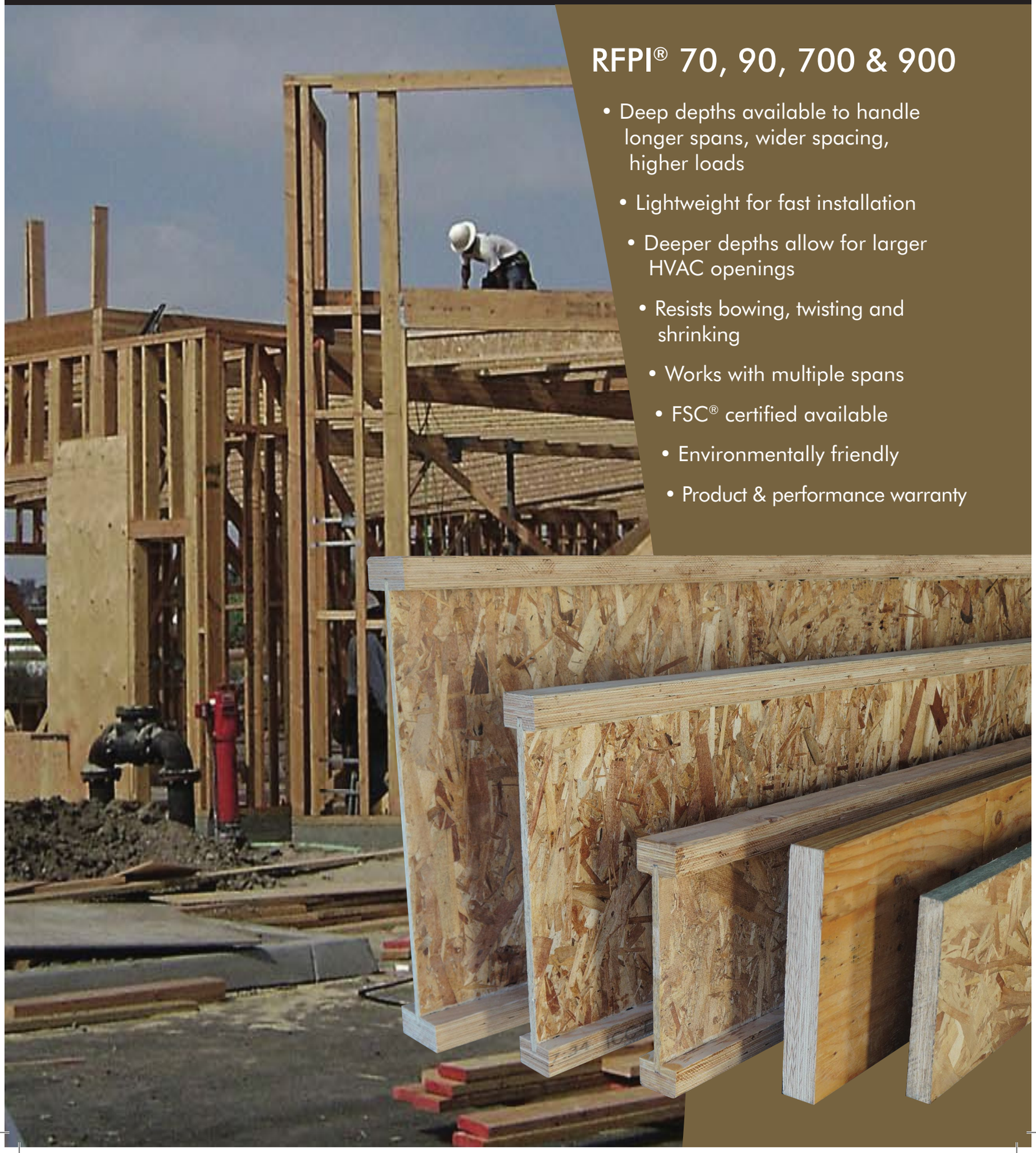
Roseburg
A Forest Products Company
www.Roseburg.com

Roseburg EWP COMMERCIAL Design and Installation Guide



RFPI® 70, 90, 700 & 900

- Deep depths available to handle longer spans, wider spacing, higher loads
- Lightweight for fast installation
- Deeper depths allow for larger HVAC openings
- Resists bowing, twisting and shrinking
- Works with multiple spans
- FSC® certified available
- Environmentally friendly
- Product & performance warranty

FSC® CERTIFIED RFPI® JOIST & RIGIDLAM® LVL Are Available From Roseburg

Architects, structural engineers and builders can specify FSC certified engineered wood products that can contribute to achieving additional LEED® credits for your project.

Roseburg has been certified by Scientific Certification Systems (SCS) to produce Forest Stewardship Council (FSC) Certified RFPI® Joist and RigidLam® LVL under registration code SCS-COC-000300. Wood products certified by SCS are recognized as coming from well-managed forests, adhering to strict environmental and socioeconomic standards in accordance with the principles and criteria of the FSC.

For additional information regarding LEED 2009 and LEED v4 credit support please refer to the following links on the Roseburg website.

www.roseburg.com/UserFiles/Library/EWP_LEED_2009_Credit_Support.pdf

www.roseburg.com/UserFiles/Library/EWP_LEED_v4_Credit_Support.pdf

FSC
www.fsc.org
FSC® C017580

The mark of responsible forestry

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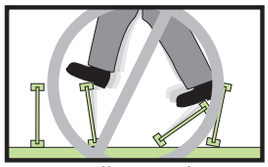
IMPORTANT: **All Roseburg Engineered Wood Products are intended and warranted for use in dry-service conditions (i.e. where the average equilibrium moisture content of solid-sawn lumber is less than 16%).**

DESIGN SUPPORT

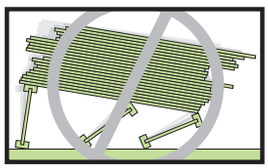
The various charts and tables in this literature are based on accepted, typical loading conditions, on center spacing, deflection criteria and/or spans. **This printed information allows the end user to identify and install properly sized RFP engineered wood products without the need for specific design or engineering calculations.** Design software; however, such as Simpson Strong-Tie® Component Solutions™, allows the user to input project specific information into the software which may give a less restrictive solution than the generic information in the printed literature. Rest assured that both the literature and the Component Solutions™ software are based on the appropriate design properties listed in the current code reports.

For additional assistance with specific product design questions, product availability, and territory sales manager locations, please visit our website at www.Roseburg.com, or contact Roseburg Forest Products at 1-800-347-7260, or at the address listed on the back cover.

Safety & Construction Precautions



Do not allow workers to walk on I-joists or LVL beams until they are fully installed and braced, or serious injuries can result.



Never stack building materials over unsheathed I-joists. Stack only over braced beams or walls.

WARNING

I-joists and LVL beams are not stable until completely installed, and will not carry any load until fully braced and sheathed.

Avoid Accidents by Following These Important Guidelines:

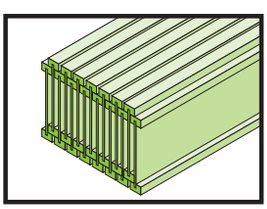
1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends.
2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
   - Temporary bracing or struts must be 1 x 4 inch minimum, at least 8 feet long and spaced no more than 8 feet on center, and must be secured with a minimum of two 8d nails fastened to the top surface of each I-joist. Nail bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
   - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
4. Install and nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only. See APA Technical Note number J735B "Temporary Construction Loads Over I-Joist Roofs and Floors" for additional information regarding proper stacking of building materials.
5. ***Never*** install a damaged I-joist or LVL beam.

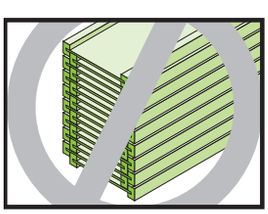
Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for RFPI®-Joists or RigidLam® LVL, failure to use allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.

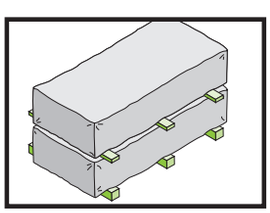
These are general recommendations and in some cases additional precautions may be required.

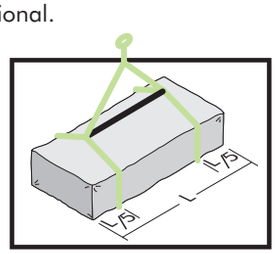
Storage & Handling Guidelines

- Do not drop I-joists or LVL off the delivery truck. Best practice is use of a forklift or boom.
- Store bundles upright on a smooth, level, well-drained supportive surface.
- DO NOT store I-joists or LVL in direct contact with the ground. Bundles should be a minimum of 6" off the ground and supported every 10' or less.
- Always stack and handle I-joists in their upright position only.
- Place 2x or LVL spacers (at a maximum of 10' apart) between bundles stored on top of one another. Spacers above should be lined up with spacers below.
- Bundles should remain wrapped, strapped, and protected from the weather until time of installation.
- Do not lift I-joist bundles by top flange.
- Avoid excessive bowing or twisting of I-joists or LVL during all phases of handling and installation (i.e. measuring, sawing or placement). Never load I-joists in the flat-wise orientation.
- Take care to avoid forklift damage. Reduce forklift speed to avoid "bouncing" the load.
- When handling I-joists with a crane ("picking"), take a few simple precautions to prevent damage to the I-joists and injury to your work crew:
  - Pick I-joists in the bundles as shipped by the supplier.
  - Orient the bundles so that the webs of the I-joists are vertical.
  - Pick the bundles at the 5th points, using a spreader bar if necessary.
- Do not stack LVL bundles on top of I-joist bundles.
- NEVER USE A DAMAGED I-JOIST OR LVL. All field repairs must be approved by a Design Professional.





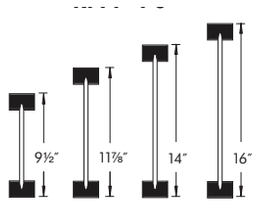




RFPI®-Joist Design Properties

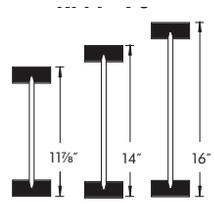
I-JOIST DIMENSIONS

RFPI® 70



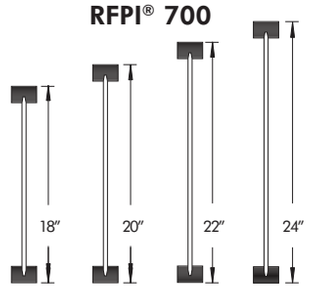
2-5/16" wide x 1-1/2" LVL Flange
3/8" OSB Web

RFPI® 90



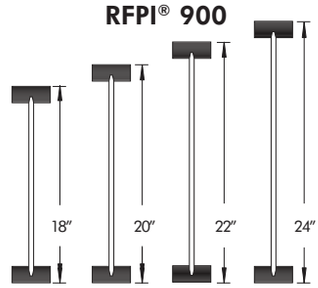
3-1/2" wide x 1-1/2" LVL Flange
7/16" OSB Web

RFPI® 700



2-5/16" wide x 1-1/2" LVL Flange
7/16" OSB Web

RFPI® 900



3-1/2" wide x 1-1/2" LVL Flange
7/16" OSB Web

TABLE 1: DESIGN PROPERTIES FOR RFPI-JOISTS(1)

Roseburg Designation	EI(2) x10⁶ lb-in.²	M(3) lb-ft	V(4) lb	VLC(5) lb/ft	K(6) x10⁶ lb	Weight lb/ft
9-1/2" RFPI 70	266	5,130	1,330	2,000	4.94	2.57
11-7/8″ RFPI 70	455	6,645	1,550	2,000	6.18	2.91
14″ RFPI 70	672	7,925	1,770	2,000	7.28	3.13
16″ RFPI 70	918	9,080	1,970	2,000	8.32	3.35
11-7/8″ RFPI 90	676	10,145	2,050	2,000	6.18	3.84
14″ RFPI 90	992	12,100	2,195	2,000	7.28	4.19
16″ RFPI 90	1,350	13,865	2,330	2,000	8.32	4.42
18" RFPI 700	1,245	10,450	2,575	2,200	11.34	3.85
20″ RFPI 700	1,579	11,600	2,740	2,200	12.60	4.10
22″ RFPI 700	1,955	12,740	2,935	1,800	13.86	4.36
24″ RFPI 700	2,375	13,870	3,060	1,750	15.12	4.61
18" RFPI 900	1,849	16,080	2,885	2,200	11.34	4.80
20″ RFPI 900	2,337	17,855	2,945	2,200	12.60	5.21
22″ RFPI 900	2,886	19,615	3,010	1,800	13.86	5.47
24″ RFPI 900	3,496	21,355	3,060	1,750	15.12	5.67

(1) The tabulated values are design values for 100% duration of load. All values except for EI and K are permitted to be adjusted for other load durations as permitted by code with the further exception that VLC shall not be increased for shorter durations of load. Design values listed are applicable for Allowable Stress Design (ASD).

(2) Bending stiffness (EI) of the I-joist.

(3) Moment capacity (M) of a single I-joist. **Moment capacity of the I-Joist shall not be increased by any repetitive member use factor.**

(4) Shear capacity (V) of the I-joist.

(5) Vertical Load Capacity when continuously supported.

(6) Coefficient of shear deflection (K), used to calculate deflections for I-joist application. Equations 1 and 2 below are provided for uniform load and center point load conditions for simple spans.

Uniform Load:

$$[1]\quad \delta = \frac{5\omega\ell^4}{384EI} + \frac{\omega\ell^2}{K}$$

Center-Point Load:

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

where:

δ = calculated deflection (in.)
ω = uniform load (lb/in.)
ℓ = design span (in.)
P = concentrated load (lb)
EI = bending stiffness of the I-joist (lb-in²)
K = coefficient of shear deflection (lb)

TABLE A: RFPI-JOIST REACTION CAPACITIES WITH OR WITHOUT WEB STIFFENERS (W.S.)(1) (2)

Roseburg Designation	End Reaction (lbs)				Intermediate Reaction (lbs)			
	1-3/4″ Bearing		3-1/2″ Bearing		3-1/2″ Bearing		5-1/4″ Bearing	
	No W.S.	With W.S.	No W.S.	With W.S.	No W.S.	With W.S.	No W.S.	With W.S.
9-1/2" RFPI 70	1,120	1,330	1,280	1,330	2,335	2,500	2,550	2,650
11-7/8″ RFPI 70	1,200	1,470	1,470	1,530	2,500	2,625	2,660	2,870
14″ RFPI 70	1,200	1,590	1,470	1,730	2,500	2,740	2,755	3,065
16″ RFPI 70	1,200	1,710	1,470	1,910	2,500	2,850	2,850	3,250
11-7/8" RFPI 90	1,400	1,745	1,775	1,980	3,355	3,475	3,475	3,675
14″ RFPI 90	1,400	1,885	1,775	2,125	3,355	3,500	3,500	3,850
16″ RFPI 90	1,400	2,025	1,775	2,260	3,355	3,525	3,525	4,025
18" RFPI 700	1,125	2,200	1,650	2,575	2,745	4,050	3,025	4,475
20″ RFPI 700	1,090	2,300	1,585	2,740	2,745	4,050	3,025	4,475
22″ RFPI 700	-	2,400	-	2,935	-	4,150	-	4,605
24″ RFPI 700	-	2,500	-	3,060	-	4,150	-	4,605
18" RFPI 900	1,475	2,570	1,765	2,885	3,000	5,110	3,475	5,710
20″ RFPI 900	1,350	2,665	1,700	2,945	3,000	5,110	3,475	5,710
22″ RFPI 900	-	2,755	-	3,010	-	5,405	-	6,020
24″ RFPI 900	-	2,850	-	3,060	-	5,405	-	6,020

General Note: Determine the allowable reaction capacity from Table A and Table B and use the lesser of the two values.

See Table A Notes and Table B Notes below.

Table A Notes:

1. The values in Table A are for 100% duration of load. Interpolation between tabulated values is permitted. All values in Table A shall be permitted to be adjusted for other load durations.
2. Refer to *Web Stiffener Requirements* on page 9 for web stiffener size and nail requirements.

TABLE B: RFPI-JOIST REACTION CAPACITIES BASED ON FLANGE COMPRESSION PERP.-TO-GRAIN(1) (2)

Roseburg Designation	End Reaction (lbs)				Intermediate Reaction (lbs)			
	1-3/4″ Bearing		3-1/2″ Bearing		3-1/2″ Bearing		5-1/4″ Bearing	
	No W.S.	With W.S.	No W.S.	With W.S.	No W.S.	With W.S.	No W.S.	With W.S.
All RFPI 70	2,475		4,955		5,490		7,970	
All RFPI 90	3,830		7,660		8,480		12,310	
All RFPI 700	2,475		4,955		5,490		7,970	
All RFPI 900	3,830		7,660		8,480		12,310	

Table B Notes:

1. Maximum allowable reaction capacity based on flange Fc perp. Interpolation between tabulated values in Table B is permitted.
2. The values in Table B are for 100% duration of load and **shall not** be increased for shorter durations of load.

Allowable Floor Clear Spans For RFPI®-Joists

50 PSF LIVE LOAD, 15 PSF PARTITION, 25 PSF DEAD LOAD AND 2000 LB CONCENTRATED LOAD (2½' X 2½' FOOTPRINT)

DEFLECTION LIMITS - LIVE LOAD = L/600 TOTAL LOAD = L/360

Joist Depth	Joist Series	Simple Span				Multiple Span			
		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.
9½"	RFPI 70	12' - 11"	10' - 10"	9' - 8"	4' - 10"	15' - 6"	12' - 5"	-	-
11-7/8"	RFPI 70	17' - 3"	14' - 8"	13' - 2"	6' - 6"	19' - 10"	17' - 3"	10' - 6"	-
14"	RFPI 70	20' - 9"	18' - 1"	16' - 4"	8' - 7"	22' - 7"	18' - 0"	15' - 0"	-
16″	RFPI 70	23' - 1"	20' - 11"	19' - 4"	11' - 3"	25' - 1"	18' - 9"	15' - 7"	5' - 3"
11-7/8"	RFPI 90	20' - 6"	17' - 6"	15' - 8"	12' - 1"	22' - 3"	20' - 1"	18' - 10"	7' - 0"
14"	RFPI 90	23' - 4"	21' - 1"	19' - 5"	16' - 1"	25' - 4"	22' - 11"	19' - 2"	14' - 0"
16″	RFPI 90	25' - 10"	23' - 5"	22' - 0"	20' - 3"	28' - 1"	23' - 3"	19' - 4"	15' - 5"
18″	RFPI 700	25' - 8"	23' - 4"	22' - 0"	20' - 5"	28' - 0"	25' - 5"	22' - 3"	17' - 9"
20″	RFPI 700	27' - 10"	25' - 3"	23' - 10"	22' - 1"	30' - 3"	26' - 9"	22' - 3"	17' - 9"
22″	RFPI 700	29' - 10"	27' - 2"	25' - 7"	23' - 7"	32' - 6"	27' - 5"	22' - 10"	18' - 2"
24″	RFPI 700	31' - 11"	29' - 0"	27' - 4"	24' - 8"	34' - 9"	27' - 5"	22' - 10"	18' - 2"
18″	RFPI 900	28' - 11"	26' - 3"	24' - 8"	22' - 10"	31' - 6"	28' - 6"	26' - 9"	22' - 5"
20″	RFPI 900	31' - 3"	28' - 4"	26' - 8"	24' - 9"	34' - 1"	30' - 10"	28' - 2"	22' - 5"
22″	RFPI 900	33' - 7"	30' - 6"	28' - 8"	26' - 7"	36' - 7"	33' - 2"	29' - 9"	23' - 9"
24″	RFPI 900	35' - 10"	32' - 6"	30' - 7"	28' - 4"	39' - 0"	35' - 4"	29' - 9"	23' - 9"

100 PSF LIVE LOAD, 25 PSF DEAD LOAD

DEFLECTION LIMITS - LIVE LOAD = L/480 TOTAL LOAD = L/240

Joist Depth	Joist Series	Simple Span				Multiple Span			
		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.
9½"	RFPI 70	14' - 2"	12' - 10"	12' - 0"	10' - 5"	15' - 4"	11' - 9"	9' - 9"	7' - 9"
11-7/8"	RFPI 70	16' - 11"	15' - 4"	14' - 5"	11' - 7"	16' - 6"	12' - 4"	10' - 3"	8' - 2"
14"	RFPI 70	19' - 3"	17' - 5"	15' - 9"	12' - 6"	17' - 3"	12' - 11"	10' - 8"	8' - 6"
16″	RFPI 70	21' - 4"	19' - 5"	16' - 11"	13' - 6"	18' - 0"	13' - 5"	11' - 2"	8' - 10"
11-7/8"	RFPI 90	19' - 0"	17' - 2"	16' - 1"	13' - 9"	20' - 7"	16' - 5"	13' - 8"	10' - 10"
14"	RFPI 90	21' - 7"	19' - 6"	18' - 3"	14' - 11"	22' - 2"	16' - 6"	13' - 9"	10' - 11"
16″	RFPI 90	23' - 11"	21' - 8"	20' - 1"	16' - 0"	22' - 4"	16' - 8"	13' - 10"	11' - 0"
18″	RFPI 700	23' - 10"	21' - 8"	20' - 3"	17' - 5"	25' - 7"	19' - 2"	15' - 11"	12' - 8"
20″	RFPI 700	25' - 10"	23' - 5"	21' - 4"	18' - 3"	25' - 8"	19' - 2"	15' - 11"	12' - 8"
22″	RFPI 700	27' - 9"	24' - 6"	22' - 5"	19' - 0"	26' - 4"	19' - 8"	16' - 4"	13' - 0"
24″	RFPI 700	29' - 7"	25' - 7"	23' - 4"	19' - 7"	26' - 4"	19' - 8"	16' - 4"	13' - 0"
18″	RFPI 900	26' - 10"	24' - 3"	22' - 10"	20' - 4"	29' - 2"	24' - 3"	20' - 2"	16' - 1"
20″	RFPI 900	29' - 0"	26' - 4"	24' - 8"	21' - 2"	31' - 7"	24' - 3"	20' - 2"	16' - 1"
22″	RFPI 900	31' - 2"	28' - 3"	26' - 6"	21' - 10"	33' - 11"	25' - 8"	21' - 4"	17' - 0"
24″	RFPI 900	33' - 3"	30' - 2"	28' - 4"	22' - 7"	34' - 4"	25' - 8"	21' - 4"	17' - 0"

125 PSF LIVE LOAD, 25 PSF DEAD LOAD

DEFLECTION LIMITS - LIVE LOAD = L/360 TOTAL LOAD = L/240

Joist Depth	Joist Series	Simple Span				Multiple Span			
		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.
9½"	RFPI 70	14' - 6"	13' - 1"	10' - 11"	8' - 8"	13' - 1"	9' - 9"	8' - 1"	6' - 5"
11-7/8"	RFPI 70	17' - 4"	14' - 6"	12' - 1"	9' - 7"	13' - 9"	10' - 3"	8' - 6"	6' - 9"
14"	RFPI 70	19' - 9"	15' - 9"	13' - 1"	10' - 5"	14' - 4"	10' - 8"	8' - 10"	7' - 1"
16″	RFPI 70	21' - 10"	16' - 11"	14' - 1"	11' - 3"	14' - 11"	11' - 2"	9' - 3"	7' - 4"
11-7/8"	RFPI 90	19' - 5"	17' - 3"	14' - 4"	11' - 5"	18' - 3"	13' - 8"	11' - 4"	9' - 0"
14"	RFPI 90	22' - 1"	18' - 8"	15' - 6"	12' - 5"	18' - 5"	13' - 9"	11' - 5"	9' - 1"
16″	RFPI 90	24' - 6"	20' - 1"	16' - 8"	13' - 4"	18' - 6"	13' - 10"	11' - 6"	9' - 2"
18″	RFPI 700	23' - 5"	20' - 3"	18' - 2"	14' - 6"	21' - 4"	15' - 11"	13' - 3"	10' - 6"
20″	RFPI 700	24' - 8"	21' - 4"	19' - 0"	15' - 2"	21' - 4"	15' - 11"	13' - 3"	10' - 6"
22″	RFPI 700	25' - 11"	22' - 5"	19' - 10"	15' - 10"	21' - 10"	16' - 4"	13' - 7"	10' - 10"
24″	RFPI 700	27' - 0"	23' - 4"	20' - 5"	16' - 4"	21' - 10"	16' - 4"	13' - 7"	10' - 10"
18″	RFPI 900	27' - 5"	24' - 11"	21' - 3"	16' - 11"	27' - 0"	20' - 2"	16' - 9"	13' - 4"
20″	RFPI 900	29' - 8"	26' - 6"	22' - 0"	17' - 7"	27' - 0"	20' - 2"	16' - 9"	13' - 4"
22″	RFPI 900	31' - 11"	27' - 4"	22' - 9"	18' - 2"	28' - 7"	21' - 4"	17' - 9"	14' - 2"
24″	RFPI 900	33' - 7"	28' - 4"	23' - 7"	18' - 10"	28' - 7"	21' - 4"	17' - 9"	14' - 2"

Notes:

- **Web stiffeners ARE Required for spans shown. See *Web Stiffener Requirements* on page 9.**
- For 9½" through 20" deep RFPI-Joists web stiffeners may or may not be required for shorter spans or other loading conditions. 22" and 24" deep RFPI-Joists always require web stiffeners at bearing locations. Use appropriate software or engineering analysis to determine if web stiffeners are required for other conditions.
- Clear span is the clear distance between the face of supports.
- Spans are based on uniform loads and concentrated loads as shown above. Use appropriate software or engineering analysis for other loading.
- A minimum of 1¾″ is required for end bearing, 3½″ for intermediate bearing.
- Multiple Span lengths shown require adequate bottom flange lateral bracing.
- Spans are based on composite action with glued-nailed sheathing meeting the following APA requirements:

	Min. Thickness	Span Rating	Floor Joist Spacing
Rated Sheathing	19/32″	(40/20)	19.2″ or less
Rated Sheathing	23/32″	(48/24)	24″ or less
Rated Sturd-I Floor	19/32″	20″ o.c.	19.2″ or less
Rated Sturd-I Floor	23/32″	24″ o.c.	24″ or less

Adhesives shall meet APA Specification AFG-01 or ASTM D3498.

Web Hole Specifications

One of the benefits of using RFPI-Joists in floor and roof construction is that holes may be cut in the joist webs to accommodate electrical wiring, plumbing lines and other mechanical systems, therefore minimizing the depth of the floor system.

RULES FOR CUTTING HOLES IN RFPI-JOISTS

1. See charts on page 7 for allowable hole sizes and locations. The distance between the inside edge of the nearest support and the centerline of any hole shall not be less than that shown in the appropriate chart on page 7.
2. Except for cutting to length, NEVER cut, drill or notch I-joist flanges.
3. Whenever possible center holes vertically in the middle of the web. However, holes may be located vertically anywhere in the web provided a minimum of 1/8" of web remains between the edge of the hole and the flanges.
4. The maximum size hole that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4". A minimum of 1/8" should always be maintained between the top or bottom of the hole and the adjacent I-joist flange.
5. The sides of square holes or longest side of rectangular holes should not exceed three fourths of the diameter of the maximum round hole permitted at that location. **DO NOT** over-cut the sides of square or rectangular holes.
6. Where more than one hole is necessary, the distance between adjacent hole edges must be a minimum of twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole) and each hole must be sized and located in compliance with the requirements of the appropriate chart on page 7.
7. Knockouts are prescored holes for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2" in diameter, and are spaced approximately 16" on center along the length of the I-joist. Where possible, it is preferable to use knockouts instead of field cutting holes. For floor applications, positioning the I-joists so the knockouts are all on the bottom of the joist, may ease the installation of electrical wiring or residential sprinkler systems. **DO NOT** hammer holes in web, except at knockouts.
8. A knockout is not considered a hole and may be utilized anywhere it occurs. It can be ignored for purposes of calculating minimum distances between holes.
9. 1½" holes shall be permitted anywhere in a cantilevered section of an RFPI-Joist. Holes of greater size may be permitted subject to verification.
10. A 1½" hole can be placed anywhere in the web provided that it meets the requirements of rule 6 on this page.
11. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them. (See diagram on page 7).
12. All holes shall be cut in a workman-like manner in accordance with the restrictions listed herein.

Never drill, cut or notch the flange, or over-cut the web. Holes in webs should be cut with a sharp saw. For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Start the rectangular hole by drilling a 1"-diameter hole in each of the four corners and then make the cuts between the holes to minimize damage to the I-joist.

HOW TO USE HOLE CHARTS ON PAGE 7

1. CHOOSE APPROPRIATE HOLE CHART

- Hole Chart 1 is for office floor loading with a 2000 lb. concentrated load. (50 live, 15 partition, 25 dead and a 2-1/2' x 2-1/2' - 2000 lb. concentrated load)
- Hole Chart 2 is for corridor or light storage uniform loads. (100 or 125 live and 25 dead load)

2. Read across the top of Hole Chart to the desired hole size.
3. Follow this column down to the row that represents the I-joist depth and series. This number indicates the minimum distance from the face of the nearest support to the centerline of the hole.

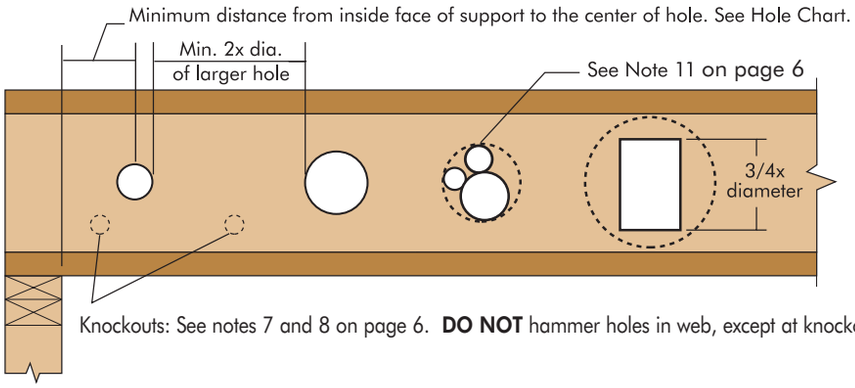
Example: Need a 12½-inch hole in an 18" RFPI®-700 joist in a floor corridor:

From Hole Chart 2 (corridor):

For a 12-inch round hole, the minimum distance is 10'– 6". For a 13-inch round hole, the minimum distance is 12'– 0". Therefore the minimum distance for the 12½-inch round hole is 11'– 3" (halfway between 10'-6" and 12'-0").

Holes For RFPI®-Joists Used In Floor Applications

RFPI-JOISTS TYPICAL HOLES - See "HOW TO USE HOLE CHART" on page 6.



HOLE CHART 1 - 50 PSF live load, 15 PSF partition load, 25 PSF dead load and a 2-1/2' x 2-1/2'-2000 lb. concentrated load

MINIMUM DISTANCE FROM INSIDE FACE OF NEAREST JOIST SUPPORT TO CENTER OF HOLE [1] [2]

Joist Designation	Round Hole Diameter (in.)																		
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Minimum Distance from Inside Face of Nearest Support to Center of Hole (ft-in.) [1] [2]																		
9-1/2" RFPI 70																			
11-7/8" RFPI 70																			
14" RFPI 70																			
16" RFPI 70	3'-4"	5'-9"																	
11-7/8" RFPI 90	4'-1"																		
14" RFPI 90	3'-4"	6'-5"																	
16" RFPI 90	1'-6"	4'-5"	7'-4"	10'-3"															
18" RFPI 700	0'-7"	0'-8"	3'-3"	6'-1"	8'-11"														
20" RFPI 700	0'-7"	0'-8"	0'-8"	2'-2"	4'-11"	7'-8"	10'-5"												
22" RFPI 700	0'-7"	0'-8"	0'-8"	0'-9"	1'-3"	3'-11"	6'-7"	9'-3"	11'-11"										
24" RFPI 700	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	1'-2"	3'-8"	6'-3"	8'-10"	11'-4"									
18" RFPI 900	0'-7"	0'-10"	1'-9"	4'-6"	7'-9"	10'-11"	14'-2"												
20" RFPI 900	0'-7"	0'-8"	1'-5"	2'-6"	5'-0"	7'-11"	10'-10"	13'-10"											
22" RFPI 900	0'-7"	0'-9"	1'-8"	2'-8"	3'-8"	6'-0"	8'-9"	11'-6"	14'-2"										
24" RFPI 900	0'-7"	0'-8"	1'-1"	2'-1"	3'-2"	4'-4"	6'-3"	8'-9"	11'-4"	13'-11"									

IMPORTANT:
Hole Chart 1 is applicable for office floor loading of 50 live, 15 partition, 25 dead and a 2000 lb concentrated load with a 2-1/2' x 2-1/2' footprint located anywhere along the I-joist.

Notes:

1. Distances in this hole chart are conservatively based on the maximum allowed single or multi-span applications with 50 PSF live, 15 PSF partition, 25 PSF dead and a 2-1/2' x 2-1/2' - 2000 lb. concentrated load at on-center spacings of 12", 16", 19.2" or 24". **Holes that fall outside of these hole chart guidelines may still be acceptable based on actual span and loading conditions.** The most accurate method of determining the acceptability of a given hole is the use of appropriate software or engineering analysis for the actual condition.
2. Hole location distance is measured from inside face of nearest support to center of hole.
3. Use appropriate software or engineering analysis to analyze duct chase openings.

HOLE CHART 2 - 100 or 125 PSF live load and 25 PSF dead laod

MINIMUM DISTANCE FROM INSIDE FACE OF NEAREST JOIST SUPPORT TO CENTER OF HOLE [1] [2]

Joist Designation	Round Hole Diameter (in.)																		
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Minimum Distance from Inside Face of Nearest Support to Center of Hole (ft-in.) [1] [2]																		
9-1/2" RFPI 70	1'-6"	2'-7"	3'-10"	5'-2"	6'-8"														
11-7/8" RFPI 70	1'-0"	1'-8"	2'-5"	3'-6"	4'-8"	6'-0"	7'-4"												
14" RFPI 70	0'-7"	1'-1"	1'-10"	2'-7"	3'-7"	4'-7"	5'-8"	6'-9"	8'-0"										
16" RFPI 70	0'-7"	0'-8"	1'-3"	2'-2"	3'-1"	4'-0"	5'-0"	6'-0"	7'-1"	8'-3"	9'-6"								
11-7/8" RFPI 90	0'-7"	1'-5"	2'-8"	3'-11"	5'-3"	6'-11"	8'-8"												
14" RFPI 90	0'-7"	0'-11"	1'-9"	2'-10"	4'-2"	5'-7"	7'-1"	8'-8"	10'-5"										
16" RFPI 90	0'-7"	0'-9"	1'-6"	2'-4"	3'-2"	4'-0"	5'-1"	6'-5"	7'-11"	9'-5"	11'-0"								
18" RFPI 700	0'-7"	0'-8"	0'-11"	1'-7"	2'-6"	3'-9"	5'-0"	6'-3"	7'-7"	9'-0"	10'-6"	12'-0"	13'-9"						
20" RFPI 700	0'-7"	0'-8"	0'-8"	1'-2"	1'-9"	2'-4"	3'-2"	4'-4"	5'-7"	6'-10"	8'-1"	9'-6"	10'-11"	12'-5"	14'-1"				
22" RFPI 700	0'-7"	0'-8"	0'-8"	0'-9"	1'-3"	1'-10"	2'-5"	3'-1"	4'-0"	5'-2"	6'-4"	7'-7"	8'-11"	10'-3"	11'-8"	13'-2"	14'-10"		
24" RFPI 700	0'-7"	0'-8"	0'-8"	0'-9"	0'-10"	1'-5"	1'-11"	2'-6"	3'-2"	3'-10"	4'-7"	5'-9"	6'-11"	8'-1"	9'-4"	10'-8"	12'-1"	13'-6"	15'-1"
18" RFPI 900	0'-7"	1'-1"	2'-2"	3'-3"	4'-5"	5'-7"	6'-10"	8'-1"	9'-5"	10'-9"	12'-3"	13'-10"	15'-9"						
20" RFPI 900	0'-7"	0'-11"	1'-8"	2'-6"	3'-6"	4'-9"	6'-1"	7'-5"	8'-9"	10'-2"	11'-8"	13'-2"	14'-10"	16'-6"	18'-5"				
22" RFPI 900	0'-7"	0'-10"	1'-9"	2'-10"	4'-0"	5'-2"	6'-4"	7'-7"	8'-10"	10'-1"	11'-5"	12'-10"	14'-3"	15'-9"	17'-4"	19'-1"	20'-10"		
24" RFPI 900	0'-7"	1'-0"	1'-7"	2'-4"	3'-5"	4'-5"	5'-6"	6'-8"	7'-10"	9'-0"	10'-2"	11'-5"	12'-8"	14'-0"	15'-5"	16'-10"	18'-4"	20'-0"	21'-9"

IMPORTANT:
Hole Chart 2 is applicable for Uniform Loads of 100 or 125 PSF Live Load and 25 PSF Dead Load ONLY.

Notes:

1. Distances in this hole chart are conservatively based on **uniformly loaded joists** and the maximum allowed single or multi-span applications with 100 live/25 dead or 125 live/25 dead at on-center spacings of 12", 16", 19.2" or 24". **Holes that fall outside of these hole chart guidelines (e.g. floors with concentrated loads) may still be acceptable based on actual span and loading conditions.** The most accurate method of determining the acceptability of a given hole is the use of appropriate software or engineering analysis for the actual condition.
2. Hole location distance is measured from inside face of nearest support to center of hole.
3. Use appropriate software or engineering analysis to analyze duct chase openings.

