



TJI® 110 • TJI® 210 TJI® 230 • TJI® 360 TJI® 560 JOISTS

Featuring Trus Joist® Silent Floor® Joists

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



FLOOR SOLUTIONS

ROOF SOLUTIONS



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About This Guide

iLevel provides products for use in residential, multi-family, and light commercial construction. The products in this guide are readily available through our nationwide network of distributors and dealers. For more information on other applications or iLevel products, contact your iLevel representative.

Why Choose iLevel® Trus Joist® TJI® Joists?

- Engineered for strength and consistency
- Efficient installation saves time and labor
- Longer lengths allow more versatile floor plans
- Less jobsite waste
- Fewer red tags and callbacks



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, TJI® joists are a key part of our Silent Floor® System.

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.

TJI® Joist Available Sizes

Depending on the series you choose, TJI® joists are available in the following sizes:

- Flange Widths:** 1¾", 2¼", 2⅝", and 3½"
Depths: 9½", 11⅞", 14", and 16"

PRODUCT STORAGE

Protect products from sun and water

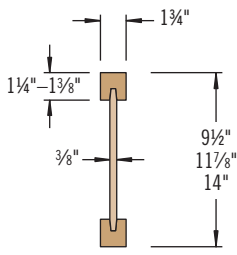


CAUTION: Wrap is slippery when wet or icy

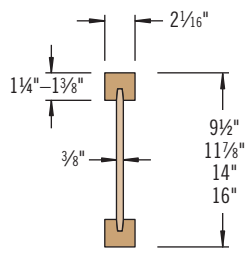
Use support blocks at 10' on-center to keep products out of mud and water

Code Evaluations: See CCMC 13261-R; updated CCMC 13132-R pending

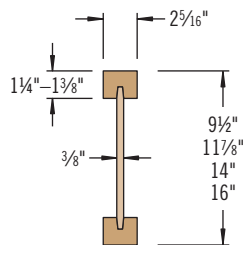
DESIGN PROPERTIES



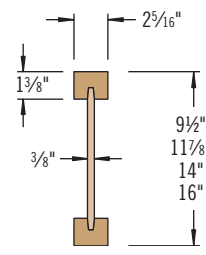
TJI® 110 joists



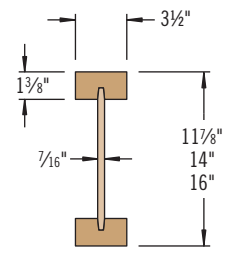
TJI® 210 joists



TJI® 230 joists



TJI® 360 joists



TJI® 560 joists

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

Design Properties

Depth	TJI®	Joist Weight (lbs/ft)	Joist Only EI x 10 ⁶ (in. ² -lbs)	Factored Resistances—Standard Term				
				Maximum Resistive Moment ⁽¹⁾ (ft-lbs)	Maximum Vertical Shear (lbs)	1 3/4" End Reaction (lbs)	3 1/2" Intermediate Reaction (lbs)	
							No Web Stiffeners	With Web Stiffeners
9 1/2"	110	2.3	157	4,160	1,925	1,435	3,055	N.A.
	210	2.6	186	4,990	2,100	1,585	3,385	N.A.
	230	2.7	206	5,540	2,100	1,675	3,800	N.A.
	360	2.7	249	7,965	2,250	1,705	3,885	N.A.
11 7/8"	110	2.5	267	5,255	2,460	1,435	3,055	3,575
	210	2.8	315	6,310	2,610	1,585	3,385	3,905
	230	3.0	347	7,010	2,610	1,675	3,800	4,320
	360	3.0	419	10,280	2,690	1,705	3,885	4,400
14"	110	2.8	392	6,220	2,935	1,435	3,055	3,575
	210	3.1	462	7,470	3,070	1,585	3,385	3,905
	230	3.3	509	8,300	3,070	1,675	3,800	4,320
	360	3.3	612	12,200	3,085	1,705	3,885	4,400
16"	110	4.2	926	18,755	3,770	1,995	4,735	5,425
	210	3.3	629	8,550	3,455	1,585	3,385	3,905
	230	3.5	691	9,495	3,455	1,675	3,800	4,320
	360	3.5	830	13,980	3,455	1,705	3,885	4,400
	560	4.5	1,252	21,495	4,280	1,995	4,735	5,425

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

General Notes

- Factored resistances are based on Limit States Design per CSA 086-01.
- Factored reaction includes all loads on the joist.
- Factored shear is computed at the inside face of supports and includes all loads on the span(s). Factored shear resistance may sometimes be increased at interior supports. For more information contact your iLevel representative.
- The following formulas approximate the simple span uniform load deflection of Δ (inches):

For TJI® 110, 210, 230, and 360 Joists

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

For TJI® 560 Joists

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

- 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 above

TJI® joists are intended for dry-use applications



**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:

- All blocking, hangers, rim boards, and rim joists at the end supports of the TJI® joists must be completely installed and properly nailed.
- 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.
- 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.
- Sheathing must be completely attached to each TJI® joist before additional loads can be placed on the system.
- Ends of cantilevers require safety bracing on both the top and bottom flanges.
- The flanges must remain straight within a tolerance of 1/2" from true alignment.

VIBRATION CONTROLLED FLOOR SPAN TABLES (STANDARD TERM)

40 PSF Live, 10 PSF Dead Load—5/8" OSB Subfloor (Glue-nailed)

Depth	TJI®	Directly Applied Ceiling						No Directly Applied Ceiling					
		Simple or Continuous Span			Continuous Span Only			Simple or Continuous Span			Continuous Span Only		
		12" o.c.	16" o.c.	19.2" o.c.	12" o.c.	16" o.c.	19.2" o.c.	12" o.c.	16" o.c.	19.2" o.c.	12" o.c.	16" o.c.	19.2" o.c.
9 1/2"	110	15'-9"	14'-10"	14'-4"	17'-0"	16'-1"	15'-7"	15'-3"	14'-5"	13'-11"	16'-6"	15'-7"	15'-1"
	210	16'-1"	15'-3"	14'-8"	17'-6"	16'-6"	15'-11"	15'-8"	14'-9"	14'-3"	17'-0"	16'-0"	15'-6"
	230	16'-4"	15'-5"	14'-11"	17'-9"	16'-9"	16'-2"	15'-11"	15'-0"	14'-6"	17'-3"	16'-3"	15'-9"
	360	16'-10"	15'-11"	15'-4"	18'-5"	17'-3"	16'-8"	16'-5"	15'-6"	14'-11"	17'-10"	16'-9"	16'-3"
11 1/8"	110	17'-7"	16'-8"	16'-1"	19'-5"	18'-1"	17'-6"	17'-1"	16'-1"	15'-7"	18'-8"	17'-5"	16'-10"
	210	18'-1"	17'-1"	16'-6"	20'-1"	18'-8"	17'-11"	17'-7"	16'-6"	16'-0"	19'-4"	17'-11"	17'-4"
	230	18'-5"	17'-4"	16'-9"	20'-5"	19'-0"	18'-2"	17'-10"	16'-10"	16'-3"	19'-8"	18'-3"	17'-7"
	360	19'-2"	17'-10"	17'-2"	21'-3"	19'-9"	18'-10"	18'-6"	17'-4"	16'-9"	20'-6"	19'-0"	18'-2"
14"	110	19'-6"	18'-2"	17'-6"	21'-7"	20'-2"	19'-4"	18'-9"	17'-6"	16'-11"	20'-8"	19'-3"	18'-5"
	210	20'-2"	18'-9"	17'-11"	22'-4"	20'-9"	19'-11"	19'-5"	18'-0"	17'-4"	21'-5"	19'-11"	19'-1"
	230	20'-6"	19'-1"	18'-3"	22'-9"	21'-2"	20'-3"	19'-9"	18'-4"	17'-8"	21'-11"	20'-4"	19'-5"
	360	21'-3"	19'-9"	18'-10"	23'-7"	21'-11"	20'-11"	20'-7"	19'-1"	18'-3"	22'-10"	21'-1"	20'-2"
16"	210	21'-11"	20'-5"	19'-6"	24'-4"	22'-8"	21'-8"	21'-1"	19'-7"	18'-9"	23'-4"	21'-8"	20'-9"
	230	22'-4"	20'-9"	19'-10"	24'-9"	23'-0"	22'-1"	21'-6"	19'-11"	19'-1"	23'-10"	22'-1"	21'-2"
	360	23'-2"	21'-6"	20'-7"	25'-8"	23'-10"	22'-10"	22'-5"	20'-9"	19'-10"	24'-10"	23'-0"	21'-11"
	560	25'-5"	23'-6"	22'-5"	28'-2"	26'-1"	24'-10"	24'-8"	22'-9"	21'-9"	27'-5"	25'-3"	24'-1"

40 PSF Live, 10 PSF Dead Load—3/4" OSB Subfloor (Glue-nailed)

Depth	TJI®	Directly Applied Ceiling								No Directly Applied Ceiling							
		Simple or Continuous Span				Continuous Span Only				Simple or Continuous Span				Continuous Span Only			
		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.	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'-6"	15'-7"	14'-10"	13'-8"	17'-11"	16'-11"	16'-4"	15'-0"	16'-1"	15'-2"	14'-7"	13'-8"	17'-5"	16'-5"	15'-10"	15'-0"
	210	16'-11"	16'-0"	15'-5"	14'-5"	18'-6"	17'-4"	16'-9"	15'-11"	16'-6"	15'-7"	15'-0"	14'-5"	17'-10"	16'-10"	16'-3"	15'-7"
	230	17'-2"	16'-3"	15'-8"	14'-11"	18'-10"	17'-7"	17'-0"	16'-3"	16'-9"	15'-10"	15'-3"	14'-7"	18'-3"	17'-2"	16'-6"	15'-10"
	360	17'-8"	16'-8"	16'-1"	15'-5"	19'-7"	18'-2"	17'-5"	16'-9"	17'-4"	16'-4"	15'-8"	15'-1"	19'-0"	17'-8"	17'-0"	16'-4"
11 1/8"	110	18'-8"	17'-6"	16'-10"	16'-2"	20'-8"	19'-3"	18'-5"	16'-11" ⁽¹⁾	18'-0"	16'-11"	16'-4"	15'-8"	19'-11"	18'-6"	17'-8"	16'-11"⁽¹⁾
	210	19'-3"	17'-11"	17'-3"	16'-7"	21'-4"	19'-10"	19'-0"	18'-0"	18'-8"	17'-5"	16'-9"	16'-1"	20'-7"	19'-1"	18'-3"	17'-5"
	230	19'-7"	18'-3"	17'-6"	16'-9"	21'-9"	20'-3"	19'-4"	18'-4"	19'-0"	17'-8"	17'-0"	16'-4"	21'-0"	19'-6"	18'-7"	17'-8"
	360	20'-4"	18'-11"	18'-0"	17'-3"	22'-7"	21'-0"	20'-0"	18'-11"	19'-9"	18'-4"	17'-7"	16'-10"	21'-11"	20'-3"	19'-4"	18'-4"
14"	110	20'-9"	19'-4"	18'-6"	17'-7" ⁽¹⁾	23'-0"	21'-5"	20'-6"	18'-5" ⁽¹⁾	20'-0"	18'-7"	17'-9"	17'-0" ⁽¹⁾	22'-1"	20'-6"	19'-7"	18'-5"⁽¹⁾
	210	21'-5"	19'-11"	19'-0"	18'-0"	23'-8"	22'-1"	21'-1"	20'-0"⁽¹⁾	20'-8"	19'-2"	18'-3"	17'-6"	22'-10"	21'-3"	20'-3"	19'-2"⁽¹⁾
	230	21'-10"	20'-3"	19'-4"	18'-4"	24'-2"	22'-6"	21'-6"	20'-4"	21'-1"	19'-7"	18'-8"	17'-9"	23'-4"	21'-8"	20'-8"	19'-7"
	360	22'-7"	21'-0"	20'-0"	18'-11"	25'-1"	23'-3"	22'-3"	21'-1"	22'-0"	20'-4"	19'-4"	18'-4"	24'-4"	22'-6"	21'-5"	20'-4"
16"	210	23'-4"	21'-8"	20'-9"	19'-8" ⁽¹⁾	25'-10"	24'-1"	23'-0"	21'-5"⁽¹⁾	22'-6"	20'-10"	19'-11"	18'-10" ⁽¹⁾	24'-11"	23'-1"	22'-0"	20'-10"⁽¹⁾
	230	23'-9"	22'-1"	21'-1"	20'-0"	26'-3"	24'-6"	23'-4"	22'-2"⁽¹⁾	23'-0"	21'-3"	20'-3"	19'-3"	25'-5"	23'-7"	22'-5"	21'-3"⁽¹⁾
	360	24'-7"	22'-10"	21'-9"	20'-8"	27'-3"	25'-4"	24'-2"	22'-11"⁽¹⁾	23'-11"	22'-1"	21'-1"	19'-11"	26'-5"	24'-6"	23'-4"	22'-1"⁽¹⁾
	560	26'-11"	24'-11"	23'-9"	22'-5"	29'-10"	27'-8"	26'-4"	24'-11"	26'-4"	24'-3"	23'-1"	21'-9"	29'-2"	26'-11"	25'-7"	24'-2"

(1) Web stiffeners are required at intermediate supports of continuous-span joists when 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®	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
110	Not Required			16'-9"
210	Not Required			18'-6"
230	Not Required			20'-10"
360	Not Required			21'-3"
560	Not Required			

■ **Bold italic** spans indicate floors that would meet National Building Code of Canada (NBCC 2005) vibration criteria but would be considered by 35% of the population to have marginal or unacceptable performance.

