

**PACIFIC**<sup>™</sup>  
WOODTECH

WESTERN REGIONAL  
**GUIDE**

California

Technical Data for Joists,  
Headers, Beams, Rim Board,  
Columns, and Dimension

**ENGINEERED WOOD PRODUCTS**

# Table of Contents

## I-Joists and LVL

Safety and Construction Precautions . . . . .	3
Storage and Handling Guidelines . . . . .	3
System Performance . . . . .	3
Proposed Conversion Chart . . . . .	4
Pacific Woodtech Warranty . . . . .	4

## PWI Joist

Joist Dimensions . . . . .	5
Reference Design Values . . . . .	6
Floor Spans . . . . .	7
Floor Loads, Simple-Span . . . . .	8-10
Web Stiffener Requirements . . . . .	11
Web Hole Specifications . . . . .	11-12

## PWLVL

2.0E Headers & Beams . . . . .	13
Allowable Uniform Loads . . . . .	14-15
1.5E 1¼” PWLVL Rim Board . . . . .	16
Beam Assembly . . . . .	17
PWLVL Dimension . . . . .	19

## Simpson Strong-Tie®

Framing Connectors . . . . .	19
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# Evaluation Reports

## I-JOIST EVALUATION REPORTS

Building Code / Authority	Evaluation Service / Department	Report No.
International Building Code International Residential Code	APA - The Engineered Wood Association	PR-L262
	ICC-ES	ESR-1225
National Building Code of Canada	CCMC	13470-R
U.S. Dept. of Housing and Urban Development (HUD)	Manufactured Housing and Standards Division	MR 1341
City of Los Angeles	Department of Building and Safety (LADBS)	RR 25450

## GREEN VERIFICATION REPORT

Subject	Certification Body	Report No.
Green Verification	APA - The Engineered Wood Association	GR-L262
Low Formaldehyde Emissions	APA - The Engineered Wood Association	PR-E730

## LVL EVALUATION REPORTS

Building Code / Authority	Evaluation Service / Department	Report No.
International Building Code International Residential Code	APA - The Engineered Wood Association	PR-L233
	ICC-ES / APA	ESR-2909
National Building Code of Canada	CCMC	13006-R
U.S. Dept. of Housing and Urban Development (HUD)	Manufactured Housing and Standards Division	MR 1310b
City of Los Angeles	Department of Building and Safety (LADBS)	RR 25448

## GREEN VERIFICATION REPORT

Subject	Certification Body	Report No.
Green Verification	APA - The Engineered Wood Association	GR-L233
Low Formaldehyde Emissions	APA - The Engineered Wood Association	PR-E720

For information about Pacific Woodtech's Evaluation Reports, please visit [www.pacificwoodtech.com](http://www.pacificwoodtech.com).



# Safety and Construction Precautions

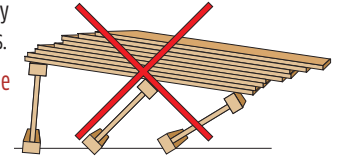
## Installation



- Walking on the joists should not be permitted until they are properly braced.
- All hangers, rim boards, rim joists and blocking at the end supports of the joists must be installed and nailed properly.
- During installation, a minimum of 1 x 4 temporary bracing is required.
- Bracing members should be spaced at 8' - 0" o.c. and nailed to each joist with two 8d nails (10d box nails if bracing thickness exceeds 1").
- Lap bracing ends and anchor them to temporary or permanent sheathing nailed to the first 4' of joists at the end of the bay or a braced end wall.

- Do not cut, drill or notch flanges.
- The ends of cantilevers must be temporarily braced on both the top and bottom flanges.
- Never overload sheathed joists with loads that exceed design loads.
- Only remove the bracing as the sheathing is attached.
- Engineered wood products should be used in dry conditions only.
- When stacking construction material, stack only over beams or walls, NOT on unsheathed joists.

These are general recommendations and, in some cases, additional precautions may be required.



## Storage and Handling Guidelines

### Storage

- Installation guidelines from Pacific Woodtech will be included with every shipment of trademarked PWI joists to job sites.
- Store bundles upright on a smooth, level, well-drained and supportive surface.
- Always stack and handle I-joists in the upright position only.
- Bundles should not be in contact with the ground.
- Place 2x or LVL spacers (at a maximum of 10' apart) between bundles and the ground and bundles stored on top of one another.
- Bundles should remain wrapped, strapped and protected from the weather until time of installation.

### LVL Sealer

Pacific Woodtech's LVL has a wax-based sealer specifically formulated for laminated veneer lumber to help protect it from weather-related issues during

storage and construction. LVL is very dry when it is produced. It will absorb moisture and grow in size slightly as it acclimates to the climate. The sealer helps to reduce the rate of moisture absorption and increases protection from UV rays. However, it is not meant for protection from long-term or high concentrations of moisture exposure.

### Handling *Never use or field repair a damaged I-joist.*

- All handling of joists with a forklift or crane should be done carefully.
- Joists should remain vertical during handling.
- Avoid excessive bowing during all phases of handling and installation (i.e., measuring, sawing or placement).
- Damage may result if the joist or beam is twisted or a load is applied to it while it's lying flat.

## System Performance

Traditionally, floor vibration has not been an issue with a well-designed and constructed floor. The model code-required serviceability deflection requirements of span/360 for live load and span/240 for total load have long served to keep code-conforming floors stiff enough to minimize vibration-related problems. These deflection requirements were based on the use of traditional lumber framing and prevailing architectural norms. Spans in traditional lumber-framed structures seldom exceeded 14-16 feet.

With engineered wood products, however, designers are no longer limited by the capacities and lengths of traditional lumber structural elements. Spans unheard of just a few years ago are now common with engineered wood products. The traditional deflection limits may no longer be appropriate for the longer spans made possible by engineered wood products. For this reason, APA has voluntarily adopted a live load deflection criteria that is 33% stiffer than that required in the current model building codes. This deflection criteria was selected for increase because vibration loads are caused by transient or live loads, most often by people moving about the floor itself.

By increasing the stiffness of the floor—using span/480 requirements instead of the more traditional span/360—the vibrations caused by a thundering herd of youngsters can be more easily tolerated. Designing the ideal floor is not, however, an exact science. Because one of the benefits of a wood floor is its ability to cushion footfalls, it is not desirable to make every floor overly stiff.

As usual, a one-size solution does not fit all. The selection of span/480 as a serviceability requirement is a compromise. It provides a substantial decrease in floor vibration with a minimal cost penalty without making the floor so stiff that comfort is compromised.

Researchers have proposed a number of additional methods that can be used to reduce floor vibration even further. These methods include:

- Gluing the wood structural panel floor to the PWI joists
- Attaching wood structural panels or gypsum board to the bottom of the PWI floor joists
- Decreasing the PWI floor joist spacing by one increment based on allowable span
- Using full-depth blocking at regular intervals between all of the PWI floor joists over the entire floor
- Adding concrete topping over the floor sheathing

By far the most practical and most economical way to further increase the stiffness of your floor when using PWI joists is to select the most economical joist from our allowable span tables and then maintain the same joist designation but upgrade to the next net depth.



## Proposed Conversion Chart

### PACIFIC WOODTECH CORPORATION ENGINEERED WOOD CONVERSION CHART\*

I-JOIST	Pacific Woodtech†	Trus Joist	Boise	Roseburg	Red Built	LP	LPss
Up to 24"	PWI / 20	TJI / 110	BCI / 5000	RFPI / 20	DNA	LPI / 450	LPI / 20
	PWI / 45	TJI / 210	BCI / 6000	RFPI / 400	DNA	LPI / 530	LPI / 20
	PWI / 60	TJI / 230	BCI / 6500	RFPI / 40	Red-I 45	LPI / 530	LPI / 32
	PWI / 70	TJI / 360	BCI / 60	RFPI / 70	DNA	LPI / 36	
	PWI / 77	DNA	DNA	RFPI / 700	Red-I 65	DNA	LPI / 42
	PWI / 90	TJI / 560	BCI / 90	RFPI / 90	Red-I 90	LPI / 56	

### STRUCTURAL COMPOSITE LUMBER (LVL AND PARALLAM [PSL])

BEAM / HEADER	Pacific Woodtech†	Trus Joist	Boise	Roseburg	Red Built	LP
1¾"	LVL (1.5E)	LSL (1.55E)	LVL (1.7E)	LVL (1.5E)	LVL (1.5E)	LSL (1.55E)
	LVL (2.0E)	LVL (2.0E)	LVL (2.0E)	LVL (2.0E)	LVL (2.0E)	LVL (2.0E)
3½"	LVL (2.0E)	LSL (1.55E)	LVL (1.7E)	LVL (1.5E)	LVL (1.5E)	LSL (1.55E)
	LVL (2.0E)	PSL (2.0E)	LVL (2.0E)	LVL (2.0E)	LVL (2.0E)	LVL (2.0E)
3½" - 7"	LVL (2.0E / 2.2E**)	PSL (2.0E / 2.2E)	LVL (2.0E)	LVL (2.0E)	DNA	LVL (2.0E)

RIM BOARD	Pacific Woodtech†	Trus Joist	Boise	Roseburg	Red Built	LP
1¼" - 1¾"	LVL Rim Board	LSL Rim Board	LVL Rim Board	LVL Rim Board	LVL Rim Board	LSL Rim Board

DIMENSION	Pacific Woodtech†	Trus Joist	Boise	Roseburg	Red Built	LP
Various Sizes	LVL	LSL	LVL	LVL	LVL	LSL

COLUMNS	Pacific Woodtech†	Trus Joist	Boise	Roseburg	Red Built	LP
Various Sizes	LVL	PSL	LVL	LVL	LVL	LVL

\* Please note: This conversion chart is intended to provide a reference to similar strength / performance characteristics by respective manufacturers per current (04/2017) regional specifier guides.

\*\* 2.2E, a limited stock item, is available upon request.

† Code reports for Pacific Woodtech Corporation: I-joist (ESR-1225, City of LA 25450); LVL (ESR-2909, City of LA 25448)

Substitutions are subject to a review committee, which may include the project structural engineer.

Please contact your representative for assistance with all conversions of the Red-I 65. Some cases may require upgrade to PWI-90.

Questions? Please contact JD Dombeck at 425.890.3996



## Product Warranty

Pacific Woodtech Corporation warrants that its products, as manufactured, will be free from manufacturing errors or defects in workmanship and material.

In addition, provided the product, as manufactured, is stored, handled, installed and used correctly, Pacific Woodtech Corporation warrants the adequacy of its design.

This warranty is backed by the full resources of Pacific Woodtech Corporation and by underwritten product liability insurance.

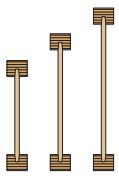
# PWI Joist Series Joist Dimensions

For more information about our complete line of products, visit [www.pacificwoodtech.com](http://www.pacificwoodtech.com).

