist and depth.
- Scan horizontally until you intersect the correct hole size column.
- Measurement shown is minimum distance from edge of hole to support.
- Maintain the required minimum distance from the end **and** the intermediate or cantilever support.

General Notes

- Holes may be located vertically anywhere within the web. Leave 1/8" of web (minimum) at top and bottom of hole.
- Knockouts are located in web at approximately 12" on-center; they do not affect hole placement.
- For simple span (5' 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 that no other holes occur in the joist**.
- Distances are based on the maximum uniform loads shown in this guide. For other load conditions or hole configurations, use TJI-Beam® software or contact your iLevel representative.

DO NOT
cut or notch flange.



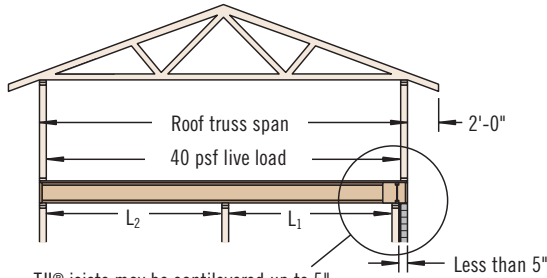
DO NOT
cut holes in cantilever reinforcement.



CANTILEVERS

Cantilevers Less Than 5" (Brick Ledge)

See Section A of cantilever table on page 13

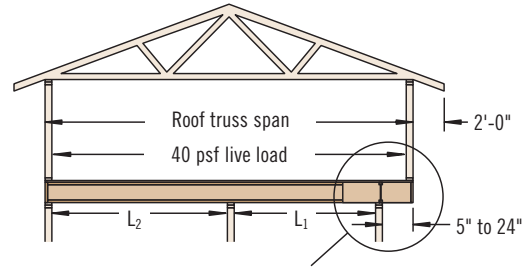


TJI® joists may be cantilevered up to 5" when supporting roof load, assuming:

- simple or continuous span
- $L_1 \leq L_2$
- minimum backspan = 2x cantilever length

Cantilevers 5" to 24"

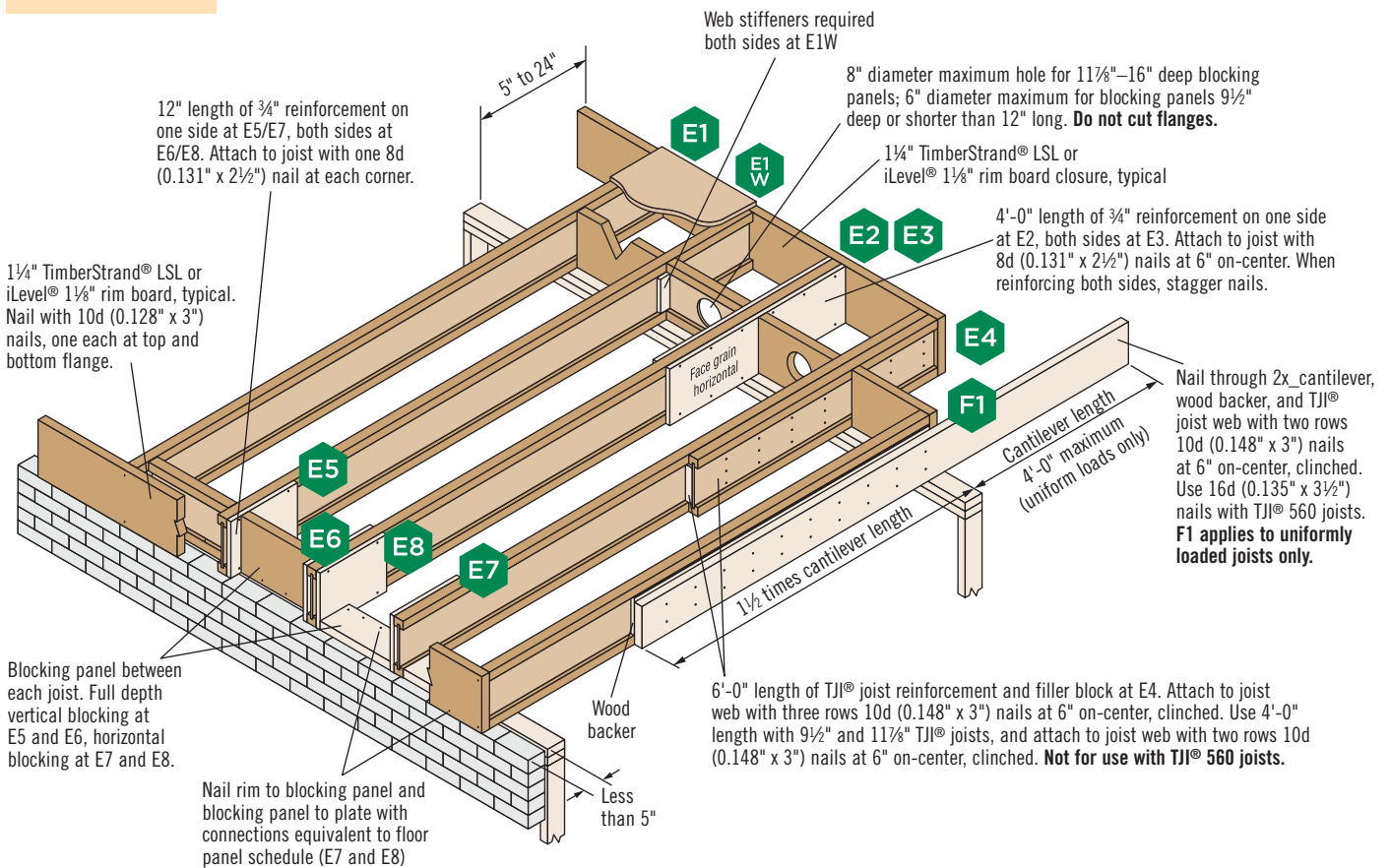
See Section B of cantilever table on page 13



TJI® joists may be cantilevered 5" to 24" when supporting roof load, assuming:

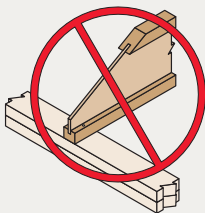
- simple or continuous span
- $L_1 \leq L_2$
- minimum backspan = 2x cantilever length

TJI® joists are intended for dry-use applications

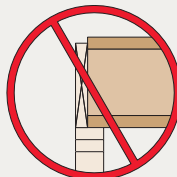


These Conditions Are **NOT** Permitted

DO NOT bevel cut joist beyond inside face of wall.

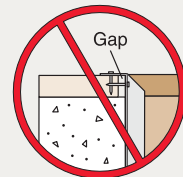


DO NOT use sawn lumber for rim board or blocking.



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.

Cantilever Reinforcement

Depth	TJI®	Roof Truss Span	Section A: Cantilevers less than 5" (Brick Ledge)									Section B: Cantilevers 5" to 24"													
			Roof Total Load									Roof Total Load													
			35 PSF			45 PSF			55 PSF			35 PSF			45 PSF			55 PSF							
			On-Center Joist Spacing									On-Center Joist Spacing													
16"	19.2"	24"	16"	19.2"	24"	16"	19.2"	24"	16"	19.2"	24"	16"	19.2"	24"	16"	19.2"	24"								
9 1/2" 11 7/8" 14"	110	20'			E5		E5	E5			E5	E5					E2			X					
		22'			E5		E5	E5			E5	E5					X		E2	X					
		24'		E5	E5	E5	E5	E5	E5	E5	E5	E5					X		X	X					
		26'		E5	E5	E5	E5	E5	E5	E5	E5	E6			E2		E2	X	E2	X	X				
		28'		E5	E5	E5	E5	E5	E5	E5	E5	E6			X		E2	X	E3	X	X				
		30'	E5	E5	X	E5	E5	X	E5	E5	X			E2	X	X	E2	X	X	X	X				
		32'	E5	X	X	E5	X	X	E5	X	X	E2	E3	X	E3	X	X	X	X	X					
9 1/2" 11 7/8" 14" 16"	210	20'			E5		E5			E5	E5									E2					
		22'			E5		E5	E5			E5	E5								E2	X				
		24'			E5		E5	E5	E5	E5	E5									E2	X				
		26'		E5	E5		E5	E5	E5	E5	E5									E2	X				
		28'		E5	E5	E5	E5	E5	E5	E5	E5	E6								X	E3	X			
		30'		E5	E5	E5	E5	E5	E5	E5	E5	E6			E2		E2	X	E2	X	X				
		32'	E5	E5	X	E5	E5	X	E5	E5	X		E2	E3	E2	E3	X	E3	X	X					
9 1/2" 11 7/8" 14" 16"	230	24'			E5		E5	E5	E5	E5										E2					
		26'		E5	E5		E5	E5	E5	E5	E5									E2	X				
		28'		E5	E5	E5	E5	E5	E5	E5	E5	E6								E2	X				
		30'		E5	E5	E5	E5	E5	E5	E5	E5	E6			E2		E2	E3	E2	E3	X				
		32'	E5	E5	E5	E5	E5	E6	E5	E5	E6			E2		E2	X	E3	X	X					
		34'	E5	E5	X	E5	E5	X	E5	E5	X		E2	E3	E2	E3	X	E3	X	X					
11 7/8" 14" 16"	360	28'			E5		E5	E5	E5	E5											E2				
		30'		E5	E5		E5	E5	E5	E5	E5									E1W		E2			
		32'		E5	E5	E5	E5	E5	E5	E5	E5									E2		E2			
		34'		E5	E5	E5	E5	E5	E5	E5	E6									E2		E1W	E3		
		36'		E5	E5	E5	E5	E5	E5	E5	E6			E1W						E2		E2	E3		
		38'	E5	E5	E5	E5	E5	E5	E5	E5	E6			E1W						E2		E2	E3		
		40'	E5	E5	E5	E5	E5	E5	E5	E6			E1W		E1W	E2			E2		E2	E3			
11 7/8" 14" 16"	560	30'			E5		E5	E5			E5	E5													
		32'			E5		E5	E5	E5	E5	E5														
		34'			E5		E5	E5	E5	E5	E5												E2		
		36'		E5	E5		E5	E5	E5	E5	E5	E6												E2	
		38'		E5	E5	E5	E5	E5	E5	E5	E5	E6													E2
		40'		E5	E5	E5	E5	E5	E5	E5	E5	E6													