Allowable Floor Uniform Load For RFPI®-Joists (PLF)

Joist Clear Span (ft)	RFPI 70 (2-5/16" wide x 1-1/2" flanges)								RFPI 90 (3-1/2" wide x 1-1/2" flanges)					
	9-1/2"		11-7/8"		14"		16"		11-7/8"		14"		16"	
	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total
8	-	241	-	253	-	264	-	274	-	334	-	336	-	339
10	177	193	-	203	-	211	-	220	-	268	-	270	-	272
12	110	161	-	169	-	176	-	183	-	224	-	225	-	226
14	73	138	119	145	-	151	-	157	164	192	-	193	-	194
16	51	121	84	127	119	132	-	137	117	168	164	168	-	169
18	36	88	60	112	87	117	116	122	85	149	121	149	-	150
20	27	65	45	101	65	105	87	109	64	134	91	134	121	135
22	-	-	34	83	50	96	67	99	49	120	71	122	94	122
24	-	-	27	64	39	87	53	91	39	93	56	111	74	112
26	-	-	21	51	31	75	42	84	31	74	45	103	60	103
28	-	-	-	-	25	60	34	77	25	59	36	86	49	96
30	-	-	-	-	-	-	28	67	-	-	30	70	40	89
32	-	-	-	-	-	-	23	55	-	-	25	58	33	79
34	-	-	-	-	-	-	-	-	-	-	-	-	28	66
36	-	-	-	-	-	-	-	-	-	-	-	-	24	55
38	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Joist Clear Span (ft)	RFPI 700 (2-5/16" wide x 1-1/2" flanges)								RFPI 900 (3-1/2" wide x 1-1/2" flanges)							
	18"		20"		22"		24"		18"		20"		22"		24"	
	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total
8	-	390	-	390	-	400	-	399	-	493	-	492	-	521	-	520
10	-	313	-	313	-	321	-	320	-	395	-	395	-	418	-	417
12	-	261	-	261	-	267	-	267	-	330	-	329	-	348	-	348
14	-	224	-	224	-	229	-	229	-	283	-	282	-	299	-	298
16	-	196	-	196	-	200	-	200	-	247	-	247	-	261	-	261
18	157	174	-	174	-	178	-	178	218	220	-	219	-	232	-	232
20	118	156	147	156	-	160	-	160	166	197	-	197	-	208	-	208
22	91	142	114	142	139	145	-	145	129	179	159	179	-	189	-	189
24	71	130	89	130	109	133	131	132	102	164	126	164	153	173	-	173
26	57	118	72	119	88	122	105	122	82	151	102	151	123	159	147	159
28	46	101	58	111	71	113	86	113	66	140	83	140	101	148	121	148
30	38	88	48	98	59	106	71	105	55	130	68	130	83	138	100	137
32	32	75	40	85	49	94	59	98	46	109	57	122	70	129	84	129
34	26	62	33	75	41	83	49	90	38	91	48	114	59	121	71	121
36	22	52	28	67	35	73	42	80	33	77	41	97	50	114	60	114
38	-	-	24	56	30	65	36	71	28	65	35	82	43	102	52	107
40	-	-	-	-	26	59	31	64	24	55	30	70	37	87	45	100
42	-	-	-	-	22	51	27	58	-	-	26	61	32	75	39	90
44	-	-	-	-	-	-	24	52	-	-	23	52	28	65	34	79
46	-	-	-	-	-	-	-	-	-	-	-	-	25	57	30	69
48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	26	60
50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	53
52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

To Use PLF Charts:

1. Find appropriate I-Joist series and depth.
2. Select the span required.
3. Compare the design total load to the Total Load column and compare the design live load to the Live Load column.
4. Select a product that **meets or exceeds** both the design total and live loads.

Floor PLF Chart Notes:

1. **See GENERAL NOTES below.**
2. Live load column is based on an L/600 deflection limit.
3. For a live load deflection limit of L/480 multiply the L/600 value by 1.25.
4. Deflection under total load is limited to L/240.
5. Total load is based on 100% duration of load.

GENERAL NOTES

1. **Web stiffeners ARE required for the PLF loads shown. See *Web Stiffener Requirements* on Page 9.**
2. For 9½" through 20" deep RFPI-Joists web stiffeners may or may not be required for PLF loads lighter than those shown. 22" and 24" deep RFPI-Joists always require web stiffeners at bearing locations. Use appropriate software or engineering analysis to determine if web stiffeners are required for other PLF loading.
3. Table values apply to uniformly loaded simple or multiple span joists.
4. Clear span is the clear distance between the face of supports.
5. Use appropriate software or engineering analysis to analyze multiple span joists if the length of any span is less than half the length of an adjacent span.
6. Minimum end bearing length is 1¾". Minimum intermediate bearing length is 3½".
7. This table does not account for added stiffness from glued or nailed sheathing.
8. Use appropriate software or engineering analysis to analyze conditions outside of the scope of this table such as cantilevers and concentrated loads.
9. Both live and total loads must be checked – live load against the *Live* column and total load against the *Total* column. When no value is shown in the *Live* column, total load will govern.
10. Verify that the deflection criteria conforms to local building code requirements.
11. Provide lateral support at bearing points and continuous lateral support along the compression flange of each joist.
12. For proper installation procedures, refer to the appropriate sections in this publication.

Web Stiffener Requirements

Web stiffeners are required for all 22″ and 24″ deep RFPI joist applications. Depending on the loads and spans, web stiffeners may or may not be required for 9-1/2″ through 20″ deep RFPI joists. The span charts and PLF tables in this guide are based on the use of web stiffeners for all series and depths. For other conditions, use appropriate software or engineering analysis to determine if web stiffeners are required. A web stiffener is a block of plywood, OSB, or 2x that is added to stiffen the I-joist's web, increase the bearing surface between the web and the flange, and provide additional support for a hanger or other connector. **The proper installation of web stiffeners is very important, particularly for deeper depth I-joists which are capable of carrying large loads and developing high reactions.** When used at end or intermediate bearings, web stiffeners must be installed on both sides of the web and tight against the bottom flange of the I-joist, but with a minimum 1/8″ gap between the top of the stiffener and the bottom of the top flange. **Web stiffeners must be made of Utility grade SPF (south) or better for lumber and/or Sheathing grade or better for wood structural panels.**

Web stiffeners are also required for the following:

- When sides of the hangers do not laterally brace the top flange of the I-joist.
- When I-joists are designed to support concentrated loads greater than 1000 lbs applied to the I-joist's top flange between supports. In these applications only, the gap between the web stiffener and the flange shall be at the bottom flange. (See Figure B below.)

Web stiffeners may be cut in the field as required for the application.

FIGURE B

RFPI-JOIST WEB STIFFENER REQUIREMENTS

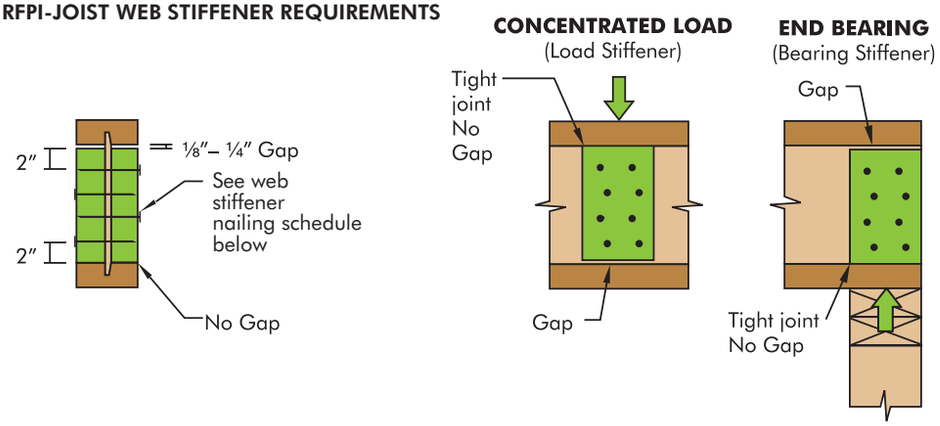


TABLE B

WEB STIFFENER NAILING SCHEDULE

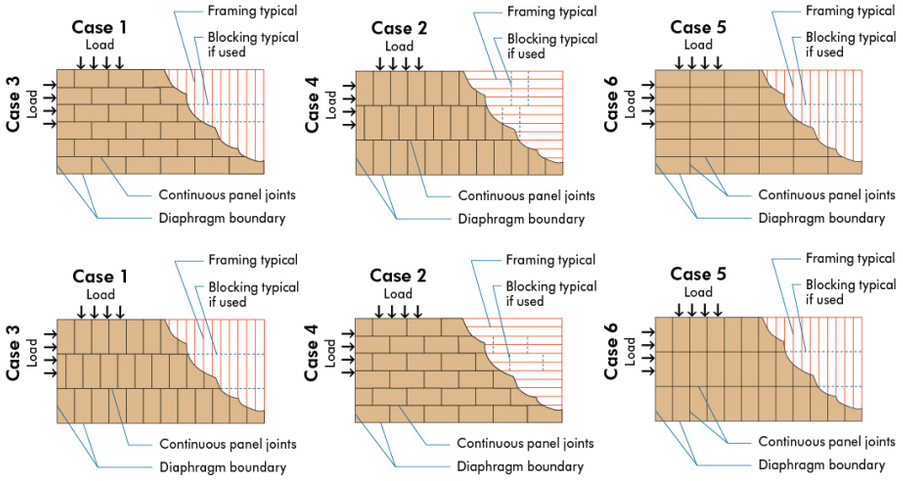
RFPI®-Joist Series	Joist Depth	Minimum Web Stiffener Size	Nail Requirement
RFPI 70	9-1/2", 11-7/8", 14", 16"	7/8" x 2-5/16"	4 - 8d box (0.113″ dia x 2-1/2″)
RFPI 90	11-7/8", 14", 16"	1-1/2" x 2-5/16" *	4 - 10d box (0.128″ dia x 3″)
RFPI 700	18″ & 20″	7/8″ x 3-1/2″	8 - 8d box (0.113″ dia x 2-1/2″)
RFPI 700	22″ & 24″	7/8″ x 3-1/2″	10 - 8d box (0.113″ dia x 2-1/2″)
RFPI 900	18″ & 20″	1-1/2″ x 3-1/2″ *	8 - 16d box (0.135″ dia x 3-1/2″)
RFPI 900	22″ & 24″	1-1/2″ x 3-1/2″ *	10 - 16d box (0.135″ dia x 3-1/2″)

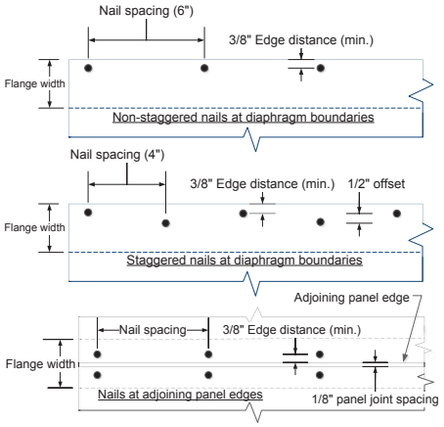
* 2x4 sawn lumber permitted. (see paragraph above)

ALLOWABLE SHEAR (POUNDS PER FOOT) FOR HORIZONTAL WOOD STRUCTURAL PANEL DIAPHRAGMS FRAMED WITH ROSEBURG RFPI-JOISTS FOR WIND[a] OR SEISMIC LOADING[b,c]

Panel Grade	Common Nail Size	Minimum Nominal Panel Thickness (in.)	Minimum Nominal Width of Framing Members at Adjoining Panel Edges and Boundaries[d] (in.)	RFPI-Joist series approved for diaphragm construction as indicated	Blocked Diaphragms		Unblocked Diaphragms	
					Nail spacing (in.) at diaphragm boundaries (all cases), at continuous panel edges parallel to load (Cases 3 & 4), and at all panel edges (Cases 5 & 6)[e,f]		Nails Spaced 6 in. max. at supported edges[e]	
					6	4	Case 1 (No unblocked edges or continuous joints parallel to load)	All other configurations (Cases 2, 3, 4, 5 &6)
					Nail spacing (in.) at other panel edges (Cases 1, 2, 3, & 4)[e]			
					6	6		
Structural 1 Grades	6d[g]	5/16	2	RFPI 20 & 400	185	250	165	125
			3	RFPI 40, 40S, 60S, 70, 80S, 90, 700 & 900	210	280	185	140
	8d	3/8	2	RFPI 20 & 400	270	360	240	180
			3	RFPI 40, 40S, 60S, 70, 80S, 90, 700 & 900	300	400	265	200
	10d	15/32	2	RFPI 20 & 400	320	425	285	215
			3	RFPI 40, 40S, 60S, 70, 80S, 90, 700 & 900	360	480	320	240
Sheathing, single floor and other grades covered in DOC PS 1 and PS 2	6d[g]	5/16	2	RFPI 20 & 400	170	225	150	110
			3	RFPI 40, 40S, 60S, 70, 80S, 90, 700 & 900	190	250	170	125
		3/8	2	RFPI 20 & 400	185	250	165	125
			3	RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900	210	280	185	140
	8d	3/8	2	RFPI 20 & 400	240	320	215	160
			3	RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900	270	360	240	180
		7/16	2	RFPI 20 & 400	255	340	230	170
			3	RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900	285	380	255	190
		15/32	2	RFPI 20 & 400	270	360	240	180
			3	RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900	300	400	265	200
	10d	15/32	2	RFPI 20 & 400	290	385	255	190
			3	RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900	325	430	290	215
		19/32	2	RFPI 20 & 400	320	425	285	215
			3	RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900	360	480	320	240

(a) For wind load applications, the values in the table above shall be permitted to be multiplied by 1.4.
(b) For shear loads of normal or permanent load duration as defined by the NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.
(c) The tabulated allowable shear capacities are for I-joist series with flanges having a specific gravity (G) of 0.50 or higher (all LVL flanged RFPI-joists). For G < 0.50 the allowable shear capacities shall be reduced by multiplying the allowable shear capacities by the Specific Gravity Adjustment Factor = [1-(0.5-G)]. The Specific Gravity Adjustment Factor shall not be greater than 1. RFPI 40S: G=0.42, RFPI 60S & 80S: G=0.46
(d) The minimum nominal width of framing members not located at boundaries or adjoining panel edges shall be 2 inches.
(e) Space nails maximum 12 inches o.c. along intermediate framing members (6 inches o.c. when supports are spaced 48 inches o.c. or greater). Fasteners shall be located 3/8 inch minimum from panel edges (see figure below).
(f) When nail spacing is 4 inches on center at diaphragm boundaries, adjacent nails within a row must be offset (staggered) ½ inch for RFPI-40S, 60S and 80S series I-joists (see figure below).
(g) 8d common nails minimum are recommended for roofs due to negative pressures of high winds.

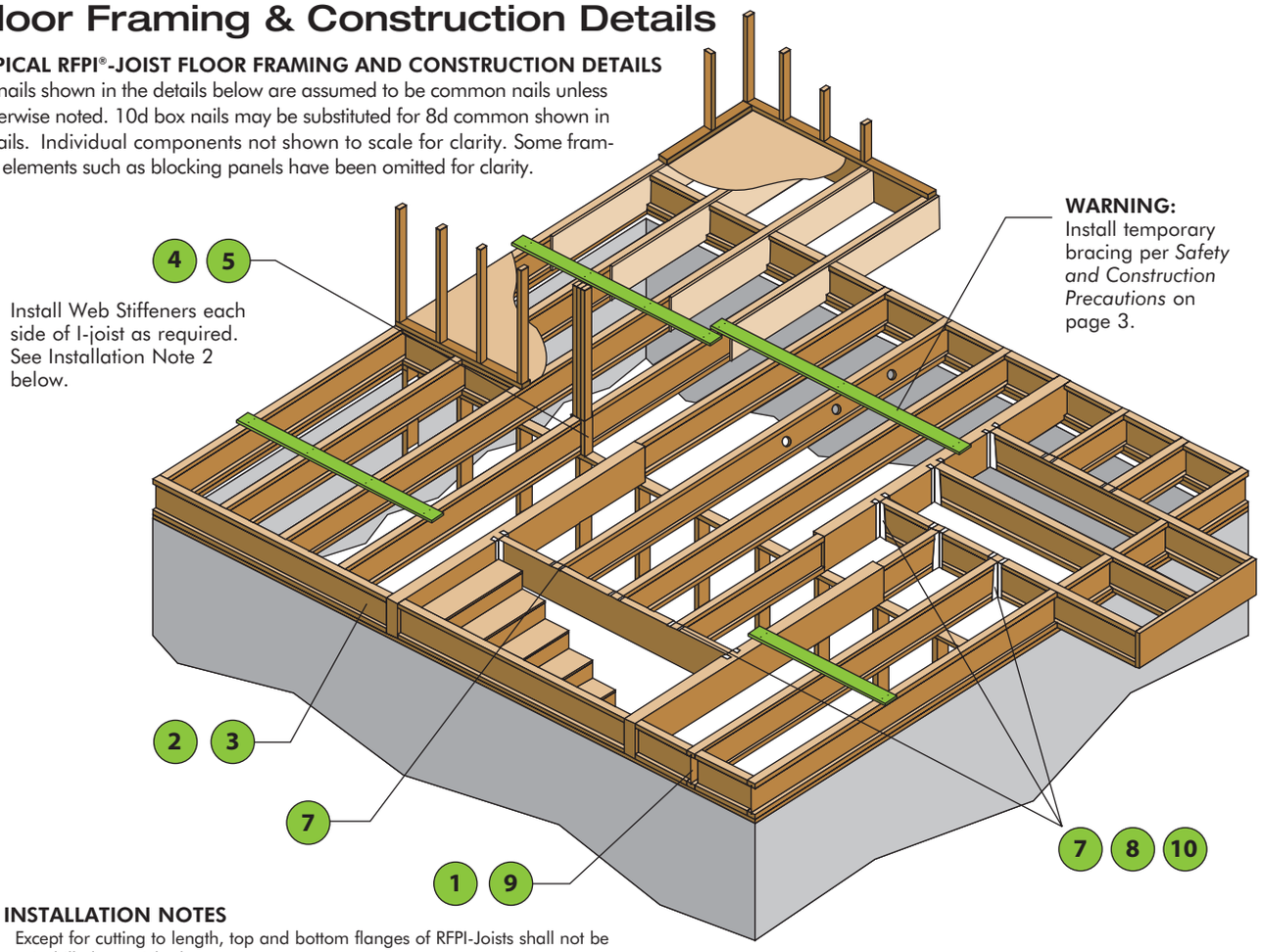




Floor Framing & Construction Details

TYPICAL RFPI®-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS

All nails shown in the details below are assumed to be common nails unless otherwise noted. 10d box nails may be substituted for 8d common shown in details. Individual components not shown to scale for clarity. Some framing elements such as blocking panels have been omitted for clarity.



INSTALLATION NOTES

1. Except for cutting to length, top and bottom flanges of RFPI-Joists shall not be cut, drilled or notched.
2. Web stiffeners are required for all 22" and 24" deep RFPI joist applications. Depending on the loads and spans, web stiffeners may or may not be required for 9½" through 20" deep RFPI joists.
3. Install joist hangers per hanger manufacturers recommendations.
4. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist web.
5. Any fastening, resistance to uplift or application not specifically detailed is subject to local approval.
6. I-Joist end bearing length must be at least 1¾". Intermediate bearings of multiple span joists must be at least 3½".
7. Engineered lumber must not remain in direct contact with concrete or masonry construction and must be used in **dry-service conditions only**.
8. RFPI-Joists must be restrained against rotation at the ends of joists by use of rimboard, rim joists, blocking panels, or cross-bracing. To laterally support cantilevered joists, blocking panels must also be installed over supports nearest the cantilever.
9. Additionally, rimboard, rim joists, blocking panels, or squash blocks must be provided under all exterior walls and interior load bearing walls to transfer loads from above to the wall or foundation below.
10. Plywood or OSB subfloor nailed to the top flange of an RFPI-Joist is adequate to provide lateral support.
11. Install I-joists so that top and bottom flanges are straight and remain within ½ inch of true alignment.
12. Roseburg does not require mid-span blocking or bridging in RFPI floor or roof applications
13. RFPI-Joists are produced without camber so either flange can be the top or bottom flange; however, orienting the floor I-joists so the pre-scored knockouts are on the bottom may ease installation of electrical wiring or residential sprinkler systems.
14. See table below for recommended sheathing attachment with nails. If sheathing is to be attached with screws, the screw size should be equal to or only slightly larger than the recommended nail size. Space the screws the same as the required nail spacing. The unthreaded shank of the screw should extend beyond the thickness of the panel to assure that the panel is pulled securely against the I-joist flange. Use screws intended for structural assembly of wood structures. It is recommended to use screws from a manufacturer that can provide an ICC-ES Report (or similar) with approved application specifications and design values. Drywall screws can be brittle and should not be used.

Recommended Nail Size and Spacing[a]		Flange Face Nailing (in) [b][c]		Flange Edge Nailing (in)		
Material	**Fastener Diameter [d][e]**	**End Distance**	**Nail Spacing**	**End Distance**	**Nailed to one flange edge**	**Nailed to both flange edges[f]**
LVL Flange	dia.≤ 0.128" (8d box or sinker, 10d box or sinker, 12d box)	3	2	3	3	6
	0.128"<dia.≤ 0.148" (8d com, 10d com, 12d sinker or com, 16d box or sinker)	3	3	3	3[g]	6[g]

Nailing Notes:

a. Nail spacings shown are guidelines for RFPI®-Joists used in conventional framing applications. For cases where horizontal diaphragm load capacity is required, refer to diaphragm table on page 10 (or Table 8 of ICC-ES ESR-1251 or Table 4 of APA Product Report® PR-L259) for allowable diaphragm loads and the applicable RFPI® Joist series, panel grade and thickness, and nail size and spacing.

b. For conventional framing, attach sheathing to RFPI-Joist in accordance with applicable building code or approved building plan. **However, do not use nails larger or spaced closer than shown in the table above.**

c. If more than one row of nails is required, rows must be offset by at least ½" and staggered.

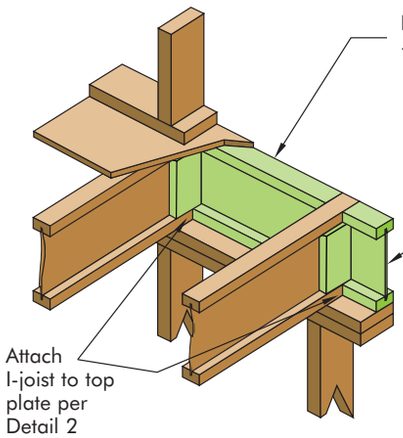
d. 14 gauge staples may be substituted for 8d (2-1/2") nails if staples penetrate the joist at least 1".

e. 10d (3") box nails may be substituted for 8d (2-1/2") common nails.

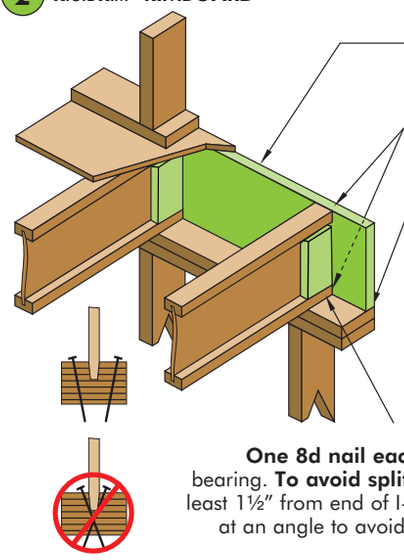
f. Nails on opposing flange edges must be offset one-half the minimum spacing.

g. Maximum of 0.131" diameter (8d common)

1 BLOCKING PANELS

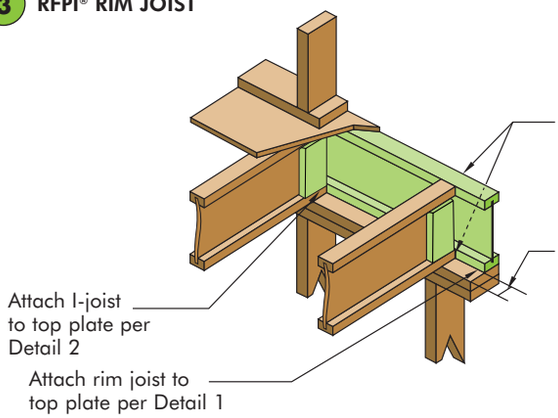


2 RIGIDRIM® RIMBOARD

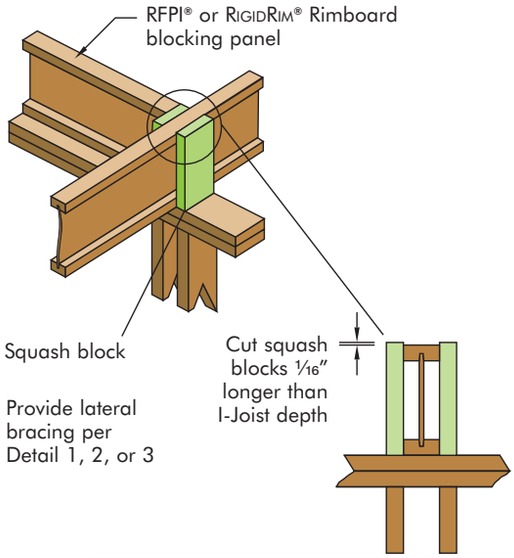


One 8d nail each side of the RFPI-Joist at bearing. **To avoid splitting flange,** start nails at least 1½" from end of I-joist. Nails may be driven at an angle to avoid splitting of bearing plate.

3 RFPI® RIM JOIST

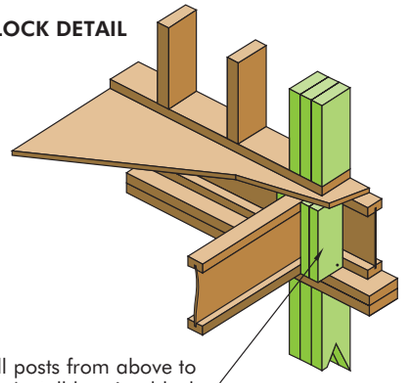


4 SQUASH BLOCK DETAIL



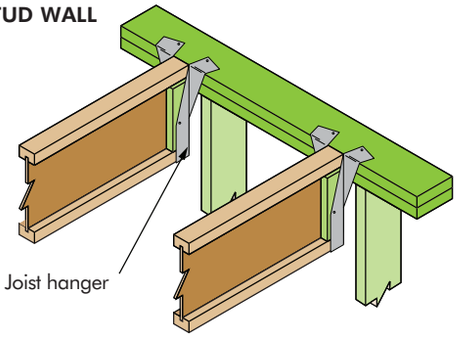
Pair of Squash Blocks	Maximum vertical load per pair of squash blocks (lb)	
	3-1/2" wide	5-1/2" wide
2x lumber	3800	5900

5 BEARING BLOCK DETAIL



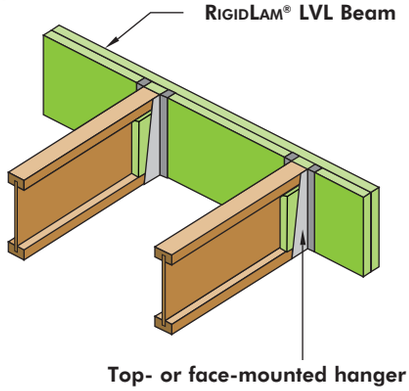
Solid Block all posts from above to bearing below. Install bearing blocks per Detail 4. Match bearing area of blocks below to post above.

6 HANGER ON STUD WALL

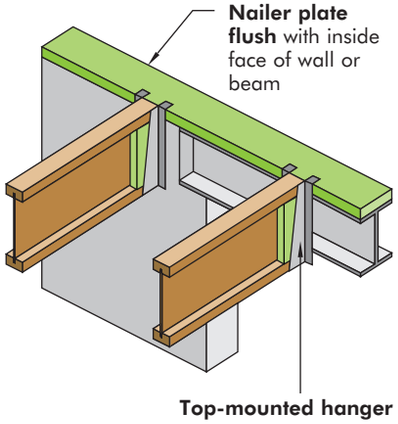


Note: Web stiffeners are shown in every detail for illustrative purposes. Web stiffeners are required for all 22" and 24" deep RFPI joist applications. Depending on the loads and spans, web stiffeners may or may not be required for 9-1/2" through 20" deep RFPI joists.

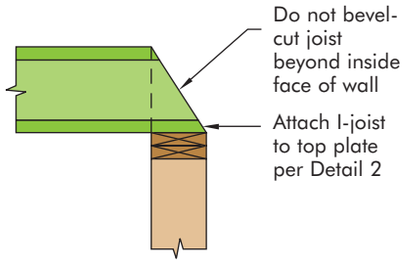
7 HANGER TO LVL BEAM DETAIL



8 HANGER TO NAILER PLATE DETAIL



9 BEVEL CUTS ON I-JOIST



Note: Blocking required at bearing for lateral support, not shown for clarity.

Web stiffener not shown for clarity.

BACKER BLOCK AND HEADER DETAIL

Backer block required for face-mount hangers (both sides of I-joist) & when top mount hanger load exceeds 250 lbs.

See charts below for backer block thickness & depth.

Install backer block tight to the top flange.

Attach backer block to web with 16 - 10d (3") common nails, clinched. See chart below for maximum capacity for this detail.

Backer block must be wide enough to permit required nailing without splitting (min. width of 12" recommended)

GENERAL NOTES:

For hanger capacity see hanger manufacture recommendations.

Verify I-joist capacity to support concentrated load from "header joist" in addition to all other loads.

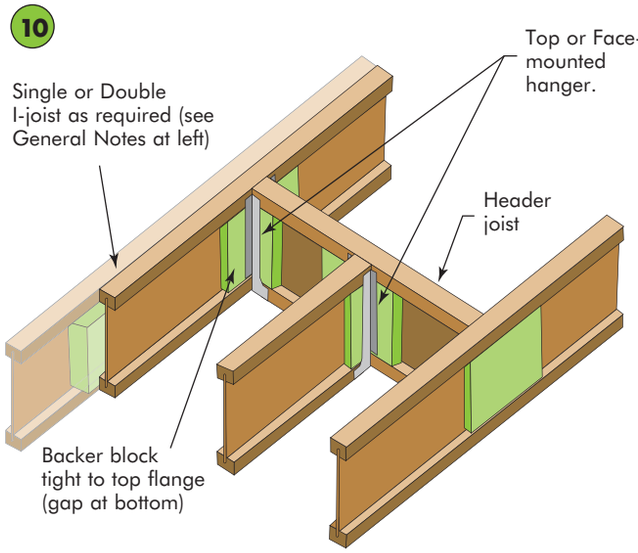
If a double I-joist is required to support "header joist" load, refer to Detail 20 on Page 16 for filler block and double I-joist connection guidelines.

Before installing a backer block to a double I-joist, drive 4 additional 10d nails from both sides of double I-joist through the webs and filler block at backer block location. Clinch nails.

I-Joist Flange Width	Backer block Material Thickness Required[a][b]	Max. load capacity using 16-10d com. nails
2-5/16"	1"	1250 lbs
3-1/2"	1-1/2"	1250 lbs

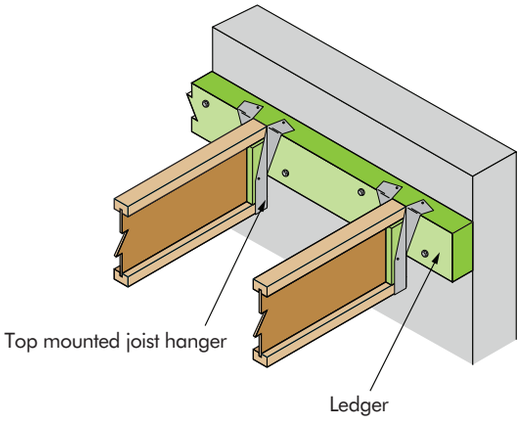
(a) Minimum grade for backer material shall be Utility grade SPF or better for solid sawn lumber and Rated Sheathing grade for wood structural panels.
(b) Glue 2-ply backer blocks together with construction grade adhesive (ASTM D-3498)

10

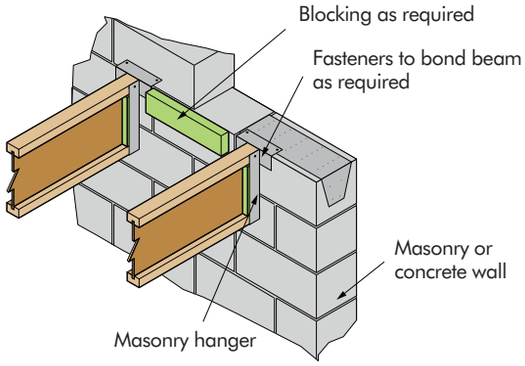


Backer Block Depth								
Joist Depth	**9-1/2"**	**11-7/8"**	**14"**	**16"**	**18"**	**20"**	**22"**	**24"**
Top Mount Hangers - Min. Backer Block Depth	5-1/2"	5-1/2"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
Face Mount Hangers - Req'd Backer Block Depth	6-1/4"	8-5/8"	10-3/4"	12-3/4"	14-3/4"	16-3/4"	18-3/4"	20-3/4"

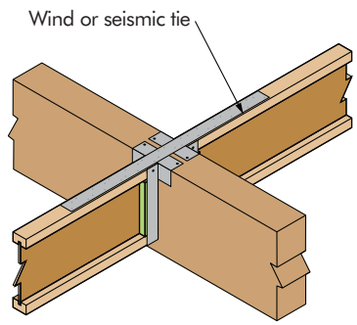
11 HANGER ON LEDGER



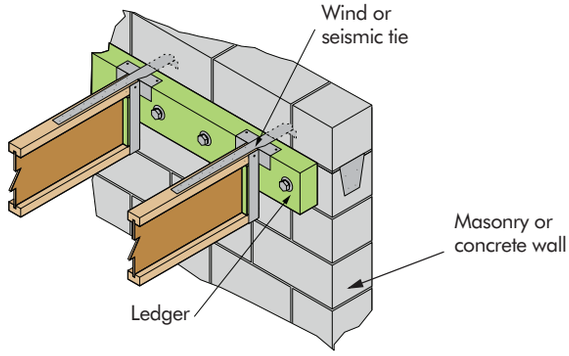
12 HANGER ON MASONRY WALL



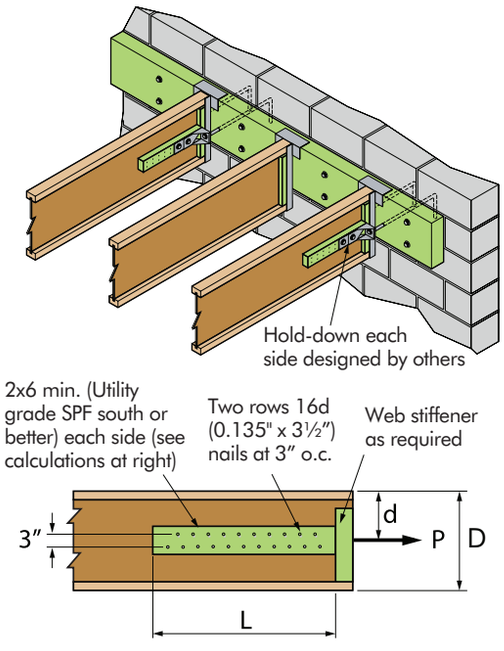
13 WIND OR SEISMIC TIE AT BUTTING JOIST



14 WALL TENSION TIE - WITH STRAPS



15 WIND OR SEISMIC WALL TENSION TIE



To calculate the length "L" of the 2x6 block (attached to both sides of RFPI joist):

1. Find required length of block based on RFPI joist shear capacity.

$$L_1 = \frac{0.75 \times P \times Z \times \left(\frac{d}{D}\right)}{50 \times C_D \times \left[1-\left(\frac{0.75\,V_{LL}+V_{DL}}{C_D V_A}\right)\right]}$$

2. Find number of nails required:

$$n = \frac{P}{C_D V_n}$$

3. Find required length of block based on number of nails. Use 2 rows of 16d (0.135" x 3½") box nails at 3" o.c. with 3" end distance

$$L_2 = \frac{3n}{2} + 3$$

4. Use the larger of L_1 and L_2 to determine the minimum required length of 2x6 block.

P = Axial load (lbs)

d = Distance from top of I-joist to center line of axial connection (in.)

D = Depth of I-joist

C_D = Load duration factor = 1.6 for wind or seismic

L_1, L_2 = Length "L" of block (in.). Use larger of L_1 and L_2

Z = 1.0 for wind; 0.7 for seismic

n = Number of 16d (0.135" x 3½") nails

V_A = Allowable shear load (lbs) on RFPI joist at 100% DOL (See page 4)

V_{DL} = Design shear load due to gravity dead load (lbs)

V_{LL} = Design shear load due to gravity live load (lbs)

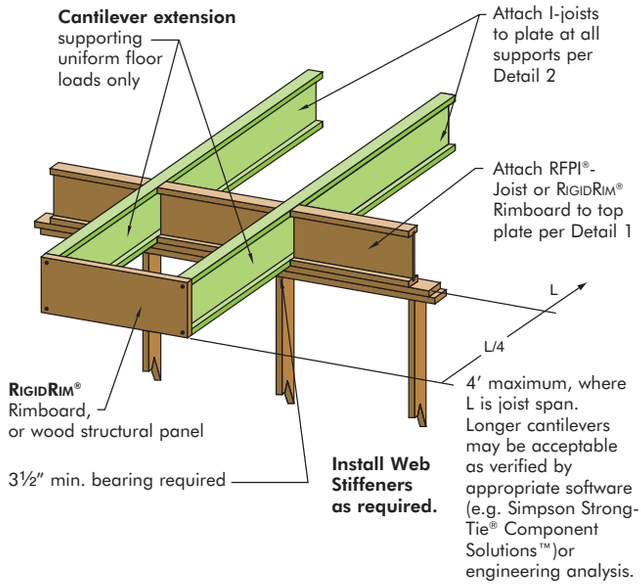
V_n = 16d (0.135" x 3½") box nail shear capacity; see table below

RFPI Web Thickness	V_n @ 100% (lbs)
3/8"	107
7/16"	124

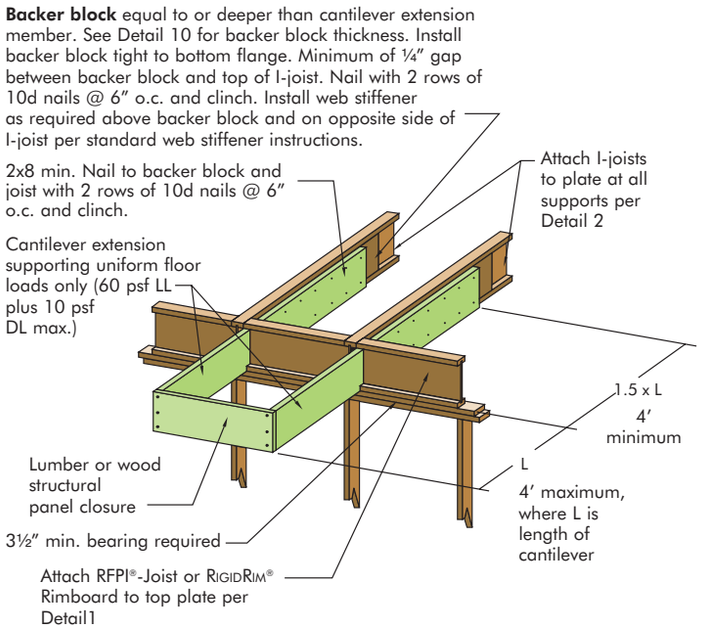
Cantilever Details

Please refer to note 8 on page 11.