To more accurately predict floor performance, use our TJ-Pro™ Ratings

How to Use These Tables

- Determine the applicable live and dead loads, and the subflooring thickness.
- Determine whether the ceiling will be directly applied and what the span condition is (simple or continuous).
- Select on-centre spacing.
- Scan down the column until you meet or exceed the span of your application.
- Select TJI® joist and depth.

See page 5 for General Notes

VIBRATION CONTROLLED FLOOR SPAN TABLES (STANDARD TERM)

40 PSF Live, 30 PSF Dead Load—5/8" OSB Subfloor (Glue-nailed)

Depth	TJI®	Directly Applied Ceiling						No Directly Applied Ceiling					
		Simple or Continuous Span			Continuous Span Only			Simple or Continuous Span			Continuous Span Only		
		12" o.c.	16" o.c.	19.2" o.c.	12" o.c.	16" o.c.	19.2" o.c.	12" o.c.	16" o.c.	19.2" o.c.	12" o.c.	16" o.c.	19.2" o.c.
9 1/2"	110	15'-9"	14'-10"	14'-4"	17'-0"	15'-10"	14'-6"	15'-3"	14'-5"	13'-11"	16'-6"	15'-7"	14'-6"
	210	16'-1"	15'-3"	14'-8"	17'-6"	16'-6"	15'-10"	15'-8"	14'-9"	14'-3"	17'-0"	16'-0"	15'-6"
	230	16'-4"	15'-5"	14'-11"	17'-9"	16'-9"	16'-2"	15'-11"	15'-0"	14'-6"	17'-3"	16'-3"	15'-9"
	360	16'-10"	15'-11"	15'-4"	18'-5"	17'-3"	16'-8"	16'-5"	15'-6"	14'-11"	17'-10"	16'-9"	16'-3"
11 1/8"	110	17'-7"	16'-8"	16'-1 ⁽¹⁾	19'-5"	17'-10"	16'-3 ⁽¹⁾	17'-1"	16'-1"	15'-7 ⁽¹⁾	18'-8"	17'-5"	16'-3⁽¹⁾
	210	18'-1"	17'-1"	16'-6"	20'-1"	18'-8"	17'-10⁽¹⁾	17'-7"	16'-6"	16'-0"	19'-4"	17'-11"	17'-4⁽¹⁾
	230	18'-5"	17'-4"	16'-9"	20'-5"	19'-0"	18'-2"	17'-10"	16'-10"	16'-3"	19'-8"	18'-3"	17'-7"
	360	19'-2"	17'-10"	17'-2"	21'-3"	19'-9"	18'-10"	18'-6"	17'-4"	16'-9"	20'-6"	19'-0"	18'-2"
14"	110	19'-6"	18'-2"	17'-6 ⁽¹⁾	21'-7"	19'-5 ⁽¹⁾	17'-9 ⁽¹⁾	18'-9"	17'-6"	16'-11 ⁽¹⁾	20'-8"	19'-3 ⁽¹⁾	17'-9 ⁽¹⁾
	210	20'-2"	18'-9"	17'-11 ⁽¹⁾	22'-4"	20'-9 ⁽¹⁾	19'-5 ⁽¹⁾	19'-5"	18'-0"	17'-4 ⁽¹⁾	21'-5"	19'-11"	19'-1⁽¹⁾
	230	20'-6"	19'-1"	18'-3"	22'-9"	21'-2"	20'-3⁽¹⁾	19'-9"	18'-4"	17'-8"	21'-11"	20'-4"	19'-5⁽¹⁾
	360	21'-3"	19'-9"	18'-10"	23'-7"	21'-11"	20'-11⁽¹⁾	20'-7"	19'-1"	18'-3"	22'-10"	21'-1"	20'-2⁽¹⁾
16"	210	21'-11"	20'-5"	19'-6 ⁽¹⁾	24'-4"	22'-8 ⁽¹⁾	19'-11 ⁽¹⁾	21'-1"	19'-7"	18'-9 ⁽¹⁾	23'-4"	21'-8⁽¹⁾	19'-11 ⁽¹⁾
	230	22'-4"	20'-9"	19'-10 ⁽¹⁾	24'-9"	23'-0"	21'-11⁽¹⁾	21'-6"	19'-11"	19'-1"	23'-10"	22'-1"	21'-2⁽¹⁾
	360	23'-2"	21'-6"	20'-7 ⁽¹⁾	25'-8"	23'-10 ⁽¹⁾	22'-5 ⁽¹⁾	22'-5"	20'-9"	19'-10 ⁽¹⁾	24'-10"	23'-0"	21'-11⁽¹⁾
	560	25'-5"	23'-6"	22'-5"	28'-2"	26'-1"	24'-10⁽¹⁾	24'-8"	22'-9"	21'-9"	27'-5"	25'-3"	24'-1"

40 PSF Live, 30 PSF Dead Load—3/4" OSB Subfloor (Glue-nailed)

Depth	TJI®	Directly Applied Ceiling								No Directly Applied Ceiling							
		Simple or Continuous Span				Continuous Span Only				Simple or Continuous Span				Continuous Span Only			
		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.	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'-6"	15'-7"	14'-6"	12'-11 ⁽¹⁾	17'-11"	15'-10"	14'-6"	12'-11 ⁽¹⁾	16'-1"	15'-2"	14'-6"	12'-11⁽¹⁾	17'-5"	15'-10"	14'-6"	12'-11 ⁽¹⁾
	210	16'-11"	16'-0"	15'-5"	14'-2 ⁽¹⁾	18'-6"	17'-4"	15'-10"	14'-2 ⁽¹⁾	16'-6"	15'-7"	15'-0"	14'-2⁽¹⁾	17'-10"	16'-10"	15'-10"	14'-2⁽¹⁾
	230	17'-2"	16'-3"	15'-8"	14'-11"	18'-10"	17'-7"	16'-9"	14'-11"	16'-9"	15'-10"	15'-3"	14'-7"	18'-3"	17'-2"	16'-6"	14'-11"
	360	17'-8"	16'-8"	16'-1"	15'-5"	19'-7"	18'-2"	17'-5"	16'-9⁽¹⁾	17'-4"	16'-4"	15'-8"	15'-1"	19'-0"	17'-8"	17'-0"	16'-4⁽¹⁾
11 1/8"	110	18'-8"	17'-6"	16'-3 ⁽¹⁾	14'-6 ⁽¹⁾	20'-7"	17'-10"	16'-3 ⁽¹⁾	14'-6 ⁽¹⁾	18'-0"	16'-11"	16'-3 ⁽¹⁾	14'-6 ⁽¹⁾	19'-11"	17'-10"	16'-3 ⁽¹⁾	14'-6 ⁽¹⁾
	210	19'-3"	17'-11"	17'-3 ⁽¹⁾	15'-10 ⁽¹⁾	21'-4"	19'-7"	17'-10 ⁽¹⁾	15'-10 ⁽¹⁾	18'-8"	17'-5"	16'-9"	15'-10 ⁽¹⁾	20'-7"	19'-1"	17'-10⁽¹⁾	15'-10 ⁽¹⁾
	230	19'-7"	18'-3"	17'-6"	16'-9 ⁽¹⁾	21'-9"	20'-3"	18'-10"	16'-10 ⁽¹⁾	19'-0"	17'-8"	17'-0"	16'-4 ⁽¹⁾	21'-0"	19'-6"	18'-7"	16'-10⁽¹⁾
	360	20'-4"	18'-11"	18'-0"	17'-3 ⁽¹⁾	22'-7"	21'-0"	20'-0 ⁽¹⁾	17'-11 ⁽¹⁾	19'-9"	18'-4"	17'-7"	16'-10 ⁽¹⁾	21'-11"	20'-3"	19'-4"	17'-11⁽¹⁾
14"	110	20'-9"	19'-4 ⁽¹⁾	17'-9 ⁽¹⁾	14'-6 ⁽¹⁾	22'-5"	19'-5 ⁽¹⁾	17'-9 ⁽¹⁾	14'-6 ⁽¹⁾	20'-0"	18'-7"	17'-9 ⁽¹⁾	14'-6 ⁽¹⁾	22'-1"	19'-5 ⁽¹⁾	17'-9 ⁽¹⁾	14'-6 ⁽¹⁾
	210	21'-5"	19'-11"	19'-0 ⁽¹⁾	15'-10 ⁽¹⁾	23'-8"	21'-4 ⁽¹⁾	19'-5 ⁽¹⁾	15'-10 ⁽¹⁾	20'-8"	19'-2"	18'-3 ⁽¹⁾	15'-10 ⁽¹⁾	22'-10"	21'-3⁽¹⁾	19'-5 ⁽¹⁾	15'-10 ⁽¹⁾
	230	21'-10"	20'-3"	19'-4 ⁽¹⁾	17'-0 ⁽¹⁾	24'-2"	22'-5"	20'-6 ⁽¹⁾	17'-7 ⁽¹⁾	21'-1"	19'-7"	18'-8"	17'-0 ⁽¹⁾	23'-4"	21'-8"	20'-6⁽¹⁾	17'-7 ⁽¹⁾
	360	22'-7"	21'-0"	20'-0 ⁽¹⁾	17'-4 ⁽¹⁾	25'-1"	23'-3"	22'-3⁽¹⁾	17'-11 ⁽¹⁾	22'-0"	20'-4"	19'-4"	17'-4 ⁽¹⁾	24'-4"	22'-6"	21'-5⁽¹⁾	17'-11 ⁽¹⁾
16"	210	23'-4"	21'-8 ⁽¹⁾	19'-11 ⁽¹⁾	15'-10 ⁽¹⁾	25'-10"	22'-10 ⁽¹⁾	19'-11 ⁽¹⁾	15'-10 ⁽¹⁾	22'-6"	20'-10 ⁽¹⁾	19'-11 ⁽¹⁾	15'-10 ⁽¹⁾	24'-11"	22'-10⁽¹⁾	19'-11 ⁽¹⁾	15'-10 ⁽¹⁾
	230	23'-9"	22'-1"	21'-1 ⁽¹⁾	17'-0 ⁽¹⁾	26'-3"	24'-0⁽¹⁾	21'-11 ⁽¹⁾	17'-7 ⁽¹⁾	23'-0"	21'-3"	20'-3 ⁽¹⁾	17'-0 ⁽¹⁾	25'-5"	23'-7⁽¹⁾	21'-11⁽¹⁾	17'-7 ⁽¹⁾
	360	24'-7"	22'-10"	21'-9 ⁽¹⁾	17'-4 ⁽¹⁾	27'-3"	25'-4⁽¹⁾	22'-5 ⁽¹⁾	17'-11 ⁽¹⁾	23'-11"	22'-1"	21'-1 ⁽¹⁾	17'-4 ⁽¹⁾	26'-5"	24'-6⁽¹⁾	22'-5⁽¹⁾	17'-11 ⁽¹⁾
	560	26'-11"	24'-11"	23'-9"	20'-4 ⁽¹⁾	29'-10"	27'-8"	26'-4⁽¹⁾	22'-1 ⁽¹⁾	26'-4"	24'-3"	23'-1"	20'-4 ⁽¹⁾	29'-2"	26'-11"	25'-7⁽¹⁾	22'-1 ⁽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®	12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
110		18'-8"	15'-6"	12'-5"
210	Not Required	20'-8"	17'-3"	13'-9"
230		23'-3"	19'-4"	15'-5"
360		23'-9"	19'-9"	15'-10"
560	Not Required		24'-2"	19'-3"

■ **Bold italic** spans indicate floors that would meet NBCC vibration criteria but would be considered by 35% of the population to have marginal or unacceptable performance.

To more accurately predict floor performance, use our TJI-Pro™ Ratings

General Notes

- Tables are based on:
 - Clear distance between supports (1 3/4" minimum end bearing).
 - Limit States Design per CSA O86-01.
 - Uniform loads.
 - Single layer of appropriate span-rated OSB.
 - NBCC 2005 vibration criteria as ratified by Canadian Construction Materials Centre (CMC).
 - For continuous spans, ratio of short span to long span should be 0.4 or greater to prevent uplift.
- Long term deflection under dead load, which includes the effect of creep, has not been considered.
- Spans generated from iLevel® software may exceed the spans shown in these tables because software reflects actual design conditions.
- For multi-family applications and other loading conditions not shown, refer to iLevel® software.