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. Identify the cantilever condition (less than 5" or 5" to 24") and locate the **Roof Total Load** and **On-Center Joist Spacing** for your application.
4. Scan down to find the appropriate cantilever detail and refer to drawing on page 12:
 - Blank cells indicate that no reinforcement is required.
 - E4 may be used in place of E2 or E3 except when using TJI® 560 joists.
 - X indicates that cantilever will not work. Use TJ-Beam® or TJ-Xpert® software, or reduce spacing of joists and recheck table.

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 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, including cantilevers longer than 24", use our TJ-Beam® or TJ-Xpert® software.

FIRE-SAFE CONSTRUCTION

Fire-safe construction and life safety are major concerns for everyone in the building materials and construction industry. The 2006 U.S. Fire Administration (<http://www.usfa.dhs.gov/statistics/national/>) statistics on residential and commercial fires in the U.S. alone include 3,245 fire fatalities and an estimated \$11.3 billion in property damage. These numbers underscore the seriousness of the issue and the need for fire-safe construction.

Over the past 35 years, prefabricated wood I-joists and other iLevel building products 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-resistance ratings per the building codes. The following information is intended to help you specify and install iLevel® brand products with fire safety in mind.

Active Fire Suppression

Automatic fire sprinkler systems are commonly required by building codes in schools, office buildings, factories, and other commercial buildings. Buildings designed with sprinkler systems are allowed larger areas and a greater height than buildings designed without sprinkler systems.

Fire service agencies, such as the U.S. Fire Administration, promote the use of residential sprinkler systems. These agencies cite benefits such as lower overall cost of construction for the homeowner, plus a safer environment and lower insurance rates for the homeowner. Using automatic fire sprinkler systems provides the following benefits:

- Early and unsupervised suppression
- Reduced fire and smoke development
- Potentially enhanced life safety for the occupant(s)

Smoke Detectors

Smoke detectors are universally recognized as the most cost-effective life-saving devices. Although 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. Similarly, carbon monoxide detectors can also alert occupants to faulty heating appliances or air contamination in the early stages of a fire.

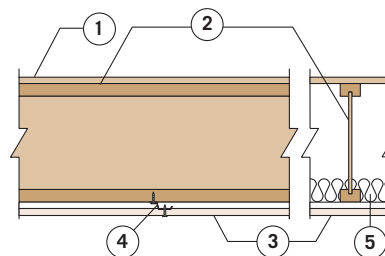
Passive Fire Protection

Independent tests show that when compared to protected systems, unprotected framing systems (whether combustible or non-combustible) suffer increased structural degradation when exposed to fire. All floor framing materials—sawn

lumber, wood I-joists, trusses, and light-gauge steel—succumb quickly to fire if not protected. Applying a protective membrane such as gypsum ceiling board to all types of floor framing within the structure will provide uniform protection to the structural framing members. Passive fire-protection can do the following:

- Delay fire growth involving structural elements
- Reduce the potential for significant property damage to structural elements
- Enhance the market value of the building

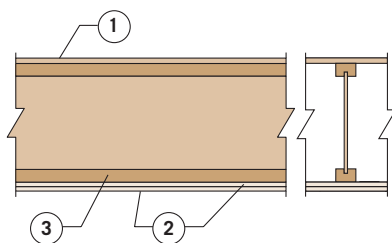
Suggested Minimum Membrane Protection for Unrated Construction



iLevel supports the idea that all floor/ceiling and roof/ceiling assemblies in habitable areas be protected by a minimum membrane protection consisting of ½" gypsum board (or equivalent)

1. 48/24 tongue-and-groove span-rated sheathing (Exposure 1)
2. TJI® joist
3. Single-layer of ½" thick, unrated gypsum board
4. Resilient channels at 16" on-center (optional)
5. **Optional when used with resilient channels:** Minimum 3½"-thick glass fiber insulation or non-combustible insulation that is rated R-30 or less.

One-Hour Assembly for Rated Construction



1. 48/24 tongue-and-groove, span-rated sheathing (Exposure 1)
2. Two layers of ½" thick Type C gypsum board
3. TJI® joist

Optional when used with resilient channels (not shown): Minimum 3½"-thick glass fiber insulation or non-combustible insulation that is rated R-30 or less.

Note: Resilient channels may be installed between the joists and gypsum board if improved STC and IIC sound ratings are desired.

Reference Assembly B per ICC ES ESR-1153

For more information on fire assemblies and fire-safe construction, please refer to the iLevel Fire Facts Guide (Reorder #1500) or visit www.iLevel.com and www.i-joist.com

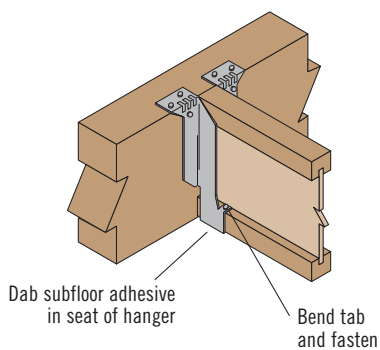


Silent Floor® joists are structurally uniform and dimensionally stable, and they resist shrinking and twisting. This helps prevent gaps from forming around the nails between the joist and the floor panels—gaps that can potentially cause squeaks or other floor noise.

Using Silent Floor® joists can help you build a quieter floor, but only if the entire floor system is installed properly. This is because other components of the floor system, such as hangers, connectors, and nails can be a source of floor noise.

To get the best possible performance out of your Silent Floor® joists and minimize potential squeaks in your floor, we recommend the following installation tips:

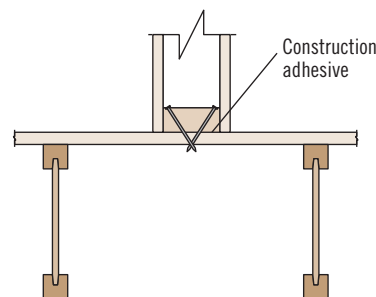
Properly Seat Each Joist in Hanger



Seat the joist tight to the bottom of the hanger. When using hangers with tabs, bend the flange tabs over and nail to the TJJ® joist bottom flange.

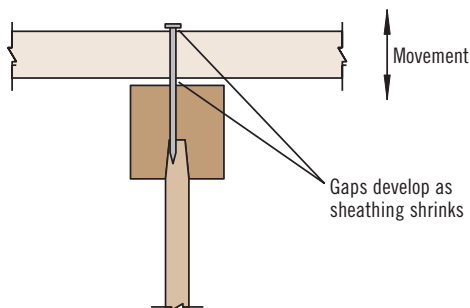
Placing a dab of subfloor adhesive in the seat of the hanger prior to installing the joist can reduce squeaks.

