Roseburg
A Forest Products Company

www.Roseburg.com

EWP Design Guide

Roseburg Framing System®

RFPI®-Joist

RigidLam® LVL

RigidLam® LVL Studs

RigidLam® LVL Columns

RigidLam® LVL Stair Stringers

RigidRim® Rimboard

MADE IN THE USA

quality engineered wood products for today's builder®

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Conscientious

Stewards Of Our Environment.

These five words are the foundation for every action Roseburg takes in its interactions with the environment. The phrase means not just taking care of the lands, but making them better for future generations. Harvesting a tree is easy; studying how our harvest activity impacts everything around it and finding ways to improve upon the environment is more difficult.

We have been up to the task.

We are not only in the business of producing quality wood products, but also in the business of conserving and enhancing the wonderful natural resources that each of us enjoys. Visit any of our harvest sites, and you'll see these words in action.

While using tractors and skidders may often be the easiest and least expensive alternative for removing logs, we look at other, more environmentally-friendly harvesting options such as helicopter logging to protect the soils that grow our trees. Often, you'll find us placing large, woody debris in streams to enhance the fish spawning habitat, or replacing old culverts with larger, better-placed culverts to provide better fish passage.

Roseburg was among the first in the industry to set aside some of its own land in order to study and improve upon fish habitat. Several years ago, we began working with Oregon State University and other agencies on a company-owned area near the Hinkle Creek Watershed to gain current research on the effects of logging on fish. We are now lobbying other companies to replicate the study on their own lands.

Finally, it's important to note that we are a highly self-sufficient manufacturer. We now own more than 650,000 acres of timberland, which supply the majority of wood fiber we need to produce our products. The ability to rely on our own forests as our primary source of logs gives us the flexibility to match our resources to our product mix. We take a great deal of pride in our partnership with the natural world. However, we don't go to all of this effort and expense simply because it makes us feel good; we do it because it's the right thing to do.

- We manage our natural resources in a responsible manner
- Our EWP products enable builders to use timber resources more efficiently
- We offer composite panels and plywood products that have no added urea formaldehyde when manufactured
- We have biomass cogeneration plants which use wood waste material from our mills to produce clean energy for our plants and nearby communities
- We produce a broad array of products that are FSC, SCS, and EPP certified
- California timberlands are third party certified for their sustainability by the Forest Stewardship Council (FSC)
- Integrated manufacturing facilities dramatically reduce vehicle carbon emissions
- We plant over 5 million tree seedlings annually
- We are progressively involved in stream research and enhancement

ENGINEERED WOOD PRODUCTS

Roseburg's plant, located in Riddle, Oregon, is one of North America's largest Engineered Wood Products (EWP) facilities, covering nearly 70 acres, with over 750,000 sq. ft. of manufacturing space. Every part of the facility is state-of-the-art, producing quality Engineered Wood Products. It is a complete processing facility, from drying and grading veneer to final packaging and shipment. As with every other product Roseburg produces, each step in the EWP manufacturing process is monitored to ensure that the highest quality control standards are maintained.

Roseburg's signature trademarks of vertical integration capabilities and cutting-edge manufacturing practices help ensure that quality Engineered Wood Products are produced. Our huge production capacity, complete product offering, focus on service and product availability, commitment to the EWP business, and acceptability of the product by builders and homeowners all translate into significant advantages for our customers.

ROSEBURG FRAMING SYSTEM®

The Roseburg Framing System® consists of: RFPI® Joists used in floor and roof construction; RigidLam® LVL which is used for headers, beams, studs and columns; and RigidRim® Rimboard. All of the components are engineered to the industry's highest standards to help contractors build solid, durable, and better performing framing systems compared to ordinary dimension lumber.

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%).

As a supporting member of APA – The Engineered Wood Association, Roseburg Forest Products has adopted the Performance Standard for wood I-Joists, the Performance Standard for rimboard and the Performance Standard for laminated veneer lumber (LVL). Roseburg believes these standards will aid specifiers in quickly and easily selecting the proper product for each application and will help builders simplify the process of installing I-Joists and LVL in residential applications. All engineered wood products described in this document meet or exceed the APA-EWS standards.

This guide emphasizes residential applications, including technical information on span ratings, installation details, cantilever designs, architectural specifications and engineering design properties. However, much of the basic information can be used for other construction applications. **Review by a design professional is required for applications beyond the scope of this document.**

The Roseburg Framing System®, combined with other wood components produced by Roseburg, offers one of the most complete framing packages available from a single manufacturing supplier today.

DESIGN SUPPORT

The various charts and tables in this literature are based on accepted, typical residential 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.

WHAT DOES ROSEBURG'S EWP PROGRAM HAVE TO OFFER?

Major producer of wood products	Strength of position as a supplier who has long-term staying power
A legacy of delivering quality wood products to the market	Product availability
Our EWP products meet or exceed Roseburg's and APA's high quality assurance standards	High quality product with predictable performance
One of the most complete framing packages available	One stop shopping with RFPI-Joist, RigidLam LVL, and RigidRim Rimboard
Own, peel, dry and grade our own wood resources	Consistent quality products at competitive prices
Committed to delivering quality engineered wood products on time, every time	Dependable supply of engineered wood products
Experienced sales, technical, engineering and customer service assistance	Roseburg will help you get the job done quickly and efficiently

THE COMPANY

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For more than 75 years, Roseburg has produced quality wood products for customers throughout North America and is recognized as a major supplier of wood products. Our natural resource base, state-of-the-art manufacturing facilities, talented and experienced associates, and reputation for quality products and superior customer service have been key elements to our success.

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Integrated manufacturing, wide variety of wood products, and approximately 650,000 acres of forestlands throughout Southern Oregon and Northern California are assets that will support our strategic growth plans well into the 21st Century.

Software Tools

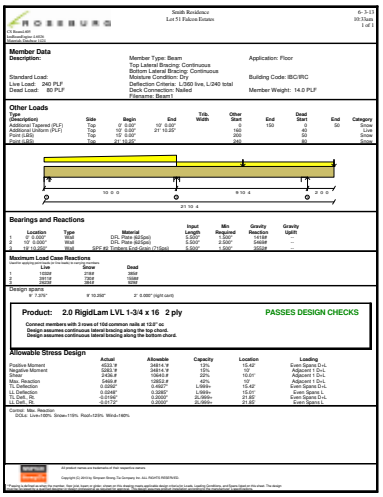
Roseburg Forest Products offers several software tools that will aid you in generating accurate, professional layout drawings and member calculations. These software tools include the Component Solutions™ (CS) software suite developed by Simpson Strong-Tie® and the SmartFramer™ layout software developed 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 product line for light-frame construction. Choose the CS EWP Lite Edition or the CS EWP Edition for your EWP design needs.

COMPONENT SOLUTIONS EWP LITE EDITION

The CS EWP Lite Edition includes CS Beam, CS Column and CS Update. In the Roseburg branded version of the CS EWP Lite Edition the software is called Roseburg Beam, Roseburg Column and Roseburg Update. Roseburg Beam is a powerful, yet easy to use single member sizing program 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 Roseburg Beam will present you with a list of multiple product solutions. After selecting a product you can print out a professional and easy to read calc sheet. You can also use Roseburg Beam to determine if a particular I-Joist or LVL beam works for a specific application. Occasionally running the Roseburg Update function assures that you are using the most up-to-date version of the software.

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 and the program can determine the maximum size hole for a given location. Cantilever reinforcement is automatically specified when required for RFPI-Joists used in load bearing cantilever applications.



Roseburg Column is a single member sizing software for use with columns and wall studs. 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.

Roseburg Forest Products will provide this powerful program to you at no cost. You can obtain it in any of the following ways:

- Visit our Website at www.Roseburg.com and download it directly to your computer
- Send us an e-mail at ewpsales@rfpco.com and request it. We will mail an installation CD to you.
- Call us at 1-800-347-7260 and request it.

In all cases, please provide your name, job title, company name and address, phone number and e-mail address.

COMPONENT SOLUTIONS EWP EDITION

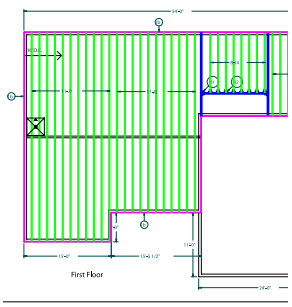
Also available is the CS EWP Edition, the complete automation system for Roseburg engineered wood products. The CS EWP Edition includes all of the components of the CS EWP Lite Edition as well as CS Build, CS Plot and CS Manage (unlike the CS EWP Lite Edition, the various modules in the CS EWP Edition are not branded with the Roseburg name). With this remarkable tool, the operator describes the framing geometry and the software does the rest. In fact, the program will automatically:

- Develop loads throughout the structure
- Size all framing members for Roseburg engineered wood products
- Specify hangers
- Generate placement plans
- Generate material cut lists and hanger schedules

Simpson Strong-Tie provides all training and software support necessary to successfully learn and implement these software programs. You can obtain more information about Component Solutions™ at www.strongtie.com/products/ics/software.html 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.



SmartFramer's user-friendly tools quickly draw joists, beams, rimboard and hangers. You can automatically generate a material list and bid sheet.

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!

SOFTWARE TOOLS

Floor System Performance

It is always a good idea to consider the performance (i.e., vibration, bounce etc.) of **any floor system**. Currently, there are no true industry standard guidelines to use for I-joists but there are several practical aids that have shown to be useful. Some are design aids, some are installation aids and some are retrofit aids. They are offered as tools to help you minimize floor performance complaints but can not be guaranteed to eliminate all floor performance problems.

Begin by using the concepts of **fundamental natural frequency** and **damping** when designing floor systems. The **fundamental natural frequency** (FNF) is a measure of how the floor vibrates when you walk on it and is measured in cycles per second (called a Hertz or Hz). **Damping** is a measure of how quickly a floor stops vibrating and is expressed as a percent between 1% and 100% (most residential floors have a damping range between 5% – 25% damping).

Our bodies are extremely sensitive to vibrations below 9 Hz so the ideal floor would have a high FNF with high damping. Most problem floors have a **combination** of a low FNF (below 9 Hz) and a low damping (around 5%). The following list will help you determine the effect of different parameters on floor performance. **It is the combination and interaction of these parameters that determines how the floor "feels".**

DESIGN PARAMETERS	EFFECT ON FNF	EFFECT ON DAMPING
• Longer Spans	**significantly lowers**	little or no effect
• Higher "L over" deflection limit (L/480 vs. L/360)	**significantly increases**	little or no effect
• Using an absolute upper limit on live load deflection (Usually between 1/3" to 1/2" max)	**significantly increases**	little or no effect
• Using deeper I-joists	increases	little or no effect
• Reduced on-center spacing	increases	little or no effect
• Adding perpendicular partition walls	little or no effect	**significantly increases**
• Increasing overall weight of floor	**significantly lowers**	**significantly increases**
INSTALLATION PARAMETERS		
• Unlevel bearings (walls, beams & hangers)	**significantly lowers**	**significantly lowers**
• Direct applied sheet-rock ceiling	**significantly increases**	**significantly increases**
• Thicker sub-floor	increases	increases
• Screw & Glued sub-floor	increases	increases
• T&G sub-floor	increases	increases
RETROFIT PARAMETERS		
• I-joist mid span blocking (one row)	little or no effect	increases
• 2x4 flat on I-joist bottom (perpendicular)	little or no effect	increases
• 2x4 strong back on I-joist bottom (perpendicular) (vertical 2x4 nailed to side of flat 2x4)	increases	**significantly increases**

2x10 & 2x12 Comparison

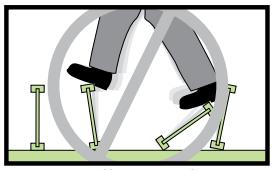
RFPI®-JOIST SUBSTITUTION GUIDE FOR SOLID-SAWN LUMBER(1)

2x10 No. 2 Solid-Sawn Live Load Deflection = L/360		Simple Span **9-1/2" RFPI Joist** Live Load Deflection = L/480			Multiple Span **9-1/2" RFPI Joist** Live Load Deflection = L/480		
Species	**Maximum Simple Span @16" o.c.(2)**	**16" o.c.**	**19.2" o.c.**	**24" o.c.**	**16" o.c.**	**19.2" o.c.**	**24" o.c.**
Spruce-Pine-Fir	15'-5"	RFPI 20	RFPI 40S/400	RFPI 70	RFPI 20	RFPI 20	RFPI 400/40
Spruce-Pine-Fir (South)	14'-6"	RFPI 20	RFPI 20	RFPI 40S/400	RFPI 20	RFPI 20	RFPI 40S/400
Hem-Fir	15'-2"	RFPI 20	RFPI 40S/400	RFPI 60S/70	RFPI 20	RFPI 20	RFPI 400/40
Douglas Fir-Larch	15'-7"	RFPI 20	RFPI 40/60S	RFPI 70	RFPI 20	RFPI 20	RFPI 400/40
Southern Pine	16'-1"	RFPI 40S/400	RFPI 60S/70	-	RFPI 20	RFPI 20	RFPI 40/60S

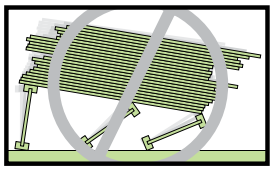
2x12 No. 2 Solid-Sawn Live Load Deflection = L/360		Simple Span **11-7/8" RFPI Joist** Live Load Deflection = L/480			Multiple Span **11-7/8" RFPI Joist** Live Load Deflection = L/480		
Species	**Maximum Simple Span @16" o.c.(2)**	**16" o.c.**	**19.2" o.c.**	**24" o.c.**	**16" o.c.**	**19.2" o.c.**	**24" o.c.**
Spruce-Pine-Fir	17'-10"	RFPI 20	RFPI 40S/400	RFPI 60S/70	RFPI 20	RFPI 40S	RFPI 40/60S
Spruce-Pine-Fir (South)	16'-10"	RFPI 20	RFPI 20	RFPI 400/40	RFPI 20	RFPI 40S	RFPI 400
Hem-Fir	17'-7"	RFPI 20	RFPI 20	RFPI 40/60S	RFPI 20	RFPI 40S	RFPI 400
Douglas Fir-Larch	18'-1"	RFPI 20	RFPI 40S/400	RFPI 60S/70	RFPI 20	RFPI 40S	RFPI 40/60S
Southern Pine	18'-10"	RFPI 40S/400	RFPI 40/60S	RFPI 70	RFPI 20	RFPI 400/40	RFPI 40/60S

(1) Comparison chart based on uniform loads (Live load = 40 psf, Dead load = 10 psf).
(2) Spans taken from 2002 Western Lumber Use Manual, Southern Pine Use Guide, or 2003 IRC.

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:

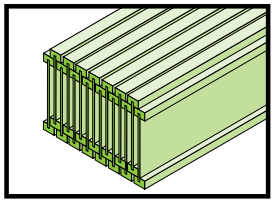
1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends.
2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, 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.

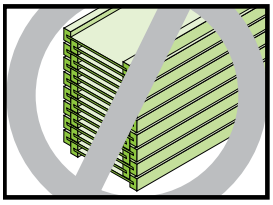
Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for RFPI®-Joists or RigidLam® LVL, failure to properly use allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents or structural performance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

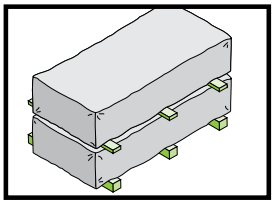
These are general recommendations and in some cases additional precautions may be required.

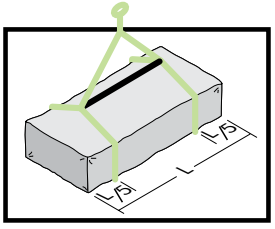
Storage & Handling Guidelines

- 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®-Joists Are Engineered to Make the Job Easier

RFPIs are the ideal choice for designers and builders who want to provide their customers with high quality floor systems. They provide consistent performance for the most demanding residential applications.

SIMPLE TO INSTALL
I-joists save builders time, and therefore money. I-joists are typically pre-cut in two-foot increments of length and shipped to the job site ready to install. This minimizes job site cutting and material waste. I-joists can be cut and fastened with traditional framing tools and fasteners – no special tools are required. Since I-joists can typically be used at greater joist spacings as compared to lumber, fewer pieces must be cut and handled on the job site, making I-joist installation less costly and less wasteful for the builder.

ALLOW DESIGN FLEXIBILITY
The availability of long lengths allows multiple span installations thus speeding construction by eliminating the need to lap joists over bearing walls or support beams. This also means fewer pieces to handle. The availability of long lengths and relatively deep joists also gives designers the freedom to create more open spaces and reduces the need for supporting walls, columns, or beams.

LIGHTWEIGHT
Because I-joists typically weigh less than half of comparable conventional framing lumber, they can be installed quickly and efficiently.

DIMENSIONALLY STABLE
I-joists will not warp, twist, or shrink, and are more uniform in their dimensions than sawn lumber joists. The floor vibration criteria combined with their straightness and uniformity provides a stiffer, more uniform floor with fewer squeaks, resulting in higher customer satisfaction.

WEB HOLES
The OSB webs in Roseburg's I-joists permit holes to be easily cut on the job site to permit the passage of electrical wiring, plumbing and ductwork. This cannot always be accomplished with sawn lumber joists where the mechanical systems must be passed under the joist system. Roseburg also provides knockout holes along the length of the joists to facilitate the installation of electrical wiring or light plumbing lines. These knockouts can easily be removed with a hammer as needed.

APA QUALITY ASSURED
The APA-EWS trademark ensures superior I-joist quality and consistent performance. All products are subject to the proven quality assurance program of APA.

RESOURCE FRIENDLY
Wood I-joists use up to 50% less wood fiber in their production than conventional lumber joists, allowing more efficient use of our natural resources.

INSTALLATION NOTES

1. Except for cutting to length, top and bottom flanges of RFPI-Joists shall not be cut, drilled or notched.
2. 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.
3. Any fastening, resistance to uplift or application not specifically detailed is subject to local approval.
4. I-joist end bearing length must be at least 1¾". Intermediate bearings of multiple span joists must be at least 3½".
5. Engineered lumber must not remain in direct contact with concrete or masonry construction and must be used in dry use conditions only.
6. 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.
7. 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.
8. Plywood or OSB subfloor nailed to the top flange of an RFPI-Joist is adequate to provide lateral support.
9. Install I-joists so that top and bottom flanges are straight and remain within ½ inch of true alignment.
10. Roseburg does not require mid-span blocking or bridging in RFPI floor or roof applications.
11. 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.
12. 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)**		
Flange Material	**Fastener Diameter[d][e]**	**End Distance**	**Nail Spacing**	**End Distance**	**Nailed to one flange edge**	**Nailed to both flange edges[f]**
LVL Flange I-joist	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]
Solid Sawn Flange I-joist	dia.≤ 0.128" (8d box or sinker, 10d box or sinker, 12d box)	2	2	2	2	4
	0.128"<dia.≤ 0.148" (8d com, 10d com, 12d sinker or com, 16d box or sinker)	2	3	2	3	6

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 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-Joists 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.

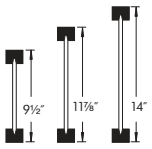
g. Maximum of 0.131" diameter (8d common)

RFPI®-Joist Design Properties

I-JOIST DIMENSIONS

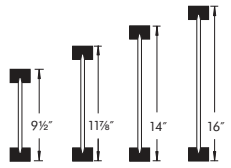
LVL FLANGE

RFPI® 20



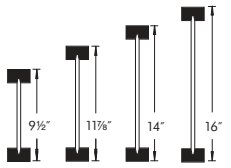
1-3/4" wide x 1-3/8" LVL Flange
3/8" OSB Web

RFPI® 400



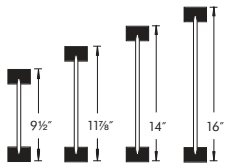
2-1/16" wide x 1-3/8" LVL Flange
3/8" OSB Web

RFPI® 40



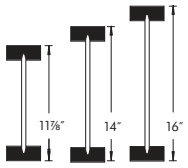
2-5/16" wide x 1-3/8" LVL Flange
3/8" OSB Web

RFPI® 70



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

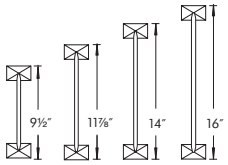
RFPI® 90



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

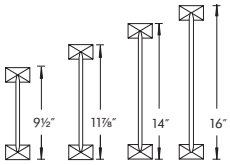
SOLID SAWN FLANGE

RFPI® 40S



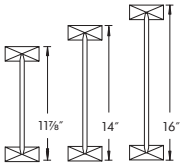
2-1/2" wide x 1-1/2" Solid Sawn Flange
3/8" OSB Web

RFPI® 60S



2-1/2" wide x 1-1/2" Solid Sawn Flange
3/8" OSB Web

RFPI® 80S



3-1/2" wide x 1-1/2" Solid Sawn Flange
3/8" OSB Web

DESIGN PROPERTIES FOR RFPI-JOISTS[1]

Roseburg Designation	APA Designation	EI[2] x10⁶ lb-in.²	M[3] lb-ft	V[4] lbs	VLC[5] lbs/ft.	K[6] x10⁶ lb	Weight plf
9½" RFPI 20 [7]	9½" PRI 20	165	2,820	1,220	2,000	4.94	1.99
9½" RFPI 40S [7]	9½" PRI 40	193	2,735	1,120	2,000	4.94	2.56
9½" RFPI 400	Not Applicable	193	3,345	1,220	2,000	4.94	2.29
9½" RFPI 40 [7]	9½" PRI 40	215	3,760	1,330	2,000	4.94	2.37
9½" RFPI 60S [7]	9½" PRI 60	231	3,780	1,120	2,000	4.94	2.56
9½" RFPI 70	Not Applicable	266	5,130	1,330	2,000	4.94	2.57
11⅞" RFPI 20 [7]	11⅞" PRI 20	283	3,640	1,420	2,000	6.18	2.30
11⅞" RFPI 40S [7]	11⅞" PRI 40	330	3,545	1,420	2,000	6.18	2.83
11⅞" RFPI 400	Not Applicable	330	4,315	1,480	2,000	6.18	2.60
11⅞" RFPI 40 [7]	11⅞" PRI 40	366	4,855	1,550	2,000	6.18	2.69
11⅞" RFPI 60S [7]	11⅞" PRI 60	396	4,900	1,420	2,000	6.18	2.83
11⅞" RFPI 70 [7]	11⅞" PRI 70	455	6,645	1,550	2,000	6.18	2.91
11⅞" RFPI 80S [7]	11⅞" PRI 80	547	6,970	1,590	2,000	6.18	3.79
11⅞" RFPI 90 [7]	11⅞" PRI 90	676	10,145	2,050	2,000	6.18	3.84
14" RFPI 20	Not Applicable	420	4,330	1,610	2,000	7.28	2.51
14" RFPI 40S [7]	14" PRI 40	482	4,270	1,710	2,000	7.28	3.07
14" RFPI 400	Not Applicable	486	5,140	1,710	2,000	7.28	2.79
14" RFPI 40 [7]	14" PRI 40	540	5,785	1,770	2,000	7.28	2.95
14" RFPI 60S [7]	14" PRI 60	584	5,895	1,710	2,000	7.28	3.07
14" RFPI 70 [7]	14" PRI 70	672	7,925	1,770	2,000	7.28	3.13
14" RFPI 80S [7]	14" PRI 80	802	8,390	1,835	2,000	7.28	4.03
14" RFPI 90 [7]	14" PRI 90	992	12,100	2,195	2,000	7.28	4.19
16" RFPI 40S [7]	16" PRI 40	657	4,950	1,970	2,000	8.32	3.31
16" RFPI 400	Not Applicable	665	5,880	1,970	2,000	8.32	3.01
16" RFPI 40 [7]	16" PRI 40	737	6,615	1,970	2,000	8.32	3.14
16" RFPI 60S [7]	16" PRI 60	799	6,835	1,970	2,000	8.32	3.31
16" RFPI 70 [7]	16" PRI 70	918	9,080	1,970	2,000	8.32	3.35
16" RFPI 80S [7]	16" PRI 80	1,092	9,730	2,070	2,000	8.32	4.26
16" RFPI 90 [7]	16" PRI 90	1,350	13,865	2,330	2,000	8.32	4.42

(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) with a minimum bearing length of 4 inches.

(5) Vertical Load Capacity when continuously supported.

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

Uniform Load:

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

Center-Point Load:

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

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)

(7) Design properties meet or exceed the requirements of the PRI-400 Performance Standard for APA EWS I-Joists for the corresponding I-joist series and depth.

RFPI®-Joist Allowable Reaction Information

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

Roseburg Designation	End Reaction (lbs)				Intermediate Reaction (lbs)				Web Stiffener Nails [2]
	1-3/4" Bearing		4" 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 ½" RFPI®-20	910	1,150	1,220	1,220	1,775	1,875	2,000	2,300	4-8d
9 ½" RFPI®-40S	1,080	1,120	1,120	1,120	2,160	2,240	2,240	2,240	4-8d
9 ½" RFPI®-400	1,025	1,220	1,220	1,220	2,150	2,250	2,300	2,440	4-8d
9 ½" RFPI®-40	1,080	1,220	1,330	1,330	2,250	2,500	2,550	2,650	4-8d
9 ½" RFPI®-60S	1,080	1,120	1,120	1,120	2,160	2,240	2,240	2,240	4-8d
9 ½" RFPI®-70	1,120	1,330	1,330	1,330	2,335	2,500	2,550	2,650	4-8d
11 7/8" RFPI®-20	950	1,225	1,420	1,420	1,935	2,035	2,135	2,435	4-8d
11 7/8" RFPI®-40S	1,200	1,340	1,420	1,420	2,500	2,625	2,660	2,840	4-8d
11 7/8" RFPI®-400	1,050	1,265	1,480	1,480	2,250	2,350	2,350	2,650	4-8d
11 7/8" RFPI®-40	1,200	1,400	1,550	1,550	2,500	2,625	2,660	2,870	4-8d
11 7/8" RFPI®-60S	1,200	1,340	1,420	1,420	2,500	2,625	2,660	2,840	4-8d
11 7/8" RFPI®-70	1,200	1,470	1,550	1,550	2,500	2,625	2,660	2,870	4-8d
11 7/8" RFPI®-80S	1,280	1,590	1,550	1,590	2,810	3,180	3,100	3,180	4-10d
11 7/8" RFPI®-90	1,400	1,745	1,885	2,050	3,355	3,475	3,475	3,675	4-10d
14" RFPI®-20	950	1,290	1,550	1,610	1,935	2,035	2,135	2,435	4-8d
14" RFPI®-40S	1,200	1,530	1,550	1,710	2,500	2,740	2,755	3,050	4-8d
14" RFPI®-400	1,050	1,305	1,550	1,710	2,250	2,350	2,350	2,650	4-8d
14" RFPI®-40	1,200	1,560	1,550	1,770	2,500	2,740	2,755	3,065	4-8d
14" RFPI®-60S	1,200	1,530	1,550	1,710	2,500	2,740	2,755	3,050	4-8d
14" RFPI®-70	1,200	1,590	1,550	1,770	2,500	2,740	2,755	3,065	4-8d
14" RFPI®-80S	1,280	1,750	1,550	1,835	3,020	3,360	3,210	3,600	4-10d
14" RFPI®-90	1,400	1,885	1,885	2,195	3,355	3,500	3,500	3,850	4-10d
16" RFPI®-40S	1,200	1,710	1,550	1,970	2,500	2,850	2,850	3,250	4-8d
16" RFPI®-400	1,050	1,340	1,550	1,970	2,250	2,350	2,350	2,650	4-8d
16" RFPI®-40	1,200	1,710	1,550	1,970	2,500	2,850	2,850	3,250	4-8d
16" RFPI®-60S	1,200	1,710	1,550	1,970	2,500	2,850	2,850	3,250	4-8d
16" RFPI®-70	1,200	1,710	1,550	1,970	2,500	2,850	2,850	3,250	4-8d
16" RFPI®-80S	1,280	1,900	1,550	2,070	3,020	3,525	3,310	4,000	4-10d
16" RFPI®-90	1,400	2,025	1,885	2,330	3,355	3,525	3,525	4,025	4-10d

General Note: Determine the allowable reaction capacity from Table 1 and Table 2 and use the lesser of the two values (refer to the notes for each table).