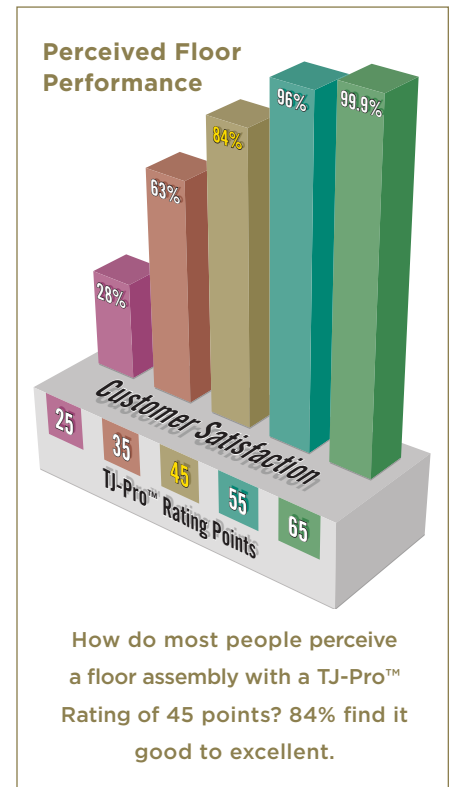
See page 4 for information on how to use these tables

Take the Guesswork Out of Floor Performance with TJ-Pro Ratings

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® Forte™ and Javelin® software
- Provides a method for predicting floor performance
- Takes perceptions of the homeowner into account
- Provides cost comparison



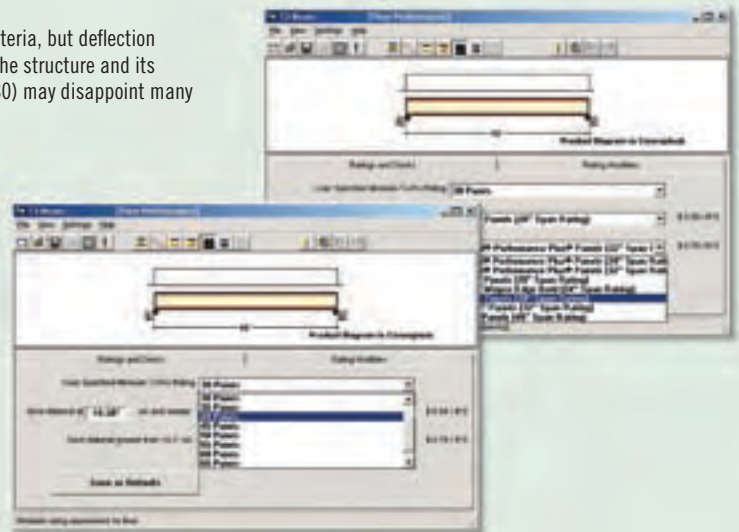
Design Smarter—Don't Over-Specify

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

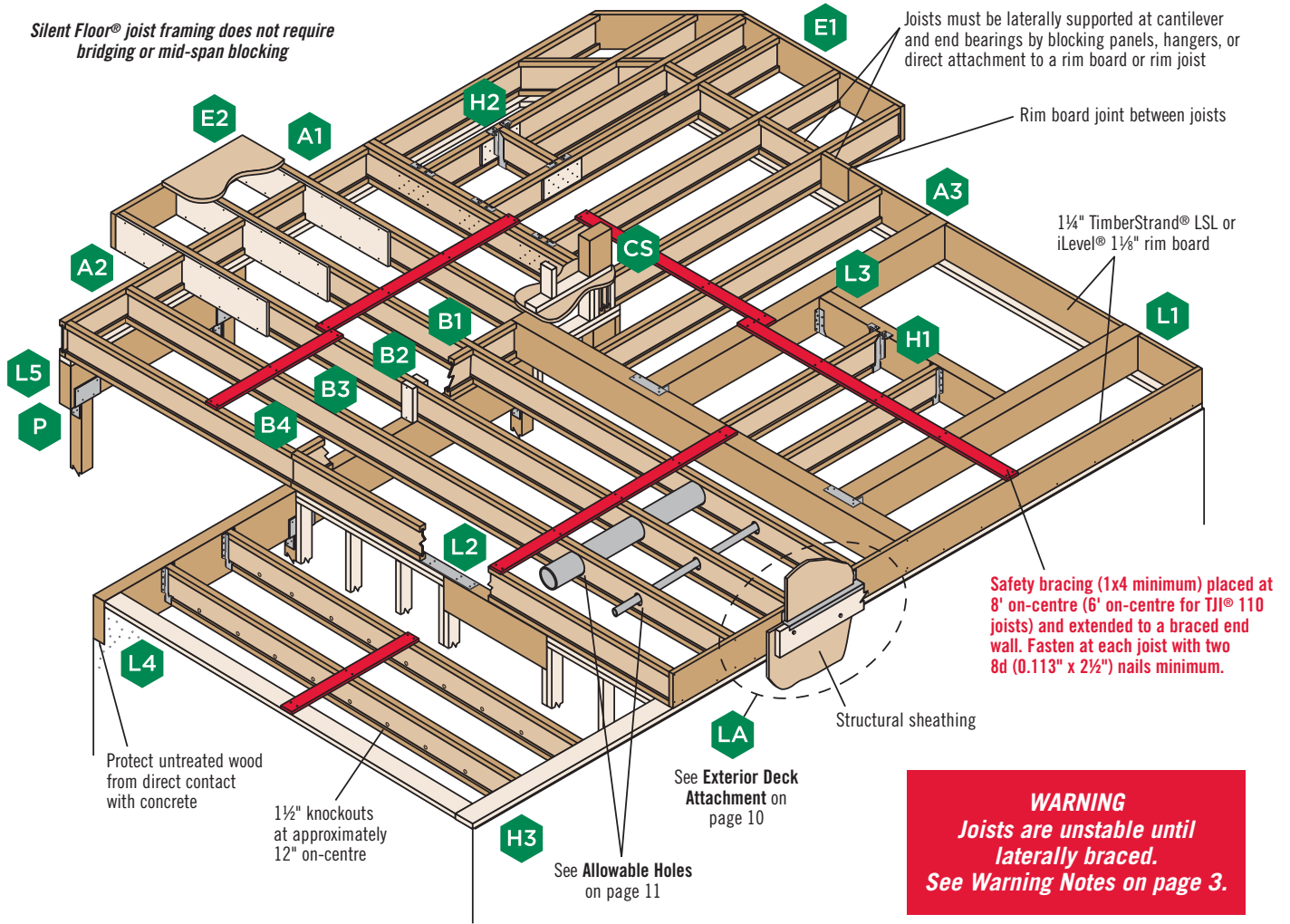


Get the Support You Need—

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.

SILENT FLOOR® JOIST FRAMING

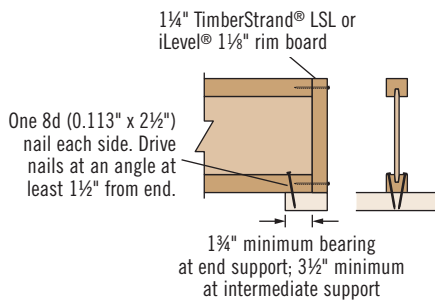
Silent Floor® joist framing does not require bridging or mid-span blocking



WARNING
Joists are unstable until laterally braced.
See Warning Notes on page 3.

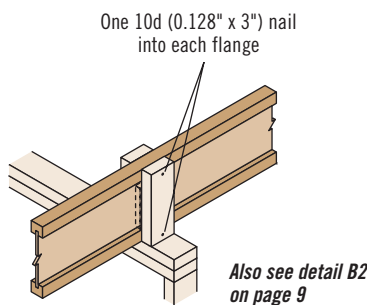
TJI® Joist Nailing Requirements at Bearing

TJI® Joist to Bearing Plate

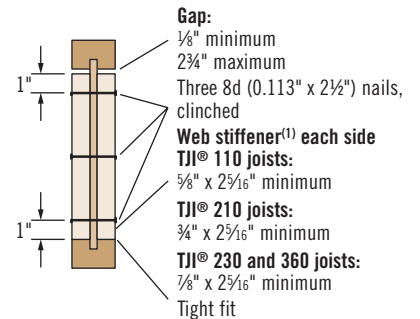


Shear transfer nailing: Use connections equivalent to floor panel nailing schedule

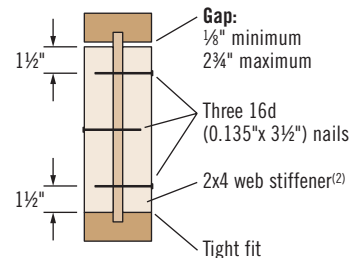
Squash Blocks to TJI® Joist (Load bearing wall above)



Web Stiffener Attachment



TJI® 560 Joists Only

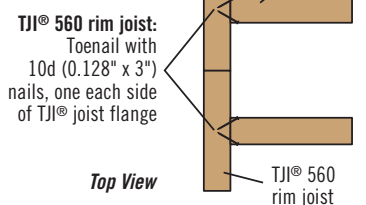
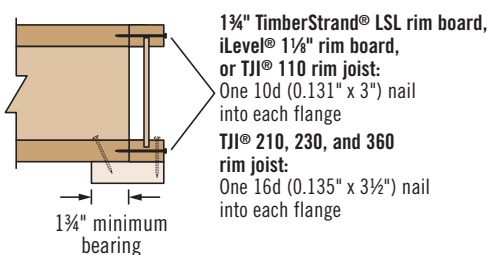


(1) CSA standards 0151, 0325, or 0437 with face grain vertical

(2) Construction grade or better

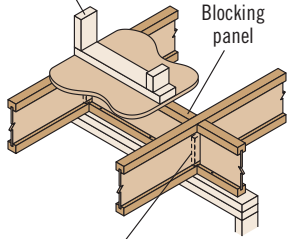


Rim to TJI® Joist



FLOOR DETAILS

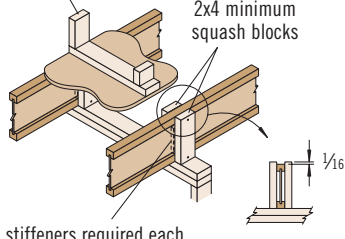
Load bearing or shear wall above
(must stack over wall below)



Web stiffeners required each side at B1W **ONLY**. See footnote (1) under span tables.

B1 B1 W

Load bearing wall above
(must stack over wall below)

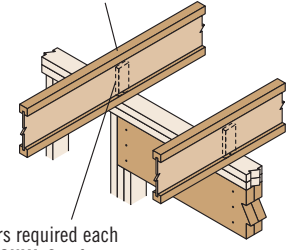


Web stiffeners required each side at B2W **ONLY**. See footnote (1) under span tables.

B2 B2 W

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

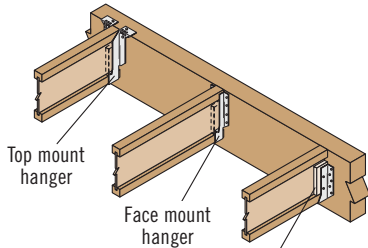
No load bearing wall above



Web stiffeners required each side at B3W **ONLY**. See footnote (1) under span tables.

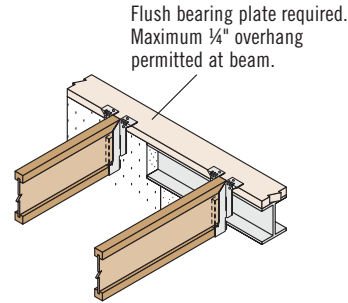
B3 B3 W

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



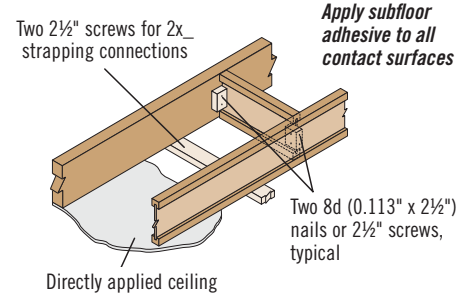
Web stiffeners required if sides of hanger do not laterally support at least $\frac{3}{8}$ " of TJI® joist top flange

H1



Flush bearing plate required. Maximum $\frac{1}{4}$ " overhang permitted at beam.

H3



Two 2½" screws for 2x strapping connections

Apply subfloor adhesive to all contact surfaces

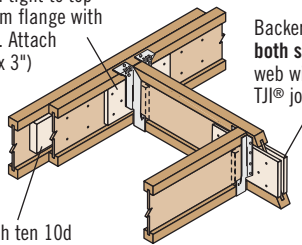
Two 8d (0.113" x 2½") nails or 2½" screws, typical

Directly applied ceiling

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. Use 15 nails in multi-family applications.



Backer block both sides of web with single TJI® joist

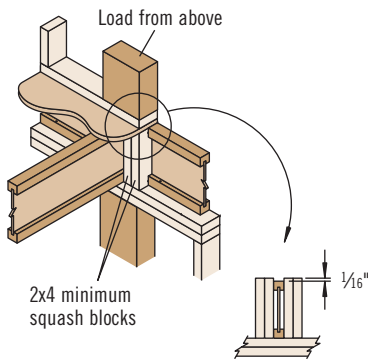
Filler block: Nail with ten 10d (0.128" x 3") nails, clinched. Use ten 16d (0.135" x 3½") nails from each side with TJI® 560 joists. Use 15 nails in multi-family applications.

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 ⁽¹⁾ (Detail H2)	2x6	2x8	2x6 + ⅜" sheathing	2x8 + ⅜" sheathing	2x6 + ½" sheathing	2x8 + ½" sheathing	Two 2x6	Two 2x8
Cantilever Filler (Detail E4)	2x6 4'-0" long	2x10 6'-0" long	2x6 + ⅜" sheathing 4'-0" long	2x10 + ⅜" sheathing 6'-0" long	2x6 + ½" sheathing 4'-0" long	2x10 + ½" sheathing 6'-0" long	Not applicable	
Backer Block ⁽¹⁾ (Detail F1 or H2)	⅝" or ¾"		¾" or ⅞"		⅞" or 1" net		2x6	2x8

(1) If necessary, increase filler and backer block height for face mount hangers and maintain $\frac{1}{8}$ " 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.