16 RFPI®-JOIST INTERIOR CANTILEVER DETAIL



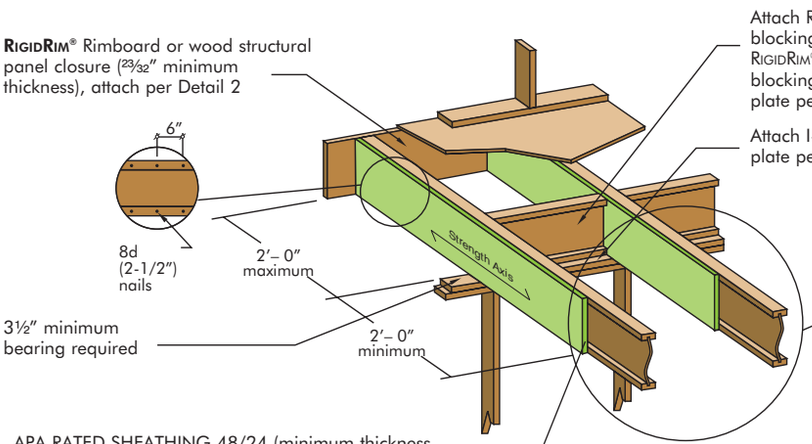
17 LUMBER CANTILEVER DETAIL FOR BALCONIES



18 CANTILEVER DETAIL FOR VERTICAL BUILDING OFFSET - Use appropriate software (e.g. Simpson Strong-Tie® Component Solutions™) or engineering analysis to determine required reinforcement.

METHOD 1

SHEATHING REINFORCEMENT ONE SIDE

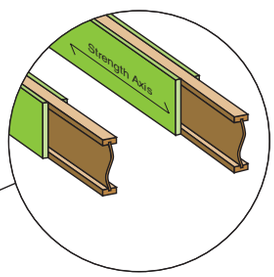


Reinforcement does not function as a web stiffener. Install web stiffeners as required prior to attaching reinforcement.

METHOD 2

SHEATHING REINFORCEMENT TWO SIDES

Use same installation as Method 1 but reinforce both sides of I-joist with sheathing or RigidRim Rimboard

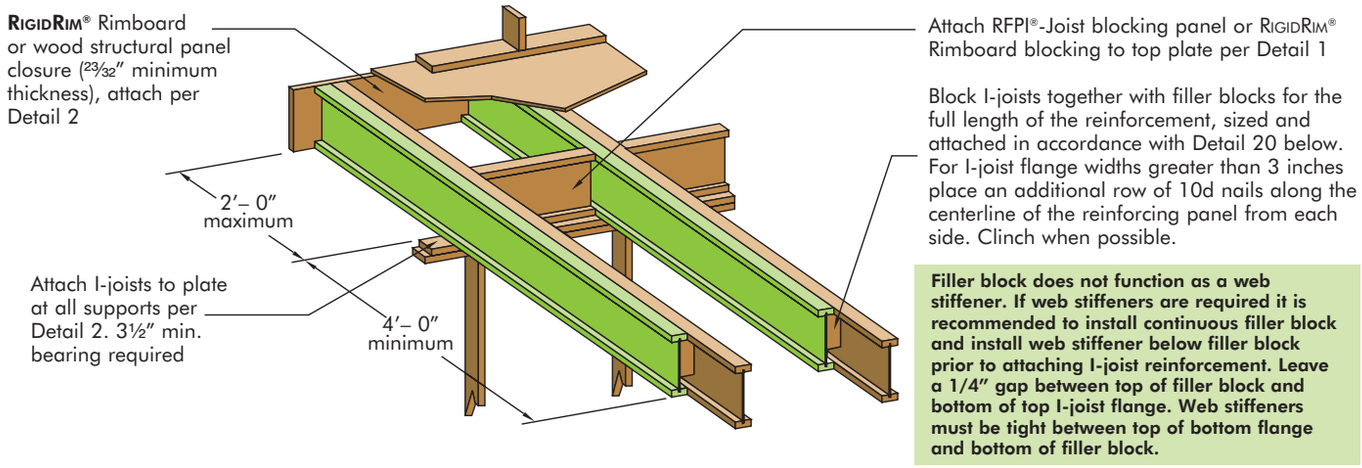


Use nailing pattern shown for Method 1 with opposite face nailing offset by 3"

19 CANTILEVER DETAIL FOR VERTICAL BUILDING OFFSET

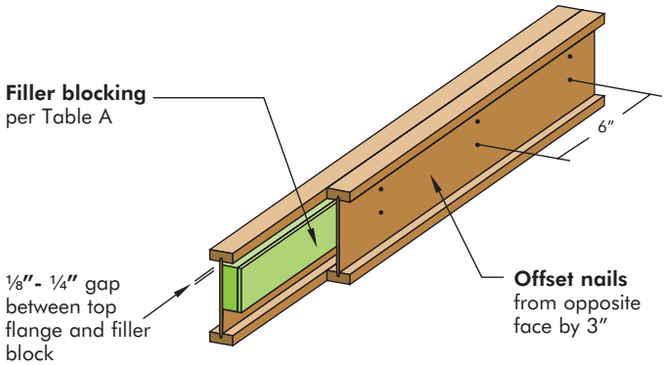
ALTERNATIVE METHOD 2

DOUBLE RFPI®-JOIST



Filler block does not function as a web stiffener. If web stiffeners are required it is recommended to install continuous filler block and install web stiffener below filler block prior to attaching I-joist reinforcement. Leave a 1/4" gap between top of filler block and bottom of top I-joist flange. Web stiffeners must be tight between top of bottom flange and bottom of filler block.

20 DOUBLE RFPI®-JOIST CONSTRUCTION



Notes:

1. Filler blocks do not function as web stiffeners. Install web stiffeners as required.
2. Support back of I-joist web during nailing to prevent damage to web/flange connection.
3. Leave a ⅛"-¼" gap between top of filler block and bottom of I-joist top flange.
4. For side-loaded conditions or cantilever reinforcement, filler block is required between joists for full length of double members.
5. Nail joists together with two rows of 10d nails at 6" o.c. (staggered) on each side of the double I-joist. Total of 8 nails per foot required.
6. The maximum load that may be applied to one side of the double joist using this detail is 620 lbs/ft.

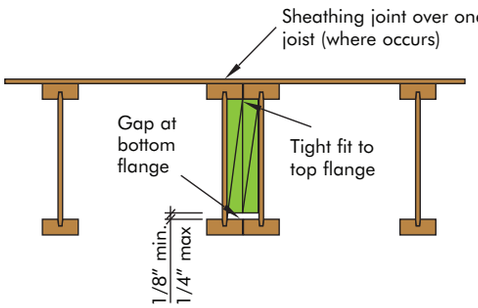
TABLE A

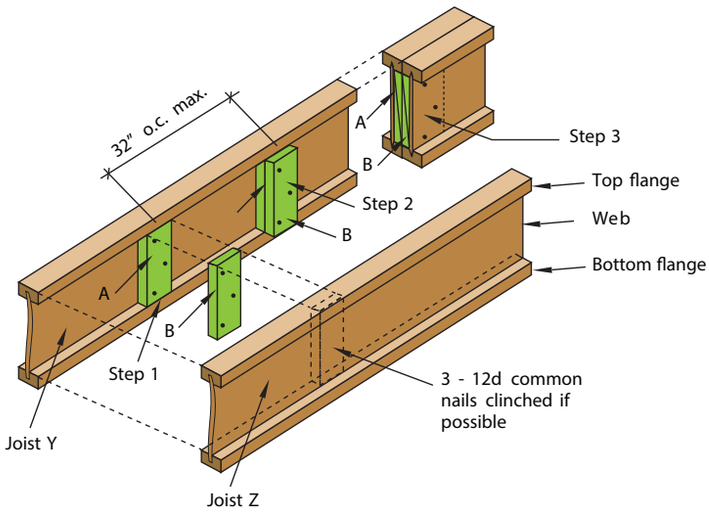
FILLER BLOCK REQUIREMENTS FOR DOUBLE RFPI-JOIST CONSTRUCTION

Flange Width	Joist Depth	Joist Designation	Min. Net Filler Block Thickness	Recommended Min. Filler Block Depth
2-5/16"	9.5"	70	2"	5-1/2"
	11.875"	70	2"	5-1/2"
	14"	70	2"	7-1/4"
	16"	70	2"	7-1/4"
	18"	700	2"	9-1/4"
	20"	700	2"	9-1/4"
	22"	700	2"	9-1/4"
	24"	700	2"	9-1/4"
3-1/2"	11.875"	90	3"	5-1/2"
	14"	90	3"	7-1/4"
	16"	90	3"	7-1/4"
	18"	900	3"	9-1/4"
	20"	900	3"	9-1/4"
	22"	900	3"	9-1/4"
	24"	900	3"	9-1/4"

21 DOUBLE I-JOIST - (FOR UNIFORMLY TOP-LOADED I-JOISTS ONLY)

Block thickness should be equal to or slightly thicker than flange overhang.



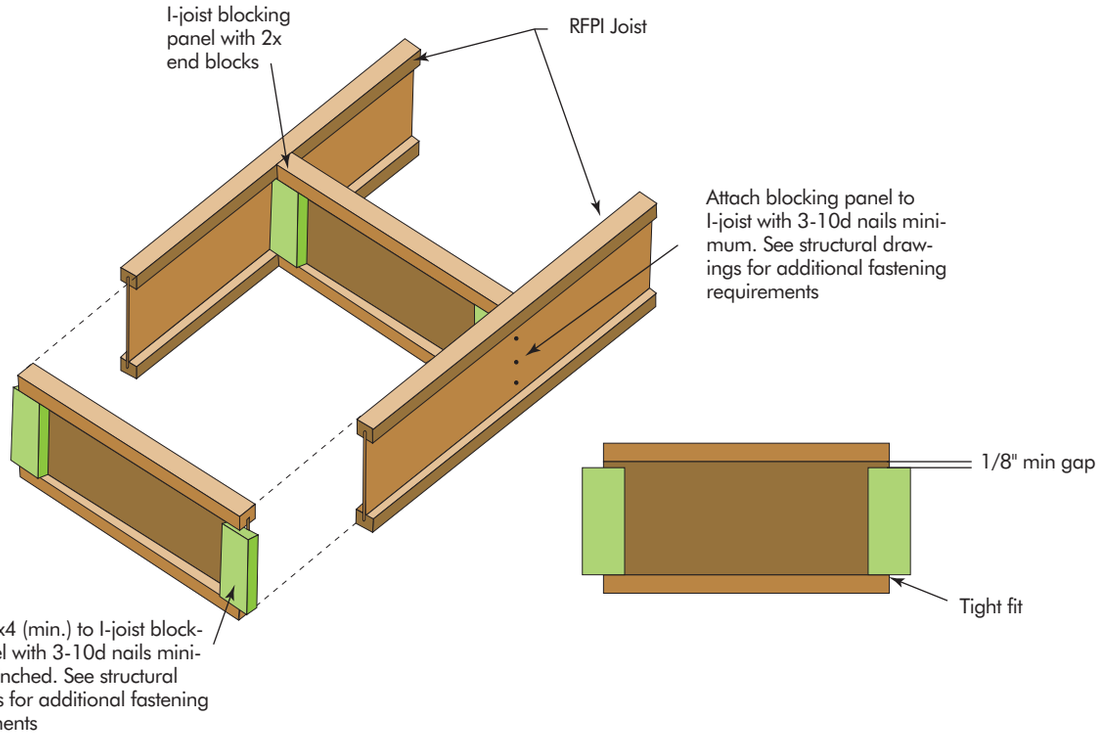


Assembly Sequence

Step 1 - Nail "A" blocks to face of web on joist "Y" only. Back web during nailing to prevent damage to web flange connection.
Step 2 - Nail "B" blocks to "A" blocks.
Step 3 - Nail through web of joist "Z" to "B" and "A" blocks. Repeat steps 1 through 3 if more than two joists are to be joined.

22 BLOCKING PANEL

Note: If mid-span blocking is required per the project specifications this is one method for field installation of blocking panels. There may be other acceptable methods and/or attachment requirements.



Fire & Sound Rated Floor Assemblies

FIRE AND SOUND RATED FLOOR/CEILING ASSEMBLIES

Wood I-joists have been used successfully in fire-rated assemblies for many years. Several I-joist fire-rated assemblies (1- hour and 2-hour) have been published that are applicable to I-joists that meet or exceed the required specifications provided in the fire-rated assembly description. These "generic" assemblies can be found in the American Wood Council (AWC) publication entitled "Design for Code Acceptance 3" (DCA 3). Most of these DCA 3 assemblies have been adopted by the International Building Code (IBC) and can be found in Table 720.1(3) of the 2006 and 2009 IBC and table 721.1(3) of the 2012 and 2015 IBC. Additional fire-rated systems and associated information can be found in the APA ICC-ES code report ESR-1405 and various other APA publications. The Roseburg ICC-ES code report, ESR-1251, and the APA Product Report PR-S259, list the various fire-rated floor-ceiling assemblies for which RFPI®-Joists have specific code approval. The website addresses for the publications are as follows:

Roseburg: APA PR-S259 (www.apawood.org/publication-search?q=PR-S259)

Roseburg: ICC-ES ESR-1251 (www.icc-es.org/reports/pdf_files//ESR-1251.pdf)

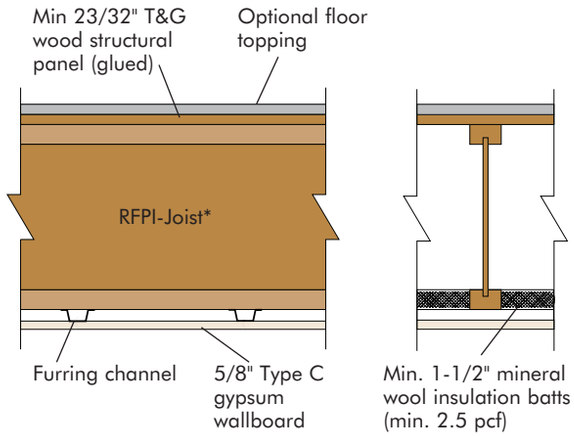
AWC: DCA 3 (www.awc.org/codes-standards/publications/dca3)

APA: ICC-ES ESR-1405 (www.icc-es.org/reports/pdf_files//ESR-1405.pdf)

APA: Fire-Rated Systems publication, Form W305 (www.apawood.org/publications), search for W305

APA: APA Rim Board in Fire Rated Assemblies, Form D350 (www.apawood.org/publications), search for D350

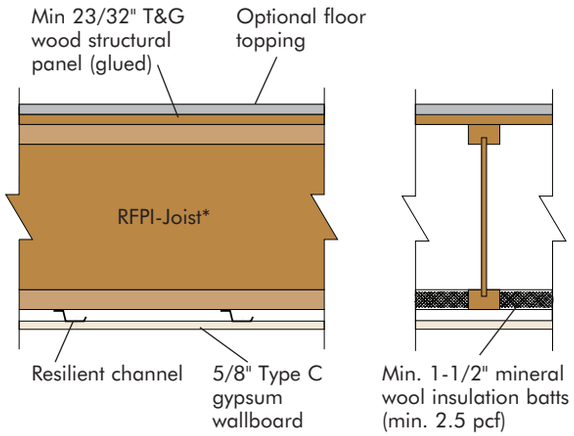
ASSEMBLY RFP1.1 - ONE-HOUR ASSEMBLY



* Acceptable RFPI-Joist: 80S, 90 & 900

COMPONENTS	STC	IIC
Base assembly with carpet & padding, gypsum concrete	49	59

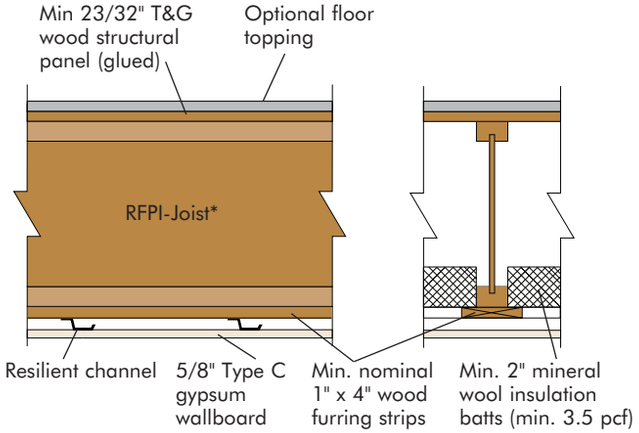
ASSEMBLY RFP1.2 - ONE-HOUR ASSEMBLY



* Acceptable RFPI-Joist: 90 & 900

COMPONENTS	STC	IIC
Base assembly with cushioned vinyl	51	46
Base assembly with carpet & padding	51	64
Base assembly with cushioned vinyl, gypsum concrete	60	50
Base assembly with carpet & padding, gypsum concrete	60	65

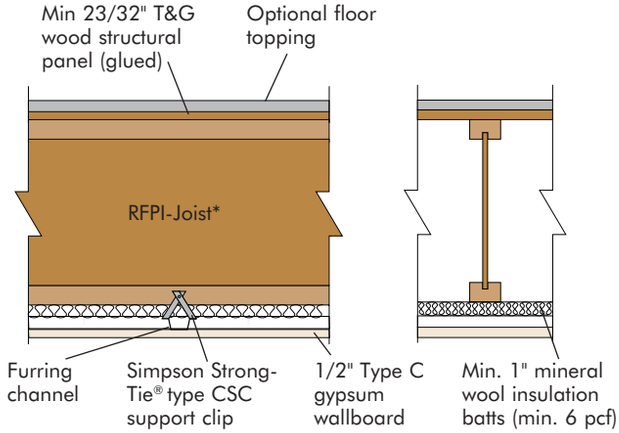
ASSEMBLY RFP1.3 - ONE-HOUR ASSEMBLY



* Acceptable RFPI-Joist: 20, 40S, 400, 40, 60S, 70, 80S, 90, 700 & 900

COMPONENTS	STC	IIC
Base assembly with cushioned vinyl	51	46
Base assembly with carpet & padding	52	66
Base assembly with cushioned vinyl, gypsum concrete	60	48
Base assembly with carpet & padding, gypsum concrete	60	60

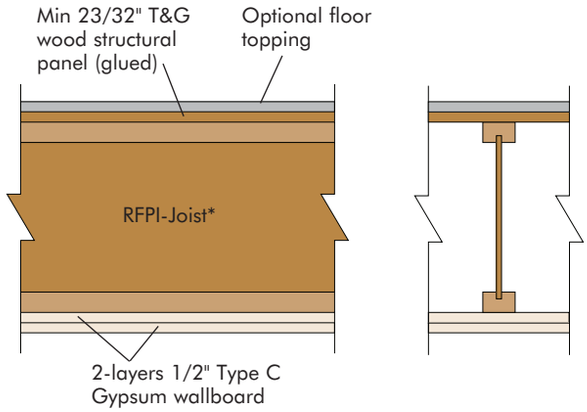
ASSEMBLY RFP1.4 - ONE-HOUR ASSEMBLY



* Acceptable RFPI-Joist: 40S, 60S, 70, 80S, 90, 700 & 900

COMPONENTS	STC	IIC
Base assembly with carpet & padding	46	68
Base assembly with cushioned vinyl, gypsum concrete	51	47
Base assembly with carpet & padding, gypsum concrete	50	73

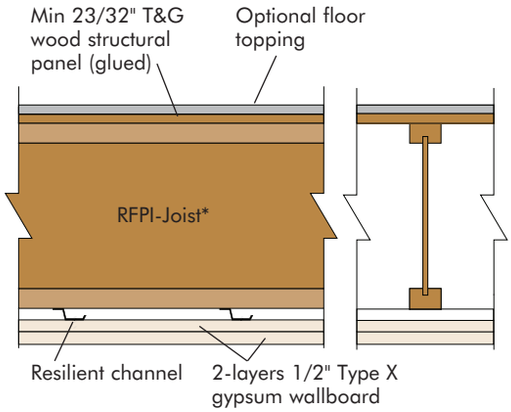
ASSEMBLY RFP1.5 - ONE-HOUR ASSEMBLY



* Acceptable RFPI-Joist: 40S, 60S, 70, 80S, 90, 700 & 900

COMPONENTS	STC	IIC
Base assembly with carpet & padding, gypsum concrete	49	55

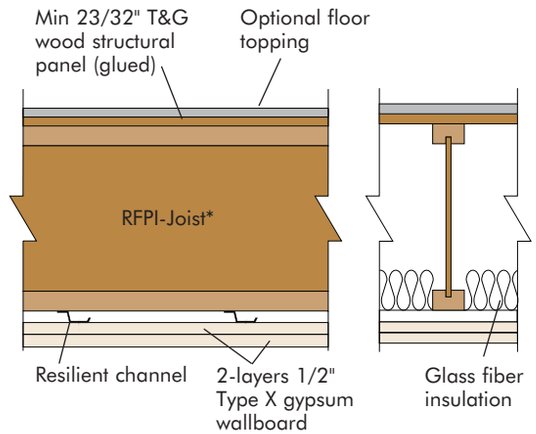
ASSEMBLY RFP1.6 - ONE-HOUR ASSEMBLY



* Acceptable RFPI-Joist: 20, 40S, 400, 40, 60S, 70, 80S, 90, 700 & 900

COMPONENTS	STC	IIC
Base assembly with carpet & padding	54	68
Base assembly with carpet & padding, gypsum concrete	58	55

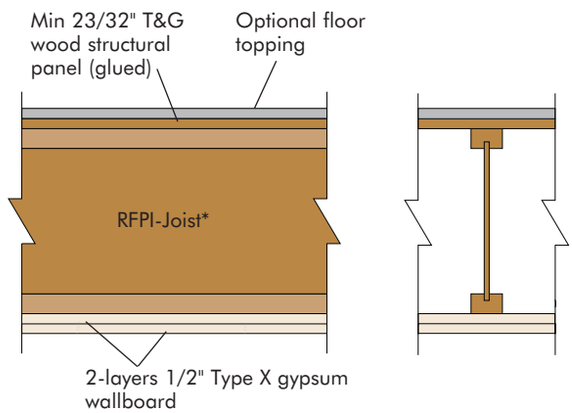
ASSEMBLY RFP1.7 - ONE-HOUR ASSEMBLY



* Acceptable RFPI-Joist: 40S, 60S, 70, 80S, 90, 700 & 900

COMPONENTS	STC	IIC
Base assembly with cushioned vinyl	59	50
Base assembly with carpet & padding	55	68
Base assembly with cushioned vinyl, gypsum concrete	65	51
Base assembly with carpet & padding, gypsum concrete	63	65

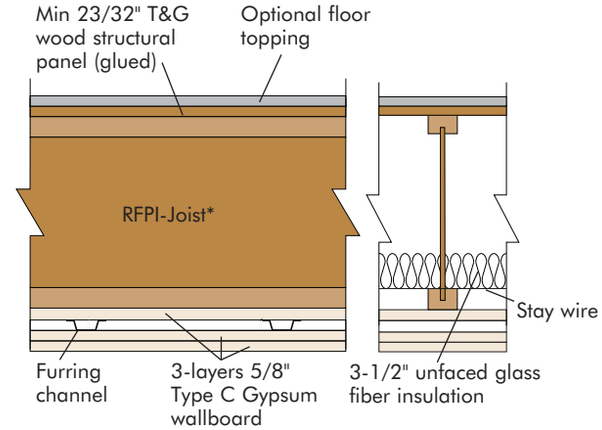
ASSEMBLY RFP1.8 - ONE-HOUR ASSEMBLY



* Acceptable RFPI-Joist: 40S, 60S, 70, 80S, 90, 700 & 900

COMPONENTS	STC	IIC
Sound rating information not available	-	-

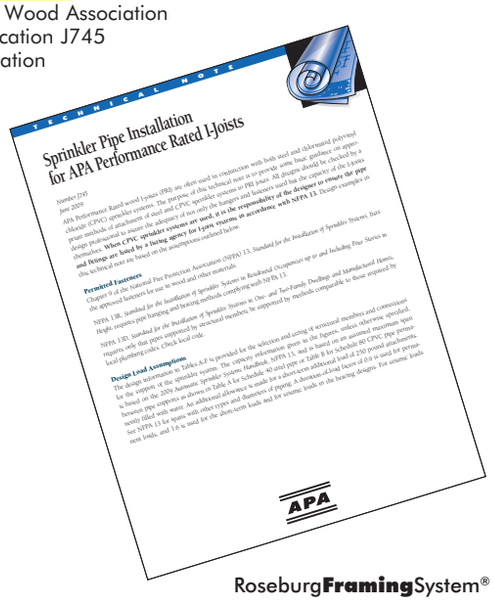
ASSEMBLY RFP2.1 - TWO-HOUR ASSEMBLY



* Acceptable RFPI-Joist: 40S, 60S, 70, 80S, 90, 700 & 900

COMPONENTS	STC	IIC
Base assembly with carpet & padding	49	54
Base assembly with cushioned vinyl, gypsum concrete	52	46
Base assembly with carpet & padding, gypsum concrete	52	60

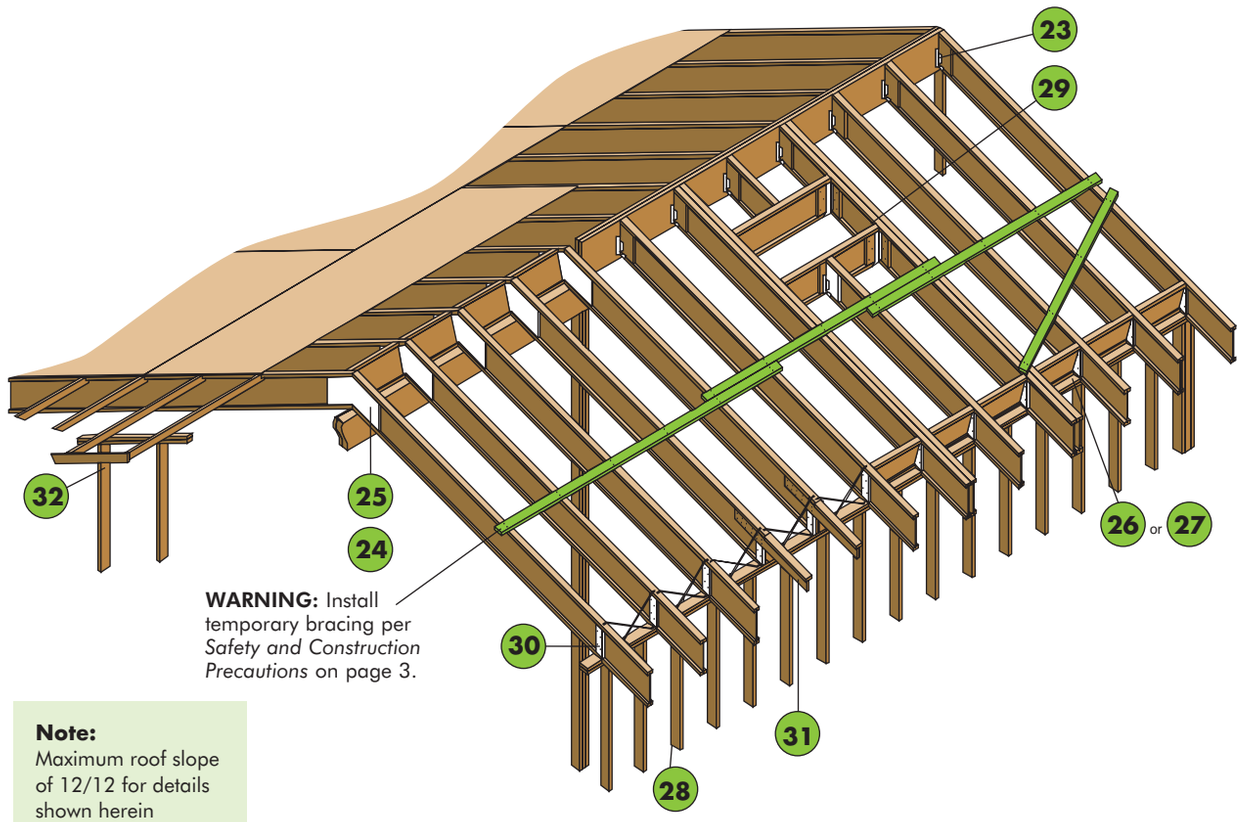
SPRINKLER ATTACHMENT - See APA-The Engineered Wood Association (apawood.org) publication J745 "Sprinker Pipe Installation for APA Performance Rated I-Joists" for sprinkler attachment guidelines.


TECHNICAL NOTE

Sprinkler Pipe Installation for APA Performance Rated I-Joists

APA

Roof Framing & Construction Details

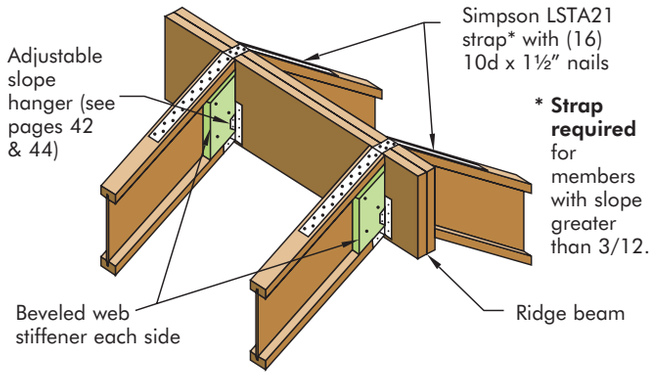


Note:
Maximum roof slope of 12/12 for details shown herein

TYPICAL RFPI®-JOIST ROOF FRAMING AND CONSTRUCTION DETAILS

All nails shown in the details below are assumed to be common nails unless otherwise noted. 10d box nails may be substituted for 8d common shown in details. If nails must be installed into the sides of LVL flanges, see table on page 11 for "Recommended Nail Size and Spacing". Individual components not shown to scale for clarity.

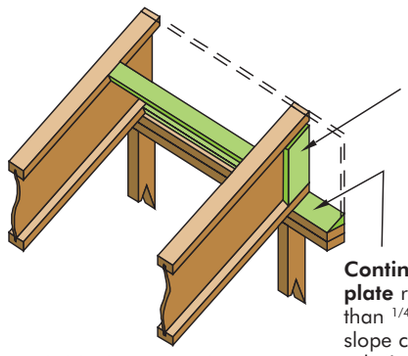
23 RIDGE JOIST CONNECTION – 12/12 MAXIMUM SLOPE



Uplift connections may be required.

24 UPPER END, BEARING ON WALL

RFPI®-Joist blocking panel, x-bracing, 23/32" APA Rated Sheathing 48/24, or proper depth of rimboard as continuous closure. (Validate use of x-bracing with local building code.)

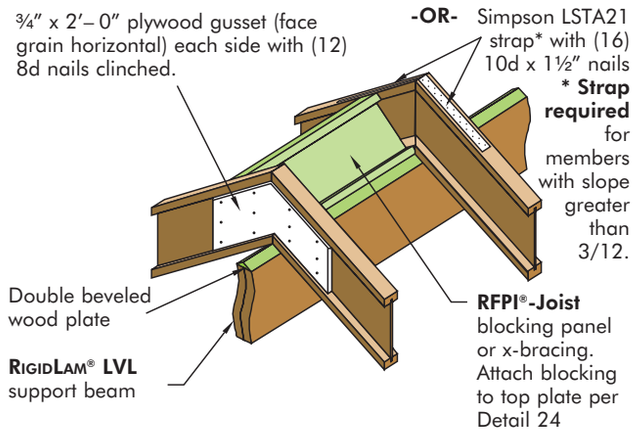


Continuous beveled wood plate required for slopes greater than 1/4/12. Code recognized slope connectors may be substituted. For slopes greater than 4/12 connectors are required to resist lateral thrust.

Uplift connections may be required.

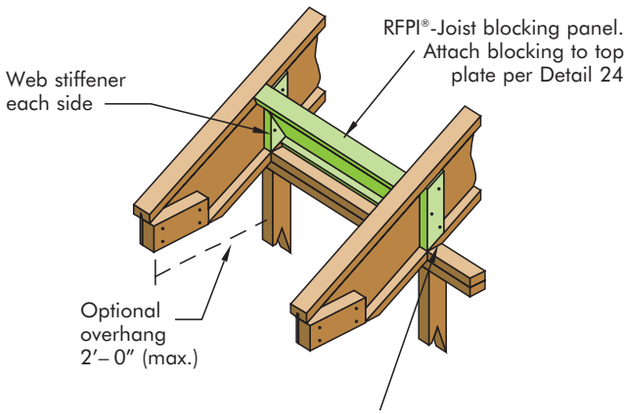
Attach blocking panel (or Rimboard) to top plate with 8d nails @ 6" o.c. (when used for lateral shear transfer, nail to bearing plate with same nailing as required for decking)

25 RFPI®-JOISTS ABOVE RIDGE SUPPORT BEAM



Uplift connections may be required.

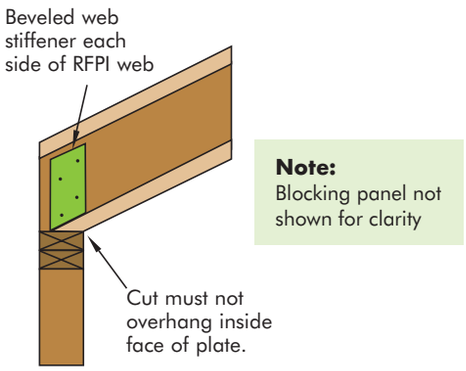
26 BIRDSMOUTH CUT – LOW END OF RFPI®-JOIST ONLY



Birdsmouth cut RFPI®-Joist to provide full bearing for bottom flange. Cut must not overhang inside face of plate.

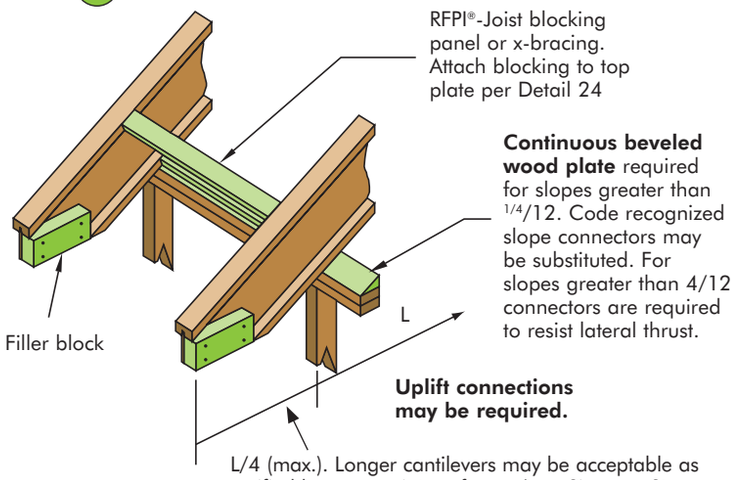
Uplift connections may be required.

26 sim. BIRDSMOUTH CUT, NO OVERHANG - LOW END OF RFPI®-JOIST ONLY



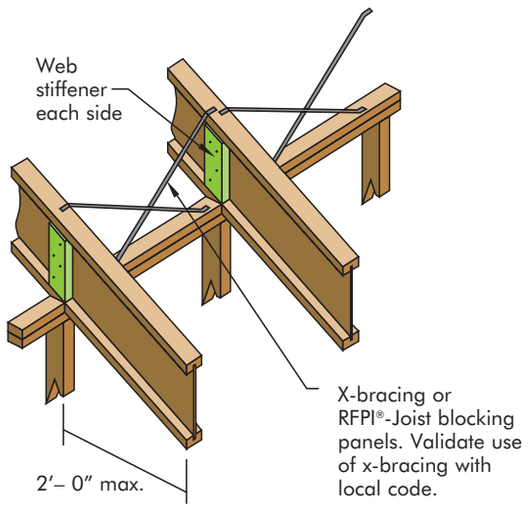
Note:
Blocking panel not shown for clarity

27 RFPI®-JOISTS ON BEVELED PLATE



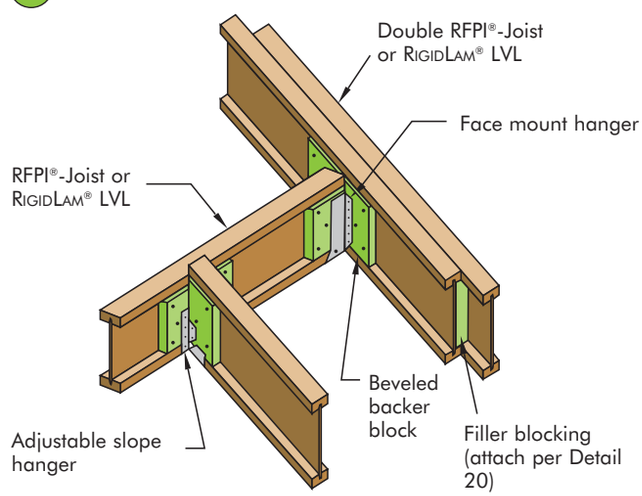
L/4 (max.). Longer cantilevers may be acceptable as verified by appropriate software (e.g. Simpson Strong-Tie® Component Solutions™) or engineering analysis.