1. The tabulated design values in Table 1 are for 100% duration of load. Interpolation between tabulated values is permitted. All values in Table 1 shall be permitted to be adjusted for other load durations.
2. Number of nails required for web stiffeners. Refer to page 23 for web stiffener and nail installation requirements.

TABLE 2: RFPI-JOIST REACTION CAPACITIES BASED ON FLANGE ALLOWABLE COMPRESSION PERP.-TO-GRAIN[1] [2]

Depth	Joist Designation	End Reaction (lbs)				Intermediate Reaction (lbs)			
		1-3/4" Bearing		4" 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 Depths in each series	RFPI®-20	1,415		3,230		3,130		4,545	
	RFPI®-40S	1,760		4,020		3,895		5,655	
	RFPI®-400	1,685		3,855		3,735		5,425	
	RFPI®-40	1,905		4,355		4,220		6,130	
	RFPI®-60S	2,175		4,970		4,815		6,990	
	RFPI®-70	1,905		4,355		4,220		6,130	
	RFPI®-80S	3,090		7,070		6,850		9,940	
	RFPI®-90	2,945		6,730		6,520		9,470	

General Note: Determine the allowable reaction capacity from Table 1 and Table 2 and use the lesser of the two values (refer to the notes for each table).

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

Allowable Floor Clear Spans For RFPI®-Joists

40 PSF LIVE LOAD AND 10 PSF DEAD LOAD

Joist Depth	Joist Series	40/10 Simple Span				40/10 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.
9-1/2″	RFPI® 20	17' - 2"	15' - 9"	14' - 10"	13' - 10"	18' - 9"	17' - 1"	16' - 2"	14' - 0"
	RFPI® 40S	18' - 0"	16' - 5"	15' - 6"	14' - 6"	19' - 7"	17' - 11"	16' - 4"	14' - 7"
	RFPI® 400	18' - 0"	16' - 5"	15' - 6"	14' - 6"	19' - 7"	17' - 10"	16' - 10"	15' - 9"
	RFPI® 40	18' - 7"	16' - 11"	16' - 0"	14' - 11"	20' - 2"	18' - 5"	17' - 5"	16' - 2"
	RFPI® 60S	18' - 11"	17' - 4"	16' - 4"	15' - 3"	20' - 8"	18' - 10"	17' - 9"	16' - 6"
	RFPI® 70	19' - 9"	18' - 0"	17' - 0"	15' - 10"	21' - 6"	19' - 7"	18' - 5"	17' - 2"
11-7/8″	RFPI® 20	20' - 6"	18' - 9"	17' - 9"	16' - 6"	22' - 4"	20' - 5"	18' - 10"	15' - 3"
	RFPI® 40S	21' - 5"	19' - 7"	18' - 6"	16' - 8"	23' - 5"	20' - 5"	18' - 7"	16' - 7"
	RFPI® 400	21' - 5"	19' - 7"	18' - 6"	17' - 3"	23' - 4"	21' - 4"	20' - 1"	17' - 9"
	RFPI® 40	22' - 1"	20' - 2"	19' - 0"	17' - 9"	24' - 1"	22' - 0"	20' - 8"	19' - 3"
	RFPI® 60S	22' - 7"	20' - 8"	19' - 6"	18' - 2"	24' - 8"	22' - 6"	21' - 2"	19' - 7"
	RFPI® 70	23' - 7"	21' - 6"	20' - 3"	18' - 10"	25' - 8"	23' - 5"	22' - 0"	19' - 9"
	RFPI® 80S	24' - 11"	22' - 8"	21' - 4"	19' - 11"	27' - 1"	24' - 8"	23' - 3"	21' - 7"
	RFPI® 90	26' - 6"	24' - 1"	22' - 8"	21' - 1"	28' - 10"	26' - 3"	24' - 8"	22' - 11"
14″	RFPI® 20	23' - 4"	21' - 4"	20' - 2"	18' - 6"	25' - 5"	22' - 7"	19' - 2"	15' - 3"
	RFPI® 40S	24' - 4"	22' - 3"	20' - 6"	18' - 4"	25' - 11"	22' - 5"	20' - 5"	18' - 3"
	RFPI® 400	24' - 4"	22' - 3"	21' - 0"	19' - 7"	26' - 7"	24' - 3"	22' - 3"	17' - 9"
	RFPI® 40	25' - 2"	22' - 11"	21' - 8"	20' - 2"	27' - 5"	25' - 0"	23' - 7"	19' - 9"
	RFPI® 60S	25' - 9"	23' - 6"	22' - 2"	20' - 8"	28' - 0"	25' - 7"	24' - 1"	19' - 9"
	RFPI® 70	26' - 10"	24' - 5"	23' - 0"	21' - 5"	29' - 3"	26' - 7"	24' - 9"	19' - 9"
	RFPI® 80S	28' - 3"	25' - 9"	24' - 3"	22' - 7"	30' - 9"	28' - 0"	26' - 4"	23' - 11"
	RFPI® 90	30' - 1"	27' - 5"	25' - 9"	23' - 11"	32' - 10"	29' - 10"	28' - 1"	26' - 0"
16″	RFPI® 40S	26' - 11"	24' - 3"	22' - 1"	19' - 9"	27' - 11"	24' - 2"	22' - 0"	19' - 8"
	RFPI® 400	27' - 0"	24' - 8"	23' - 4"	20' - 10"	29' - 6"	26' - 4"	22' - 3"	17' - 9"
	RFPI® 40	27' - 10"	25' - 5"	24' - 0"	22' - 4"	30' - 4"	27' - 8"	24' - 9"	19' - 9"
	RFPI® 60S	28' - 6"	26' - 0"	24' - 7"	22' - 11"	31' - 1"	28' - 4"	24' - 9"	19' - 9"
	RFPI® 70	29' - 9"	27' - 1"	25' - 6"	23' - 9"	32' - 5"	29' - 6"	24' - 9"	19' - 9"
	RFPI® 80S	31' - 4"	28' - 6"	26' - 10"	25' - 0"	34' - 2"	31' - 1"	29' - 3"	23' - 11"
	RFPI® 90	33' - 4"	30' - 4"	28' - 7"	26' - 7"	36' - 5"	33' - 1"	31' - 1"	26' - 7"

40 PSF LIVE LOAD AND 20 PSF DEAD LOAD

Joist Depth	Joist Series	40/20 Simple Span				40/20 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.
9-1/2″	RFPI® 20	17' - 2"	15' - 9"	14' - 10"	13' - 7"	18' - 9"	16' - 7"	14' - 7"	11' - 7"
	RFPI® 40S	18' - 0"	16' - 5"	14' - 11"	13' - 4"	18' - 11"	16' - 4"	14' - 11"	13' - 3"
	RFPI® 400	18' - 0"	16' - 5"	15' - 6"	14' - 6"	19' - 7"	17' - 10"	16' - 6"	14' - 1"
	RFPI® 40	18' - 7"	16' - 11"	16' - 0"	14' - 11"	20' - 2"	18' - 5"	17' - 5"	14' - 9"
	RFPI® 60S	18' - 11"	17' - 4"	16' - 4"	15' - 3"	20' - 8"	18' - 10"	17' - 6"	14' - 2"
	RFPI® 70	19' - 9"	18' - 0"	17' - 0"	15' - 10"	21' - 6"	19' - 7"	18' - 5"	15' - 4"
11-7/8″	RFPI® 20	20' - 6"	18' - 9"	17' - 3"	15' - 5"	21' - 10"	18' - 10"	15' - 11"	12' - 8"
	RFPI® 40S	21' - 5"	18' - 8"	17' - 1"	15' - 3"	21' - 6"	18' - 7"	17' - 0"	15' - 2"
	RFPI® 400	21' - 5"	19' - 7"	18' - 6"	16' - 10"	23' - 4"	20' - 7"	18' - 6"	14' - 9"
	RFPI® 40	22' - 1"	20' - 2"	19' - 0"	17' - 9"	24' - 1"	21' - 10"	19' - 11"	16' - 5"
	RFPI® 60S	22' - 7"	20' - 8"	19' - 6"	17' - 11"	24' - 8"	21' - 11"	20' - 0"	16' - 5"
	RFPI® 70	23' - 7"	21' - 6"	20' - 3"	18' - 10"	25' - 8"	23' - 5"	20' - 7"	16' - 5"
	RFPI® 80S	24' - 11"	22' - 8"	21' - 4"	19' - 11"	27' - 1"	24' - 8"	23' - 2"	18' - 6"
	RFPI® 90	26' - 6"	24' - 1"	22' - 8"	21' - 1"	28' - 10"	26' - 3"	24' - 8"	22' - 2"
14″	RFPI® 20	23' - 4"	20' - 8"	18' - 10"	15' - 8"	23' - 10"	19' - 2"	15' - 11"	12' - 8"
	RFPI® 40S	23' - 9"	20' - 6"	18' - 9"	16' - 9"	23' - 8"	20' - 5"	18' - 8"	16' - 5"
	RFPI® 400	24' - 4"	22' - 3"	20' - 7"	17' - 4"	26' - 0"	22' - 3"	18' - 6"	14' - 9"
	RFPI® 40	25' - 2"	22' - 11"	21' - 8"	19' - 6"	27' - 5"	23' - 10"	20' - 7"	16' - 5"
	RFPI® 60S	25' - 9"	23' - 6"	22' - 0"	19' - 8"	27' - 10"	24' - 1"	20' - 7"	16' - 5"
	RFPI® 70	26' - 10"	24' - 5"	23' - 0"	19' - 10"	29' - 3"	24' - 9"	20' - 7"	16' - 5"
	RFPI® 80S	28' - 3"	25' - 9"	24' - 3"	21' - 2"	30' - 9"	28' - 0"	24' - 11"	19' - 11"
	RFPI® 90	30' - 1"	27' - 5"	25' - 9"	23' - 2"	32' - 10"	29' - 10"	27' - 9"	22' - 2"
16″	RFPI® 40S	25' - 7"	22' - 1"	20' - 2"	18' - 0"	25' - 6"	22' - 0"	20' - 1"	16' - 5"
	RFPI® 400	27' - 0"	24' - 1"	21' - 9"	17' - 4"	27' - 9"	22' - 3"	18' - 6"	14' - 9"
	RFPI® 40	27' - 10"	25' - 5"	23' - 4"	19' - 10"	29' - 6"	24' - 9"	20' - 7"	16' - 5"
	RFPI® 60S	28' - 6"	26' - 0"	23' - 9"	19' - 10"	30' - 0"	24' - 9"	20' - 7"	16' - 5"
	RFPI® 70	29' - 9"	27' - 1"	24' - 10"	19' - 10"	32' - 5"	24' - 9"	20' - 7"	16' - 5"
	RFPI® 80S	31' - 4"	28' - 6"	26' - 6"	21' - 2"	34' - 2"	30' - 0"	24' - 11"	19' - 11"
	RFPI® 90	33' - 4"	30' - 4"	28' - 7"	23' - 2"	36' - 5"	33' - 1"	27' - 9"	22' - 2"

Notes:

- Clear span is the clear distance between the face of supports.
- Spans are based on uniform loads as shown above. Use appropriate software (e.g. Simpson Strong-Tie® Component Solutions™) or engineering analysis for other loading.
- Web stiffeners are not required for spans shown but may be required for hangers.
- Maximum deflection is limited to L/480 for live load and L/240 for total load.
- 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.
Spans shall be reduced by 12 inches when floor sheathing is nailed only.

LAYOUT GUIDE FOR 19.2″ O.C. SPACING

1	19-3/16″	6	115-3/16″	11	211-3/16″
2	38-3/8″	7	134-3/8″	12	230-3/8″
3	57-5/8″	8	153-5/8″	13	249-5/8″
4	76-13/16″	9	172-13/16″	14	268-13/16″
5	96″ (8′)	10	192″ (16′)	15	288″ (24′)

Web Hole Specifications

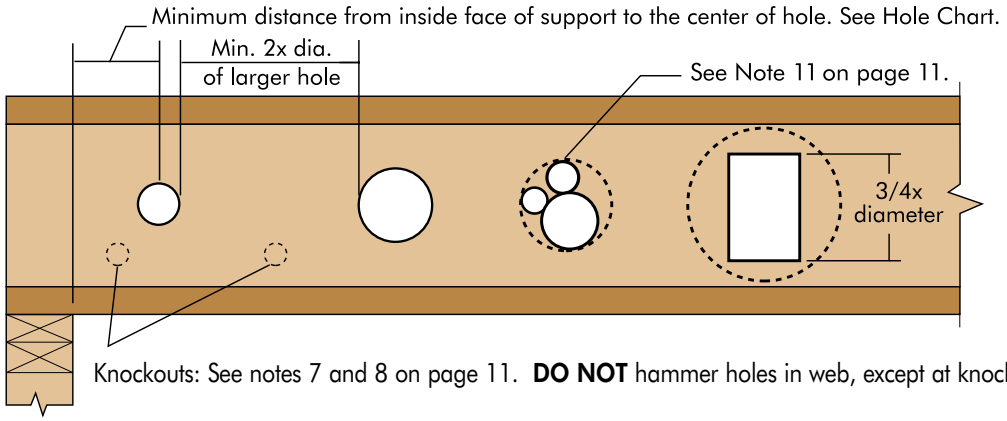
One of the benefits of using RFPI-Joists in residential floor and roof construction is that holes may be cut in the joist webs to accommodate electrical wiring, plumbing lines and other mechanical systems, therefore minimizing the depth of the floor system.

RULES FOR CUTTING HOLES IN RFPI-JOISTS

1. See chart on page 12 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 chart on page 12.
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 chart on page 12.
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 knock outs.
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 12).
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.

Holes For RFPI®-Joists Used In Residential Floor/Roof Applications



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

I-Joist Depth	Joist Designation	SAF[3]	Round Hole Diameter (in.)													
			2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4
			Minimum Distance from Inside Face of Nearest Support to Center of Hole (ft-in.) [1] [2]														
9-1/2″	RFPI 20	11.58	0'-7"	0'-8"	2'-0"	3'-6"	5'-4"	5'-9"									
	RFPI 40S	13.25	1'-2"	2'-2"	3'-3"	4'-4"	5'-9"	6'-3"									
	RFPI 400	14.08	1'-0"	2'-1"	3'-3"	4'-9"	6'-4"	6'-9"									
	RFPI 40	14.75	0'-8"	1'-11"	3'-2"	4'-9"	6'-6"	6'-11"									
	RFPI 60S	14.17	2'-0"	3'-3"	4'-8"	6'-1"	7'-7"	8'-0"									
	RFPI 70	15.33	1'-1"	2'-3"	3'-10"	5'-6"	7'-3"	7'-8"									
11-7/8″	RFPI 20	12.67	0'-7"	0'-8"	0'-8"	1'-9"	3'-4"	3'-9"	5'-0"	6'-10"	8'-0"						
	RFPI 40S	15.17	0'-7"	0'-10"	1'-10"	2'-11"	4'-0"	4'-4"	5'-2"	6'-8"	7'-11"						
	RFPI 400	14.75	0'-7"	0'-8"	1'-7"	2'-11"	4'-4"	4'-8"	5'-10"	7'-8"	8'-10"						
	RFPI 40	16.42	0'-7"	0'-10"	2'-0"	3'-5"	4'-11"	5'-3"	6'-5"	8'-2"	9'-6"						
	RFPI 60S	16.42	0'-8"	1'-10"	3'-2"	4'-5"	5'-10"	6'-2"	7'-4"	8'-11"	10'-1"						
	RFPI 70	16.42	0'-7"	1'-0"	2'-5"	3'-10"	5'-6"	6'-0"	7'-4"	9'-4"	10'-8"						
	RFPI 80S	18.50	0'-11"	2'-4"	3'-10"	5'-4"	6'-11"	7'-4"	8'-7"	10'-4"	11'-6"						
	RFPI 90	21.08	0'-7"	1'-4"	2'-9"	4'-4"	5'-11"	6'-4"	7'-7"	9'-5"	10'-10"						
14″	RFPI 20	12.67	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	1'-1"	2'-3"	4'-2"	5'-4"	6'-1"	8'-2"	9'-11"			
	RFPI 40S	16.42	0'-7"	0'-8"	0'-8"	1'-4"	2'-5"	2'-8"	3'-6"	4'-7"	5'-5"	6'-0"	7'-7"	9'-4"			
	RFPI 400	14.75	0'-7"	0'-8"	0'-8"	0'-9"	1'-11"	2'-4"	3'-7"	5'-3"	6'-4"	7'-0"	9'-0"	10'-10"			
	RFPI 40	16.42	0'-7"	0'-8"	0'-8"	1'-3"	2'-7"	2'-11"	4'-2"	5'-11"	7'-0"	7'-9"	9'-8"	11'-7"			
	RFPI 60S	16.42	0'-7"	0'-8"	0'-8"	1'-8"	3'-2"	3'-6"	4'-9"	6'-6"	7'-8"	8'-4"	10'-4"	12'-2"			
	RFPI 70	16.42	0'-7"	0'-8"	0'-8"	1'-6"	3'-1"	3'-6"	4'-10"	6'-7"	7'-9"	8'-6"	10'-11"	12'-11"			
	RFPI 80S	19.92	0'-7"	0'-9"	2'-2"	3'-7"	5'-1"	5'-5"	6'-7"	8'-5"	9'-7"	10'-4"	12'-5"	14'-0"			
	RFPI 90	22.17	0'-7"	0'-8"	1'-3"	2'-11"	4'-7"	5'-1"	6'-5"	8'-3"	9'-5"	10'-2"	12'-3"	14'-0"			
16″	RFPI 40S	16.42	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	1'-5"	2'-9"	3'-7"	4'-1"	5'-6"	6'-7"	7'-0"	8'-9"	10'-9"
	RFPI 400	14.75	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	0'-10"	1'-11"	3'-1"	3'-10"	5'-11"	7'-6"	8'-0"	10'-4"	12'-3"
	RFPI 40	16.42	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	1'-10"	3'-6"	4'-6"	5'-2"	6'-11"	8'-5"	9'-0"	11'-5"	13'-4"
	RFPI 60S	16.42	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	1'-10"	3'-6"	4'-6"	5'-2"	7'-3"	8'-11"	9'-6"	11'-10"	13'-9"
	RFPI 70	16.42	0'-7"	0'-8"	0'-8"	0'-9"	0'-9"	0'-10"	2'-1"	4'-2"	5'-6"	6'-4"	8'-7"	10'-5"	11'-0"	13'-6"	15'-6"
	RFPI 80S	19.92	0'-7"	0'-8"	0'-8"	1'-2"	2'-10"	3'-3"	4'-6"	6'-3"	7'-5"	8'-1"	9'-11"	11'-5"	11'-11"	14'-3"	16'-5"
	RFPI 90	22.17	0'-7"	0'-8"	0'-8"	0'-10"	2'-9"	3'-2"	4'-7"	6'-7"	7'-10"	8'-7"	10'-8"	12'-4"	12'-11"	15'-2"	17'-1"

How to Use Hole Chart

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

Example: Need a 4½-inch hole in an 11-7/8″ RFPI®-400 joist:

From Hole Chart,

- For a 4-inch round hole, the minimum distance is 1′– 7″.
- For a 5-inch round hole, the minimum distance is 2′– 11″.
- Therefore the minimum distance for the 4½-inch round hole is 2′– 3″ (halfway between 1′-7″ and 2′-11″).

Notes:

1. Distances in this hole chart are based on uniformly loaded I-joists and allowable I-joist reactions **without web stiffeners** on minimum required bearing lengths. This chart conservatively accounts for the worst case created by the allowable **simple or multiple** floor spans shown elsewhere in this guide at on-center spacings of 12″, 16″, 19.2″ and 24″ with floor loads of 40 psf live load + 10 psf dead load or 40 psf live load + 20 psf dead load. **Holes in conditions that fall outside of the hole chart parameters (including the use of web stiffeners, longer bearing lengths or other loading conditions) may still be acceptable. The most accurate method of determining the acceptability of a given hole is the use of appropriate software (e.g. Simpson Strong-Tie® Component Solutions™) or engineering analysis for the actual condition.**
2. Hole location distance is measured from inside face of nearest support to center of hole.
3. SAF = Span Adjustment Factor for optional hole calculation, used as defined on this page.

Optional Hole Calculation:

The Hole Chart is based on the I-joists being used at their maximum span. If the I-joists are placed at less than their full allowable span the minimum distance from the centerline of the hole to the face of the nearest joist support (D) as given above may be reduced as follows:

$$D_{reduced} = \frac{L_{actual}}{SAF} \times D$$

Where:

$D_{reduced}$ = Minimum distance from the inside face of the nearest joist support to center of hole, reduced for less-than-maximum span applications (ft).

L_{actual} = The actual measured span distance between the inside faces of supports (ft) (for multi-span joist, use the longest span for L_{actual}).

SAF = Span Adjustment Factor given in chart.

D = The minimum distance from the inside face of the nearest joist support to center of hole from Hole Chart above.

If $\frac{L_{actual}}{SAF}$ is greater than 1.0, use 1.0 in the above calculation.

Rectangular Duct Chases

A duct chase is a large rectangular hole that is often required within the web of an I-joist to provide passage for ventilation ducts. While rectangular holes can be cut in the webs of I-joists using the Rules For Cutting Holes in RFPI-Joists discussed on page 11, the size of rectangular holes generated by this method is often insufficient for this use.

The tables below have been generated specifically for duct chase applications.

SIMPLE SPAN - MINIMUM DISTANCE FROM FACE OF NEAREST JOIST SUPPORT TO CENTER OF DUCT CHASE (1) (2) (3)

I-Joist Depth	Joist Designation	Minimum Distance from Inside Face of Nearest Support to Center of Duct Chase (feet-inches)								
		Duct Chase Length (inches)								
		8	10	12	14	16	18	20	22	24
9-1/2"	RFPI-20	6'-3"	6'-7"	6'-11"	7'-3"	7'-8"	8'-1"	8'-6"		
	RFPI-40S	4'-11"	5'-4"	5'-9"	6'-3"	6'-8"	7'-2"	7'-7"	8'-1"	8'-8"
	RFPI-400	6'-3"	6'-7"	6'-11"	7'-4"	7'-9"	8'-3"	8'-10"		
	RFPI-40	5'-9"	6'-1"	6'-6"	6'-10"	7'-2"	7'-6"	7'-11"	8'-5"	9'-0"
	RFPI-60S	6'-0"	6'-4"	6'-8"	7'-0"	7'-4"	7'-9"	8'-2"	8'-8"	9'-3"
	RFPI-70	6'-4"	6'-8"	7'-0"	7'-4"	7'-9"	8'-2"	8'-7"	9'-1"	9'-9"
11-7/8"	RFPI-20	8'-0"	8'-4"	8'-9"	9'-2"	9'-8"	10'-1"			
	RFPI-40S	6'-3"	6'-9"	7'-3"	7'-9"	8'-4"	8'-11"	9'-6"	10'-2"	
	RFPI-400	7'-11"	8'-4"	8'-9"	9'-2"	9'-9"	10'-4"			
	RFPI-40	7'-6"	7'-10"	8'-2"	8'-7"	8'-11"	9'-5"	9'-11"	10'-7"	
	RFPI-60S	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-9"	10'-3"	10'-10"	
	RFPI-70	8'-2"	8'-6"	8'-11"	9'-4"	9'-9"	10'-3"	10'-10"	11'-6"	
	RFPI-80S	7'-11"	8'-3"	8'-7"	9'-0"	9'-4"	9'-8"	10'-2"	10'-8"	11'-3"
	RFPI-90	8'-7"	9'-0"	9'-4"	9'-8"	10'-1"	10'-6"	11'-0"	11'-7"	12'-2"
14"	RFPI-20	9'-6"	9'-11"	10'-5"	10'-11"	11'-4"				
	RFPI-40S	7'-6"	8'-0"	8'-7"	9'-2"	9'-9"	10'-4"	10'-11"	11'-7"	
	RFPI-400	9'-5"	9'-11"	10'-4"	10'-11"	11'-6"	12'-1"			
	RFPI-40	8'-11"	9'-4"	9'-9"	10'-2"	10'-8"	11'-2"	11'-10"	12'-5"	
	RFPI-60S	9'-2"	9'-7"	10'-0"	10'-6"	11'-0"	11'-7"	12'-2"	12'-10"	
	RFPI-70	9'-9"	10'-2"	10'-7"	11'-1"	11'-7"	12'-3"	12'-10"		
	RFPI-80S	9'-4"	9'-9"	10'-2"	10'-7"	11'-1"	11'-6"	12'-0"	12'-7"	13'-3"
	RFPI-90	10'-3"	10'-8"	11'-1"	11'-7"	12'-1"	12'-7"	13'-1"	13'-9"	14'-5"
16"	RFPI-40S	8'-8"	9'-3"	9'-10"	10'-5"	11'-0"	11'-8"	12'-5"	13'-3"	
	RFPI-400	10'-10"	11'-4"	12'-0"	12'-7"	13'-2"				
	RFPI-40	10'-3"	10'-9"	11'-2"	11'-8"	12'-3"	12'-10"	13'-6"		
	RFPI-60S	10'-7"	11'-1"	11'-7"	12'-0"	12'-8"	13'-3"	13'-11"		
	RFPI-70	11'-3"	11'-9"	12'-3"	12'-9"	13'-5"	14'-0"	14'-8"		
	RFPI-80S	10'-9"	11'-3"	11'-9"	12'-3"	12'-9"	13'-3"	13'-10"	14'-6"	15'-2"
	RFPI-90	12'-0"	12'-5"	12'-10"	13'-4"	13'-10"	14'-5"	15'-1"	15'-9"	16'-5"

MULTIPLE SPAN - MINIMUM DISTANCE FROM FACE OF NEAREST JOIST SUPPORT TO CENTER OF DUCT CHASE (1) (2) (3)

I-Joist Depth	Joist Designation	Minimum Distance from Inside Face of Nearest Support to Center of Duct Chase (feet-inches)								
		Duct Chase Length (inches)								
		8	10	12	14	16	18	20	22	24
9-1/2"	RFPI-20	9'-5"								
	RFPI-40S	7'-5"	7'-11"	8'-6"	9'-1"	9'-7"				
	RFPI-400	9'-4"	9'-10"							
	RFPI-40	8'-10"	9'-3"	9'-8"	10'-1"					
	RFPI-60S	9'-0"	9'-5"	9'-11"						
	RFPI-70	9'-7"	10'-0"	10'-6"						
11-7/8"	RFPI-20									
	RFPI-40S	9'-4"	10'-0"	10'-8"	11'-5"					
	RFPI-400									
	RFPI-40	11'-3"	11'-8"							
	RFPI-60S	11'-5"	12'-1"							
	RFPI-70	12'-5"								
	RFPI-80S	12'-0"	12'-6"	12'-11"	13'-5"					
	RFPI-90	13'-2"	13'-8"	14'-2"						
14"	RFPI-20									
	RFPI-40S	11'-2"	11'-11"	12'-8"						
	RFPI-400									
	RFPI-40	13'-6"								
	RFPI-60S	13'-10"								
	RFPI-70									
	RFPI-80S	14'-6"	15'-0"							
	RFPI-90	15'-10"	16'-4"							
16"	RFPI-40S	12'-9"	13'-5"							
	RFPI-400									
	RFPI-40	15'-1"								
	RFPI-60S	15'-6"								
	RFPI-70									
	RFPI-80S	16'-9"								
	RFPI-90									

CHART NOTES:

1. Top chart is applicable to uniformly loaded Simple Span conditions only. Bottom chart is applicable to uniformly loaded Multiple Span conditions only.
2. Duct chase location distance is measured from inside face of nearest support to center of duct chase.
3. Distances in these duct charts are based on uniformly loaded I-joists and allowable I-joist reactions **without web stiffeners** on minimum required bearing lengths. These charts conservatively account for the worst case created by the allowable **Simple Spans (top chart) or Multiple Spans (bottom chart)** shown elsewhere in this guide at on-center spacings of 12", 16", 19.2" and 24" with floor loads of 40 psf live load + 10 psf dead load or 40 psf live load + 20 psf dead load. **Ducts in conditions that fall outside of the duct chart parameters (including the use of web stiffeners, longer bearing lengths or other loading conditions) may still be acceptable. The most accurate method of determining the acceptability of a given duct is the use of appropriate software (e.g. Simpson Strong-Tie® Component Solutions™) or engineering analysis for the actual condition.**

RULES FOR CUTTING DUCT CHASES IN RFPI-JOISTS:

1. The maximum length of duct chase shall be as shown in the tables above.
2. Except for cutting to length, I-joist top and bottom flanges must **NEVER** be cut, notched or otherwise modified.
3. The maximum depth of the duct chases 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 the bottom of the chase and the adjacent I-joist flange.
4. When a duct chase is being placed within the web of an I-joist in conjunction with additional holes, the edge of the holes shall not be placed any closer to the edge of the duct than two times the length of the duct. All holes must be sized in accordance with the chart on page 12.
5. A knockout is not considered a hole and may be utilized wherever it occurs and may be ignored for purposes of calculating minimum distances between holes and duct chases.
6. All duct chases shall be cut in a workman-like manner in accordance with the restrictions listed above.