Use Adhesive and Special Nailing When Needed



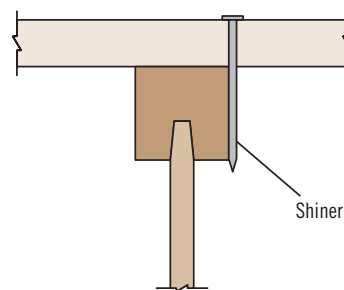
Nail interior partitions to the joists when possible. If the wall can be nailed only to the floor panel, run a bead of adhesive under the wall and either cross nail, nail through and clinch tight, or screw tightly into the wall from below.

Prevent Shrinkage



Keep building materials dry, and properly glue floor panels to the joists. Panels that become excessively wet during construction shrink as they dry. This shrinkage may leave gaps that allow the panel to move when stepped on.

Avoid “Shiners”



Exercise care when nailing. Nails that barely hit the joists (shiners) do not hold the panel tight to the joist and should be removed. If left in, the nails will rub against the side of the joist when the panel deflects.

*For more information and tips on how to prevent floor noise, refer to the **iLevel Prevention and Repair of Floor System Squeaks Technical Resource Sheet (Reorder #9009)** or contact your iLevel representative.*

ROOF SPAN TABLE

Maximum Horizontal Clear Spans—Roof

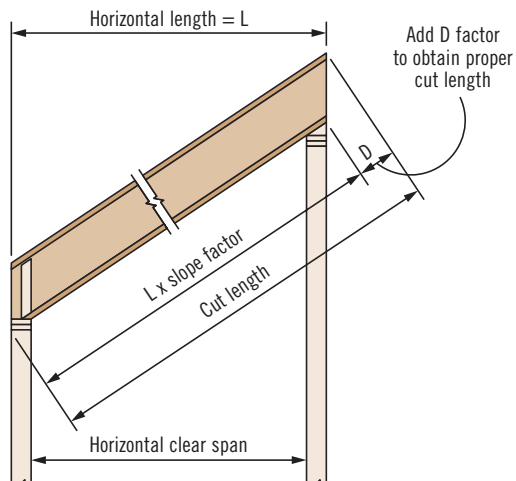
O.C. Spacing	Depth	TJI®	Design Live Load (LL) and Dead Load (DL) in PSF												
			Non-Snow (125%)						Snow Load Area (115%)						
			20LL + 15DL		20LL + 20DL		25LL + 15DL		30LL + 15DL		40LL + 15DL		50LL + 15DL		
			Low	High	Low	High	Low	High	Low	High	Low	High	Low	High	
16"	9½"	110	20'-0"	17'-10"	19'-1"	16'-11"	19'-2"	17'-2"	18'-5"	16'-7"	17'-2"	15'-7"	15'-11"	14'-9"	
		210	21'-2"	18'-10"	20'-2"	17'-10"	20'-3"	18'-2"	19'-6"	17'-6"	18'-2"	16'-6"	17'-2"	15'-7"	
		230	21'-11"	19'-6"	20'-10"	18'-6"	20'-11"	18'-9"	20'-2"	18'-1"	18'-10"	17'-0"	17'-9"	16'-2"	
	11⅞"	110	23'-11"	21'-4"	22'-9"	20'-2"	22'-8"	20'-6"	21'-5"	19'-10"	19'-5"	18'-7"	17'-11"	17'-4"	
		210	25'-3"	22'-6"	24'-1"	21'-4"	24'-2"	21'-8"	23'-3"	20'-11"	21'-4"	19'-8"	19'-8"	18'-8"	
		230	26'-1"	23'-3"	24'-10"	22'-0"	24'-11"	22'-4"	24'-0"	21'-7"	22'-5"	20'-4"	20'-9"	19'-3"	
		360	27'-9"	24'-9"	26'-5"	23'-5"	26'-7"	23'-10"	25'-6"	23'-0"	23'-11"	21'-7"	22'-7"	20'-6"	
		560	31'-11"	28'-6"	30'-5"	27'-0"	30'-7"	27'-5"	29'-5"	26'-5"	26'-5"	24'-10"	26'-0"	23'-7"	
	14"	110	27'-2"	24'-3"	25'-7"	23'-0"	24'-9"	23'-4"	23'-4"	22'-4"	21'-2"	20'-5"	19'-6"	18'-11"	
		210	28'-9"	25'-7"	27'-4"	24'-3"	27'-1"	24'-8"	25'-7"	23'-9"	23'-3"	22'-4"	21'-5"	20'-9"	
		230	29'-8"	26'-6"	28'-3"	25'-1"	28'-5"	25'-5"	27'-0"	24'-7"	24'-6"	23'-1"	22'-7"	21'-10"	
		360	31'-6"	28'-2"	30'-0"	26'-8"	30'-2"	27'-1"	29'-0"	26'-1"	27'-2"	24'-7"	25'-8"	23'-4"	
		560	36'-3"	32'-4"	34'-6"	30'-7"	34'-8"	31'-1"	33'-4"	30'-0"	31'-2"	28'-3"	29'-6"	26'-9"	
	16"	210	31'-10"	28'-5"	30'-0"	26'-11"	29'-0"	27'-4"	27'-5"	26'-2"	24'-10"	23'-11"	22'-8"	22'-2"	
		230	32'-10"	29'-4"	31'-4"	27'-9"	30'-7"	28'-2"	28'-11"	27'-3"	26'-2"	25'-3"	24'-2"	23'-5"	
		360	34'-11"	31'-2"	33'-3"	29'-6"	33'-5"	30'-0"	32'-2"	28'-11"	30'-1"	27'-2"	26'-0"	25'-10"	
		560	40'-1"	35'-9"	38'-2"	33'-11"	38'-4"	34'-5"	36'-11"	33'-2"	34'-6"	31'-3"	31'-8"	29'-8"	
		19.2"	9½"	110	18'-9"	16'-9"	17'-11"	15'-10"	18'-0"	16'-1"	17'-3"	15'-7"	15'-9"	14'-7"	14'-6"
	210			19'-10"	17'-9"	18'-11"	16'-9"	19'-0"	17'-0"	18'-3"	16'-5"	17'-1"	15'-5"	15'-11"	14'-8"
	230			20'-7"	18'-4"	19'-7"	17'-4"	19'-8"	17'-7"	18'-11"	17'-0"	17'-8"	16'-0"	16'-8"	15'-2"
11⅞"	110		22'-5"	20'-0"	21'-5"	19'-0"	20'-9"	19'-3"	19'-7"	18'-7"	17'-9"	17'-1"	16'-4"	15'-10"	
	210		23'-9"	21'-2"	22'-7"	20'-0"	22'-8"	20'-4"	21'-5"	19'-8"	19'-6"	18'-6"	17'-11"	17'-4"	
	230		24'-6"	21'-10"	23'-4"	20'-8"	23'-5"	21'-0"	22'-6"	20'-3"	20'-6"	19'-1"	18'-11"	18'-1"	
	360		26'-1"	23'-3"	24'-10"	22'-0"	24'-11"	22'-4"	24'-0"	21'-7"	22'-5"	20'-3"	21'-2"	19'-3"	
	560		30'-0"	26'-9"	28'-7"	25'-4"	28'-8"	25'-9"	27'-7"	24'-10"	25'-9"	23'-4"	24'-4"	22'-2"	
14"	110		25'-1"	22'-10"	23'-4"	21'-7"	22'-7"	21'-5"	21'-4"	20'-4"	20'-4"	19'-4"	17'-0"	17'-3"	
	210		27'-0"	24'-1"	25'-7"	22'-10"	24'-9"	23'-2"	23'-4"	22'-4"	21'-2"	20'-5"	18'-10"	18'-11"	
	230		27'-10"	24'-10"	26'-6"	23'-7"	26'-1"	23'-11"	24'-7"	23'-1"	22'-4"	21'-6"	20'-7"	19'-11"	
	360		29'-7"	26'-5"	28'-2"	25'-0"	28'-4"	25'-5"	27'-3"	24'-6"	25'-6"	23'-1"	21'-7"	21'-8"	
	560		34'-0"	30'-4"	32'-5"	28'-9"	32'-7"	29'-2"	31'-4"	28'-2"	29'-3"	26'-6"	26'-5"	25'-2"	
16"	210		29'-5"	26'-8"	27'-5"	25'-4"	26'-5"	25'-2"	25'-0"	23'-11"	22'-3"	21'-10"	18'-10"	20'-2"	
	230		30'-11"	27'-7"	28'-11"	26'-1"	27'-11"	26'-6"	26'-4"	23'-11"	23'-11"	21'-10"	18'-10"	20'-2"	
	360		32'-10"	29'-3"	31'-3"	27'-9"	31'-5"	28'-2"	30'-2"	27'-2"	25'-7"	25'-3"	21'-7"	21'-8"	
	560		37'-8"	33'-7"	35'-10"	31'-10"	36'-0"	32'-4"	34'-8"	31'-2"	31'-3"	29'-4"	26'-5"	25'-5"	
	24"		9½"	110	17'-5"	15'-6"	16'-7"	14'-8"	16'-5"	14'-11"	15'-6"	14'-5"	14'-1"	13'-6"	13'-0"
210				18'-5"	16'-5"	17'-6"	15'-6"	17'-7"	15'-9"	16'-11"	15'-3"	15'-5"	14'-4"	14'-3"	13'-7"
230				19'-0"	17'-0"	18'-1"	16'-1"	18'-2"	16'-4"	17'-6"	15'-9"	16'-3"	14'-10"	15'-0"	14'-0"
11⅞"		110	20'-7"	18'-7"	19'-2"	17'-7"	18'-6"	17'-7"	17'-6"	16'-8"	15'-10"	15'-3"	13'-7"	14'-2"	
		210	21'-11"	19'-7"	20'-11"	18'-7"	20'-4"	18'-10"	19'-2"	18'-2"	17'-5"	16'-9"	15'-0"	15'-6"	
		230	22'-8"	20'-3"	21'-7"	19'-2"	21'-5"	19'-5"	20'-3"	18'-9"	18'-4"	17'-8"	16'-11"	16'-4"	
		360	24'-1"	21'-6"	23'-0"	20'-5"	23'-1"	20'-8"	22'-2"	20'-0"	20'-5"	18'-9"	17'-3"	17'-4"	
		560	27'-9"	24'-9"	26'-5"	23'-6"	26'-7"	23'-10"	25'-6"	23'-0"	23'-10"	21'-7"	21'-1"	20'-3"	
14"		110	22'-5"	21'-1"	20'-10"	19'-6"	20'-2"	19'-2"	19'-0"	18'-2"	16'-0"	16'-7"	13'-7"	14'-7"	
		210	24'-7"	22'-4"	22'-11"	21'-1"	22'-1"	21'-0"	20'-10"	19'-11"	17'-10"	18'-3"	15'-0"	16'-1"	
		230	25'-9"	23'-0"	24'-1"	21'-10"	23'-4"	22'-2"	22'-0"	21'-0"	20'-0"	19'-3"	16'-11"	17'-0"	
		360	27'-5"	24'-6"	26'-1"	23'-2"	26'-3"	23'-6"	25'-0"	22'-8"	20'-5"	20'-2"	17'-3"	17'-4"	
		560	31'-6"	28'-1"	30'-0"	26'-8"	30'-2"	27'-0"	29'-0"	26'-1"	24'-11"	23'-7"	21'-1"	20'-3"	
16"		210	26'-3"	24'-9"	24'-6"	22'-11"	23'-8"	22'-6"	21'-9"	21'-4"	17'-10"	18'-9"	15'-0"	16'-1"	
		230	27'-9"	25'-6"	25'-10"	24'-2"	24'-11"	23'-8"	23'-7"	22'-6"	20'-0"	19'-9"	16'-11"	17'-0"	
		360	30'-4"	27'-1"	28'-11"	25'-8"	28'-2"	26'-1"	25'-0"	24'-1"	20'-5"	20'-2"	17'-3"	17'-4"	
		560	34'-10"	31'-2"	33'-2"	29'-6"	33'-4"	29'-11"	30'-6"	28'-3"	24'-11"	23'-7"	21'-1"	20'-3"	