28 BIRDSMOUTH CUT – LOW END OF RFPI®-JOIST ONLY



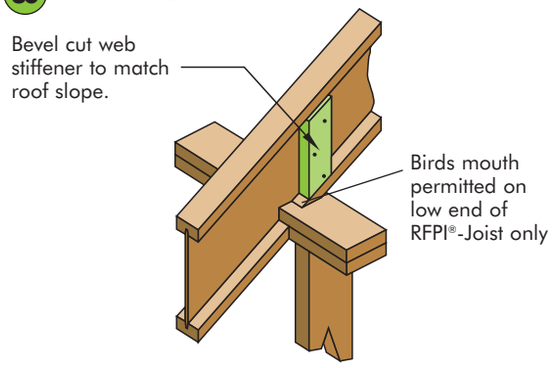
Uplift connections may be required.

29 ROOF OPENINGS, FACE MOUNTED HANGERS



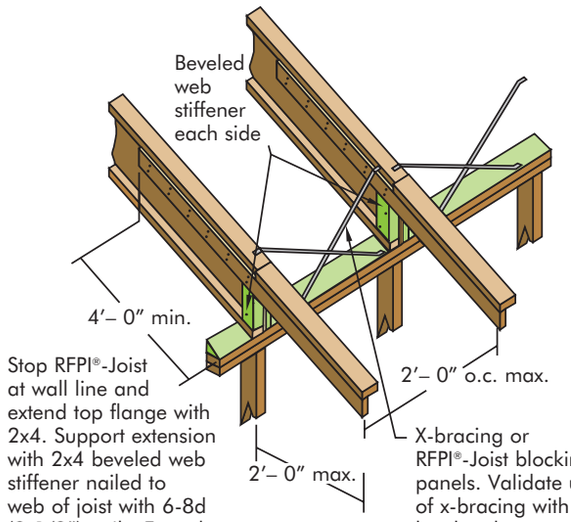
Uplift connections may be required.

30 BEVELED CUT BEARING STIFFENER



Uplift connections may be required.

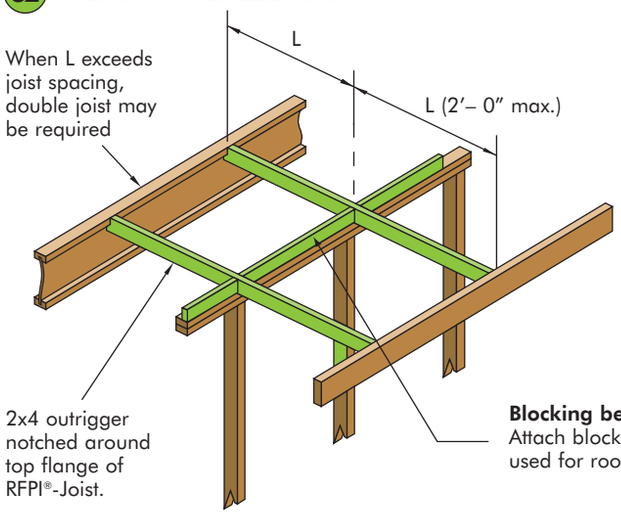
31 OPTIONAL OVERHANG EXTENSIONS



Stop RFPI®-Joist at wall line and extend top flange with 2x4. Support extension with 2x4 beveled web stiffener nailed to web of joist with 6-8d (2-1/2″) nails. Extend 2x4 support at least 4′ into joist span and nail to web with 2 rows of 8d nails at 8″ o.c., clinched.

Uplift connections may be required.

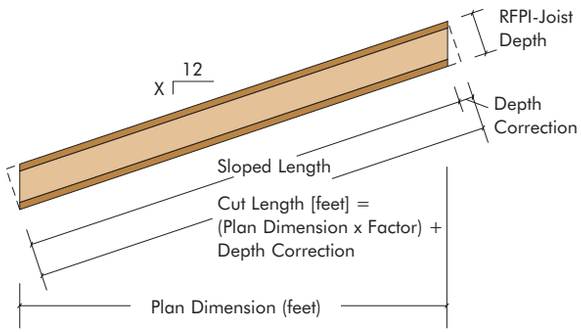
32 OVERHANG PARALLEL TO RFPI®-JOIST



Blocking between outriggers.
Attach blocking to top plate with nail size and spacing used for roof sheathing edge nailing.

Uplift connections may be required.

Slope Length Conversion Chart



ALONG-THE-SLOPE SPANS & CUTTING LENGTHS FOR SLOPED ROOFS

Slope	Slope Factor	Joist Depth (inches)							
		9-1/2	11-7/8	14	16	18	20	22	24
		Depth Correction (feet)							
1 in 12	1.00	0.07	0.08	0.10	0.11	0.13	0.14	0.15	0.17
2 in 12	1.01	0.13	0.16	0.19	0.22	0.25	0.28	0.31	0.33
2.5 in 12	1.02	0.16	0.21	0.24	0.28	0.31	0.35	0.38	0.42
3 in 12	1.03	0.20	0.25	0.29	0.33	0.38	0.42	0.46	0.50
3.5 in 12	1.04	0.23	0.29	0.34	0.39	0.44	0.49	0.53	0.58
4 in 12	1.05	0.26	0.33	0.39	0.44	0.50	0.56	0.61	0.67
4.5 in 12	1.07	0.30	0.37	0.44	0.50	0.56	0.63	0.69	0.75
5 in 12	1.08	0.33	0.41	0.49	0.56	0.63	0.69	0.76	0.83
6 in 12	1.12	0.40	0.49	0.58	0.67	0.75	0.83	0.92	1.00
7 in 12	1.16	0.46	0.58	0.68	0.78	0.88	0.97	1.07	1.17
8 in 12	1.20	0.53	0.66	0.78	0.89	1.00	1.11	1.22	1.33
9 in 12	1.25	0.59	0.74	0.88	1.00	1.13	1.25	1.38	1.50
10 in 12	1.30	0.66	0.82	0.97	1.11	1.25	1.39	1.53	1.67
11 in 12	1.36	0.73	0.91	1.07	1.22	1.38	1.53	1.68	1.83
12 in 12	1.41	0.79	0.99	1.17	1.33	1.50	1.67	1.83	2.00

Allowable Roof Clear Spans For RFPI®-Joists

20 LIVE LOAD / 20 DEAD 125% - **DEFLECTION LIMITS - LIVE LOAD = L/360 TOTAL LOAD = L/240**

Joist Depth	Joist Series	Slope of 4/12 or less			Slope of 8/12 or less			Slope of 12/12 or less		
		16″ o.c.	19.2″ o.c.	24″ o.c.	16″ o.c.	19.2″ o.c.	24″ o.c.	16″ o.c.	19.2″ o.c.	24″ o.c.
9½"	RFPI 70	21' - 2"	19' - 10"	18' - 4"	19' - 10"	18' - 7"	17' - 2"	18' - 3"	17' - 1"	15' - 10"
11-7/8"	RFPI 70	25' - 4"	23' - 9"	22' - 0"	23' - 9"	22' - 3"	20' - 7"	21' - 10"	20' - 6"	19' - 0"
14"	RFPI 70	28' - 11"	27' - 1"	25' - 1"	27' - 1"	25' - 5"	23' - 6"	24' - 11"	23' - 5"	21' - 8"
16″	RFPI 70	32' - 1"	30' - 1"	27' - 10"	30' - 1"	28' - 3"	26' - 1"	27' - 8"	26' - 0"	24' - 1"
11-7/8"	RFPI 90	28' - 10"	27' - 1"	25' - 0"	27' - 0"	25' - 5"	23' - 6"	24' - 11"	23' - 4"	21' - 7"
14"	RFPI 90	32' - 10"	30' - 10"	28' - 6"	30' - 9"	28' - 11"	26' - 9"	28' - 4"	26' - 7"	24' - 7"
16″	RFPI 90	36' - 5"	34' - 2"	31' - 7"	34' - 2"	32' - 1"	29' - 8"	31' - 5"	29' - 6"	27' - 4"
18″	RFPI 700	35' - 8"	33' - 6"	31' - 0"	33' - 5"	31' - 4"	29' - 0"	30' - 8"	28' - 10"	26' - 9"
20″	RFPI 700	38' - 7"	36' - 3"	33' - 7"	36' - 2"	34' - 0"	31' - 5"	33' - 3"	31' - 3"	28' - 11"
22″	RFPI 700	41' - 6"	39' - 0"	36' - 1"	38' - 10"	36' - 6"	33' - 10"	35' - 9"	33' - 7"	31' - 1"
24″	RFPI 700	44' - 4"	41' - 7"	38' - 6"	41' - 6"	39' - 0"	36' - 1"	38' - 2"	35' - 10"	33' - 3"
18″	RFPI 900	40' - 7"	38' - 2"	35' - 4"	38' - 1"	35' - 9"	33' - 1"	35' - 0"	32' - 11"	30' - 5"
20″	RFPI 900	43' - 11"	41' - 3"	38' - 2"	41' - 2"	38' - 8"	35' - 10"	37' - 11"	35' - 7"	32' - 11"
22″	RFPI 900	47' - 2"	44' - 4"	41' - 0"	44' - 2"	41' - 6"	38' - 5"	40' - 8"	38' - 2"	35' - 5"
24″	RFPI 900	50' - 4"	47' - 3"	43' - 9"	47' - 2"	44' - 3"	41' - 0"	43' - 4"	40' - 9"	37' - 9"

30 LIVE LOAD / 15 DEAD 115% - **DEFLECTION LIMITS - LIVE LOAD = L/240 TOTAL LOAD = L/180**

Joist Depth	Joist Series	Slope of 4/12 or less			Slope of 8/12 or less			Slope of 12/12 or less		
		16″ o.c.	19.2″ o.c.	24″ o.c.	16″ o.c.	19.2″ o.c.	24″ o.c.	16″ o.c.	19.2″ o.c.	24″ o.c.
9½"	RFPI 70	22' - 6"	21' - 1"	19' - 6"	21' - 3"	19' - 11"	18' - 5"	19' - 9"	18' - 6"	17' - 2"
11-7/8"	RFPI 70	26' - 11"	25' - 4"	23' - 5"	25' - 5"	23' - 11"	22' - 1"	23' - 7"	22' - 2"	20' - 6"
14"	RFPI 70	30' - 9"	28' - 10"	26' - 8"	29' - 0"	27' - 3"	25' - 3"	26' - 11"	25' - 4"	23' - 5"
16″	RFPI 70	34' - 2"	32' - 1"	28' - 4"	32' - 3"	30' - 3"	27' - 0"	29' - 11"	28' - 1"	25' - 4"
11-7/8"	RFPI 90	30' - 8"	28' - 10"	26' - 8"	29' - 0"	27' - 3"	25' - 2"	26' - 11"	25' - 4"	23' - 5"
14"	RFPI 90	34' - 11"	32' - 10"	30' - 4"	33' - 0"	31' - 0"	28' - 8"	30' - 8"	28' - 9"	26' - 8"
16″	RFPI 90	38' - 9"	36' - 5"	33' - 8"	36' - 7"	34' - 4"	31' - 10"	34' - 0"	31' - 11"	29' - 7"
18″	RFPI 700	37' - 11"	35' - 7"	32' - 2"	35' - 9"	33' - 7"	31' - 1"	33' - 2"	31' - 2"	28' - 11"
20″	RFPI 700	41' - 1"	37' - 11"	33' - 10"	38' - 9"	36' - 5"	33' - 1"	36' - 0"	33' - 10"	31' - 4"
22″	RFPI 700	43' - 7"	39' - 9"	35' - 6"	41' - 7"	38' - 10"	34' - 8"	38' - 8"	36' - 4"	33' - 7"
24″	RFPI 700	45' - 5"	41' - 6"	37' - 1"	44' - 5"	40' - 6"	36' - 2"	41' - 3"	38' - 9"	35' - 0"
18″	RFPI 900	43' - 2"	40' - 7"	37' - 7"	40' - 9"	38' - 4"	35' - 6"	37' - 10"	35' - 7"	32' - 11"
20″	RFPI 900	46' - 9"	43' - 11"	40' - 8"	44' - 1"	41' - 5"	38' - 4"	41' - 0"	38' - 6"	35' - 8"
22″	RFPI 900	50' - 2"	47' - 2"	43' - 8"	47' - 4"	44' - 6"	41' - 2"	44' - 0"	41' - 4"	38' - 3"
24″	RFPI 900	53' - 6"	50' - 3"	46' - 1"	50' - 6"	47' - 5"	43' - 11"	46' - 11"	44' - 1"	40' - 10"

40 LIVE LOAD / 15 DEAD 115% - **DEFLECTION LIMITS - LIVE LOAD = L/240 TOTAL LOAD = L/180**

Joist Depth	Joist Series	Slope of 4/12 or less			Slope of 8/12 or less			Slope of 12/12 or less		
		16″ o.c.	19.2″ o.c.	24″ o.c.	16″ o.c.	19.2″ o.c.	24″ o.c.	16″ o.c.	19.2″ o.c.	24″ o.c.
9½"	RFPI 70	21' - 0"	19' - 8"	18' - 2"	19' - 11"	18' - 8"	17' - 3"	18' - 6"	17' - 5"	16' - 1"
11-7/8"	RFPI 70	25' - 2"	23' - 7"	21' - 4"	23' - 10"	22' - 4"	20' - 7"	22' - 3"	20' - 10"	19' - 4"
14"	RFPI 70	28' - 8"	26' - 11"	22' - 4"	27' - 2"	25' - 6"	21' - 6"	25' - 4"	23' - 9"	20' - 4"
16″	RFPI 70	31' - 11"	29' - 1"	23' - 3"	30' - 2"	28' - 0"	22' - 4"	28' - 2"	26' - 5"	21' - 2"
11-7/8"	RFPI 90	28' - 8"	26' - 11"	24' - 10"	27' - 2"	25' - 6"	23' - 7"	25' - 4"	23' - 9"	22' - 0"
14"	RFPI 90	32' - 7"	30' - 7"	28' - 4"	30' - 11"	29' - 0"	26' - 10"	28' - 10"	27' - 1"	25' - 1"
16″	RFPI 90	36' - 2"	34' - 0"	28' - 10"	34' - 3"	32' - 2"	27' - 8"	32' - 0"	30' - 0"	26' - 3"
18″	RFPI 700	35' - 5"	32' - 7"	29' - 1"	33' - 6"	31' - 6"	28' - 6"	31' - 3"	29' - 4"	27' - 2"
20″	RFPI 700	37' - 7"	34' - 4"	30' - 8"	36' - 4"	33' - 8"	30' - 1"	33' - 10"	31' - 10"	29' - 3"
22″	RFPI 700	39' - 5"	36' - 0"	32' - 2"	38' - 8"	35' - 3"	31' - 6"	36' - 4"	34' - 2"	30' - 8"
24″	RFPI 700	41' - 2"	37' - 6"	33' - 7"	40' - 4"	36' - 10"	32' - 8"	38' - 10"	35' - 10"	30' - 11"
18″	RFPI 900	40' - 4"	37' - 11"	35' - 1"	38' - 3"	35' - 11"	33' - 3"	35' - 7"	33' - 6"	31' - 0"
20″	RFPI 900	43' - 8"	41' - 0"	37' - 11"	41' - 4"	38' - 10"	35' - 11"	38' - 6"	36' - 2"	33' - 6"
22″	RFPI 900	46' - 11"	44' - 0"	39' - 11"	44' - 5"	41' - 8"	38' - 7"	41' - 4"	38' - 10"	36' - 0"
24″	RFPI 900	50' - 0"	46' - 8"	41' - 8"	47' - 4"	44' - 6"	40' - 11"	44' - 1"	41' - 5"	38' - 5"

50 LIVE LOAD / 15 DEAD 115% - **DEFLECTION LIMITS - LIVE LOAD = L/240 TOTAL LOAD = L/180**

Joist Depth	Joist Series	Slope of 4/12 or less			Slope of 8/12 or less			Slope of 12/12 or less		
		16″ o.c.	19.2″ o.c.	24″ o.c.	16″ o.c.	19.2″ o.c.	24″ o.c.	16″ o.c.	19.2″ o.c.	24″ o.c.
9½"	RFPI 70	19' - 9"	18' - 6"	17' - 1"	18' - 10"	17' - 8"	16' - 4"	17' - 7"	16' - 6"	15' - 3"
11-7/8"	RFPI 70	23' - 8"	22' - 2"	18' - 1"	22' - 7"	21' - 2"	17' - 6"	21' - 1"	19' - 9"	16' - 8"
14"	RFPI 70	27' - 0"	23' - 8"	18' - 11"	25' - 9"	22' - 11"	18' - 3"	24' - 1"	21' - 10"	17' - 5"
16″	RFPI 70	29' - 7"	24' - 8"	19' - 8"	28' - 7"	23' - 10"	19' - 0"	26' - 9"	22' - 9"	18' - 2"
11-7/8"	RFPI 90	26' - 11"	25' - 3"	23' - 4"	25' - 8"	24' - 1"	22' - 3"	24' - 0"	22' - 7"	20' - 10"
14"	RFPI 90	30' - 8"	28' - 9"	24' - 2"	29' - 3"	27' - 5"	23' - 5"	27' - 4"	25' - 8"	22' - 4"
16″	RFPI 90	34' - 0"	30' - 6"	24' - 5"	32' - 5"	29' - 6"	23' - 7"	30' - 4"	28' - 2"	22' - 6"
18″	RFPI 700	32' - 10"	29' - 11"	26' - 9"	31' - 9"	29' - 6"	26' - 4"	29' - 8"	27' - 10"	25' - 9"
20″	RFPI 700	34' - 7"	31' - 7"	28' - 1"	34' - 0"	31' - 1"	27' - 2"	32' - 2"	30' - 2"	25' - 11"
22″	RFPI 700	36' - 3"	33' - 1"	28' - 9"	35' - 8"	32' - 7"	27' - 10"	34' - 6"	31' - 10"	26' - 7"
24″	RFPI 700	37' - 10"	34' - 7"	28' - 9"	37' - 3"	34' - 0"	27' - 10"	36' - 5"	33' - 2"	26' - 7"
18″	RFPI 900	37' - 11"	35' - 7"	32' - 11"	36' - 2"	34' - 0"	31' - 5"	33' - 10"	31' - 9"	29' - 5"
20″	RFPI 900	41' - 1"	38' - 7"	35' - 1"	39' - 2"	36' - 9"	34' - 0"	36' - 7"	34' - 4"	31' - 10"
22″	RFPI 900	44' - 1"	41' - 2"	36' - 9"	42' - 0"	39' - 6"	36' - 2"	39' - 3"	36' - 11"	34' - 2"
24″	RFPI 900	47' - 0"	42' - 11"	37' - 6"	44' - 10"	42' - 1"	36' - 3"	41' - 11"	39' - 4"	34' - 8"

Notes:

1. **Web stiffeners ARE Required for spans shown. See *Web Stiffener Requirements* on page 9.**
2. Roofs must be sloped at least ¼″ in 12″ to assure drainage.
3. Verify that the deflection criteria shown on each table conforms to local building code requirements.
4. Table values apply to uniformly loaded simple or multiple span joists. Span is the horizontal distance from face to face of supports. Use appropriate software or engineering analysis to analyze multiple span joists if the length of any span is less than half the length of an adjacent span.
5. Minimum end bearing length is 1¾″. Minimum intermediate bearing length is 3½″.
6. Table values are based on cantilever lengths up to 2′ max. Use beam sizing software for longer cantilever lengths.

Allowable Roof Uniform Load For RFPI-Joists (PLF)

Joist Clear Span (ft)	RFPI 70 (2 5/16" wide x 1 1/2" flanges)												RFPI 90 (3 1/2" wide x 1 1/2" flanges)								
	9-1/2"			11-7/8"			14"			16"			11-7/8"			14"			16"		
	Live	Total		Live	Total		Live	Total		Live	Total		Live	Total		Live	Total		Live	Total	
	L/240	115%	125%	L/240	115%	125%	L/240	115%	125%	L/240	115%	125%	L/240	115%	125%	L/240	115%	125%	L/240	115%	125%
8	-	277	302	-	291	316	-	304	330	-	316	343	-	385	419	-	388	422	-	390	424
10	-	223	242	-	233	254	-	244	265	-	253	276	-	309	336	-	311	338	-	313	341
12	-	186	202	-	195	212	-	203	221	-	211	230	-	258	281	-	259	282	-	261	284
14	-	159	173	-	167	182	-	174	190	-	181	197	-	221	241	-	222	242	-	224	243
16	127	139	152	-	146	159	-	152	166	-	158	172	-	193	210	-	194	212	-	196	213
18	91	119	119	-	130	141	-	135	147	-	141	153	-	172	187	-	173	188	-	174	189
20	68	87	87	113	117	127	-	122	132	-	126	138	-	154	168	-	155	169	-	156	170
22	51	66	66	86	106	112	-	110	120	-	115	125	124	140	153	-	141	153	-	142	154
24	40	51	51	67	87	87	98	101	110	-	105	114	97	125	125	-	129	140	-	129	141
26	-	-	-	53	68	68	78	93	101	-	97	105	77	99	99	111	119	129	-	119	130
28	-	-	-	43	55	55	63	81	81	85	90	98	63	80	80	91	110	117	-	111	120
30	-	-	-	-	-	-	52	66	66	70	83	90	52	65	65	75	95	95	100	103	112
32	-	-	-	-	-	-	43	54	54	58	74	74	43	53	53	62	78	78	83	96	105
34	-	-	-	-	-	-	-	-	-	49	62	62	-	-	-	52	65	65	70	89	89
36	-	-	-	-	-	-	-	-	-	41	52	52	-	-	-	44	55	55	60	75	75
38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51	64	64
40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44	54	54
42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Joist Clear Span (ft)	RFPI 700 (2 5/16" wide x 1 1/2" flanges)												RFPI 900 (3 1/2" wide x 1 1/2" flanges)								
	18"			20"			22"			24"			18"			20"			22"		
	Live	Total		Live	Total		Live	Total		Live	Total		Live	Total		Live	Total		Live	Total	
	L/240	115%	125%	L/240	115%	125%	L/240	115%	125%	L/240	115%	125%	L/240	115%	125%	L/240	115%	125%	L/240	115%	125%
8	-	450	489	-	449	489	-	460	501	-	460	500	-	567	617	-	567	617	-	600	652
10	-	361	392	-	361	392	-	369	402	-	369	402	-	455	495	-	455	495	-	481	523
12	-	301	328	-	301	327	-	308	335	-	308	335	-	380	413	-	380	413	-	401	437
14	-	258	281	-	258	281	-	264	288	-	264	287	-	326	355	-	325	354	-	344	375
16	-	226	246	-	226	246	-	231	252	-	231	251	-	285	310	-	285	310	-	301	328
18	-	201	218	-	200	218	-	205	223	-	205	223	-	253	276	-	253	275	-	267	291
20	-	180	196	-	180	196	-	184	201	-	184	201	-	228	248	-	227	248	-	240	262
22	-	164	178	-	164	178	-	167	182	-	167	182	-	207	225	-	206	225	-	218	238
24	-	150	163	-	150	163	-	153	167	-	153	167	-	189	206	-	189	206	-	200	218
26	-	136	148	-	138	150	-	141	154	-	141	154	-	175	190	-	174	190	-	184	201
28	116	117	127	-	128	139	-	131	143	-	131	142	-	162	176	-	161	176	-	171	186
30	95	101	111	-	113	123	-	122	133	-	122	133	137	151	164	-	150	164	-	159	173
32	79	89	97	-	99	108	-	109	118	-	114	124	114	138	147	-	141	153	-	149	162
34	66	78	84	83	87	95	-	96	104	-	104	114	96	122	123	120	132	144	-	140	152
36	56	69	71	71	77	84	-	85	93	-	93	101	82	104	104	102	120	131	125	132	144
38	48	60	60	60	69	75	74	76	83	-	83	90	70	88	88	88	107	112	107	118	129
40	41	51	51	52	62	65	64	68	74	-	74	81	60	76	76	76	96	96	93	106	116
42	-	-	-	45	56	56	56	61	67	-	67	73	52	65	65	66	82	82	81	96	102
44	-	-	-	-	-	-	49	56	60	59	61	66	46	56	56	57	71	71	71	87	89
46	-	-	-	-	-	-	43	51	53	52	55	60	-	-	-	51	62	62	62	77	77
48	-	-	-	-	-	-	-	-	-	46	50	55	-	-	-	45	54	54	55	68	68
50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	49	59	59
52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	52	52
54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
56	-	-	-	-	-	-	-		-	-	-	-	-	-		-	-	-	-	-	-

To Use PLF Chart:

1. Select the span required (see General Note 3 below).
2. Compare the design total load (PLF) to the appropriate *Total* column and compare the design live load (PLF) to the *Live* column.
3. Select a product that **meets or exceeds both the design total and live loads.** When no value is shown in the *Live* column, *Total* load will govern.

GENERAL NOTES:

1. Table values apply to uniformly loaded simple or multiple span joists.
2. Clear span is the clear distance between the face of supports.
3. Use the horizontal span dimension from the building plans to size joists for roofs that slope up to 2" in 12". For roof slopes greater than 2" in 12", multiply the horizontal span dimension by the appropriate Slope Factor from the table on page 22.
4. Roofs must be sloped at least ¼" in 12" to assure drainage.
5. *Live* load column is based on an L/240 deflection limit.
6. *Total* load column is based on an L/180 deflection limit. Use 115% column for snow loads and 125% for non-snow loads. Check with local code (based on location of building) for snow load requirements.
7. Verify that the deflection criteria conform to local building code requirements.
8. Minimum end bearing length is 1 ¾". Minimum intermediate bearing length is 3 ½".
9. Web stiffeners are required for loads shown.
10. This table does not account for added stiffness from glued or nailed sheathing.
11. Use appropriate software (e.g. Simpson Strong-Tie® Component Solutions™) or engineering analysis to analyze multiple span joists if the length of any span is less than half the length of an adjacent span.
12. Use appropriate software or engineering analysis to analyze conditions outside of the scope of this table such as cantilevers and concentrated loads.
13. Provide lateral support at bearing points and continuous lateral support along the compression flange of each joist.
14. For double joists, double the table values and connect the joists per detail 20 or 21 as appropriate.
15. For proper installation procedures, refer to the appropriate sections in this publication.

RigidLam® LVL Product Line

You've probably been building with traditional solid sawn lumber beams, headers, columns and studs for as long as you've been building. Now through advances in technology and design, there is a better choice – RigidLam LVL (Laminated Veneer Lumber) beams, headers, columns and studs. They are simply a better alternative than traditional solid sawn lumber pieces.

Work with a stronger, stiffer, more consistent and more predictable building material. Compared with similar sized sections, our RigidLam LVL products can support heavier loads and allow greater spans than conventional lumber.

MOISTURE REPELLENT SEALER

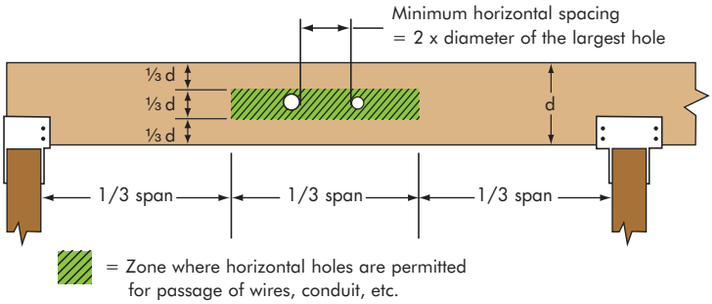
RigidLam LVL is coated with a wax-based moisture repellent sealer that is formulated specifically for LVL to provide temporary protection against moisture issues during normal storage and construction schedules. It is applied to all six sides of the LVL during the manufacturing process. After the sealer dries, it is inert and clear in appearance.

STORAGE, HANDLING & INSTALLATION

- Do Not drop RigidLam LVL off the delivery truck. Best practice is use of a forklift or boom.
- RigidLam LVL should be stored lying flat and protected from the weather.
- Keep the material a minimum of 6" above ground to minimize the absorption of ground moisture and allow circulation of air.
- Bundles should be supported every 10' or less.
- RigidLam LVL is for use in covered, dry conditions only. Protect from the weather on the job site both before and after installation.
- 1-1/2" x 14" and deeper and 1-3/4" x 16" and deeper must be a minimum of two plies unless designed by a design professional for a specific application.
- RigidLam LVL headers and beams shall not be cut, notched or drilled except as shown below. Heel cuts may be possible. Contact your Roseburg Forest Products representative.
- It is permissible to rip RigidLam LVL to a non-standard depth provided it is structurally adequate for the applied loads. Use appropriate software (e.g. Simpson Strong-Tie® Component Solutions™) or engineering analysis to analyze non-standard depths.
- Protect RigidLam LVL from direct contact with concrete or masonry.
- Ends of RigidLam LVL bearing in concrete or masonry pockets must have a minimum of 1/2" airspace on top, sides and end.
- RigidLam LVL is manufactured without camber and therefore may be installed with either edge up or down.
- Do Not install damaged RigidLam LVL.
- Do Not walk on beams until they are fully braced, or serious injuries may result.

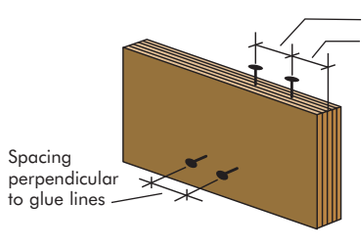
See additional notes on page 3

PERMISSIBLE HORIZONTAL ROUND HOLE LOCATION FOR RIGIDLAM® LVL BEAMS



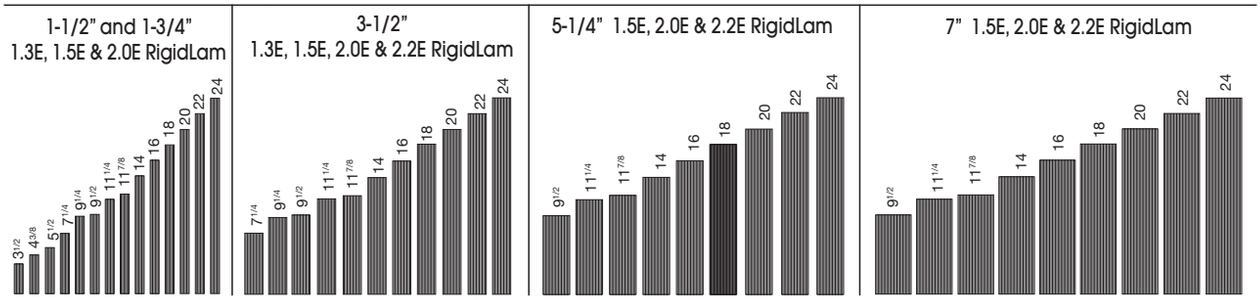
- For beam depths (d) of 4-3/8, 5-1/2, and 7-1/4 inches, the maximum hole diameter is 1, 1-1/8, and 1-1/2 inches, respectively.
- For deeper beams, the maximum hole diameter is 2 inches.
- Diagram applies for simple and multi-span applications with uniform loading.
- No more than 3 holes per span are permitted.
- Holes should not be cut in cantilevers.
- Note: Larger holes, more holes and/or holes that are located outside of the shaded area shown may be permissible as verified by appropriate software (e.g. Simpson Strong-Tie® Component Solutions™) or engineering analysis.

MINIMUM NAIL SPACING FOR RIGIDLAM LVL BEAMS



Nail Size	Minimum Parallel Spacing	Minimum Parallel End Distance	Minimum Perpendicular Spacing
8d Box	2"	1-1/2"	2"
8d Common	3"	2"	2"
10d & 12d Box	3"	2"	2"
10d & 12d Common	4"	3"	3"
16d Sinker	4"	3"	3"
16d Common	6"	4"	3"

Available RigidLam® LVL Sizes*



* Not all grades and/or sizes available in all markets. Contact your Roseburg EWP representative for availability.

See pages 27-31 for additional column, stud and stair stringer information.

RigidLam® LVL Allowable Design Stresses[1]

		1.3E LVL	1.5E LVL	2.0E LVL	2.2E LVL
Modulus of Elasticity (MOE)[2] – Edgewise or Flatwise	E (psi) =	1,300,000	1,500,000	2,000,000	2,200,000
Bending – Edgewise[3,4]	F_b edge (psi) =	2,250	2,250	3,100	3,100
Bending – Flatwise[5]	F_b flat (psi) =	2,250	2,250	3,100	3,100
Horizontal Shear - Edgewise	F_v edge (psi) =	200	220	290	290
Horizontal Shear - Flatwise	F_v flat (psi) =	130	130	130	130
Compression Perp. To Grain[2] - Edgewise	$F_{c\ perp}$ edge (psi) =	560	575	750	750
Compression Perp. To Grain[2] - Flatwise	$F_{c\ perp}$ flat (psi) =	650	650	650	650
Compression Parallel to Grain	$F_{c\ para}$ (psi) =	1,950	1,950	3,000	3,000
Tension Parallel to Grain[6]	F_t (psi) =	1,500	1,500	2,100	2,100
MOE for stability calculations[2]	E_{min} (psi) =	687,023	792,718	1,056,958	1,162,654

1. These allowable design stresses apply to dry service conditions.
2. MOE values shown are "Apparent MOE". No increase is allowed for duration of load.
3. For depths other than 12" multiply F_b edge by $(12/d)^{1/8}$ where d = depth of member (in).
4. A factor of 1.04 may be applied for repetitive members as defined in the National Design Specification for Wood Construction.
5. Tabulated F_b flat values are based on a thickness of 1¾". For other thicknesses, when loaded flatwise, multiply F_b flat by $(1.75/t)^{1/5}$, where t is the LVL thickness in inches. For thicknesses less than 1¾", use the tabulated value.
6. Tensile stress is based on a 4-foot gage length. For greater lengths, multiply F_t by $(4/L)^{1/9}$ where L=length in feet. For lengths less than 4 feet, use the tabulated value.

RigidLam® LVL Design Values (1-Ply 1¾" Edgewise)

	1.3E RIGIDLAM LVL				1.5E RIGIDLAM LVL				2.0E RIGIDLAM LVL				2.2E RIGIDLAM LVL			
Depth (in)	Max. Vert. Shear (lbs)	Max. Moment (ft-lbs)	EI x10⁶ (lbs-in²)	Approx. Weight (lbs/ft)	Max. Vert. Shear (lbs)	Max. Moment (ft-lbs)	EI x10⁶ (lbs-in²)	Approx. Weight (lbs/ft)	Max. Vert. Shear (lbs)	Max. Moment (ft-lbs)	EI x10⁶ (lbs-in²)	Approx. Weight (lbs/ft)	Max. Vert. Shear (lbs)	Max. Moment (ft-lbs)	EI x10⁶ (lbs-in²)	Approx. Weight (lbs/ft)
3½	817	781	8	1.53	898	781	9	1.53	1,184	1,077	13	1.62	1,184	1,077	14	1.62
4⅜	1,021	1,187	16	1.91	1,123	1,187	18	1.91	1,480	1,636	24	2.02	1,480	1,636	27	2.02
5¼	1,225	1,671	27	2.30	1,348	1,671	32	2.30	1,776	2,303	42	2.42	1,776	2,303	46	2.42
5½	1,283	1,824	32	2.41	1,412	1,824	36	2.41	1,861	2,513	49	2.54	1,861	2,513	53	2.54
7	1,633	2,866	65	3.06	1,797	2,866	75	3.06	2,368	3,949	100	3.23	2,368	3,949	110	3.23
7¼	1,692	3,061	72	3.17	1,861	3,061	83	3.17	2,453	4,218	111	3.35	2,453	4,218	122	3.35
9¼	2,158	4,834	150	4.05	2,374	4,834	173	4.05	3,130	6,660	231	4.27	3,130	6,660	254	4.27
9½	2,217	5,082	163	4.16	2,438	5,082	188	4.16	3,214	7,002	250	4.39	3,214	7,002	275	4.39
11¼	2,625	6,977	270	4.92	2,888	6,977	311	4.92	3,806	9,613	415	5.20	3,806	9,613	457	5.20
11⅞	2,771	7,722	317	5.20	3,048	7,722	366	5.20	4,018	10,639	488	5.48	4,018	10,639	537	5.48
14	3,267	10,514	520	6.13	3,593	10,514	600	6.13	4,737	14,486	800	6.47	4,737	14,486	880	6.47
16	3,733	13,506	777	7.00	4,107	13,506	896	7.00	5,413	18,608	1,195	7.39	5,413	18,608	1,314	7.39
18	4,200	16,843	1,106	7.88	4,620	16,843	1,276	7.88	6,090	23,206	1,701	8.31	6,090	23,206	1,871	8.31
20	4,667	20,522	1,517	8.75	5,133	20,522	1,750	8.75	6,767	28,275	2,333	9.24	6,767	28,275	2,567	9.24
22	5,133	24,537	2,019	9.63	5,647	24,537	2,329	9.63	7,443	33,807	3,106	10.16	7,443	33,807	3,416	10.16
24	5,600	28,886	2,621	10.50	6,160	28,886	3,024	10.50	8,120	39,798	4,032	11.08	8,120	39,798	4,435	11.08

1. Allowable shear and moment values are for 100% Duration of Load and may be adjusted for other durations of load. EI shall not be adjusted for duration of load.
2. For 2-Ply, 3-Ply and 4-Ply LVL members, the values in the tables may be multiplied by 2, 3 and 4 respectively.
3. For 1-1/2" thick LVL members, allowable design values may be obtained by multiplying the table values by 0.857.
4. 1-1/2" thick members 14" and deeper must be a minimum of two plies unless designed by a design professional for a specific application.
5. 1-3/4" thick members 16" and deeper must be a minimum of two plies unless designed by a design professional for a specific application.
6. Single ply 1-1/2" thick members are assumed to be laterally braced at 16" o.c. or less.
7. Single ply 1-3/4" thick members are assumed to be laterally braced at 24" o.c. or less.