Load Development

LOAD DEVELOPMENT FOR RFPI-JOISTS WITH UNIFORM LOAD

STEP ONE: Calculate the Tributary Width

Tributary Width (or Trib width) = Half of the distance to the next supporting member on both sides of the joist. It represents the width of the floor the joist is responsible to support.

Trib Width = (O.C.÷2) + (O.C.÷2) = O.C. (expressed in units of feet)

In the diagram below, if the o.c. spacing equals 16", the Trib Width = 16"/12 = 1.33'

STEP TWO: Calculate the PLF on the joist

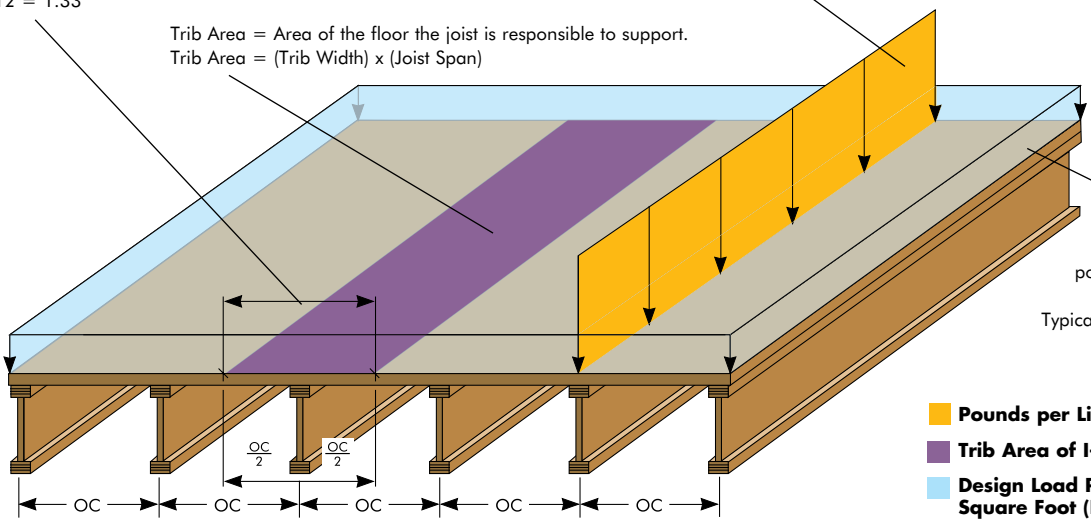
Pounds per Linear Foot (or "PLF") = (PSF Load) x (Trib Width).

This is the loading that the joist "feels" being applied along the top flange.

$PLF_{Live\ Load}$ = (40 psf) x (1.33') = 53 PLF Live Load

$PLF_{Total\ Load}$ = (50 psf) x (1.33') = 67 PLF Total Load

(Use these numbers to size the RFPI-Joist from the PLF table on page 15)



DESIGN LOAD for floor given in pounds per square foot (psf) for entire floor. Typical Residential Value is: 40 psf Live Load, 10 psf Dead Load

Pounds per Linear Foot (PLF)

Trib Area of I-joist

Design Load Pounds per Square Foot (PSF)

LOAD DEVELOPMENT FOR RFPI-JOISTS WITH LOAD BEARING WALL

STEP ONE

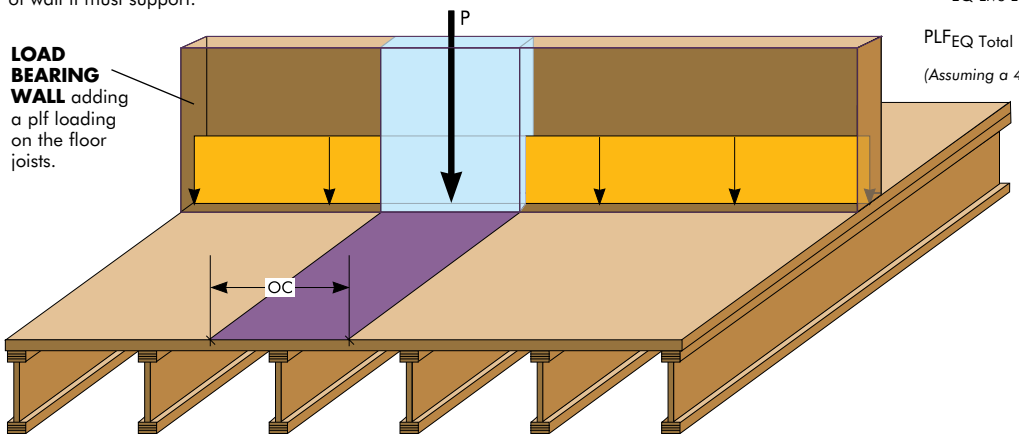
Calculate the portion of the wall load carried by each joist. This is also determined by the joist o.c. spacing and is given by:

$P_{Live\ Load} = (PLF)_{Wall\ Live\ Load} \times (O.C.)$

$P_{Total\ Load} = (PLF)_{Wall\ Total\ Load} \times (O.C.)$

Where: O.C. = Joist on-center spacing (feet)
PLF = Wall loading (pounds per linear foot)
P = Concentrated load supported by joist (pounds)

As far as each joist is concerned, it feels the wall as a concentrated load (units of pounds). The greater the on-center spacing, the greater the portion of wall it must support.



LOAD BEARING WALL adding a plf loading on the floor joists.

STEP TWO

Calculate the equivalent uniform plf load due to this concentrated wall load. This equivalent plf load will allow you to safely size the joist using the plf table on page 15 no matter where the wall is located over the joists. It is given by:

$PLF_{EQ\ Live\ Load} = 2P_{Live\ Load} \div L$ $\quad$ $PLF_{EQ\ Total\ Load} = 2P_{Total\ Load} \div L$

For example, assume the wall was applying a 400 plf total load on the joists. If the joists are spaced at 16" o.c. and span 20 ft, then:

$P_{Live\ Load} = \frac{4}{5}$ (400 plf) x (1.33') = 426 lbs.

$P_{Total\ Load}$ = (400 plf) x (1.33') =532 lbs.

$PLF_{EQ\ Live\ Load} = \frac{2 \times 426\ lbs.}{20'} = 43$ plf

$PLF_{EQ\ Total\ Load} = \frac{2 \times 532\ lbs.}{20'} = 54$ plf

(Assuming a 40/10 loading from above)

These PLF loads are in addition to the original PSF Design Loads and must be added before using the table. Using the example from above, these joists should be sized to carry:

Live Load PLF:
53 plf + 43 plf = 96 plf Live Load

Total Load PLF:
67 plf + 54 plf = 121 plf Total Load

If a joist could not be sized, redo this with a smaller on-center spacing or use Simpson Strong-Tie® Component Solutions™ to size the joist more accurately.

PLF Wall Load

Portion of plf wall load carried by joist

Trib Area of I-joist

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

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

o.c. spacing [ft] x load [psf] = load [plf]. See load development above.

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

Joist Clear Span (ft)	RFPI 20 (1-3/4″ wide x 1-3/8″ flanges)						RFPI 40S (2-1/2″ wide x 1-1/2″ flanges)								RFPI 400 (2-1/16″ wide x 1-3/8″ flanges)							
	9-1/2″		11-7/8″		14″		9-1/2″		11-7/8″		14″		16″		9-1/2″		11-7/8″		14″		16″	
	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total
6	-	226	-	247	-	246	-	275	-	319	-	319	-	318	-	274	-	287	-	287	-	286
7	-	195	-	212	-	212	-	237	-	274	-	274	-	274	-	236	-	247	-	247	-	246
8	-	171	-	186	-	186	-	208	-	241	-	240	-	240	-	207	-	216	-	216	-	216
9	-	152	-	166	-	165	-	185	-	214	-	214	-	214	-	184	-	193	-	192	-	192
10	-	137	-	149	-	149	-	167	-	193	-	193	-	192	-	166	-	174	-	173	-	173
11	116	125	-	136	-	135	133	151	-	175	-	175	-	175	133	151	-	158	-	158	-	157
12	91	114	-	124	-	124	105	139	-	161	-	161	-	160	105	138	-	145	-	145	-	144
13	73	105	-	115	-	115	84	123	139	148	-	148	-	148	84	128	-	134	-	133	-	133
14	59	98	99	107	-	106	69	106	113	137	-	138	-	137	69	119	113	124	-	124	-	124
15	49	91	82	99	-	99	57	92	94	120	-	128	-	128	57	111	94	116	-	115	-	115
16	41	80	68	93	-	93	47	81	79	105	112	120	-	120	47	92	79	108	-	108	-	108
17	34	67	58	88	84	87	40	71	66	93	95	112	-	113	40	77	66	102	96	102	-	102
18	29	56	49	83	71	82	34	63	56	83	81	100	-	106	34	65	56	96	82	96	-	96
19	-	-	42	77	61	78	29	55	48	74	70	89	93	101	29	56	48	91	70	91	-	91
20	-	-	36	69	53	74	-	-	42	67	60	80	81	94	-	-	42	81	61	86	82	86
21	-	-	32	61	46	70	-	-	36	60	52	73	71	85	-	-	36	70	53	82	71	82
22	-	-	28	53	40	67	-	-	32	55	46	66	62	77	-	-	32	61	46	78	63	78
23	-	-	-	-	36	62	-	-	28	50	41	60	55	70	-	-	28	54	41	73	55	75
24	-	-	-	-	31	57	-	-	-	-	36	55	48	64	-	-	-	-	36	67	49	71
25	-	-	-	-	28	52	-	-	-	-	32	51	43	59	-	-	-	-	32	62	44	68

Joist Clear Span (ft)	RFPI 40 (2-5/16″ wide x 1-3/8″ flanges)								RFPI 60S (2-1/2″ wide x 1-1/2″ flanges)							
	9-1/2″		11-7/8″		14″		16″		9-1/2″		11-7/8″		14″		16″	
	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total
6	-	287	-	319	-	319	-	318	-	275	-	319	-	319	-	318
7	-	247	-	274	-	274	-	274	-	237	-	274	-	274	-	274
8	-	217	-	241	-	240	-	240	-	208	-	241	-	240	-	240
9	-	193	-	214	-	214	-	214	-	185	-	214	-	214	-	214
10	-	174	-	193	-	193	-	193	-	167	-	193	-	193	-	192
11	145	158	-	176	-	175	-	175	-	151	-	175	-	175	-	175
12	115	145	-	161	-	161	-	161	123	139	-	161	-	161	-	160
13	93	134	-	149	-	148	-	148	99	128	-	148	-	148	-	148
14	76	124	124	138	-	138	-	138	81	119	133	138	-	138	-	137
15	62	116	103	129	-	128	-	128	67	111	110	129	-	128	-	128
16	52	102	86	121	-	120	-	120	56	104	92	120	-	120	-	120
17	44	85	73	113	105	113	-	113	47	91	78	113	112	113	-	113
18	37	72	62	107	90	107	-	107	40	77	67	107	96	107	-	106
19	32	62	53	101	77	101	-	101	34	66	57	101	83	101	-	101
20	28	53	46	90	67	96	90	96	30	57	50	93	72	96	-	96
21	-	-	40	78	58	91	78	91	-	-	43	84	63	91	84	91
22	-	-	35	68	51	87	69	87	-	-	38	73	55	87	74	87
23	-	-	31	59	45	83	61	83	-	-	33	64	48	83	65	83
24	-	-	27	52	40	76	54	79	-	-	30	56	43	77	58	79
25	-	-	-	-	36	68	48	76	-	-	26	50	38	71	52	76
26	-	-	-	-	32	61	43	73	-	-	-	-	34	65	46	73
27	-	-	-	-	28	54	38	68	-	-	-	-	31	58	41	70
28	-	-	-	-	-	-	35	63	-	-	-	-	28	52	37	65
29	-	-	-	-	-	-	31	59	-	-	-	-	-	-	34	61
30	-	-	-	-	-	-	28	54	-	-	-	-	-	-	31	57

Joist Clear Span (ft)	RFPI 70 (2-5/16″ wide x 1-1/2″ flanges)								RFPI 80S (3-1/2″ 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″		11-7/8″		14″		16″	
	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total	Live	Total
6	-	298	-	319	-	318	-	318	-	358	-	384	-	384	-	428	-	427	-	427
7	-	256	-	274	-	274	-	274	-	308	-	331	-	330	-	368	-	368	-	367
8	-	225	-	240	-	240	-	240	-	270	-	290	-	290	-	323	-	322	-	322
9	-	200	-	214	-	214	-	214	-	240	-	258	-	258	-	287	-	287	-	287
10	-	180	-	193	-	193	-	192	-	216	-	232	-	232	-	259	-	258	-	258
11	-	164	-	175	-	175	-	175	-	197	-	211	-	211	-	235	-	235	-	235
12	138	150	-	161	-	161	-	160	-	180	-	194	-	193	-	216	-	215	-	215
13	112	139	-	148	-	148	-	148	-	166	-	179	-	179	-	199	-	199	-	199
14	91	129	-	138	-	138	-	137	-	154	-	166	-	166	-	185	-	185	-	184
15	76	120	124	129	-	128	-	128	-	144	-	155	-	154	172	173	-	172	-	172
16	63	113	104	120	-	120	-	120	122	135	-	145	-	145	146	162	-	161	-	161
17	53	104	88	113	-	113	-	113	104	127	-	136	-	136	124	152	-	152	-	151
18	45	88	76	107	-	107	-	106	89	120	127	129	-	128	107	143	-	143	-	143
19	39	76	65	101	94	101	-	101	77	113	109	122	-	121	92	136	131	135	-	135
20	34	65	56	96	81	96	-	96	67	107	95	115	-	115	80	129	114	129	-	128
21	29	56	49	91	71	91	-	91	58	102	83	110	-	110	70	123	100	122	-	122
22	-	-	43	83	62	87	84	87	51	97	73	105	98	104	62	117	88	117	-	116
23	-	-	38	73	55	83	74	83	45	86	65	100	87	100	55	105	78	111	104	111
24	-	-	34	64	49	79	66	79	40	76	58	96	77	95	49	93	70	107	93	106
25	-	-	30	57	44	76	59	76	36	67	51	92	69	92	43	83	62	102	83	102
26	-	-	27	51	39	73	53	73	32	60	46	88	62	88	39	74	56	98	74	98
27	-	-	-	-	35	67	47	70	29	53	41	78	55	85	35	66	50	94	67	94
28	-	-	-	-	32	60	43	68	-	-	37	70	50	81	31	59	45	86	61	91
29	-	-	-	-	29	54	39	65	-	-	34	63	45	78	28	53	41	78	55	87
30	-	-	-	-	-	-	35	63	-	-	31	57	41	76	-	-	37	70	50	84

To Use PLF Chart:

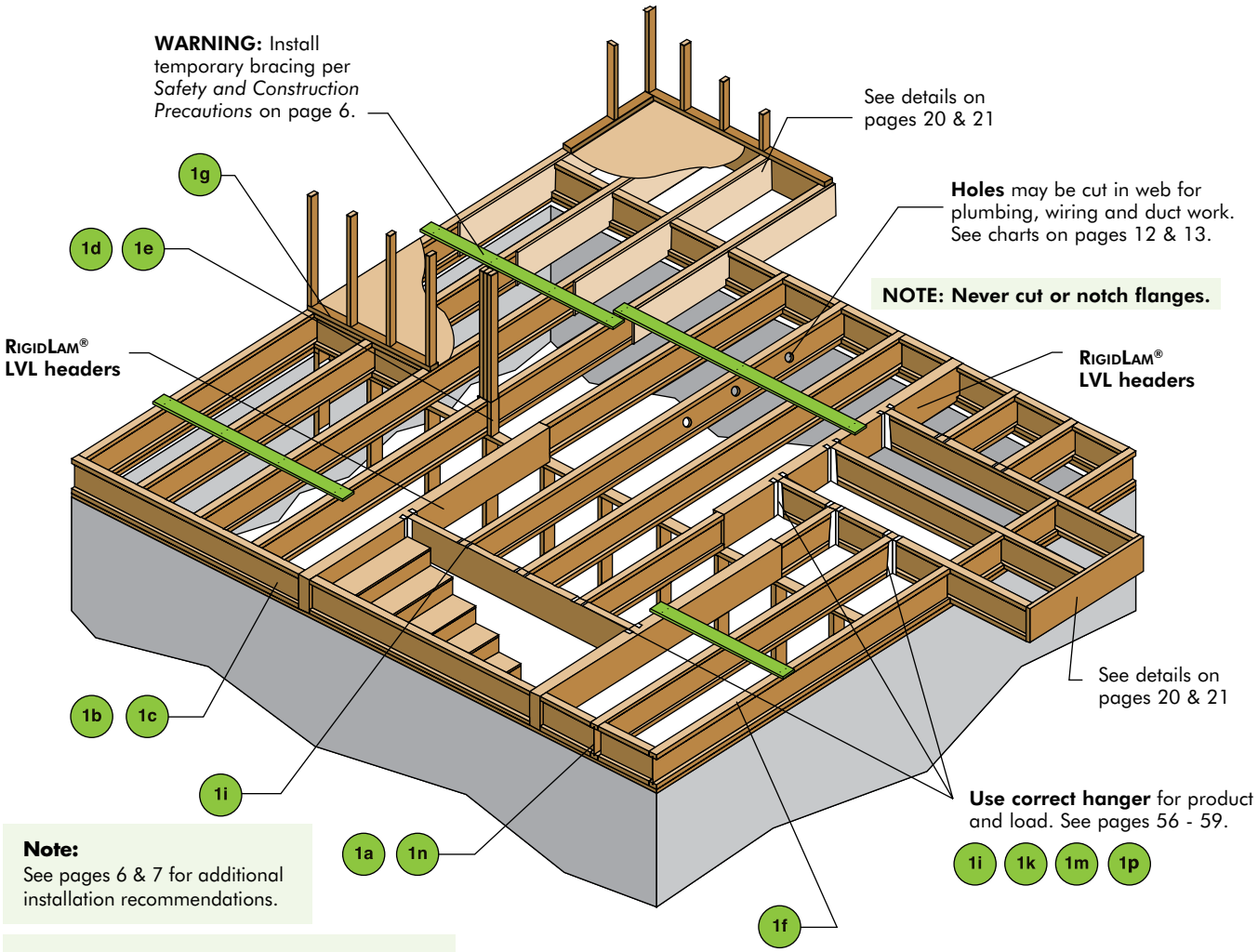
1. Select the span required.
2. Compare the design total load (PLF) to the *Total* column and compare the design live load (PLF) to the *Live* column.
3. Select a product that **meets or exceeds both the design total and live loads.** When no value is shown in the *Live* column, *Total* load will govern.

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. *Live* load column is based on an L/480 deflection limit.
4. An L/480 live load deflection limit is recommended (see Floor System Performance on page 5). For L/360 (minimum stiffness allowed by code), multiply the L/480 value by 1.33.
5. *Total* load column is based on an L/240 deflection limit.
6. Verify that the deflection criteria conform to local building code requirements.
7. *Total* load is based on 100% duration of load.
8. Minimum end bearing length is 1 ¾″. Minimum intermediate bearing length is 3 ½″.
9. Web stiffeners are not 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 the detail on page 21.
15. For proper installation procedures, refer to the appropriate sections in this publication.

Floor Framing & Construction Details

Some framing elements such as blocking panels have been omitted for clarity.



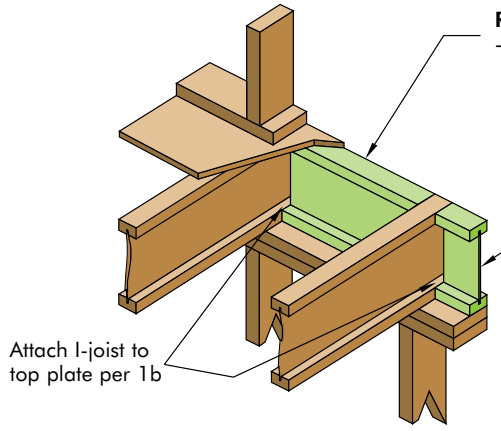
Note:
See pages 6 & 7 for additional installation recommendations.

NOTE:
Roseburg does not require mid-span blocking or bridging in RFPI floor or roof applications

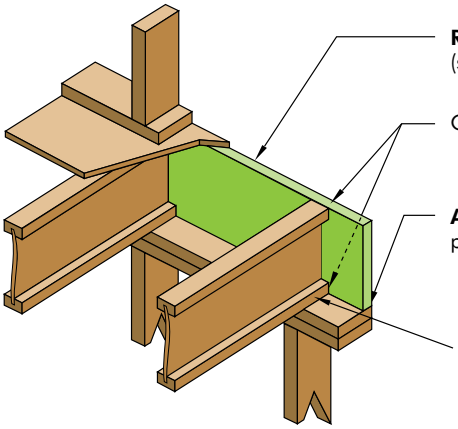
TYPICAL RFPI-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS

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 nails shown in details. If nails must be installed into the sides of LVL flanges, see table on page 7 for "Recommended Nail Size and Spacing". Individual components not shown to scale for clarity.

1a BLOCKING PANELS



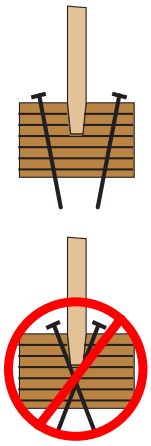
1b RigidRim® RIMBOARD



RigidRim® Rimboard
(see page 32 for design properties)

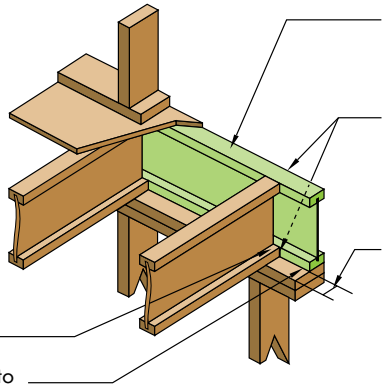
One 8d nail at top and bottom flange

Attach RigidRim® Rimboard to top plate using 8d box toenails @ 6" o.c.



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

1c RFPI® RIM JOIST



RFPI® Rim Joist vertical load transfer = 2000 plf maximum

Attach rim joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. For rim joist with flanges 2" and wider toenails may be used.

Minimum 1¾" bearing required (2x6 bearing plate required for rim joists with flange widths greater than 1¾")

Attach I-joist to top plate per 1b

Attach rim joist to top plate per 1a

BLOCKING PANELS

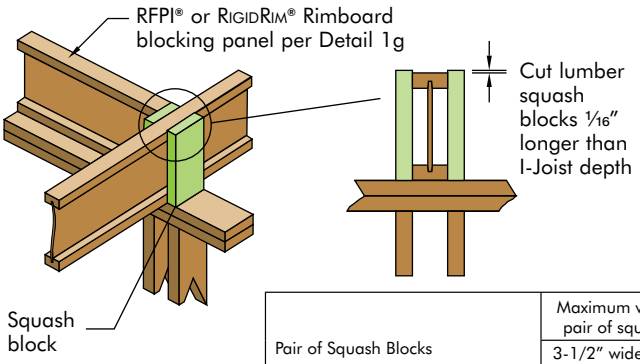
Blocking panels prevent floor joists from overturning and help transfer loads through the floor system into the structure below.

Due to differences in depth and possible shrinkage, common framing lumber set on edge is unacceptable as blocking. I-joist blocking panels must be cut to the proper length to fit between the I-joists, and their depth must match the depth of the I-joists.

Blocking panels may be used:

1. To stabilize I-joists laterally at supports, as shown in Figures 1a and 1g. Lateral support is required during installation and is necessary to obtain design carrying capacity.
2. To transmit vertical loads up to 2,000 plf per blocking panel in accordance with Figures 1a, 1c, 1f, and 1g.
3. For closures such as that shown in Figures 1a and 1e.
4. To transmit lateral forces to shear walls. Shear transfer nailing into the flanges must be specified by the building designer.
5. To provide lateral stability to walls.

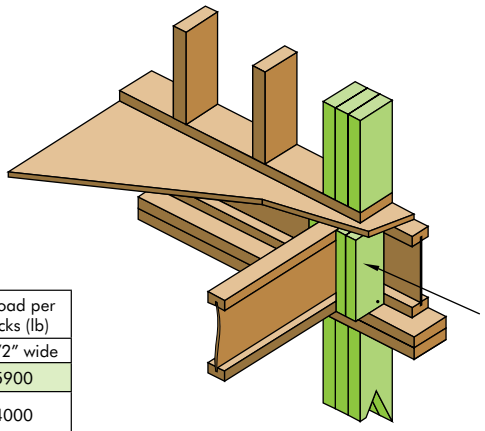
1d SQUASH BLOCK DETAIL



Provide lateral bracing per Detail 1a, 1b, or 1c

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
1-1/8" APA Rim Board, Rim Board Plus, or Rated Sturd-I-Floor 48 oc	2600	4000
1" APA Rim Board or Rated Sturd-I-Floor 32 oc	1900	3000

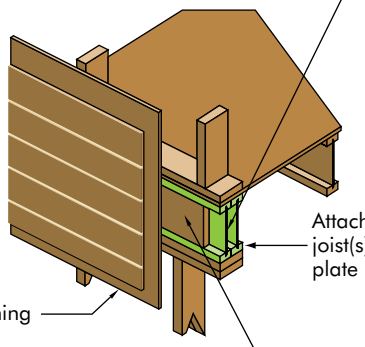
1e BEARING BLOCK DETAIL



Solid Block all posts from above to bearing below. Install bearing blocks per Detail 1d. Match bearing area of blocks below to post above.

1f RIM JOIST AT PARALLEL WALL

Use single I-joist for loads up to 2000 plf, double I-joists for loads up to 4000 plf (filler block not required)



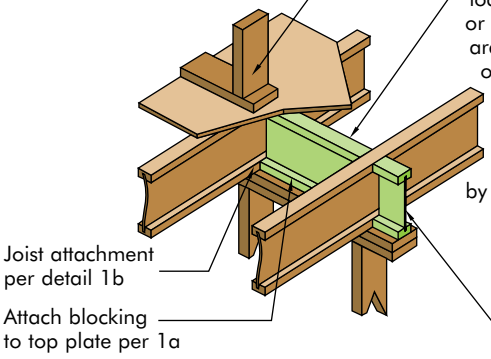
Provide backer for siding attachment unless nailable sheathing is used.

RIGIDRIM® Rimboard may be used in lieu of I-joists. Backer is not required when RIGIDRIM® Rimboard is used.

1g RFPI BLOCKING PANELS AT INTERIOR SUPPORT

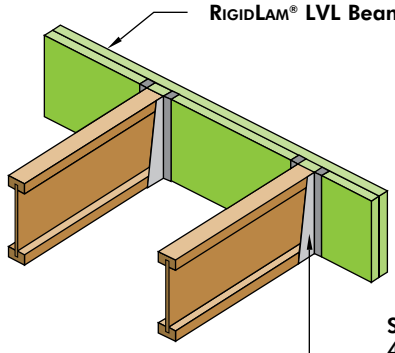
Load bearing wall above shall align vertically with the wall below. Other conditions such as offset walls are not covered by this detail.

Roseburg requires blocking over all interior supports under load-bearing walls or when floor joists are not continuous over supports. In addition, blocking may be required at interior supports by project designer or by code for seismic design.