How to Use This Table

- Determine appropriate live and dead load, and the load duration factor.
- 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.
- Scan down the column until you find a span that meets or exceeds the span of your application.
- Select TJI® joist and on-center spacing.

General Notes

- Table is based on:
 - Uniform loads.
 - More restrictive of simple or continuous span.
 - Minimum roof surface slope of ¼:12.
 - 1¾" minimum end bearing and 3½" minimum intermediate bearing.
- Total load limits joist deflection to L/180.
- Live load is based on joist deflection of L/240.
- A support beam or wall at the high end is required. Ridge board applications do not provide adequate support.
- Spans shown assume no web stiffeners at intermediate bearings.



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

D Factors

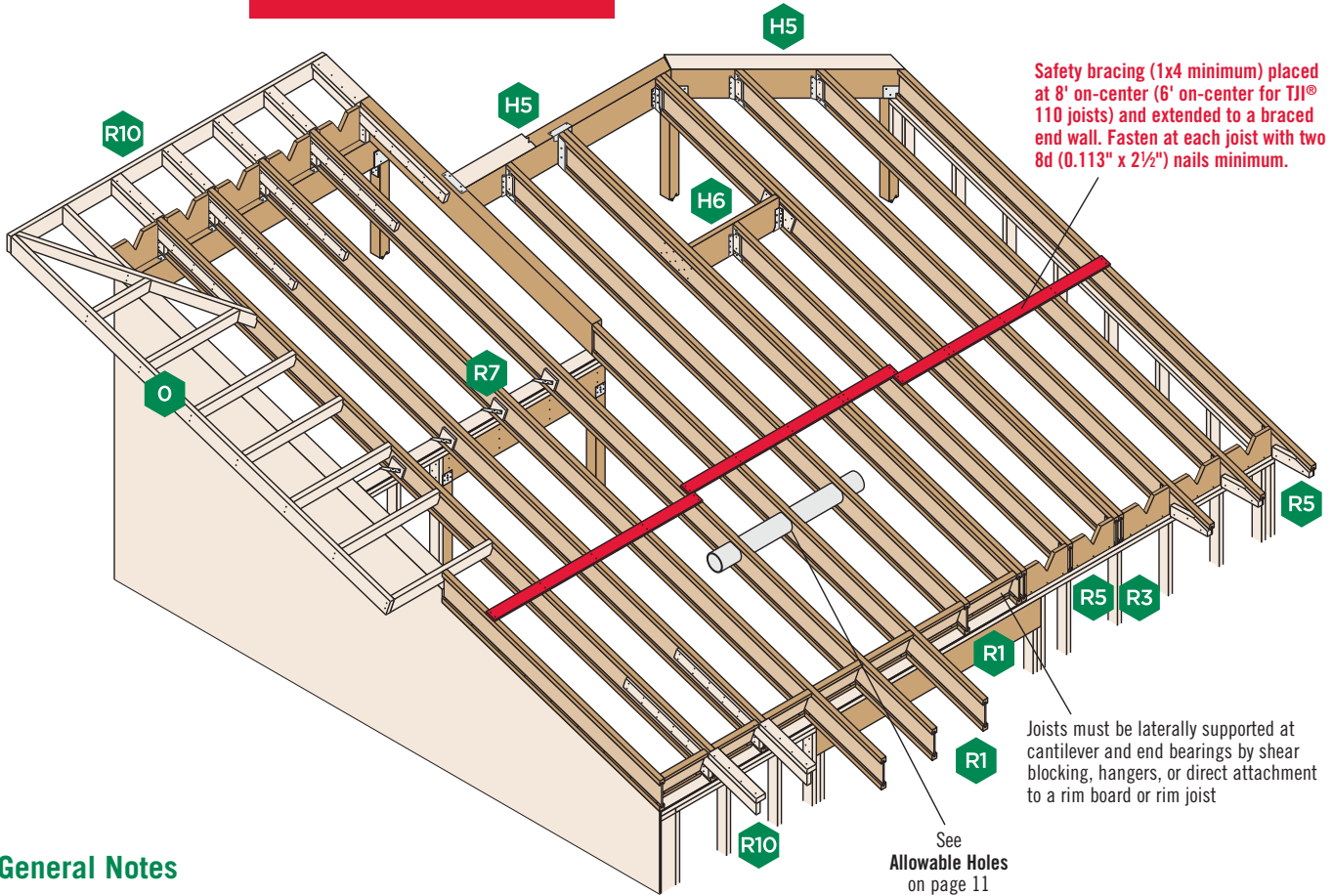
Depth	Slope													
	2½:12	3:12	3½:12	4:12	4½:12	5:12	6:12	7:12	8:12	9:12	10:12	11:12	12:12	
9½"	2"	2⅜"	2⅞"	3¼"	3⅝"	4"	4¾"	5⅝"	6⅜"	7⅞"	8"	8¾"	9½"	
11⅞"	2½"	3"	3½"	4"	4½"	5"	6"	7"	8"	9"	10"	11"	11⅞"	
14"	3"	3½"	4⅞"	4¾"	5¼"	5⅞"	7"	8¼"	9⅜"	10½"	11¼"	12⅞"	14"	
16"	3⅜"	4"	4¾"	5⅜"	6"	6¾"	8"	9⅜"	10¾"	12"	13⅜"	14¾"	16"	

Slope Factors

Slope Factor	2½:12	3:12	3½:12	4:12	4½:12	5:12	6:12	7:12	8:12	9:12	10:12	11:12	12:12
	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



WARNING
Joists are unstable until laterally braced.
See Warning Notes on page 5.