RigidLam® LVL Columns

ALLOWABLE AXIAL LOAD (LBS) CAPACITY FOR 1.5E RIGIDLAM® LVL COLUMNS

	Column Size																	
	3½" x 3½"			3½" x 5¼"			3½" x 7"			5¼" x 5¼"			5¼" x 7"			7" x 7"		
Effective Column Length (ft.)	Floor 100%	Roof Snow 115%	Roof Live 125%	Floor 100%	Roof Snow 115%	Roof Live 125%	Floor 100%	Roof Snow 115%	Roof Live 125%	Floor 100%	Roof Snow 115%	Roof Live 125%	Floor 100%	Roof Snow 115%	Roof Live 125%	Floor 100%	Roof Snow 115%	Roof Live 125%
6	8,720	9,230	9,530	13,080	13,850	14,295	17,440	18,465	19,060	27,485	30,350	32,095	36,650	40,465	42,795	54,810	61,685	66,080
7	7,215	7,555	7,750	10,825	11,335	11,630	14,430	15,115	15,505	24,905	27,070	28,345	33,205	36,095	37,795	52,010	58,025	61,795
8	6,010	6,250	6,385	9,020	9,375	9,580	12,025	12,505	12,775	22,210	23,790	24,700	29,615	31,720	32,930	48,865	53,955	57,065
9	5,060	5,235	5,335	7,595	7,855	8,005	10,125	10,475	10,675	19,620	20,775	21,440	26,160	27,700	28,590	45,455	49,610	52,075
10	4,310	4,440	4,515	6,465	6,665	6,775	8,625	8,885	9,035	17,285	18,160	18,660	23,050	24,215	24,885	41,885	45,175	47,090
11	3,710	3,810	3,865	5,565	5,715	5,800	7,420	7,620	7,735	15,260	15,940	16,330	20,350	21,255	21,770	38,305	40,895	42,385
12	3,220	3,300	3,345	4,830	4,950	5,020	6,445	6,605	6,695	13,530	14,065	14,375	18,040	18,755	19,165	34,880	36,935	38,120
13	2,820	2,885	2,920	4,235	4,330	4,385	5,645	5,770	5,845	12,050	12,485	12,735	16,065	16,645	16,980	31,720	33,380	34,335
14	2,490	2,540	2,570	3,735	3,815	3,860	4,985	5,085	5,145	10,785	11,140	11,345	14,380	14,855	15,125	28,865	30,230	31,010
15										9,700	9,995	10,165	12,935	13,330	13,555	26,315	27,450	28,105
16										8,765	9,015	9,155	11,690	12,020	12,210	24,050	25,010	25,555
17										7,955	8,165	8,285	10,610	10,890	11,045	22,040	22,855	23,320
18										7,250	7,430	7,530	9,665	9,905	10,040	20,255	20,955	21,355
19										6,630	6,785	6,875	8,845	9,050	9,165	18,665	19,270	19,615
20										6,085	6,220	6,295	8,115	8,295	8,395	17,250	17,775	18,075
21										5,605	5,725	5,790	7,475	7,630	7,720	15,980	16,440	16,700
22																14,840	15,245	15,475
23																13,815	14,175	14,380
24																12,890	13,210	13,390
25																12,050	12,335	12,500

ALLOWABLE AXIAL LOAD (LBS) CAPACITY FOR 2.0E RIGIDLAM® LVL COLUMNS

	Column Size																	
	3½" x 3½"			3½" x 5¼"			3½" x 7"			5¼" x 5¼"			5¼" x 7"			7" x 7"		
Effective Column Length (ft.)	Floor 100%	Roof Snow 115%	Roof Live 125%	Floor 100%	Roof Snow 115%	Roof Live 125%	Floor 100%	Roof Snow 115%	Roof Live 125%	Floor 100%	Roof Snow 115%	Roof Live 125%	Floor 100%	Roof Snow 115%	Roof Live 125%	Floor 100%	Roof Snow 115%	Roof Live 125%
6	11,890	12,550	12,930	17,840	18,825	19,395	23,785	25,100	25,860	38,745	42,535	44,820	51,660	56,715	59,760	78,645	88,200	94,265
7	9,775	10,215	10,470	14,665	15,325	15,705	19,550	20,435	20,945	34,640	37,420	39,045	46,190	49,895	52,060	74,000	82,180	87,250
8	8,115	8,425	8,605	12,175	12,640	12,910	16,235	16,855	17,215	30,535	32,540	33,695	40,715	43,385	44,930	68,880	75,620	79,685
9	6,820	7,050	7,180	10,230	10,575	10,770	13,645	14,100	14,360	26,760	28,235	29,090	35,680	37,650	38,790	63,435	68,795	71,945
10	5,800	5,970	6,070	8,700	8,955	9,105	11,600	11,945	12,140	23,460	24,585	25,235	31,280	32,785	33,650	57,900	62,085	64,515
11	4,985	5,115	5,190	7,475	7,675	7,790	9,970	10,235	10,385	20,650	21,525	22,035	27,530	28,705	29,380	52,540	55,830	57,730
12	4,325	4,430	4,490	6,490	6,645	6,735	8,650	8,860	8,980	18,265	18,965	19,365	24,355	25,285	25,825	47,570	50,200	51,720
13	3,785	3,870	3,915	5,680	5,805	5,875	7,575	7,740	7,835	16,245	16,810	17,135	21,660	22,415	22,850	43,090	45,230	46,465
14	3,340	3,410	3,445	5,010	5,115	5,170	6,685	6,820	6,895	14,520	14,985	15,255	19,365	19,985	20,340	39,105	40,870	41,890
15										13,050	13,435	13,655	17,400	17,915	18,210	35,585	37,055	37,905
16										11,785	12,105	12,295	15,710	16,145	16,390	32,470	33,715	34,435
17										10,685	10,960	11,120	14,250	14,615	14,825	29,725	30,785	31,395
18										9,735	9,970	10,100	12,980	13,290	13,470	27,290	28,200	28,720
19										8,900	9,100	9,215	11,865	12,135	12,290	25,125	25,915	26,365
20										8,165	8,340	8,440	10,890	11,125	11,255	23,200	23,890	24,280
21										7,520	7,670	7,760	10,025	10,230	10,345	21,480	22,085	22,430
22																19,940	20,470	20,775
23																18,555	19,025	19,295
24																17,305	17,725	17,960
25																16,175	16,550	16,760

Notes:

1. Column is a single, one-piece member for dry-use applications only. **DO NOT use this chart for multi-ply, built-up column applications.**
2. Column is assumed to have adequate bracing in all directions at both ends.
3. Loads are calculated per the 2005 National Design Specification® for axial loads only.
4. For side-loaded columns, use appropriate design software or consult with a design professional.
5. Table assumes an eccentricity of 1/6 of the smaller column dimension.
6. Table assumes column bearing to be steel or concrete. When bearing on a wood plate (with F_c perp = 425 psi), axial loads shall not exceed the load shown below for the given column size for all durations of load:

Column Size	3½" x 3½"	3½" x 5¼"	3½" x 7"	5¼" x 5¼"	5¼" x 7"	7" x 7"
Load (lbs)	5206	7809	10412	11714	15618	20825

1.5E RIGIDLAM LVL ALLOWABLE DESIGN STRESSES[1]

Modulus of Elasticity (MOE)	E	=	1,500,000 psi[2]
Bending (edgewise & flatwise)	F_b	=	2,250 psi[3][4]
Compression Parallel to Grain	F_c	=	1,950 psi

2.0E RIGIDLAM LVL ALLOWABLE DESIGN STRESSES[1]

Modulus of Elasticity (MOE)	E	=	2,000,000 psi[2]
Bending (edgewise & flatwise)	F_b	=	3,100 psi[3][4]
Compression Parallel to Grain	F_c	=	3,000 psi

(1) These allowable design stresses apply to dry service conditions.
(2) No increase is allowed for duration of load.
(3) Edgewise bending: For depths other than 12" multiply F_b by $(12/d)^{1/8}$, where d = depth of member (inches).
(4) Flatwise bending: For thicknesses greater than 1-3/4" multiply F_b by $(1.75/t)^{1/5}$, where t = thickness of member (inches).

RIGIDLAM® LVL STUDS

Although conventional construction methods have allowed builders to meet the needs of homeowners, they are constantly being challenged with the need for straighter, stronger and taller wall framing components. Roseburg Forest Products RigidLam® LVL Studs are an answer to the needs of both homeowners and builders. RigidLam Studs are manufactured to the industry's highest standards and unlike solid-sawn lumber, RigidLam Studs are straight, strong, and stiff, resulting in a faster installation time, fewer callbacks, and straight walls that give homeowners peace of mind.

FIRE RATED STUD WALL APPLICATIONS

Conventional Stud Wall Construction: RigidLam Studs are permitted to be used in fire-resistance-rated conventional wall construction and are considered to be a direct replacement for solid-sawn lumber, having the same dimensions, in any fire-resistance-rated wall assembly listed in Table 721.1(2) of the IBC. A minimum of 2.5 pcf of mineral wool insulation must be placed in the stud cavity.

Engineered Stud Wall Construction: See APA Product Report PR-L270 for additional limitations and design value adjustments when using RigidLam Studs in fire-resistance-rated engineered wall construction. PR-L270 can be found on the Roseburg website (www.roseburg.com) in the Engineered Wood Products section or on the APA website (www.apawood.org).

CONVENTIONAL CONSTRUCTION

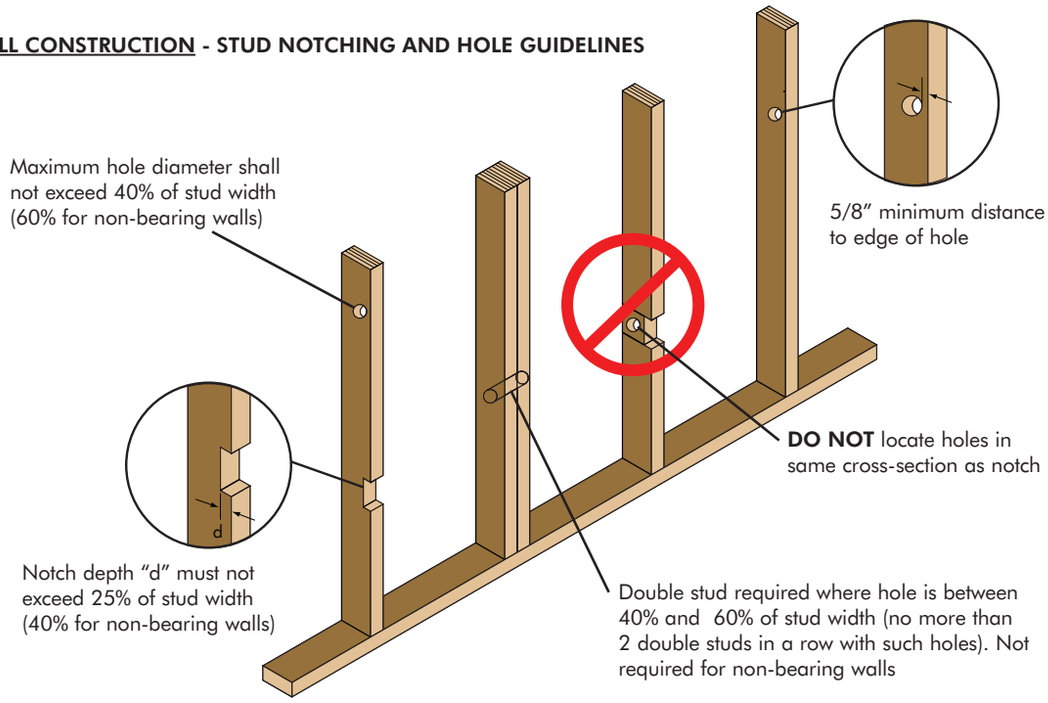
Based on testing conducted in accordance with ICC Evaluation Service Acceptance Criteria for Wood-Based Studs, AC202, RigidLam LVL Studs are considered to be alternatives to sawn lumber studs complying with Section 2308.9 of the IBC, Section R602 of the IRC, Section 2305 of the BNBC, Section 2308 of the SBC and Section 2320.11 of the UBC.

TYPICAL CONVENTIONAL CONSTRUCTION LIMITATIONS (2006 INTERNATIONAL RESIDENTIAL CODE)

- Maximum story height of 10'-0" plus 16" for floor framing (11'-4" total) *Section R301.3*
- Maximum stud height of 10'-0" between points of lateral support *Table R602.3(5)*
- Maximum on-center stud spacing = 24 inches *Table R602.3(5)*
- Building height limited to 3 stories above grade *Section R101.2*
- Maximum wind speed less than 110 mph (100 mph in hurricane zone regions) *Section R301.2.1.1*
- Maximum tabulated rafter, ceiling joist and floor joist spacing = 24" o.c. *Tables R502.3.1(1)(2) & R802.4(1) &R802.5(1)-(8)*
- Maximum tabulated rafter, ceiling joist, and joist span = 26'-0" *Table R502.3.1(1) & Footnotes to R802.4(1)(2) & R802.5(1)-(8)*
- Maximum floor loads: 40 psf Live and 20 psf Dead *Section R502.3.2*
- Maximum roof/ceiling dead load = 20 psf *Tables R802.5(1)-(8)*
- Maximum ground snow load = 70 psf *Section R301.2(3)*
- Minimum stud thickness = 2" nominal (1½" actual) *Section R602.3(5)*
- Applicable for Seismic Design Categories A, B, C, D0, D1 and D2 (except for irregular buildings) *Section R301.2.2*

NOTE: Other limitations may apply. Please refer to your local building code.

CONVENTIONAL WALL CONSTRUCTION - STUD NOTCHING AND HOLE GUIDELINES



ENGINEERED CONSTRUCTION

For building applications that fall outside the scope of conventional construction, RigidLam LVL Studs may be used provided they are designed in accordance with accepted engineering practice. RigidLam LVL Studs are available in 1.5E and 2.0E grades in thicknesses of 1½" and 1¾".

RIGIDLAM® LVL STUD ALLOWABLE DESIGN STRESSES VS. SOLID-SAWN LUMBER [1][a]

2x4		Joist (edgewise)			Plank (flatwise)			Axial		
		F_b	F_v	$Fc_{\perp}$[2]	F_b	F_v	$Fc_{\perp}$[2]	F_c	F_t	MOE
Species	Grade	(psi)	(psi)	(psi)	(psi)	(psi)	(psi)	(psi)	(psi)	(psi)
RigidLam LVL Stud	**1.5E**	**2,730**[4]	**220**	**575**	**2,250**	**130**	**650**	**1,950**	**1,500**[3]	**1,500,000**
RigidLam LVL Stud	**2.0E**	**3,761**[4]	**290**	**750**	**3,100**	**130**	**650**	**3,000**	**2,100**[3]	**2,000,000**
Douglas-fir[b]	No. 2	1,553[c]	180	625	1,485[d]	180	625	1,553[e]	863[e]	1,600,000
Spruce-Pine-Fir[b]	No. 2	1,509[c]	135	425	1,444[d]	135	425	1,323[e]	675[e]	1,400,000

2x6		Joist (edgewise)			Plank (flatwise)			Axial		
		F_b	F_v	$Fc_{\perp}$[2]	F_b	F_v	$Fc_{\perp}$[2]	F_c	F_t	MOE
Species	Grade	(psi)	(psi)	(psi)	(psi)	(psi)	(psi)	(psi)	(psi)	(psi)
RigidLam LVL Stud	**1.5E**	**2,580**[4]	**220**	**575**	**2,250**	**130**	**650**	**1,950**	**1,500**[3]	**1,500,000**
RigidLam LVL Stud	**2.0E**	**3,554**[4]	**290**	**750**	**3,100**	**130**	**650**	**3,000**	**2,100**[3]	**2,000,000**
Douglas-fir[b]	No. 2	1,346[c]	180	625	1,346[d]	180	625	1485[e]	748[e]	1,600,000
Spruce-Pine-Fir[b]	No. 2	1,308[c]	135	425	1,308[d]	135	425	1,265[e]	585[e]	1,400,000

RigidLam LVL Notes

(1) These allowable design stresses apply to dry service conditions
(2) Duration of Load increases not allowed
(3) Tabulated values are based on a 4 ft length. For lengths greater than 4 ft, multiply by $(4/\text{Length})^{1/9}$. For lengths less than 4 ft, use the table values.
(4) Bending values have been multiplied by $(12/d)^{1/8}$ and a repetitive member factor of 1.04

Solid-Sawn Notes

(a) These allowable design stresses apply to dry service conditions
(b) Solid-sawn design values taken from 2005 National Design Specification
(c) F_b has been adjusted for repetitive member use and size factor increases
(d) F_b has been adjusted for size factor increases and flat-use increases
(e) F_c and F_t have been adjusted for size factor increases

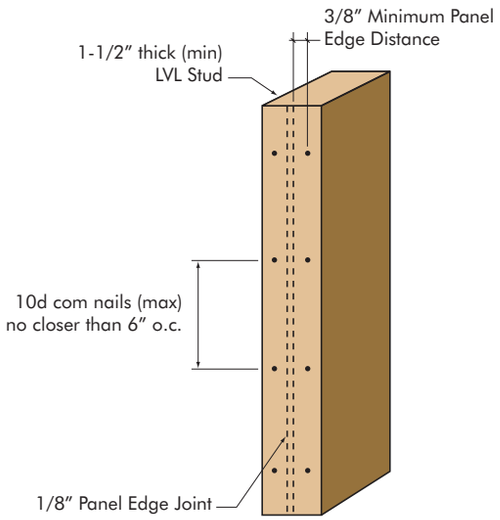
ENGINEERED WALL CONSTRUCTION - RIGIDLAM STUD HOLE AND NOTCHING GUIDELINES

Notches: A notch up to 40% of the width of the stud may be placed anywhere along the stud provided the reduced section is accounted for using standard engineering analysis and the allowable bending and/or tension stress is reduced by 30% to account for the stress concentrations that occur at the corners of the notch.

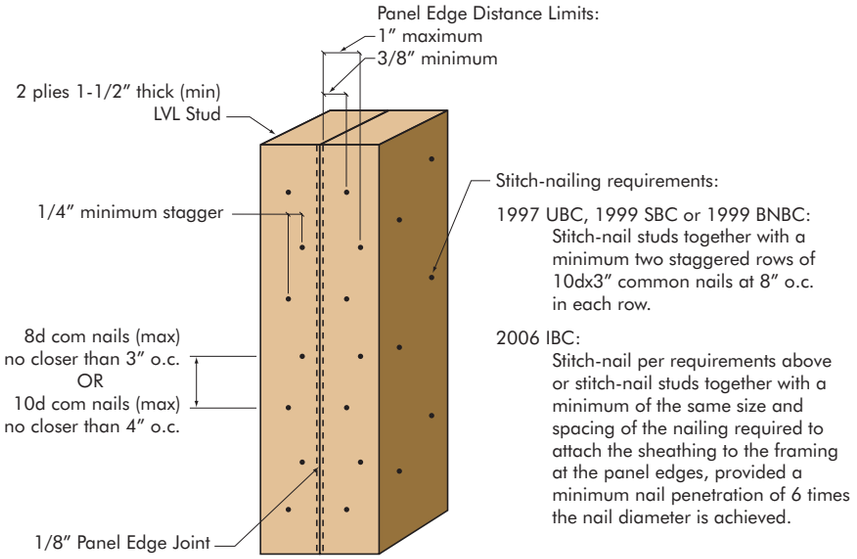
Holes: A hole with a maximum diameter of 30% of the width of the stud may be placed anywhere along the stud **at the centerline of the stud width** without further engineering analysis for lateral bending considerations. For other conditions, holes may be placed anywhere along the stud provided the reduced section is accounted for using standard engineering analysis.

CONVENTIONAL AND ENGINEERED WALL CONSTRUCTION - RIGIDLAM LVL NAILING RESTRICTIONS

NAILING RESTRICTIONS FOR SINGLE STUD AT ADJOINING PANEL EDGES



NAILING RESTRICTIONS FOR DOUBLE STUDS AT ADJOINING PANEL EDGES



RIGIDLAM® LVL STAIR STRINGERS - Maximum Horizontal Stair Stringer Run

1.3E RigidLam LVL — 1½" Thick LVL

Gross Stringer Depth	Tread Width: 36" 2 Stringers	36" 3 Stringers	42" 3 Stringers	44" 3 Stringers	48" 3 Stringers
40 PSF Live Load and 12 PSF Dead Load					
9½"	4′-10"	5′-5"	5′-2"	5′-1"	5′-0"
11⅞"	8′-8"	9′-10"	9′-4"	9′-3"	9′-0"
14"	12′-2"	13′-9"	13′-1"	12′-11"	12′-7"
16"	15′-5"	17′-5"	16′-7"	16′-5"	15′-11"
100 PSF Live Load and 12 PSF Dead Load					
9½"	4′-3"	4′-9"	4′-7"	4′-6"	4′-5"
11⅞"	7′-3"	8′-2"	7′-9"	7′-8"	7′-6"
14"	9′-11"	11′-2"	10′-8"	10′-6"	10′-3"
16"	12′-5"	14′-0"	13′-5"	13′-3"	12′-11"

1.3E RigidLam LVL — 1¾" Thick LVL

Gross Stringer Depth	Tread Width: 36" 2 Stringers	36" 3 Stringers	42" 3 Stringers	44" 3 Stringers	48" 3 Stringers
40 PSF Live Load and 12 PSF Dead Load					
9½"	5′-0"	5′-8"	5′-5"	5′-4"	5′-3"
11⅞"	9′-1"	10′-3"	9′-10"	9′-8"	9′-5"
14"	12′-9"	14′-4"	13′-9"	13′-6"	13′-2"
16"	16′-2"	18′-2"	17′-5"	17′-2"	16′-9"
100 PSF Live Load and 12 PSF Dead Load					
9½"	4′-5"	5′-0"	4′-9"	4′-9"	4′-7"
11⅞"	7′-7"	8′-6"	8′-2"	8′-1"	7′-10"
14"	10′-5"	11′-8"	11′-2"	11′-0"	10′-9"
16"	13′-0"	14′-8"	14′-0"	13′-10"	13′-6"

1.5E RigidLam LVL — 1½" Thick LVL

Gross Stringer Depth	Tread Width: 36" 2 Stringers	36" 3 Stringers	42" 3 Stringers	44" 3 Stringers	48" 3 Stringers
40 PSF Live Load and 12 PSF Dead Load					
9½"	5′-0"	5′-8"	5′-5"	5′-4"	5′-2"
11⅞"	9′-1"	10′-3"	9′-9"	9′-8"	9′-5"
14"	12′-8"	14′-4"	13′-8"	13′-6"	13′-2"
16"	16′-1"	18′-2"	17′-4"	17′-1"	16′-8"
100 PSF Live Load and 12 PSF Dead Load					
9½"	4′-5"	5′-0"	4′-9"	4′-8"	4′-7"
11⅞"	7′-7"	8′-6"	8′-2"	8′-0"	7′-10"
14"	10′-4"	11′-8"	11′-2"	11′-0"	10′-8"
16"	13′-0"	14′-8"	14′-0"	13′-9"	13′-5"

1.5E RigidLam LVL — 1¾" Thick LVL

Gross Stringer Depth	Tread Width: 36" 2 Stringers	36" 3 Stringers	42" 3 Stringers	44" 3 Stringers	48" 3 Stringers
40 PSF Live Load and 12 PSF Dead Load					
9½"	5′-3"	5′-11"	5′-8"	5′-7"	5′-5"
11⅞"	9′-6"	10′-9"	10′-3"	10′-1"	9′-10"
14"	13′-3"	15′-0"	14′-4"	14′-2"	13′-9"
16"	16′-10"	18′-11"	18′-2"	17′-11"	17′-6"
100 PSF Live Load and 12 PSF Dead Load					
9½"	4′-8"	5′-3"	5′-0"	4′-11"	4′-10"
11⅞"	7′-11"	8′-11"	8′-6"	8′-5"	8′-2"
14"	10′-10"	12′-3"	11′-8"	11′-6"	11′-3"
16"	13′-7"	15′-4"	14′-8"	14′-5"	14′-1"

2.0E RigidLam LVL — 1½" Thick LVL

Gross Stringer Depth	Tread Width: 36" 2 Stringers	36" 3 Stringers	42" 3 Stringers	44" 3 Stringers	48" 3 Stringers
40 PSF Live Load and 12 PSF Dead Load					
9½"	5′-6"	6′-2"	5′-11"	5′-10"	5′-8"
11⅞"	9′-11"	11′-3"	10′-8"	10′-6"	10′-3"
14"	13′-10"	15′-8"	15′-0"	14′-9"	14′-4"
16"	17′-7"	19′-10"	19′-0"	18′-9"	18′-3"
100 PSF Live Load and 12 PSF Dead Load					
9½"	4′-10"	5′-5"	5′-2"	5′-1"	5′-0"
11⅞"	8′-3"	9′-3"	8′-10"	8′-9"	8′-6"
14"	11′-3"	12′-9"	12′-2"	12′-0"	11′-8"
16"	14′-2"	15′-11"	15′-3"	15′-0"	14′-8"

2.0E RigidLam LVL — 1¾" Thick LVL

Gross Stringer Depth	Tread Width: 36" 2 Stringers	36" 3 Stringers	42" 3 Stringers	44" 3 Stringers	48" 3 Stringers
40 PSF Live Load and 12 PSF Dead Load					
9½"	5′-9"	6′-6"	6′-2"	6′-1"	5′-11"
11⅞"	10′-4"	11′-9"	11′-3"	11′-1"	10′-9"
14"	14′-6"	16′-5"	15′-8"	15′-6"	15′-1"
16"	18′-5"	20′-9"	19′-10"	19′-7"	19′-1"
100 PSF Live Load and 12 PSF Dead Load					
9½"	5′-1"	5′-8"	5′-5"	5′-4"	5′-3"
11⅞"	8′-7"	9′-9"	9′-3"	9′-2"	8′-11"
14"	11′-10"	13′-4"	12′-9"	12′-7"	12′-3"
16"	14′-10"	16′-9"	15′-11"	15′-9"	15′-4"

How To Use Chart

1. Determine grade and thickness of Roseburg RigidLam LVL
2. Locate appropriate table
3. Locate appropriate load (40 or 100 psf live load)
4. Locate appropriate gross depth of LVL (9-1/2", 11-7/8", 14" or 16")
5. Determine maximum allowable horizontal stringer run based on tread width and number of stringers

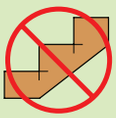
General Notes

- For 40/12 loading (residential), stringer runs are based on a rise of 7-3/4" (maximum per 2006 IRC) and a run of 11" (1" longer than minimum run of 10" per 2006 IRC).
- For 100/12 loading (commercial), stringer runs are based on a rise of 7" (maximum per 2006 IBC) and a run of 11" (minimum per 2006 IBC).
- Consult a design professional for allowable stringer run if above rise and/or run values are exceeded.
- Stringer runs are based on deflection criteria of L/360 Live Load and L/240 Total Load.
- All stringer runs are based on a 100% duration of load.
- Stringer runs account for self-weight of member.
- Stringers are unstable until connections at low and high ends are completed and treads are attached.
- Use subfloor adhesive to minimize squeaks and improve stair performance.
- When stringer is in direct contact with concrete, use moisture barrier.
- Refer to appropriate building code for story height restrictions.
- For loading and/or framing conditions outside the scope of this document, consult a design professional.
- Refer to pages 3 and 25 for RigidLam LVL storage and handling information.

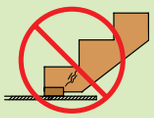
RIGIDLAM LVL CODE EVALUATION
ICC ESR-1210

Installation Guidelines

DO NOT notch or drill holes in stringer



DO NOT overcut stringer. Use hand saw to finish cut



DO NOT support stringer on nailer only

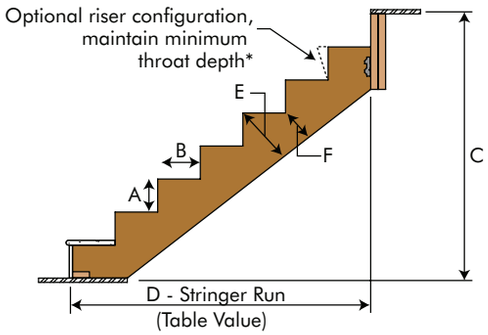
DO NOT walk on stringers until treads are attached

RigidLam® LVL Allowable Design Stresses[1]

		1.3E RigidLam LVL	1.5E RigidLam LVL	2.0E RigidLam LVL
Modulus of Elasticity (MOE)[2] – Edgewise or Flatwise	E (psi) =	1,300,000	1,500,000	2,000,000
Bending – Edgewise[3,4]	F_b edge (psi) =	2,250	2,250	3,100
Bending – Flatwise[5]	F_b flat (psi) =	2,250	2,250	3,100
Horizontal Shear - Edgewise	F_v edge (psi) =	200	220	290
Horizontal Shear - Flatwise	F_v flat (psi) =	130	130	130
Compression Perp. To Grain[2] - Edgewise	$F_{c\ perp}$ edge (psi) =	560	575	750
Compression Perp. To Grain[2] - Flatwise	$F_{c\ perp}$ flat (psi) =	650	650	650
Compression Parallel to Grain	$F_{c\ para}$ (psi) =	1,950	1,950	3,000
Tension Parallel to Grain[6]	F_t (psi) =	1,500	1,500	2,100
MOE for stability calculations[2]	E_{min} (psi) =	687,023	792,718	1,056,958

1. These allowable design stresses apply to dry service conditions.
2. No increase is allowed for duration of load.
3. For depths other than 12″ multiply F_b by $(12/d)^{1/8}$ where d = depth of member (inches).
4. A factor of 1.04 may be applied for repetitive members as defined in the *National Design Specification for Wood Construction*.
5. Tabulated F_b flat values are based on a thickness of 1¾″. For other thicknesses, when loaded flatwise, multiply F_b flat by $(1.75/t)^{1/5}$, where t is the LVL thickness in inches. For thicknesses less than 1¾″, use the tabulated value.
6. Tensile stress is based on a 4-foot gage length. For greater lengths, multiply F_t by $(4/L)^{1/9}$ where L = length in feet. For lengths less than 4-feet, use the published value.

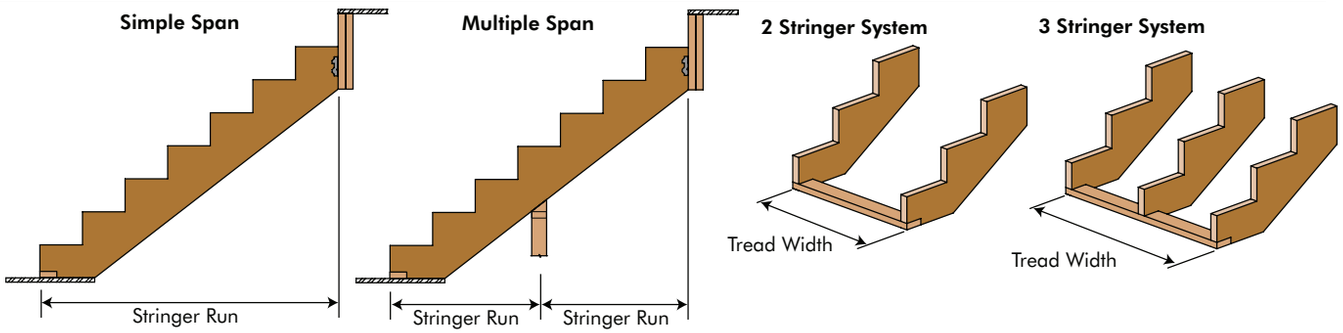
Stair Stringer Terms and Definitions



A - Step Rise:	Vertical rise of a single step
B - Step Run:	Horizontal length of a single step
C - Total Rise:	Vertical distance from top of finished framing on low end to top of finished framing on high end
D - Stringer Run:	Out-to-out horizontal span of stringer (table value)
E - Gross Stringer Depth:	Depth of stringer before steps are cut
F - Throat Depth*:	Net stringer depth after steps are cut (measured perpendicular to bottom edge of stringer)

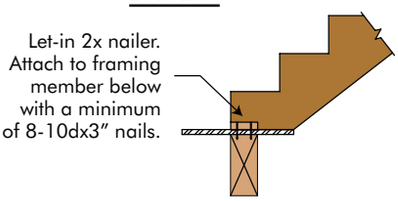
	*Minimum Throat Depth	
Stringer Depth	**Residential - 7-3/4″ rise & 11″ run**	**Commercial - 7″ rise & 11″ run**
9-1/2″ LVL	3-1/8″	3-9/16″
11-7/8″ LVL	5-1/2″	5-15/16″
14″ LVL	7-5/8″	8-1/16″
16″ LVL	9-5/8″	10-1/16″

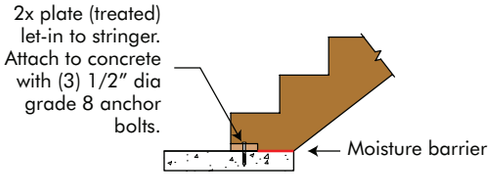
Stair Stringer Configurations



Connection Details - 40 psf live load & 12 psf dead load (for higher loading, consult design professional)

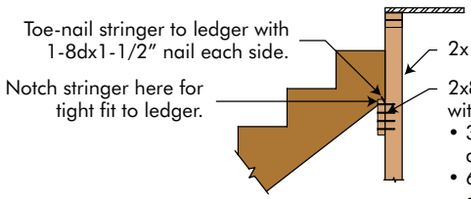
Low End

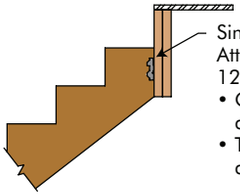




NOTE: Only use fasteners approved for use with the corresponding wood treatment.

High End

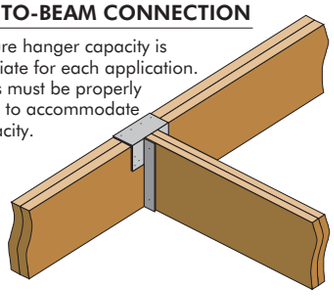




RigidLam LVL Bearing Details

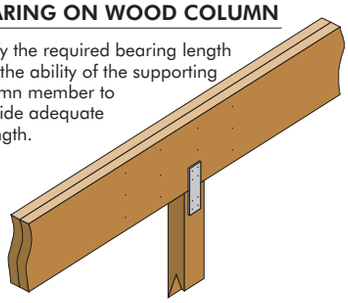
BEAM-TO-BEAM CONNECTION

Make sure hanger capacity is appropriate for each application. Hangers must be properly installed to accommodate full capacity.



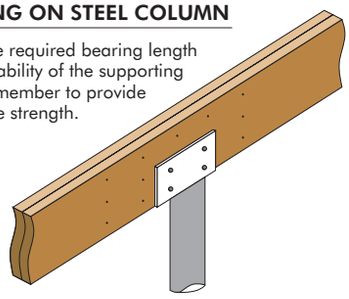
BEARING ON WOOD COLUMN

Verify the required bearing length and the ability of the supporting column member to provide adequate strength.

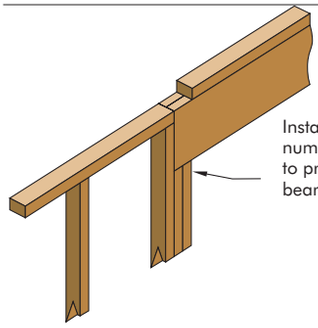


BEARING ON STEEL COLUMN

Verify the required bearing length and the ability of the supporting column member to provide adequate strength.



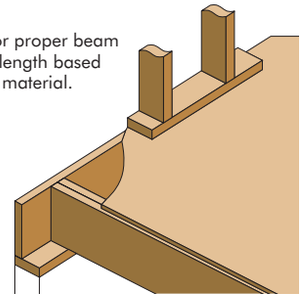
BEARING FOR DOOR OR WINDOW HEADER



Install the appropriate number of jack studs to provide required bearing length.

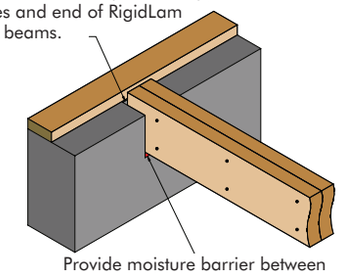
BEARING ON EXTERIOR WALL

Check for proper beam bearing length based on plate material.



POCKET CONSTRUCTION

Provide 1/2" air space on top, sides and end of RigidLam LVL beams.

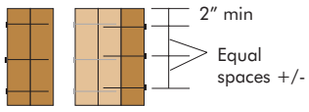


Provide moisture barrier between RigidLam LVL beams and concrete.

Fastening Recommendations For Multiple Ply LVL Members

TOP LOADED MEMBERS - 2 & 3 PLY

For 12" deep (or less) members, nail plies together with 2 rows of 16dx3½" com. nails at 12" o.c. (add 1 row for 16d sinkers).



2-Ply 3-Ply

For 14", 16" or 18" deep members, nail plies together with 3 rows of 16dx3½" com. nails at 12" o.c. (add 1 row for 16d sinkers).

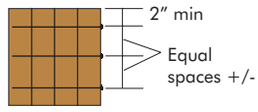
For 20", 22" or 24" deep members, nail plies together with 4 rows of 16dx3½" com. nails at 12" o.c. (add 1 row for 16d sinkers).

TOP LOADED MEMBERS - 4 PLY

For 4-Ply Top Loaded members, it is recommended to connect the plies together with appropriate wood screws (see page 33 for approved wood screws).

The recommended fastener spacing is two rows at 24" o.c. for up to and including 16" deep members, and 3 rows at 24" o.c. for members up to and including 24" deep. If the fastener point penetrates a minimum of 75% of the 4th ply, they may be applied from one side of the beam; otherwise, the fasteners must be applied from both sides and staggered.

Load must be applied evenly to all 4 plies; otherwise, use connections for side loaded members.