RFPI® blocking panel vertical load transfer = 2000 plf maximum.
-or- RigidRim Rimboard (see Page 32 for design properties)

1i HANGER TO LVL BEAM DETAIL

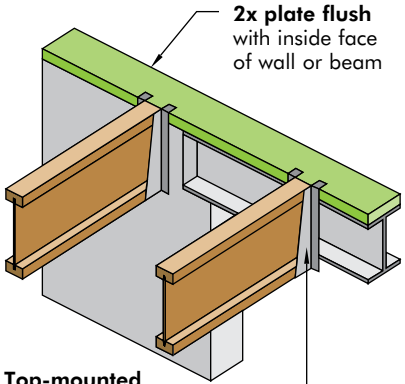


Top- or face-mounted hanger installed per hanger manufacturer's recommendations

See pages 40 and 41 for details on attaching multiple ply LVL beams.

Note: Unless hanger sides laterally support the top flange, web stiffeners shall be used. (See Figure B on page 23)

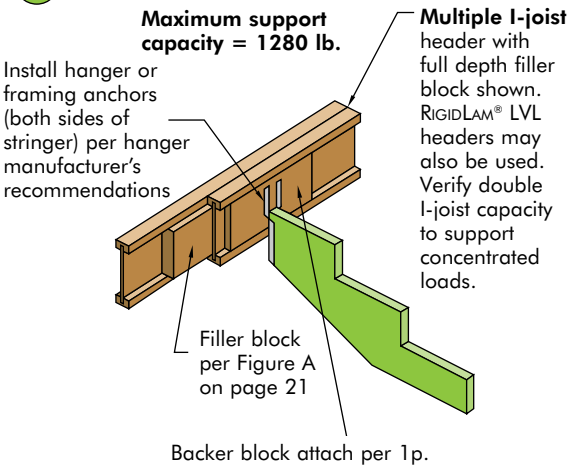
1k HANGER TO 2X PLATE DETAIL



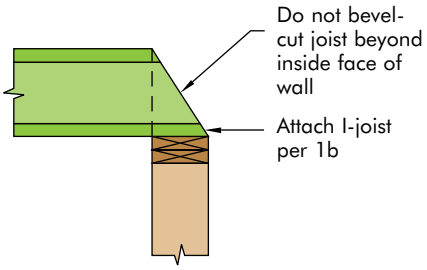
Top-mounted hanger installed per hanger manufacturer's recommendations

Note: Unless hanger sides laterally support the top flange, web stiffeners shall be used. (See Figure B on page 23)

1m STRINGER TO JOIST DETAIL



1n BEVEL CUTS ON I-JOIST



Note: Blocking required at bearing for lateral support, 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 factored load exceeds 250 lbs.

See charts for backer block thickness & depth.

Install backer block tight to the top flange.

Attach backer block to web with 16 - 10d common nails, clinched. See chart 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 manufacturer recommendations.

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

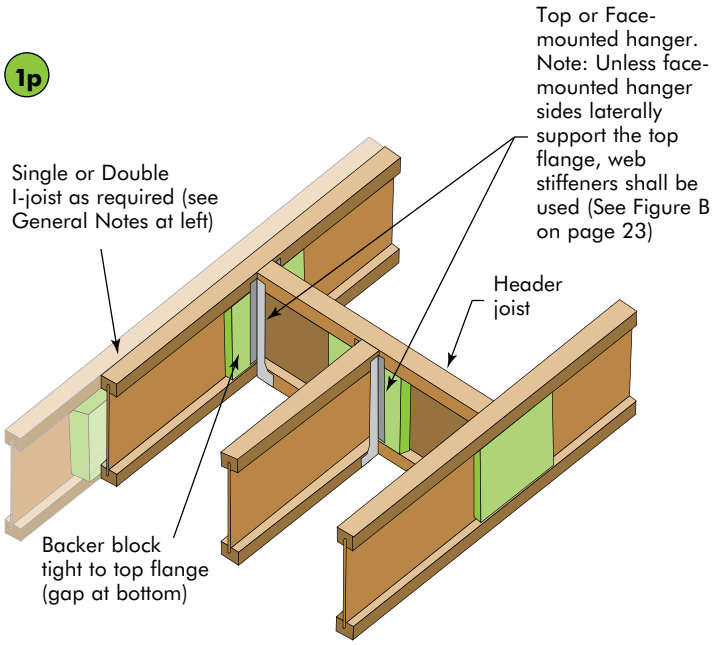
If a double I-joist is required to support "header joist" load, refer to page 21 for double I-joist connection guidelines.

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
1-3/4"	23/32"	975 lbs
2-1/16"	7/8"	1135 lbs
2-5/16"	1"	1250 lbs
2-1/2"	1-1/8"	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)

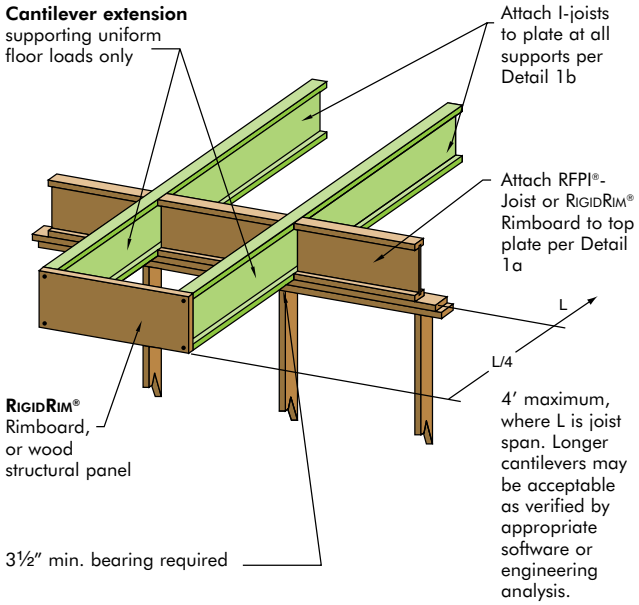
1p



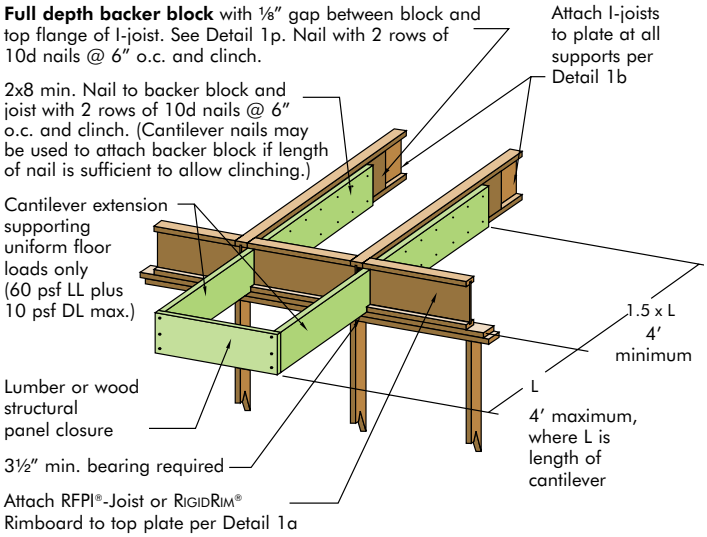
Backer Block Depth				
Joist Depth	9-1/2"	11-7/8"	14"	16"
Top Mount Hangers - Min. Backer Block Depth	5-1/2"	5-1/2"	7-1/4"	7-1/4"
Face Mount Hangers - Req'd Backer Block Depth	6-1/4"	8-5/8"	10-3/4"	12-3/4"

Cantilever Details Please refer to note 6 on page 7.

RFPI®-JOIST INTERIOR CANTILEVER DETAIL

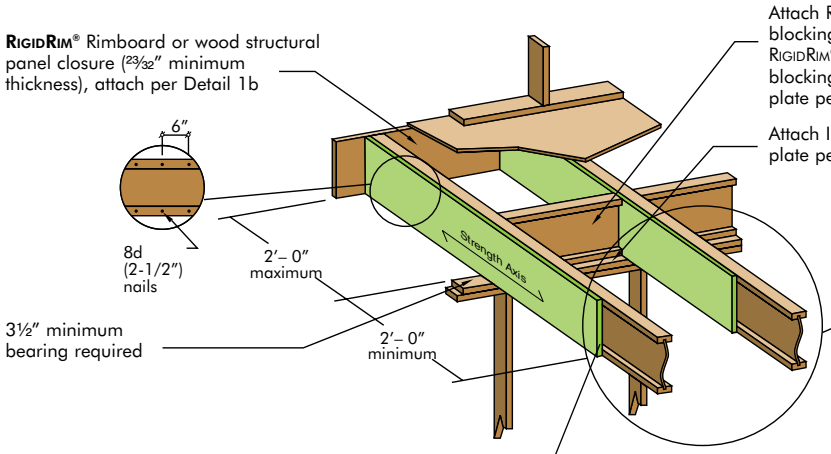


LUMBER CANTILEVER DETAIL FOR BALCONIES



CANTILEVER DETAIL FOR VERTICAL BUILDING OFFSET - (Refer to table on page 22 for recommended reinforcement)

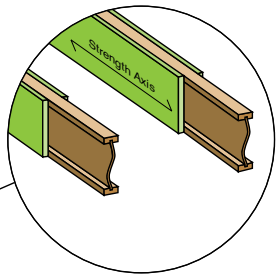
METHOD 1
SHEATHING REINFORCEMENT ONE SIDE



APA RATED SHEATHING 48/24 (minimum thickness 23/32″), or RigidRim Rimboard, required on sides of I-joist. Depth shall match the full height of the I-joist. Nail with 8d nails at 6″ o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per Detail 1b.

METHOD 2
SHEATHING REINFORCEMENT TWO SIDES

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

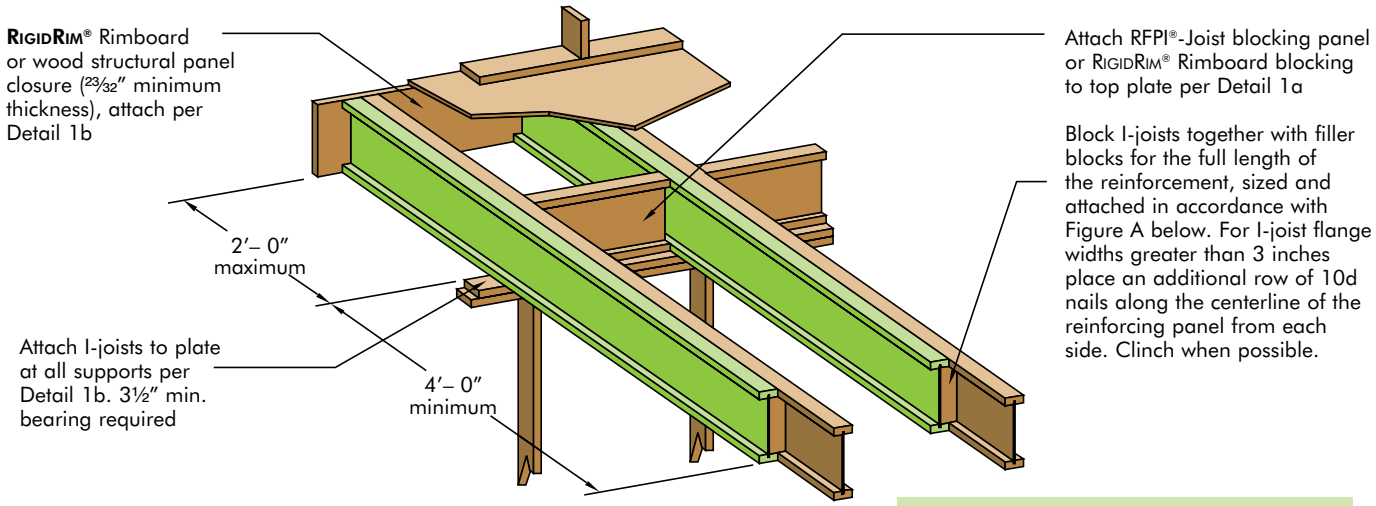


Use nailing pattern shown for Method 1 with opposite face nailing offset by 3″

CANTILEVER DETAIL FOR VERTICAL BUILDING OFFSET

ALTERNATIVE METHOD 2

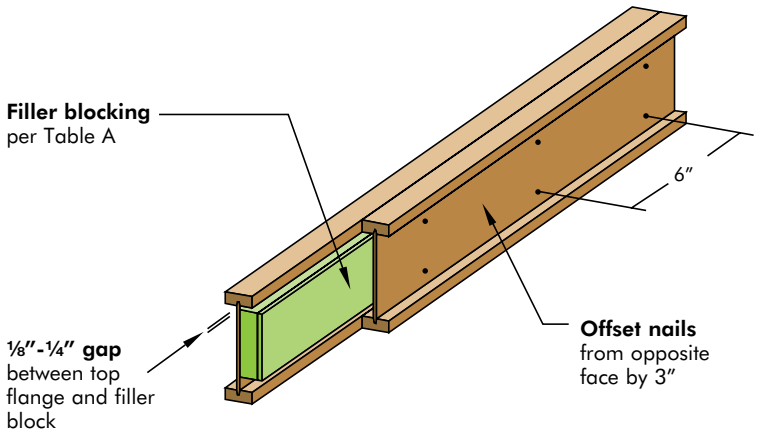
DOUBLE RFPI®-JOIST



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.

FIGURE A

DOUBLE RFPI®-JOIST CONSTRUCTION



Notes:

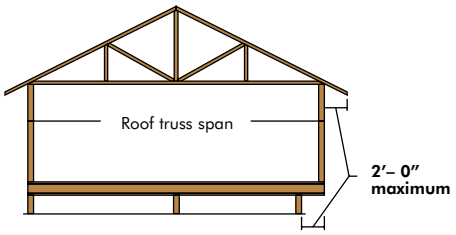
1. Double I-joists may be required to frame openings, support concentrated loads, support partitions parallel to floor joists, or support any other loads which would exceed the capacity of a single I-joist. Install double I-joists when noted in the building drawings.
2. Filler blocks do not function as web stiffeners. Install web stiffeners as required.
3. Support back of I-joist web during nailing to prevent damage to web/flange connection.
4. Leave a ⅛"-¼" gap between top of filler block and bottom of top I-joist flange.
5. For side-loaded conditions or cantilever reinforcement, filler block is required between joists for full length of double member.
6. Nail joists together with two rows of 10d nails at 6 inches o.c. (staggered) on each side of the double I-joist. Total of 8 nails per foot required.
7. Filler block thickness may be achieved by using multiple layers of structural wood panels.
8. The maximum load that may be applied to one side of the double joist using this detail is 620 lbs/ft.

TABLE A

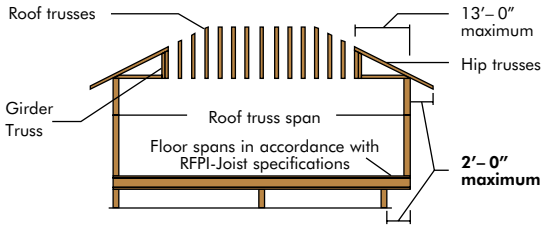
FILLER BLOCK REQUIREMENTS FOR DOUBLE RFPI-JOIST CONSTRUCTION

Flange Width	Joist Depth	Joist Designation	Net Filler Block Size
1-3/4"	9-1/2"	20	1-3/8" x 6"
	11-7/8"	20	1-3/8" x 8"
	14"	20	1-3/8" x 10"
	16"	20	1-3/8" x 12"
2-1/16"	9-1/2"	400	1-3/4" x 6"
	11-7/8"	400	1-3/4" x 8"
	14"	400	1-3/4" x 10"
	16"	400	1-3/4" x 12"
2-5/16"	9-1/2"	40, 70	2" x 6"
	11-7/8"	40, 70	2" x 8"
	14"	40, 70	2" x 10"
	16"	40, 70	2" x 12"
2-1/2"	9-1/2"	40S, 60S	2-1/8" x 6"
	11-7/8"	40S, 60S	2-1/8" x 8"
	14"	40S, 60S	2-1/8" x 10"
	16"	40S, 60S	2-1/8" x 12"
3-1/2"	11-7/8"	80S, 90	3" x 8"
	14"	80S, 90	3" x 10"
	16"	80S, 90	3" x 12"

RFPI®-Joist Cantilever Reinforcement



See table below for RFPI-Joist reinforcement requirements at cantilever.



For hip roofs with the hip trusses running parallel to the cantilevered floor joists, the I-joist reinforcement requirements for a span of 26′ may be used.

RFPI CANTILEVER REINFORCEMENT METHODS ALLOWED

Joist Depth (in)	Roof Truss Span (Ft)	ROOF LOADINGS											
		TL = 35 psf LL not to exceed 20 psf				TL = 45 psf LL not to exceed 30 psf				TL = 55 psf LL not to exceed 40 psf			
		Joist Spacing (in)				Joist Spacing (in)				Joist Spacing (in)			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2″	26	N	N	N	1	N	N	1	2	N	1	2	X
	28	N	N	N	1	N	N	1	2	N	1	2	X
	30	N	N	N	1	N	N	1	2	N	1	2	X
	32	N	N	1	2	N	1	1	X	N	1	2	X
	34	N	N	1	2	N	1	2	X	N	2	X	X
	36	N	N	1	2	N	1	2	X	N	2	X	X
11-7/8″	26	N	N	N	1	N	N	1	1	N	N	1	1
	28	N	N	N	1	N	N	1	1	N	1	1	2
	30	N	N	N	1	N	N	1	1	N	1	1	2
	32	N	N	N	1	N	N	1	1	N	1	1	2
	34	N	N	1	1	N	N	1	2	N	1	1	2
	36	N	N	1	1	N	1	1	2	N	1	1	2
	38	N	N	1	1	N	1	1	2	N	1	2	X
14″	26	N	N	N	1	N	N	1	1	N	N	1	2
	28	N	N	N	1	N	N	1	1	N	1	1	2
	30	N	N	N	1	N	N	1	1	N	1	1	2
	32	N	N	1	1	N	N	1	2	N	1	1	2
	34	N	N	1	1	N	1	1	2	N	1	1	2
	36	N	N	1	1	N	1	1	2	N	1	1	2
	38	N	N	1	1	N	1	1	2	N	1	2	2
	40	N	N	1	1	N	1	1	2	N	1	2	X
16″	26	N	N	N	1	N	N	N	1	N	N	1	1
	28	N	N	N	1	N	N	N	1	N	N	1	1
	30	N	N	N	1	N	N	N	1	N	N	1	2
	32	N	N	N	1	N	N	1	1	N	N	1	2
	34	N	N	N	1	N	N	1	1	N	1	1	2
	36	N	N	N	1	N	N	1	1	N	1	1	2
	38	N	N	N	1	N	N	1	2	N	1	1	2
	40	N	N	N	1	N	N	1	2	N	1	1	2
	42	N	N	1	1	N	1	1	2	N	1	2	2

Cantilever Reinforcement Legend:

N = No reinforcement required.

1 = RFPI®-Joists reinforced with 23/32″ Wood Structural panel or RigidRim® Rimboard on one side only. (see Method 1 on Page 20)

2 = RFPI®-Joists reinforced with 23/32″ Wood Structural panel or RigidRim® Rimboard on both sides or double I-joist. (see Method 2 on Page 20 or alternate Method 2 on Page 21)

X = Try a deeper joist or closer spacing.

Notes:

- Maximum load shall be: Total roof load as shown in chart (includes 15 psf roof dead load), 50 psf floor total load, and 80 plf wall load. Wall load is based on 3′–0″ maximum width window or door opening. For larger openings, or multiple 3′–0″ width openings spaced less than 6′–0″ o.c., additional joists beneath the opening's cripple studs may be required.
- Table applies to joists 12″ to 24″ o.c. Use 12″ o.c. requirements for o.c. spacings less than 12″.
- For a given I-joist depth, table conservatively accounts for multiple I-joist series.
- For conditions other than those shown or to analyze a specific I-joist series, software with the appropriate design properties, such as Simpson Strong-Tie® Component Solutions™ software, can be used to analyze specific applications and loading.

Note:
For more information
see pages 20 & 21

Web Stiffener Requirements

A web stiffener is a block of plywood, OSB, or even a 2x4 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. Web stiffeners are common with certain types of joist hanger installations, particularly in roof systems. They are typically placed at the end of the I-joist, between the flanges and against both sides of the web. When used at end bearings, web stiffeners should be installed 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.**

When designed in accordance with the load/span conditions set forth in the tables in this guide, RFPI-Joists do not require web stiffeners, with the following exceptions:

- When sides of the hangers do not laterally brace the top flange of each I-joist.
- Birds mouth cuts for roof joists.
- 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.

The use of web stiffeners or bearing lengths that are longer than the minimum required may result in allowable spans that are longer than those shown in this guide. The most accurate method of determining if a joist is adequate and if web stiffeners are required is to use appropriate software (e.g. Simpson Strong-Tie® Component Solutions™) or engineering analysis for the actual conditions.

FIGURE B

RFPI-JOIST WEB STIFFENER REQUIREMENTS

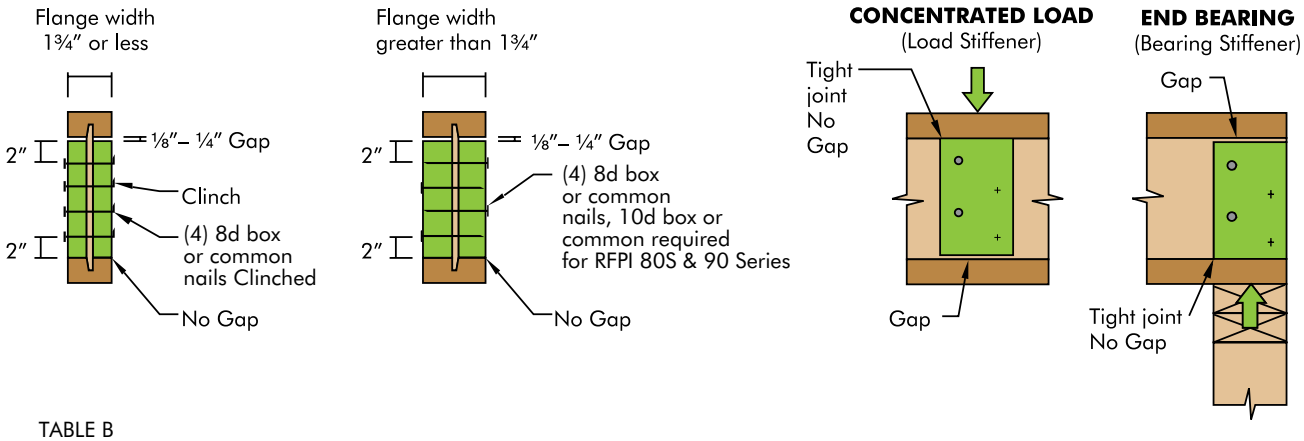


TABLE B

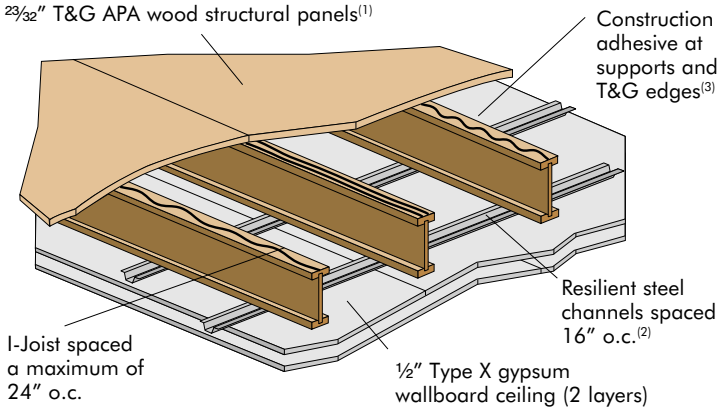
WEB STIFFENER SIZE REQUIRED

RFPI®-Joist Flange Width	Web Stiffener Size Each Side of Web
1-3/4"	19/32" x 2-5/16" minimum width
2-1/16"	7/8" x 2-5/16" minimum width
2-5/16"	1" x 2-5/16" minimum width
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

Fire & Sound Rated Floor Assemblies

ONE-HOUR FIRE-RATED ASSEMBLIES WITH APA PERFORMANCE RATED I-JOISTS

Wood I-joists have been used successfully in fire-rated floor 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 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 I-joist code report, ESR-1251, lists the various IBC and APA fire-rated floor-ceiling assemblies for which RFPI-Joists have specific code approval. The website addresses for these publications are as follows:



Roseburg: • ICC ES Report ESR-1251 (www.icc-es.org/reports/pdf_files/ICC-ES/ESR-1251.pdf)
AWC: • DCA 3 (www.awc.org/Publications/dca/dca3/DCA3.pdf)
APA: • ICC ES Report ESR-1405 (www.icc-es.org/reports/pdf_files/ICC-ES/ESR-1405.pdf)
• Form No.W305 for I-Joists (www.apawood.org/publications) Search for publication W305
• Form No. D350A for Rimboard (www.apawood.org/publications) Search for publication D350A

The fire-rated assembly shown at left is one of the more common assemblies shown in DCA 3 (WIJ-1.6) and published in the 2006 IBC (Item 28-1.1) and 2009 and 2012 IBC (Item 27-1.1) and can be used with any of the RFPI®-Joist series and depths.

(1) Tests have shown that substitution of OSB or composite APA Rated Sturd-I-Floor for plywood panels in fire-rated single-layer assemblies will not jeopardize fire-resistance ratings. Substitution is based on equivalent panel thickness. OSB panels are listed as alternates to plywood for finish flooring in accordance with product evaluation reports for APA PRI trademarked I-joists.

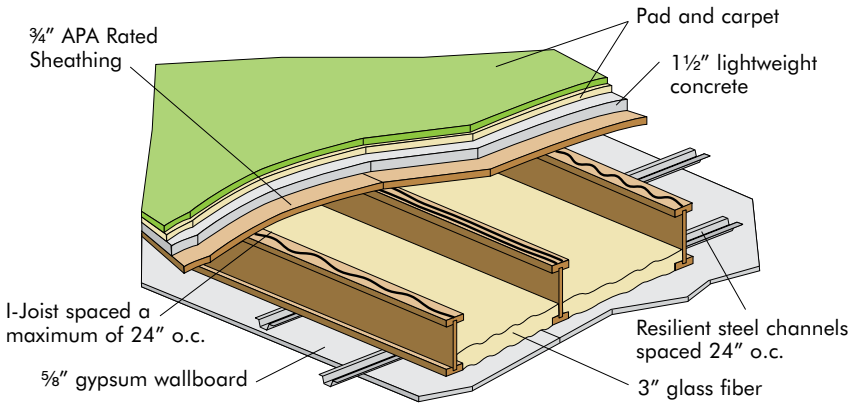
(2) For improved acoustical performance, gypsum wallboard is fastened to resilient metal furring channels in some assemblies.

(3) Construction adhesive must conform to APA Specification AFG-01, or ASTM D3498.

2006 IBC Table 720.1(3)	2009 IBC Table 720.1(3) 2012 IBC Table 721.1(3)	APA ICC-ES Report ESR-1405	American Wood Council DCA3	APA "Fire Rated Systems" W305	Duration	RFPI-Joist series that meet the assembly requirements
Item 21-1.1	Item 21-1.1	Assembly 2	-	-	1 hr.	All RFPI series
Item 23-1.1	Item 23-1.1	-	WIJ-1.3	Fig. 4.3C	1 hr.	All RFPI series
Item 25-1.1	Item 24-1.1	-	WIJ-1.1	Fig. 4.3A	1 hr.	RFPI 80S, 90 & 900
Item 26-1.1	Item 25-1.1	-	WIJ-1.2	Fig. 4.3B	1 hr.	RFPI 90 & 900
Item 27-1.1	Item 26-1.1	-	WIJ-1.5	Fig. 4.3E	1 hr.	RFPI 40S, 60S, 70, 80S, 90, 700 & 900
Item 28-1.1	Item 27-1.1	-	WIJ-1.6	Fig. 4.3F	1 hr.	All RFPI series
-	-	-	WIJ-1.4	Fig. 4.3D	1 hr.	RFPI 40S, 60S, 70, 80S, 90, 700 & 900
-	-	-	WIJ-1.7	-	1 hr.	RFPI 40S, 60S, 70, 80S, 90, 700 & 900
-	-	Assembly 1	-	-	1 hr.	RFPI 40S, 60S, 80S, 90, & 900
-	-	Assembly 3	-	-	1 hr.	All RFPI series
Item 29-1.1	Item 28-1.1	-	WIJ-2.1	Fig. 5	2 hr.	RFPI 40S, 60S, 70, 80S, 90, 700 & 900

NOISE-RATED FLOOR ASSEMBLY WITH APA PERFORMANCE RATED I-JOISTS

The noise-rated assembly shown below is one of several assemblies that can be used with I-Joists. For additional STC and IIC sound rating systems, refer to the AWC and APA publications noted above. Additional general information regarding STC and IIC sound ratings can be found in APA Form No.W460 at the following website: (http://apawood.org/publications) Search for publication W460.