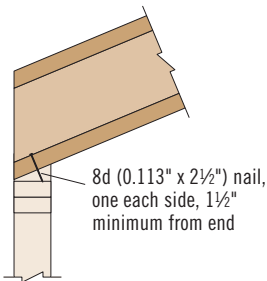
General Notes

- Unless otherwise noted, all details are valid to a maximum slope of 12:12.
- Web stiffeners are required if the sides of the hanger do not laterally support at least $\frac{3}{8}$ " of the TJI® joist top flange.

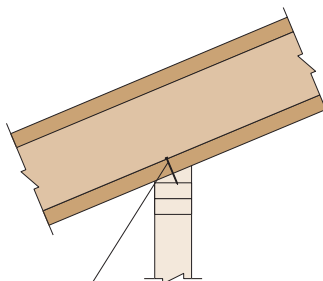
TJI® Joist Nailing Requirements at Bearing

TJI® Joist to Bearing Plate

End Bearing
($1\frac{3}{4}$ " minimum bearing required)

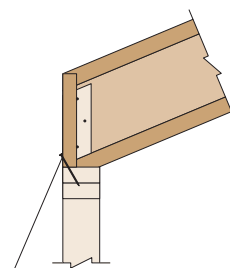


Intermediate Bearing
($3\frac{1}{2}$ " minimum bearing required)



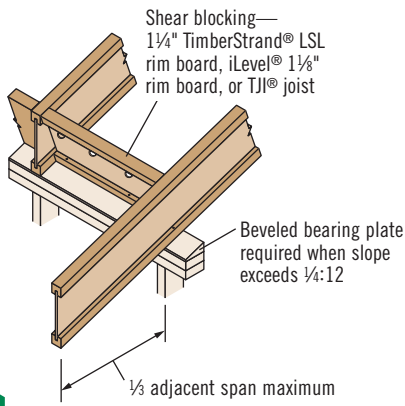
Slopes 3:12 or less:
One 8d (0.113" x 2½") nail each side. See detail R7.
Slopes greater than 3:12:
Two 8d (0.113" x 2½") nails each side, plus a twist strap and backer block. See detail R7S.

Blocking to Bearing Plate

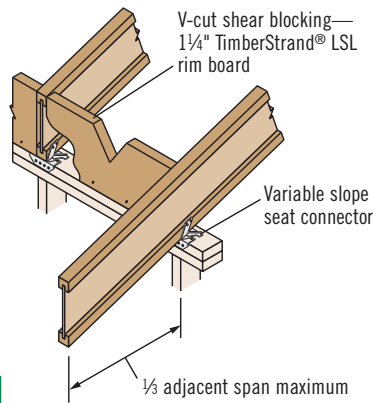


1¼" TimberStrand® LSL or iLevel® 1½" rim board:
Toenail with 10d (0.128" x 3") nails at 6" on-center or 16d (0.135" x 3½") nails at 12" on-center
TJI® joist blocking:
10d (0.128" x 3") nails at 6" on-center
Shear transfer nailing:
Use connections equivalent to sheathing nail schedule

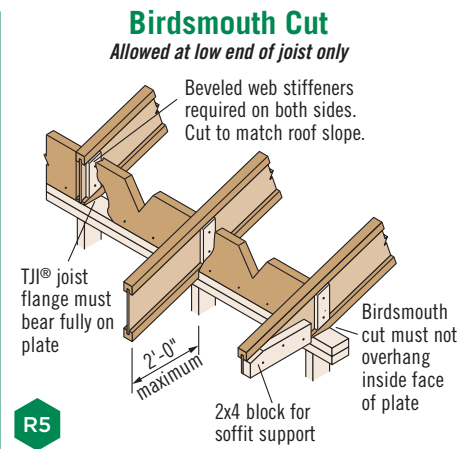
When slope exceeds ¼:12, a beveled bearing plate, variable slope seat connector, or birdsmouth cut (at low end of joist only) is required



R1



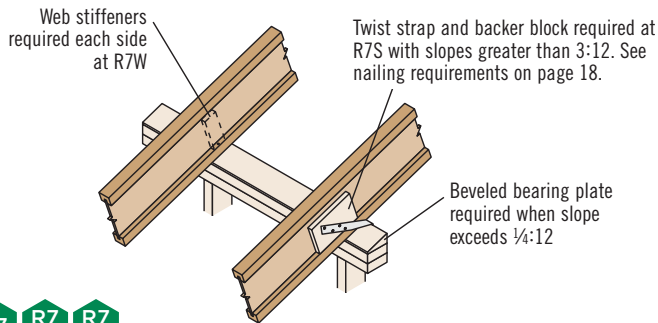
R3



R5

Intermediate Bearing

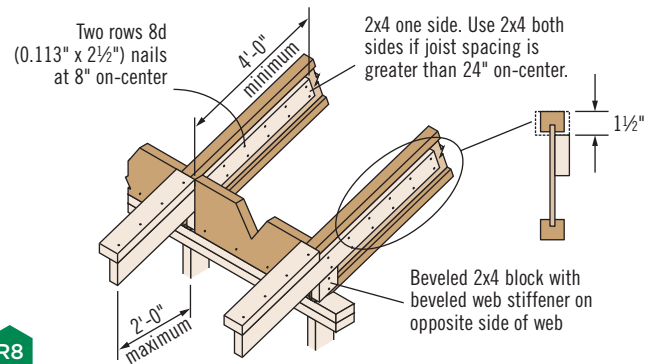
Blocking panels or shear blocking may be specified for joist stability at intermediate supports



R7
R7W
R7S

Birdsmouth Cut

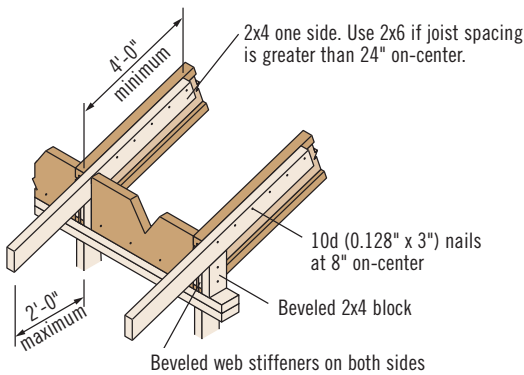
Allowed at low end of joist only



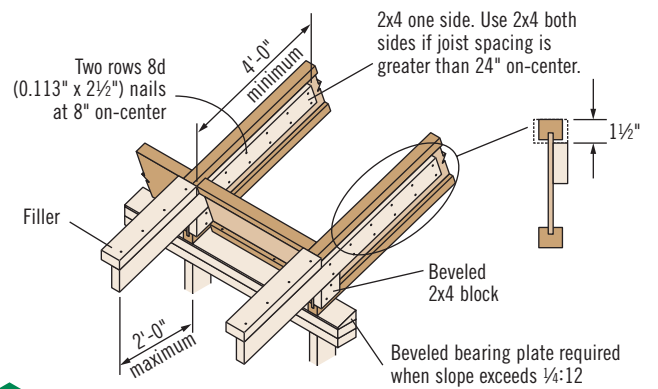
R8

Birdsmouth Cut

Allowed at low end of joist only



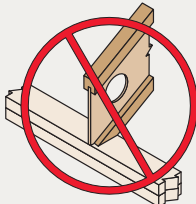
R9



R10

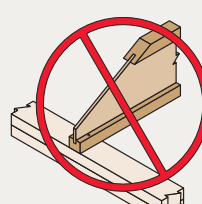
These Conditions Are NOT Permitted

DO NOT cut holes too close to support.

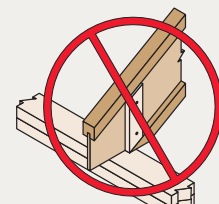


Refer to Allowable Holes on page 11 for minimum distance from support.

DO NOT bevel cut joist beyond inside face of wall.



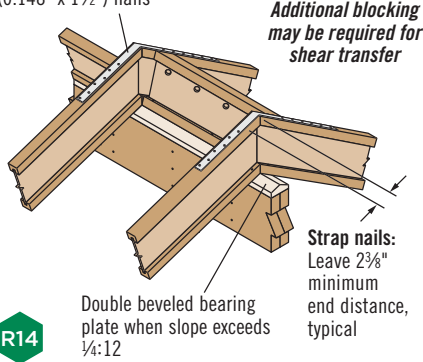
DO NOT overhang birdsmouth cut from inside face of plate.