4-Ply

SIDE LOADED MEMBERS

MAXIMUM UNIFORM LOAD APPLIED TO EITHER OUTSIDE PIECE - POUNDS PER LINEAL FOOT

1-1/2" Thick Pieces in Member	Nail Size	Nailed				Bolted					
		2 rows 10d common at 12" o.c.		3 rows 10d common at 12" o.c.		2 rows 1/2" bolts at 24" o.c.		2 rows 1/2" bolts at 12" o.c.		3 rows 1/2" bolts at 12" o.c.	
		1.3E & 1.5E	2.0E & 2.2E	1.3E & 1.5E	2.0E & 2.2E	1.3E & 1.5E	2.0E & 2.2E	1.3E & 1.5E	2.0E & 2.2E	1.3E & 1.5E	2.0E & 2.2E
2 - 1-1/2"	10d com. (0.148" x 3")	465	465	700	700	395	435	795	870	1190	1305
3 - 1-1/2"	10d com. (0.148" x 3")	350	350	525	525	295	325	595	650	895	980
4 - 1-1/2"	use bolts	-	-	-	-	265	290	530	580	795	870
1-3/4" Thick Pieces in Member	**Nail Size**	**Nailed**				**Bolted**					
		2 rows 16d common at 12" o.c.		3 rows 16d common at 12" o.c.		2 rows 1/2" bolts at 24" o.c.		2 rows 1/2" bolts at 12" o.c.		3 rows 1/2" bolts at 12" o.c.	
		1.3E & 1.5E	2.0E & 2.2E	1.3E & 1.5E	2.0E & 2.2E	1.3E & 1.5E	2.0E & 2.2E	1.3E & 1.5E	2.0E & 2.2E	1.3E & 1.5E	2.0E & 2.2E
2 - 1-3/4"	16d com. (0.162" x 3-1/2")	560	560	845	845	460	505	925	1015	1390	1520
3 - 1-3/4"	16d com. (0.162" x 3-1/2")	420	420	635	635	345	380	695	760	1040	1140
4 - 1-3/4"	use bolts	-	-	-	-	305	335	615	675	925	1015
2 - 3-1/2"	use bolts	-	-	-	-	820	860	1640	1720	2465	2580

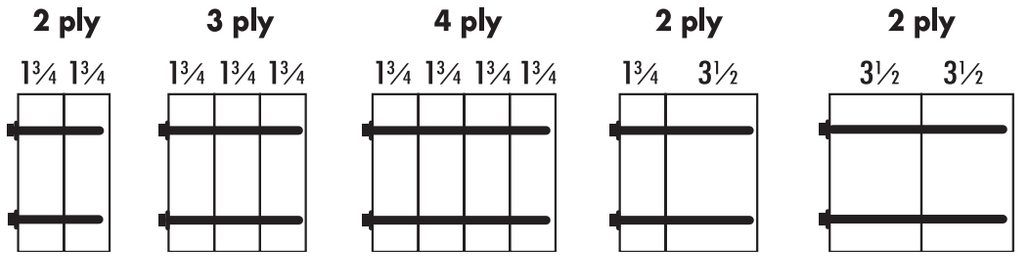
RECOMMENDED FASTENER DESIGN INFORMATION IN TERMS OF EQUIVALENT SPECIFIC GRAVITY FOR HEADER GRADES OF RIGIDLAM LVL

	Face		Edge	
	1.3E & 1.5E	2.0E & 2.2E	1.3E & 1.5E	2.0E & 2.2E
Withdrawal - nail	0.50	0.50	0.47	0.50
Dowel Bearing - nail	0.50	0.50	0.47	0.50
Dowel Bearing - bolt	0.47	0.50	Not applicable	

- Use appropriate software (e.g. Simpson Strong-Tie® Component Solutions™) or beam/header charts or plf load tables to size the beam.
- The table values apply to common (A307) bolts. Bolt holes must be centered at least two inches from the top and bottom edges of the beam. Bolt holes must be the same diameter as the bolts. Washers must be used under the bolt heads and nuts. Offset or stagger rows of bolt holes by one-half of the bolt spacing.
- The specified nailing applies to both sides of a three-piece beam.
- 7 inch wide beams may not be loaded from one side only. They must be loaded from both sides and/or top-loaded.
- The side loaded table values for nails may be doubled for 6" o.c. spacing and tripled for 4" o.c. spacing.
- Duration of load factors (e.g. 115%, 125% etc.) may be applied to the table values.

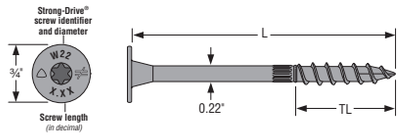
Fastening Recommendations For Multiple Ply LVL Members (cont.)

- The wood screws listed below are approved for use in connecting multiple plies of RigidLam® LVL together and may be used as an alternative to the nailing or bolting guidelines on the previous page.
- Pre-drilling of the LVL members is not required for the screws listed below.
- Carefully review and adhere to the design and installation information available from each of the screw manufacturers listed below.



The diagrams above are for illustrative purposes only, screws may need to be applied to both sides. Refer to the manufacturers' information for the appropriate design and installation guidelines.

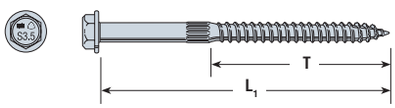
Simpson SDW Wood Screws



Model No.	L (in)	TL (in)	Head Stamp Length
SDW22338	3-3/8	1-9/16	3.37
SDW22500	5	1-9/16	5.00
SDW22634	6-3/4	1-9/16	6.75

- Code Evaluation Report – IAPMO ER-0192
- For SDW design and installation information, refer to the current Simpson Strong-Tie literature, www.strongtie.com or contact Simpson Strong-Tie at 800-999-5099.

Simpson SDS Wood Screws

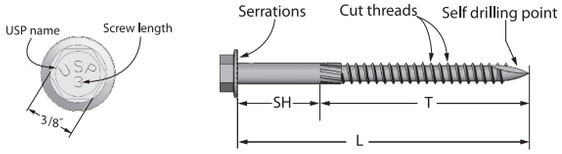


Model No.	L_1 (in)	T (in)	Head Stamp
SDS25312	3-1/2	2-1/4	S3.5
SDS25412	4-1/2	2-3/4	S4.5
SDS25600	6	3-1/4	S6

- Code Evaluation Report – ICC-ES ESR-2236
- For SDS design and installation information, refer to the current Simpson Strong-Tie literature, www.strongtie.com or contact Simpson Strong-Tie at 800-999-5099.

For hanger information refer to the current Simpson Strong-Tie literature, www.strongtie.com or contact Simpson Strong-Tie at 800-999-5099

USP WS Wood Screws

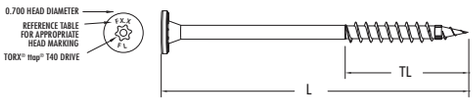


Model No.	L (in)	SH (in)	T (in)
WS35	3-1/2	3/4	2-3/4
WS45	4-1/2	1-1/4	3-1/4
WS6	6	1-3/4	4-1/4

- Code Evaluation Report – ICC-ES ESR-2761
- For WS design and installation information, refer to the current USP Structural Connectors literature, www.uspconnectors.com or contact USP Structural Connectors at 800-328-5934.

For hanger information refer to the current USP Structural Connectors literature, www.uspconnnectors.com or contact USP Structural Connectors at 800-328-5934

FastenMaster FlatLOK™ Wood Screws



Product	L (in)	TL (in)	Head Marking
FL312	3-1/2	2	F3.5FL
FL005	5	2	F5.0FL
FL634	6-3/4	2	F6.75FL

- Code Evaluation Report – DrJ - TER 1501-08
- For FlatLOK design and installation information, refer to the current FastenMaster literature, www.fastenmaster.com or contact FastenMaster at 800-518-3569

1-ply 1 3/4" **2.0E** RigidLam LVL - 100% Floor (PLF)

Span (ft)	Depth	4 3/8"	5 1/2"	7 1/4"	9 1/4"	9 1/2"	11 1/4"	11 7/8"	14"	16"	18"	20"	22"	24"
6	LL	168	333	762	-	-	-	-	-					
	TL	249	497	777	1046	1082	1348	1450	1827					
	BRG	1.5 / 3	1.5 / 3	1.8 / 4.5	2.4 / 6	2.5 / 6.2	3.1 / 7.7	3.3 / 8.3	4.2 / 10.5					
8	LL	71	140	322	668	724	-	-	-					
	TL	104	208	479	736	760	932	997	1230					
	BRG	1.5 / 3	1.5 / 3	1.5 / 3.7	2.3 / 5.6	2.3 / 5.8	2.9 / 7.1	3.1 / 7.6	3.8 / 9.4					
10	LL	36	72	165	342	370	615	724	-					
	TL	52	105	244	509	552	712	759	926					
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	2 / 4.9	2.1 / 5.3	2.7 / 6.8	2.9 / 7.3	3.5 / 8.9					
12	LL		42	95	198	214	356	419	686					
	TL		60	140	293	317	529	586	742					
	BRG		1.5 / 3	1.5 / 3	1.5 / 3.4	1.5 / 3.7	2.4 / 6.1	2.7 / 6.8	3.4 / 8.5					
14	LL			60	125	135	224	264	432					
	TL			87	183	198	331	390	585					
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.5	2.1 / 5.3	3.2 / 7.9					
16	LL			40	83	90	150	177	289					
	TL			57	121	132	220	260	428					
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.4	1.6 / 4	2.6 / 6.6					
18	LL				59	64	105	124	203					
	TL				84	91	153	181	299					
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.2	2.1 / 5.2					
20	LL				43	46	77	90	148					
	TL				60	65	110	130	216					
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.7 / 4.2					
22	LL						58	68	111					
	TL						82	97	161					
	BRG						1.5 / 3	1.5 / 3	1.5 / 3.5					
24	LL						45	52	86					
	TL						62	73	123					
	BRG						1.5 / 3	1.5 / 3	1.5 / 3					
26	LL							41	67					
	TL							57	95					
	BRG							1.5 / 3	1.5 / 3					
28	LL								54					
	TL								75					
	BRG								1.5 / 3					
30	LL								44					
	TL								60					
	BRG								1.5 / 3					

NOT APPLICABLE

2-ply 1 3/4" **2.0E** RigidLam LVL - 100% Floor (PLF)

Span (ft)	Depth	4 3/8"	5 1/2"	7 1/4"	9 1/4"	9 1/2"	11 1/4"	11 7/8"	14"	16"	18"	20"	22"	24"
6	LL	335	666	1525	-	-	-	-	-	-	-	-	-	-
	TL	499	994	1553	2093	2165	2697	2901	3655	4466	5398	6479	7748	9259
	BRG	1.5 / 3	1.5 / 3	1.8 / 4.5	2.4 / 6	2.5 / 6.2	3.1 / 7.7	3.3 / 8.3	4.2 / 10.5	5.1 / 12.8	6.2 / 15.5	7.4 / 18.6	8.9 / 22.2	10.6 / 26.5
8	LL	141	281	643	1336	1447	-	-	-	-	-	-	-	-
	TL	208	416	958	1472	1519	1864	1993	2459	2939	3464	4043	4682	5392
	BRG	1.5 / 3	1.5 / 3	1.5 / 3.7	2.3 / 5.6	2.3 / 5.8	2.9 / 7.1	3.1 / 7.6	3.8 / 9.4	4.5 / 11.2	5.3 / 13.3	6.2 / 15.5	7.2 / 17.9	8.2 / 20.6
10	LL	72	144	329	684	741	1230	1447	-	-	-	-	-	-
	TL	105	211	488	1018	1103	1423	1517	1851	2188	2548	2935	3351	3800
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	2 / 4.9	2.1 / 5.3	2.7 / 6.8	2.9 / 7.3	3.5 / 8.9	4.2 / 10.5	4.9 / 12.2	5.6 / 14.1	6.4 / 16.1	7.3 / 18.2
12	LL	42	83	191	396	429	712	837	1372	-	-	-	-	-
	TL	59	120	280	586	635	1058	1172	1484	1742	2014	2303	2608	2932
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.4	1.5 / 3.7	2.4 / 6.1	2.7 / 6.8	3.4 / 8.5	4 / 10	4.6 / 11.6	5.3 / 13.3	6 / 15	6.7 / 16.9
14	LL		52	120	249	270	448	527	864	1290	-	-	-	-
	TL		74	174	366	397	663	781	1170	1446	1664	1893	2133	2385
	BRG		1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.5	2.1 / 5.3	3.2 / 7.9	3.9 / 9.7	4.5 / 11.2	5.1 / 12.7	5.7 / 14.3	6.4 / 16
16	LL			80	167	181	300	353	579	864	1230	-	-	-
	TL			114	242	263	441	520	856	1149	1417	1607	1804	2009
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.4	1.6 / 4	2.6 / 6.6	3.5 / 8.9	4.4 / 10.9	4.9 / 12.4	5.6 / 13.9	6.2 / 15.5
18	LL			56	117	127	211	248	407	607	864	1185	-	-
	TL			78	168	182	307	362	598	896	1130	1379	1562	1735
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.2	2.1 / 5.2	3.1 / 7.8	3.9 / 9.8	4.8 / 12	5.4 / 13.6	6 / 15
20	LL			41	85	93	154	181	296	442	630	864	1150	1493
	TL			55	120	131	221	261	432	650	912	1113	1333	1526
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.7 / 4.2	2.5 / 6.3	3.5 / 8.8	4.3 / 10.8	5.2 / 12.9	5.9 / 14.7
22	LL				64	70	116	136	223	332	473	649	864	1122
	TL				88	96	163	193	322	485	694	917	1098	1295
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.5	2.1 / 5.2	3 / 7.4	3.9 / 9.8	4.7 / 11.7	5.5 / 13.8
24	LL				49	54	89	105	172	256	365	500	666	864
	TL				66	72	124	147	245	370	531	733	920	1084
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.4	2.5 / 6.3	3.4 / 8.6	4.3 / 10.7	5.1 / 12.6
26	LL				39	42	70	82	135	201	287	393	524	680
	TL				50	55	95	113	190	288	414	573	766	921
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.7	2.1 / 5.3	2.9 / 7.3	3.9 / 9.7	4.7 / 11.7
28	LL						56	66	108	161	230	315	419	544
	TL						74	88	150	228	329	455	610	791
	BRG						1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.2	1.8 / 4.6	2.5 / 6.3	3.4 / 8.4	4.3 / 10.8
30	LL						46	54	88	131	187	256	341	442
	TL						59	70	119	183	264	367	492	643
	BRG						1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.6 / 4	2.2 / 5.5	2.9 / 7.3	3.8 / 9.5

- The PLF load values in this table are based on the LVL member having lateral bracing at 24" o.c. or less along its entire length.
- 1-3/4" LVL members 16" and deeper and 1-1/2" LVL members 14" and deeper, must be a minimum of 2 plies unless designed by a design professional.
- Allowable PLF loads for single or multiple ply 1-1/2" thick LVL members can be obtained by multiplying the table values by 0.85. (Required bearing lengths are the same)
- This table may be used for either simple or multiple spans.
- Span is centerline of bearing to centerline of bearing.
- Loads shown can be applied to the beam in addition to its own weight.
- See pages 32 and 33 for details on attaching multiple ply members.

Key to Table:
LL = Maximum live load – limits deflection to L/360
TL = Maximum total load – limits deflections to L/240
BRG = Required end/interior bearing length (inches), based on bearing stress of 750 psi.

3-ply 1 3/4" **2.0E** RigidLam LVL - 100% Floor (PLF)

Span (ft)	Depth	4 3/8"	5 1/2"	7 1/4"	9 1/4"	9 1/2"	11 1/4"	11 7/8"	14"	16"	18"	20"	22"	24"
10	LL	109	216	494	1026	1111	1846	2171	-	-	-	-	-	-
	TL	157	316	731	1527	1655	2135	2276	2777	3282	3823	4403	5027	5700
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	2 / 4.9	2.1 / 5.3	2.7 / 6.8	2.9 / 7.3	3.5 / 8.9	4.2 / 10.5	4.9 / 12.2	5.6 / 14.1	6.4 / 16.1	7.3 / 18.2
12	LL	63	125	286	594	643	1068	1256	2058	-	-	-	-	-
	TL	88	180	419	878	952	1587	1758	2225	2613	3021	3454	3912	4398
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.4	1.5 / 3.7	2.4 / 6.1	2.7 / 6.8	3.4 / 8.5	4 / 10	4.6 / 11.6	5.3 / 13.3	6 / 15	6.7 / 16.9
14	LL	40	79	180	374	405	673	791	1296	1935	-	-	-	-
	TL	54	111	261	549	595	994	1171	1755	2169	2496	2840	3200	3577
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.5	2.1 / 5.3	3.2 / 7.9	3.9 / 9.7	4.5 / 11.2	5.1 / 12.7	5.7 / 14.3	6.4 / 16
16	LL		53	121	250	271	451	530	868	1296	1846	-	-	-
	TL		72	171	364	395	661	779	1284	1723	2126	2410	2705	3014
	BRG		1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.4	1.6 / 4	2.6 / 6.6	3.5 / 8.9	4.4 / 10.9	4.9 / 12.4	5.6 / 13.9	6.2 / 15.5
18	LL			85	176	191	316	372	610	910	1296	1778	-	-
	TL			118	252	273	460	543	897	1345	1695	2068	2342	2602
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.2	2.1 / 5.2	3.1 / 7.8	3.9 / 9.8	4.8 / 12	5.4 / 13.6	6 / 15
20	LL			62	128	139	231	271	445	664	945	1296	1725	2240
	TL			83	180	196	331	391	649	975	1369	1670	2000	2289
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.7 / 4.2	2.5 / 6.3	3.5 / 8.8	4.3 / 10.8	5.2 / 12.9	5.9 / 14.7
22	LL			46	96	104	173	204	334	499	710	974	1296	1683
	TL			60	132	144	245	290	483	727	1041	1376	1648	1942
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.5	2.1 / 5.2	3 / 7.4	3.9 / 9.8	4.7 / 11.7	5.5 / 13.8
24	LL				74	80	134	157	257	384	547	750	998	1296
	TL				99	108	186	220	368	555	797	1099	1380	1627
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.4	2.5 / 6.3	3.4 / 8.6	4.3 / 10.7	5.1 / 12.6
26	LL				58	63	105	124	202	302	430	590	785	1020
	TL				75	82	143	170	285	432	622	859	1149	1381
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.7	2.1 / 5.3	2.9 / 7.3	3.9 / 9.7	4.7 / 11.7
28	LL				47	51	84	99	162	242	344	472	629	816
	TL				58	63	111	133	225	342	493	682	914	1187
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.2	1.8 / 4.6	2.5 / 6.3	3.4 / 8.4	4.3 / 10.8
30	LL						68	80	132	197	280	384	511	664
	TL						88	105	179	274	396	550	738	964
	BRG						1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.6 / 4	2.2 / 5.5	2.9 / 7.3	3.8 / 9.5
32	LL						56	66	109	162	231	316	421	547
	TL						70	84	144	222	322	448	603	789
	BRG						1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.5	1.9 / 4.8	2.6 / 6.4	3.3 / 8.3
34	LL						47	55	91	135	192	264	351	456
	TL						56	67	117	182	265	370	498	652
	BRG						1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.1	1.7 / 4.3	2.3 / 5.7	3 / 7.4
36	LL							47	76	114	162	222	296	384
	TL							54	96	150	219	307	415	545
	BRG							1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.8	2 / 5.1	2.6 / 6.6

4-ply 1 3/4" **2.0E** RigidLam LVL - 100% Floor (PLF)

Span (ft)	Depth	4 3/8"	5 1/2"	7 1/4"	9 1/4"	9 1/2"	11 1/4"	11 7/8"	14"	16"	18"	20"	22"	24"
10	LL	145	288	659	1368	1482	2461	2894	-	-	-	-	-	-
	TL	209	422	975	2036	2206	2846	3034	3703	4376	5097	5870	6703	7600
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	2 / 4.9	2.1 / 5.3	2.7 / 6.8	2.9 / 7.3	3.5 / 8.9	4.2 / 10.5	4.9 / 12.2	5.6 / 14.1	6.4 / 16.1	7.3 / 18.2
12	LL	84	166	381	792	858	1424	1675	2745	-	-	-	-	-
	TL	118	240	559	1171	1270	2117	2343	2967	3483	4029	4605	5216	5863
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.4	1.5 / 3.7	2.4 / 6.1	2.7 / 6.8	3.4 / 8.5	4 / 10	4.6 / 11.6	5.3 / 13.3	6 / 15	6.7 / 16.9
14	LL	53	105	240	499	540	897	1055	1728	2580	-	-	-	-
	TL	71	148	347	732	793	1326	1561	2341	2892	3329	3786	4266	4770
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.5	2.1 / 5.3	3.2 / 7.9	3.9 / 9.7	4.5 / 11.2	5.1 / 12.7	5.7 / 14.3	6.4 / 16
16	LL		70	161	334	362	601	707	1158	1728	2461	-	-	-
	TL		96	229	485	526	882	1039	1712	2298	2834	3213	3607	4018
	BRG		1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.4	1.6 / 4	2.6 / 6.6	3.5 / 8.9	4.4 / 10.9	4.9 / 12.4	5.6 / 13.9	6.2 / 15.5
18	LL		49	113	235	254	422	496	813	1214	1728	2371	-	-
	TL		64	157	336	365	613	724	1195	1793	2260	2758	3123	3469
	BRG		1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.2	2.1 / 5.2	3.1 / 7.8	3.9 / 9.8	4.8 / 12	5.4 / 13.6	6 / 15
20	LL			82	171	185	308	362	593	885	1260	1728	2300	2987
	TL			111	240	261	442	522	865	1299	1825	2227	2666	3051
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.7 / 4.2	2.5 / 6.3	3.5 / 8.8	4.3 / 10.8	5.2 / 12.9	5.9 / 14.7
22	LL			62	128	139	231	272	445	665	947	1299	1728	2244
	TL			80	177	192	327	387	644	969	1388	1834	2197	2589
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.5	2.1 / 5.2	3 / 7.4	3.9 / 9.8	4.7 / 11.7	5.5 / 13.8
24	LL			48	99	107	178	209	343	512	729	1000	1331	1728
	TL			59	132	144	247	293	490	740	1062	1465	1840	2169
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.4	2.5 / 6.3	3.4 / 8.6	4.3 / 10.7	5.1 / 12.6
26	LL				78	84	140	165	270	403	574	787	1047	1359
	TL				101	110	190	226	380	576	829	1145	1532	1842
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.7	2.1 / 5.3	2.9 / 7.3	3.9 / 9.7	4.7 / 11.7
28	LL				62	68	112	132	216	322	459	630	838	1088
	TL				77	85	148	177	300	456	657	910	1219	1582
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.2	1.8 / 4.6	2.5 / 6.3	3.4 / 8.4	4.3 / 10.8
30	LL				51	55	91	107	176	262	373	512	682	885
	TL				60	66	117	140	239	365	529	733	984	1285
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.6 / 4	2.2 / 5.5	2.9 / 7.3	3.8 / 9.5
32	LL					45	75	88	145	216	308	422	562	729
	TL					51	93	112	193	296	430	598	804	1052
	BRG					1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.5	1.9 / 4.8	2.6 / 6.4	3.3 / 8.3
34	LL						63	74	121	180	256	352	468	608
	TL						74	90	157	242	353	493	664	870
	BRG						1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.1	1.7 / 4.3	2.3 / 5.7	3 / 7.4
36	LL						53	62	102	152	216	296	394	512
	TL						59	72	128	200	293	410	553	726
	BRG						1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.8	2 / 5.1	2.6 / 6.6

Refer to notes on page 34

1-ply 1 3/4" **2.0E** RigidLam LVL - 115% Roof Snow (PLF)

Span (ft)	Depth	4 3/8"	5 1/2"	7 1/4"	9 1/4"	9 1/2"	11 1/4"	11 7/8"	14"	16"	18"	20"	22"	24"
6	LL	251	499	-	-	-	-	-	-					
	TL	333	640	894	1204	1245	1551	1669	2102					
	BRG	1.5 / 3	1.5 / 3.7	2 / 5.1	2.8 / 6.9	2.9 / 7.1	3.6 / 8.9	3.8 / 9.6	4.8 / 12					
8	LL	106	211	482	-	-	-	-	-					
	TL	139	278	603	847	874	1073	1147	1415					
	BRG	1.5 / 3	1.5 / 3	1.8 / 4.6	2.6 / 6.5	2.7 / 6.7	3.3 / 8.2	3.5 / 8.8	4.3 / 10.8					
10	LL	54	108	247	513	556	-	-	-					
	TL	70	141	326	609	640	819	873	1065					
	BRG	1.5 / 3	1.5 / 3	1.5 / 3.1	2.3 / 5.8	2.5 / 6.1	3.1 / 7.8	3.3 / 8.4	4.1 / 10.2					
12	LL		62	143	297	322	534	628	-					
	TL		81	187	392	425	609	675	854					
	BRG		1.5 / 3	1.5 / 3	1.8 / 4.5	2 / 4.9	2.8 / 7	3.1 / 7.8	3.9 / 9.8					
14	LL		39	90	187	203	336	396	648					
	TL		50	117	245	266	443	494	674					
	BRG		1.5 / 3	1.5 / 3	1.5 / 3.3	1.5 / 3.6	2.4 / 6	2.7 / 6.7	3.6 / 9.1					
16	LL			60	125	136	225	265	434					
	TL			77	163	177	295	348	514					
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.6	2.2 / 5.4	3.2 / 7.9					
18	LL			42	88	95	158	186	305					
	TL			53	113	123	206	243	400					
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.6	1.7 / 4.3	2.8 / 7					
20	LL				64	69	115	136	222					
	TL				81	88	149	176	290					
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.4	2.3 / 5.6					
22	LL				48	52	87	102	167					
	TL				60	65	111	131	217					
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.9 / 4.7					
24	LL						67	79	129					
	TL						84	99	165					
	BRG						1.5 / 3	1.5 / 3	1.6 / 3.9					
26	LL						53	62	101					
	TL						65	77	129					
	BRG						1.5 / 3	1.5 / 3	1.5 / 3.3					
28	LL						42	49	81					
	TL						51	61	102					
	BRG						1.5 / 3	1.5 / 3	1.5 / 3					
30	LL								66					
	TL								82					
	BRG								1.5 / 3					

NOT APPLICABLE

2-ply 1 3/4" **2.0E** RigidLam LVL - 115% Roof Snow (PLF)

Span (ft)	Depth	4 3/8"	5 1/2"	7 1/4"	9 1/4"	9 1/2"	11 1/4"	11 7/8"	14"	16"	18"	20"	22"	24"
6	LL	503	998	-	-	-	-	-	-	-	-	-	-	-
	TL	666	1279	1787	2408	2491	3103	3337	4205	5138	6210	7453	8913	10651
	BRG	1.5 / 3	1.5 / 3.7	2 / 5.1	2.8 / 6.9	2.9 / 7.1	3.6 / 8.9	3.8 / 9.6	4.8 / 12	5.9 / 14.7	7.1 / 17.8	8.5 / 21.3	10.2 / 25.5	12.2 / 30.5
8	LL	212	421	965	-	-	-	-	-	-	-	-	-	-
	TL	279	557	1206	1694	1748	2145	2294	2830	3382	3986	4652	5387	6204
	BRG	1.5 / 3	1.5 / 3	1.8 / 4.6	2.6 / 6.5	2.7 / 6.7	3.3 / 8.2	3.5 / 8.8	4.3 / 10.8	5.2 / 12.9	6.1 / 15.2	7.1 / 17.8	8.2 / 20.6	9.5 / 23.7
10	LL	109	216	494	1026	1111	-	-	-	-	-	-	-	-
	TL	141	283	652	1217	1280	1638	1746	2131	2518	2933	3378	3857	4373
	BRG	1.5 / 3	1.5 / 3	1.5 / 3.1	2.3 / 5.8	2.5 / 6.1	3.1 / 7.8	3.3 / 8.4	4.1 / 10.2	4.8 / 12.1	5.6 / 14	6.5 / 16.2	7.4 / 18.5	8.4 / 20.9
12	LL	63	125	286	594	643	1068	1256	-	-	-	-	-	-
	TL	80	162	375	784	849	1219	1349	1708	2005	2319	2651	3002	3375
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.5	2 / 4.9	2.8 / 7	3.1 / 7.8	3.9 / 9.8	4.6 / 11.5	5.3 / 13.3	6.1 / 15.2	6.9 / 17.3	7.8 / 19.4
14	LL		79	180	374	405	673	791	1296	-	-	-	-	-
	TL		100	234	490	532	887	988	1348	1665	1916	2180	2456	2746
	BRG		1.5 / 3	1.5 / 3	1.5 / 3.3	1.5 / 3.6	2.4 / 6	2.7 / 6.7	3.6 / 9.1	4.5 / 11.2	5.2 / 12.9	5.9 / 14.6	6.6 / 16.5	7.4 / 18.4
16	LL		53	121	250	271	451	530	868	1296	-	-	-	-
	TL		65	154	326	353	591	696	1029	1323	1632	1850	2077	2314
	BRG		1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.6	2.2 / 5.4	3.2 / 7.9	4.1 / 10.2	5 / 12.6	5.7 / 14.2	6.4 / 16	7.1 / 17.8
18	LL			85	176	191	316	372	610	910	1296	-	-	-
	TL			107	226	246	412	486	801	1043	1302	1588	1799	1998
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.6	1.7 / 4.3	2.8 / 7	3.6 / 9.1	4.5 / 11.3	5.5 / 13.8	6.2 / 15.6	6.9 / 17.3
20	LL			62	128	139	231	271	445	664	945	-	-	-
	TL			76	163	177	298	351	581	842	1052	1283	1536	1758
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.4	2.3 / 5.6	3.3 / 8.2	4.1 / 10.2	5 / 12.4	5.9 / 14.8	6.8 / 16.9
22	LL			46	96	104	173	204	334	499	710	974	-	-
	TL			56	120	131	221	261	433	651	866	1057	1266	1492
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.9 / 4.7	2.8 / 7	3.7 / 9.2	4.5 / 11.3	5.4 / 13.5	6.3 / 15.9
24	LL				74	80	134	157	257	384	547	750	998	-
	TL				91	99	168	199	331	498	713	886	1061	1250
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.6 / 3.9	2.3 / 5.9	3.3 / 8.3	4.1 / 10.3	4.9 / 12.3	5.8 / 14.5
26	LL				58	63	105	124	202	302	430	590	785	1020
	TL				70	76	130	154	258	389	558	752	901	1062
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.3	2 / 5	2.8 / 7.1	3.8 / 9.5	4.6 / 11.4	5.4 / 13.4
28	LL				47	51	84	99	162	242	344	472	629	816
	TL				54	59	102	121	204	308	443	612	774	913
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.7 / 4.3	2.4 / 6.1	3.4 / 8.4	4.2 / 10.6	5 / 12.5
30	LL						68	80	132	197	280	384	511	664
	TL						81	97	163	248	358	495	662	793
	BRG						1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.7	2.1 / 5.3	2.9 / 7.3	3.9 / 9.7	4.6 / 11.6

- The PLF load values in this table are based on the LVL member having lateral bracing at 24" o.c. or less along its entire length.
- 1-3/4" LVL members 16" and deeper and 1-1/2" LVL members 14" and deeper, must be a minimum of 2 plies unless designed by a design professional.
- Allowable PLF loads for single or multiple ply 1-1/2" thick LVL members can be obtained by multiplying the table values by 0.85. (Required bearing lengths are the same)
- This table may be used for either simple or multiple spans.
- Span is centerline of bearing to centerline of bearing.
- Loads shown can be applied to the beam in addition to its own weight.
- See pages 32 and 33 for details on attaching multiple ply members.

Key to Table:
LL = Maximum live load – limits deflection to L/240
TL = Maximum total load – limits deflections to L/180
BRG = Required end/interior bearing length (inches), based on bearing stress of 750 psi.

3-ply 1 3/4" **2.0E** RigidLam LVL - 115% Roof Snow (PLF)

Span (ft)	Depth	4 3/8"	5 1/2"	7 1/4"	9 1/4"	9 1/2"	11 1/4"	11 7/8"	14"	16"	18"	20"	22"	24"
10	LL	163	324	741	1539	1667	-	-	-	-	-	-	-	-
	TL	211	424	978	1826	1920	2457	2619	3196	3778	4400	5067	5785	6560
	BRG	1.5 / 3	1.5 / 3	1.5 / 3.1	2.3 / 5.8	2.5 / 6.1	3.1 / 7.8	3.3 / 8.4	4.1 / 10.2	4.8 / 12.1	5.6 / 14	6.5 / 16.2	7.4 / 18.5	8.4 / 20.9
12	LL	94	187	429	891	965	1602	1884	-	-	-	-	-	-
	TL	120	242	562	1175	1274	1828	2024	2562	3008	3478	3976	4503	5062
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.5	2 / 4.9	2.8 / 7	3.1 / 7.8	3.9 / 9.8	4.6 / 11.5	5.3 / 13.3	6.1 / 15.2	6.9 / 17.3	7.8 / 19.4
14	LL	59	118	270	561	608	1009	1187	1944	-	-	-	-	-
	TL	73	150	351	736	798	1330	1483	2022	2497	2874	3270	3684	4119
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.3	1.5 / 3.6	2.4 / 6	2.7 / 6.7	3.6 / 9.1	4.5 / 11.2	5.2 / 12.9	5.9 / 14.6	6.6 / 16.5	7.4 / 18.4
16	LL		79	181	376	407	676	795	1303	1944	-	-	-	-
	TL		98	232	489	530	886	1044	1543	1985	2448	2775	3116	3470
	BRG		1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.6	2.2 / 5.4	3.2 / 7.9	4.1 / 10.2	5 / 12.6	5.7 / 14.2	6.4 / 16	7.1 / 17.8
18	LL		55	127	264	286	475	558	915	1366	1944	-	-	-
	TL		67	160	340	369	618	729	1201	1564	1953	2382	2698	2997
	BRG		1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.6	1.7 / 4.3	2.8 / 7	3.6 / 9.1	4.5 / 11.3	5.5 / 13.8	6.2 / 15.6	6.9 / 17.3
20	LL			93	192	208	346	407	667	996	1418	-	-	-
	TL			114	244	265	447	527	871	1263	1578	1925	2304	2637
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.4	2.3 / 5.6	3.3 / 8.2	4.1 / 10.2	5 / 12.4	5.9 / 14.8	6.8 / 16.9
22	LL			70	145	157	260	306	501	748	1065	1461	-	-
	TL			83	181	196	332	392	650	976	1300	1586	1899	2238
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.9 / 4.7	2.8 / 7	3.7 / 9.2	4.5 / 11.3	5.4 / 13.5	6.3 / 15.9
24	LL			54	111	121	200	236	386	576	820	1125	1498	-
	TL			62	136	148	252	298	496	747	1070	1329	1591	1875
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.6 / 3.9	2.3 / 5.9	3.3 / 8.3	4.1 / 10.3	4.9 / 12.3	5.8 / 14.5
26	LL				88	95	158	185	304	453	645	885	1178	1529
	TL				105	114	195	231	386	583	837	1128	1351	1593
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.3	2 / 5	2.8 / 7.1	3.8 / 9.5	4.6 / 11.4	5.4 / 13.4
28	LL				70	76	126	148	243	363	517	709	943	1224
	TL				81	89	153	182	306	463	665	919	1161	1370
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.7 / 4.3	2.4 / 6.1	3.4 / 8.4	4.2 / 10.6	5 / 12.5
30	LL				57	62	103	121	198	295	420	576	767	996
	TL				64	70	122	145	245	372	536	742	994	1189
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.7	2.1 / 5.3	2.9 / 7.3	3.9 / 9.7	4.6 / 11.6
32	LL				47	51	84	99	163	243	346	475	632	820
	TL				50	55	98	117	199	303	438	607	814	1041
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.3	1.9 / 4.7	2.6 / 6.4	3.4 / 8.6	4.4 / 10.9
34	LL						70	83	136	203	289	396	527	684
	TL						79	95	163	249	361	501	673	880
	BRG						1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.7 / 4.2	2.3 / 5.7	3 / 7.6	3.9 / 9.8
36	LL						59	70	114	171	243	333	444	576
	TL						64	77	134	207	300	418	563	737
	BRG						1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.7	2 / 5.1	2.7 / 6.8	3.5 / 8.8

4-ply 1 3/4" **2.0E** RigidLam LVL - 115% Roof Snow (PLF)