H2 **With top mount hangers, backer block required only for downward loads exceeding 395 lbs or for uplift conditions**



2x4 minimum squash blocks

CS

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

Fastener Spacing for TJI® Joists

TJI®	Closest On-Centre Spacing per Row ⁽¹⁾		
	8d (0.113" x 2½"), 8d (0.131" x 2½"), 10d (0.128" x 3"), 12d (0.128" x 3¼")	10d (0.148" x 3"), 12d (0.148" x 3¼"), 16d (0.135" x 3½")	16d (0.162" x 3½")
110 and 210	4"	4" ⁽²⁾	6"
230	4"	4" ⁽²⁾	6"
360 and 560	3"	4" ⁽²⁾	6"

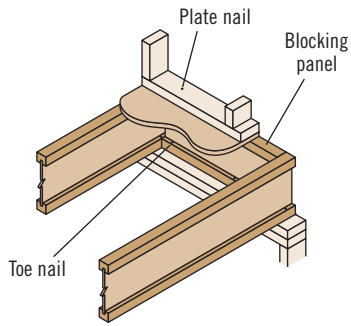
(1) One row of fasteners permitted (two at abutting panel edges) for diaphragms. Stagger nails when using 4" on-centre spacing and maintain $\frac{3}{8}$ " joist and panel edge distance. For other applications, multiple rows of fasteners are permitted if the rows are offset at least $\frac{1}{2}$ " and staggered.

(2) Can be reduced to 3" on-centre for light gauge steel straps with 10d (0.148" x 1½") nails.

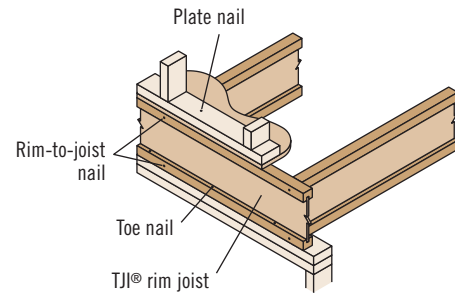
- Maximum spacing of nails is 18" on-centre.
- 14 gauge staples may be substituted for 8d (0.113" x 2½") nails if minimum penetration of 1" is achieved.
- Table also applies to the attachment of TJI® rim joists and blocking panels to the wall plate.

Also see nailing requirements on page 8

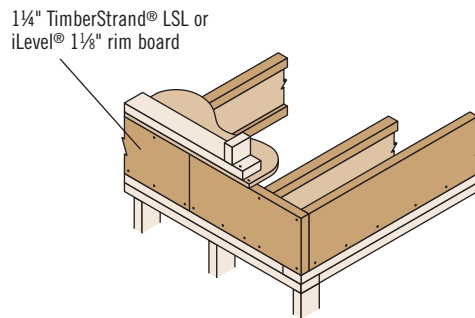
RIM BOARD SELECTION AND INSTALLATION



A1 Attach blocking per fastening table in Detail A3



A2 Must have 1 1/4" minimum joist bearing at ends. Attach rim joist per fastening table in Detail A3.

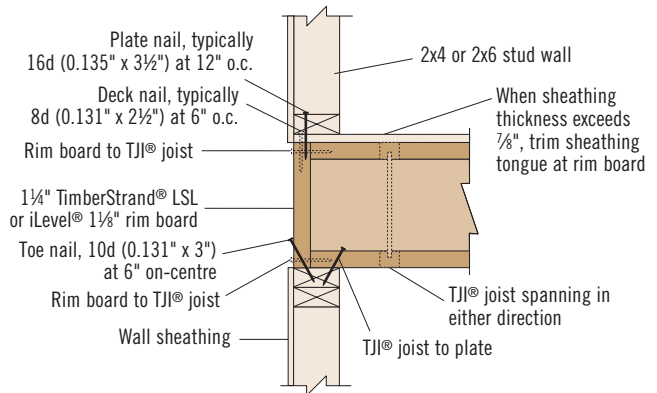


Fastening of Floor Panels to 1/4" TimberStrand® LSL or iLevel® 1 1/8" Rim Board

Nail Size	Closest On-Centre Spacing per Row	
	Rim Board Thickness	
	1 1/4"	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-centre if nail penetration into the narrow edge is no more than 1 3/8" (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.



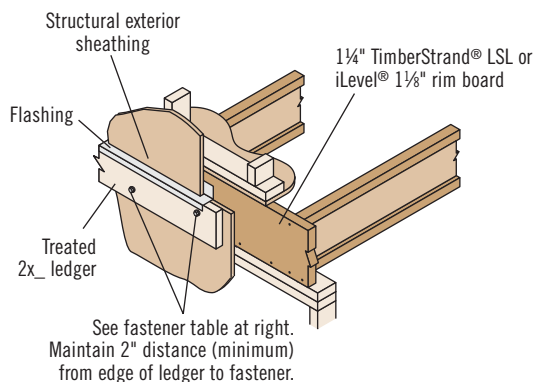
Vertical Load Transfer at Bearing

Factored Vertical Load Resistances (PLF)	
TJI® rim joist or blocking	3,060
1/4" TimberStrand® LSL rim board or blocking	6,730
iLevel® 1 1/8" rim board or blocking	6,560

- Loads may not be increased for duration of load.

A3

Exterior Deck Attachment



Fastener	Factored Resistance Load ⁽¹⁾ (lbs)	
	1/4" TimberStrand® LSL Rim Board	iLevel® 1 1/8" Rim Board
3/8" lag bolt	630	N.A.
1/2" lag bolt	750	575 ⁽²⁾

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

(2) Factored resistance is with a 3/8" gap between the rim board and deck ledger.

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

LA

Also see nailing requirements on page 8

ALLOWABLE HOLES

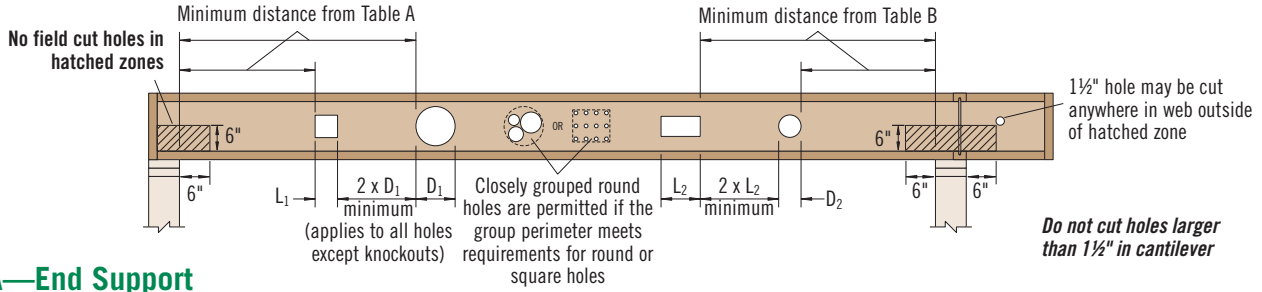


Table A—End Support

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"	6½"	7"	8½"	11"	13"	2"	3"	4"	5"	6½"	7"	8½"	11"	13"
9½"	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"					
	360	1'-6"	2'-0"	3'-0"	4'-0"	6'-0"				1'-6"	2'-6"	3'-6"	5'-0"	5'-6"					
11⅞"	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"	6½"	7"	8½"	11"	13"	2"	3"	4"	5"	6½"	7"	8½"	11"	13"
9½"	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"					
	360	3'-0"	4'-0"	5'-6"	6'-6"	9'-0"				3'-0"	4'-6"	5'-6"	7'-6"	8'-0"					
11⅞"	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'-0"	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 ½" of web (minimum) at top and bottom of hole.
- Knockouts are located in web at approximately 12" on-centre; 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 centre 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 Forte™ software or contact your iLevel representative.

DO NOT
cut or notch flange.



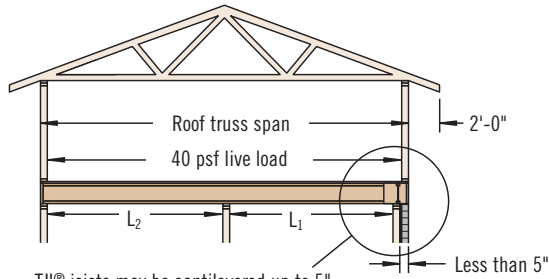
DO NOT
cut holes in cantilever reinforcement.



CANTILEVERS

Cantilevers Less than 5" (Brick Ledge)

See Section A of cantilever table on page 13

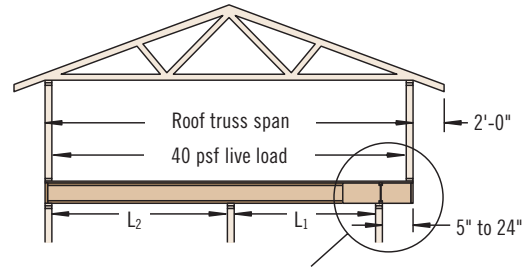


TJI® joists may be cantilevered up to 5" when supporting roof load, assuming:

- 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

At PB1, cantilever back span must be permanently braced with either direct-applied ceiling along entire length or permanent bracing at $\frac{1}{3}$ points. See detail PB1 on page 9 for connections.

12" length of $\frac{3}{4}$ " reinforcement on one side at E5/E7, both sides at E6/E8. Attach to joist with one 8d (0.131" x 2½") nail at each corner.

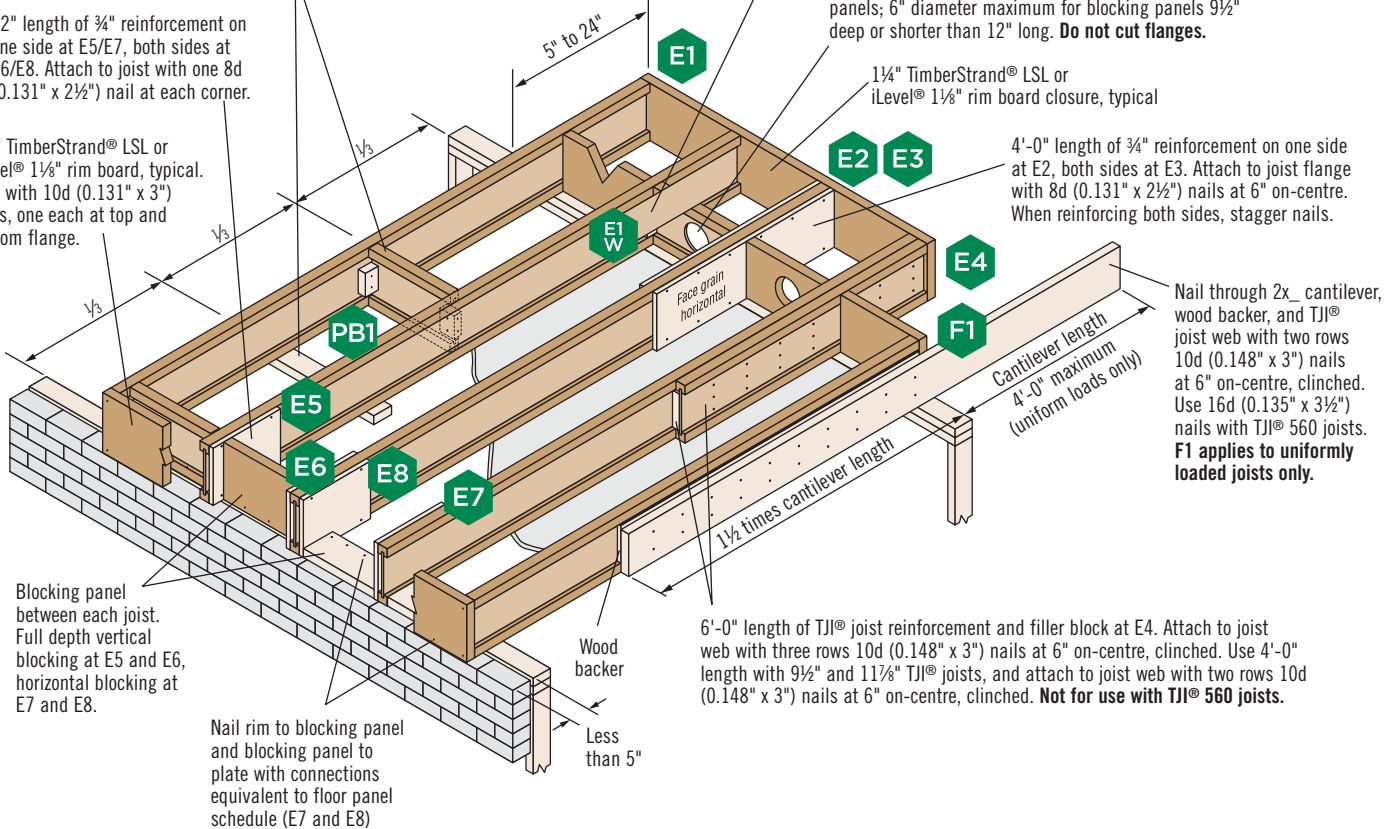
1¼" TimberStrand® LSL or iLevel® 1½" rim board, typical. Nail with 10d (0.131" x 3") nails, one each at top and bottom flange.