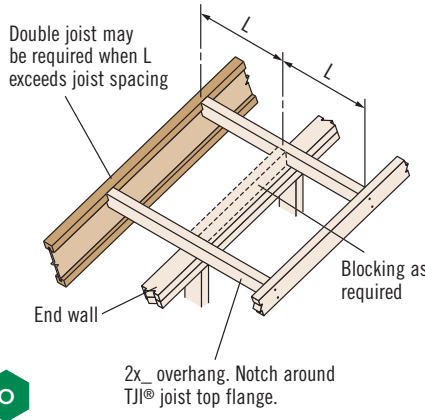
TJI joist flange must bear fully on the plate. See detail BC on page 20.

ROOF DETAILS

LSTA18 (Simpson or USP) strap with twelve 10d (0.148" x 1½") nails

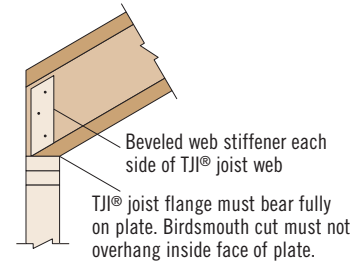


Double joist may be required when L exceeds joist spacing

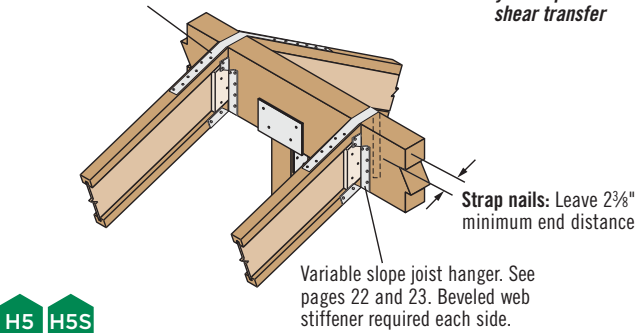


Birdsmouth Cut

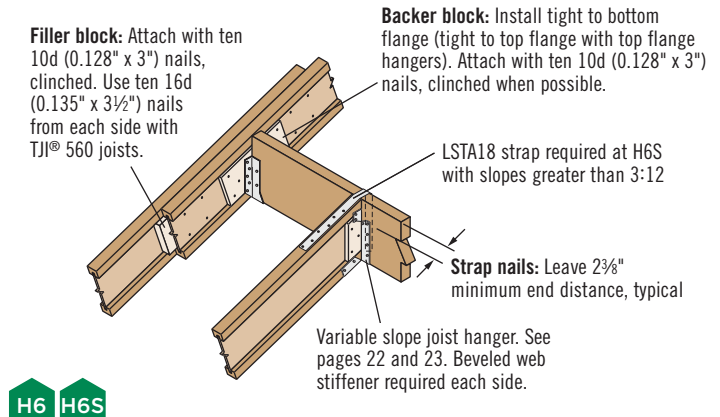
Allowed at low end of joist only



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

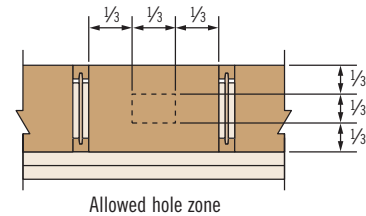
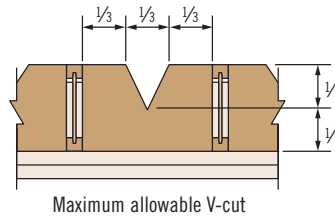
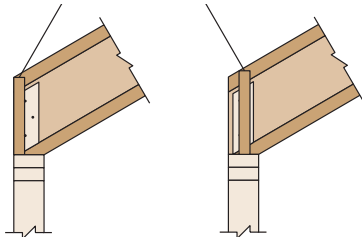


Filler block: Attach with ten 10d (0.128" x 3") nails, clinched. Use ten 16d (0.135" x 3½") nails from each side with TJI® 560 joists.



Shear Blocking and Ventilation Holes (Roof Only)

Field trim to match joist depth at outer edge of wall or locate on wall to match joist depth



SB For TJI® joists with slopes of 10:12 to 12:12, the vertical depth at bearing will require 1¼" TimberStrand® LSL or iLevel® 1½" rim board (for shear blocking) that is one size deeper than the TJI® joist

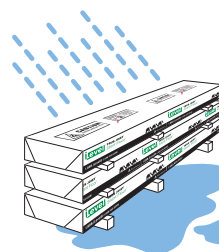
Filler and Backer Block Sizes

TJI®	110		210		230 or 360		560	
Depth	9½" or 11⅞"	14"	9½" or 11⅞"	14" or 16"	9½" or 11⅞"	14" or 16"	11⅞"	14" or 16"
Filler Block (Detail H6)	2x6	2x8	2x6 + ⅜" sheathing	2x8 + ⅜" sheathing	2x6 + ½" sheathing	2x8 + ½" sheathing	Two 2x6	Two 2x8
Backer Block (Detail H6)	⅝" or ¾"		¾" or ⅞"		⅞" or 1" net		2x6	2x8

▪ 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. The suggested minimum length is 24" for filler and 12" for backer blocks.

Product Storage

Protect products from sun and water



CAUTION: Wrap is slippery when wet or icy

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

See General Notes and nailing requirements on page 18

Roof—115% and 125% Load Duration (PLF) for 6'–16' Spans

Depth	TJI®	Roof Joist Horizontal Clear Span																	
		6'			8'			10'			12'			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%	Live Load L/240	Snow 115%	Non-Snow 125%	Live Load L/240	Snow 115%	Non-Snow 125%	Live Load L/240	Snow 115%	Non-Snow 125%	Live Load L/240	Snow 115%	Non-Snow 125%	Live Load L/240	Snow 115%	Non-Snow 125%	Live Load L/240
9½"	110	289	314	*	218	237	*	175	190	*	146	159	*	114	124	112	88	95	77
	210	321	349	*	242	263	*	194	211	*	162	176	*	137	149	130	105	115	90
	230	360	392	*	272	295	*	218	237	*	182	198	*	153	166	143	117	127	99
11⅞"	110	289	314	*	218	237	*	175	190	*	146	159	*	125	136	*	110	119	*
	210	321	349	*	242	263	*	194	211	*	162	176	*	139	151	*	122	132	*
	230	360	392	*	272	295	*	218	237	*	182	198	*	156	170	*	137	149	*
	360	368	400	*	277	301	*	223	242	*	186	202	*	159	173	*	140	152	*
	560	449	488	*	338	368	*	272	295	*	227	246	*	195	212	*	170	185	*
14"	110	289	314	*	218	237	*	175	190	*	146	159	*	125	136	*	110	119	*
	210	321	349	*	242	263	*	194	211	*	162	176	*	139	151	*	122	132	*
	230	360	392	*	272	295	*	218	237	*	182	198	*	156	170	*	137	149	*
	360	368	400	*	277	301	*	223	242	*	186	202	*	159	173	*	140	152	*
	560	449	488	*	338	368	*	272	295	*	227	246	*	195	212	*	170	185	*
16"	210	321	349	*	242	263	*	194	211	*	162	176	*	139	151	*	122	132	*
	230	360	392	*	272	295	*	218	237	*	182	198	*	156	170	*	137	149	*
	360	368	400	*	277	301	*	223	242	*	186	202	*	159	173	*	140	152	*
	560	449	488	*	338	368	*	272	295	*	227	246	*	195	212	*	170	185	*

Roof—115% and 125% Load Duration (PLF) for 18'–28' Spans

Depth	TJI®	Roof Joist Horizontal Clear Span																	
		18'			20'			22'			24'			26'			28'		
		Total Load		Defl.	Total Load		Defl.	Total Load		Defl.	Total Load		Defl.	Total Load		Defl.	Total Load		Defl.
		Snow 115%	Non-Snow 125%	Live Load L/240	Snow 115%	Non-Snow 125%	Live Load L/240	Snow 115%	Non-Snow 125%	Live Load L/240	Snow 115%	Non-Snow 125%	Live Load L/240	Snow 115%	Non-Snow 125%	Live Load L/240	Snow 115%	Non-Snow 125%	Live Load L/240
9½"	110																		
	210	83	86	64															
	230	93	94	71															
11⅞"	110	88	95	91		77	68												
	210	106	115	106	86	93	79		77	60									
	230	117	128	116	95	103	86	79	85	66									
	360	124	135	*	112	122	103	102	105	78	82	82	61						
	560	152	165	*	137	148	*	124	135	117	114	122	91	97	97	73	79	79	59
14"	110	98	106	*	84	92	*		76	75									
	210	108	118	*	97	106	*	84	91	87		77	68						
	230	122	132	*	110	119	*	93	101	95	78	85	74						
	360	124	135	*	112	122	*	102	111	*	93	101	88	86	94	70	76	76	57
	560	152	165	*	137	148	*	124	135	*	114	124	*	105	114	104	98	106	85
16"	210	108	118	*	97	106	*	89	96	*	81	88	*		75	73			
	230	122	132	*	110	119	*	100	108	*	90	97	*	76	83	79			
	360	124	135	*	112	122	*	102	111	*	93	101	*	86	94	*	80	87	76
	560	152	165	*	137	148	*	124	135	*	114	124	*	105	114	*	98	106	*

* Indicates that **Total Load** value controls.