SOUND RATINGS FOR FLOORS USING APA PERFORMANCE RATED I-JOISTS

Test Sponsor and Number[1]	Floor	Deck	Gypsum Wallboard Ceiling	Insulation	STC Rating	IIC Rating	Weight (lbs./sq. ft.)
G&H USDA 11 ST	Vinyl Tile	1-1/2" of 100-pcf cellular concrete over 3/4" APA Rated Sheathing subfloor on I-joist at 24" o.c.	5/8" screwed to resilient metal channels	3" glass fiber	58	50	21.0
G&H USDA 11x ST	Carpet & Pad				58	77	
	None			None	57	None	20.7

(1) USDA Forest Service Wood Construction Research (Seattle, WA); acoustical tests by Geiger & Hamme, Inc. (Ann Arbor, MI)

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

The Code Plus® Floor

The Code Plus Program was developed by APA as a way to help builders and remodelers use the best materials and construction methods available. Because Code Plus builders and remodelers agree to use APA trademarked I-joists, laminated veneer lumber, glued laminated timbers, plywood, and OSB in their construction, the Code Plus designation is also a symbol of quality to home buyers and homeowners.

When Code Plus floor criteria are met and I-Joists are used, the resulting floor system will exceed building code requirements, and provide superior performance.

Code Plus®

APA – The Engineered Wood Association

APA's Code Plus floor requirements are:

1. APA trademarked I-joists, glued laminated timber or LVL headers or beams, and plywood or OSB floor panels must be used.
2. Panel Floor allowable span must be at least 24 for I-joist spacing up to 20" o.c., and 32 for I-joists spaced 24" o.c.
3. Panels must be installed using the APA Glued Floor System guidelines.
4. Panels shall be fastened with 8d nails or other building code approved fasteners spaced per table below. Nail size and spacing may vary, depending on span and sheathing thickness.
5. A 1/8" space at all panel end and edge joints must be left to allow for panel expansion.
6. Panels must be installed continuously over two or more spans, with the long dimension or strength axis of the panel across the I-joist.

APA RATED STURD-I-FLOOR™ FASTENER SCHEDULES FOR RFPI®-JOISTS(1)

Maximum Joist Spacing (in.)	Panel Thickness(2) (in.)	Fastening: Glued-Nailed(3)		
		Nail Size and Type	Maximum Spacing (in.)4	
			Supported Panel Edges	Intermediate Supports
16	23/32(5), 3/4	6d ring-or screw-shank(6)	6	12
20	23/32(5), 3/4	6d ring-or screw-shank(6)	6	12
24	7/8	8d ring-or screw-shank(6)	6	12

(1) Special conditions may impose heavy traffic and concentrated loads that require construction in excess of the minimums shown.

(2) Panels in a given thickness may be manufactured in more than one allowable span. Panels with an allowable span greater than the actual joist spacing may be substituted for panels of the same thickness with an allowable span matching the actual joist spacing.

(3) Use only adhesives conforming to APA Specification AFG-01 or ASTM D3498, applied in accordance with the manufacturer's recommendations. If OSB panels with sealed surfaces and edges are to be used, use only solvent-based glues; check with panel manufacturer.

(4) Increased fastening schedules may be required where floor is engineered as a diaphragm.

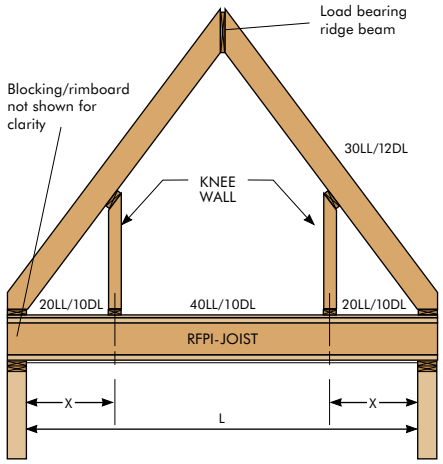
(5) Recommended minimum thickness for use with I-joists.

(6) 8d common nails may be substituted if ring- or screw-shank nails are not available.

Bonus Room Floor Joist Selection Guide

L (Span)	X (Kneewall)	RFPI SERIES			
		12" o.c.	16" o.c.	19.2" o.c.	24" o.c.
20'	4' to 6'	14" 20 • 11-7/8" 40	16" 40S • 14" 400 • 11-7/8" 80S	16" 400 •14" 40 • 11-7/8" 90	16" 70[a] • 14" 80S[a]
22'	4' to 6'	14" 40S • 11-7/8" 80S	16" 400 • 14" 70 • 11-7/8" 90	16" 40[a] • 14" 80S[a]	14" 90[a]
24'	4' to 7'	16" 40S • 14" 70 • 11-7/8" 90	16" 60S • 14" 90	16" 80S[a]	16" 90[ab]

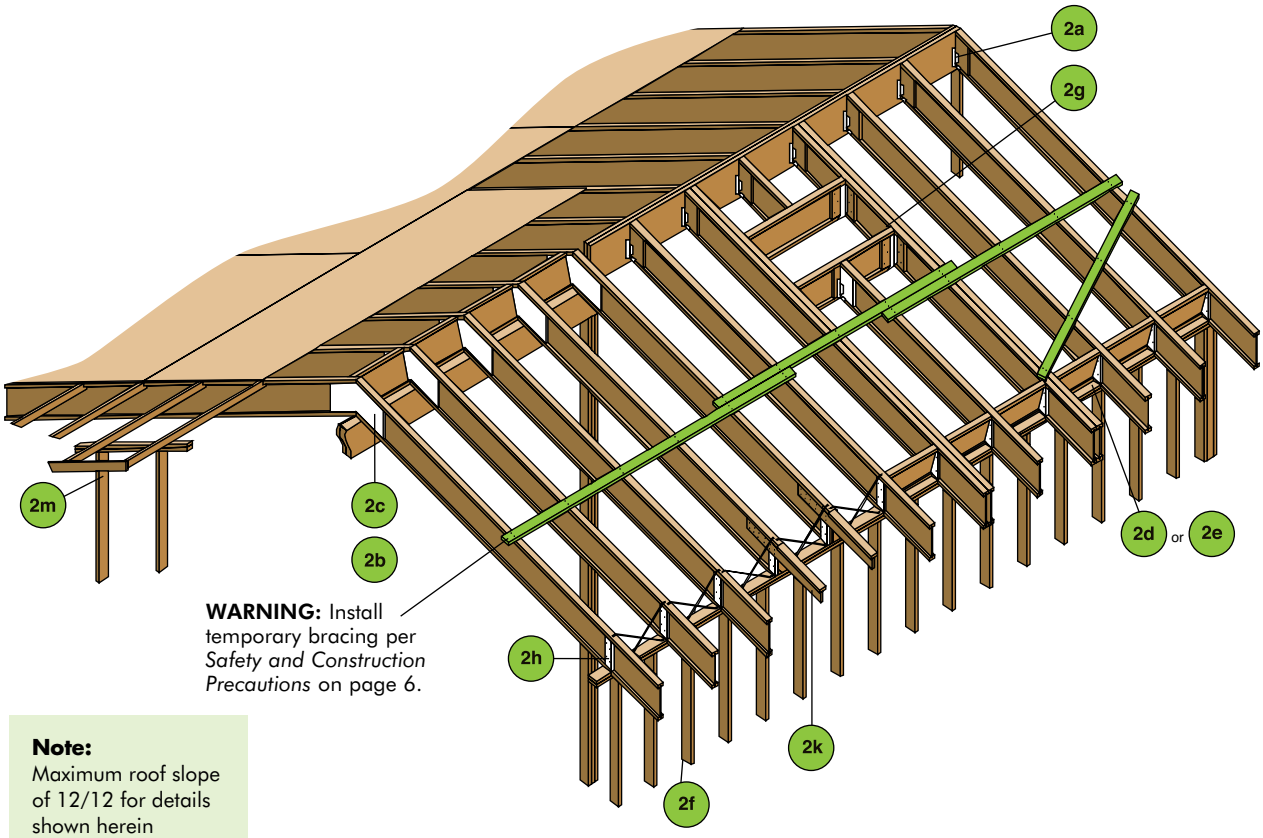
a) Install Concentrated Load Stiffeners to Floor I-joists below Knee Walls (see page 23)
b) Install web stiffeners to each end of I-Joist.



Design Parameters:

1. Roof live load of 30 PSF at 115% (snow load).
2. Roof dead load of 12 PSF (asphalt shingles).
3. Roof rafter slope between 8/12 and 12/12.
4. Kneewall weight of 40 PLF.
5. Attic storage load of 20 PSF live load (outside the kneewalls).
6. Floor live load of 40 PSF (within the kneewalls).
7. Attic and floor dead load of 10 PSF.
8. Straight gable roof framing. No hip framing is permitted.
9. Maximum floor deflection is limited to L/480 live load and L/240 total load.
10. Spans are based on composite action with glued-nailed sheathing.
11. For all other conditions, call your local representative.
12. Consult local building code for other bonus room framing and/or loading requirements or restrictions.

Roof Framing & Construction Details

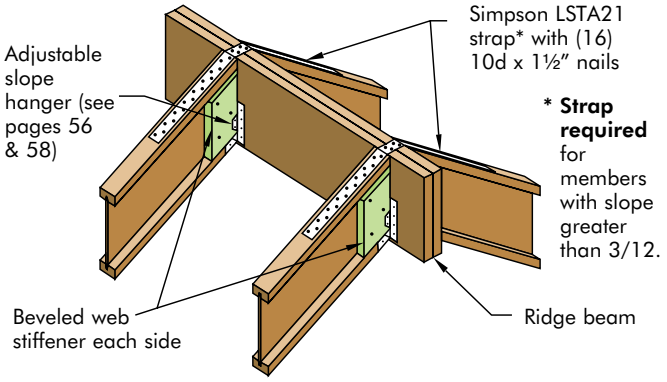


Note:
Maximum roof slope of 12/12 for details shown herein

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 7 for "Recommended Nail Size and Spacing". Individual components not shown to scale for clarity.

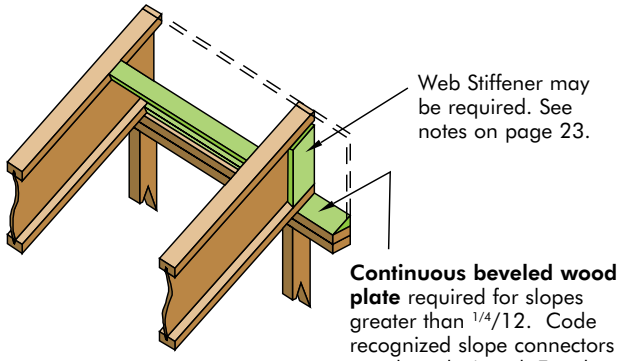
2a RIDGE JOIST CONNECTION – 12/12 MAXIMUM SLOPE



Uplift connections may be required.

2b 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.)

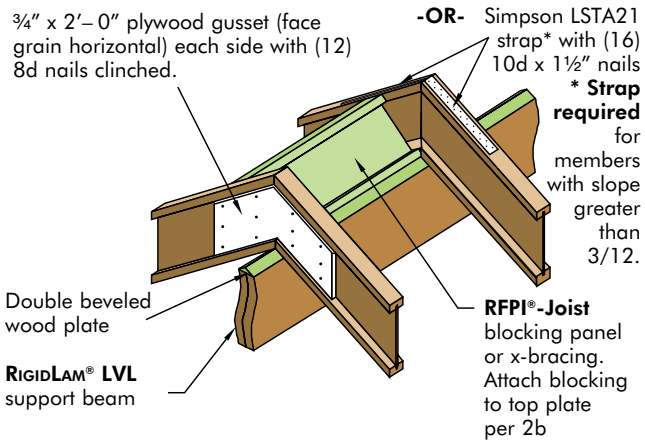


Continuous beveled wood plate required for slopes greater than 1/4/12. Code recognized slope connectors may be substituted. For slopes greater than 4/12 connectors are required to resist lateral thrust.

Uplift connections may be required.

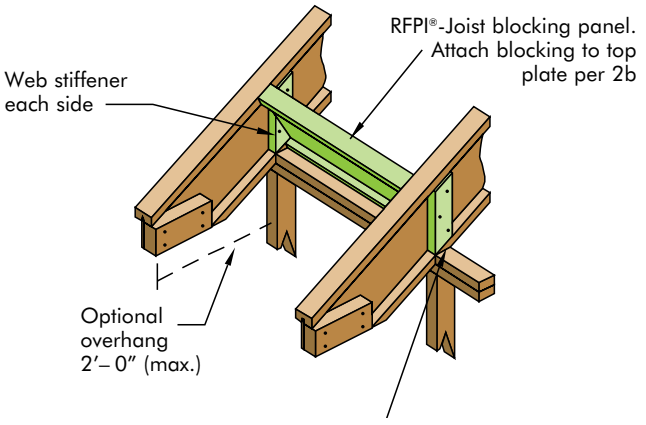
Attach blocking panel (or Rimboard) to top plate with 8d nails @ 6" o.c. (when used for lateral shear transfer, nail to bearing plate with same nailing as required for decking)

2c RFPI®-JOISTS ABOVE RIDGE SUPPORT BEAM



Uplift connections may be required.

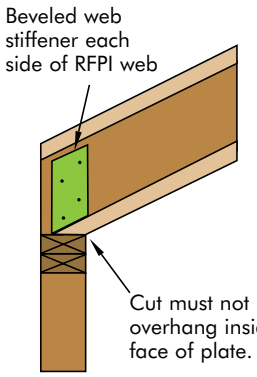
2d BIRDSMOUTH CUT – LOW END OF RFPI®-JOIST ONLY



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

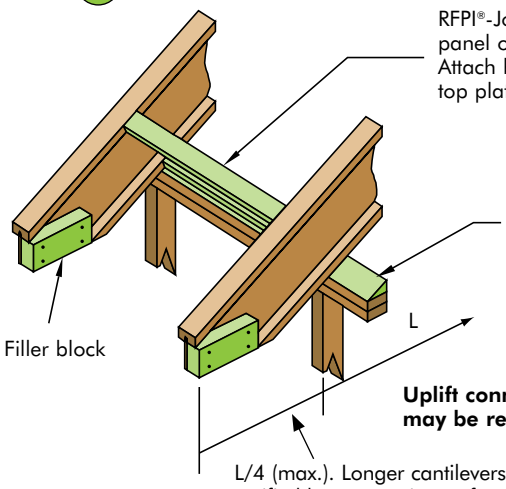
Uplift connections may be required.

2d sim. BIRDSMOUTH CUT, NO OVERHANG - LOW END OF RFPI®-JOIST ONLY



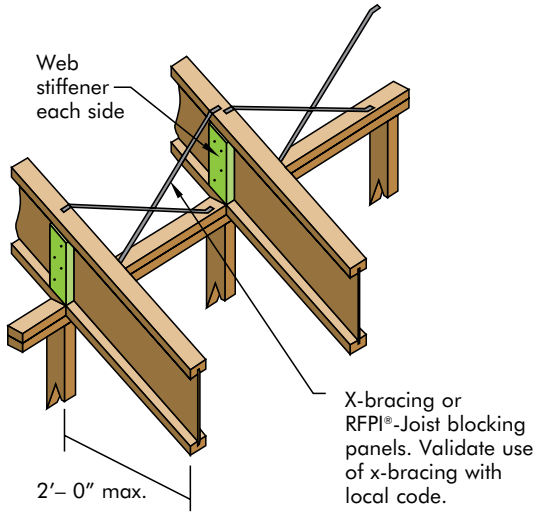
Note:
Blocking panel not shown for clarity

2e RFPI®-JOISTS ON BEVELED PLATE



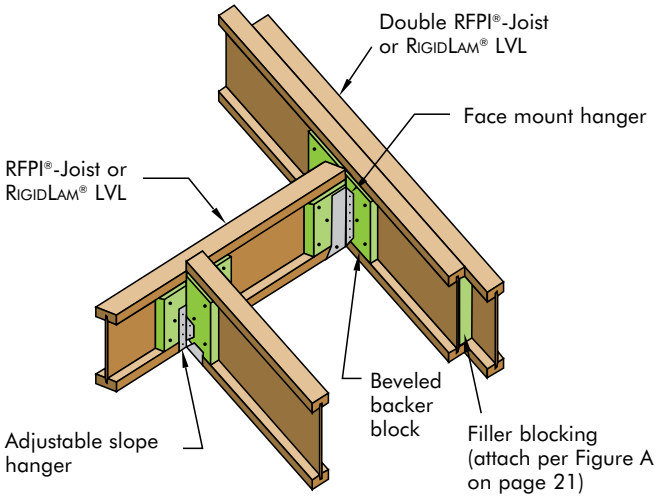
L/4 (max.). Longer cantilevers may be acceptable as verified by appropriate software (e.g. Simpson Strong-Tie® Component Solutions™) or engineering analysis.

2f BIRDSMOUTH CUT – LOW END OF RFPI®-JOIST ONLY



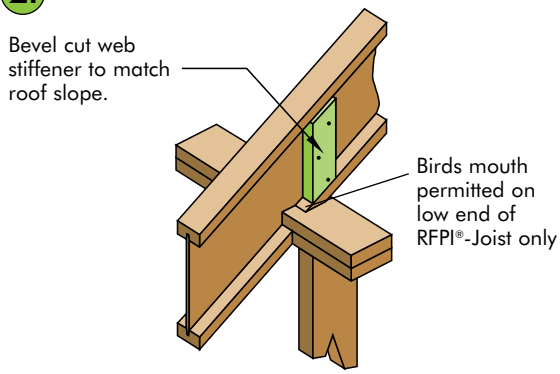
Uplift connections may be required.

2g ROOF OPENINGS, FACE MOUNTED HANGERS



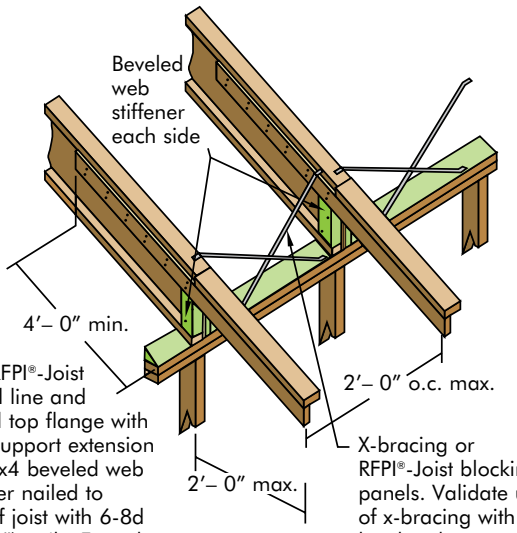
Uplift connections may be required.

2h BEVELED CUT BEARING STIFFENER



Uplift connections may be required.

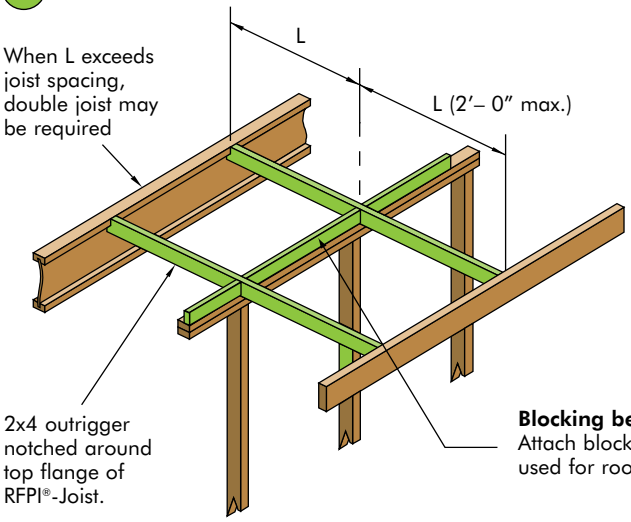
2k OPTIONAL OVERHANG EXTENSIONS



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.

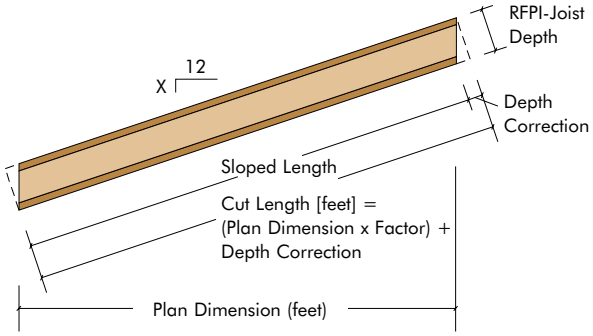
2m OVERHANG PARALLEL TO RFPI®-JOIST



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
		Depth Correction (feet)			
1 in 12	1.00	0.07	0.08	0.10	0.11
2 in 12	1.01	0.13	0.16	0.19	0.22
2.5 in 12	1.02	0.16	0.21	0.24	0.28
3 in 12	1.03	0.20	0.25	0.29	0.33
3.5 in 12	1.04	0.23	0.29	0.34	0.39
4 in 12	1.05	0.26	0.33	0.39	0.44
4.5 in 12	1.07	0.30	0.37	0.44	0.50
5 in 12	1.08	0.33	0.41	0.49	0.56
6 in 12	1.12	0.40	0.49	0.58	0.67
7 in 12	1.16	0.46	0.58	0.68	0.78
8 in 12	1.20	0.53	0.66	0.78	0.89
9 in 12	1.25	0.59	0.74	0.88	1.00
10 in 12	1.30	0.66	0.82	0.97	1.11
11 in 12	1.36	0.73	0.91	1.07	1.22
12 in 12	1.41	0.79	0.99	1.17	1.33

Allowable Roof Uniform Load For RFPI-Joists (PLF)

Joist Clear Span (ft)	RFPI 20 (1 3/4" wide x 1 3/8" flanges)									RFPI 40S (2 1/2" wide x 1 1/2" flanges)										RFPI 400 (2 1/16" wide x 1 3/8" flanges)									
	9-1/2"			11-7/8"			14"			9-1/2"			11-7/8"			14"			16"			9-1/2"			11-7/8"			14"			16"		
	Live	Total		Live	Total		Live	Total		Live	Total		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%	L/240	115%	125%	L/240	115%	125%	L/240	115%	125%	L/240	115%	125%
8	-	197	214	-	214	233	-	214	233	-	239	260	-	277	301	-	277	301	-	277	301	-	238	259	-	249	271	-	249	271	-	249	271
9	-	175	191	-	191	208	-	191	207	-	213	232	-	247	268	-	246	268	-	246	268	-	212	231	-	222	241	-	222	241	-	222	241
10	-	158	172	-	172	187	-	172	187	-	192	209	-	222	242	-	222	242	-	222	241	-	191	208	-	200	218	-	200	217	-	200	217
11	-	144	156	-	156	170	-	156	170	-	175	190	-	202	220	-	202	220	-	202	220	-	174	189	-	182	198	-	182	198	-	182	198
12	-	132	143	-	143	156	-	143	156	-	160	174	-	185	202	-	185	202	-	185	201	-	160	174	-	167	182	-	167	181	-	166	181
13	-	122	132	-	132	144	-	132	144	-	141	154	-	171	186	-	171	186	-	171	186	-	147	160	-	154	168	-	154	167	-	154	167
14	-	113	123	-	123	134	-	123	134	-	122	133	-	158	173	-	159	173	-	158	173	-	137	149	-	143	156	-	143	155	-	143	155
15	98	105	115	-	115	125	-	114	125	-	106	116	-	138	150	-	148	161	-	148	161	113	128	139	-	133	145	-	133	145	-	133	145
16	82	97	105	-	107	117	-	107	117	-	93	101	-	121	132	-	139	151	-	139	151	94	115	124	-	125	136	-	125	136	-	125	136
17	69	86	89	-	101	110	-	101	110	79	82	90	-	107	117	-	129	141	-	130	142	79	102	104	-	118	128	-	117	128	-	117	128
18	58	76	76	-	95	104	-	95	104	68	73	80	-	95	104	-	115	126	-	123	134	68	88	88	-	111	121	-	111	121	-	111	120
19	50	64	64	84	88	96	-	90	98	58	66	71	-	85	93	-	103	113	-	116	127	58	75	75	97	105	114	-	105	114	-	105	114
20	43	55	55	73	80	87	-	86	93	50	59	64	-	77	84	-	93	101	-	108	118	50	64	64	84	95	103	-	100	108	-	99	108
21	-	-	-	63	72	79	-	81	89	43	53	55	-	70	76	-	84	92	-	98	107	43	55	55	73	86	93	-	95	103	-	95	103
22	-	-	-	55	66	71	-	78	85	-	-	-	-	63	69	-	77	83	-	89	97	-	-	-	64	78	82	-	90	98	-	90	98
23	-	-	-	49	60	62	71	71	78	-	-	-	56	58	63	-	70	76	-	81	89	-	-	-	56	71	72	82	85	93	-	86	94
24	-	-	-	43	55	55	63	65	71	-	-	-	50	53	58	-	64	70	-	74	81	-	-	-	50	64	64	72	78	85	-	82	90
25	-	-	-	-	-	-	56	60	66	-	-	-	-	-	-	-	59	64	-	68	75	-	-	-	44	56	56	64	72	78	-	79	86
26	-	-	-	-	-	-	50	55	60	-	-	-	-	-	-	-	54	59	-	63	69	-	-	-	39	50	50	57	66	72	-	76	83
27	-	-	-	-	-	-	45	51	56	-	-	-	-	-	-	-	50	55	-	58	64	-	-	-	-	-	-	52	61	66	70	70	76
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54	59	-	-	-	-	-	-	46	57	59	63	65	71
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	55	-	-	-	-	-	-	42	53	53	57	60	66

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.