Web stiffeners required both sides at E1W

8" diameter maximum hole for 11½"–16" deep blocking panels; 6" diameter maximum for blocking panels 9½" deep or shorter than 12" long. **Do not cut flanges.**

1¼" TimberStrand® LSL or iLevel® 1½" rim board closure, typical

4'-0" length of $\frac{3}{4}$ " reinforcement on one side at E2, both sides at E3. Attach to joist flange with 8d (0.131" x 2½") nails at 6" on-centre. When reinforcing both sides, stagger nails.



Nail through 2x cantilever, wood backer, and TJI® joist web with two rows 10d (0.148" x 3") nails at 6" on-centre, clinched. Use 16d (0.135" x 3½") nails with TJI® 560 joists. **F1 applies to uniformly loaded joists only.**

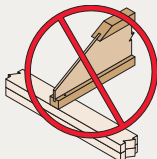
6'-0" length of TJI® joist reinforcement and filler block at E4. Attach to joist web with three rows 10d (0.148" x 3") nails at 6" on-centre, clinched. Use 4'-0" length with 9½" and 11½" TJI® joists, and attach to joist web with two rows 10d (0.148" x 3") nails at 6" on-centre, clinched. **Not for use with TJI® 560 joists.**

Nail rim to blocking panel and blocking panel to plate with connections equivalent to floor panel schedule (E7 and E8)

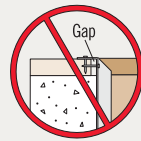
These Conditions Are **NOT** Permitted:



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



DO NOT bevel cut joist beyond inside face of wall.



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

CANTILEVERS

Cantilever Reinforcement

Depth	TJI®	Roof Truss Span	Section A: Cantilevers less than 5" (Brick Ledge)									Section B: Cantilevers 5" to 24"								
			Unfactored Roof Total Load									Unfactored Roof Total Load								
			35 PSF			45 PSF			55 PSF			35 PSF			45 PSF			55 PSF		
			On-Centre Joist Spacing									On-Centre 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"			
9½" 11⅞" 14"	110	18'						E5			E5							X		
		20'						E5			E5	E5						X		
		22'						E5			E5	E5						X		
		24'			E5		E5	E5	E5	E5	E5	E5				X		E2	X	
		26'			E5		E5	E5	E5	E5	E5	E6				X		X	X	
		28'			X		E5	X	E5	E5	X				E2		X	E2	X	
		30'		E5	X	E5	E5	X	E5	E5	X			X	E2	E3	X	X		
9½" 11⅞" 14" 16"	210	20'						E5			E5							E2		
		22'						E5			E5	E5						E2		
		24'						E5			E5	E5					E2	X		
		26'			E5		E5	E5			E5	E5					E2	E2	X	
		28'			E5		E5	E5	E5	E5	E5	E6					E2	E2	X	
		30'			X		E5	X	E5	E5	X					E2	X	E2	E3	X
		32'		X	X		X	X	E5	X	X			X		E2	X	E3	X	
9½" 11⅞" 14" 16"	230	20'						E5			E5							E2		
		22'						E5			E5	E5						E2		
		24'						E5			E5	E5					E2	E2		
		26'			E5		E5	E5			E5	E5					E2	E2	E2	
		28'			E5		E5	E5	E5	E5	E5	E5					E2	E2	X	
		30'			E5		E5	E5	E5	E5	E5	E6					E2	E2	X	
		32'		X		E5	X	E5	E5	X				X		E2	X	E2	E3	X
9½" 11⅞" 14" 16"	360	22'						E5			E5							E2		
		24'						E5			E5	E5						E2		
		26'						E5			E5	E5						E2		
		28'			E5		E5				E5	E5					E2	E2	E2	
		30'			E5		E5	E5	E5	E5	E5	E5					E2	E2	E3	
		32'			E5		E5	E5	E5	E5	E5	E6					E2	E2	X	
		34'			X		E5	X	E5	E5	X			X		X	E3	X		
		36'		X	X	E5	X	X	E5	X	X			X		E2	X	E2	X	X
11⅞" 14" 16"	560	26'									E5									
		28'						E5			E5									
		30'						E5			E5	E5								
		32'						E5			E5	E5								
		34'						E5			E5	E5							E2	
		36'			E5		E5	E5			E5	E5	E6						E2	
		38'			E5		E5	E5	E5	E5	E6							E2		
		40'			E5		E5	E5	E5	E5	E6							E2		

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 **Unfactored Roof Total Load** and **On-Centre Joist Spacing** for your application.
4. Scan down to find the appropriate cantilever detail and refer to drawing on page 12:
 - Blank cells indicate no reinforcement is required.
 - E4 may be used in place of E2 or E3 except when using TJI® 560 joists.
 - X indicates cantilever will not work. Use Forte™ or Javelin® software, or reduce spacing of joists and recheck table.

General Notes

- Table is based on:
 - 15 psf unfactored roof dead load on a horizontal projection.
 - 80 plf unfactored 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-centre, additional joists beneath the opening's trimmers may be required.
 - More restrictive of simple or continuous span.
 - Roof truss with 24" soffits.
 - 40/10 psf floor load.
- ¾" reinforcement refers to ¾" standard sheathing grade of Douglas fir or Canadian softwood plywood or other ¾" exterior grade 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 Forte™ or Javelin® software.

Fire-safe construction and life safety are major concerns for everyone in the building materials and construction industry. Statistics from the Council of Canadian Fire Marshals and Fire Commissioners (http://www.ccfmfc.ca/stats/statsReports_e.html) show that in 2002, a total of 53,589 fires were reported, including 304 fire deaths, 2,547 fire injuries, and a total of nearly \$1.6 billion in property losses. These numbers underscore the seriousness of the issue and the need for fire-safe construction.

Over the past 40 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® Trus Joist® 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.

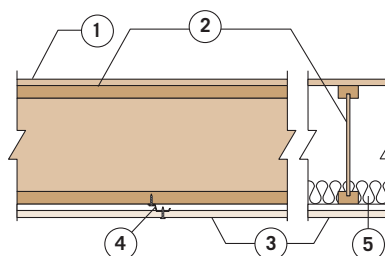
Passive Fire Protection

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

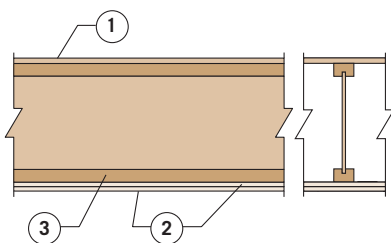
Suggested Minimum Membrane Protection for Unrated Construction



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-centre (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.

Intertek listing TJ/FCA 60-01 or 60-03

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

UNDERSTANDING AND PREVENTING FLOOR NOISE

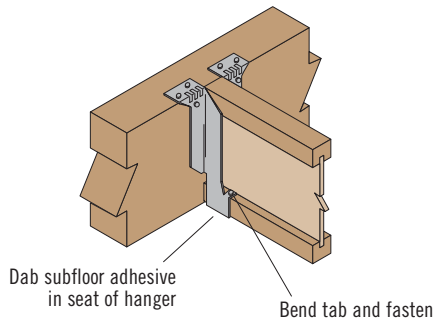


Silent Floor® joists are structurally uniform and dimensionally stable, and they resist shrinking and twisting. This helps prevent gaps from forming around the nails between the joist and the floor panels—gaps that can potentially cause squeaks or other floor noise.

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:

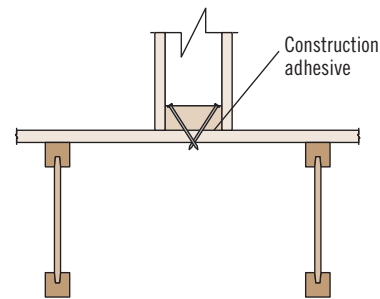
Properly Seat Each Joist in Hanger



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

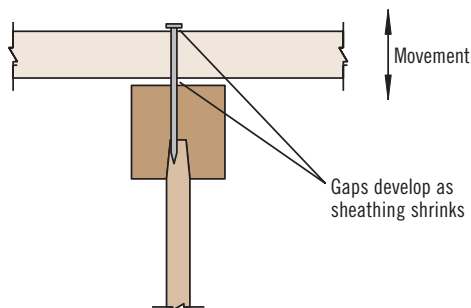
Placing a dab of subfloor adhesive in the seat of the hanger prior to installing the joist can reduce squeaks.

Use Adhesive and Special Nailing When Needed



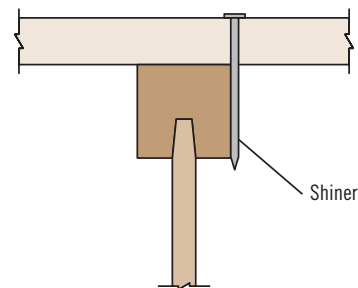
Nail interior partitions to the joists when possible. If the wall can be nailed only to the floor panel, run a bead of adhesive under the wall and either cross nail, nail through and clinch tight, or screw into the wall from below.

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 (STANDARD TERM)

Maximum Horizontal Clear Spans—Roof

O.C. Spacing	Depth	TJI®	Unfactored Snow Load (LL) and Dead Load (DL) in PSF								
			25LL + 15DL		30LL + 15DL		40LL + 15DL		50LL + 15DL		
			Low	High	Low	High	Low	High	Low	High	
16"	9½"	110	18'-0"	16'-8"	16'-11"	15'-8"	15'-3"	14'-2"	14'-1"	13'-1"	
		210	19'-0"	17'-8"	17'-10"	16'-7"	16'-2"	15'-0"	14'-11"	13'-11"	
		230	19'-8"	18'-3"	18'-6"	17'-2"	16'-8"	15'-6"	15'-5"	14'-4"	
		360	20'-11"	19'-5"	19'-8"	18'-3"	17'-9"	16'-6"	16'-5"	15'-3"	
	11⅞"	110	21'-6"	19'-11"	20'-2"	18'-9"	18'-3"	17'-0"	16'-11"	15'-8"	
		210	22'-9"	21'-1"	21'-4"	19'-10"	19'-3"	17'-11"	17'-10"	16'-7"	
		230	23'-5"	21'-9"	22'-0"	20'-5"	19'-11"	18'-6"	18'-5"	17'-2"	
		360	24'-11"	23'-2"	23'-5"	21'-9"	21'-2"	19'-8"	19'-7"	18'-3"	
	14"	560	28'-9"	26'-8"	26'-11"	25'-0"	24'-4"	22'-8"	22'-6"	21'-0"	
		110	24'-6"	22'-9"	23'-0"	21'-4"	20'-10"	19'-4"	19'-3"	17'-11"	
		210	25'-10"	24'-0"	24'-3"	22'-6"	21'-11"	20'-5"	20'-4"	18'-11"	
		230	26'-8"	24'-9"	25'-1"	23'-3"	22'-8"	21'-1"	20'-11"	19'-6"	
	16"	360	28'-4"	26'-4"	26'-7"	24'-9"	24'-1"	22'-5"	22'-3"	20'-9"	
		560	32'-7"	30'-3"	30'-7"	28'-5"	27'-8"	25'-9"	25'-7"	23'-10"	
		210	28'-8"	26'-7"	26'-11"	25'-0"	24'-4"	22'-8"	21'-6"	20'-11"	
		230 ⁽¹⁾	29'-7"	27'-5"	27'-9"	25'-9"	25'-1"	23'-4"	23'-3"	21'-7"	
16"	360	31'-5"	29'-2"	29'-6"	27'-5"	26'-8"	24'-10"	24'-8"	22'-11"		
	560	36'-1"	33'-6"	33'-10"	31'-5"	30'-8"	28'-6"	28'-4"	26'-4"		
	19.2"	9½"	110	16'-11"	15'-8"	15'-10"	14'-9"	14'-4"	13'-4"	13'-3"	12'-4"
			210	17'-10"	16'-7"	16'-9"	15'-7"	15'-2"	14'-1"	14'-0"	13'-0"
230			18'-6"	17'-2"	17'-4"	16'-1"	15'-8"	14'-7"	14'-5"	13'-6"	
360			19'-8"	18'-3"	18'-5"	17'-2"	16'-8"	15'-6"	15'-4"	14'-4"	
11⅞"		110	20'-2"	18'-9"	18'-11"	17'-7"	17'-2"	15'-11"	15'-10"	14'-9"	
		210	21'-4"	19'-10"	20'-0"	18'-7"	18'-1"	16'-10"	16'-9"	15'-7"	
		230	22'-0"	20'-5"	20'-8"	19'-2"	18'-8"	17'-4"	17'-3"	16'-1"	
		360	23'-5"	21'-9"	22'-0"	20'-5"	19'-10"	18'-6"	18'-4"	17'-1"	
14"		560	26'-11"	25'-0"	25'-3"	23'-6"	22'-10"	21'-3"	21'-1"	19'-8"	
		110	22'-11"	21'-4"	21'-7"	20'-0"	19'-3"	18'-2"	16'-2"	16'-9"	
		210	24'-3"	22'-6"	22'-9"	21'-2"	20'-7"	19'-2"	17'-11"	17'-9"	
		230	25'-1"	23'-3"	23'-6"	21'-10"	21'-3"	19'-9"	19'-8"	18'-4"	
16"		360	26'-7"	24'-9"	25'-0"	23'-3"	22'-7"	21'-0"	20'-7"	19'-5"	
		560	30'-7"	28'-5"	28'-8"	26'-8"	25'-11"	24'-2"	24'-0"	22'-4"	
		210	26'-11"	25'-0"	25'-3"	23'-6"	21'-4"	21'-3"	17'-11"	19'-4"	
		230	27'-9"	25'-9"	26'-1"	24'-3"	23'-7"	21'-11"	20'-1"	20'-3"	
16"	360	29'-6"	27'-5"	27'-8"	25'-9"	24'-6"	23'-3"	20'-7"	20'-10"		
	560	33'-10"	31'-5"	31'-9"	29'-6"	28'-9"	26'-9"	25'-1"	24'-5"		
	24"	9½"	110	15'-7"	14'-6"	14'-8"	13'-7"	13'-3"	12'-4"	12'-3"	11'-5"
			210	16'-6"	15'-4"	15'-6"	14'-5"	14'-0"	13'-0"	12'-11"	12'-0"
230			17'-1"	15'-10"	16'-0"	14'-11"	14'-5"	13'-6"	13'-4"	12'-5"	
360			18'-2"	16'-11"	17'-0"	15'-10"	15'-4"	14'-4"	14'-2"	13'-3"	
11⅞"		110	18'-8"	17'-4"	17'-6"	16'-4"	15'-4"	14'-9"	12'-11"	13'-8"	
		210	19'-9"	18'-4"	18'-6"	17'-3"	16'-9"	15'-7"	14'-4"	14'-5"	
		230	20'-4"	18'-11"	19'-1"	17'-9"	17'-3"	16'-1"	15'-11"	14'-10"	
		360	21'-8"	20'-2"	20'-4"	18'-11"	18'-4"	17'-1"	16'-5"	15'-10"	
14"		560	24'-11"	23'-2"	23'-5"	21'-9"	21'-1"	19'-8"	19'-6"	18'-2"	
		110	20'-6"	19'-7"	19'-0"	18'-6"	15'-4"	16'-5"	12'-11"	14'-0"	
		210	22'-5"	20'-10"	21'-1"	19'-7"	17'-1"	17'-9"	14'-4"	15'-6"	
		230	23'-2"	21'-6"	21'-9"	20'-3"	19'-2"	18'-4"	16'-1"	16'-4"	
16"		360	24'-7"	22'-11"	23'-1"	21'-6"	19'-7"	19'-5"	16'-5"	16'-8"	
		560	28'-4"	26'-4"	26'-7"	24'-8"	23'-11"	22'-4"	20'-1"	19'-6"	
		210	23'-11"	23'-0"	21'-1"	21'-9"	17'-1"	18'-2"	14'-4"	15'-6"	
		230	25'-4"	23'-11"	23'-8"	22'-5"	19'-2"	19'-3"	16'-1"	16'-4"	
16"	360	27'-3"	25'-4"	24'-3"	23'-8"	19'-7"	19'-7"	16'-5"	16'-8"		
	560	31'-4"	29'-1"	29'-5"	27'-4"	23'-11"	22'-11"	20'-1"	19'-6"		