Slope Factors

Slope	2½:12	3:12	3½:12	4:12	4½:12	5:12	6:12	7:12	8:12	9:12	10:12	11:12	12:12
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



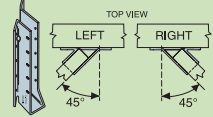
How to Use These Tables



- Calculate actual total load in pounds per linear foot (plf).
- Select appropriate **Roof Joist Horizontal Clear Span**. For slopes greater than 2:12, approximate the increased dead load by multiplying the joist horizontal clear span by the **Slope Factor** above.
- Scan down the column 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 **Live Load L/240** values.

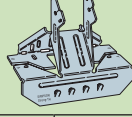
General Notes

- Tables are based on:
 - Uniform loads.
 - No composite action provided by sheathing.
 - More restrictive of simple or continuous span.
 - Minimum roof surface slope of ¼:12.
- **Total Load** limits joist deflection to L/180.

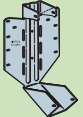
FRAMING CONNECTORS (SIMPSON STRONG-TIE®)

Joist		Single Joist—Top Flange				Single Joist—Face Mount ⁽¹⁾				Face Mount Skewed 45° Joist Hanger ⁽¹⁾			
													
Depth	TJI®	Hanger	Capacity (lbs)	Nailing		Hanger	Capacity (lbs)	Nailing		Hanger	Capacity (lbs)	Nailing	
				Header	Joist			Header	Joist			Header	Joist
9½"	110	ITS1.81/9.5	1,365	10d	N.A.	IUS1.81/9.5	935	10d	N.A.	SUR/L1.81/9	1,595	16d	10d x 1½"
	210	ITS2.06/9.5	1,365	10d	N.A.	IUS2.06/9.5	935	10d	N.A.	SUR/L2.1/9	1,595	16d	10d x 1½"
	230	ITS2.37/9.5	1,365	10d	N.A.	IUS2.37/9.5	935	10d	N.A.	SUR/L2.37/9	2,015	16d	10d x 1½"
11⅞"	110	ITS1.81/11.88	1,365	10d	N.A.	IUS1.81/11.88	1,170	10d	N.A.	SUR/L1.81/11	2,130	16d	10d x 1½"
	210	ITS2.06/11.88	1,365	10d	N.A.	IUS2.06/11.88	1,170	10d	N.A.	SUR/L2.1/11	2,130	16d	10d x 1½"
	230	ITS2.37/11.88	1,365	10d	N.A.	IUS2.37/11.88	1,170	10d	N.A.	SUR/L2.37/11	2,305	16d	10d x 1½"
	360	ITS2.37/11.88	1,365	10d	N.A.	IUS2.37/11.88	1,170	10d	N.A.	SUR/L2.37/11	2,305	16d	10d x 1½"
	560	ITT411.88	1,300	10d	10d x 1½"	IUS3.56/11.88	1,405	10d	N.A.	SUR/L410	1,860	16d	16d
14"	110	ITS1.81/14	1,365	10d	N.A.	IUS1.81/14	1,405	10d	N.A.	SUR/L1.81/14	2,500	16d	10d x 1½"
	210	ITS2.06/14	1,365	10d	N.A.	IUS2.06/14	1,405	10d	N.A.	SUR/L2.1/14	2,130	16d	10d x 1½"
	230	ITS2.37/14	1,365	10d	N.A.	IUS2.37/14	1,405	10d	N.A.	SUR/L2.37/14	2,590	16d	10d x 1½"
	360	ITS2.37/14	1,365	10d	N.A.	IUS2.37/14	1,405	10d	N.A.	SUR/L2.37/14	2,590	16d	10d x 1½"
	560	ITT414	1,300	10d	10d x 1½"	IUS3.56/14	1,405	10d	N.A.	SUR/L414	2,395	16d	16d
16"	210	ITT2.1/16	1,300	10d	10d x 1½"	IUS2.06/16	1,640	10d	N.A.	SUR/L2.1/16	2,130	16d	10d x 1½"
	230	MIT3516	2,115	16d	10d x 1½"	IUS2.37/16	1,640	10d	N.A.	SUR/L2.37/16	2,590	16d	10d x 1½"
	360	MIT3516	2,115	16d	10d x 1½"	IUS2.37/16	1,640	10d	N.A.	SUR/L2.37/16	2,590	16d	10d x 1½"
	560	MIT416	2,115	16d	10d x 1½"	IUS3.56/16	1,640	10d	N.A.	SUR/L416	2,395	16d	16d

Joist		Double Joist—Top Flange				Double Joist—Face Mount ⁽¹⁾			
									
Depth	TJI®	Hanger	Capacity (lbs)	Nailing		Hanger	Capacity (lbs)	Nailing	
				Header	Joist			Header	Joist
9½"	110	MIT49.5	2,115	16d	10d x 1½"	MIU3.56/9	2,270	16d	10d x 1½"
	210	MIT4.28/9.5	2,115	16d	10d x 1½"	MIU4.28/9	2,270	16d	10d x 1½"
	230	MIT359.5-2	2,115	16d	10d x 1½"	MIU4.75/9	2,270	16d	10d x 1½"
11⅞"	110	MIT411.88	2,115	16d	10d x 1½"	MIU3.56/11	2,840	16d	10d x 1½"
	210	MIT4.28/11.88	2,115	16d	10d x 1½"	MIU4.28/11	2,840	16d	10d x 1½"
	230	MIT3511.88-2	2,115	16d	10d x 1½"	MIU4.75/11	2,840	16d	10d x 1½"
	360	MIT3511.88-2	2,115	16d	10d x 1½"	MIU4.75/11	2,840	16d	10d x 1½"
	560	B7.12/11.88	3,355	16d	16d	HU412-2	2,145	16d	16d
14"	110	MIT414	2,115	16d	10d x 1½"	MIU3.56/14	3,125	16d	10d x 1½"
	210	MIT4.28/14	2,115	16d	10d x 1½"	MIU4.28/14	3,125	16d	10d x 1½"
	230	MIT3514-2	2,115	16d	10d x 1½"	MIU4.75/14	3,125	16d	10d x 1½"
	360	MIT3514-2	2,115	16d	10d x 1½"	MIU4.75/14	3,125	16d	10d x 1½"
	560	B7.12/14	3,355	16d	16d	HU414-2	2,680	16d	16d
16"	210	LBV4.28/16	2,460	16d	10d x 1½"	MIU4.28/16	3,410	16d	10d x 1½"
	230	LBV4.75/16	2,460	16d	10d x 1½"	MIU4.75/16	3,410	16d	10d x 1½"
	360	LBV4.75/16	2,460	16d	10d x 1½"	MIU4.75/16	3,410	16d	10d x 1½"
	560	B7.12/16	3,355	16d	16d	HU414-2	2,680	16d	16d

Joist		Variable Slope Seat Connector ⁽²⁾			
					
TJI®	Hanger	Capacity (lbs)	Nailing		
			Header	Joist	
110	VPA25	1,050	10d	10d x 1½"	
210	VPA2.1	1,230	10d	10d x 1½"	
230	VPA35	1,230	10d	10d x 1½"	
360	VPA35	1,230	10d	10d x 1½"	
560	VPA4	1,230	10d	10d x 1½"	

Hanger information on these two pages was provided by either Simpson Strong-Tie® or USP Structural Connectors®. For additional information, please refer to their literature.

Joist		Variable Slope Seat Joist Hanger ⁽¹⁾⁽³⁾			
					
TJI®	Hanger	Capacity (lbs)		Nailing	
		Sloped Only	Sloped and Skewed	Header	Joist
110	LSSU125	1,110	995	10d	10d x 1½"
210	LSSU2.1	1,110	995	10d	10d x 1½"
230	LSSU135	1,110	995	10d	10d x 1½"
360	LSSU135	1,110	995	10d	10d x 1½"
560	LSSU410	2,430	1,625	16d	10d x 1½"

General Notes


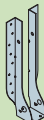
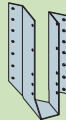
Bold italic hangers require web stiffeners.