## JOIST DIMENSIONS

### PWI 20

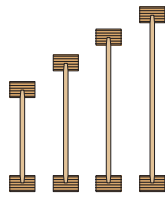
$\frac{3}{8}$ " OSB Web  
1 $\frac{3}{4}$ " x 1 $\frac{3}{8}$ " Flange



9 $\frac{1}{2}$ " 11 $\frac{1}{2}$ " 14"

### PWI 45

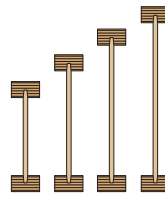
$\frac{3}{8}$ " OSB Web  
2 $\frac{1}{16}$ " x 1 $\frac{3}{8}$ " Flange



9 $\frac{1}{2}$ " 11 $\frac{1}{2}$ " 14" 16"

### PWI 60

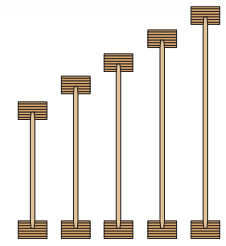
$\frac{3}{8}$ " OSB Web  
2 $\frac{5}{16}$ " x 1 $\frac{3}{8}$ " Flange



9 $\frac{1}{2}$ " 11 $\frac{1}{2}$ " 14" 16"

### PWI 70

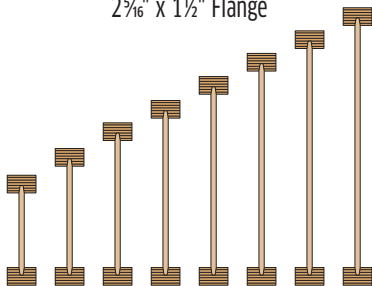
$\frac{3}{8}$ " OSB Web  
2 $\frac{5}{16}$ " x 1 $\frac{1}{2}$ " Flange



11 $\frac{1}{2}$ " 14" 16" 18" 20"

### PWI 77

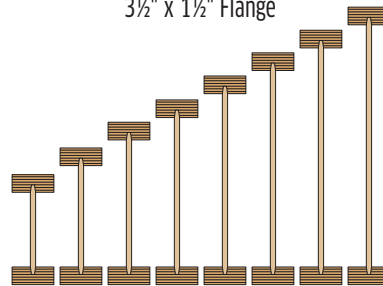
$\frac{7}{16}$ " OSB Web  
2 $\frac{5}{16}$ " x 1 $\frac{1}{2}$ " Flange



9 $\frac{1}{2}$ " 11 $\frac{1}{2}$ " 14" 16" 18" 20" 22" 24"

### PWI 90

$\frac{7}{16}$ " OSB Web  
3 $\frac{1}{2}$ " x 1 $\frac{1}{2}$ " Flange



9 $\frac{1}{2}$ " 11 $\frac{1}{2}$ " 14" 16" 18" 20" 22" 24"

# PWI Joist Series

## Reference Design Values

### REFERENCE DESIGN VALUES <sup>(1)</sup>

Joist Series	Joist Depth	EI <sup>(2)</sup> (x 10 <sup>6</sup> lb-in <sup>2</sup> )	k <sup>(3)</sup> (x 10 <sup>6</sup> lb)	M <sup>(4)</sup> (ft-lb)	V <sup>(5)</sup> (lb)	ER <sup>(6)</sup> (lb)	IR <sup>(7)</sup> (lb)	Vertical Load <sup>(8)</sup> (plf)	Weight (plf)
PWI 20	9½"	145	4.94	2520	1330	915	1990	2000	2.0
	11⅞"	253	6.18	3265	1705	915	1990	2000	2.3
	14"	373	7.28	3890	1955	915	1990	2000	2.5
PWI 45	9½"	193	4.94	3345	1330	980	2240	2000	2.3
	11⅞"	330	6.18	4315	1705	980	2250	2000	2.5
	14"	486	7.28	5140	1955	980	2250	2000	2.8
PWI 60	16"	665	8.32	5880	2190	980	2250	2000	3.0
	9½"	231	4.94	3780	1330	1080	2240	2000	2.4
	11⅞"	396	6.18	4900	1705	1080	2330	2000	2.7
PWI 70	14"	584	7.28	5895	1955	1080	2330	2000	2.9
	16"	799	8.32	6835	2190	1080	2330	2000	3.2
	11⅞"	440	6.18	6730	1705	1160	2460	2000	2.8
	14"	644	7.28	8030	1955	1160	2460	2000	3.1
PWI 77	16"	873	8.32	9200	2190	1160	2460	2000	3.3
	18"	1141	9.36	10355	2425	1160	2460	1450	3.5
	20"	1447	10.40	11495	2660	1160	2460	1450	3.7
	9½"	261	6.08	5155	1430	1285	2695	2400	2.7
PWI 90	11⅞"	442	7.60	6675	1925	1285	2695	2400	3.0
	14"	648	8.96	7960	2125	1285	2695	2400	3.3
	16"	881	10.24	9120	2330	1285	2695	2400	3.5
	18"	1152	11.52	10265	2535	1285	2695	1800	3.8
	20"	1463	12.80	11395	2740	1285	2695	1800	4.1
	22"	1815	14.08	12520	2935	2390 <sup>(9)</sup>	4125 <sup>(9)</sup>	1300	4.3
	24"	2209	15.36	13630	3060	2390 <sup>(9)</sup>	4125 <sup>(9)</sup>	1300	4.6
PWI 90	9½"	392	6.08	7915	1430	1400	2860	2400	3.6
	11⅞"	661	7.60	10255	1925	1400	3355	2400	3.9
	14"	965	8.96	12235	2125	1400	3355	2400	4.2
	16"	1306	10.24	14020	2330	1400	3355	2400	4.5
	18"	1703	11.52	15780	2535	1400	3355	1800	4.7
	20"	2155	12.80	17520	2740	1400	3355	1800	5.0
	22"	2664	14.08	19245	2935	2400 <sup>(9)</sup>	4605 <sup>(9)</sup>	1300	5.3
	24"	3232	15.36	20955	3060	2400 <sup>(9)</sup>	4605 <sup>(9)</sup>	1300	5.5

1. Values apply to normal load duration. All values except EI, k and Vertical Load may be adjusted for other load durations as permitted by the code.

2. Bending stiffness (EI).

3. Coefficient of shear deflection (k). Use Equations 1 or 2 to calculate uniform load or center point load deflections in a simple-span application.

Uniform Load:

$$[1] \delta = \frac{5w\ell^4}{384EI} + \frac{w\ell^2}{k}$$

Center Point Load:

$$[2] \delta = \frac{P\ell^3}{48EI} + \frac{2P\ell}{k}$$

Where:

δ = calculated deflection [in]

w = uniform load [lb/in]

ℓ = design span [in]

P = concentrated load [lb]

EI = bending stiffness of the I-joist [lb-in<sup>2</sup>]

k = coefficient of shear deflection [lb]

4. Moment capacity (M). The tabulated values shall not be increased by any code-allowed repetitive member factor.

5. Shear capacity (V).

6. End reaction capacity (ER) of the I-joist without web stiffeners and a minimum bearing length of 1¼ inches.

7. Intermediate reaction capacity (IR) of the I-joist without web stiffeners and a minimum bearing length of 3½ inches.

8. Blocking panel and rim joist vertical load capacity.

9. Web stiffeners required. See *Web Stiffener Requirements* on page 11.



# Floor Spans

## ALLOWABLE RESIDENTIAL FLOOR SPANS – 40 PSF LIVE LOAD AND 20 PSF DEAD LOAD

Joist Series	Joist Depth	Simple Spans				Multiple Spans				Simple or Multiple Spans			
		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.
PWI 20	9½"	16'-7"	15'-3"	14'-4"	12'-9"	18'-1"	15'-7"	14'-3"	12'-8"	16'-7"	15'-3"	14'-3"	12'-8"
	11⅞"	19'-11"	17'-11"	16'-4"	14'-7"	20'-7"	17'-10"	16'-3"	13'-0"	19'-11"	17'-10"	16'-3"	13'-0"
	14"	22'-7"	19'-6"	17'-10"	15'-1"	22'-6"	19'-6"	16'-4"	13'-0"	22'-6"	19'-6"	16'-4"	13'-0"
PWI 45	9½"	18'-0"	16'-5"	15'-6"	14'-6"	20'-0"	18'-0"	16'-5"	14'-8"	18'-0"	16'-5"	15'-6"	14'-6"
	11⅞"	21'-5"	19'-7"	18'-6"	16'-2"	23'-9"	20'-6"	18'-6"	14'-9"	21'-5"	19'-7"	18'-6"	14'-9"
	14"	24'-4"	22'-3"	20'-3"	16'-2"	25'-11"	22'-3"	18'-6"	14'-9"	24'-4"	22'-3"	18'-6"	14'-9"
	16"	27'-0"	24'-1"	20'-3"	16'-2"	27'-9"	22'-3"	18'-6"	14'-9"	27'-0"	22'-3"	18'-6"	14'-9"
PWI 60	9½"	18'-11"	17'-3"	16'-3"	15'-2"	21'-1"	19'-2"	17'-6"	14'-8"	18'-11"	17'-3"	16'-3"	14'-8"
	11⅞"	22'-7"	20'-7"	19'-5"	17'-10"	25'-2"	21'-11"	19'-2"	15'-3"	22'-7"	20'-7"	19'-2"	15'-3"
	14"	25'-8"	23'-5"	22'-0"	17'-10"	27'-9"	23'-0"	19'-2"	15'-3"	25'-8"	23'-0"	19'-2"	15'-3"
	16"	28'-6"	25'-11"	22'-4"	17'-10"	29'-11"	23'-0"	19'-2"	15'-3"	28'-6"	23'-0"	19'-2"	15'-3"
PWI 70	11⅞"	23'-4"	21'-3"	20'-1"	18'-8"	25'-11"	23'-8"	20'-3"	16'-2"	23'-4"	21'-3"	20'-1"	16'-2"
	14"	26'-5"	24'-1"	22'-9"	19'-2"	29'-6"	24'-4"	20'-3"	16'-2"	26'-5"	24'-1"	20'-3"	16'-2"
	16"	29'-3"	26'-8"	24'-0"	19'-2"	32'-6"	24'-4"	20'-3"	16'-2"	29'-3"	24'-4"	20'-3"	16'-2"
	18"	32'-0"	28'-10"	24'-0"	19'-2"	32'-6"	24'-4"	20'-3"	16'-2"	32'-0"	24'-4"	20'-3"	16'-2"
	20"	34'-8"	28'-10"	24'-0"	19'-2"	32'-6"	24'-4"	20'-3"	16'-2"	32'-6"	24'-4"	20'-3"	16'-2"
PWI 77	9½"	19'-8"	18'-0"	17'-0"	15'-10"	21'-11"	20'-1"	18'-11"	17'-8"	19'-8"	18'-0"	17'-0"	15'-10"
	11⅞"	23'-5"	21'-5"	20'-3"	18'-11"	26'-2"	23'-10"	22'-2"	17'-8"	23'-5"	21'-5"	20'-3"	17'-8"
	14"	26'-7"	24'-4"	23'-0"	21'-3"	29'-8"	26'-8"	22'-2"	17'-8"	26'-7"	24'-4"	22'-2"	17'-8"
	16"	29'-6"	26'-11"	25'-5"	21'-3"	32'-11"	26'-8"	22'-2"	17'-8"	29'-6"	26'-8"	22'-2"	17'-8"
	18"	32'-3"	29'-5"	26'-7"	21'-3"	35'-8"	26'-8"	22'-2"	17'-8"	32'-3"	26'-8"	22'-2"	17'-8"
	20"	34'-11"	31'-10"	26'-7"	21'-3"	35'-8"	26'-8"	22'-2"	17'-8"	34'-11"	26'-8"	22'-2"	17'-8"
	22"	37'-6"	34'-3"	32'-1"	28'-8"	40'-7"	35'-1"	32'-0"	27'-3"	37'-6"	34'-3"	32'-0"	27'-3"
	24"	40'-1"	36'-7"	33'-6"	29'-11"	42'-4"	36'-8"	33'-5"	27'-3"	40'-1"	36'-7"	33'-5"	27'-3"
PWI 90	9½"	22'-3"	20'-3"	19'-1"	17'-9"	24'-9"	22'-6"	21'-3"	18'-10"	22'-3"	20'-3"	19'-1"	17'-9"
	11⅞"	26'-5"	24'-1"	22'-8"	21'-2"	29'-6"	26'-10"	25'-3"	22'-1"	26'-5"	24'-1"	22'-8"	21'-2"
	14"	30'-0"	27'-4"	25'-9"	23'-2"	33'-5"	30'-5"	27'-8"	22'-1"	30'-0"	27'-4"	25'-9"	22'-1"
	16"	33'-2"	30'-3"	28'-6"	23'-2"	37'-0"	33'-3"	27'-8"	22'-1"	33'-2"	30'-3"	27'-8"	22'-1"
	18"	36'-3"	33'-0"	29'-0"	23'-2"	40'-6"	33'-3"	27'-8"	22'-1"	36'-3"	33'-0"	27'-8"	22'-1"
	20"	39'-3"	34'-10"	29'-0"	23'-2"	43'-9"	33'-3"	27'-8"	22'-1"	39'-3"	33'-3"	27'-8"	22'-1"
	22"	42'-1"	38'-4"	36'-2"	33'-8"	47'-0"	42'-9"	38'-1"	30'-5"	42'-1"	38'-4"	36'-2"	30'-5"
	24"	44'-11"	40'-11"	38'-7"	35'-11"	50'-2"	45'-6"	38'-1"	30'-5"	44'-11"	40'-11"	38'-1"	30'-5"

### Notes:

- Table values apply to uniformly loaded, residential floor joists.
- Span is measured from face to face of supports.
- Deflection is limited to L/240 at total load and L/480 at live load.
- Table values are based on glued and nailed sheathing panels (23/32" for 24" o.c., 19/32" otherwise). Use an ASTM D3498 adhesive in accordance with the manufacturer's recommendations. Reduce spans by 12" if sheathing is nailed only.
- Provide at least 1¼" of bearing length at end supports and 3½" at intermediate supports.
- Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. floor sheathing, gypsum board ceiling).
- Use sizing software or consult a professional engineer to analyze conditions outside the scope of this table (e.g. commercial floors, different bearing conditions, concentrated loads) or for multiple span joists if the length of any span is less than half the length of an adjacent span.
- Web stiffeners are required at all supports for 22" and 24" joists. See *Web Stiffener Requirements* on page 11 for more details.