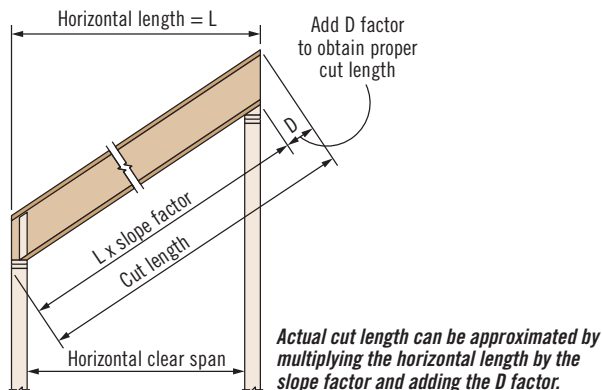
How to Use This Table

- Determine appropriate unfactored snow and dead load.
- 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-centre 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.
- Unfactored total load joist deflection limited to L/180.
- Unfactored live load joist deflection limited to L/360.
- 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.

CUT LENGTH CALCULATION



D Factors (Cut Length Calculations)

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"	4⅛"	4¾"	5¼"	5⅞"	7"	8¼"	9⅜"	10½"	11¾"	12⅞"	14"
16"	3⅜"	4"	4¾"	5⅝"	6"	6¾"	8"	9⅜"	10¾"	12"	13⅜"	14¾"	16"

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

MATERIAL WEIGHTS AND CONVERSION TABLES

Material Weights (Include TJI® weights in dead load calculations—see Design Properties table on page 3 for joist weights)

Floor Panels

Southern Pine

½" plywood	1.7 psf
⅝" plywood	2.0 psf
¾" plywood	2.5 psf
1½" plywood	3.8 psf
½" OSB	1.8 psf
⅝" OSB	2.2 psf
¾" OSB	2.7 psf
⅞" OSB	3.1 psf
1⅞" 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 (⅜" 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 fibre tile	1.0 psf
½" gypsum board	2.2 psf
⅝" gypsum board	2.8 psf
Plaster (1" thick)	8.0 psf

PSF to 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	

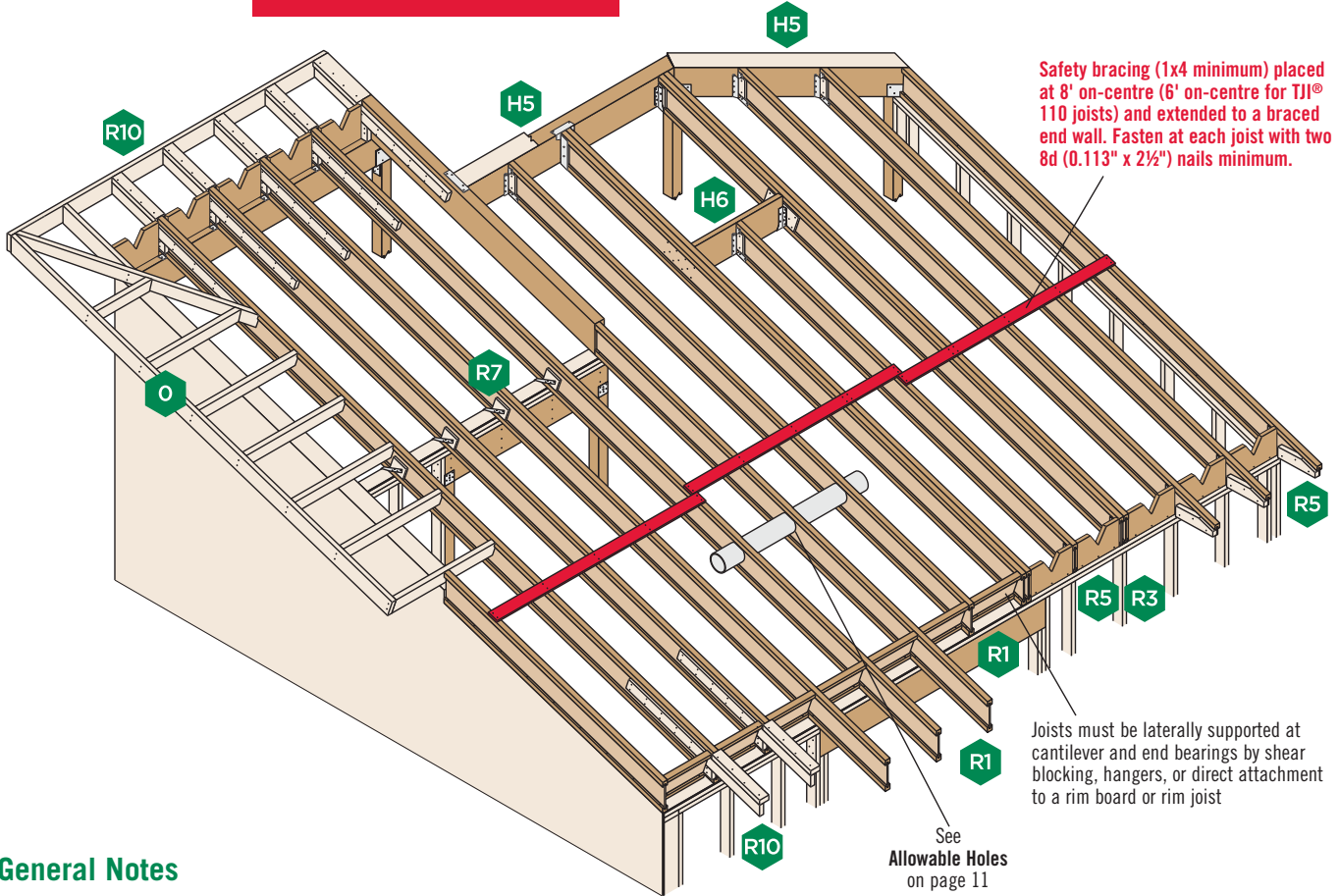
Metric to Imperial

Metric Unit	Imperial Conversion
1 kN	0.2248 kip
1 N	0.2248 lb
1 m	3.281 ft
1 mm	0.0394 in.
1 kg	2.205 lb mass
1 N • m	0.7376 lb • ft
1 N • m	8.851 lb • in.
1 mm ⁴	2.402 x 10 ⁻⁶ in. ⁴
1 Pa	0.0209 lb/ft ²
1 kPa	0.1450 lb/in. ²

Imperial to Metric

Imperial Unit	Metric Conversion
1 kip	4.448 kN
1 lb	4.448 N
1 ft	0.3048 m
1 in.	25.40 mm
1 lb mass	0.4536 kg
1 lb • ft	1.356 N • m
1 lb • in.	0.1130 N • m
1 in. ⁴	0.4162 x 10 ⁶ mm ⁴
1 lb/ft ²	47.88 Pa
1 lb/in. ²	6.895 kPa

WARNING
Joists are unstable until laterally braced.
See Warning Notes on page 3.



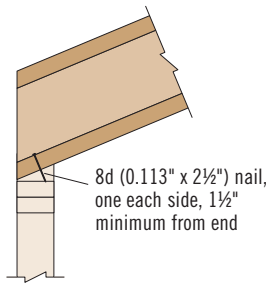
General Notes

- 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 ¾" of the TJI® joist top flange.

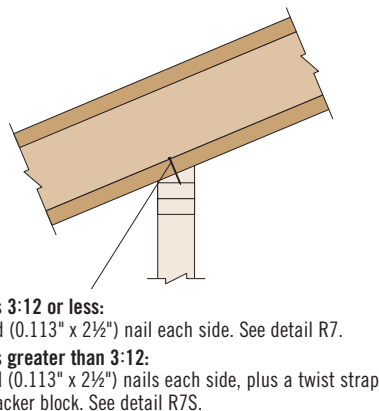
TJI® Joist Nailing Requirements at Bearing

TJI® Joist to Bearing Plate

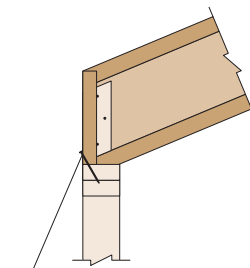
End Bearing
(1¼" minimum bearing required)



Intermediate Bearing
(3½" minimum bearing required)



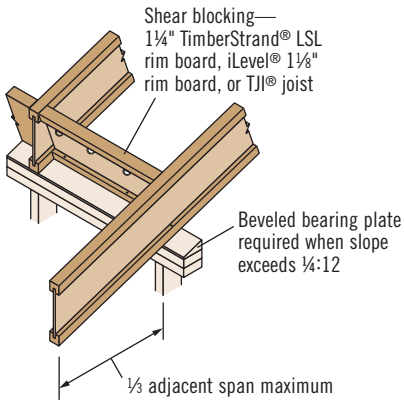
Blocking to Bearing Plate



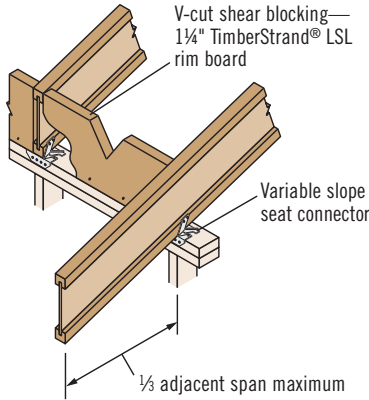
1¼" TimberStrand® LSL or iLevel® 1½" rim board:
Toenail with 10d (0.131" x 3") nails at 6" on-centre or 16d (0.135" x 3½") nails at 12" on-centre
TJI® joist blocking:
10d (0.128" x 3") nails at 6" on-centre
Shear transfer nailing:
Use connections equivalent to sheathing nail schedule