Joist Clear Span (ft)	RFPI 40 (2 5/16" wide x 1 3/8" flanges)												RFPI 60S (2 1/2" wide x 1 1/2" flanges)											
	9-1/2"			11-7/8"			14"			16"			9-1/2"			11-7/8"			14"			16"		
	Live	Total		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%	L/240	115%	125%
8	-	249	271	-	277	301	-	277	301	-	277	301	-	239	260	-	277	301	-	277	301	-	277	301
9	-	222	242	-	247	268	-	247	268	-	246	268	-	213	232	-	247	268	-	246	268	-	246	268
10	-	200	218	-	222	242	-	222	242	-	222	242	-	192	209	-	222	242	-	222	242	-	222	241
11	-	182	198	-	202	220	-	202	220	-	202	220	-	175	190	-	202	220	-	202	220	-	202	220
12	-	167	182	-	186	202	-	185	202	-	185	201	-	160	174	-	185	202	-	185	202	-	185	201
13	-	154	168	-	171	186	-	171	186	-	171	186	-	148	161	-	171	186	-	171	186	-	171	186
14	-	143	156	-	159	173	-	159	173	-	159	173	-	137	149	-	159	173	-	159	173	-	158	173
15	125	134	145	-	148	162	-	148	161	-	148	161	-	128	139	-	148	161	-	148	161	-	148	161
16	104	125	136	-	139	151	-	139	151	-	139	151	111	120	131	-	139	151	-	139	151	-	139	151
17	88	114	115	-	131	143	-	131	142	-	130	142	94	113	123	-	131	142	-	131	142	-	130	142
18	75	97	97	-	124	135	-	123	134	-	123	134	80	102	104	-	123	134	-	123	134	-	123	134
19	64	83	83	107	117	127	-	117	127	-	117	127	68	89	89	115	117	127	-	117	127	-	116	127
20	55	71	71	92	107	116	-	111	121	-	111	121	59	76	76	99	107	117	-	111	121	-	110	120
21	48	62	62	80	97	104	-	105	115	-	105	115	51	66	66	86	97	106	-	105	115	-	105	115
22	42	54	54	70	88	91	-	101	110	-	100	109	45	57	57	76	88	96	-	100	109	-	100	109
23	-	-	-	62	80	80	90	96	104	-	96	105	40	50	50	67	81	86	-	96	105	-	96	104
24	-	-	-	55	70	70	80	88	96	-	92	100	-	-	-	59	74	76	86	89	97	-	92	100
25	-	-	-	49	62	62	71	81	88	-	88	96	-	-	-	53	67	67	76	82	90	-	88	96
26	-	-	-	43	55	55	63	74	81	-	85	92	-	-	-	47	60	60	68	76	83	-	84	92
27	-	-	-	-	-	-	57	69	73	77	79	86	-	-	-	42	53	53	61	70	76	-	81	89
28	-	-	-	-	-	-	51	64	65	69	73	80	-	-	-	-	-	-	55	65	71	75	76	83
29	-	-	-	-	-	-	46	59	59	63	68	74	-	-	-	-	-	-	50	60	63	68	70	77
30	-	-	-	-	-	-	42	53	53	57	64	69	-	-	-	-	-	-	45	56	57	61	66	72

GENERAL NOTES:

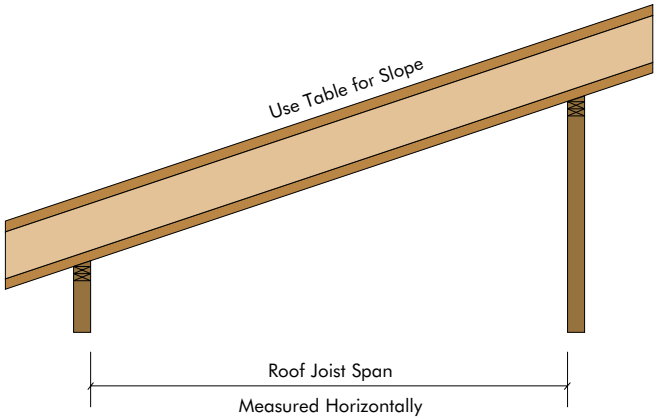
1. Table values apply to uniformly loaded simple or multiple span joists.
2. Clear span is the clear distance between the face of supports.
3. Use the horizontal span dimension from the building plans to size joists for roofs that slope up to 2" in 12". For roof slopes greater than 2" in 12", multiply the horizontal span dimension by the appropriate Slope Factor from the table on page 28.
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 not 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 the detail on page 21.
15. For proper installation procedures, refer to the appropriate sections in this publication.

Joist Clear Span (ft)	RFPI 70 (2 5/16" wide x 1 1/2" flanges)												RFPI 80S (3 1/2" 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"			11-7/8"			14"			16"		
	Live	Total		Live	Total		Live	Total		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%	L/240	115%	125%	L/240	115%	125%	L/240	115%	125%
8	-	259	282	-	277	301	-	277	301	-	276	301	-	311	338	-	334	363	-	334	363	-	372	404	-	371	404	-	371	404
9	-	230	251	-	247	268	-	246	268	-	246	268	-	277	301	-	297	324	-	297	323	-	331	360	-	331	360	-	330	360
10	-	208	226	-	222	242	-	222	242	-	222	241	-	249	271	-	268	292	-	268	291	-	298	324	-	298	324	-	298	324
11	-	189	206	-	202	220	-	202	220	-	202	219	-	227	247	-	244	265	-	243	265	-	271	295	-	271	295	-	271	295
12	-	173	189	-	185	202	-	185	201	-	185	201	-	208	226	-	223	243	-	223	243	-	249	271	-	248	270	-	248	270
13	-	160	174	-	171	186	-	171	186	-	171	186	-	192	209	-	206	224	-	206	224	-	230	250	-	229	250	-	229	249
14	-	149	162	-	159	173	-	159	173	-	158	172	-	178	194	-	191	208	-	191	208	-	213	232	-	213	232	-	213	232
15	-	139	151	-	148	161	-	148	161	-	148	161	-	166	181	-	179	194	-	178	194	-	199	217	-	199	216	-	198	216
16	127	130	141	-	139	151	-	139	151	-	138	151	-	156	169	-	167	182	-	167	182	-	186	203	-	186	203	-	186	202
17	107	122	133	-	131	142	-	130	142	-	130	142	-	146	159	-	157	171	-	157	171	-	175	191	-	175	191	-	175	190
18	91	115	119	-	123	134	-	123	134	-	123	134	-	138	150	-	148	162	-	148	162	-	166	180	-	165	180	-	165	180
19	78	102	102	-	117	127	-	117	127	-	116	127	-	131	142	-	141	153	-	140	153	-	157	171	-	156	170	-	156	170
20	68	87	87	-	111	121	-	111	121	-	110	120	-	124	135	-	133	145	-	133	145	-	149	162	-	148	162	-	148	162
21	59	76	76	98	105	115	-	105	115	-	105	114	116	118	129	-	127	138	-	127	138	141	142	154	-	141	154	-	141	154
22	51	66	66	86	101	110	-	100	109	-	100	109	102	113	123	-	121	132	-	121	132	124	135	147	-	135	147	-	134	147
23	45	58	58	76	96	98	-	96	105	-	96	104	90	108	116	-	116	126	-	115	126	109	129	141	-	129	140	-	129	140
24	40	51	51	67	87	87	-	92	100	-	92	100	80	103	103	-	111	121	-	110	120	97	124	125	-	123	134	-	123	134
25	-	-	-	60	77	77	87	88	96	-	88	96	71	91	91	103	106	116	-	106	115	86	111	111	-	118	129	-	118	129
26	-	-	-	53	68	68	78	85	92	-	84	92	64	81	81	92	102	111	-	102	111	77	99	99	111	114	124	-	113	124
27	-	-	-	48	61	61	70	81	89	-	81	88	57	72	72	83	98	106	-	98	107	70	89	89	100	109	119	-	109	119
28	-	-	-	43	55	55	63	78	81	-	78	85	51	65	65	74	93	95	-	94	103	63	80	80	91	105	115	-	105	114
29	-	-	-	-	-	-	57	73	73	-	75	82	47	58	58	67	86	86	91	91	99	57	72	72	82	101	105	-	101	110
30	-	-	-	-	-	-	52	66	66	70	73	79	42	52	52	61	77	77	82	88	96	52	65	65	75	95	95	-	98	107

Allowable Roof Clear Spans 115% Snow

Please refer to notes on page 31.

			Slope of 4/12 or less			Slopes over 4/12 up to 8/12			Slope over 8/12 up to 12/12		
	Joist Depth	Joist Series	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.
25 LIVE/15 DEAD	9-1/2″	RFPI 20	20' - 0"	18' - 10"	17' - 5"	18' - 10"	17' - 8"	16' - 5"	17' - 5"	16' - 5"	15' - 2"
		RFPI 40S	21' - 1"	19' - 5"	17' - 4"	19' - 10"	18' - 8"	16' - 11"	18' - 5"	17' - 3"	16' - 0"
		RFPI 400	21' - 1"	19' - 10"	18' - 4"	19' - 10"	18' - 8"	17' - 3"	18' - 5"	17' - 3"	16' - 0"
		RFPI 40	21' - 10"	20' - 6"	19' - 0"	20' - 7"	19' - 4"	17' - 11"	19' - 1"	17' - 11"	16' - 7"
		RFPI 60S	22' - 5"	21' - 0"	19' - 5"	21' - 1"	19' - 10"	18' - 4"	19' - 6"	18' - 4"	17' - 0"
		RFPI 70	23' - 5"	22' - 0"	20' - 4"	22' - 1"	20' - 9"	19' - 2"	20' - 6"	19' - 3"	17' - 10"
	11-7/8″	RFPI 20	24' - 0"	22' - 5"	20' - 0"	22' - 7"	21' - 3"	19' - 6"	20' - 11"	19' - 8"	18' - 3"
		RFPI 40S	24' - 3"	22' - 2"	19' - 9"	23' - 7"	21' - 7"	19' - 3"	22' - 0"	20' - 8"	18' - 7"
		RFPI 400	25' - 3"	23' - 9"	21' - 10"	23' - 9"	22' - 4"	20' - 8"	22' - 0"	20' - 8"	19' - 2"
		RFPI 40	26' - 2"	24' - 7"	22' - 9"	24' - 7"	23' - 1"	21' - 5"	22' - 10"	21' - 5"	19' - 10"
		RFPI 60S	26' - 10"	25' - 2"	23' - 3"	25' - 3"	23' - 9"	22' - 0"	23' - 5"	22' - 0"	20' - 4"
		RFPI 70	28' - 1"	26' - 4"	24' - 5"	26' - 5"	24' - 10"	23' - 0"	24' - 6"	23' - 0"	21' - 4"
		RFPI 80S	29' - 10"	28' - 0"	25' - 11"	28' - 1"	26' - 5"	24' - 5"	26' - 1"	24' - 6"	22' - 8"
		RFPI 90	32' - 0"	30' - 1"	27' - 10"	30' - 2"	28' - 4"	26' - 2"	27' - 11"	26' - 3"	24' - 4"
	14″	RFPI 20	26' - 10"	24' - 6"	21' - 7"	25' - 10"	23' - 10"	20' - 6"	23' - 11"	22' - 6"	19' - 1"
		RFPI 40S	26' - 8"	24' - 4"	21' - 9"	25' - 11"	23' - 8"	21' - 2"	25' - 0"	22' - 10"	20' - 5"
		RFPI 400	28' - 9"	26' - 8"	23' - 10"	27' - 1"	25' - 5"	23' - 3"	25' - 1"	23' - 7"	21' - 10"
		RFPI 40	29' - 9"	28' - 0"	25' - 4"	28' - 1"	26' - 4"	24' - 5"	26' - 0"	24' - 5"	22' - 7"
		RFPI 60S	30' - 7"	28' - 7"	25' - 7"	28' - 10"	27' - 1"	24' - 11"	26' - 8"	25' - 1"	23' - 3"
		RFPI 70	32' - 0"	30' - 1"	27' - 10"	30' - 2"	28' - 4"	26' - 3"	27' - 11"	26' - 3"	24' - 4"
		RFPI 80S	33' - 11"	31' - 10"	29' - 6"	32' - 0"	30' - 0"	27' - 10"	29' - 8"	27' - 10"	25' - 9"
		RFPI 90	36' - 5"	34' - 2"	31' - 8"	34' - 4"	32' - 3"	29' - 10"	31' - 9"	29' - 10"	27' - 8"
	16″	RFPI 40S	28' - 9"	26' - 2"	23' - 5"	27' - 11"	25' - 6"	22' - 9"	27' - 0"	24' - 7"	22' - 0"
		RFPI 400	31' - 4"	28' - 7"	25' - 2"	30' - 1"	27' - 10"	23' - 10"	27' - 11"	26' - 2"	22' - 2"
		RFPI 40	33' - 1"	30' - 4"	27' - 1"	31' - 2"	29' - 3"	26' - 4"	28' - 10"	27' - 1"	24' - 8"
		RFPI 60S	33' - 9"	30' - 10"	27' - 6"	32' - 0"	30' - 0"	26' - 6"	29' - 8"	27' - 10"	24' - 8"
		RFPI 70	35' - 7"	33' - 5"	28' - 0"	33' - 6"	31' - 6"	26' - 6"	31' - 0"	29' - 2"	24' - 8"
		RFPI 80S	37' - 8"	35' - 4"	32' - 9"	35' - 6"	33' - 4"	30' - 10"	32' - 10"	30' - 11"	28' - 7"
		RFPI 90	40' - 5"	37' - 11"	35' - 1"	38' - 1"	35' - 9"	33' - 1"	35' - 3"	33' - 1"	30' - 8"
30 LIVE/15 DEAD	9-1/2″	RFPI 20	19' - 3"	18' - 1"	16' - 7"	18' - 2"	17' - 1"	15' - 9"	16' - 10"	15' - 10"	14' - 8"
		RFPI 40S	20' - 1"	18' - 4"	16' - 4"	19' - 1"	17' - 11"	16' - 0"	17' - 9"	16' - 8"	15' - 5"
		RFPI 400	20' - 3"	19' - 0"	17' - 7"	19' - 1"	17' - 11"	16' - 7"	17' - 9"	16' - 8"	15' - 5"
		RFPI 40	21' - 0"	19' - 9"	18' - 3"	19' - 10"	18' - 7"	17' - 3"	18' - 5"	17' - 3"	16' - 0"
		RFPI 60S	21' - 6"	20' - 2"	18' - 8"	20' - 4"	19' - 1"	17' - 8"	18' - 10"	17' - 8"	16' - 5"
		RFPI 70	22' - 6"	21' - 2"	19' - 7"	21' - 3"	20' - 0"	18' - 6"	19' - 9"	18' - 7"	17' - 2"
	11-7/8″	RFPI 20	23' - 1"	21' - 2"	18' - 11"	21' - 9"	20' - 5"	18' - 4"	20' - 3"	19' - 0"	17' - 2"
		RFPI 40S	22' - 11"	20' - 11"	18' - 8"	22' - 4"	20' - 5"	18' - 2"	21' - 3"	19' - 9"	17' - 8"
		RFPI 400	24' - 3"	22' - 9"	20' - 7"	22' - 11"	21' - 6"	19' - 11"	21' - 3"	20' - 0"	18' - 6"
		RFPI 40	25' - 1"	23' - 7"	21' - 10"	23' - 8"	22' - 3"	20' - 7"	22' - 0"	20' - 8"	19' - 2"
		RFPI 60S	25' - 9"	24' - 2"	22' - 0"	24' - 4"	22' - 10"	21' - 2"	22' - 7"	21' - 3"	19' - 8"
		RFPI 70	27' - 0"	25' - 4"	23' - 5"	25' - 6"	23' - 11"	22' - 2"	23' - 8"	22' - 3"	20' - 7"
		RFPI 80S	28' - 8"	26' - 11"	24' - 11"	27' - 1"	25' - 5"	23' - 6"	25' - 2"	23' - 7"	21' - 10"
		RFPI 90	30' - 9"	28' - 10"	26' - 8"	29' - 0"	27' - 3"	25' - 3"	27' - 0"	25' - 4"	23' - 5"
	14″	RFPI 20	25' - 4"	23' - 1"	19' - 3"	24' - 9"	22' - 7"	18' - 4"	23' - 1"	21' - 6"	17' - 2"
		RFPI 40S	25' - 2"	22' - 11"	20' - 6"	24' - 7"	22' - 5"	20' - 0"	23' - 9"	21' - 8"	19' - 4"
		RFPI 400	27' - 7"	25' - 2"	22' - 4"	26' - 1"	24' - 6"	21' - 4"	24' - 3"	22' - 9"	20' - 0"
		RFPI 40	28' - 8"	26' - 9"	23' - 11"	27' - 0"	25' - 5"	23' - 4"	25' - 1"	23' - 7"	21' - 10"
		RFPI 60S	29' - 5"	27' - 0"	24' - 1"	27' - 9"	26' - 1"	23' - 7"	25' - 9"	24' - 2"	22' - 3"
		RFPI 70	30' - 9"	28' - 11"	24' - 11"	29' - 1"	27' - 3"	23' - 9"	27' - 0"	25' - 4"	22' - 3"
		RFPI 80S	32' - 7"	30' - 7"	28' - 4"	30' - 10"	28' - 11"	26' - 9"	28' - 7"	26' - 10"	24' - 11"
		RFPI 90	35' - 0"	32' - 10"	30' - 5"	33' - 0"	31' - 0"	28' - 8"	30' - 8"	28' - 10"	26' - 8"
	16″	RFPI 40S	27' - 1"	24' - 8"	22' - 1"	26' - 5"	24' - 2"	21' - 7"	25' - 7"	23' - 4"	20' - 10"
		RFPI 400	29' - 6"	26' - 11"	22' - 4"	28' - 10"	26' - 4"	21' - 4"	26' - 11"	25' - 1"	20' - 0"
		RFPI 40	31' - 4"	28' - 7"	24' - 11"	30' - 0"	27' - 11"	23' - 9"	27' - 10"	26' - 2"	22' - 3"
		RFPI 60S	31' - 10"	29' - 1"	24' - 11"	30' - 10"	28' - 5"	23' - 9"	28' - 7"	26' - 11"	22' - 3"
		RFPI 70	34' - 2"	31' - 2"	24' - 11"	32' - 3"	29' - 9"	23' - 9"	29' - 11"	27' - 10"	22' - 3"
		RFPI 80S	36' - 2"	34' - 0"	30' - 1"	34' - 2"	32' - 1"	28' - 8"	31' - 9"	29' - 10"	26' - 11"
		RFPI 90	38' - 10"	36' - 5"	33' - 6"	36' - 8"	34' - 5"	31' - 10"	34' - 0"	32' - 0"	29' - 7"
40 LIVE/15 DEAD	9-1/2″	RFPI 20	18' - 0"	16' - 10"	14' - 5"	17' - 0"	16' - 0"	13' - 10"	15' - 10"	14' - 11"	13' - 1"
		RFPI 40S	18' - 2"	16' - 7"	14' - 10"	17' - 10"	16' - 3"	14' - 6"	16' - 8"	15' - 8"	14' - 1"
		RFPI 400	18' - 11"	17' - 9"	16' - 5"	17' - 11"	16' - 10"	15' - 7"	16' - 8"	15' - 8"	14' - 6"
		RFPI 40	19' - 7"	18' - 5"	17' - 0"	18' - 7"	17' - 5"	16' - 1"	17' - 4"	16' - 3"	15' - 0"
		RFPI 60S	20' - 1"	18' - 10"	17' - 5"	19' - 0"	17' - 10"	16' - 6"	17' - 9"	16' - 8"	15' - 5"
		RFPI 70	21' - 0"	19' - 9"	18' - 3"	19' - 11"	18' - 8"	17' - 4"	18' - 7"	17' - 5"	16' - 2"
	11-7/8″	RFPI 20	21' - 0"	19' - 2"	15' - 9"	20' - 5"	18' - 9"	15' - 1"	19' - 0"	17' - 10"	14' - 4"
		RFPI 40S	20' - 9"	18' - 11"	16' - 10"	20' - 4"	18' - 6"	16' - 7"	19' - 9"	18' - 0"	16' - 1"
		RFPI 400	22' - 8"	20' - 10"	18' - 4"	21' - 6"	20' - 2"	17' - 7"	20' - 0"	18' - 9"	16' - 8"
		RFPI 40	23' - 6"	22' - 0"	19' - 9"	22' - 3"	20' - 10"	19' - 4"	20' - 8"	19' - 5"	18' - 0"
		RFPI 60S	24' - 1"	22' - 3"	19' - 11"	22' - 10"	21' - 5"	19' - 6"	21' - 3"	20' - 0"	18' - 6"
		RFPI 70	25' - 2"	23' - 8"	20' - 5"	23' - 10"	22' - 5"	19' - 7"	22' - 3"	20' - 11"	18' - 7"
		RFPI 80S	26' - 9"	25' - 2"	22' - 11"	25' - 4"	23' - 10"	22' - 0"	23' - 8"	22' - 3"	20' - 7"
		RFPI 90	28' - 8"	26' - 11"	24' - 11"	27' - 2"	25' - 6"	23' - 7"	25' - 4"	23' - 10"	22' - 0"
	14″	RFPI 20	22' - 11"	19' - 9"	15' - 9"	22' - 6"	18' - 11"	15' - 1"	21' - 7"	17' - 11"	14' - 4"
		RFPI 40S	22' - 9"	20' - 9"	18' - 6"	22' - 4"	20' - 4"	18' - 2"	21' - 9"	19' - 10"	17' - 8"
		RFPI 400	25' - 0"	22' - 10"	18' - 4"	24' - 5"	22' - 1"	17' - 7"	22' - 9"	20' - 11"	16' - 8"
		RFPI 40	26' - 6"	24' - 2"	20' - 5"	25' - 4"	23' - 9"	19' - 7"	23' - 7"	22' - 2"	18' - 7"
		RFPI 60S	26' - 9"	24' - 5"	20' - 5"	26' - 0"	23' - 11"	19' - 7"	24' - 3"	22' - 9"	18' - 7"
		RFPI 70	28' - 9"	25' - 6"	20' - 5"	27' - 3"	24' - 7"	19' - 7"	25' - 5"	23' - 3"	18' - 7"
		RFPI 80S	30' - 6"	28' - 7"	24' - 8"	28' - 10"	27' - 1"	23' - 9"	26' - 11"	25' - 3"	22' - 6"
		RFPI 90	32' - 8"	30' - 8"	27' - 5"	30' - 11"	29' - 1"	26' - 5"	28' - 10"	27' - 1"	25' - 0"
	16″	RFPI 40S	24' - 6"	22' - 4"	20' - 0"	24' - 1"	21' - 11"	19' - 7"	23' - 5"	21' - 4"	18' - 7"
		RFPI 400	26' - 9"	23' - 0"	18' - 4"	26' - 3"	22' - 1"	17' - 7"	25' - 2"	20' - 11"	16' - 8"
		RFPI 40	28' - 5"	25' - 6"	20' - 5"	27' - 10"	24' - 7"	19' - 7"	26' - 2"	23' - 3"	18' - 7"
		RFPI 60S	28' - 10"	25' - 6"	20' - 5"	28' - 3"	24' - 7"	19' - 7"	26' - 11"	23' - 3"	18' - 7"
		RFPI 70	30' - 8"	25' - 6"	20' - 5"	29' - 6"	24' - 7"	19' - 7"	28' - 0"	23' - 3"	18' - 7"
		RFPI 80S	33' - 10"	30' - 11"	24' - 8"	32' - 0"	29' - 8"	23' - 9"	29' - 10"	28' - 0"	22' - 6"
		RFPI 90	36' - 3"	34' - 0"	27' - 5"	34' - 4"	32' - 3"	26' - 5"	32' - 0"	30' - 1"	25' - 0"
50 LIVE/15 DEAD	9-1/2″	RFPI 20	16' - 11"	15' - 3"	12' - 2"	16' - 1"	14' - 9"	11' - 9"	15' - 1"	14' - 1"	11' - 3"
		RFPI 40S	16' - 9"	15' - 3"	13' - 7"	16' - 5"	15' - 0"	13' - 5"	15' - 10"	14' - 8"	13' - 1"
		RFPI 400	17' - 9"	16' - 8"	14' - 10"	16' - 11"	15' - 11"	14' - 4"	15' - 10"	14' - 11"	13' - 8"
		RFPI 40	18' - 5"	17' - 3"	15' - 6"	17' - 7"	16' - 6"	15' - 0"	16' - 5"	15' - 5"	14' - 3"
		RFPI 60S	18' - 10"	17' - 8"	14' - 11"	18' - 0"	16' - 11"	14' - 3"	16' - 10"	15' - 10"	13' - 5"
		RFPI 70	19' - 9"	18' - 7"	16' - 1"	18' - 10"	17' - 8"	15' - 7"	17' - 8"	16' - 7"	14' - 10"
	11-7/8″	RFPI 20	19' - 4"	16' - 8"	13' - 4"	19' - 0"	16' - 2"	12' - 10"	18' - 1"	15' - 5"	12' - 3"
		RFPI 40S	19' - 1"	17' - 5"	15' - 6"	18' - 9"	17' - 1"	15' - 3"	18' - 4"	16' - 8"	14' - 11"
		RFPI 400	21' - 1"	19' - 2"	15' - 6"	20' - 4"	18' - 10"	15' - 0"	19' - 0"	17' - 10"	14' - 4"
		RFPI 40	22' - 1"	20' - 5"	17' - 3"	21' - 0"	19' - 9"	16' - 8"	19' - 8"	18' - 5"	15' - 11"
		RFPI 60S	22' - 5"	20' - 6"	17' - 3"	21' - 7"	20' - 2"	16' - 8"	20' - 2"	18' - 11"	15' - 11"
		RFPI 70	23' - 8"	21' - 7"	17' - 3"	22' - 7"	20' - 11"	16' - 8"	21' - 1"	19' - 10"	15' - 11"
		RFPI 80S	25' - 2"	23' - 7"	19' - 5"	24' - 0"	22' - 6"	18' - 9"	22' - 5"	21' - 1"	17' - 11"
		RFPI 90	27' - 0"	25' - 4"	23' - 3"	25' - 9"	24' - 2"	22' - 4"	24' - 1"	22' - 7"	20' - 11"
	14″	RFPI 20	20' - 1"	16' - 8"	13' - 4"	19' - 5"	16' - 2"	12' - 10"	18' - 6"	15' - 5"	12' - 3"
		RFPI 40S	20' - 11"	19' - 1"	17' - 1"	20' - 7"	18' - 9"	16' - 8"	20' - 1"	18' - 4"	15' - 11"
		RFPI 400	23' - 0"	19' - 5"	15' - 6"	22' - 7"	18' - 10"	15' - 0"	21' - 7"	17' - 11"	14' - 4"
		RFPI 40	24' - 5"	21' - 7"	17' - 3"	24' - 0"	20' - 11"	16' - 8"	22' - 5"	20' - 0"	15' - 11"
		RFPI 60S	24' - 8"	21' - 7"	17' - 3"	24' - 3"	20' - 11"	16' - 8"	23' - 0"	20' - 0"	15' - 11"
		RFPI 70	26' - 0"	21' - 7"	17' - 3"	25' - 2"	20' - 11"	16' - 8"	24' - 0"	20' - 0"	15' - 11"
		RFPI 80S	28' - 8"	26' - 2"	20' - 11"	27' - 4"	25' - 4"	20' - 2"	25' - 6"	24' - 0"	19' - 3"
		RFPI 90	30' - 8"	28' - 10"	23' - 3"	29' - 3"	27' - 6"	22' - 6"	27' - 5"	25' - 9"	21' - 5"
	16″	RFPI 40S	22' - 7"	20' - 7"	17' - 3"	22' - 2"	20' - 3"	16' - 8"	21' - 8"	19' - 9"	15' - 11"
		RFPI 400	23' - 4"	19' - 5"	15' - 6"	22' - 7"	18' - 10"	15' - 0"	21' - 7"	17' - 11"	14' - 4"
		RFPI 40	26' - 0"	21' - 7"	17' - 3"	25' - 2"	20' - 11"	16' - 8"	24' - 0"	20' - 0"	15' - 11"
		RFPI 60S	26' - 0"	21' - 7"	17' - 3"	25' - 2"	20' - 11"	16' - 8"	24' - 0"	20' - 0"	15' - 11"
		RFPI 70	26' - 0"	21' - 7"	17' - 3"	25' - 2"	20' - 11"	16' - 8"	24' - 0"	20' - 0"	15' - 11"
		RFPI 80S	31' - 5"	26' - 2"	20' - 11"	30' - 4"	25' - 4"	20' - 2"	28' - 4"	24' - 2"	19' - 3"
		RFPI 90	34' - 1"	29' - 1"	23' - 3"	32' - 6"	28' - 2"	22' - 6"	30' - 5"	26' - 10"	21' - 5"



Notes:

1. Roofs must be sloped at least ¼" in 12" to assure drainage.
2. Deflection under live load is limited to L/240. Deflection under total load is limited to L/180. Verify that the deflection criteria conform to local building code requirements.
3. 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 (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.
4. Minimum end bearing length is 1¾". Minimum intermediate bearing length is 3½".
5. Table values are based on cantilever lengths up to 2' max. Use beam sizing software for longer cantilever lengths.
6. Web stiffeners are not required for spans shown.