## How to Use Floor Span Tables

- Choose the appropriate live and dead load combination as well as a joist spacing.
- Scan down the spacing column to find a span that exceeds the design span.
- Scan to the left from that span to determine the joist size required.

# Floor Loads

## SIMPLE-SPAN JOIST—ALLOWABLE UNIFORM FLOOR LOAD (PLF)

Joist Span (ft)	PWI 20						PWI 45								PWI 60								
	9½"		11¾"		14"		9½"		11¾"		14"		16"		9½"		11¾"		14"		16"		
	Live L/480	Total 100*	Live L/480	Total 100*	Live L/480	Total 100*	Live L/480	Total 100*	Live L/480	Total 100*	Live L/480	Total 100*	Live L/480	Total 100*	Live L/480	Total 100*	Live L/480	Total 100*	Live L/480	Total 100*	Live L/480	Total 100*	
6	-	305	-	305	-	305	-	327	-	327	-	327	-	327	-	360	-	360	-	360	-	360	
7	-	261	-	261	-	261	-	280	-	280	-	280	-	280	-	309	-	309	-	309	-	309	
8	-	229	-	229	-	229	-	245	-	245	-	245	-	245	-	270	-	270	-	270	-	270	
9	185	203	-	203	-	203	-	218	-	218	-	218	-	218	-	240	-	240	-	240	-	240	
10	139	183	-	183	-	183	177	196	-	196	-	196	-	196	205	216	-	216	-	216	-	216	
11	107	166	-	166	-	166	137	178	-	178	-	178	-	178	160	196	-	196	-	196	-	196	
12	84	140	141	153	-	153	108	163	-	163	-	163	-	163	127	180	-	180	-	180	-	180	
13	67	119	113	141	-	141	87	151	143	151	-	151	-	151	102	166	-	166	-	166	-	166	
14	54	103	92	131	-	131	71	137	117	140	-	140	-	140	83	154	137	154	-	154	-	154	
15	45	89	76	116	109	122	58	116	96	131	-	131	-	131	68	134	113	144	-	144	-	144	
16	37	74	63	102	91	114	48	97	81	123	116	123	-	123	57	114	95	135	-	135	-	135	
17			53	90	77	108			68	115	98	115	-	115			80	127	115	127	-	127	
18			45	81	66	96			58	107	83	109	-	109			68	120	98	120	-	120	
19			39	72	56	86			50	96	72	103	96	103			59	109	85	114	113	114	
20			33	65	48	78			43	86	62	98	83	98			51	98	73	108	98	108	
21					42	71					54	93	73	93					64	103	86	103	
22					37	64					47	85	64	89					56	97	75	98	
23					32	59					42	78	56	85					49	89	67	94	
24					29	54					37	71	50	82					44	82	59	90	
25														44	75							53	86
26														40	70							47	81
27														35	65							42	75
28														32	60							38	70
29																							
30																							
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40																							
41																							
42																							

### Notes:

- Table values apply to uniformly loaded floor joists.
- Span is measured to the center of each support.
- The values in the Total columns are based on an L/240 total load deflection limit. Building codes typically require L/360 for live load. Experience has shown that a live load deflection limit of L/480 at 40 psf for residential floors does a better job than L/360 of meeting most performance expectations.
- Table values do not account for stiffness added by glued or nailed sheathing.
- Provide at least 1¼" of bearing length at end supports and 3½" at intermediate supports.
- Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. floor sheathing, gypsum board ceiling).
- Use sizing software or consult a professional engineer to analyze conditions outside the scope of this table (e.g. different bearing lengths, concentrated loads) or for multiple span joists if the length of any span is less than half the length of an adjacent span.

## How to Use Floor Load Tables

- Choose a joist spacing and convert the live and total design loads specified in pounds per square foot (psf) to joist loads in pounds per lineal foot (plf).  
Joist Spacing [ft] x Design Load [psf] = Joist Load [plf]

### JOIST LOAD (PLF)

Joist Spacing		Design Load (psf)									
Inches	Feet	20	30	40	50	60	70	80	90	100	
12	1	20	30	40	50	60	70	80	90	100	
16	1.33	27	40	53	67	80	93	106	120	133	
19.2	1.6	32	48	64	80	96	112	128	144	160	
24	2	40	60	80	100	120	140	160	180	200	

- Choose a span and scan across the Span row to find a joist size with sufficient Live and Total load capacities. Both requirements must be satisfied. When no value is shown in a Live column, Total load governs.
- Web stiffeners are required at all supports for 22" and 24" joists. See *Web Stiffener Requirements* on page 11 for more details.



# Floor Loads

## SIMPLE-SPAN JOIST—ALLOWABLE UNIFORM FLOOR LOAD (PLF)

Joist Span (ft)	PWI 70										PWI 77																			
	11 7/8"		14"		16"		18"		20"		9 1/2"		11 1/8"		14"		16"		18"		20"		22"		24"					
	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%				
6	-	387	-	387	-	387	-	387	-	387	-	428	-	428	-	428	-	428	-	428	-	428	-	649	-	649				
7	-	331	-	331	-	331	-	331	-	331	-	367	-	367	-	367	-	367	-	367	-	367	-	556	-	556				
8	-	290	-	290	-	290	-	290	-	290	-	321	-	321	-	321	-	321	-	321	-	321	-	487	-	487				
9	-	258	-	258	-	258	-	258	-	258	-	286	-	286	-	286	-	286	-	286	-	286	-	432	-	432				
10	-	232	-	232	-	232	-	232	-	232	236	257	-	257	-	257	-	257	-	257	-	257	-	389	-	389				
11	-	211	-	211	-	211	-	211	-	211	183	234	-	234	-	234	-	234	-	234	-	234	-	354	-	354				
12	-	193	-	193	-	193	-	193	-	193	145	214	-	214	-	214	-	214	-	214	-	214	-	324	-	324				
13	-	178	-	178	-	178	-	178	-	178	116	198	189	198	-	198	-	198	-	198	-	198	-	299	-	299				
14	149	166	-	166	-	166	-	166	-	166	95	184	155	184	-	184	-	184	-	184	-	184	-	278	-	278				
15	124	155	-	155	-	155	-	155	-	155	78	156	128	171	-	171	-	171	-	171	-	171	-	259	-	259				
16	104	145	-	145	-	145	-	145	-	145	65	130	107	161	153	161	-	161	-	161	-	161	-	243	-	243				
17	88	136	125	136	-	136	-	136	-	136			90	151	129	151	-	151	-	151	-	151	-	229	-	229				
18	75	129	107	129	-	129	-	129	-	129			77	143	110	143	-	143	-	143	-	143	-	216	-	216				
19	64	122	92	122	-	122	-	122	-	122			66	132	95	135	127	135	-	135	-	135	-	205	-	205				
20	56	112	80	116	106	116	-	116	-	116			57	114	82	129	110	129	-	129	-	129	-	195	-	195				
21			70	110	93	110	-	110	-	110					71	122	96	122	-	122	-	122	-	185	-	185				
22			61	105	82	105	105	105	-	105					63	117	84	117	108	117	-	117	166	177	-	177				
23			54	101	72	101	93	101	-	101					55	110	74	112	96	112	-	112	147	169	-	169				
24			48	96	64	97	82	97	-	97					49	98	66	107	85	107	106	106	130	162	157	162				
25					57	93	73	93	92	93								58	103	75	103	95	103	116	156	140	156			
26					51	89	66	89	82	89								52	99	68	99	85	99	104	148	125	150			
27					46	86	59	86	74	86								47	94	61	95	76	95	94	137	113	144			
28					41	82	53	83	67	83								42	84	55	92	69	92	84	128	102	139			
29							48	80	61	80									49	89	62	89	76	119	92	130				
30							44	77	55	77									45	86	56	86	69	111	84	121				
31							40	75	50	75									41	81	51	83	63	104	76	113				
32									46	73											47	80	58	98	70	106				
33									42	70											43	78	53	92	64	100				
34									38	68											39	76	48	87	59	94				
35									35	66											36	72	45	82	54	89				
36																								41	77	50	84			
37																								38	73	46	80			
38																								35	69	42	76			
39																										39	72			
40																											37	68		
41																												34	65	
42																													32	62

### Notes:

- Table values apply to uniformly loaded floor joists.
- Span is measured to the center of each support.
- The values in the Total columns are based on an L/240 total load deflection limit. Building codes typically require L/360 for live load. Experience has shown that a live load deflection limit of L/480 at 40 psf for residential floors does a better job than L/360 of meeting most performance expectations.
- Table values do not account for stiffness added by glued or nailed sheathing.
- Provide at least 1 1/4" of bearing length at end supports and 3/2" at intermediate supports.
- Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. floor sheathing, gypsum board ceiling).
- Use sizing software or consult a professional engineer to analyze conditions outside the scope of this table (e.g. different bearing lengths, concentrated loads) or for multiple span joists if the length of any span is less than half the length of an adjacent span.

## PSF TO PLF CONVERSION - LOAD IN POUNDS PER LINEAL FOOT (PLF)

O.C. Spacing		Load in Pounds per Square Foot (psf)													
Inches	Feet	20	25	30	35	40	45	50	55	60	65	70	75	80	
12	1.00	20	25	30	35	40	45	50	55	60	65	70	75	80	
16	1.33	27	33	40	47	53	60	67	73	80	87	93	100	107	
19.2	1.60	32	40	48	56	64	72	80	88	96	104	112	120	128	
24	2.00	40	50	60	70	80	90	100	110	120	130	140	150	160	

o.c. spacing (ft) x load (psf) = load (plf)

# Floor Loads

## SIMPLE-SPAN JOIST—ALLOWABLE UNIFORM FLOOR LOAD (PLF)

Joist Span (ft)	PWI 90															
	9½"		11¾"		14"		16"		18"		20"		22"		24"	
	Live L/480	Total 100*	Live L/480	Total 100*	Live L/480	Total 100*	Live L/480	Total 100*	Live L/480	Total 100*	Live L/480	Total 100*	Live L/480	Total 100*	Live L/480	Total 100*
6	-	467	-	467	-	467	-	467	-	467	-	467	-	800	-	800
7	-	400	-	400	-	400	-	400	-	400	-	400	-	686	-	686
8	-	350	-	350	-	350	-	350	-	350	-	350	-	600	-	600
9	-	311	-	311	-	311	-	311	-	311	-	311	-	533	-	533
10	-	280	-	280	-	280	-	280	-	280	-	280	-	480	-	480
11	255	255	-	255	-	255	-	255	-	255	-	255	-	436	-	436
12	203	233	-	233	-	233	-	233	-	233	-	233	-	400	-	400
13	165	215	-	215	-	215	-	215	-	215	-	215	-	369	-	369
14	135	200	-	200	-	200	-	200	-	200	-	200	-	343	-	343
15	112	187	180	187	-	187	-	187	-	187	-	187	-	320	-	320
16	94	175	152	175	-	175	-	175	-	175	-	175	-	300	-	300
17			129	165	-	165	-	165	-	165	-	165	-	282	-	282
18			110	156	-	156	-	156	-	156	-	156	-	267	-	267
19			95	147	135	147	-	147	-	147	-	147	-	253	-	253
20			82	140	117	140	-	140	-	140	-	140	-	240	-	240
21					102	133	-	133	-	133	-	133	-	229	-	229
22					90	127	119	127	-	127	-	127	-	218	-	218
23					79	122	106	122	-	122	-	122	204	209	-	209
24					71	117	94	117	-	117	-	117	182	200	-	200
25							84	112	108	112	-	112	163	192	-	192
26							75	108	96	108	-	108	147	185	175	185
27							67	104	87	104	-	104	132	178	158	178
28							61	100	78	100	98	100	119	171	143	171
29									71	97	89	97	108	166	130	166
30									64	93	81	93	99	160	118	160
31									59	90	74	90	90	155	108	155
32											67	88	82	150	99	150
33											62	85	75	141	91	145
34											57	82	69	133	83	141
35											52	80	64	126	77	137
36													59	118	71	129
37													54	109	66	122
38													50	101	61	116
39															56	110
40															52	105
41															49	98
42															46	91

### Notes:

- Table values apply to uniformly loaded floor joists.
- Span is measured to the center of each support.
- The values in the Total columns are based on an L/240 total load deflection limit. Building codes typically require L/360 for live load. Experience has shown that a live load deflection limit of L/480 at 40 psf for residential floors does a better job than L/360 of meeting most performance expectations.
- Table values do not account for stiffness added by glued or nailed sheathing.
- Provide at least 1¾" of bearing length at end supports and 3½" at intermediate supports.
- Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. floor sheathing, gypsum board ceiling).
- Use sizing software or consult a professional engineer to analyze conditions outside the scope of this table (e.g. different bearing lengths, concentrated loads) or for multiple span joists if the length of any span is less than half the length of an adjacent span.