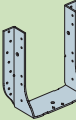
Capacities will vary with different nailing criteria or other support conditions; contact your iLevel representative for assistance.

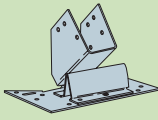
- Hanger capacities shown are either joist bearing capacity or hanger capacity—whichever is less. Joist end reaction must be checked to ensure it does not exceed the capacity shown in the tables.
- All capacities are for downward loads at 100% duration of load.
- Fill all round, dimple, and positive-angle nail holes.
- Use sloped seat hangers and beveled web stiffeners when TJI® joist slope exceeds ¼:12.
- Leave ¼" clearance (½" maximum) between the end of the supported joist and the header or hanger.
- Nails: 16d = 0.162" x 3½", 10d = 0.148" x 3", and 10d x 1½" = 0.148" x 1½".

See additional notes on page 23

FRAMING CONNECTORS (USP STRUCTURAL CONNECTORS®)

Joist		Single Joist—Top Flange				Single Joist—Face Mount ⁽¹⁾				Face Mount Skewed 45° Joist Hanger ⁽¹⁾⁽⁴⁾			
													
Depth	TJI®	Hanger	Capacity (lbs)	Nailing		Hanger	Capacity (lbs)	Nailing		Hanger	Capacity (lbs)	Nailing	
				Header	Joist			Header	Joist			Header	Joist
9½"	110	TH017950	950	10d	10d x 1½"	THF17925	910	10d	10d x 1½"	SKH1720L/R	915	10d	10d x 1½"
	210	TFL2095	1,045	10d	10d x 1½"	THF20925	910	10d	10d x 1½"	SKH2020L/R	1,015	10d	10d x 1½"
	230	TFL2395	1,095	10d	10d x 1½"	THF23925	1,220	10d	10d x 1½"	SKH2320L/R	1,065	10d	10d x 1½"
11⅝"	110	TH017118	950	10d	10d x 1½"	THF17112	910	10d	10d x 1½"	SKH1720L/R	915	10d	10d x 1½"
	210	TFL20118	1,045	10d	10d x 1½"	THF20112	910	10d	10d x 1½"	SKH2020L/R	1,015	10d	10d x 1½"
	230	TFL23118	1,095	10d	10d x 1½"	THF23118	1,220	10d	10d x 1½"	SKH2320L/R	1,065	10d	10d x 1½"
	360	TFL23118	1,145	10d	10d x 1½"	THF23118	1,265	10d	10d x 1½"	SKH2320L/R	1,110	10d	10d x 1½"
	560	TH035118	1,430	10d	10d x 1½"	THF35112	1,460	10d	10d x 1½"	SKH410L/R	1,460	16d	16d
14"	110	TH017140	1,215	10d	10d x 1½"	THF17140	950	10d	10d x 1½"	SKH1720L/R	915	10d	10d x 1½"
	210	TFL2014	1,045	10d	10d x 1½"	THF20140	1,045	10d	10d x 1½"	SKH2020L/R	1,015	10d	10d x 1½"
	230	TFL2314	1,095	10d	10d x 1½"	THF23140	1,220	10d	10d x 1½"	SKH2324L/R	1,065	10d	10d x 1½"
	360	TFL2314	1,145	10d	10d x 1½"	THF23140	1,265	10d	10d x 1½"	SKH2324L/R	1,110	10d	10d x 1½"
	560	TH035140	1,430	10d	10d x 1½"	THF35140	1,460	10d	10d x 1½"	SKH414L/R	1,460	16d	16d
16"	210	TFL2016	1,045	10d	10d x 1½"	THF20157	1,400	10d	10d x 1½"	SKH2024L/R	1,015	10d	10d x 1½"
	230	TFL2316	1,095	10d	10d x 1½"	THF23160	1,220	10d	10d x 1½"	SKH2324L/R	1,065	10d	10d x 1½"
	360	TFL2316	1,145	10d	10d x 1½"	THF23160	1,265	10d	10d x 1½"	SKH2324L/R	1,110	10d	10d x 1½"
	560	TH035160	1,430	10d	10d x 1½"	THF35157	1,460	10d	10d x 1½"	SKH414L/R	1,460	16d	16d

Joist		Double Joist—Top Flange				Double Joist—Face Mount ⁽¹⁾			
									
Depth	TJI®	Hanger	Capacity (lbs)	Nailing		Hanger	Capacity (lbs)	Nailing	
				Header	Joist			Header	Joist
9½"	110	TH035950	2,050	10d	10d x 1½"	THF35925	1,370	10d	10d x 1½"
	210	TH020950-2	2,330	16d	10d	THF20925-2	1,390	10d	10d
	230	TH023950-2	2,680	16d	10d	THF23925-2	1,625	10d	10d
11⅝"	110	TH035118	2,050	10d	10d x 1½"	THF35112	1,825	10d	10d x 1½"
	210	TH020118-2	2,330	16d	10d	THF20112-2	1,855	10d	10d
	230	TH023118-2	2,680	16d	10d	THF23118-2	1,855	10d	10d
	360	TH023118-2	2,770	16d	10d	THF23118-2	1,855	10d	10d
	560	BPH71118	3,185	16d	10d	HD7120	2,240	16d	10d
14"	110	TH035140	2,100	10d	10d x 1½"	THF35140	2,165	10d	10d x 1½"
	210	TH020140-2	2,330	16d	10d	THF20140-2	2,320	10d	10d
	230	TH023140-2	2,680	16d	10d	THF23140-2	2,435	10d	10d
	360	TH023140-2	2,770	16d	10d	THF23140-2	2,500	10d	10d
	560	BPH7114	3,185	16d	10d	HD7140	2,800	16d	10d
16"	210	TH020160-2	2,330	16d	10d	THF20160-2	2,320	10d	10d
	230	TH023160-2	2,680	16d	10d	THF23160-2	2,435	10d	10d
	360	TH023160-2	2,770	16d	10d	THF23160-2	2,530	10d	10d
	560	BPH7116	3,185	16d	10d	HD7160	2,920	16d	10d

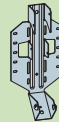
Joist		Variable Slope Seat Connector ⁽⁵⁾			
					
TJI®	Hanger	Capacity (lbs)	Nailing		
			Header	Joist	
110	TMP175	1,150	10d	10d x 1½"	
	TMPH175	1,485	10d	10d x 1½"	
210	TMP21	1,290	10d	10d x 1½"	
	TMPH21	1,565	10d	10d x 1½"	
230	TMP23	1,460	10d	10d x 1½"	
	TMPH23	1,580	10d	10d x 1½"	
360	TMP23	1,505	10d	10d x 1½"	
	TMPH23	1,630	10d	10d x 1½"	
560	TMP4	1,725	10d	10d x 1½"	
	TMPH4	1,855	10d	10d x 1½"	

Support Requirements

- Support material assumed to be iLevel® engineered lumber or sawn lumber (Douglas fir or southern pine species).
- Minimum support width for single- and double-joist top mount hangers is 3" (1½" for ITT hangers).
- Minimum support width for face mount hangers with 10d and 16d nails is 1½" and 1¾", respectively.

Footnotes:

- Face mount hanger capacities may be increased up to 15% for snow roofs or 25% for non-snow roofs. Maximum increase for LSSU, LSSUI, and LSSH hangers is 15%.
- VPA connectors are allowed on slopes of 3:12 through 12:12 only.
- LSSU, LSSUI, and LSSH hangers can be field adjusted for slopes and skews of up to 45 degrees. Additional lateral restraints are required for 16" deep TJI® joists.
- Miter cut is required at end of joist.
- TMP connectors are allowed on slopes of 1:12 through 6:12 only, and TMPH connectors are allowed on slopes of 6:12 through 12:12 only.

Joist		Variable Slope Seat Joist Hanger ⁽¹⁾⁽³⁾			
					
TJI®	Hanger	Capacity (lbs)		Nailing	
		Sloped Only	Sloped and Skewed	Header	Joist
110	LSSH179	1,140	1,140	10d	10d x 1½"
210	LSSH20	1,140	1,140	10d	10d x 1½"
230	LSSH23	1,140	1,140	10d	10d x 1½"
360	LSSH23	1,140	1,140	10d	10d x 1½"
560	LSSH35	1,590	1,590	16d	10d x 1½"

See General Notes on page 22



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CONTACT US

1.888.iLevel8 (1.888.453.8358)

www.iLevel.com

iLevel@weyerhaeuser.com

2910 East Amity Road

Boise, ID 83716

208.364.3600

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February 2009
Reorder TJ-4000

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