Allowable Roof Clear Spans 125% Non-Snow

			Slope of 4/12 or less			Slopes over 4/12 up to 8/12			Slope over 8/12 up to 12/12		
	Joist Depth	Joist Series	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.
20 LIVE/10 DEAD	9-1/2"	RFPI 20	22' - 1"	20' - 9"	19' - 3"	20' - 10"	19' - 7"	18' - 2"	19' - 4"	18' - 2"	16' - 10"
		RFPI 40S	23' - 4"	21' - 11"	20' - 3"	22' - 0"	20' - 8"	19' - 1"	20' - 5"	19' - 2"	17' - 9"
		RFPI 400	23' - 4"	21' - 11"	20' - 3"	22' - 0"	20' - 8"	19' - 1"	20' - 5"	19' - 2"	17' - 9"
		RFPI 40	24' - 2"	22' - 8"	21' - 0"	22' - 9"	21' - 5"	19' - 10"	21' - 2"	19' - 10"	18' - 5"
		RFPI 60S	24' - 9"	23' - 3"	21' - 6"	23' - 4"	21' - 11"	20' - 4"	21' - 8"	20' - 4"	18' - 10"
		RFPI 70	25' - 11"	24' - 4"	22' - 6"	24' - 5"	23' - 0"	21' - 3"	22' - 8"	21' - 4"	19' - 9"
	11-7/8"	RFPI 20	26' - 6"	24' - 11"	23' - 1"	25' - 0"	23' - 6"	21' - 9"	23' - 3"	21' - 10"	20' - 3"
		RFPI 40S	27' - 11"	26' - 3"	23' - 10"	26' - 4"	24' - 9"	22' - 11"	24' - 5"	22' - 11"	21' - 3"
		RFPI 400	27' - 11"	26' - 3"	24' - 3"	26' - 4"	24' - 9"	22' - 11"	24' - 5"	22' - 11"	21' - 3"
		RFPI 40	28' - 10"	27' - 1"	25' - 1"	27' - 3"	25' - 7"	23' - 8"	25' - 3"	23' - 9"	22' - 0"
		RFPI 60S	29' - 8"	27' - 10"	25' - 9"	28' - 0"	26' - 3"	24' - 4"	25' - 11"	24' - 5"	22' - 7"
		RFPI 70	31' - 0"	29' - 2"	27' - 0"	29' - 3"	27' - 6"	25' - 6"	27' - 2"	25' - 6"	23' - 8"
		RFPI 80S	33' - 0"	31' - 0"	28' - 8"	31' - 1"	29' - 3"	27' - 1"	28' - 11"	27' - 2"	25' - 2"
		RFPI 90	35' - 4"	33' - 3"	30' - 9"	33' - 5"	31' - 4"	29' - 0"	31' - 0"	29' - 1"	27' - 0"
	14"	RFPI 20	30' - 3"	28' - 5"	26' - 4"	28' - 7"	26' - 10"	24' - 10"	26' - 6"	24' - 11"	23' - 1"
		RFPI 40S	31' - 8"	29' - 4"	26' - 3"	29' - 11"	28' - 1"	25' - 7"	27' - 9"	26' - 1"	24' - 2"
		RFPI 400	31' - 9"	29' - 10"	27' - 8"	30' - 0"	28' - 2"	26' - 1"	27' - 10"	26' - 2"	24' - 3"
		RFPI 40	32' - 11"	30' - 11"	28' - 8"	31' - 0"	29' - 2"	27' - 0"	28' - 10"	27' - 1"	25' - 1"
		RFPI 60S	33' - 9"	31' - 9"	29' - 5"	31' - 10"	29' - 11"	27' - 9"	29' - 7"	27' - 9"	25' - 9"
		RFPI 70	35' - 4"	33' - 3"	30' - 9"	33' - 4"	31' - 4"	29' - 1"	31' - 0"	29' - 1"	27' - 0"
		RFPI 80S	37' - 6"	35' - 3"	32' - 7"	35' - 5"	33' - 3"	30' - 10"	32' - 10"	30' - 10"	28' - 7"
		RFPI 90	40' - 3"	37' - 9"	35' - 0"	38' - 0"	35' - 8"	33' - 0"	35' - 3"	33' - 2"	30' - 8"
	16"	RFPI 40S	34' - 8"	31' - 7"	28' - 3"	33' - 2"	30' - 10"	27' - 7"	30' - 9"	28' - 11"	26' - 8"
		RFPI 400	35' - 4"	33' - 2"	30' - 9"	33' - 4"	31' - 4"	29' - 0"	30' - 11"	29' - 1"	26' - 11"
		RFPI 40	36' - 6"	34' - 4"	31' - 9"	34' - 5"	32' - 5"	30' - 0"	32' - 0"	30' - 1"	27' - 10"
		RFPI 60S	37' - 6"	35' - 3"	32' - 8"	35' - 5"	33' - 3"	30' - 10"	32' - 10"	30' - 10"	28' - 7"
		RFPI 70	39' - 3"	36' - 11"	34' - 2"	37' - 1"	34' - 10"	32' - 3"	34' - 5"	32' - 4"	29' - 11"
		RFPI 80S	41' - 7"	39' - 1"	36' - 2"	39' - 3"	36' - 11"	34' - 2"	36' - 5"	34' - 3"	31' - 9"
		RFPI 90	44' - 7"	41' - 11"	38' - 10"	42' - 1"	39' - 7"	36' - 8"	39' - 1"	36' - 9"	34' - 0"
20 LIVE/15 DEAD	9-1/2"	RFPI 20	20' - 11"	19' - 8"	18' - 2"	19' - 8"	18' - 6"	17' - 1"	18' - 2"	17' - 1"	15' - 10"
		RFPI 40S	22' - 1"	20' - 9"	19' - 2"	20' - 9"	19' - 6"	18' - 0"	19' - 2"	18' - 0"	16' - 8"
		RFPI 400	22' - 1"	20' - 9"	19' - 2"	20' - 9"	19' - 6"	18' - 0"	19' - 2"	18' - 0"	16' - 8"
		RFPI 40	22' - 10"	21' - 6"	19' - 10"	21' - 6"	20' - 2"	18' - 8"	19' - 10"	18' - 7"	17' - 3"
		RFPI 60S	23' - 5"	22' - 0"	20' - 4"	22' - 0"	20' - 8"	19' - 1"	20' - 4"	19' - 1"	17' - 8"
		RFPI 70	24' - 6"	23' - 0"	21' - 4"	23' - 1"	21' - 8"	20' - 0"	21' - 3"	20' - 0"	18' - 6"
	11-7/8"	RFPI 20	25' - 1"	23' - 7"	21' - 10"	23' - 7"	22' - 2"	20' - 6"	21' - 9"	20' - 5"	18' - 11"
		RFPI 40S	26' - 5"	24' - 8"	22' - 0"	24' - 10"	23' - 4"	21' - 4"	22' - 11"	21' - 6"	19' - 11"
		RFPI 400	26' - 5"	24' - 10"	23' - 0"	24' - 10"	23' - 4"	21' - 7"	22' - 11"	21' - 6"	19' - 11"
		RFPI 40	27' - 4"	25' - 8"	23' - 9"	25' - 8"	24' - 2"	22' - 4"	23' - 9"	22' - 3"	20' - 8"
		RFPI 60S	28' - 1"	26' - 4"	24' - 5"	26' - 4"	24' - 9"	22' - 11"	24' - 4"	22' - 10"	21' - 2"
		RFPI 70	29' - 5"	27' - 7"	25' - 6"	27' - 7"	25' - 11"	24' - 0"	25' - 6"	23' - 11"	22' - 2"
		RFPI 80S	31' - 3"	29' - 4"	27' - 2"	29' - 4"	27' - 7"	25' - 6"	27' - 1"	25' - 5"	23' - 7"
		RFPI 90	33' - 6"	31' - 5"	29' - 1"	31' - 6"	29' - 7"	27' - 4"	29' - 1"	27' - 4"	25' - 3"
	14"	RFPI 20	28' - 8"	26' - 11"	24' - 4"	26' - 11"	25' - 4"	23' - 5"	24' - 10"	23' - 4"	21' - 8"
		RFPI 40S	29' - 8"	27' - 1"	24' - 2"	28' - 2"	26' - 3"	23' - 6"	26' - 0"	24' - 5"	22' - 7"
		RFPI 400	30' - 1"	28' - 3"	26' - 2"	28' - 3"	26' - 7"	24' - 7"	26' - 1"	24' - 6"	22' - 9"
		RFPI 40	31' - 2"	29' - 3"	27' - 1"	29' - 3"	27' - 6"	25' - 6"	27' - 0"	25' - 5"	23' - 6"
		RFPI 60S	32' - 0"	30' - 0"	27' - 10"	30' - 0"	28' - 3"	26' - 2"	27' - 9"	26' - 1"	24' - 2"
		RFPI 70	33' - 6"	31' - 5"	29' - 1"	31' - 6"	29' - 7"	27' - 5"	29' - 1"	27' - 4"	25' - 3"
		RFPI 80S	35' - 6"	33' - 4"	30' - 10"	33' - 4"	31' - 4"	29' - 0"	30' - 10"	28' - 11"	26' - 10"
		RFPI 90	38' - 1"	35' - 9"	33' - 1"	35' - 10"	33' - 7"	31' - 2"	33' - 1"	31' - 1"	28' - 9"
	16"	RFPI 40S	32' - 0"	29' - 2"	26' - 1"	31' - 0"	28' - 4"	25' - 4"	28' - 10"	27' - 2"	24' - 3"
		RFPI 400	33' - 5"	31' - 5"	28' - 5"	31' - 5"	29' - 6"	27' - 4"	29' - 0"	27' - 3"	25' - 3"
		RFPI 40	34' - 7"	32' - 6"	30' - 1"	32' - 6"	30' - 6"	28' - 3"	30' - 0"	28' - 2"	26' - 1"
		RFPI 60S	35' - 6"	33' - 4"	30' - 8"	33' - 4"	31' - 4"	29' - 0"	30' - 10"	28' - 11"	26' - 10"
		RFPI 70	37' - 2"	34' - 11"	32' - 4"	34' - 11"	32' - 10"	30' - 5"	32' - 3"	30' - 4"	28' - 1"
		RFPI 80S	39' - 5"	37' - 0"	34' - 3"	37' - 0"	34' - 9"	32' - 2"	34' - 2"	32' - 1"	29' - 9"
		RFPI 90	42' - 3"	39' - 8"	36' - 9"	39' - 8"	37' - 3"	34' - 6"	36' - 8"	34' - 5"	31' - 11"
20 LIVE/20 DEAD	9-1/2"	RFPI 20	20' - 0"	18' - 9"	17' - 4"	18' - 8"	17' - 7"	16' - 3"	17' - 2"	16' - 2"	14' - 11"
		RFPI 40S	21' - 0"	19' - 9"	18' - 0"	19' - 8"	18' - 6"	17' - 2"	18' - 1"	17' - 0"	15' - 9"
		RFPI 400	21' - 0"	19' - 9"	18' - 3"	19' - 8"	18' - 6"	17' - 2"	18' - 1"	17' - 0"	15' - 9"
		RFPI 40	21' - 10"	20' - 6"	18' - 11"	20' - 5"	19' - 2"	17' - 9"	18' - 9"	17' - 8"	16' - 4"
		RFPI 60S	22' - 4"	21' - 0"	19' - 5"	20' - 11"	19' - 8"	18' - 2"	19' - 3"	18' - 1"	16' - 9"
		RFPI 70	23' - 5"	22' - 0"	20' - 4"	21' - 11"	20' - 7"	19' - 1"	20' - 2"	18' - 11"	17' - 6"
	11-7/8"	RFPI 20	23' - 11"	22' - 6"	20' - 10"	22' - 5"	21' - 1"	19' - 6"	20' - 7"	19' - 4"	17' - 11"
		RFPI 40S	25' - 2"	23' - 0"	20' - 7"	23' - 7"	22' - 2"	19' - 10"	21' - 8"	20' - 5"	18' - 11"
		RFPI 400	25' - 2"	23' - 8"	21' - 11"	23' - 7"	22' - 2"	20' - 6"	21' - 8"	20' - 5"	18' - 11"
		RFPI 40	26' - 1"	24' - 6"	22' - 8"	24' - 5"	22' - 11"	21' - 3"	22' - 6"	21' - 1"	19' - 6"
		RFPI 60S	26' - 9"	25' - 2"	23' - 3"	25' - 1"	23' - 7"	21' - 10"	23' - 1"	21' - 8"	20' - 1"
		RFPI 70	28' - 0"	26' - 4"	24' - 4"	26' - 3"	24' - 8"	22' - 10"	24' - 2"	22' - 8"	21' - 0"
		RFPI 80S	29' - 9"	27' - 11"	25' - 10"	27' - 11"	26' - 2"	24' - 3"	25' - 8"	24' - 1"	22' - 4"
		RFPI 90	31' - 11"	30' - 0"	27' - 9"	29' - 11"	28' - 1"	26' - 0"	27' - 6"	25' - 10"	23' - 11"
	14"	RFPI 20	27' - 4"	25' - 5"	22' - 9"	25' - 7"	24' - 1"	21' - 9"	23' - 7"	22' - 2"	19' - 10"
		RFPI 40S	27' - 8"	25' - 3"	22' - 7"	26' - 9"	24' - 5"	21' - 10"	24' - 8"	23' - 2"	20' - 10"
		RFPI 400	28' - 8"	27' - 0"	24' - 10"	26' - 11"	25' - 3"	23' - 5"	24' - 9"	23' - 3"	21' - 6"
		RFPI 40	29' - 9"	27' - 11"	25' - 10"	27' - 10"	26' - 2"	24' - 3"	25' - 7"	24' - 1"	22' - 3"
		RFPI 60S	30' - 6"	28' - 8"	26' - 6"	28' - 7"	26' - 10"	24' - 10"	26' - 3"	24' - 8"	22' - 10"
		RFPI 70	31' - 11"	30' - 0"	27' - 9"	29' - 11"	28' - 1"	26' - 0"	27' - 6"	25' - 10"	23' - 11"
		RFPI 80S	33' - 10"	31' - 10"	29' - 5"	31' - 9"	29' - 10"	27' - 7"	29' - 2"	27' - 5"	25' - 5"
		RFPI 90	36' - 4"	34' - 1"	31' - 7"	34' - 0"	32' - 0"	29' - 7"	31' - 4"	29' - 5"	27' - 3"
	16"	RFPI 40S	29' - 10"	27' - 3"	24' - 4"	28' - 10"	26' - 3"	23' - 6"	27' - 4"	25' - 1"	22' - 5"
		RFPI 400	31' - 11"	29' - 8"	26' - 6"	29' - 10"	28' - 1"	25' - 4"	27' - 6"	25' - 10"	23' - 1"
		RFPI 40	33' - 0"	31' - 0"	28' - 2"	30' - 11"	29' - 0"	26' - 11"	28' - 5"	26' - 8"	24' - 9"
		RFPI 60S	33' - 11"	31' - 10"	28' - 7"	31' - 9"	29' - 10"	27' - 7"	29' - 2"	27' - 5"	25' - 5"
		RFPI 70	35' - 6"	33' - 4"	30' - 2"	33' - 3"	31' - 3"	28' - 2"	30' - 7"	28' - 9"	25' - 8"
		RFPI 80S	37' - 7"	35' - 3"	32' - 8"	35' - 2"	33' - 1"	30' - 7"	32' - 5"	30' - 5"	28' - 2"
		RFPI 90	40' - 4"	37' - 10"	35' - 0"	37' - 9"	35' - 5"	32' - 10"	34' - 9"	32' - 8"	30' - 3"

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 17 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" RigidRim® Plus OSB Rimboard
- 1 1/4" RigidRim® Plus OSB Rimboard
- 1 1/4" RigidRim® Seismic OSB Rimboard (Ainsworth Durastrand)
- 1 1/2" 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 available in all of the standard I-joist depths.

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 and 1-1/4" Ainsworth Durastrand® rimboard products have ICC-ES code reports (ESR-1210 and ESR-1053 respectively). See Table 1 below for RigidRim rimboard design properties. 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 Properties (1)(2)(3)

	Rimboard Thickness (in.)	Horizontal Load (PLF)	Vertical Load (PLF) depth ≤ 16"	1/2" Lag Screw Load (lbs)	Post Load (lbs)
RigidRim® OSB	1-1/8"	180 (8d box or com)	4400	350	3500
RigidRim® Plus OSB	1-1/8" or 1-1/4"	200 (8d box or com)	4850	350	3500
RigidRim® Seismic OSB(4)	1-1/4"	240 (8d com)(5)	5700	400	5900
1.3E RigidRim LVL	1-1/2"	215 (8d box or com)	4900	400	3500

(1) All design properties assume:
- Maximum joist spacing of 24" on-center
- Maximum joist depth of 16"
- Rimboard nailing of 8d nails @ 6" on-center

(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. (no closer than 4" o.c. for RigidRim Seismic(4)) and the 16d nail spacing (bottom plate to sheathing to rimboard) is in accordance with the prescriptive requirements of the applicable code.

(4) RigidRim® Seismic is Ainsworth 0.8E Durastrand® OSB

(5) Horizontal load may be increased to 330 PLF when rimboard nailing of 8d common nails @ 4" on-center is used.

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
RigidRim® Seismic OSB(3)	1130 psi	0.80 x 10^6 psi	355 psi	1415 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

(3) RigidRim® Seismic is Ainsworth 0.8E Durastrand® OSB

Table 3: Allowable Uniform Load for RigidRim® and RigidRim® Plus 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	470 / 1.5	370 / 1.5
1-1/8"x 11-7/8"	1870 / 4.5	1270 / 3.0	920 / 3.0	700 / 3.0	540 / 3.0
2 ply 1-1/8"x 14"	4690 / 6.0	3250 / 4.5	2390 / 4.5	1820 / 3.0	1440 / 3.0
2 ply 1-1/8"x 16"	5560 / 6.0	4250 / 6.0	3120 / 4.5	2380 / 4.5	1880 / 4.5

(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, RigidRim Seismic and 1.3E RigidRim LVL.

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

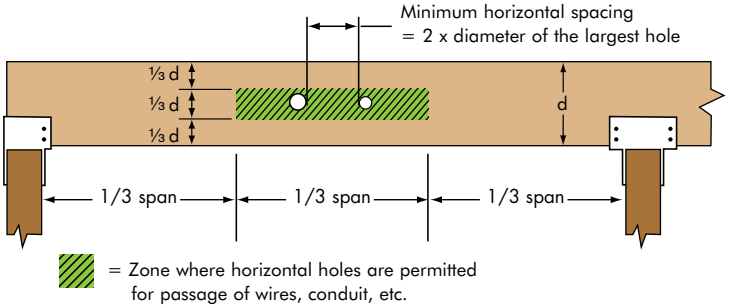
RigidLam LVL is coated with a wax-based moisture repellent sealer that is formulated specifically for LVL to provide temporary protection against moisture issues during normal storage and construction schedules. It is applied to all six sides of the LVL during the manufacturing process. After the sealer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

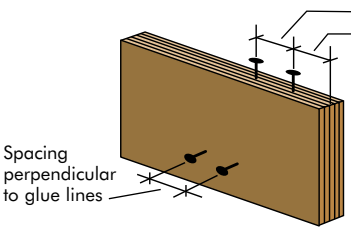
See additional notes on page 6

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.

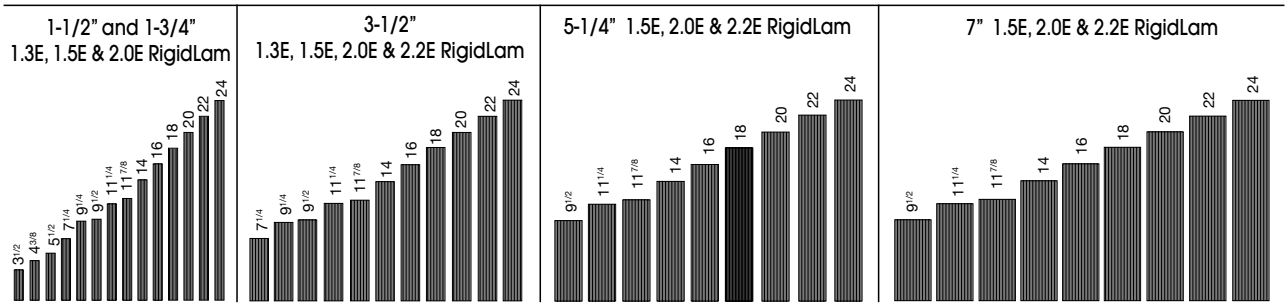
MINIMUM NAIL SPACING FOR RIGIDLAM LVL BEAMS



If more than one row of parallel nails is required for edge nailing, the rows must be offset at least 1/2" and staggered.

Nail Size	Minimum Parallel Spacing	Minimum Parallel End Distance	Minimum Perpendicular Spacing
8d Box	3"	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 35-39 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	3,400
Bending – Flatwise[5]	F_b flat (psi) =	2,250	2,250	3,100	3,400
Horizontal Shear - Edgewise	F_v edge (psi) =	200	220	290	325
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	850
Compression Perp. To Grain[2] - Flatwise	$F_{c\ perp}$ flat (psi) =	500	500	500	500
Compression Parallel to Grain	$F_{c\ para}$ (psi) =	1,950	1,950	3,000	3,200
Tension Parallel to Grain[6]	F_t (psi) =	1,500	1,500	2,100	2,425
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. 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	1,327	1,181	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	1,659	1,794	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	1,991	2,526	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	2,085	2,756	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	2,654	4,332	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	2,749	4,626	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	3,507	7,305	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	3,602	7,679	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	4,266	10,544	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	4,503	11,669	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	5,308	15,888	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	6,067	20,408	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	6,825	25,452	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	7,583	31,011	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	8,342	37,079	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	9,100	43,649	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

Effective Column Length (ft.)	Column Size																	
	3½" x 3½"			3½" x 5¼"			3½" x 7"			5¼" x 5¼"			5¼" x 7"			7" x 7"		
	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

Effective Column Length (ft.)	Column Size																	
	3½" x 3½"			3½" x 5¼"			3½" x 7"			5¼" x 5¼"			5¼" x 7"			7" x 7"		
	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

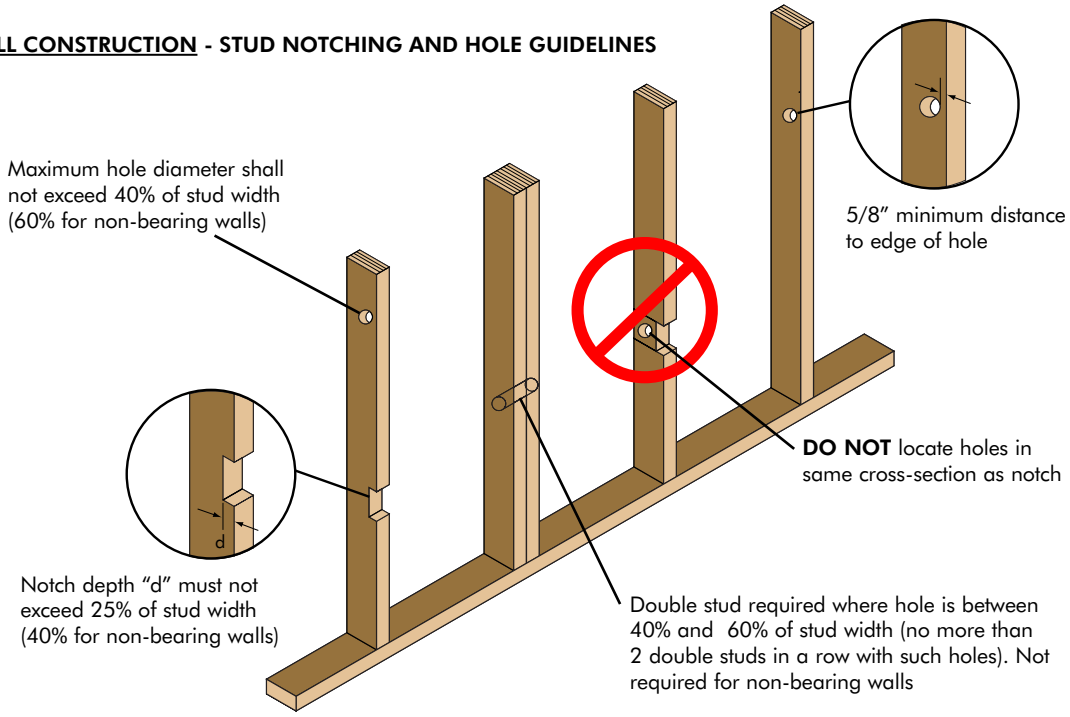
Based on testing conducted in accordance with ICC Evaluation Service Acceptance Criteria for Wood-Based Studs, AC202, RigidLam LVL Studs are considered to be alternatives to sawn lumber studs complying with Section 2308.9 of the IBC, Section R602 of the IRC, Section 2305 of the BNBC, Section 2308 of 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**	**500**	**1,950**	**1,500[3]**	**1,500,000**
RigidLam LVL Stud	**2.0E**	**3,761[4]**	**290**	**750**	**3,100**	**130**	**500**	**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**	**500**	**1,950**	**1,500[3]**	**1,500,000**
RigidLam LVL Stud	**2.0E**	**3,554[4]**	**290**	**750**	**3,100**	**130**	**500**	**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

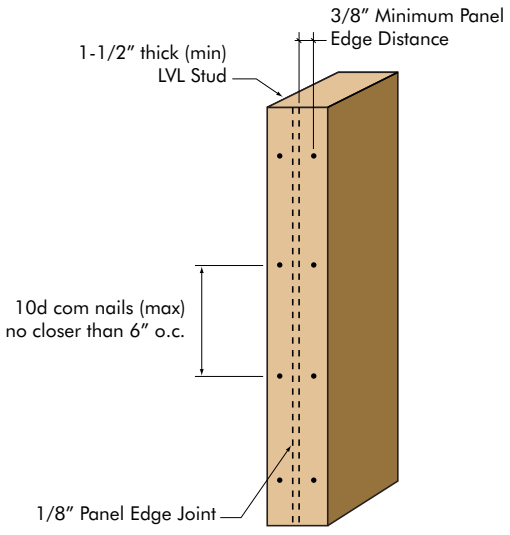
ENGINEERED WALL CONSTRUCTION - RIGIDLAM STUD HOLE AND NOTCHING GUIDELINES

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.

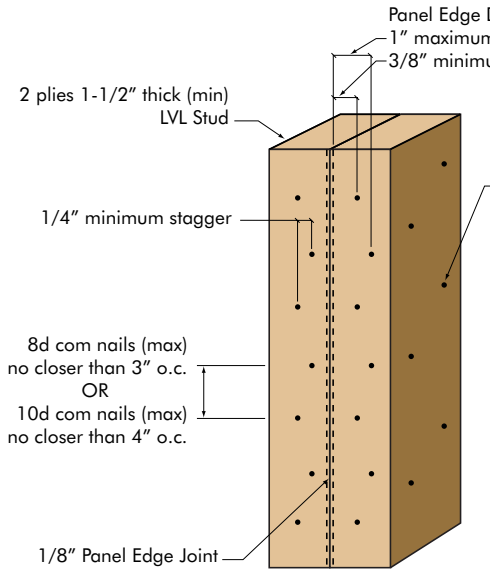
Holes: A hole with a maximum diameter of 30% of the width of the stud may be placed anywhere along the stud **at the centerline of the stud width** without further engineering analysis for lateral bending considerations. For other conditions, holes may be placed anywhere along the stud provided the reduced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



Stitch-nailing requirements:

1997 UBC, 1999 SBC or 1999 BNBC: Stitch-nail studs together with a minimum two staggered rows of 10dx3" common nails at 8" o.c. in each row.

2006 IBC: Stitch-nail per requirements above or stitch-nail studs together with a minimum of the same size and spacing of the nailing required to attach the sheathing to the framing at the panel edges, provided a minimum nail penetration of 6 times the nail diameter is achieved.

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

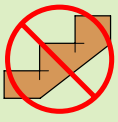
General Notes

- 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 6 and 33 for RigidLam LVL storage and handling information.