## How to Use Floor Load Tables

- Choose a joist spacing and convert the live and total design loads specified in pounds per square foot (psf) to joist loads in pounds per lineal foot (plf).  
Joist Spacing [ft] x Design Load [psf] = Joist Load [plf]

### JOIST LOAD (PLF)

Joist Spacing		Design Load (psf)									
Inches	Feet	20	30	40	50	60	70	80	90	100	
12	1	20	30	40	50	60	70	80	90	100	
16	1.33	27	40	53	67	80	93	106	120	133	
19.2	1.6	32	48	64	80	96	112	128	144	160	
24	2	40	60	80	100	120	140	160	180	200	

- Choose a span and scan across the Span row to find a joist size with sufficient Live and Total load capacities. Both requirements must be satisfied. When no value is shown in a Live column, Total load governs.
- Web stiffeners are required at all supports for 22" and 24" joists. See *Web Stiffener Requirements* on page 11 for more details.

# Web Stiffener Requirements

Web stiffeners are pairs of small blocks, cut from panels or 2x4s, that are nailed to the joist web to stiffen a deep web, increase reaction capacity or accommodate a special connector. Web stiffeners are not required when joists are sized by means of the tables in this guide, with the following exceptions:

1. Web stiffeners are required at the ends of joists set in hangers that are not deep enough to laterally support the top flanges of the joists. Refer to the hanger manufacturer's installation instructions.
2. Web stiffeners are required to accommodate special connector nailing requirements. Refer to the connector manufacturer's installation instructions.
3. Web stiffeners are required at birdsmouth cuts at the low end supports of sloped joists.
4. Web stiffeners are required at all supports on 22- and 24-inch joists.

When joists are sized by means of sizing software, or otherwise engineered for an application, web stiffeners are required as follows:

1. Web stiffeners are required for high reactions at supports. Refer to an evaluation report.
2. Web stiffeners are required under concentrated loads applied to the tops of joists between supports, or along cantilevers beyond the support, when the concentrated load exceeds 1500 pounds.

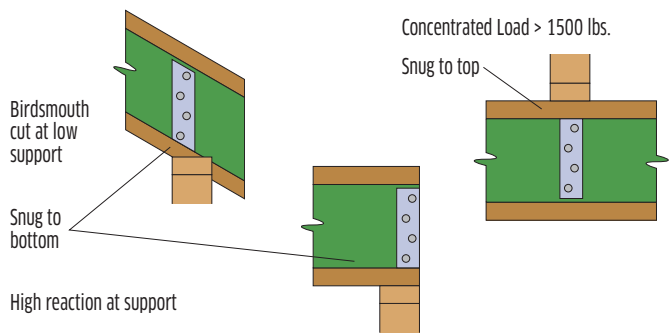
## NUMBER OF WEB STIFFENER NAILS REQUIRED

Joist Depth	24" & 20"	18" & 16"	14" & Less
All Other Conditions	10	6	4

## WEB STIFFENER SIZE REQUIRED

Flange Width	Minimum Dimensions		Nails
	Web Stiffeners		
	Thickness	Width	
1½"	15/32"	2 5/16"	2 ½" x 0.131"
1¾"	19/32"	2 5/16"	2 ½" x 0.131"
2 1/16"	23/32"	2 5/16"	2 ½" x 0.131"
2 1/8"	23/32"	2 5/16"	2 ½" x 0.131"
2 1/4"	23/32"	2 5/16"	2 ½" x 0.131"
3 1/2"	1 ½"	3 ½"	3 ¼" x 0.131"

Web stiffener length is approximately ¼" less than the clear distance between flanges.



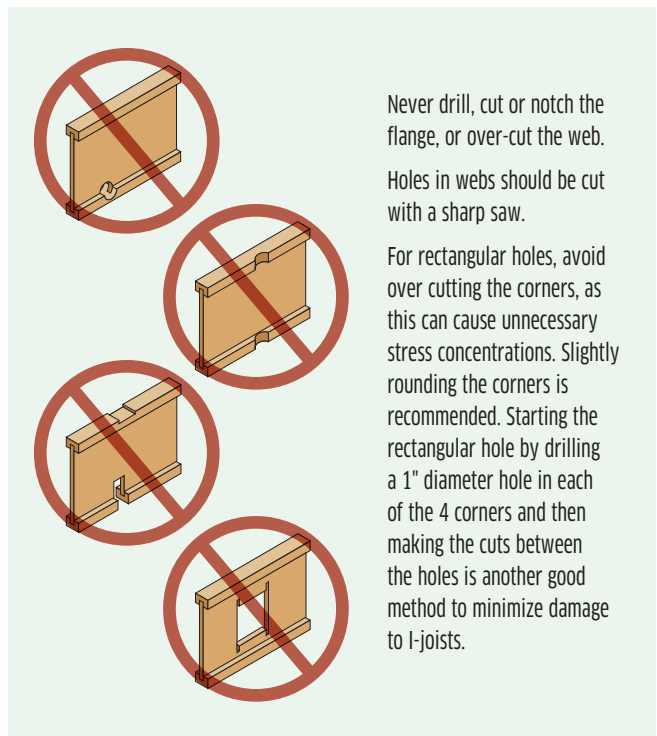
# Web Hole Specifications

## DUCT HOLES

Joist Series	Joist Span (ft)	Minimum Distance 'D' From Any Support to the Centerline of the Hole								
		8"	10"	12"	14"	16"	18"	20"	22"	24"
20	≤ 8	3'-10"	3'-11"	3'-11"						
	≤ 12	5'-9"	5'-10"	5'-11"						
	≤ 16	7'-8"	7'-10"	7'-11"						
	≤ 20	9'-7"	9'-9"	9'-11"						
45	≤ 8	3'-5"	3'-7"	3'-8"	3'-9"	3'-10"	4'-0"	(2)		
	≤ 12	5'-2"	5'-4"	5'-6"	5'-8"	5'-10"	6'-0"	(2)		
	≤ 16	6'-11"	7'-2"	7'-5"	7'-7"	7'-9"	8'-0"	(2)		
	≤ 20	8'-8"	9'-0"	9'-3"	9'-6"	9'-9"	10'-0"	(2)		
60	≤ 8	3'-6"	3'-7"	3'-9"	3'-10"	3'-11"	(2)	(2)		
	≤ 12	5'-3"	5'-5"	5'-7"	5'-9"	5'-11"	(2)	(2)		
	≤ 16	7'-0"	7'-3"	7'-6"	7'-8"	7'-10"	(2)	(2)		
	≤ 20	8'-10"	9'-1"	9'-4"	9'-7"	9'-10"	(2)	(2)		
70	≤ 8	3'-7"	3'-8"	3'-9"	3'-10"	(2)	(2)	(2)		
	≤ 12	5'-5"	5'-6"	5'-8"	5'-10"	(2)	(2)	(2)		
	≤ 16	7'-2"	7'-5"	7'-7"	7'-9"	(2)	(2)	(2)		
	≤ 20	9'-0"	9'-3"	9'-6"	9'-9"	(2)	(2)	(2)		
77 depths to 20" <sup>(3)</sup>	≤ 8	3'-8"	3'-9"	3'-11"	3'-11"	(2)	(2)	(2)		
	≤ 12	5'-7"	5'-8"	5'-10"	5'-11"	(2)	(2)	(2)		
	≤ 16	7'-5"	7'-7"	7'-10"	7'-11"	(2)	(2)	(2)		
	≤ 20	9'-4"	9'-6"	9'-9"	9'-11"	(2)	(2)	(2)		
90 depths to 20" <sup>(3)</sup>	≤ 8	3'-8"	3'-9"	3'-10"	3'-11"	(2)	(2)	(2)	(2)	
	≤ 12	5'-7"	5'-8"	5'-10"	5'-11"	(2)	(2)	(2)	(2)	
	≤ 16	7'-5"	7'-7"	7'-9"	7'-11"	(2)	(2)	(2)	(2)	
	≤ 20	9'-4"	9'-6"	9'-8"	9'-11"	(2)	(2)	(2)	(2)	

### Notes:

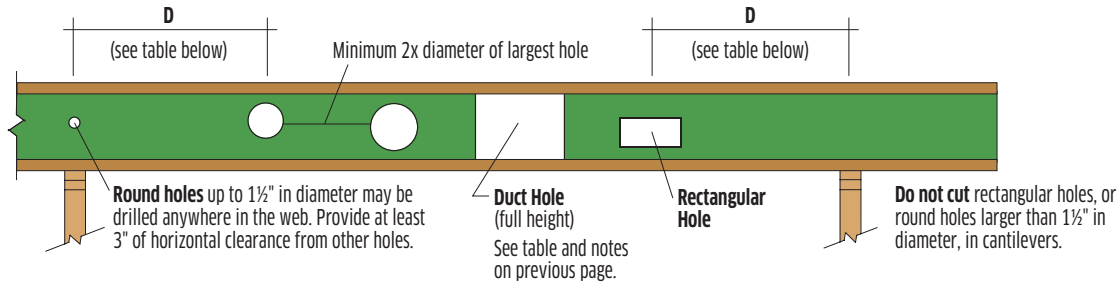
- (1) For other joist spans, use sizing software to locate the duct hole
- (2) For this width, use sizing software to locate the duct hole
- (3) For joist depths greater than 20 inches, use sizing software to locate duct holes



To review Pacific Woodtech's Installation Guide, please visit [www.pacificwoodtech.com/products](http://www.pacificwoodtech.com/products).