Span (ft)	Depth	4 3/8"	5 1/2"	7 1/4"	9 1/4"	9 1/2"	11 1/4"	11 7/8"	14"	16"	18"	20"	22"	24"
10	LL	217	431	988	2052	2223	-	-	-	-	-	-	-	-
	TL	282	565	1305	2435	2560	3276	3493	4262	5037	5866	6756	7714	8747
	BRG	1.5 / 3	1.5 / 3	1.5 / 3.1	2.3 / 5.8	2.5 / 6.1	3.1 / 7.8	3.3 / 8.4	4.1 / 10.2	4.8 / 12.1	5.6 / 14	6.5 / 16.2	7.4 / 18.5	8.4 / 20.9
12	LL	126	250	572	1187	1286	2136	2512	-	-	-	-	-	-
	TL	160	323	750	1567	1699	2437	2698	3416	4010	4638	5301	6004	6749
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.5	2 / 4.9	2.8 / 7	3.1 / 7.8	3.9 / 9.8	4.6 / 11.5	5.3 / 13.3	6.1 / 15.2	6.9 / 17.3	7.8 / 19.4
14	LL	79	157	360	748	810	1345	1582	2593	-	-	-	-	-
	TL	98	200	467	981	1063	1774	1977	2695	3329	3833	4359	4912	5492
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.3	1.5 / 3.6	2.4 / 6	2.7 / 6.7	3.6 / 9.1	4.5 / 11.2	5.2 / 12.9	5.9 / 14.6	6.6 / 16.5	7.4 / 18.4
16	LL	53	105	241	501	543	901	1060	1737	2593	-	-	-	-
	TL	63	131	309	652	707	1182	1392	2058	2647	3264	3700	4154	4627
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.6	2.2 / 5.4	3.2 / 7.9	4.1 / 10.2	5 / 12.6	5.7 / 14.2	6.4 / 16	7.1 / 17.8
18	LL		74	169	352	381	633	744	1220	1821	2593	-	-	-
	TL		89	213	453	492	824	972	1602	2085	2604	3176	3598	3996
	BRG		1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.6	1.7 / 4.3	2.8 / 7	3.6 / 9.1	4.5 / 11.3	5.5 / 13.8	6.2 / 15.6	6.9 / 17.3
20	LL		54	123	256	278	461	543	889	1327	1890	-	-	-
	TL		62	152	326	354	596	703	1161	1684	2103	2566	3072	3515
	BRG		1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.4	2.3 / 5.6	3.3 / 8.2	4.1 / 10.2	5 / 12.4	5.9 / 14.8	6.8 / 16.9
22	LL			93	193	209	347	408	668	997	1420	1948	-	-
	TL			111	241	262	443	523	866	1302	1733	2115	2532	2984
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.9 / 4.7	2.8 / 7	3.7 / 9.2	4.5 / 11.3	5.4 / 13.5	6.3 / 15.9
24	LL			71	148	161	267	314	515	768	1094	1500	1997	-
	TL			83	182	198	336	398	662	996	1427	1771	2121	2501
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.6 / 3.9	2.3 / 5.9	3.3 / 8.3	4.1 / 10.3	4.9 / 12.3	5.8 / 14.5
26	LL			56	117	126	210	247	405	604	860	1180	1571	2039
	TL			62	139	152	260	309	515	778	1116	1504	1802	2125
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.3	2 / 5	2.8 / 7.1	3.8 / 9.5	4.6 / 11.4	5.4 / 13.4
28	LL				93	101	168	198	324	484	689	945	1258	1633
	TL				108	118	205	243	408	617	887	1225	1548	1826
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.7 / 4.3	2.4 / 6.1	3.4 / 8.4	4.2 / 10.6	5 / 12.5
30	LL				76	82	137	161	263	393	560	768	1022	1327
	TL				85	93	163	194	327	496	715	989	1325	1585
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.7	2.1 / 5.3	2.9 / 7.3	3.9 / 9.7	4.6 / 11.6
32	LL				63	68	113	132	217	324	461	633	842	1094
	TL				67	74	131	156	265	404	584	809	1085	1388
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.3	1.9 / 4.7	2.6 / 6.4	3.4 / 8.6	4.4 / 10.9
34	LL				52	57	94	110	181	270	385	528	702	912
	TL				53	59	106	126	217	332	481	669	898	1174
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.7 / 4.2	2.3 / 5.7	3 / 7.6	3.9 / 9.8
36	LL						79	93	152	228	324	445	592	768
	TL						86	103	179	275	401	558	750	982
	BRG						1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.7	2 / 5.1	2.7 / 6.8	3.5 / 8.8

Refer to notes on page 36

1-ply 1 3/4" **2.0E** RigidLam LVL - 125% Roof Non-Snow (PLF)

Span (ft)	Depth	4 3/8"	5 1/2"	7 1/4"	9 1/4"	9 1/2"	11 1/4"	11 7/8"	14"	16"	18"	20"	22"	24"
6	LL	251	499	-	-	-	-	-	-					
	TL	333	663	971	1309	1354	1687	1814	2286					
	BRG	1.5 / 3	1.5 / 3.8	2.2 / 5.6	3 / 7.5	3.1 / 7.8	3.9 / 9.7	4.2 / 10.4	5.2 / 13.1					
8	LL	106	211	482	-	-	-	-	-					
	TL	139	278	640	921	951	1166	1247	1538					
	BRG	1.5 / 3	1.5 / 3	2 / 4.9	2.8 / 7	2.9 / 7.3	3.6 / 8.9	3.8 / 9.5	4.7 / 11.8					
10	LL	54	108	247	513	556	-	-	-					
	TL	70	141	326	662	696	891	950	1159					
	BRG	1.5 / 3	1.5 / 3	1.5 / 3.1	2.5 / 6.3	2.7 / 6.7	3.4 / 8.5	3.6 / 9.1	4.4 / 11.1					
12	LL		62	143	297	322	534	628	-					
	TL		81	187	392	425	663	734	929					
	BRG		1.5 / 3	1.5 / 3	1.8 / 4.5	2 / 4.9	3.1 / 7.6	3.4 / 8.4	4.3 / 10.7					
14	LL		39	90	187	203	336	396	648					
	TL		50	117	245	266	443	522	733					
	BRG		1.5 / 3	1.5 / 3	1.5 / 3.3	1.5 / 3.6	2.4 / 6	2.8 / 7	3.9 / 9.9					
16	LL			60	125	136	225	265	434					
	TL			77	163	177	295	348	560					
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.6	2.2 / 5.4	3.4 / 8.6					
18	LL			42	88	95	158	186	305					
	TL			53	113	123	206	243	400					
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.6	1.7 / 4.3	2.8 / 7					
20	LL				64	69	115	136	222					
	TL				81	88	149	176	290					
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.4	2.3 / 5.6					
22	LL				48	52	87	102	167					
	TL				60	65	111	131	217					
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.9 / 4.7					
24	LL						67	79	129					
	TL						84	99	165					
	BRG						1.5 / 3	1.5 / 3	1.6 / 3.9					
26	LL						53	62	101					
	TL						65	77	129					
	BRG						1.5 / 3	1.5 / 3	1.5 / 3.3					
28	LL						42	49	81					
	TL						51	61	102					
	BRG						1.5 / 3	1.5 / 3	1.5 / 3					
30	LL								66					
	TL								82					
	BRG								1.5 / 3					

2-ply 1 3/4" **2.0E** RigidLam LVL - 125% Roof Non-Snow (PLF)

Span (ft)	Depth	4 3/8"	5 1/2"	7 1/4"	9 1/4"	9 1/2"	11 1/4"	11 7/8"	14"	16"	18"	20"	22"	24"
6	LL	503	998	-	-	-	-	-	-	-	-	-	-	-
	TL	666	1326	1943	2618	2708	3373	3628	4572	5586	6751	8103	9689	11579
	BRG	1.5 / 3	1.5 / 3.8	2.2 / 5.6	3 / 7.5	3.1 / 7.8	3.9 / 9.7	4.2 / 10.4	5.2 / 13.1	6.4 / 16	7.7 / 19.3	9.3 / 23.2	11.1 / 27.7	13.3 / 33.1
8	LL	212	421	965	-	-	-	-	-	-	-	-	-	-
	TL	279	557	1280	1842	1901	2332	2494	3077	3677	4334	5058	5857	6746
	BRG	1.5 / 3	1.5 / 3	2 / 4.9	2.8 / 7	2.9 / 7.3	3.6 / 8.9	3.8 / 9.5	4.7 / 11.8	5.6 / 14.1	6.6 / 16.6	7.7 / 19.3	9 / 22.4	10.3 / 25.8
10	LL	109	216	494	1026	1111	-	-	-	-	-	-	-	-
	TL	141	283	652	1324	1392	1781	1899	2317	2739	3190	3673	4194	4755
	BRG	1.5 / 3	1.5 / 3	1.5 / 3.1	2.5 / 6.3	2.7 / 6.7	3.4 / 8.5	3.6 / 9.1	4.4 / 11.1	5.2 / 13.1	6.1 / 15.3	7 / 17.6	8 / 20.1	9.1 / 22.7
12	LL	63	125	286	594	643	1068	1256	-	-	-	-	-	-
	TL	80	162	375	784	849	1325	1467	1857	2181	2522	2883	3265	3670
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.5	2 / 4.9	3.1 / 7.6	3.4 / 8.4	4.3 / 10.7	5 / 12.5	5.8 / 14.5	6.6 / 16.6	7.5 / 18.8	8.4 / 21.1
14	LL		79	180	374	405	673	791	1296	-	-	-	-	-
	TL		100	234	490	532	887	1044	1466	1811	2084	2371	2671	2986
	BRG		1.5 / 3	1.5 / 3	1.5 / 3.3	1.5 / 3.6	2.4 / 6	2.8 / 7	3.9 / 9.9	4.9 / 12.2	5.6 / 14	6.4 / 15.9	7.2 / 17.9	8 / 20
16	LL		53	121	250	271	451	530	868	1296	-	-	-	-
	TL		65	154	326	353	591	696	1119	1440	1775	2013	2259	2517
	BRG		1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.6	2.2 / 5.4	3.4 / 8.6	4.4 / 11.1	5.5 / 13.6	6.2 / 15.5	6.9 / 17.4	7.7 / 19.3
18	LL			85	176	191	316	372	610	910	1296	-	-	-
	TL			107	226	246	412	486	801	1135	1417	1728	1957	2174
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.6	1.7 / 4.3	2.8 / 7	3.9 / 9.8	4.9 / 12.3	6 / 15	6.8 / 16.9	7.5 / 18.8
20	LL			62	128	139	231	271	445	664	945	1296	-	-
	TL			76	163	177	298	351	581	871	1145	1396	1671	1912
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.4	2.3 / 5.6	3.4 / 8.4	4.4 / 11.1	5.4 / 13.5	6.4 / 16.1	7.4 / 18.4
22	LL			46	96	104	173	204	334	499	710	974	1296	-
	TL			56	120	131	221	261	433	651	931	1151	1378	1624
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.9 / 4.7	2.8 / 7	4 / 9.9	4.9 / 12.2	5.9 / 14.6	6.9 / 17.2
24	LL				74	80	134	157	257	384	547	750	998	1296
	TL				91	99	168	199	331	498	713	964	1155	1361
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.6 / 3.9	2.3 / 5.9	3.3 / 8.3	4.5 / 11.2	5.4 / 13.4	6.3 / 15.8
26	LL				58	63	105	124	202	302	430	590	785	1020
	TL				70	76	130	154	258	389	558	769	981	1156
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.3	2 / 5	2.8 / 7.1	3.9 / 9.7	5 / 12.4	5.8 / 14.6
28	LL				47	51	84	99	162	242	344	472	629	816
	TL				54	59	102	121	204	308	443	612	819	994
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.7 / 4.3	2.4 / 6.1	3.4 / 8.4	4.5 / 11.2	5.4 / 13.5
30	LL						68	80	132	197	280	384	511	664
	TL						81	97	163	248	358	495	662	863
	BRG						1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.7	2.1 / 5.3	2.9 / 7.3	3.9 / 9.7	5.1 / 12.6

- The PLF load values in this table are based on the LVL member having lateral bracing at 24" o.c. or less along its entire length.
- 1-3/4" LVL members 16" and deeper and 1-1/2" LVL members 14" and deeper, must be a minimum of 2 plies unless designed by a design professional.
- Allowable PLF loads for single or multiple ply 1-1/2" thick LVL members can be obtained by multiplying the table values by 0.85. (Required bearing lengths are the same)
- This table may be used for either simple or multiple spans.
- Span is centerline of bearing to centerline of bearing.
- Loads shown can be applied to the beam in addition to its own weight.
- See pages 32 and 33 for details on attaching multiple ply members.

Key to Table:
LL = Maximum live load – limits deflection to L/240
TL = Maximum total load – limits deflections to L/180
BRG = Required end/interior bearing length (inches), based on bearing stress of 750 psi.

3-ply 1 3/4" **2.0E** RigidLam LVL - 125% Roof Non-Snow (PLF)

Span (ft)	Depth	4 3/8"	5 1/2"	7 1/4"	9 1/4"	9 1/2"	11 1/4"	11 7/8"	14"	16"	18"	20"	22"	24"
10	LL	163	324	741	1539	1667	-	-	-	-	-	-	-	-
	TL	211	424	978	1986	2088	2672	2849	3476	4108	4784	5510	6291	7133
	BRG	1.5 / 3	1.5 / 3	1.5 / 3.1	2.5 / 6.3	2.7 / 6.7	3.4 / 8.5	3.6 / 9.1	4.4 / 11.1	5.2 / 13.1	6.1 / 15.3	7 / 17.6	8 / 20.1	9.1 / 22.7
12	LL	94	187	429	891	965	1602	1884	-	-	-	-	-	-
	TL	120	242	562	1175	1274	1988	2201	2786	3271	3783	4324	4897	5505
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.5	2 / 4.9	3.1 / 7.6	3.4 / 8.4	4.3 / 10.7	5 / 12.5	5.8 / 14.5	6.6 / 16.6	7.5 / 18.8	8.4 / 21.1
14	LL	59	118	270	561	608	1009	1187	1944	-	-	-	-	-
	TL	73	150	351	736	798	1330	1567	2199	2716	3126	3556	4007	4480
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.3	1.5 / 3.6	2.4 / 6	2.8 / 7	3.9 / 9.9	4.9 / 12.2	5.6 / 14	6.4 / 15.9	7.2 / 17.9	8 / 20
16	LL		79	181	376	407	676	795	1303	1944	-	-	-	-
	TL		98	232	489	530	886	1044	1679	2160	2663	3019	3389	3775
	BRG		1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.6	2.2 / 5.4	3.4 / 8.6	4.4 / 11.1	5.5 / 13.6	6.2 / 15.5	6.9 / 17.4	7.7 / 19.3
18	LL		55	127	264	286	475	558	915	1366	1944	-	-	-
	TL		67	160	340	369	618	729	1201	1702	2125	2592	2935	3260
	BRG		1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.6	1.7 / 4.3	2.8 / 7	3.9 / 9.8	4.9 / 12.3	6 / 15	6.8 / 16.9	7.5 / 18.8
20	LL			93	192	208	346	407	667	996	1418	1944	-	-
	TL			114	244	265	447	527	871	1306	1717	2094	2507	2869
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.4	2.3 / 5.6	3.4 / 8.4	4.4 / 11.1	5.4 / 13.5	6.4 / 16.1	7.4 / 18.4
22	LL			70	145	157	260	306	501	748	1065	1461	1944	-
	TL			83	181	196	332	392	650	976	1396	1726	2067	2435
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.9 / 4.7	2.8 / 7	4 / 9.9	4.9 / 12.2	5.9 / 14.6	6.9 / 17.2
24	LL			54	111	121	200	236	386	576	820	1125	1498	1944
	TL			62	136	148	252	298	496	747	1070	1446	1732	2041
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.6 / 3.9	2.3 / 5.9	3.3 / 8.3	4.5 / 11.2	5.4 / 13.4	6.3 / 15.8
26	LL				88	95	158	185	304	453	645	885	1178	1529
	TL				105	114	195	231	386	583	837	1154	1471	1735
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.3	2 / 5	2.8 / 7.1	3.9 / 9.7	5 / 12.4	5.8 / 14.6
28	LL				70	76	126	148	243	363	517	709	943	1224
	TL				81	89	153	182	306	463	665	919	1229	1491
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.7 / 4.3	2.4 / 6.1	3.4 / 8.4	4.5 / 11.2	5.4 / 13.5
30	LL				57	62	103	121	198	295	420	576	767	996
	TL				64	70	122	145	245	372	536	742	994	1295
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.7	2.1 / 5.3	2.9 / 7.3	3.9 / 9.7	5.1 / 12.6
32	LL				47	51	84	99	163	243	346	475	632	820
	TL				50	55	98	117	199	303	438	607	814	1062
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.3	1.9 / 4.7	2.6 / 6.4	3.4 / 8.6	4.4 / 11.1
34	LL						70	83	136	203	289	396	527	684
	TL						79	95	163	249	361	501	673	880
	BRG						1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.7 / 4.2	2.3 / 5.7	3 / 7.6	3.9 / 9.8
36	LL						59	70	114	171	243	333	444	576
	TL						64	77	134	207	300	418	563	737
	BRG						1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.7	2 / 5.1	2.7 / 6.8	3.5 / 8.8

4-ply 1 3/4" **2.0E** RigidLam LVL - 125% Roof Non-Snow (PLF)

Span (ft)	Depth	4 3/8"	5 1/2"	7 1/4"	9 1/4"	9 1/2"	11 1/4"	11 7/8"	14"	16"	18"	20"	22"	24"
10	LL	217	431	988	2052	2223	-	-	-	-	-	-	-	-
	TL	282	565	1305	2648	2784	3563	3798	4635	5477	6379	7347	8388	9511
	BRG	1.5 / 3	1.5 / 3	1.5 / 3.1	2.5 / 6.3	2.7 / 6.7	3.4 / 8.5	3.6 / 9.1	4.4 / 11.1	5.2 / 13.1	6.1 / 15.3	7 / 17.6	8 / 20.1	9.1 / 22.7
12	LL	126	250	572	1187	1286	2136	2512	-	-	-	-	-	-
	TL	160	323	750	1567	1699	2651	2935	3715	4361	5044	5765	6529	7340
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.5	2 / 4.9	3.1 / 7.6	3.4 / 8.4	4.3 / 10.7	5 / 12.5	5.8 / 14.5	6.6 / 16.6	7.5 / 18.8	8.4 / 21.1
14	LL	79	157	360	748	810	1345	1582	2593	-	-	-	-	-
	TL	98	200	467	981	1063	1774	2089	2932	3621	4169	4741	5342	5973
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.3	1.5 / 3.6	2.4 / 6	2.8 / 7	3.9 / 9.9	4.9 / 12.2	5.6 / 14	6.4 / 15.9	7.2 / 17.9	8 / 20
16	LL	53	105	241	501	543	901	1060	1737	2593	-	-	-	-
	TL	63	131	309	652	707	1182	1392	2239	2879	3551	4025	4519	5033
	BRG	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.8 / 4.6	2.2 / 5.4	3.4 / 8.6	4.4 / 11.1	5.5 / 13.6	6.2 / 15.5	6.9 / 17.4	7.7 / 19.3
18	LL		74	169	352	381	633	744	1220	1821	2593	-	-	-
	TL		89	213	453	492	824	972	1602	2269	2833	3456	3914	4347
	BRG		1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.6	1.7 / 4.3	2.8 / 7	3.9 / 9.8	4.9 / 12.3	6 / 15	6.8 / 16.9	7.5 / 18.8
20	LL		54	123	256	278	461	543	889	1327	1890	2593	-	-
	TL		62	152	326	354	596	703	1161	1742	2289	2792	3342	3825
	BRG		1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.4	2.3 / 5.6	3.4 / 8.4	4.4 / 11.1	5.4 / 13.5	6.4 / 16.1	7.4 / 18.4
22	LL			93	193	209	347	408	668	997	1420	1948	2593	-
	TL			111	241	262	443	523	866	1302	1862	2302	2755	3247
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.9 / 4.7	2.8 / 7	4 / 9.9	4.9 / 12.2	5.9 / 14.6	6.9 / 17.2
24	LL			71	148	161	267	314	515	768	1094	1500	1997	2593
	TL			83	182	198	336	398	662	996	1427	1929	2309	2722
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.6 / 3.9	2.3 / 5.9	3.3 / 8.3	4.5 / 11.2	5.4 / 13.4	6.3 / 15.8
26	LL			56	117	126	210	247	405	604	860	1180	1571	2039
	TL			62	139	152	260	309	515	778	1116	1538	1962	2313
	BRG			1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.3	2 / 5	2.8 / 7.1	3.9 / 9.7	5 / 12.4	5.8 / 14.6
28	LL				93	101	168	198	324	484	689	945	1258	1633
	TL				108	118	205	243	408	617	887	1225	1638	1989
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.7 / 4.3	2.4 / 6.1	3.4 / 8.4	4.5 / 11.2	5.4 / 13.5
30	LL				76	82	137	161	263	393	560	768	1022	1327
	TL				85	93	163	194	327	496	715	989	1325	1727
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.7	2.1 / 5.3	2.9 / 7.3	3.9 / 9.7	5.1 / 12.6
32	LL				63	68	113	132	217	324	461	633	842	1094
	TL				67	74	131	156	265	404	584	809	1085	1416
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.3	1.9 / 4.7	2.6 / 6.4	3.4 / 8.6	4.4 / 11.1
34	LL				52	57	94	110	181	270	385	528	702	912
	TL				53	59	106	126	217	332	481	669	898	1174
	BRG				1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.7 / 4.2	2.3 / 5.7	3 / 7.6	3.9 / 9.8
36	LL						79	93	152	228	324	445	592	768
	TL						86	103	179	275	401	558	750	982
	BRG						1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3	1.5 / 3.7	2 / 5.1	2.7 / 6.8	3.5 / 8.8

Refer to notes on page 38

RigidRim® OSB & LVL Rimboard Specifications

As a component of the Roseburg Framing System®, RigidRim® rimboard allows your customers to quickly frame the perimeter of their floor system and is one of the most cost effective methods to properly transfer vertical and horizontal loads around the I-joist and directly into the supporting walls. RigidRim rimboard is dimensionally stable and resists shrinking and warping. It also provides a smooth nailing surface for the attachment of exterior sheathing, siding and ledgers. Refer to page 12 for additional framing information.

RigidRim rimboard is currently available in the following materials, thicknesses and grades*:

- 1 1/8" RigidRim® OSB Rimboard
- 1 1/8" & 1 1/4" RigidRim® Plus OSB Rimboard
- 1 1/2" & 1 3/4" 1.3E RigidRim® LVL Rimboard

*Not all products are available in all markets. Contact your Roseburg Forest Products EWP representative for availability.

The RigidRim OSB rimboard products are available in lengths up to 24 ft., and the 1.3E RigidRim LVL rimboard is available in lengths up to 60 ft.

All RigidRim rimboard products are manufactured in accordance with *ANSI/APA PRR 410 Standard for Performance-Rated Engineered Wood Rim Boards* which meets or exceeds the requirements given in the ICC-ES Acceptance Criteria for Wood-Based Rim Board Products, AC 124. Furthermore, the 1.3E LVL rimboard is included in ICC-ES code report ESR-1210. See Table 1 below for RigidRim rimboard design capacities. All RigidRim rimboard products have been tested in the edgewise bending orientation and therefore may be designed for applications to support loads over window and door openings. See Table 2 below for allowable design properties for edgewise bending. See Table 3 below for allowable uniform loads for specified spans (see APA publication W345 *Performance Rated Rim Boards*® for additional information).

Table 1: RigidRim® Rimboard Design Capacities [1][2][3]

	Thickness	Horizontal Load (PLF)	Vertical Load (PLF)	1/2" Lag Screw Load (lbs)[4]	Post Load (lbs)
RigidRim® OSB	1-1/8"	180 (8d box or common)	4400[5]/3000[6]	350	3500[7]
RigidRim® Plus OSB	1-1/8" or 1-1/4"	200 (8d box or common)	4850[5]/3200[6]	350	3500[7]
1.3E RigidRim® LVL	1-1/2"	215 (8d box or common)	4900[5]/NA[6]	400	3500[7]
1.3E RigidRim® LVL	1-3/4"	215 (8d box or common)	5700[5]/NA[6]	400	3500[7]

(1) All design properties assume rimboard nailing of 8d (2-1/2") nails @ 6" o.c.
(2) All design values, except Horizontal Load, are based on a 10-year load duration (100%) and should be adjusted for other load durations in accordance with the applicable code. Horizontal Load may not be adjusted for duration of load.
(3) The 16d (box or common) nails used to connect the bottom plate of a wall to the rimboard through the sheathing do not reduce the horizontal load capacity of the rimboard provided that the 8d nail spacing (sheathing to rim board) is 6" o.c. and the 16d (3-1/2") nail spacing (bottom plate to sheathing to rimboard) is in accordance with the prescriptive requirements of the applicable code.
(4) Allowable load for lag screw installed perpendicular to wide face of rimboard.
(5) Depth $\leq$ 16"
(6) 16" < Depth $\leq$ 24"
(7) Depth $\leq$ 24"

Table 2: RigidRim Rimboard Edgewise Design Properties

	Flexural Stress	Modulus of Elasticity	Horizontal Shear	Compression Perpendicular to Grain[2]
RigidRim® OSB & RigidRim® Plus OSB	600 psi [1]	0.55 x 10^6 psi	270 psi	550 psi
1.3E RigidRim LVL	2250 psi	1.3 x 10^6 psi	200 psi	560 psi

(1) Allowable edgewise bending stress is applicable only to a span of 4' or less
(2) Compression Perpendicular to Grain value may not be increased for duration of load

Table 3: Allowable Uniform Load for RigidRim® OSB and RigidRim® Plus OSB Rimboard Used As Headers[1][2][3][4]

Rimboard Size	Span				
	24"	30"	36"	42"	48"
	Total Load (plf)/Minimum End Bearing (in)				
1-1/8"x 9-1/2"	1330 / 3.0	890 / 3.0	630 / 3.0	510 / 1.5	390 / 1.5
1-1/8"x 11-7/8"	1870 / 4.5	1270 / 4.5	990 / 3.0	740 / 3.0	580 / 3.0
2 ply 1-1/8"x 14"	4520 / 6.0	3540 / 4.5	2570 / 4.5	1940 / 4.5	1610 / 3.0
2 ply 1-1/8"x 16"	5170 / 6.0	4250 / 6.0	3120 / 6.0	2540 / 4.5	1990 / 4.5
2 ply 1-1/8"x 18"	5810 / 6.0	4840 / 6.0	3950 / 6.0	3020 / 6.0	2520 / 4.5
2 ply 1-1/8"x 20"	6000 / 7.5	5170 / 7.5	4450 / 7.5	3510 / 7.5	2940 / 6.0
2 ply 1-1/8"x 22"	6000 / 7.5	5680 / 7.5	4900 / 7.5	4250 / 7.5	3370 / 7.5
2 ply 1-1/8"x 24"	6000 / 7.5	5960 / 9.0	5160 / 9.0	4550 / 9.0	4020 / 7.5

(1) This table is for preliminary design use only. Final design should include a complete analysis.
(2) Span = clear span for simply supported member with uniform loads only.
(3) Joints in rimboard shall not be located within opening.
(4) Spans shown can conservatively be used for 1-1/4" thick RigidRim Plus and 1.3E RigidRim LVL (16" deep max. for 1.3E RigidRim LVL).

Frequently Asked Questions:

1 - What types of adhesives are used in Roseburg RFPI®-Joists and RigidLam® LVL and are they NAUF?

Roseburg RigidLam LVL is manufactured to the U.S. Structural Composite Lumber (SCL) standard, ASTM D 5456 and Roseburg RFPI-Joists are manufactured to the U.S. I-joist standard, ASTM D 5055. These standards require the use of exterior type, moisture resistant adhesives. All grades of RigidLam LVL are manufactured with phenol-formaldehyde and melamine-formaldehyde based adhesive systems and contain no added urea-formaldehyde (NAUF) resins. All series of Roseburg RFPI-Joists (inclusive of LVL flanged I-joists and solid sawn lumber flanged I-joists) are manufactured with phenol-formaldehyde, phenol-resorcinol-formaldehyde and/or melamine formaldehyde based adhesive systems and contain no added urea-formaldehyde (NAUF) resins.

These adhesives are not affected by in-service elevated temperatures. This is proven by testing to ASTM D7247 in which the adhesive is shown to not deteriorate prior to the wood burning.

It is important to note that even though the adhesives are rated for exterior type, the finished Roseburg LVL and I-joist products are designed and warranted for dry-use applications (i.e. where the average equilibrium moisture content of solid-sawn lumber is less than 16%).

2 - Do RFPI-Joists and RigidLam LVL meet CARB or HUD regulations regarding formaldehyde emissions?

I-Joist and Structural Composite Lumber products, including LVL, are not subject to CARB or HUD regulations. California Air Resources Board (CARB) Regulation Section 93120.1 Definition (8) specifically excludes Structural Composite Lumber that is manufactured to the requirements of ASTM D 5456 and prefabricated wood I-joists that are manufactured to the requirements of ASTM D 5055. Similarly, HUD excludes panel products manufactured with phenol formaldehyde adhesives. These exterior type adhesives form a chemically stable bond that emits such low amounts of formaldehyde gas it is often indistinguishable from background levels. Because these adhesives have long demonstrated very low emission levels, currently there are no U.S. standards or regulations governing formaldehyde emissions for structural composite lumber or prefabricated wood I-joists. Since there are no U.S. standards requiring the monitoring of emissions from I-joists or SCL, there are no standard test procedures either. However, in order to confirm low emission rates of formaldehyde, various I-joist and SCL products, including RFPI-Joists and RigidLam LVL, have been tested based on test procedures for panel products in accordance with the ASTM E1333 Large Chamber Test method. Please refer to APA Product Reports PR-E720 (LVL) and PR-E730 (I-Joists) for more detailed information regarding formaldehyde emission testing. These reports can be found on the APA website, www.apawood.org and on the Roseburg website, www.roseburg.com. Another source of information regarding engineered wood products and formaldehyde is APA Technical Note J330 which can be found on the APA website.

3 - Do RFPI-Joists and RigidLam LVL contribute to any LEED credits?

LEED 2009

Yes, refer to the Roseburg website, www.roseburg.com/UserFiles/Library/EWP_LEED_2009_Credit_Support.pdf, for detailed credit support documentation.

LEED v4

Yes, refer to the Roseburg website, www.roseburg.com/UserFiles/Library/EWP_LEED_v4_Credit_Support.pdf, for detailed credit support documentation.

4 - Do Roseburg RFPI-Joists and RigidLam LVL qualify for use in green building codes, standards or certifications?

Yes, RFPI-Joists and RigidLam LVL meet various green building requirements. Refer to APA Green Verification Reports GR-L259 and GR-L289 for specific verification information. These reports can be found on the APA website, www.apawood.org and on the Roseburg website, www.roseburg.com. For green building codes, standards or certifications not addressed in the APA reports, please contact your local Roseburg EWP representative for more information.

5 - Can RFPI-Joists be used in diaphragm construction?

Yes, Roseburg has conducted the required testing to show that RFPI-Joists can be used as framing members in horizontal wood diaphragms. See table 8 in ICC-ES Evaluation Report ESR-1251 or Table 4 in APA Product Report PR-L259 for allowable shear loads for diaphragms framed with Roseburg RFPI-Joists. Both reports can be found on the Roseburg website, www.roseburg.com.

6 - Can RFPI-Joists be used for fire-rated, floor/ceiling construction?

Yes, RFPI-Joists are approved for use in several fire-rated, floor/ceiling assemblies. Refer to ICC-ES Evaluation Report ESR-1251, APA Product Report PR-S259 or pages 18 & 19 of this document for additional information. ESR-1251 and PR-L259 can be found on their respective websites, www.icc-es.org and www.apawood.org as well as on the Roseburg website, www.roseburg.com.

7 - Can RFPI-Joists or RigidLam LVL be pressure treated with a fire retardant?

No, current processes for fire retardant treatments (FRT) require water born chemicals to be applied under pressure to the products. This process has a negative effect on engineered wood products resulting in reduced structural capacities. At this time, there are no standards that define a test protocol for I-Joists or Structural Composite Lumber, including LVL, to be classified as fire retardant treated wood. Therefore, Roseburg does not currently have any information regarding the structural capacity of our LVL after being pressure treated with a fire retardant chemical. At this time, any fire retardant pressure treatment applied to Roseburg EWP products will void the Roseburg warranty.

8 - Can RFPI-Joists or RigidLam LVL be pressure treated for pests or decay?

Yes, RFPI-Joists and RigidLam LVL can be treated with Permapost Hi-Clear II preservative and are acceptable for use in above-ground, interior or covered exterior, dry-use environments. Hi-Clear II is a mineral spirits based solvent that contains a fungicide and insecticide for protection against both wood degrading fungi and insect attack. Roseburg has tested product treated with Hi-Clear II and has verified that this treatment does not adversely affect the strength or stiffness properties of Roseburg LVL or I-Joists. These products will be covered by Roseburg's Engineered Wood Products and Performance Warranty. It is the responsibility of the end user of any treated material to be familiar with the appropriate material safety data sheets and handling instructions associated with the treated product.

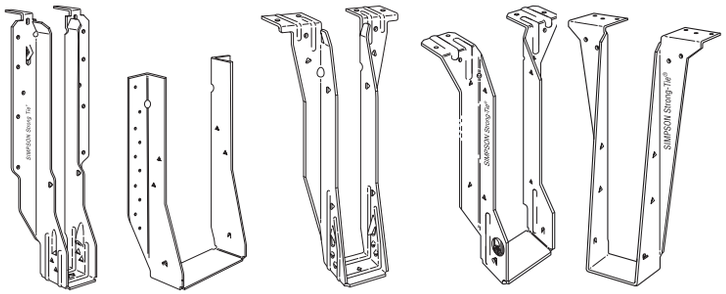
9 - Can sprinkler lines or other loads be suspended from RFPI-Joists?

Yes, refer to APA Publication J745 and APA Sprinkler Hanger Details Supplement for appropriate connection details for supporting sprinkler hangers and similar loads from I-joists. These documents can be found on the APA website, www.apawood.org, or on the EWP section of the Roseburg website, www.roseburg.com, under "Technical Notes".