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

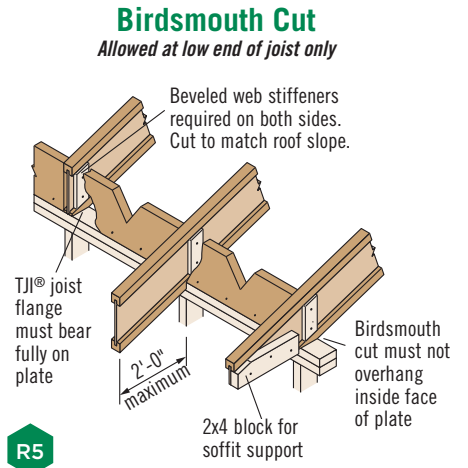
ROOF DETAILS



R1



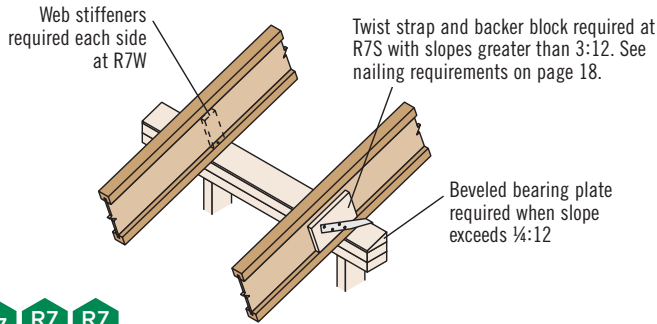
R3



R5

Intermediate Bearing

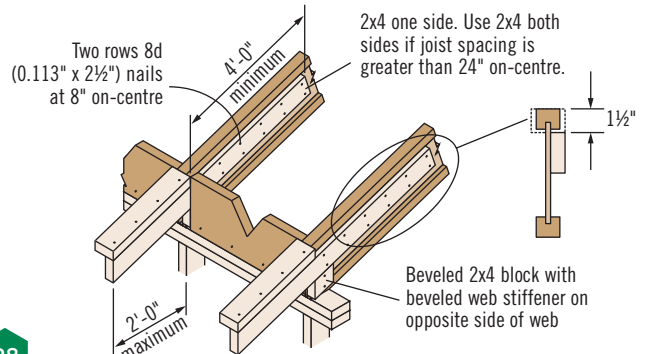
Blocking panels or shear blocking may be specified for joist stability at intermediate supports



R7 R7W R7S

Birdsmouth Cut

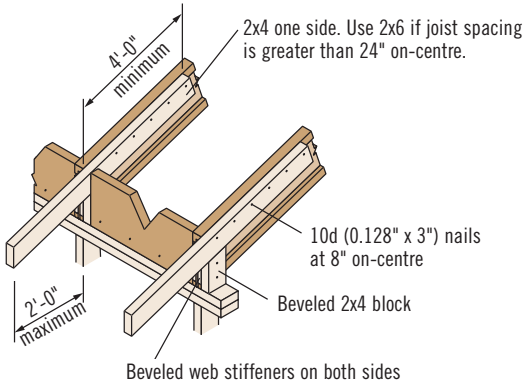
Allowed at low end of joist only



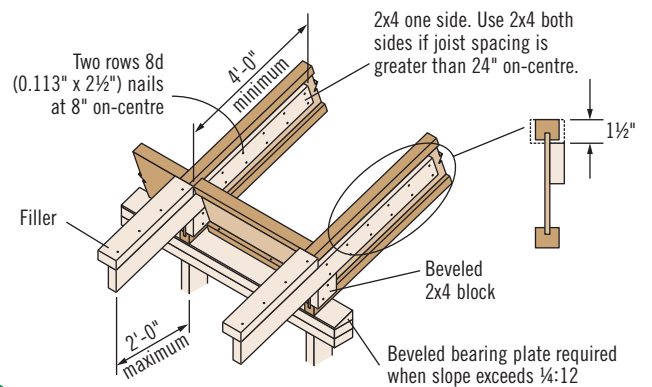
R8

Birdsmouth Cut

Allowed at low end of joist only



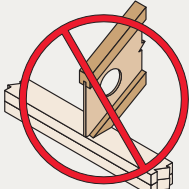
R9



R10

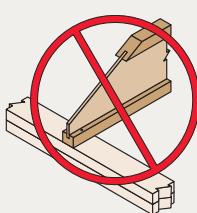
These Conditions Are **NOT** Permitted

DO NOT cut holes too close to support.

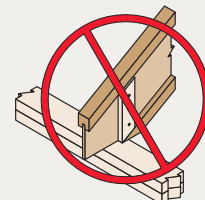


Refer to Allowable Holes on page 11 for minimum distance from support.

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

Additional blocking may be required for shear transfer

Strap nails: Leave 2¾" minimum end distance, typical

Double beveled bearing plate when slope exceeds ¼:12

R14

Double joist may be required when L exceeds joist spacing

Blocking as required

End wall

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

O

Birdsmouth Cut
Allowed at low end of joist only

Beveled web stiffener each side of TJI® joist web

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

BC

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

Additional blocking may be required for shear transfer

Strap nails: Leave 2¾" minimum end distance

Variable slope joist hanger. See pages 22 and 23. Beveled web stiffener required each side.

H5 H5S

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.

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

Strap nails: Leave 2¾" minimum end distance, typical

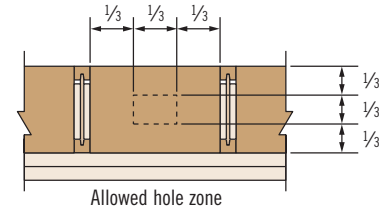
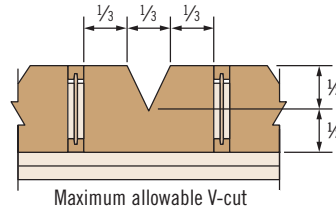
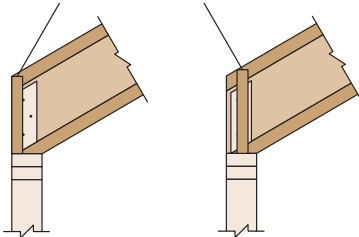
LSTA18 strap required at H6S with slopes greater than 3:12

Variable slope joist hanger. See pages 22 and 23. Beveled web stiffener required each side.

H6 H6S

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 of shear blocking at bearing will require 1¼" TimberStrand® LSL or iLevel® 1¼" rim board that is one size deeper than the TJI® joist.

Filler and Backer Block Sizes

TJI®	110		210		230 or 360		560	
	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 + ¾" sheathing	2x8 + ¾" sheathing	2x6 + ½" sheathing	2x8 + ½" sheathing	Two 2x6	Two 2x8
Backer Block (Detail H6)	⅝" or ¾"		¾" or 7⁄8"		7⁄8" 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.

See General Notes and nailing requirements on page 18

FACTORED RESISTANCE ROOF LOAD TABLES

Roof—Standard Term (PLF) for 8'–16' Spans

Depth	TJI®	Roof Joist Horizontal Clear Span														
		8'			10'			12'			14'			16'		
		Unfactored Deflection Resistance		Factored Strength Resistance	Unfactored Deflection Resistance		Factored Strength Resistance	Unfactored Deflection Resistance		Factored Strength Resistance	Unfactored Deflection Resistance		Factored Strength Resistance	Unfactored Deflection Resistance		Factored Strength Resistance
Live Load L/360	Total Load L/180	Total Load	Live Load L/360	Total Load L/180	Total Load	Live Load L/360	Total Load L/180	Total Load	Live Load L/360	Total Load L/180	Total Load	Live Load L/360	Total Load L/180	Total Load		
9½"	110	*	*	300	*	*	240	114	*	201	74	*	166	51	*	127
	210	*	*	332	*	*	266	132	*	222	87	*	191	60	*	153
	230	*	*	373	*	*	299	145	*	250	95	*	214	66	*	170
	360	*	*	381	*	*	306	170	*	255	112	*	219	78	*	192
11⅝"	110	*	*	300	*	*	240	*	*	201	*	*	172	85	*	151
	210	*	*	332	*	*	266	*	*	222	*	*	191	98	*	167
	230	*	*	373	*	*	299	*	*	250	*	*	214	107	*	188
	360	*	*	381	*	*	306	*	*	255	*	*	219	127	*	192
	560	*	*	465	*	*	373	*	*	311	*	*	267	*	*	234
14"	110	*	*	300	*	*	240	*	*	201	*	*	172	*	*	151
	210	*	*	332	*	*	266	*	*	222	*	*	191	*	*	167
	230	*	*	373	*	*	299	*	*	250	*	*	214	*	*	188
	360	*	*	381	*	*	306	*	*	255	*	*	219	*	*	192
	560	*	*	465	*	*	373	*	*	311	*	*	267	*	*	234
16"	210	*	*	332	*	*	266	*	*	222	*	*	191	*	*	167
	230	*	*	373	*	*	299	*	*	250	*	*	214	*	*	188
	360	*	*	381	*	*	306	*	*	255	*	*	219	*	*	192
	560	*	*	465	*	*	373	*	*	311	*	*	267	*	*	234

Roof—Standard Term (PLF) for 18'–26' Spans

Depth	TJI®	Roof Joist Horizontal Clear Span														
		18'			20'			22'			24'			26'		
		Unfactored Deflection Resistance		Factored Strength Resistance	Unfactored Deflection Resistance		Factored Strength Resistance	Unfactored Deflection Resistance		Factored Strength Resistance	Unfactored Deflection Resistance		Factored Strength Resistance	Unfactored Deflection Resistance		Factored Strength Resistance
Live Load L/360	Total Load L/180	Total Load	Live Load L/360	Total Load L/180	Total Load	Live Load L/360	Total Load L/180	Total Load	Live Load L/360	Total Load L/180	Total Load	Live Load L/360	Total Load L/180	Total Load		
9½"	110	36	*	101	27	54	81									
	210	43	*	121	31	63	98	24	48	81						
	230	47	*	134	35	70	109	26	53	90	20	41	76			
	360	56	112	171	41	83	154	31	63	129	24	49	109	19	39	93
11⅝"	110	61	*	127	45	*	103	34	*	85						
	210	71	*	149	52	*	124	40	*	102	31	*	86			
	230	77	*	167	57	*	138	44	*	114	34	*	96	27	54	82
	360	92	*	171	68	*	154	52	*	140	41	82	128	32	65	118
	560	135	*	208	101	*	188	78	*	171	61	*	156	48	97	144
14"	110	88	*	134	65	*	121	50	*	101	39	*	85			
	210	102	*	149	76	*	134	58	*	121	45	*	102	36	*	87
	230	111	*	167	83	*	150	63	*	135	49	*	113	39	*	97
	360	*	*	171	98	*	154	75	*	140	59	*	128	47	*	118
	560	*	*	208	*	*	188	111	*	171	87	*	156	69	*	144
16"	210	*	*	149	*	*	134	78	*	122	61	*	112	48	*	100
	230	*	*	167	*	*	150	85	*	137	66	*	125	53	*	111
	360	*	*	171	*	*	154	*	*	140	79	*	128	63	*	118
	560	*	*	208	*	*	188	*	*	171	*	*	156	92	*	144

* Indicates value does not control.



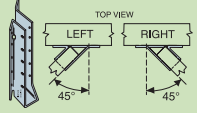
How to Use These Tables

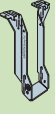
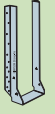
1. Calculate actual factored total load and unfactored snow and total load on the joist in pounds per linear foot (plf).
2. Select appropriate **Roof Joist Horizontal Clear Span**. For slopes greater than 2:12, approximate the increased dead load by multiplying the joist horizontal clear span by the **Slope Factor** on page 17.
3. Scan down the columns to find a TJI® joist that meets or exceeds the actual unfactored snow and total loads, and the factored total load. All three columns must be checked.

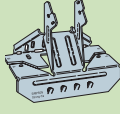
General Notes

- 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.