# Web Hole Specifications



## ROUND AND RECTANGULAR HOLES

		Minimum Distance 'D' From Any Support to the Centerline of the Hole													
		Round Hole Diameter	2"	3"	4"	5"	6"	6 1/4"	8 5/8"	10"	10 3/4"	12"	12 3/4"	14 3/4"	16 3/4"
		Rectangular Hole Longest Side	1 1/2"	2 1/4"	3"	3 3/4"	4 1/2"	4 5/8"	6 1/4"	7 1/2"	8"	9"	9 1/2"	11"	12 1/2"
9 1/2" Joist	Span (ft)	8'	1'-1"	1'-7"	2'-1"	2'-8"	3'-2"	3'-4"							
		12'	1'-7"	2'-4"	3'-2"	3'-11"	4'-9"	5'-0"							
		16'	2'-1"	3'-2"	4'-3"	5'-3"	6'-4"	6'-8"							
11 7/8" Joist	Span (ft)	8'	1'-1"	1'-2"	1'-2"	1'-8"	2'-2"	2'-3"	3'-6"						
		12'	1'-1"	1'-2"	1'-10"	2'-6"	3'-3"	3'-5"	5'-3"						
		16'	1'-1"	1'-5"	2'-5"	3'-4"	4'-4"	4'-7"	7'-0"						
		20'	1'-1"	1'-9"	3'-0"	4'-2"	5'-5"	5'-8"	8'-10"						
14" Joist	Span (ft)	12'	1'-1"	1'-2"	1'-2"	1'-5"	2'-1"	2'-3"	3'-10"	4'-10"	5'-5"				
		16'	1'-1"	1'-2"	1'-2"	1'-10"	2'-9"	3'-0"	5'-2"	6'-5"	7'-3"				
		20'	1'-1"	1'-2"	1'-2"	2'-4"	3'-5"	3'-9"	6'-5"	8'-0"	9'-1"				
		24'	1'-1"	1'-2"	1'-5"	2'-9"	4'-2"	4'-6"	7'-8"	9'-7"	10'-11"				
16" Joist	Span (ft)	16'	1'-1"	1'-2"	1'-2"	1'-3"	1'-4"	1'-6"	3'-7"	4'-9"	5'-5"	6'-7"	7'-5"		
		20'	1'-1"	1'-2"	1'-2"	1'-3"	1'-8"	1'-11"	4'-6"	6'-0"	6'-10"	8'-3"	9'-4"		
		24'	1'-1"	1'-2"	1'-2"	1'-3"	2'-0"	2'-4"	5'-5"	7'-2"	8'-2"	9'-11"	11'-2"		
		28'	1'-1"	1'-2"	1'-2"	1'-3"	2'-4"	2'-8"	6'-4"	8'-5"	9'-6"	11'-7"	13'-0"		
18" Joist	Span (ft)	16'	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	2'-2"	3'-3"	3'-11"	5'-0"	5'-7"	7'-7"	
		20'	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	2'-8"	4'-1"	4'-11"	6'-2"	7'-0"	9'-6"	
		24'	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	3'-2"	4'-11"	5'-10"	7'-5"	8'-5"	11'-5"	
		28'	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	3'-9"	5'-9"	6'-10"	8'-8"	9'-9"	13'-4"	
20" Joist	Span (ft)	16'	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-4"	1'-10"	2'-5"	3'-6"	4'-1"	5'-9"	7'-9"
		20'	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-4"	2'-3"	3'-1"	4'-4"	5'-1"	7'-2"	9'-9"
		24'	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-4"	2'-9"	3'-8"	5'-2"	6'-1"	8'-7"	11'-8"
		28'	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-4"	3'-2"	4'-3"	6'-1"	7'-2"	10'-0"	13'-7"
22" Joist	Span (ft)	16'	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	2'-7"	3'-4"	3'-9"	4'-5"	4'-10"	6'-0"	7'-1"
		20'	1'-1"	1'-2"	1'-2"	1'-3"	1'-5"	1'-7"	3'-2"	4'-2"	4'-8"	5'-7"	6'-1"	7'-6"	8'-10"
		24'	1'-1"	1'-2"	1'-2"	1'-3"	1'-8"	1'-10"	3'-10"	5'-0"	5'-7"	6'-8"	7'-3"	8'-11"	10'-7"
		28'	1'-1"	1'-2"	1'-2"	1'-3"	1'-11"	2'-2"	4'-6"	5'-10"	6'-7"	7'-9"	8'-6"	10'-5"	12'-5"
24" Joist	Span (ft)	16'	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-10"	2'-7"	3'-0"	3'-8"	4'-0"	5'-1"	6'-2"
		20'	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	2'-3"	3'-2"	3'-8"	4'-6"	5'-0"	6'-4"	7'-8"
		24'	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	2'-9"	3'-10"	4'-5"	5'-5"	6'-0"	7'-8"	9'-3"
		28'	1'-1"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	3'-2"	4'-6"	5'-2"	6'-4"	7'-0"	8'-11"	10'-9"

See General Notes below.

## General Notes

- Table values apply to joists sized by means of the load or span tables in this publication. Use beam sizing software for a more precise analysis or to analyze conditions outside of the scope of these tables.
- Web holes may be located anywhere between the joist flanges. Leave at least 1/8 inch clearance between the edges of holes and the flanges.
- Do not cut rectangular holes, or round holes larger than 1 1/2 inch diameter, in cantilevers.
- The horizontal clearance between the edges of adjacent holes must be at least twice the diameter (or longest side) of the larger hole. Exception: A 1 1/2 inch diameter hole may be drilled anywhere in the web. Provide at least 3 inches of horizontal clearance from adjacent holes of any size.



# One-Ply 1 3/4" 2.0E Beam

ALLOWABLE UNIFORM LOADS\*—POUNDS PER LINEAL FOOT

ONE-PLY x 1 3/4" 2.0E PWLVL

Span (ft)	Key	3 1/2"	5 1/2"	7 1/4"	9 1/4"	9 1/2"	11 1/4"	11 1/2"	14"
6	LL	86	333	762	-	-	-	-	-
	TL	127	497	763	1028	1063	1325	1425	1796
	BRG	1.5/3	1.5/3	1.5/3.9	2.1/5.2	2.2/5.4	2.7/6.7	2.9/7.2	3.6/9.1
7	LL	54	210	480	-	-	-	-	-
	TL	71	278	636	849	877	1083	1161	1445
	BRG	1.5/3	1.5/3	1.5/3.8	2/5	2.1/5.2	2.6/6.4	2.7/6.9	3.4/8.5
8	LL	-	140	322	668	724	-	-	-
	TL	-	162	374	723	746	916	979	1208
	BRG	-	1.5/3	1.5/3	2/4.9	2/5	2.5/6.2	2.6/6.6	3.3/8.2
9	LL	-	99	226	469	508	-	-	-
	TL	-	100	232	629	649	793	846	1038
	BRG	-	1.5/3	1.5/3	1.9/4.8	2/4.9	2.4/6	2.6/6.4	3.2/7.9
10	LL	-	-	-	342	370	615	724	-
	TL	-	65	151	509	551	699	745	909
	BRG	-	1.5/3	1.5/3	1.7/4.3	1.9/4.7	2.4/5.9	2.5/6.3	3.1/7.7
11	LL	-	-	-	257	278	462	544	-
	TL	-	44	102	381	413	625	665	809
	BRG	-	1.5/3	1.5/3	1.5/3.6	1.5/3.9	2.3/5.8	2.5/6.2	3/7.5
12	LL	-	-	-	198	214	356	419	686
	TL	-	71	293	293	317	529	586	729
	BRG	-	1.5/3	1.5/3	1.5/3	1.5/3.2	2.2/5.4	2.4/6	3/7.4
13	LL	-	-	-	156	169	280	329	540
	TL	-	51	229	229	249	415	489	663
	BRG	-	1.5/3	1.5/3	1.5/3	1.5/3	1.8/4.6	2.2/5.4	2.9/7.3
14	LL	-	-	-	125	135	224	264	432
	TL	-	37	183	183	198	331	390	578
	BRG	-	1.5/3	1.5/3	1.5/3	1.5/3	1.6/4	1.9/4.7	2.8/6.9
15	LL	-	-	-	101	110	182	214	351
	TL	-	148	160	148	160	268	316	503
	BRG	-	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3.4	1.6/4.1	2.6/6.4
16	LL	-	-	-	83	90	150	177	289
	TL	-	121	131	121	131	220	260	428
	BRG	-	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3.6	2.3/5.8
17	LL	-	-	-	70	75	125	147	241
	TL	-	100	109	100	109	183	216	356
	BRG	-	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3.2	2.1/5.2
18	LL	-	-	-	59	64	105	124	203
	TL	-	84	91	84	91	153	181	299
	BRG	-	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.8/4.6
19	LL	-	-	-	54	60	90	105	173
	TL	-	77	77	77	77	129	153	253
	BRG	-	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.7/4.1
20	LL	-	-	-	77	77	110	130	216
	TL	-	110	110	110	110	153	177	289
	BRG	-	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3.7
21	LL	-	-	-	66	78	110	130	216
	TL	-	95	95	95	95	147	177	289
	BRG	-	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3.4
22	LL	-	-	-	58	68	95	111	181
	TL	-	82	82	82	82	129	153	253
	BRG	-	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3.1
23	LL	-	-	-	59	59	84	97	161
	TL	-	84	84	84	84	129	153	253
	BRG	-	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3
24	LL	-	-	-	86	86	110	130	216
	TL	-	122	122	122	122	183	216	356
	BRG	-	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3
25	LL	-	-	-	76	76	107	127	207
	TL	-	107	107	107	107	160	190	310
	BRG	-	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3
26	LL	-	-	-	67	67	95	111	181
	TL	-	95	95	95	95	147	177	289
	BRG	-	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3
27	LL	-	-	-	60	60	84	97	161
	TL	-	84	84	84	84	129	153	253
	BRG	-	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3
28	LL	-	-	-	54	54	75	86	140
	TL	-	75	75	75	75	110	130	216
	BRG	-	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3	1.5/3
29	LL	-	-	-	-	-	-	-	-
	TL	-	-	-	-	-	-	-	-
	BRG	-	-	-	-	-	-	-	-
30	LL	-	-	-	-	-	-	-	-
	TL	-	-	-	-	-	-	-	-
	BRG	-	-	-	-	-	-	-	-

\* Can be applied to the beam in addition to its own weight.

Simple or multiple beam spans.

2 plies minimum for depths greater than 14 inches.

Wax-based sealer applied to mitigate moisture issues associated with wood products during storage and construction.

**Key to Table:**

LL = Maximum live load - limits deflection to L/360

TL = Maximum total load - limits deflections to L/240 (or a maximum of 0.3125" for beams 7 1/4" deep or less)

BRG = Required end/intermediate bearing length (inches), based on bearing stress of 850 psi.