I-Joist Framing Connectors

FACE MOUNT HANGERS

Single I-Joist				Double I-Joist			
Width	Depth	Hanger	Down Load	Width	Depth	Hanger	Down Load
2-5/16″	9-1/2″	IUS2.37/9.5	950	4-5/8″	9-1/2″	MIU4.75/9	2305
	11-7/8″	IUS2.37/11.88	1185		11-7/8″	MIU4.75/11	2880
	14″	IUS2.37/14	1420		14″	MIU4.75/14	3170
	16″	IUS2.37/16	1660		16″	MIU4.75/16	3455
	18″	MIU2.37/18	3745		18″	MIU4.75/18	3745
	20″	MIU2.37/20	4030		20″	MIU4.75/20	4030
	22″	MIU2.37/20	4030		22″	MIU4.75/20	4030
	24″	MIU2.37/20	4030		24″	MIU4.75/20	4030
3-1/2″	11-7/8″	IUS3.56/11.88	1420	7″	11-7/8″	HU412-2	2380
	14″	IUS3.56/14	1420		14″	HU414-2	2975
	16″	IUS3.56/16	1660		16″	HU414-2	2975
	18″	MIU3.56/18	3745		18″	HU414-2	2975
	20″	MIU3.56/20	4030		20″	HU414-2	2975
	22″	MIU3.56/20	4030		22″	HU414-2	2975
	24″	MIU3.56/20	4030		24″	-	-



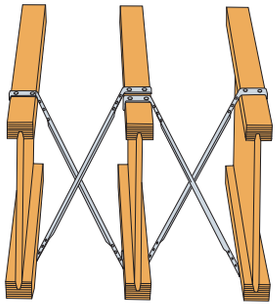
IUS MIU ITS MIT LBV

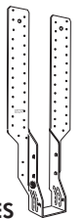
TOP FLANGE HANGERS

Single I-Joist				Double I-Joist			
Width	Depth	Hanger	Down Load	Width	Depth	Hanger	Down Load
2-5/16″	9-1/2″	ITS2.37/9.5	1420	4-5/8″	9-1/2″	MIT359.5-2	2305
	11-7/8″	ITS2.37/11.88	1420		11 7/8″	MIT3511.88-2	2305
	14″	ITS2.37/14	1660		14″	MIT3514-2	2305
	16″	ITS2.37/16	1520		16″	MIT4.75/16	2305
	18″	MIT3518	2305		18″	B4.75/18	3800
	20″	MIT3520	2305		20″	B4.75X (H=20)	3800
	22″	LBV2.37X (H=22)	2590		22″	B4.75X (H=22)	3800
	24″	LBV2.37X (H=24)	2590		24″	B4.75X (H=24)	3800
3-1/2″	11-7/8″	ITS3.56/11.88	1520	7″	11-7/8″	B7.12/11.88	3800
	14″	ITS3.56/14	1520		14″	B7.12/14	3800
	16″	ITS3.56/16	1520		16″	B7.12/16	3800
	18″	MIT418	2305		18″	B7.12/18	3800
	20″	MIT420	2305		20″	B7.12/20	3800
	22″	HIT422	2550		22″	B7.12/22	3800
	24″	HIT424	2550		24″	B7.12/24	3800

TENSION BRIDGING FOR I-JOIST

Joist Height	Joist Spacing (inches)								
	12	16	19.2	24	30	32	36	42	48
9-1/2″	TB20	TB27	TB27	TB30	TB36	TB36	TB42	TB48	TB54
11-7/8″	TB20	TB27	TB27	TB30	TB36	TB36	TB42	TB48	TB54
14″	TB27	TB27	TB27	TB36	TB36	TB42	TB42	TB48	TB54
16″	TB27	TB27	TB30	TB36	TB42	TB42	TB42	TB48	TB54
18″	TB27	TB30	TB30	TB36	TB42	TB42	TB48	TB54	TB56
20″	TB30	TB30	TB36	TB36	TB42	TB42	TB48	TB54	TB56
22″	TB30	TB36	TB36	TB36	TB42	TB42	TB48	TB54	TB56
24″	TB36	TB36	TB36	TB42	TB42	TB48	TB48	TB54	TB56





THAI SERIES

ADJUSTABLE HEIGHT HANGERS

Single I-Joist				Double I-Joist			
Width	Depth	Hanger	Down Load	Width	Depth	Hanger	Down Load
2-5/16″	9-1/2″-14″	THAI3522	1715	4-5/8″	9-1/2″-14″	THAI-2	2095
3-1/2″	9-1/2″-14″	THAI422	1715	-	-	-	-

THAI-2 are special order. Specify width

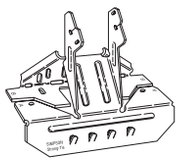
SKEWED 45 HANGERS

Single I-Joist				Double I-Joist			
Width	Depth	Hanger	Down Load	Width	Depth	Hanger	Down Load
2-5/16″	9-1/2″	SUR/L2.37/9	2015	4-5/8″	9-1/2″	HSUR/L4.75/9	1785
	11-7/8″	SUR/L2.37/11	2305		11-7/8″	HSUR/L4.75/11	2380
	14″	SUR/L2.37/14	2590		14″	HSUR/L4.75/14	2975
	16″	SUR/L2.37/14	2590		16″	HSUR/L4.75/16	3330
3-1/2″	11-7/8″	SUR/L410	2015	7″	11-7/8″	HU412-2X	1900
	14″	SUR/L414	2500		14″	HU414-2X	2380
	16″	SUR/L414	2500		16″	HU414-2X	2380
	18″	SUR/L414	2500		18″	HU414-2X	2380
	20″	SUR/L414	2500		20″	HU414-2X	2380
	22″	-	-		22″	HU414-2X	2380
	24″	-	-		24″	-	-

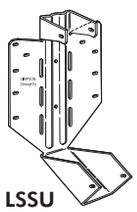
HU4-X are special order. Specify angle and direction

VARIABLE PITCH - SINGLE I-JOISTS

Single I-Joist			
Width	Depth	Hanger	Down Load
2-5/16″	ALL	VPA35	1230
3-1/2″	ALL	VPA4	1230



VPA



LSSU

FIELD SLOPE AND SKEW

Single I-Joist				Double I-Joist			
Width	Depth	Hanger	Down Load	Width	Depth	Hanger	Down Load
2-5/16″	9-1/2″-14″	LSSUI35	995	4-5/8″	9-1/2″-14″	LSU3510-2	2300
3-1/2″	9-1/2″-14″	LSSU410	1625	7″	-	-	-

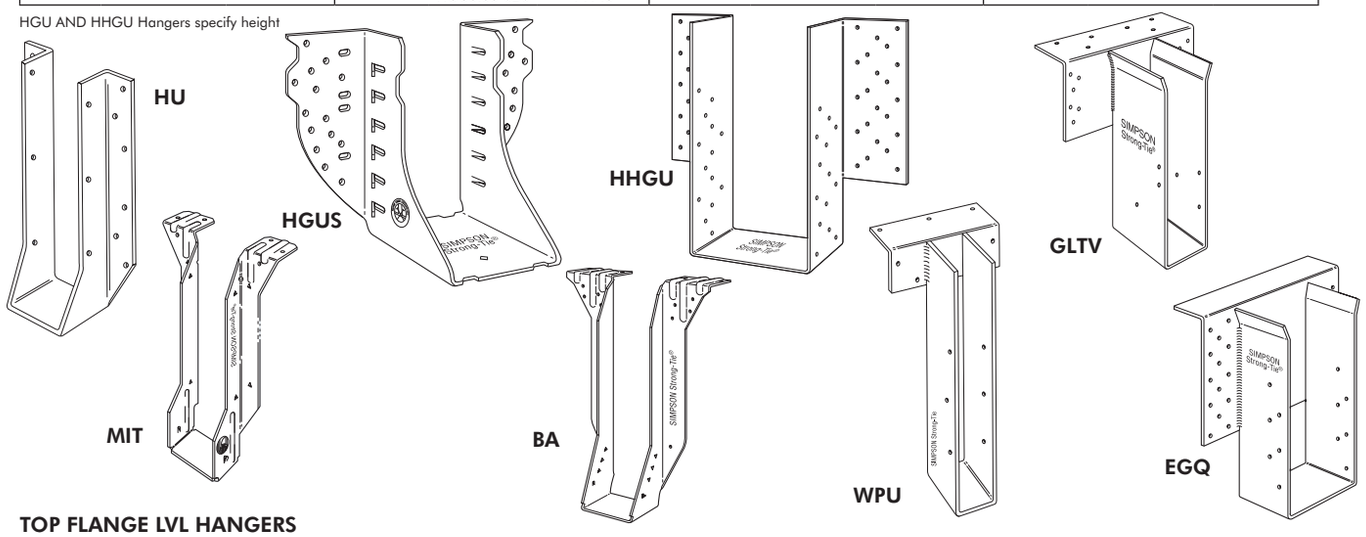
Highlighted hangers require web stiffeners at I-joist ends

LVL Framing Connectors

FACE MOUNT LVL HANGERS

Single Ply-1-3/4" wide			Double Ply-3-1/2" wide			Triple Ply-5-1/4" wide			Quadruple-Ply 7" wide		
Depth	Hanger	Load (100%)	Depth	Hanger	Load (100%)	Depth	Hanger	Load (100%)	Depth	Hanger	Load (100%)
9-1/4"	HU9	3570	9-1/4"	HHUS410	5660	9-1/4"	HHUS5.50/10	5660	9-1/4"	HHUS7.25/10	5660
	HUS1.81/10	5135		HGUS410	9100		HGUS5.50/10	9100		HGUS7.25/10	9100
9-1/2"	HU9	3570	9-1/2"	HHUS410	5660	9-1/2"	HHUS5.50/10	5660	9-1/2"	HHUS7.25/10	5660
	HUS1.81/10	5135		HGUS410	9100		HGUS5.50/10	9100		HGUS7.25/10	9100
11-1/4"	HU11	4465	11-1/4"	HHUS410	5660	11-1/4"	HHUS5.50/10	5660	11-1/4"	HHUS7.25/10	5660
	HUS1.81/10	5135		HGUS412	9100		HGUS5.50/12	9600		HGUS7.25/12	9600
11-7/8"	HU11	4465	11-7/8"	HHUS410	5660	11-7/8"	HHUS5.50/10	5660	11-7/8"	HHUS7.25/10	5660
	HUS1.81/10	5135		HGUS412	9100		HGUS5.50/12	9600		HGUS7.25/12	9600
14"	HU14	5055	14"	HHUS410	5660	14"	HHUS5.50/10	5660	14"	HGUS7.25/14	10100
	HUS1.81/10	5135		HGUS414	10100		HGUS5.50/14	10100		HGU7.25-SDS	14145
16"	HU14	5055	16"	HHUS410	5660	16"	HGUS5.50/14	10100	16"	HGUS7.25/14	10100
	HUS1.81/10	5135		HGUS414	10100		HGU5.50-SDS	14145		HHGU7.25-SDS	17845
18"	-	-	18"	HHUS410	5660	18"	HGUS5.50/14	10100	18"	HGUS7.25/14	10100
	-	-		HGUS414	10100		HGU5.50-SDS	14145		HHGU7.25-SDS	17845
20"	-	-	20"	HGUS414	10100	20"	HGU5.50-SDS	14145	20"	HHGU7.25-SDS	17845
	-	-		HGU3.63-SDS	14145		HHGU5.50-SDS	17845		-	-
22"	-	-	22"	HGUS414	10100	22"	HHGU5.50-SDS	17845	22"	HHGU7.25-SDS	17845
	-	-		HGU3.63-SDS	14145		-	-		-	-
24"	-	-	24"	HGUS414	10100	24"	HHGU5.50-SDS	17845	24"	HHGU7.25-SDS	17845
	-	-		HGU3.63-SDS	14145		-	-		-	-

HGU AND HHGU Hangers specify height



TOP FLANGE LVL HANGERS

Single Ply-1-3/4" wide			Double Ply-3-1/2" wide			Triple Ply-5-1/4" wide			Quadruple Ply-7" wide		
Depth	Hanger	Load (100%)	Depth	Hanger	Load (100%)	Depth	Hanger	Load (100%)	Depth	Hanger	Load (100%)
9-1/4"	LBV1.81/9.25	2910	9-1/4"	LBV3.56/9.25	2910	9-1/4"	HB5.50/9.25	5815	9-1/4"	HB7.12/9.25	5815
	WPU1.81/9.25	4700		HB3.56/9.25	5815		GLTV5.50/9.25	7500		GLTV49.25-2	7500
9-1/2"	MIT9.5	2550	9-1/2"	LBV3.56/9.5	2910	9-1/2"	HB5.50/9.5	5815	9-1/2"	HB7.12/9.5	5815
	LBV1.81/9.5	2910		HB3.56/9.5	5815		GLTV5.59	7500		GLTV49.5-2	7500
11-1/4"	LBV1.81/11.25	2910	11-1/4"	LBV3.56/11.25	2910	11-1/4"	HB5.50/11.25	5815	11-1/4"	HB7.12/11.25	5815
	WPU1.81/11.25	4700		HB3.56/11.25	5815		GLTV5.50/11.25	7500		HGLTV411.25-2	10585
11-7/8"	MIT11.88	2550	11-7/8"	BA3.56/11.88	4715	11-7/8"	HB5.50/11.88	5815	11-7/8"	GLTV411.88-2	7500
	BA1.81/11.88	4715		HB3.56/11.88	5815		HGLTV5.511	10585		EGQ7.25-SDS3	19800
14"	MIT1.81/14	2550	14"	BA3.56/14	4715	14"	HB5.50/14	5815	14"	GLTV414-2	7500
	LBV1.81/14	2910		GLTV3.514	7500		EGQ5.50-SDS3	19800		EGQ7.25-SDS3	19800
16"	MIT1.81/16	2550	16"	BA3.56/16	4715	16"	HB5.50/16	5815	16"	HGLTV416-2	10585
	B1.81/16	4135		GLTV3.516	7500		EGQ5.50-SDS3	19800		EGQ7.25-SDS3	19800
18"	-	-	18"	HB3.56/18	5815	18"	HGLTV5.518	10585	18"	HGLTV418-2	10585
	-	-		HGLTV3.518	10585		EGQ5.50-SDS3	19800		EGQ7.25-SDS3	19800
20"	-	-	20"	HGLTV3.520	10585	20"	EGQ5.50-SDS3	19800	20"	EGQ7.25-SDS3	19800
	-	-		EGQ3.62-SDS3	19800		-	-		-	-
22"	-	-	22"	HGLTV3.520	10585	22"	EGQ5.50-SDS3	19800	22"	EGQ7.25-SDS3	19800
	-	-		EGQ3.62-SDS3	19800		-	-		-	-
24"	-	-	24"	HGLTV3.520	10585	24"	EGQ5.50-SDS3	19800	24"	EGQ7.25-SDS3	19800
	-	-		EGQ3.62-SDS3	19800		-	-		-	-

EGQ Hanger specify height

GENERAL NOTES

1. Loads listed are the lowest hanger/header limitations assuming header material is Douglas Fir-Larch, Southern Pine, or LVL manufactured in the United States. Top Flange LVL Hanger loads assume header material is LVL. Joist reaction should be checked by a qualified designer to ensure proper hanger selection.
2. Refer to current Simpson Strong-Tie *Wood Construction Connectors* catalog to verify allowable loads and fastener size and quantity.
3. Loads shown are gravity (floor) loads. Other load durations may apply. Refer to the current version of *Wood Construction Connectors* for allowable increases.
4. Top Flange Hanger configurations and thickness of top flange needs to be considered for flush frame conditions.
5. All loads shown are based on 16d common nails into the header and all nail holes filled (Exceptions: IUS and ITS use 10d common nails and some hangers use SDS screws which are supplied with the hanger).

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.

I-Joist Framing Connectors

FACE MOUNT HANGERS

SINGLE I-JOISTS				DOUBLE I-JOISTS			
Width	**Depth**	**Hanger**	**Down Load**	**Width**	**Depth**	**Hanger**	**Down Load**
2-5/16"	9-1/2"	THF23925	1370	4-5/8"	9-1/2"	THF23925-2	1390
	11-7/8"	THF23118	1595		11-7/8"	THF23118-2	1855
	14"	THF23140	2090		14"	THF23140-2	2540
	16"	THF23160	2550		16"	THF23160-2	3050
	18"	THF23180	2785		18"	THF23160-2	3050
	20"	THF23180	2785		20"	THF23160-2	3050
	22"	THF23180	2785		22"	THF23160-2	3050
	24"	THF23180	2785		24"	THF23160-2	3050
3-1/2"	11-7/8"	THF35112	1825	7"	11-7/8"	HD7120	2255
	14"	THF35140	2320		14"	HD7140	2820
	16"	THF35157	2550		16"	HD7160	3385
	18"	THF35157	2550		18"	HD7160	3385
	20"	THF35157	2550		20"	HD7180	3950
	22"	THF35157	2550		22"	HD7180	3950
	24"	THF35157	2550		24"	HD7180	3950

USP Notes:
(1) Loads assume maximum nailing schedule for single I-Joists.

TOP FLANGE HANGERS

SINGLE I-JOISTS				DOUBLE I-JOISTS			
Width	**Depth**	**Hanger**	**Down Load**	**Width**	**Depth**	**Hanger**	**Down Load**
2-5/16"	9-1/2"	TFL2395	1600	4-5/8"	9-1/2"	THO23950-2	2630
	11-7/8"	TFL23118	1600		11-7/8"	THO23118-2	2630
	14"	TFL2314	1600		14"	THO23140-2	2630
	16"	TFL2316	1600		16"	THO23160-2	2630
	18"	TFI3518	2560		18"	THO23180-2	2630
	20"	TFI3520	2560		20"	THO23200-2	2630
	22"	XPHM2322[1]	2865		22"	XPHM2322-2[1]	3255
	24"	XPHM2324[1]	2865		24"	XPHM2324-2[1]	3255
3-1/2"	11-7/8"	THO35118	2050	7"	11-7/8"	BPH71118	3455
	14"	THO35140	2715		14"	BPH7114	3455
	16"	THO35160	2715		16"	BPH7116	3455
	18"	TFI418	2560		18"	BPH7118	3455
	20"	TFI420	2560		20"	BPH7120	3455
	22"	TFI422	3245		22"	BPH7122	3455
	24"	TFI424	3245		24"	BPH7124	3455

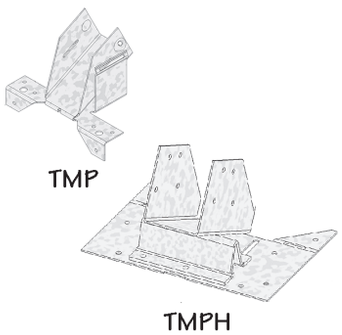
USP Notes:
(1) Hangers are special order. Consult USP for pricing and lead times.

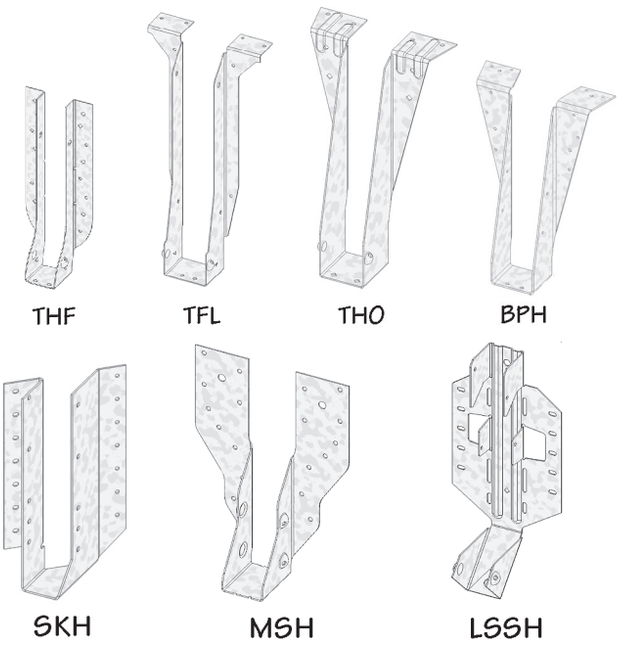
ADJUSTABLE HEIGHT HANGERS

SINGLE I-JOISTS				DOUBLE I-JOISTS			
Width	**Depth**	**Hanger**	**Down Load**	**Width**	**Depth**	**Hanger**	**Down Load**
2-5/16"	9-1/2"	MSH2322	2355	4-5/8"	9-1/2"	MSH2322-2	2430
	11-7/8"	MSH2322	2355		11-7/8"	MSH2322-2	2430
	14"	MSH2322	2355		14"	MSH2322-2	2430
	16"	MSH2322	2355		16"	MSH2322-2	2430
	18"	MSH2322	2355		18"	MSH2322-2	2430
	20"	MSH2322	2355		20"	MSH2322-2	2430
	22"	MSH2322	2355		22"	MSH2322-2	2430
	24"	MSH2322	2355		24"	MSH2322-2	2430
3-1/2"	11-7/8"	MSH422	2025	7"	11-7/8"	MSH422-2	3740
	14"	MSH422	2025		14"	MSH422-2	3740
	16"	MSH422	2025		16"	MSH422-2	3740
	18"	MSH422	2025		18"	MSH422-2	3740
	20"	MSH422	2025		20"	MSH422-2	3740
	22"	MSH422	2025		22"	MSH426-2	3740
	24"	MSH422	2025		24"	MSH426-2	3740

VARIABLE PITCH HANGERS

SINGLE I-JOISTS			
Width	**Depth**	**Hanger**	**Down Load**
2-5/16"	9-1/2" - 24"	TMP23	1970
		TMPH23	1950
3-1/2"	11-7/8" - 24"	TMP4	1970
		TMPH4	1950





SKEWED 45° HANGERS

SINGLE I-JOISTS				DOUBLE I-JOISTS			
Width	**Depth**	**Hanger**	**Down Load**	**Width**	**Depth**	**Hanger**	**Down Load**
2-5/16"	9-1/2"	SKH2320L/R	1625	4-5/8"	9-1/2"	SKH2320L/R-2	1665
	11-7/8"	SKH2320L/R	1625		11-7/8"	SKH2320L/R-2	1665
	14"	SKH2324L/R	1855		14"	SKH2324L/R-2	1905
	16"	SKH2324L/R	1855		16"	SKH2324L/R-2	1905
	18"	SKH2324L/R	1855		18"	SKH2324L/R-2	1905
	20"	-- --	-- --		20"	-- --	-- --
	22"	-- --	-- --		22"	-- --	-- --
	24"	-- --	-- --		24"	-- --	-- --
3-1/2"	11-7/8"	HD410_SK45L/R_BV[1,2]	2540	7"	11-7/8"	HD7120_SK45L/R_BV[1,2]	2255
	14"	HD414_SK45L/R_BV[1,2]	3385		14"	HD7140_SK45L/R_BV[1,2]	2820
	16"	HD414_SK45L/R_BV[1,2]	3385		16"	HD7160_SK45L/R_BV[1,2]	3385
	18"	HD414_SK45L/R_BV[1,2]	3385		18"	HD7160_SK45L/R_BV[1,2]	3385
	20"	HD414_SK45L/R_BV[1,2]	3385		20"	HD7180_SK45L/R_BV[1,2]	3950
	22"	HD418_SK45L/R_BV[1,2]	3950		22"	HD7180_SK45L/R_BV[1,2]	3950
	24"	HD418_SK45L/R_BV[1,2]	3950		24"	HD7180_SK45L/R_BV[1,2]	3950

USP Notes:
(1) Bevel cut required on end of joist to achieve design loads.
(2) Hangers are special order. Consult USP for pricing and lead times.

FIELD SLOPE AND SKEW

SINGLE I-JOISTS				DOUBLE I-JOISTS			
Width	**Depth**	**Hanger**	**Down Load**	**Width**	**Depth**	**Hanger**	**Down Load**
2-5/16"	9-1/2" - 14"	LSSH23	1180	4-5/8"	9-1/2" - 14"	-- --	-- --
	16" - 24"	LSSH23[1]	1180		16" - 24"	-- --	-- --
3-1/2"	11-7/8" - 14'	LSSH35	1920	7"	11-7/8"	-- --	-- --
	16" - 24"	LSSH35[1]	1920		16"	-- --	-- --

USP Notes:
(1) Supplemental lateral support connection recommended when hanger height is less than 60% of joist height.

Highlighted areas require web stiffeners at joist ends

LVL Framing Connectors

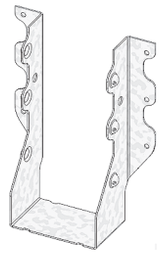
FACE MOUNT HANGERS

SINGLE PLY - 1-3/4" wide			DOUBLE PLY - 3-1/2" wide		
Depth	USP Hanger	Down Load (100%)	Depth	USP Hanger	Down Load (100%)
9-1/4", 9-1/2"	HD17925	2540	9-1/4", 9-1/2"	THD410	5850
	HUS179[1]	5510		THDH410[1]	9010
11-1/4", 11-7/8"	HD17112	2870	11-1/4", 11-7/8"	THD410	5850
	HUS179[1]	5510		THDH412[1]	9845
14"	HD1714	3140	14"	THD410	5850
	HUS179[1]	5510		THDH414[1]	12510
16"	HD1714	3140	16"	THD412	7045
	THF17157	2735		THDH414[1]	12510
18"	HD1714	3140	18"	THD412	7045
	THF17157	2735		THDH414[1]	12510
20"	HD1714	3140	20"	THD414	7045
	THF17157	2735		THDH414[1]	12510
22"	HD1714	3140	22"	HD418	3950
	THF17157	2735		-- --	-- --
24"	THF17157	2735	24"	HD418	3950
	HDQ1714IF	4660		-- --	-- --

TRIPLE PLY - 5-1/4" wide			QUADRUPLE PLY - 7" wide		
Depth	USP Hanger	Down Load (100%)	Depth	USP Hanger	Down Load (100%)
9-1/4", 9-1/2"	THD610	6535	9-1/4", 9-1/2"	THD7210	6535
	THDH610[1]	8990		THDH7210[1]	8990
11-1/4", 11-7/8"	THD610	6535	11-1/4", 11-7/8"	THD7210	6535
	THDH612[1]	10365		THDH7212[1]	8990
14"	THD610	6535	14"	THD7210	6535
	THDH614[1]	12510		THDH7214[1]	12510
16"	THD612	8255	16"	HD7120	2255
	THDH614[1]	12510		THDH7214[1]	12510
18"	THD612	8255	18"	HD7140	2820
	THDH614[1]	12510		THDH7214[1]	12510
20"	THD614	8415	20"	HD7140	2820
	THDH614[1]	12510		THDH7214[1]	12510
22"	HD5216	4230	22"	HD7180	3950
	-- --	-- --		-- --	-- --
24"	HD5216	4230	24"	HD7180	3950
	-- --	-- --		-- --	-- --

USP Notes:

(1) Joist nails need to be toe nailed at a 30° to 45° angle to achieve listed loads.



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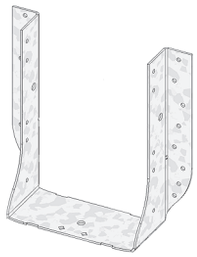

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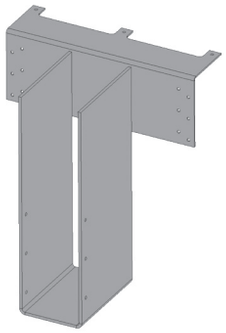
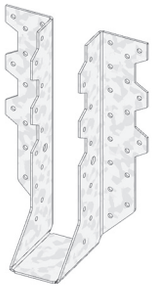
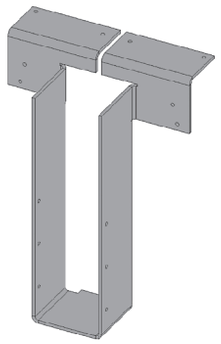


HLBH



THD



PHXU

THDH

TOP FLANGE HANGERS

SINGLE PLY - 1-3/4" wide			DOUBLE PLY - 3-1/2" wide		
Depth	USP Hanger	Down Load (100%)	Depth	USP Hanger	Down Load (100%)
9-1/4"	BPH17925	3340	9-1/4"	HBPH35925	7000
	PHXU17925	4420		HLBH35925	10620
9-1/2"	THO17950	1345	9-1/2"	HBPH3595	7000
	PHXU1795	4420		HLBH3595	10620
11-1/4"	BPH17112	3340	11-1/4"	HBPH35112	7000
	PHXU17112	4420		HLBH35112	10620
11-7/8"	THO17118	1345	11-7/8"	HBPH35118	7000
	PHXU17118	4420		HLBH35118	10620
14"	BPH1714	3340	14"	HBPH3514	7000
	PHXU1714	4420		HLBH3514	10620
16"	TFL1716	1645	16"	HBPH3516	7000
	BPH1716	3340		HLBH3516	10620
18"	-- --	-- --	18"	HBPH3518	7000
	-- --	-- --		HLBH3518	10620
20"	-- --	-- --	20"	HBPH3520	7000
	-- --	-- --		HLBH3520	10620
22"	-- --	-- --	22"	HBPH3522	7000
	-- --	-- --		PHXU3522	6650
24"	-- --	-- --	24"	HBPH3524	7000
	-- --	-- --		PHXU3524	6650

TRIPLE PLY - 5-1/4" wide			QUADRUPLE PLY - 7" wide		
Depth	USP Hanger	Down Load (100%)	Depth	USP Hanger	Down Load (100%)
9-1/4"	HBPH55925	6930	9-1/4"	HBPH71925	6930
	HLBH55925	10620		HLBH71925	10620
9-1/2"	HBPH5595	6930	9-1/2"	HBPH7195	6930
	HLBH5595	10620		HLBH7195	10620
11-1/4"	HBPH55112	6930	11-1/4"	HBPH71112	6930
	HLBH55112	10620		HLBH71112	10620
11-7/8"	HBPH55118	6930	11-7/8"	HBPH71118	6930
	HLBH55118	10620		HLBH71118	10620
14"	HBPH5514	6930	14"	HBPH7114	6930
	HLBH5514	10620		HLBH7114	10620
16"	HBPH5516	6930	16"	HBPH7116	6930
	HLBH5516	10620		HLBH7116	10620
18"	HBPH5518	6930	18"	HBPH7118	6930
	HLBH5518	10620		HLBH7118	10620
20"	HBPH5520	6930	20"	HBPH7120	6930
	HLBH5520	10620		HLBH7120	10620
22"	XHLBH5522[1]	10620	22"	HBPH7122	6930
	--	--		HLBH7122	10620
24"	XHLBH5524[1]	10620	24"	HBPH7124	6930
	--	--		HLBH7124	10620

USP Notes: (1) Hangers are special order. Consult USP for pricing and lead times.

GENERAL NOTES

1. Loads listed are the lowest hanger/header limitations assuming header material is Douglas Fir-Larch, Southern Pine, or LVL manufactured in the United States. Top Flange LVL Hanger loads assume header material is LVL. Joist reaction should be checked by a qualified designer to ensure proper hanger selection.
2. Refer to current USP product catalog to verify allowable loads and fastener size and quantity.
3. Loads shown are gravity (floor) loads. Other load durations may apply. Refer to the current USP product catalog for allowable increases.
4. Top Flange Hanger configurations and thickness of top flange needs to be considered for flush frame conditions.

All hangers listed are manufactured by Mitek®. For more information refer to the current USP literature, www.uspconnectors.com or contact USP at 800-328-5934.

Load and Deflection

1. **Live Load, Dead Load & Total Load:** Most people would feel very uncomfortable on a floor system where no consideration had been given for deflection (or sag) even though the floor had been designed to safely support the total design load. In general, structures (buildings, bridges, floors, etc.) can safely deflect well beyond the limits that make us feel uncomfortable. Limiting deflection is considered a "serviceability" requirement rather than a "strength" requirement. In addition to comfort, limiting deflection may also be a requirement to prevent cracking in the materials that are used to finish the floor, ceiling or wall systems (i.e. gypsum board, stucco, plaster, etc).

   When determining deflection limits, two types of loading are considered, Live Load and Dead Load. By definition, live load is a transient load and includes people, furniture, partitions, snow, wind, etc. Dead load is the actual weight of the building materials used to frame and finish the floor, roof or wall system and any other loads permanently attached to the system. Together, the live load and dead load make up the total load of the system. Building codes give guidance regarding the appropriate live loads and deflection limits to use for various applications.

2. **L/360, L/480, L/600:** This is a calculation used to define the maximum allowable deflection of a framing member such as a joist, beam, stud, etc. Specifically, the term "L" is the span of the member expressed in inches and the ratio of L/480, for instance, would be the maximum allowable deflection in inches that the member would be allowed to deflect. It does not represent what the actual deflection of the member is in the field, just the maximum value it would be allowed to deflect for the given design load.

   The "L over" ratio is always associated with either live load or total load. The most common values are:

Floors:	Live Load – L/600, L/480 or L/360	Total Load – L/360 or L/240
Roofs:	Live Load – L/360 or L/240	Total Load – L/240 or L/180

   For example, a typical commercial floor (50 psf LL/15 psf PL/25 psf DL) would be designed for a maximum Live Load deflection limit of L/600 and a maximum Total Load deflection limit of L/360. For an 18' span, the limits would be as follows:

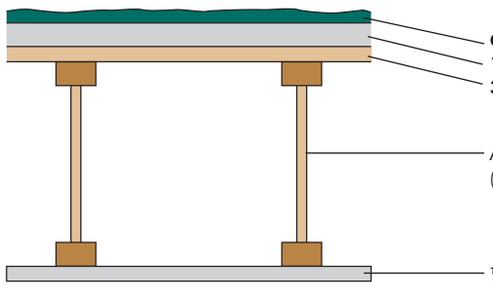
   $\frac{L}{600} = \frac{18' \times 12}{600} = \frac{216"}{600} = 0.36"$ Allowable Live Load Deflection *And* $\frac{L}{360} = \frac{18' \times 12}{360} = \frac{216"}{360} = 0.60"$ Allowable Total Load Deflection

3. **PSF Load:** This is the design load, in pounds per square foot (psf) that is "applied" to the entire floor or roof area. By code, most commercial floors must be designed to support a live load of 50 psf. The live load or snow load for roofs is based on local conditions and can be found in the appropriate building code or by contacting the local building department.

   The design dead load psf is determined by the weight of each component of the floor or roof. A typical commercial floor will have a dead load of approximately 25 psf depending on the components used. A typical method for calculating dead load is shown below:

FIGURE 1

DEAD LOAD CALCULATION FOR TYPICAL COMMERCIAL FLOOR



CARPET & PAD	= 1.0 psf
1-1/2" LT. WT. CONCRETE	= 15 psf
3/4" SHEATHING	= 2.3 psf
Assume 16" **RFPI-70 I-JOIST** @16" o.c. (3.35 plf ÷ 1.33')	= 2.5 psf
½" gypsum board **CEILING**	= 2.2 psf
MISCELLANEOUS (ductwork, wiring, etc.)	= 2.0 psf
TOTAL DEAD LOAD	**= 25 psf**

TYPICAL BUILDING MATERIAL WEIGHTS

FLOORS	
Hardwood - 1" thick	4.0 psf
Concrete - 1" thick	
Regular	12.0 psf
Lightweight	8.0-12.0 psf
Gypcrete - 3/4" thick	6.5 psf
Sheet vinyl	0.5 psf
Carpet and pad	1.0 psf
3/4" ceramic or quarry tile	10.0 psf
Linoleum or soft tile	1.5 psf
1/2" mortar bed	6.0 psf
1" mortar bed	12.0 psf

CEILINGS	
Acoustical fiber tile	1.0 psf
1/2" gypsum board	2.2 psf
5/8" gypsum board	2.8 psf
Plaster - 1" thick	8.0 psf
Metal suspension system (including tile)	1.8 psf

INSULATION - 1" THICK	
Polystyrene foam & Styrofoam	0.2 psf
Foamglass	0.8 psf
Rigid fiberglass	1.5 psf
Glass wool	0.1 psf
Rock wool	0.2 psf

DOUGLAS FIR SHEATHING	
1/2" plywood	1.5 psf
5/8" plywood	1.8 psf
3/4" plywood	2.3 psf
1/2" OSB	1.7 psf
5/8" OSB	2.0 psf
3/4" OSB	2.5 psf
7/8" OSB	2.9 psf

MISCELLANEOUS	
Mechanical ducts	2.0-4.0 psf
Stucco - 1" thick	10.0 psf

ROOFING MATERIALS	
Asphalt shingles	2.5 psf
Wood shingles	2.0 psf
Clay tile	9.0-14.0 psf
Slate - 3/8" thick	15.0 psf

WEIGHTS OF DOUGLAS FIR FRAMING - PSF

Nominal Size	Joist Spacing 12"	16"	19.2"	24"
2x4	1.4	1.1	0.9	0.7
2x6	2.2	1.7	1.4	1.1
2x8	2.9	2.2	1.8	1.5

WEIGHTS OF SPRINKLER LINES

Size of Pipe	Schedule 40 Dry (plf)	Schedule 40 Wet (plf)	Schedule 10 Dry (plf)	Schedule 10 Wet (plf)
1"	1.7	2.1	1.4	1.8
1-1/2"	2.7	3.6	2.1	3.1
2"	3.7	5.2	2.7	4.2

Software Tools

Roseburg Forest Products offers several software tools that will aid you in generating accurate, professional layout drawings and member calculations. These software tools include the Component Solutions™ (CS) EWP Studio Software Suite provided by Simpson Strong-Tie® and the SmartFramer™ layout software developed by Roseburg.

As a supplier of connectors for engineered wood products, Simpson Strong-Tie has been involved in the structural building industry for decades. This experience has provided invaluable insights into the needs of designers and suppliers, resulting in the latest addition to the Simpson Strong-Tie® software product line for light-frame construction. Choose Simpson Strong-Tie® Component Solutions™ EWP Studio™ for your EWP design needs.

COMPONENT SOLUTIONS EWP STUDIO

CS EWP Studio is a state-of-the art EWP analysis program. Whether you are looking for a single-member sizing utility or a robust layout and design solution, CS EWP Studio offers a wide range of tools and functions to meet your design, supply and reporting needs.

DESIGN TOOL

The Design tool is a powerful yet easy-to-use single-member sizing feature that enables you to size RFP engineered wood products for almost any structural condition. You provide a description of the spans, supports and loads of a specific sizing problem, and CS EWP Studio will deliver pass/fail information and even present you with a list of multiple product solutions. After selecting a product, you can print out a professional, easy-to-read calc sheet.

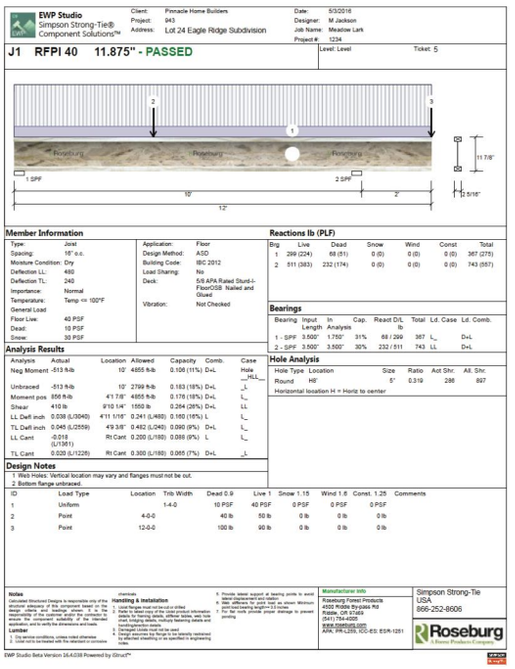
The program designs RFPI®-Joists at their optimum on-center spacing and RigidLam® LVL beams at their optimum depth. Rectangular or circular holes can be analyzed for RFPI-Joists and circular holes can be analyzed for RigidLam LVL at a given size and location. Cantilever reinforcements can be utilized for RFPI-Joists used in load-bearing cantilever applications.

RigidLam LVL columns and studs can be sized using any combination of axial and lateral loading and a variety of default and custom bracing conditions for individual stud and column members.

PLAN TOOL

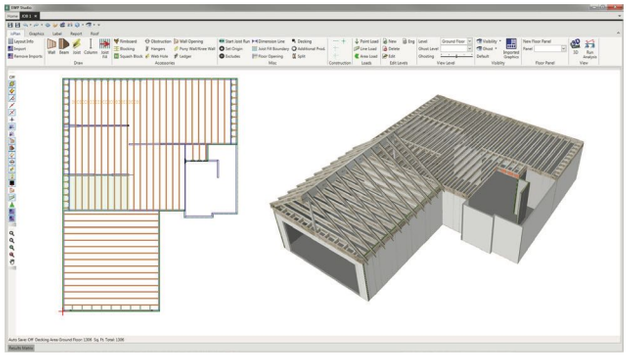
The Plan tool is the complete automation system for Roseburg engineered wood products. The Plan tool includes all of the analysis functionality within the Design tool as well as additional features for creating a 3D model, defining floor and roof systems, generating layouts, and reporting. With this effective tool, the design professional describes the building geometry and specifies the framing layout while the software does the analysis, including the following:

- Developing loads throughout the structure
- Sizing all framing members for Roseburg engineered wood products
- Specifying hangers
- Generating placement plans
- Generating material cut lists and hanger schedules


EWP Studio
Simpson Strong-Tie® Component Solutions™
J1 RFPI 40 11.875" - PASSED
Member Information
Reactions lb (PLF)
Bearings
Analysis Results
Hole Analysis
Design Notes
Simpson Strong-Tie
USA
866-252-8606
Roseburg

Installing and updating CS EWP Studio is easy and is all done electronically with an active internet connection. Checking for software updates ensures that you are using the most up-to-date version of the software.

Simpson Strong-Tie provides all training and software support necessary to successfully learn and implement these software programs. You can obtain more information about the Component Solutions™ programs at https://www.strongtie.com/products/connectors/ics/component-solutions-software or by contacting Simpson Strong-Tie at 1-866-252-8606.



SMARTFRAMER™

SmartFramer software is a proprietary, user-friendly drafting tool that allows you to quickly draw joists, beams, rimboard and hangers for residential or light commercial applications on your computer and print the results with a professional looking color-coded plot. The software program also gives you the opportunity to automatically generate a material list and a bid sheet if desired. SmartFramer is a simple to use layout tool, but does not check the structural adequacy of the framing members. The SmartFramer software is an "add-on" module that runs on the SmartSketch™ drawing program developed by Intergraph Corporation. The SmartSketch software is a well-established drafting program that you can purchase directly from the Intergraph Corporation. Roseburg will provide the SmartFramer module at no cost to you.

Cutting edge technology is available at every level to support you in your selling efforts...

Just another way Roseburg Forest Products is working to help you be successful!

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CODE REPORT INDEX

ROSEBURG EWP CODE REPORTS	PRODUCT
ICC ESR-1251	I-JOIST
ICC ESR-1210	LVL & LVL Rim
APA PR-L259	I-JOIST
APA PR-L289	LVL
APA PR-L270	LVL STUDS
City of Los Angeles RR 25439	I-JOIST
City of Los Angeles RR 25680	LVL & LVL Rim
DSA PA-131	I-JOIST
DSA PA-136	LVL
DSA AC 23-1	I-JOIST
Florida FL2440	I-JOIST & LVL
CCMC 13323-R (Canada)	I-JOIST
CCMC 13310-R (Canada)	LVL

The code reports listed are available at www.roseburg.com, in the Engineered Wood Products section, Technical Information.

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