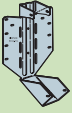
FRAMING CONNECTORS (SIMPSON STRONG-TIE®)

Joist		Single Joist—Top Mount					Single Joist—Face Mount					Face Mount Skewed 45° Joist Hanger				
																
Depth	TJI®	Hanger	Fac. Res. (lbs)	Nailing		Hanger	Fac. Res. (lbs)	Nailing		Hanger	Fac. Res. (lbs)	Nailing				
				Header	Joist			Header	Joist			Header	Joist			
9½"	110	LT179	1,500	10d	#8 x 1¼" wood screw	IUS1.81/9.5	1,500	10d	N.A.	SUR/L1.81/9	1,920	16d	10d x 1½"			
	210	ITT2.1/9.5	1,650	10d	10d x 1½"	IUS2.06/9.5	1,650	10d	N.A.	SUR/L2.1/9	2,085	16d	10d x 1½"			
	230	LT239	1,725	10d	#8 x 1¼" wood screw	IUS2.37/9.5	1,700	10d	N.A.	SUR/L2.37/9	2,135	16d	10d x 1½"			
	360	LT239	1,725	10d	#8 x 1¼" wood screw	IUS2.37/9.5	1,700	10d	N.A.	SUR/L2.37/9	2,210	16d	10d x 1½"			
11⅞"	110	LT171188	1,500	10d	#8 x 1¼" wood screw	IUS1.81/11.88	1,500	10d	N.A.	SUR/L1.81/11	1,920	16d	10d x 1½"			
	210	ITT2.1/11.88	1,650	10d	10d x 1½"	IUS2.06/11.88	1,650	10d	N.A.	SUR/L2.1/11	2,085	16d	10d x 1½"			
	230	LT231188	1,725	10d	#8 x 1¼" wood screw	IUS2.37/11.88	1,730	10d	N.A.	SUR/L2.37/11	2,135	16d	10d x 1½"			
	360	LT231188	1,725	10d	#8 x 1¼" wood screw	IUS2.37/11.88	1,805	10d	N.A.	SUR/L2.37/11	2,210	16d	10d x 1½"			
	560	LT351188	1,725	10d	#8 x 1¼" wood screw	IUS3.56/11.88	1,695	10d	N.A.	SUR/L410	2,360	16d	10d x 1½"			
14"	110	LT1714	1,500	10d	#8 x 1¼" wood screw	IUS1.81/14	1,500	10d	N.A.	SUR/L1.81/14	1,920	16d	10d x 1½"			
	210	ITT2.1/14	1,650	10d	10d x 1½"	IUS2.06/14	1,650	10d	N.A.	SUR/L2.1/14	2,085	16d	10d x 1½"			
	230	LT2314	1,725	10d	#8 x 1¼" wood screw	IUS2.37/14	1,730	10d	N.A.	SUR/L2.37/14	2,135	16d	10d x 1½"			
	360	LT2314	1,725	10d	#8 x 1¼" wood screw	IUS2.37/14	1,805	10d	N.A.	SUR/L2.37/14	2,210	16d	10d x 1½"			
	560	LT3514	1,725	10d	#8 x 1¼" wood screw	IUS3.56/14	1,695	10d	N.A.	SUR/L414	2,305	16d	10d x 1½"			
16"	210	ITT2.1/16	1,650	10d	10d x 1½"	IUS2.06/16	1,650	10d	N.A.	SUR/L2.1/16	2,085	16d	10d x 1½"			
	230	LT2316	1,725	10d	#8 x 1¼" wood screw	IUS2.37/16	1,730	10d	N.A.	SUR/L2.37/16	2,135	16d	10d x 1½"			
	360	LT2316	1,725	10d	#8 x 1¼" wood screw	IUS2.37/16	1,805	10d	N.A.	SUR/L2.37/16	2,210	16d	10d x 1½"			
	560	LT3516	1,725	10d	#8 x 1¼" wood screw	IUS3.56/16	1,695	10d	N.A.	SUR/L414	2,305	16d	10d x 1½"			

Joist		Double Joist—Top Mount					Double Joist—Face Mount				
											
Depth	TJI®	Hanger	Fac. Res. (lbs)	Nailing		Hanger	Fac. Res. (lbs)	Nailing			
				Header	Joist			Header	Joist		
9½"	110	MIT49.5	2,415	16d	10d x 1½"	MIU3.56/9	3,215	16d	10d x 1½"		
	210	MIT4.28/9.5	2,415	16d	10d x 1½"	MIU4.28/9	3,215	16d	10d x 1½"		
	230	MIT359.5-2	2,415	16d	10d x 1½"	MIU4.75/9	3,215	16d	10d x 1½"		
	360	MIT359.5-2	2,415	16d	10d x 1½"	MIU4.75/9	3,215	16d	10d x 1½"		
11⅞"	110	MIT411.88	2,415	16d	10d x 1½"	MIU3.56/11	3,215	16d	10d x 1½"		
	210	MIT4.28/11.88	2,415	16d	10d x 1½"	MIU4.28/11	3,215	16d	10d x 1½"		
	230	MIT3511.88-2	2,415	16d	10d x 1½"	MIU4.75/11	3,215	16d	10d x 1½"		
	360	MIT3511.88-2	2,415	16d	10d x 1½"	MIU4.75/11	3,215	16d	10d x 1½"		
14"	110	MIT414	2,415	16d	10d x 1½"	MIU3.56/14	3,420	16d	10d x 1½"		
	210	MIT4.28/14	2,415	16d	10d x 1½"	MIU4.28/14	3,485	16d	10d x 1½"		
	230	MIT3514-2	2,415	16d	10d x 1½"	MIU4.75/14	3,485	16d	10d x 1½"		
	360	MIT3514-2	2,415	16d	10d x 1½"	MIU4.75/14	3,485	16d	10d x 1½"		
	560	B7.12/14	3,910	16d	16d	HU414-2	3,035	16d	10d x 1½"		
16"	210	LBV4.28/16	3,125	16d	10d x 1½"	MIU4.28/16	3,485	16d	10d x 1½"		
	230	LBV4.75/16	3,125	16d	10d x 1½"	MIU4.75/16	3,485	16d	10d x 1½"		
	360	LBV4.75/16	3,125	16d	10d x 1½"	MIU4.75/16	3,485	16d	10d x 1½"		
	560	B7.12/16	3,910	16d	16d	HU414-2	3,035	16d	10d x 1½"		

Joist		Variable Slope Seat Connector ⁽¹⁾				
						
TJI®	Hanger	Fac. Res. (lbs)	Nailing			
			Header	Joist		
110	VPA25	1,500	10d	10d x 1½"		
210	VPA2.1	1,650	10d	10d x 1½"		
230	VPA35	1,730	10d	10d x 1½"		
360	VPA35	1,785	10d	10d x 1½"		
560	VPA4	1,785	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 ⁽²⁾				
						
TJI®	Hanger	Fac. Res. (lbs)		Nailing		
		Sloped Only	Sloped and Skewed	Header	Joist	
110	LSSU125	2,130	1,495	10d	10d x 1½"	
210	LSSU2.1	2,265	1,495	10d	10d x 1½"	
230	LSSU135	2,305	1,495	10d	10d x 1½"	
360	LSSU135	2,340	1,495	10d	10d x 1½"	
560	LSSU410	2,725	2,160	16d	10d x 1½"	

See additional notes on page 23


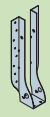
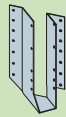
General Notes

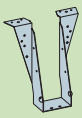
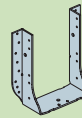
Bold italic hangers require web stiffeners.

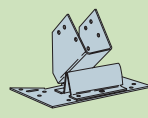
Factored resistances will vary with different nailing criteria or other support conditions; contact your iLevel representative for assistance.

- Hanger factored resistances shown are either joist bearing or hanger factored resistance—whichever is less. Joist end reaction must be checked to ensure it does not exceed the factored resistance shown in the tables.
- All factored resistances are for downward loads, standard term.
- 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 (⅛" 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".

FRAMING CONNECTORS (USP STRUCTURAL CONNECTORS®)

Joist		Single Joist—Top Mount				Single Joist—Face Mount				Face Mount Skewed 45° Joist Hanger ⁽³⁾			
													
Depth	TJI®	Hanger	Fac. Res. (lbs)	Nailing		Hanger	Fac. Res. (lbs)	Nailing		Hanger	Fac. Res. (lbs)	Nailing	
				Header	Joist			Header	Joist			Header	Joist
9½"	110	TH017950	1,500	10d	10d x 1½"	THF17925 Max.	1,500	10d	10d x 1½"	SKH1720L/R	840	10d	10d x 1½"
	210	TFL2095	1,690	10d	10d x 1½"	THF20925 Max.	1,650	10d	10d x 1½"	SKH2020L/R	1,135	10d	10d x 1½"
	230	TFL2395	1,730	10d	10d x 1½"	THF23925	1,920	10d	10d x 1½"	SKH2320L/R	1,135	10d	10d x 1½"
	360	TFL2395	1,771	10d	10d x 1½"	THF23925	1,995	10d	10d x 1½"	SKH2320L/R	1,135	10d	10d x 1½"
11⅞"	110	TH017118	1,500	10d	10d x 1½"	THF17112 Max.	1,500	10d	10d x 1½"	SKH1720L/R	840	10d	10d x 1½"
	210	TFL20118	1,690	10d	10d x 1½"	THF20112 Max.	1,650	10d	10d x 1½"	SKH2020L/R	1,135	10d	10d x 1½"
	230	TFL23118	1,770	10d	10d x 1½"	THF23118	1,920	10d	10d x 1½"	SKH2320L/R	1,135	10d	10d x 1½"
	360	TFL23118	1,770	10d	10d x 1½"	THF23118	1,995	10d	10d x 1½"	SKH2320L/R	1,135	10d	10d x 1½"
	560	TH035118	2,115	10d	10d x 1½"	THF35112	2,305	10d	10d x 1½"	SKH410L/R	1,195	16d	16d
14"	110	TFL1714	1,540	10d	10d x 1½"	THF17140 Max.	1,500	10d	10d x 1½"	SKH1720L/R	840	10d	10d x 1½"
	210	TFL2014	1,690	10d	10d x 1½"	THF20140 Max.	1,650	10d	10d x 1½"	SKH2020L/R	1,135	10d	10d x 1½"
	230	TH023140	1,875	10d	10d x 1½"	THF23140	1,920	10d	10d x 1½"	SKH2324L/R	1,135	10d	10d x 1½"
	360	TH023140	1,945	10d	10d x 1½"	THF23140	1,995	10d	10d x 1½"	SKH2324L/R	1,135	10d	10d x 1½"
	560	TH035140	2,255	10d	10d x 1½"	THF35140	2,305	10d	10d x 1½"	SKH414L/R	2,305	16d	16d
16"	210	TFL2016	1,650	10d	10d x 1½"	THF20157	2,215	10d	10d x 1½"	SKH2024L/R	1,135	10d	10d x 1½"
	230	TFL2316	1,730	10d	10d x 1½"	THF23160	1,920	10d	10d x 1½"	SKH2324L/R	1,135	10d	10d x 1½"
	360	TFL2316	1,771	10d	10d x 1½"	THF23160	1,995	10d	10d x 1½"	SKH2324L/R	1,135	10d	10d x 1½"
	560	TH035160	2,255	10d	10d x 1½"	THF35157	2,305	10d	10d x 1½"	SKH414L/R	2,305	16d	16d

Joist		Double Joist—Top Mount				Double Joist—Face Mount			
									
Depth	TJI®	Hanger	Fac. Res. (lbs)	Nailing		Hanger	Fac. Res. (lbs)	Nailing	
				Header	Joist			Header	Joist
9½"	110	TH035950	2,115	10d	10d x 1½"	THF35925	3,420	10d	10d x 1½"
	210	TH020950-2	3,100	16d	10d	THF20925-2	3,710	10d	10d
	230	TH023950-2	4,230	16d	10d	THF23925-2	3,720	10d	10d
	360	TH023950-2	4,265	16d	10d	THF23925-2	3,720	10d	10d
11⅞"	110	TH035118	2,115	10d	10d x 1½"	THF35112	3,420	10d	10d x 1½"
	210	TH020118-2	3,425	16d	10d	THF20112-2	3,710	10d	10d
	230	TH023118-2	4,230	16d	10d	THF23118-2	3,840	10d	10d
	360	TH023118-2	4,265	16d	10d	THF23118-2	3,990	10d	10d
	560	BPH71118	4,280	16d	10d	HD7120	4,610	16d	10d
14"	110	TH035140	3,160	10d	10d x 1½"	THF35140	3,420	10d	10d x 1½"
	210	TH020140-2	4,120	16d	10d	THF20140-2	3,710	10d	10d
	230	TH023140-2	4,230	16d	10d	THF23140-2	3,840	10d	10d
	360	TH023140-2	4,370	16d	10d	THF23140-2	3,990	10d	10d
	560	BPH7114	4,280	16d	10d	HD7140	4,610	16d	10d
16"	210	TH020160-2	4,120	16d	10d	THF20140-2	3,710	10d	10d
	230	TH023160-2	4,230	16d	10d	THF23160-2	3,840	10d	10d
	360	TH023160-2	4,370	16d	10d	THF23160-2	3,990	10d	10d
	560	BPH7116	4,280	16d	10d	HD7160	4,610	16d	10d

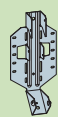
Joist		Variable Slope Seat Connector ⁽⁴⁾			
					
TJI®	Hanger	Fac. Res. (lbs)	Nailing		
			Header	Joist	
110	TMP175	1,669	10d	10d x 1½"	
	TMPH175	3,185	10d	10d x 1½"	
210	TMP21	1,873	10d	10d x 1½"	
	TMPH21	3,185	10d	10d x 1½"	
230	TMP23	2,860	10d	10d x 1½"	
	TMPH23	3,185	10d	10d x 1½"	
360	TMP23	2,860	10d	10d x 1½"	
	TMPH23	3,185	10d	10d x 1½"	
560	TMP4	2,860	10d	10d x 1½"	
	TMPH4	3,185	10d	10d x 1½"	

Support Requirements

- Support material assumed to be iLevel® engineered lumber or sawn lumber (Douglas fir, southern pine, or spruce-pine-fir 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 1¾" and 2", respectively.

Footnotes:

- 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 ⁽²⁾			
					
TJI®	Hanger	Fac. Res. (lbs)		Nailing	
		Sloped Only	Sloped and Skewed	Header	Joist
110	LSSH179	1,920	1,920	10d	10d x 1½"
210	LSSH20	1,860	1,860	10d	10d x 1½"
230	LSSH23	1,860	1,860	10d	10d x 1½"
360	LSSH23	1,860	1,860	10d	10d x 1½"
560	LSSH35	2,515	2,235	16d	10d x 1½"

See General Notes on page 22



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