# Two-Ply 1 3/4" 2.0E Beam

## ALLOWABLE UNIFORM LOADS\*—POUNDS PER LINEAL FOOT

## TWO-PLY x 1 3/4" 2.0E PWLV

Span (ft)	Key	3 1/2"	5 1/2"	7 1/4"	9 1/4"	11 1/4"	11 1/2"	14"	16"	18"	20"	22"	24"	
6	LL	172	666	1525	-	-	-	-	-	-	-	-	-	
	TL	254	993	1526	2056	2127	2650	2850	3591	4388	5304	6366	7613	8997
	BRG	1.5/3	1.5/3	1.5/3.9	2.1/5.2	2.2/5.4	2.7/6.7	2.9/7.2	3.6/9.1	4.4/11.1	5.4/13.4	6.4/16.1	7.7/19.2	9.1/22.7
7	LL	108	419	960	-	-	-	-	-	-	-	-	-	
	TL	141	556	1272	1698	1754	2166	2322	2889	3484	4147	4893	5736	6634
	BRG	1.5/3	1.5/3	1.5/3.8	2/5	2.1/5.2	2.6/6.4	2.7/6.9	3.4/8.5	4.1/10.3	4.9/12.2	5.8/14.4	6.8/16.9	7.8/19.6
8	LL	-	281	643	1336	1447	-	-	-	-	-	-	-	
	TL	-	324	747	1446	1493	1831	1958	2416	2887	3404	3972	4600	5252
	BRG	-	1.5/3	1.5/3	2/4.9	2/5	2.5/6.2	2.6/6.6	3.3/8.2	3.9/9.8	4.6/11.5	5.4/13.4	6.2/15.5	7.1/17.7
9	LL	-	197	452	938	1016	-	-	-	-	-	-	-	
	TL	-	200	464	1259	1298	1586	1693	2075	2465	2885	3342	3838	4346
	BRG	-	1.5/3	1.5/3	1.9/4.8	2/4.9	2.4/6	2.6/6.4	3.2/7.9	3.8/9.4	4.4/11	5.1/12.7	5.8/14.6	6.6/16.5
10	LL	-	-	684	741	1230	1447	-	-	-	-	-	-	
	TL	-	130	302	1018	1103	1398	1490	1819	2150	2504	2884	3292	3705
	BRG	-	1.5/3	1.5/3	1.7/4.3	1.9/4.7	2.4/5.9	2.5/6.3	3.1/7.7	3.6/9.1	4.2/10.6	4.9/12.2	5.6/13.9	6.3/15.7
11	LL	-	-	514	557	924	1087	-	-	-	-	-	-	
	TL	-	87	204	762	826	1250	1331	1618	1905	2211	2535	2882	3228
	BRG	-	1.5/3	1.5/3	1.5/3.6	1.5/3.9	2.3/5.8	2.5/6.2	3/7.5	3.5/8.9	4.1/10.3	4.7/11.8	5.4/13.4	6/15
12	LL	-	-	396	429	712	837	1372	-	-	-	-	-	
	TL	-	-	142	585	635	1058	1172	1457	1711	1979	2262	2562	2860
	BRG	-	-	1.5/3	1.5/3	1.5/3.2	2.2/5.4	2.4/6	3/7.4	3.5/8.7	4/10.1	4.6/11.5	5.2/13	5.8/14.5
13	LL	-	-	311	337	560	659	1079	-	-	-	-	-	
	TL	-	-	102	459	497	830	977	1325	1552	1790	2041	2305	2566
	BRG	-	-	1.5/3	1.5/3	1.5/3	1.8/4.6	2.2/5.4	2.9/7.3	3.4/8.6	3.9/9.9	4.5/11.2	5.1/12.7	5.7/14.1
14	LL	-	-	249	270	448	527	864	1290	-	-	-	-	
	TL	-	-	74	365	396	662	780	1156	1420	1635	1859	2095	2327
	BRG	-	-	1.5/3	1.5/3	1.5/3	1.6/4	1.9/4.7	2.8/6.9	3.4/8.4	3.9/9.7	4.4/11	5/12.4	5.5/13.8
15	LL	-	-	203	220	365	429	703	1049	1493	-	-	-	
	TL	-	-	296	321	537	632	1006	1280	1504	1707	1920	2128	
	BRG	-	-	1.5/3	1.5/3	1.5/3.4	1.6/4.1	2.6/6.4	3.3/8.2	3.8/9.6	4.3/10.9	4.9/12.2	5.4/13.5	
16	LL	-	-	167	181	300	353	579	864	1230	-	-	-	
	TL	-	-	242	263	440	519	856	1124	1391	1578	1771	1960	
	BRG	-	-	1.5/3	1.5/3	1.5/3	1.5/3.6	2.3/5.8	3.1/7.7	3.8/9.5	4.3/10.7	4.8/12	5.3/13.3	
17	LL	-	-	139	151	250	295	483	720	1026	1407	-	-	
	TL	-	-	200	218	365	431	711	994	1230	1466	1644	1817	
	BRG	-	-	1.5/3	1.5/3	1.5/3	1.5/3.2	2.1/5.2	2.9/7.2	3.6/8.9	4.2/10.6	4.8/11.9	5.3/13.1	
18	LL	-	-	117	127	211	248	407	607	864	1185	-	-	
	TL	-	-	168	182	306	361	597	885	1095	1326	1534	1693	
	BRG	-	-	1.5/3	1.5/3	1.5/3	1.5/3	1.8/4.6	2.7/6.8	3.4/8.4	4.1/10.2	4.7/11.8	5.2/13	
19	LL	-	-	108	179	211	346	516	735	1008	1342	-	-	
	TL	-	-	153	259	306	506	760	981	1188	1412	1584	-	
	BRG	-	-	1.5/3	1.5/3	1.5/3	1.5/3	1.7/4.1	2.5/6.2	3.2/8	3.9/9.6	4.6/11.4	5.1/12.8	
20	LL	-	-	154	181	296	442	630	864	1150	1470	-	-	
	TL	-	-	220	261	432	649	884	1070	1272	1475	-	-	
	BRG	-	-	1.5/3	1.5/3	1.5/3.7	2.2/5.6	3/7.6	3.7/9.1	4.3/10.9	5/12.6	-	-	
21	LL	-	-	133	156	256	382	544	747	994	1270	-	-	
	TL	-	-	189	224	371	559	800	969	1152	1336	-	-	
	BRG	-	-	1.5/3	1.5/3	1.5/3.4	2/5.1	2.9/7.2	3.5/8.7	4.1/10.3	4.8/12	-	-	
22	LL	-	-	116	136	223	332	473	649	864	1105	-	-	
	TL	-	-	163	193	321	484	694	881	1048	1216	-	-	
	BRG	-	-	1.5/3	1.5/3	1.5/3.1	1.8/4.6	2.6/6.6	3.3/8.3	3.9/9.9	4.6/11.4	-	-	
23	LL	-	-	119	195	291	414	568	756	967	-	-	-	
	TL	-	-	168	280	422	605	805	957	1110	-	-	-	
	BRG	-	-	1.5/3	1.5/3	1.7/4.2	2.4/6	3.2/8	3.8/9.4	4.4/10.9	-	-	-	
24	LL	-	-	172	256	365	500	666	851	-	-	-	-	
	TL	-	-	245	370	530	732	877	1018	-	-	-	-	
	BRG	-	-	1.5/3	1.5/3.9	2.2/5.5	3/7.6	3.6/9	4.2/10.5	-	-	-	-	
25	LL	-	-	152	227	323	442	589	753	-	-	-	-	
	TL	-	-	215	325	467	646	807	936	-	-	-	-	
	BRG	-	-	1.5/3	1.5/3.6	2/5.1	2.8/7	3.5/8.7	4/10.1	-	-	-	-	
26	LL	-	-	135	201	287	393	524	669	-	-	-	-	
	TL	-	-	190	288	414	572	745	864	-	-	-	-	
	BRG	-	-	1.5/3	1.5/3.3	1.9/4.7	2.6/6.4	3.3/8.4	3.9/9.7	-	-	-	-	
27	LL	-	-	120	180	256	351	468	598	-	-	-	-	
	TL	-	-	168	255	368	509	681	800	-	-	-	-	
	BRG	-	-	1.5/3	1.5/3.1	1.7/4.4	2.4/6	3.2/8	3.7/9.3	-	-	-	-	
28	LL	-	-	108	161	230	315	419	536	-	-	-	-	
	TL	-	-	149	227	328	454	609	742	-	-	-	-	
	BRG	-	-	1.5/3	1.5/3	1.6/4.1	2.2/5.6	3/7.4	3.6/9	-	-	-	-	
29	LL	-	-	145	207	283	377	482	600	-	-	-	-	
	TL	-	-	203	294	407	546	690	810	-	-	-	-	
	BRG	-	-	1.5/3	1.5/3.8	2.1/5.2	2.8/6.9	3.5/8.7	4.1/10.1	-	-	-	-	
30	LL	-	-	131	187	256	341	436	536	-	-	-	-	
	TL	-	-	182	264	366	491	632	753	-	-	-	-	
	BRG	-	-	1.5/3	1.5/3.5	1.9/4.8	2.6/6.4	3.3/8.2	3.9/9.3	-	-	-	-	

\* Can be applied to the beam in addition to its own weight.

Simple or multiple beam spans.

2 plies minimum for depths greater than 14 inches.

Wax-based sealer applied to mitigate moisture issues associated with wood products during storage and construction.

### Key to Table:

LL = Maximum live load - limits deflection to L/360

TL = Maximum total load - limits deflections to L/240 (or a maximum of 0.3125" for beams 7 1/4" deep or less)

BRG = Required end/intermediate bearing length (inches), based on bearing stress of 850 psi.

# 1.5E PWLVL Rim Board

## 1.5E PWLVL RIM BOARD REFERENCE DESIGN VALUES<sup>(1)</sup>

Horizontal Load = 200 plf<sup>(2)</sup>  
 Fasten to the wall plate with 8d box or common nails at 6" o.c.  
 Value applies to a ten minute wind or earthquake load duration (C<sub>D</sub> = 1.60)

Vertical Load = 3450 plf<sup>(2)</sup>  
 ½" Diameter Lag Screw or Bolt Lateral Load = 350 lb<sup>(3)</sup>

## 1.5E PWLVL REFERENCE DESIGN VALUES<sup>(1)</sup>

Modulus of Elasticity E = 1,500,000 psi<sup>(2)</sup>  
 Bending (beam) F<sub>b</sub> = 2,250 psi<sup>(3)</sup>  
 May be adjusted by (12/d)<sup>1/5</sup>, where d is the depth of the member (inches)  
 May be adjusted by 104 for repetitive members as defined in ANSI/AF&PA NDS

Horizontal Shear (beam) F<sub>v</sub> = 230 psi<sup>(3)</sup>  
 Compression Perpendicular to Grain (beam) F<sub>c⊥</sub> = 750 psi<sup>(2)</sup>

### Notes:

1. Values apply to dry service conditions
2. Do not adjust for load duration
3. May be adjusted for load duration

## EQUIVALENT SPECIFIC GRAVITY FOR FASTENER DESIGN

Nails & Wood Screws	Face	Lateral	0.50
		Edge	Lateral
Bolts & Lag Screws	Face		Lateral

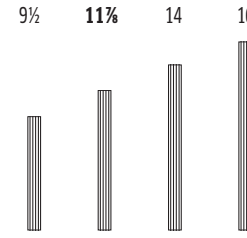
## CLOSEST ON-CENTER SPACING for a single row of nails in the narrow face

Nail Size	Spacing
8d common (2½" x 0.131")	3"
10d common (3" x 0.148")	4"
16d common (3½" x 0.162")	6" <sup>(1)</sup>

1. May be 4" when nailing through bottom wall plate and sheathing (maximum 1½" penetration).

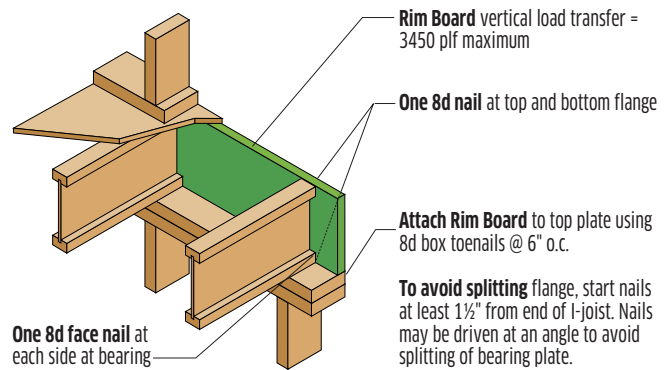
## 1¼", 1½", AND 1¾" 1.5E PWLVL RIM BOARD

### AVAILABLE SIZES (INCHES):

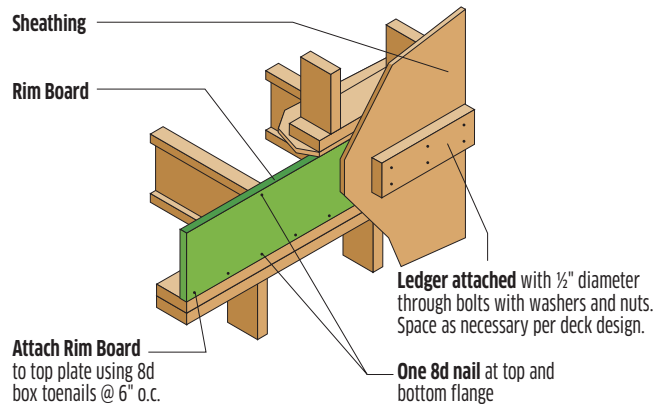


### WEIGHTS (PLF):

3.1    3.9    4.5    5.2



## DECK ATTACHMENT



# 2.0E PWLVL Columns

The properties that make PWLVL a superior beam material make it ideal for column use as well. In PWLVL columns, you'll find only quality construction, free of deep cracks, checks or twists. These columns are desirable enough to leave exposed, for a beautiful finish.

## 2.0E PWLVL COLUMNS ARE AVAILABLE IN:

3½" x 3½"	–	–
3½" x 5½"	5¼" x 5½"	–
3½" x 7¼"	5¼" x 7¼"	7 x 7¼"

## Reference Column Design Values

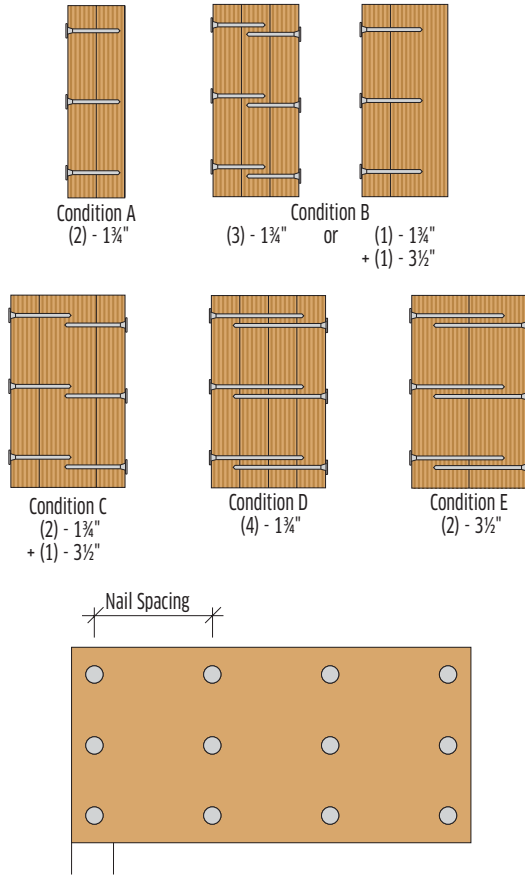
E = 2,000,000 psi  
 COV<sub>E</sub> = 0.10  
 F<sub>b</sub>-BEAM = 3100 psi x (12/d<sub>1</sub>)<sup>1/5</sup>  
 d<sub>1</sub> = wide-face dimension [inches]  
 F<sub>b</sub>-PLANK = 3100 psi x (1.75/d<sub>2</sub>)<sup>1/3</sup>  
 d<sub>2</sub> = narrow-face dimension [feet]  
 F<sub>c</sub> = 2750 psi

Contact us for special-order column sizes at  
[www.pacificwoodtech.com/PWLVL](http://www.pacificwoodtech.com/PWLVL) or call 888.707.2285.

# Multiple-Ply PWLVL Beam Assembly

## COMBINATIONS OF 1 1/4" AND 3 1/2" PLIES

### NAILS



### 1 1/4" AND 3 1/2" PLIES—MAXIMUM UNIFORM SIDE LOAD (PLF)

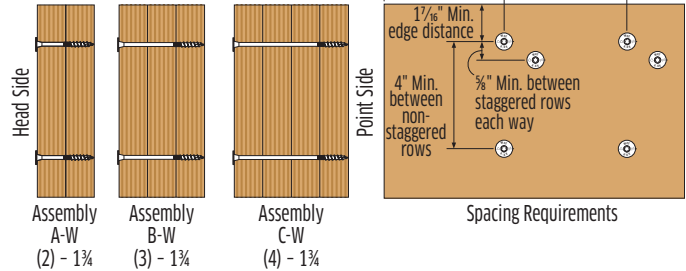
Condition	3 1/4" x 0.131" Nails		16d Common Nails	
	2 Rows at 12" o.c.	3 Rows at 12" o.c.	2 Rows at 12" o.c.	3 Rows at 12" o.c.
Condition A (2-1 1/4")	390	585	565	845
Condition B (3-1 1/4" OR 1-1 1/4" + 1-3 1/2")	290	435	425	635
Condition C (2-1 1/4" + 1-3 1/2")	260	390	375	565
Condition D (4-1 1/4")	Use bolts for this condition			
Condition E (2-3 1/2")	Use bolts for this condition			

### Notes:

- Minimum fastener schedule for smaller side loads and top-loaded beams:  
Conditions A, B & C, beams 12" deep or less: 2 rows 3 1/4" x 0.131" at 12" o.c.  
Conditions A, B & C, beams deeper than 12": 3 rows 3 1/4" x 0.131" at 12" o.c.  
Conditions D & E, all beam depths: 2 rows 1/2" bolts at 24" o.c.
- The table values for nails may be doubled for 6" o.c. and tripled for 4" o.c. nail spacings.
- The nail schedules shown apply to both sides of a three-ply beam.
- The table values apply to bolts meeting the requirements of *ANSI/ASME Standard B18.2.1*. A standard cut washer, or metal plate or strap of equal or greater dimensions, shall be provided between the wood and the bolt head and between the wood and the nut. The distance from the edge of the beam to the bolt holes must be at least 2" for 1/2" bolts. Bolt holes shall be the same diameter as the bolt.
- 7" wide beams must be loaded from both sides and/or top loaded.
- Beams wider than 7" must be designed by the engineer of record.
- Load duration factors may be applied to the table values.
- For proprietary fastener alternatives, consult the manufacturer's literature.

## COMBINATIONS OF 1 1/4" PLIES

### STRONG-DRIVE® SDW STRUCTURAL WOOD SCREWS



### SIDeloaded 1 1/4" MULTI-PLY SCL ASSEMBLIES – ALLOWABLE UNIFORM LOAD APPLIED TO EITHER OUTSIDE MEMBER

Multiple Members	Nominal Screw Length (in)	Loaded Side	Structural Composite Lumber						
			SDW @ 12" o.c.		SDW @ 16" o.c.		SDW @ 24" o.c.		
			2 Rows	3 Rows	2 Rows	3 Rows	2 Rows	3 Rows	
A-W	2-ply SCL	3%	1600	2400	1200	1800	800	1200	
			Head	1200	1800	900	1350	600	900
B-W	3-ply SCL	5	Point	900	1350	675	1015	450	675
			Head	1065	1600	800	1200	535	800
C-W	4-ply SCL	6%	Point	800	1200	600	900	400	600
			Head	800	1200	600	900	400	600

- Each ply is assumed to carry same proportion of load.
- Loads may be applied to the head side and point side concurrently provided neither published allowable load is exceeded. (Example: a 3-ply assembly with a head side load of 1300 plf and point side load of 1000 plf may be fastened together with 3 rows of SDW @ 16" o.c.)
- When hangers are installed on point side, hanger face fasteners must be a minimum of 3" long.
- Tables are based on Main Member Penetration as noted in Single-Fastener Load Tables of the *Simpsons Strong-Tie Fastening Systems 2014-2015 Catalog C-f-14* (page 302).

### Installation

- SDW screws install best with a low-speed 1/2" drill and a T-40 6-lobe bit. The matched bit included with the screws is recommended for best results.
- Screw heads that are countersunk flush to the wood surface are acceptable if the screw has not spun out.
- Individual screw locations may be adjusted up to 3" to avoid conflicts with other hardware or to avoid lumber defects.

### SCREW DIMENSIONS

Model No.	Nominal Screw Length (L) (in)	Thread Length (TL) (in)	Head Stamp Length
SDW22338	3%	1 1/8"	3.37
SDW22500	5	1 1/8"	5.00
SDW22634	6%	1 1/8"	6.75

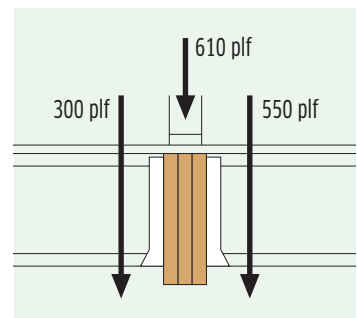
- Pre-drilling is typically not required.

## How to Use the Maximum Uniform Side Load Table

### EXAMPLE: THREE 1 1/4" PLIES LOADED FROM BOTH SIDES AND ABOVE (COND. B)

- Use allowable load tables or sizing software to size the beam to carry a total load of (300 + 610 + 550) = 1460 plf.

- Refer to the Condition B row in the table. Scan across the row from left to right for a table value greater than 550 plf, which is the greatest side load carried by the beam. The fourth value in the row indicates that 3 rows of 16d common nails at 12" o.c. will accommodate a side load of 635 plf which is greater than the 550 plf required. Use 3 rows of 16d common nails at 12" o.c., from both sides, to assemble the beam.







# PWLVL Dimension

## Laminated Veneer Lumber Engineered for Structural Framing

Extra-long PWLVL Dimension floor framing offers a stronger, stiffer, and straighter product than dimension lumber for all your structural applications. PWLVL Dimension is competitive in materials cost and is easy to handle and install, which can result in shorter construction schedules, saving you time and money. Build with confidence.

Use beam-calculating software for better optimization of material selection and on-center spacing.

PWLVL Dimension is available in virtually any length.

### PWLVL DIMENSION DESIGN PROPERTY COMPARISON<sup>(1)(2)</sup>

Product		Modulus of Elasticity E (psi)	Bending F <sub>b</sub> (psi) <sup>(3)</sup>	Horizontal Shear F <sub>v</sub> (psi)	Compression Parallel to Grain F <sub>c</sub> (psi) <sup>(4)</sup>
2 x 4	1.5" x 3.5" x 2.0E PWLVL	2000000	4125	285	2750
	1.5" x 3.5" x 1.8E PWLVL	1800000	3660	285	2450
	1.5" x 3.5" x 1.5E PWLVL	1500000	2995	230	1950
	2x4 Douglas Fir-Larch No. 2	1600000	1555	180	1550
	2x4 Spruce-Pine-Fir No. 1 / No. 2	1400000	1510	135	1325
	2x4 Hem-Fir No. 2	1300000	1465	150	1495
	2x4 Western Woods No. 2	1000000	1165	135	1035
2 x 6	1.5" x 5.5" x 2.0E PWLVL	2000000	3770	285	2750
	1.5" x 5.5" x 1.8E PWLVL	1800000	3345	285	2450
	1.5" x 5.5" x 1.5E PWLVL	1500000	2735	230	1950
	2x6 Douglas Fir-Larch No. 2	1600000	1345	180	1485
	2x6 Spruce-Pine-Fir No. 1 / No. 2	1400000	1310	135	1265
	2x6 Hem-Fir No. 2	1300000	1270	150	1430
	2x6 Western Woods No. 2	1000000	1010	135	990
2 x 8	1.5" x 7.25" x 2.0E PWLVL	2000000	3565	285	2750
	1.5" x 7.25" x 1.8E PWLVL	1800000	3165	285	2450
	1.5" x 7.25" x 1.5E PWLVL	1500000	2590	230	1950
	2x8 Douglas Fir-Larch No. 2	1600000	1240	180	1420
	2x8 Spruce-Pine-Fir No. 1 / No. 2	1400000	1205	135	1210
	2x8 Hem-Fir No. 2	1300000	1175	150	1365
	2x8 Western Woods No. 2	1000000	930	135	945
2 x 10	1.5" x 9.25" x 2.0E PWLVL	2000000	3395	285	2750
	1.5" x 9.25" x 1.8E PWLVL	1800000	3015	285	2450
	1.5" x 9.25" x 1.5E PWLVL	1500000	2465	230	1950
	2x10 Douglas Fir-Larch No. 2	1600000	1140	180	1350
	2x10 Spruce-Pine-Fir No. 1 / No. 2	1400000	1105	135	1150
	2x10 Hem-Fir No. 2	1300000	1075	150	1300
	2x10 Southern Pine No. 2	1400000	920	175	1300
2 x 12	1.5" x 11.25" x 2.0E PWLVL	2000000	3265	285	2750
	1.5" x 11.25" x 1.8E PWLVL	1800000	2895	285	2450
	1.5" x 11.25" x 1.5E PWLVL	1500000	2370	230	1950
	2x12 Douglas Fir-Larch No. 2	1600000	1035	180	1350
	2x12 Spruce-Pine-Fir No. 1 / No. 2	1400000	1005	135	1150
	2x12 Hem-Fir No. 2	1300000	975	150	1300
	2x12 Southern Pine No. 2	1400000	860	175	1250

(1) Refer to APA PR-L233 for PWLVL adjustment factors and other design properties.

(2) Refer to the 2015 NDS<sup>®</sup> for lumber adjustment factors and other design properties.

(3) Load applied to the narrow face of the member. Repetitive member and size factors have been applied where applicable.

(4) Size factors have been applied to lumber values where applicable.

For information about our complete line of products, please visit [www.pacificwoodtech.com/products](http://www.pacificwoodtech.com/products) or call 888.707.2285.

# Framing Connectors

Series	Flange Width
PWI-20	1 3/8"
PWI-45	2 1/8"
PWI-60, PWI-70, PWI-77	2 3/8"
PWI-90	3 1/2"

## FACE MOUNT HANGERS

SINGLE I-JOIST				DOUBLE I-JOIST			
Width	Depth	Hanger	Load <sup>2</sup> (100 <sup>3</sup> )	Width	Depth	Hanger	Load <sup>2</sup> (100 <sup>3</sup> )
1 1/2"	9 1/2"	U210 <sup>1</sup>	1215	3"	9 1/2"	MIU3.12/9	2305
	11 1/8"	U210 <sup>1</sup>	1215		11 1/8"	MIU3.12/11	2880
	14"	U210 <sup>1</sup>	1215		14"	MIU3.12/11 <sup>1</sup>	2880
1 3/4"	9 1/2"	IUS1.81/9.5	950	3 1/2"	9 1/2"	MIU3.56/9	2305
	11 1/8"	IUS1.81/11.88	1185		11 1/8"	MIU3.56/11	2880
	14"	IUS1.81/14	1420		14"	MIU3.56/14	3170
2 1/8"	16"	IUS1.81/16	1660	4 1/8"	16"	MIU3.56/16	3455
	9 1/2"	IUS2.06/9.5	950		9 1/2"	MIU4.28/9	2305
	11 1/8"	IUS2.06/11.88	1185		11 1/8"	MIU4.28/11	2880
2 1/2"	14"	IUS2.06/14	1420	4 1/2"	14"	MIU4.28/14	3170
	16"	IUS2.06/16	1660		16"	MIU4.28/16	3455
	9 1/2"	IUS2.37/9.5	950		9 1/2"	MIU4.75/9	2305
2 5/8"	11 1/8"	IUS2.37/11.88	1185	4 3/4"	11 1/8"	MIU4.75/11	2880
	14"	IUS2.37/14	1420		14"	MIU4.75/14	3170
	16"	IUS2.37/16	1660		16"	MIU4.75/16	3455
3"	18"	MIU2.37/18	3745	7"	18"	MIU4.75/18	3745
	20"	MIU2.37/20	4030		20"	MIU4.75/20	4030
	22"	MIU2.37/20 <sup>1</sup>	4030		22"	MIU4.75/20 <sup>1</sup>	4030
3 1/2"	24"	MIU2.37/20 <sup>1</sup>	4030	7 1/2"	24"	MIU4.75/20 <sup>1</sup>	4030
	9 1/2"	IUS3.56/9.5	1185		9 1/2"	HU410-2 <sup>1</sup>	2680
	11 1/8"	IUS3.56/11.88	1420		11 1/8"	HU412-2 <sup>1</sup>	3275
3 3/4"	14"	IUS3.56/14	1420	7 1/4"	14"	HU414-2 <sup>1</sup>	3870
	16"	IUS3.56/16	1660		16"	HU414-2 <sup>1</sup>	3870
	18"	MIU3.56/18 <sup>1</sup>	3745		18"	HU414-2 <sup>1</sup>	3870
4"	20"	MIU3.56/20 <sup>1</sup>	4030	7 1/2"	20"	HU414-2 <sup>1</sup>	3870
	22"	MIU3.56/20 <sup>1</sup>	4030		22"	HU414-2 <sup>1</sup>	3870
	24"	MIU3.56/20 <sup>1</sup>	4030		24"	See Simpson Catalog*	

- Web stiffeners required.
- Loads shown are for hangers installed on Douglas-fir-Larch or equivalent. Fill all face nail holes and fill round joist nail holes; Face nails shall be 16d common, except for IUS, which use 10d common.

## TOP FLANGE HANGERS

SINGLE I-JOIST				DOUBLE I-JOIST			
Width	Depth	Hanger	Load <sup>2</sup> (100 <sup>3</sup> )	Width	Depth	Hanger	Load <sup>2</sup> (100 <sup>3</sup> )
1 1/2"	9 1/2"	ITS1.56/9.5	1520	3"	9 1/2"	LBV3.12/9.5	2590
	11 1/8"	ITS1.56/11.88	1520		11 1/8"	LBV3.12/11.88	2590
	14"	LBV1.56/14	2590		14"	LBV3.12/14	2590
1 3/4"	9 1/2"	ITS1.81/9.5	1520	3 1/2"	9 1/2"	MIT49.5	2305
	11 1/8"	ITS1.81/11.88	1520		11 1/8"	MIT411.88	2305
	14"	ITS1.81/14	1520		14"	MIT414	2305
2 1/8"	16"	ITS1.81/16	1520	4 1/8"	16"	MIT416	2305
	9 1/2"	ITS2.06/9.5	1520		9 1/2"	MIT4.28/9.5	2305
	11 1/8"	ITS2.06/11.88	1520		11 1/8"	MIT4.28/11.88	2305
2 1/2"	14"	ITS2.06/14	1520	4 1/2"	14"	MIT4.28/14	2305
	16"	ITS2.06/16	1520		16"	LBV4.28/16	2590
	9 1/2"	ITS2.37/9.5	1520		9 1/2"	MIT359.5-2	2305
2 5/8"	11 1/8"	ITS2.37/11.88	1520	4 3/4"	11 1/8"	MIT3511.88-2	2305
	14"	ITS2.37/14	1520		14"	MIT3514-2	2305
	16"	ITS2.37/16	1520		16"	MIT4.75/16	2305
3"	18"	MIT3518	2305	7"	18"	LBV4.75/18	2590
	20"	MIT3520	2305		20"	LBV4.75/20	2590
	22"	LBV2.37X	2590		22"	B4.75X	3800
3 1/2"	24"	LBV2.37X	2590	7 1/2"	24"	B4.75X	3800
	9 1/2"	ITS3.56/9.5	1520		9 1/2"	B7.12/9.5	3800
	11 1/8"	ITS3.56/11.88	1520		11 1/8"	B7.12/11.88	3800
3 3/4"	14"	ITS3.56/14	1520	7 1/4"	14"	B7.12/14	3800
	16"	ITS3.56/16	1520		16"	B7.12/16	3800
	18"	MIT418 <sup>1</sup>	2305		18"	HB7.12/18	5650
4"	20"	MIT420 <sup>1</sup>	2305	7 1/2"	20"	HB7.12/20	5650
	22"	HIT422	2550		22"	HB7.12/22	5650
	24"	HIT424	2550		24"	HB7.12/24	5650

- Web stiffeners required.
- Loads shown are for hangers installed on Douglas-fir-Larch or equivalent. Fill all face nail holes and fill round joist nail holes; Face nails shall be 16d common, except for ITS, which use 10d common.

## ADJUSTABLE HEIGHT HANGERS

SINGLE I-JOIST				DOUBLE I-JOIST			
Width	Depth	Hanger	Load <sup>2</sup> (100 <sup>3</sup> )	Width	Depth	Hanger	Load <sup>2</sup> (100 <sup>3</sup> )
1 1/2"	9 1/2"-11 1/8"	THAI222	1715	3"	9 1/2"-14"	THAI-2	2095
1 3/4"	9 1/2"-14"	THAI1.81/22	1715	3 1/2"	9 1/2"-14"	THAI422	1715
2 1/8"	9 1/2"-14"	THAI2.1/22	1715	4 1/8"	9 1/2"-14"	THAI-2	2095
2 1/2"	9 1/2"-14"	THAI3522	1715	4 3/4"	9 1/2"-14"	THAI-2	2095
3"	9 1/2"-14"	THAI422	1715	7"	9 1/2"-14"	See Simpson Catalog*	

- Web stiffeners required for all I-joists used with Adjustable Height Hangers.
- For joists 16" and above, see Simpson Wood Construction Connectors catalog for hanger selection.
- Loads shown use 10d common nails.

## VARIABLE PITCH - SINGLE I-JOISTS

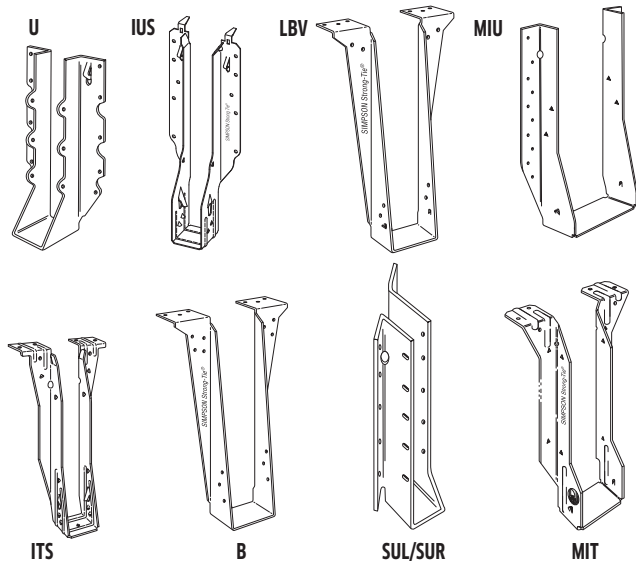
SINGLE I-JOIST			
Width	Depth	Hanger	Load (100 <sup>3</sup> )
1 1/2"	ALL	VPA2	1050
1 3/4"	ALL	VPA25	1050
2 1/8"	ALL	VPA2.1	1230
2 1/2"	ALL	VPA35	1230
3"	ALL	VPA4	1230

- VPA connectors provide a bearing length of 2". They should not be used in applications that require longer bearings, such as intermediate supports.

## SKewed 45° HANGERS

SINGLE I-JOIST				DOUBLE I-JOIST			
Width	Depth	Hanger	Load <sup>2</sup> (100 <sup>3</sup> )	Width	Depth	Hanger	Load <sup>2</sup> (100 <sup>3</sup> )
1 1/2"	9 1/2"	SUR/L210 <sup>1</sup>	1440	3"	9 1/2"	SUR/L210-2 <sup>1</sup>	2015
	11 1/8"	SUR/L210 <sup>1</sup>	1440		11 1/8"	SUR/L210-2 <sup>1</sup>	2015
	14"	SUR/L214	1730		14"	SUR/L214-2 <sup>1</sup>	2500
1 3/4"	9 1/2"	SUR/L1.81/9	1730	3 1/2"	9 1/2"	SUR/L410 <sup>1</sup>	2015
	11 1/8"	SUR/L1.81/11	2305		11 1/8"	SUR/L410 <sup>1</sup>	2015
	14"	SUR/L1.81/14	2500		14"	SUR/L414 <sup>1</sup>	2500
2 1/8"	16"	SUR/L1.81/16	2500	4 1/8"	16"	SUR/L414 <sup>1</sup>	2500
	9 1/2"	SUR/L2.1/9	2015		9 1/2"	HSUR/L4.28/9	1785
	11 1/8"	SUR/L2.1/11	2305		11 1/8"	HSUR/L4.28/11	2380
2 1/2"	14"	SUR/L2.1/14	2590	4 1/2"	14"	HSUR/L4.28/11 <sup>1</sup>	2380
	16"	SUR/L2.1/16	2590		16"	HSUR/L4.28/11 <sup>1</sup>	2380
	9 1/2"	SUR/L2.37/9	2015		9 1/2"	HSUR/L4.75/9	1785
2 5/8"	11 1/8"	SUR/L2.37/11	2305	4 3/4"	11 1/8"	HSUR/L4.75/11	2380
	14"	SUR/L2.37/14	2590		14"	HSUR/L4.75/14	2975
	16"	SUR/L2.37/16	2590		16"	HSUR/L4.75/16	3330
3"	18"	SUR/L2.37/18	2590	7"	18"	HSUR/L4.75/16 <sup>1</sup>	3330
	20"	SUR/L2.37/14 <sup>1</sup>	2590		20"	HSUR/L4.75/16 <sup>1</sup>	3330
	9 1/2"	SUR/L410 <sup>1</sup>	2015		9 1/2"	HU410-2X <sup>1.2</sup>	2145
3 1/2"	11 1/8"	SUR/L410 <sup>1</sup>	2015	7 1/2"	11 1/8"	HU412-2X <sup>1.2</sup>	2620
	14"	SUR/L414 <sup>1</sup>	2500		14"	HU414-2X <sup>1.2</sup>	3095
	16"	SUR/L414 <sup>1</sup>	2500		16"	HU414-2X <sup>1.2</sup>	3095
4"	18"	SUR/L414 <sup>1</sup>	2500	7 1/4"	18"	HU414-2X <sup>1.2</sup>	3095
	20"	SUR/L414 <sup>1</sup>	2500		20"	HU414-2X <sup>1.2</sup>	3095
	22"	SUR/L414 <sup>1</sup>	2500		22"	HU414-2X <sup>1.2</sup>	3095
4 1/2"	24"	See Simpson Catalog*	7 1/2"	24"	See Simpson Catalog*		

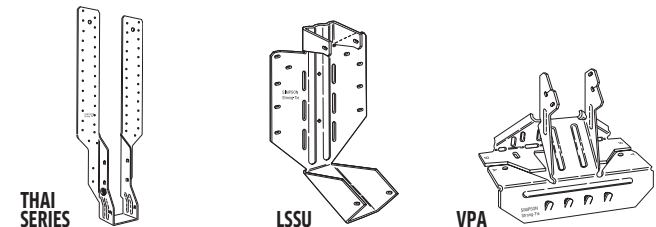
- Web stiffeners required.
- Skewed option must be special ordered. Specify skew angle and direction. Web stiffeners required.
- Loads shown are for hangers installed on Douglas-fir-Larch or equivalent. Fill all face nail holes with 16d common.



## FIELD SLOPE AND SKEW

SINGLE I-JOIST				DOUBLE I-JOIST			
Width	Depth	Hanger	Load (100 <sup>3</sup> )	Width	Depth	Hanger	Load (100 <sup>3</sup> )
1 1/2"	9 1/2"-11 1/8"	LSSU210	995	3"	9 1/2"-14"	LSSU210-2	1625
1 3/4"	9 1/2"-14"	LSSU125	995	3 1/2"	9 1/2"-14"	LSSU410	1625
2 1/8"	9 1/2"-14"	LSSU2.1	995	4 1/8"	9 1/2"-14"	LSU4.28 <sup>1</sup>	2300
2 1/2"	9 1/2"-14"	LSSU135	995	4 3/4"	9 1/2"-14"	LSU3510-2 <sup>1</sup>	2300
3"	9 1/2"-14"	LSSU410	1625	7"	9 1/2"-14"	See Simpson Catalog*	

- Web stiffeners required for all I-joists used with Field Slope and Skew Hangers.
- LSSU510-2 and LSU4.28 are field-sloped only, skew option must be special ordered.



\*See Simpson Strong-Tie Wood Construction Connectors catalog for hanger selection. All hangers listed are manufactured by Simpson Strong-Tie Co., Inc. For additional information, refer to the current Simpson Strong-Tie literature, www.strongtie.com or contact Simpson Strong-Tie at 800-999-5099.



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