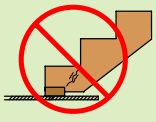
RIGIDLAM LVL CODE EVALUATION
ICC ESR-1210

Installation Guidelines

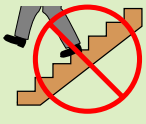
DO NOT notch or drill holes in stringer



DO NOT overcut stringer. Use hand saw to finish cut



DO NOT support stringer on nailer only



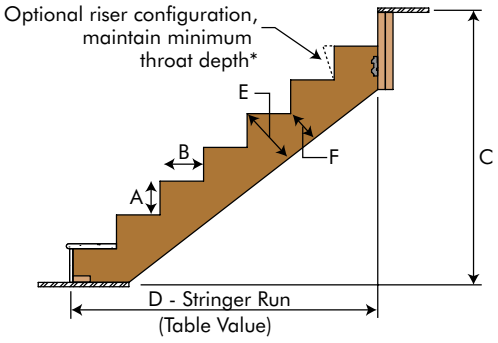
DO NOT walk on stringers until treads are attached

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) =	500	500	500
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.

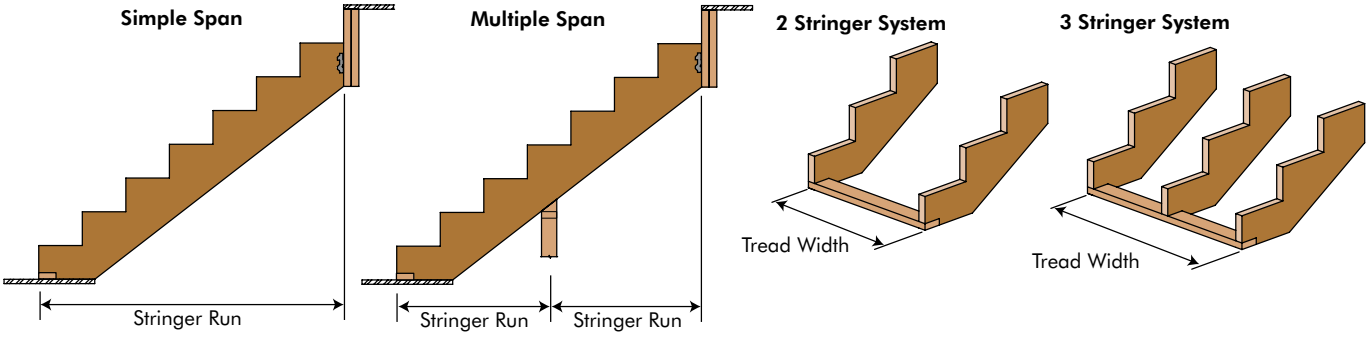
Stair Stringer Terms and Definitions



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)

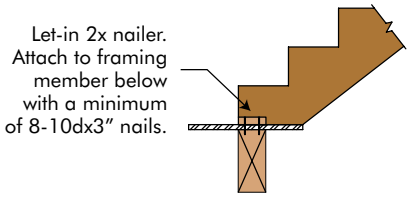
	*Minimum Throat Depth	
Stringer Depth	**Residential - 7-3/4″ rise & 11″ run**	**Commercial - 7″ rise & 11″ run**
9-1/2″ LVL	3-1/8″	3-9/16″
11-7/8″ LVL	5-1/2″	5-15/16″
14″ LVL	7-5/8″	8-1/16″
16″ LVL	9-5/8″	10-1/16″

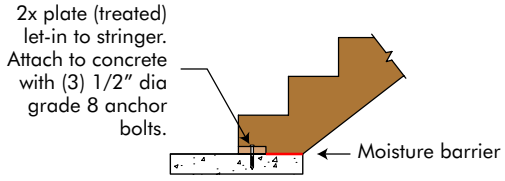
Stair Stringer Configurations



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

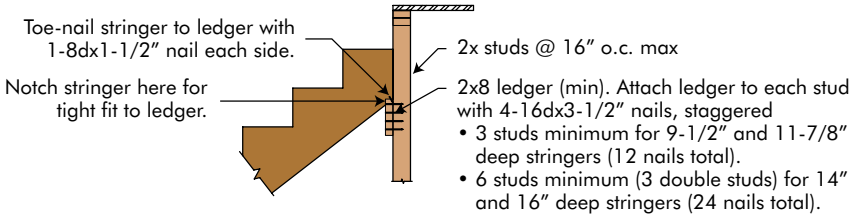
Low End



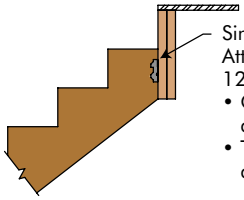


NOTE: Only use fasteners approved for use with the corresponding wood treatment.

High End



2x8 ledger (min). Attach ledger to each stud with 4-16dx3-1/2″ nails, staggered
- 3 studs minimum for 9-1/2″ and 11-7/8″ deep stringers (12 nails total).
- 6 studs minimum (3 double studs) for 14″ and 16″ deep stringers (24 nails total).



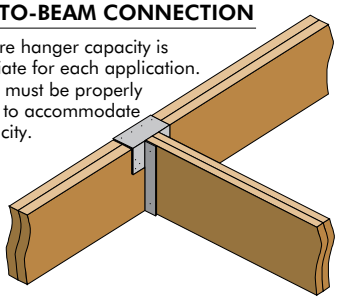
Simpson A35 or USP MPA1 framing angle. Attach to stringer and support with 12-8dx1-1/2″ nails.
- One angle per stringer required for 9-1/2″ and 11-7/8″ deep stringers.
- Two angles per stringer required for 14″ and 16″ deep stringers.

RigidLam LVL Bearing Details

Please refer to page 44 for LVL bearing length requirements.

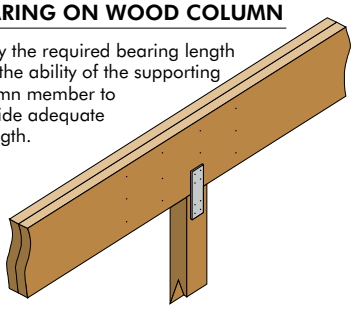
BEAM-TO-BEAM CONNECTION

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



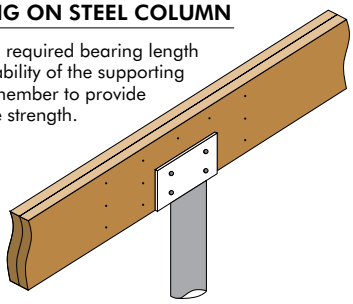
BEARING ON WOOD COLUMN

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

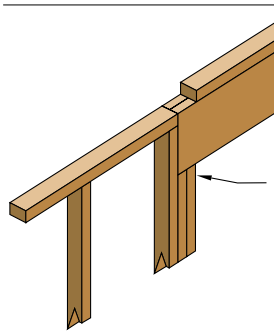


BEARING ON STEEL COLUMN

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



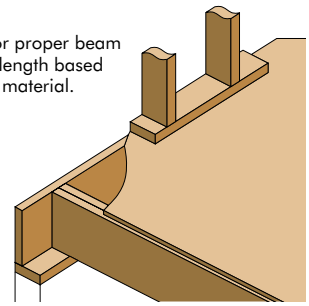
BEARING FOR DOOR OR WINDOW HEADER



See "Bearing Length Requirements" on page 44 to determine the number of jack studs required to support header.

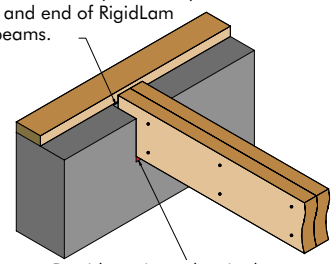
BEARING ON EXTERIOR WALL

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.

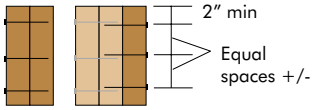


Provide moisture barrier between RigidLam LVL beams and concrete.

Fastening Recommendations For Multiple Ply 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).



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).

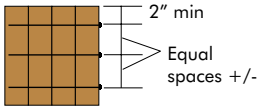
For 20", 22" or 24" deep members, nail plies together with 4 rows of 16dx3½" com. nails at 12" o.c. (add 1 row for 16d sinkers).

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 41 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.



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 LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL
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 LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL
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

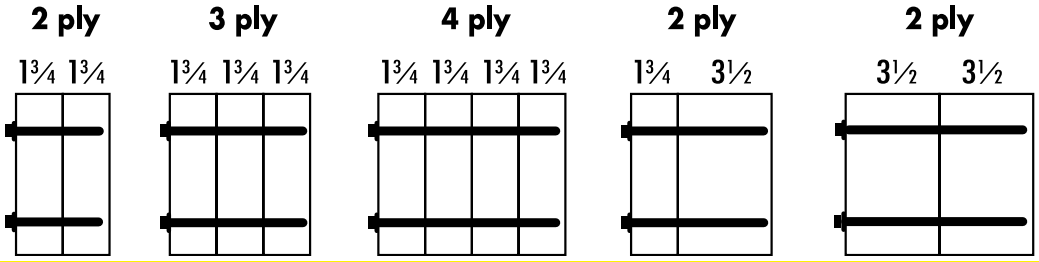
RECOMMENDED FASTENER DESIGN INFORMATION IN TERMS OF EQUIVALENT SPECIFIC GRAVITY FOR HEADER GRADES OF RIGIDLAM LVL

	Face		Edge	
	1.3E & 1.5E LVL	2.0E & 2.2E LVL	1.3E & 1.5E LVL	2.0E & 2.2E LVL
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.

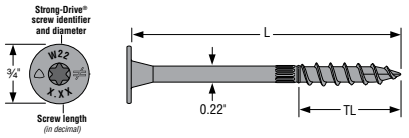
Fastening Recommendations For Multiple Ply LVL Members (cont.)

- 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.

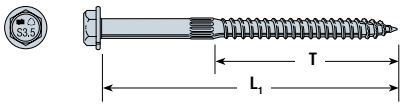
Simpson SDW Wood Screws



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.

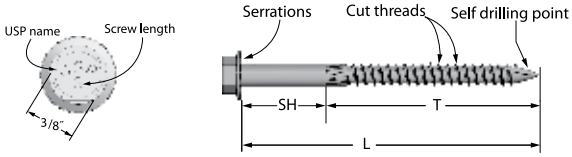
Simpson SDS Wood Screws



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.

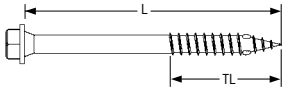
USP WS Wood Screws



Model No.	L (in)	SH (in)	T (in)
WS35	3-1/2	1	2-1/2
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.

FastenMaster TrussLok Wood Screws



Model No.	L (in)	TL (in)	Head Marking
FMTSL338	3-3/8	1-1/2	F3.3
FMTSL005	5	1-1/2	F5.0
FMTSL634	6-3/4	1-1/2	F6.7

- Code Evaluation Report – ICC-ES ESR-1078
- For TrussLok design and installation information, refer to the current FastenMaster literature, www.fastenmaster.com or contact FastenMaster at 800-518-3569

Explanation Of Important EWP Terms

1. **Live Load, Dead Load & Total Load:** Most people would feel very uncomfortable in buildings if there were no consideration to deflection or sag even though they were designed to safely support their total design load. That's because all structures (buildings, bridges, floors, etc.) can safely deflect well beyond the limits that make us feel uncomfortable. Limiting deflection is considered a "serviceability" requirement because it is independent of strength. In floor design, limiting sag is also necessary to prevent cracking in the sheet rock (on the bottom of the joists) due to load being applied and removed during the day.

   To do this, it is necessary to define that portion of the load that varies and that portion of the load that is always present. By definition, Live Load is people, furniture and pets etc. that can be moved on and off the floor. Dead Load is defined as the weight of the floor system itself or any other load that is permanently attached to the floor. Together, the dead load and the live load make up the total load.

2. **L/360, L/480:** A method used to limit the maximum allowable deflection (or sag) when designing joists and beams. Specifically, the term L is the span of the joist or beam expressed in inches and the ratio L/480 would be the maximum allowable deflection the joist would be expected to deflect. It does not represent what the actual deflection of the joist is in the field, just the maximum value it would be allowed to deflect under full 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/480 (or L/360)	Total Load – L/240
Roofs:	Live Load – L/240	Total Load – L/180

   For example, a typical residential floor (40 psf LL / 10 psf DL) with RFPI-Joists would be designed to an L/480 Live Load limit and an L/240 Total Load limit. For an 18' span, this would be equivalent to:

   $\frac{L}{480} = \frac{18' \times 12}{480} = \frac{216}{480} = 0.45"$ Allowable Live Load Deflection *And* $\frac{L}{240} = \frac{18' \times 12}{240} = \frac{216}{240} = 0.90"$ Allowable Total Load Deflection

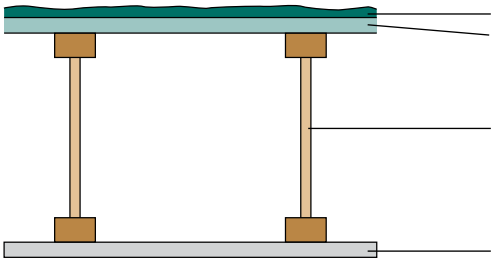
   The actual Live Load deflection of the floor system would be determined with a surveyor's transit taking readings before and after a true 40 psf load (i.e., cinder blocks) was applied. The deflection reading obtained in the field must be less than (or equal to) the 0.45". The same applies to the 0.9" under a true 50 psf load.

3. **PSF Load:** This is the design load, in pounds per square foot that is "applied" to the entire floor or roof area. By code, most residential floors must be designed to support a live load of 40 psf. The live load for roofs is determined by local code and depends on the amount of annual snow expected for that region where the house is.

   The design dead load psf is determined by the weight of each component of the floor or roof. A typical residential floor will have a dead load of 10 psf but depending on the components used, it can be as high as 20–24 psf. Dead load psf is based on standard material weights found in any of the National Model Building Codes. A typical method for calculating dead load is shown below:

FIGURE 1

DEAD LOAD CALCULATION FOR TYPICAL RESIDENTIAL FLOOR



CARPET & PAD	= 1.3 psf
T&G SUB-FLOOR	= 2.7 psf
Assume 11⅞" **RFPI-20 I-JOIST** @16" o.c. (2.2 plf ÷ 1.33')	= 1.7 psf
⅝" Sheet Rock **CEILING**	= 2.8 psf
MISCELLANEOUS (ductwork, wiring, etc.)	= 1.5 psf
TOTAL DEAD LOAD	**= 10 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

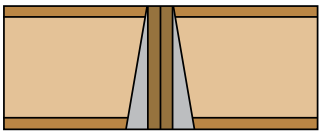
Nominal Size	Joist Spacing 12"	16"	19.2"	24"
2x4	1.4	1.1	0.9	0.7
2x6	2.2	1.7	1.4	1.1
2x8	2.9	2.2	1.8	1.5

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

PLF Load Development

CASE ONE: **FLUSH BEAM**

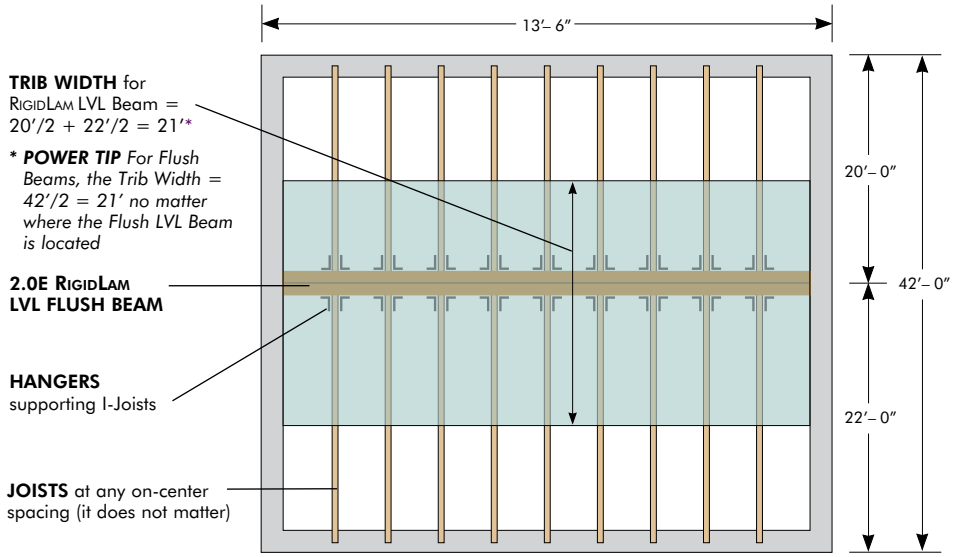


Typical **FLUSH BEAM** Framing

STEP 1 Determine the Trib Width (expressed in units of feet). In the example at right, the Trib Width = 21′.

STEP 2 Determine the Live Load PLF and Total Load PLF on the Beam:
PLF_{LL} = (PSF_{LL}) x (Trib Width). Here,
PLF_{LL} = 40 PSF x 21′ = 840 PLF_{LL}
PLF_{TL} = (PSF_{TL}) x (Trib Width). Here,
PLF_{TL} = 50 PSF x 21′ = 1050 PLF_{TL}

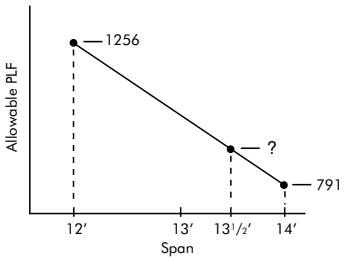
STEP 3 Use the appropriate PLF Table, (pages 50-55) and match the span of the LVL beam with the left "Span" column of the table. Always round the beam span up to the next whole foot. In this example use the Floor Table on page 50 with a span of 14′.



STEP 4 Going from left to right, find a beam that supports a LL equal to or greater than 840 plf and a TL equal to or greater than 1050 plf. Both checks must be made to properly size the beam.

STEP 5 A 2 ply 14″ RIGIDLAM LVL will work (864>840 and 1094>1050) but a 3 ply 11⅞″ comes close (see page 51). To check if the 3 ply 11⅞″ LVL works at the actual span of 13′– 6″, interpolate the table between 12′ and 14′. If you are not familiar with this, use the diagram as shown to the right to set up the interpolation as follows:

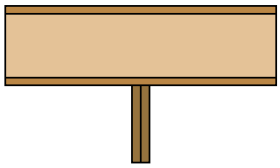
FOR LL $\frac{(1256-791)}{(14'-12')} = \frac{(\,?\,-791)}{(14'-13.5')} \Rightarrow 232.5 = \frac{(\,?\,-791)}{0.5} \Rightarrow (232.5x0.5) + 791 = ? \Rightarrow ? = 907.25$ plf > 840 plf OK



The PLF value for TL at 14′ is 1171 plf and since this is greater than the required 1050 plf, interpolation is not required for total load.

Therefore, an alternative solution would be a 3 ply 11⅞″ 2.0E RIGIDLAM LVL (907>840 and 1171>1050)

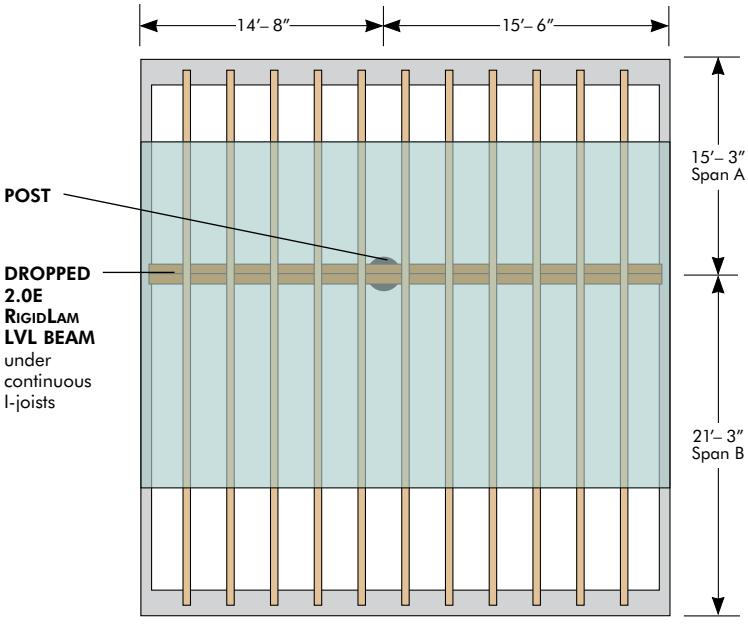
CASE TWO: **DROPPED BEAM**



Typical **DROPPED BEAM** Framing

When the LVL beam is dropped and the I-joists are continuous over the beam, there is more load transferred to the beam. This is because the continuous I-joists increase the trib width of the beam (green shaded area).

If both spans of the I-joist are equal, there is 25% more load put onto the LVL beam. If both spans are not equal, like shown in the diagram to the right (Span B > Span A), there is even more load placed onto the LVL beam. The exact formula is complicated but fortunately there is a simple and safe way to size the LVL beam:



STEP 1 Assume both spans of the I-joist to be the longest span. In the example to the left, this would be Span B (21.25 ft).

STEP 2 Calculate the PLF on the LVL beam as if it were flush and increase by 25%:
PLF_{LL} = 40PSF x 21.25′ x 1.25 = 1063 PLF_{LL}
PLF_{TL} = 50PSF x 21.25′ x 1.25 = 1329 PLF_{TL}

STEP 3 Use the longest span of the LVL beam (round up to the next whole foot) and use the appropriate PLF table. In this example, use a span of 16′ and the table on page 50. Use a 2 ply 2.0E 18″ RIGIDLAM LVL beam (1230>1063 & 1341>1329).

This method will always be safe provided the long span of the I-joist (Span B) is not more than 5 times longer than the shorter span (Span A). When possible, use appropriate software (e.g. Simpson Strong-Tie® Component Solutions™) or engineering analysis to determine solution.

RigidLam LVL Bearing Length Requirements

Support Material	S-P-F (South) Hem-Fir (North)[5]				Hem-Fir S-P-F[5]				Southern Pine Douglas Fir - Larch[5]			
Fc perp. (psi)	335 (psi)				405 (psi)				565 (psi)			
RigidLam Beam Width (in)	1-3/4"	3-1/2"	5-1/4"	7 "	1-3/4"	3-1/2"	5-1/4"	7"	1-3/4"	3-1/2"	5-1/4"	7"
Reaction (lbs)												
1000	1-3/4"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"
2000	3-1/2"	1-3/4"	1-1/2"	1-1/2"	3"	1-1/2"	1-1/2"	1-1/2"	2-1/4"	1-1/2"	1-1/2"	1-1/2"
3000	5-1/4"	2-3/4"	1-3/4"	1-1/2"	4-1/4"	2-1/4"	1-1/2"	1-1/2"	3-1/4"	1-3/4"	1-1/2"	1-1/2"
4000	7 "	3-1/2"	2-1/2"	1-3/4"	5-3/4"	3"	2"	1-1/2"	4-1/4"	2-1/4"	1-1/2"	1-1/2"
5000	8-3/4"	4-1/2"	3"	2-1/4"	7-1/4"	3-3/4"	2-1/2"	2"	5-1/4"	2-3/4"	1-3/4"	1-1/2"
6000		5-1/4"	3-1/2"	2-3/4"	8-1/2"	4-1/4"	3"	2-1/4"	6-1/4"	3-1/4"	2-1/4"	1-3/4"
7000		6"	4"	3"		5"	3-1/2"	2-1/2"	7-1/4"	3-3/4"	2-1/2"	2"
8000		7"	4-3/4"	3-1/2"		5 -3/4"	4"	3"	8-1/4"	4-1/4"	2-3/4"	2-1/4"
9000		7-3/4"	5-1/4"	4"		6-1/2"	4-1/4"	3-1/4"	9-1/4"	4-3/4"	3-1/4"	2-1/2"
10000		8-3/4"	5-3/4"	4-1/2"		7-1/4"	4-3/4"	3-3/4"		5-1/4"	3-1/2"	2-3/4"
11000		9-1/2"	6-1/2"	4-3/4"		8"	5-1/4"	4"		5-3/4"	3-3/4"	3"
12000			7"	5-1/4"		8-1/2"	5-3/4"	4-1/4"		6-1/4"	4-1/4"	3-1/4"
13000			7-1/2"	5-3/4"		9-1/4"	6-1/4"	4-3/4"		6-3/4"	4-1/2"	3-1/2"
14000			8"	6"			6-3/4"	5"		7-1/4"	4-3/4"	3-3/4"
15000			8-3/4"	6-1/2"			7-1/4"	5-1/2"		7-3/4"	5-1/4"	4"
16000			9-1/4"	7"			7-3/4"	5-3/4"		8-1/4"	5-1/2"	4-1/4"
17000			9-3/4"	7 -1/4"			8"	6"		8-3/4"	5-3/4"	4-1/2"
18000				7-3/4"			8-1/2"	6-1/2"		9-1/4"	6-1/4"	4-3/4"
19000				8-1/4"			9"	6-3/4"		9-3/4"	6-1/2"	5"
20000				8-3/4"			9-1/2"	7-1/4"			6-3/4"	5-1/4"
21000				9"				7-1/2"			7-1/4"	5-1/2"
22000				9-1/2"				8"			7-1/2"	5-3/4"
23000								8-1/4"			8"	6"

Support Material	1.5E RigidLam LVL[6]				2.0E RigidLam LVL[6]				2.2E RigidLam LVL[6]			
Fc perp. (psi)	575 (psi)				750 (psi)				850 (psi)			
RigidLam Beam Width (in)	1-3/4"	3-1/2"	5-1/4"	7"	1-3/4"	3-1/2"	5-1/4"	7"	1-3/4"	3-1/2"	5-1/4"	7"
Reaction (lbs)												
1000	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"
2000	2"	1-1/2"	1-1/2"	1-1/2"	1-3/4"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"
3000	3"	1-1/2"	1-1/2"	1-1/2"	2-1/2"	1-1/2"	1-1/2"	1-1/2"	2-1/4"	1-1/2"	1-1/2"	1-1/2"
4000	4"	2"	1-1/2"	1-1/2"	3-1/4"	1-3/4"	1-1/2"	1-1/2"	2-3/4"	1-1/2"	1-1/2"	1-1/2"
5000	5"	2-1/2"	1-3/4"	1-1/2"	4"	2"	1-1/2"	1-1/2"	3-1/2"	1-3/4"	1-1/2"	1-1/2"
6000	6"	3"	2"	1-1/2"	4-3/4"	2-1/2"	1-3/4"	1-1/2"	4-1/4"	2-1/4"	1-1/2"	1-1/2"
7000	7"	3-1/2"	2-1/2"	1-3/4"	5-1/2"	2-3/4"	2"	1-1/2"	4-3/4"	2-1/2"	1-3/4"	1-1/2"
8000	8"	4"	2-3/4"	2"	6-1/4"	3-1/4"	2-1/4"	1-3/4"	5-1/2"	2-3/4"	2"	1-1/2"
9000		4-1/2"	3"	2-1/4"	7"	3-1/2"	2-1/2"	1-3/4"	6-1/4"	3-1/4"	2-1/4"	1-3/4"
10000		5"	3-1/2"	2-1/2"	7-3/4"	4"	2-3/4"	2"	6-3/4"	3-1/2"	2-1/4"	1-3/4"
11000		5-1/2"	3-3/4"	2-3/4"	8-1/2"	4-1/4"	3"	2-1/4"	7-1/2"	3-3/4"	2-1/2"	2"
12000		6"	4"	3"	9-1/4"	4-3/4"	3-1/4"	2-1/2"	8-1/4"	4-1/4"	2-3/4"	2-1/4"
13000		6-1/2"	4-1/2"	3-1/4"		5"	3-1/2"	2-1/2"	8-3/4"	4-1/2"	3"	2-1/4"
14000		7"	4-3/4"	3-1/2"		5-1/2"	3-3/4"	2-3/4"	9-1/2"	4-3/4"	3-1/4"	2-1/2"
15000		7-1/2"	5"	3-3/4"		5-3/4"	4"	3"		5-1/4"	3-1/2"	2-3/4"
16000		8"	5-1/2"	4"		6-1/4"	4-1/4"	3-1/4"		5-1/2"	3-3/4"	2-3/4"
17000		8-1/2"	5-3/4"	4-1/4"		6-1/2"	4-1/2"	3-1/4"		5-3/4"	4"	3"
18000			6"	4-1/2"		7"	4-3/4"	3-1/2"		6-1/4"	4-1/4"	3-1/4"
19000			6-1/2"	4-3/4"		7-1/4"	5"	3-3/4"		6-1/2"	4-1/2"	3-1/4"
20000			6-3/4"	5"		7-3/4"	5-1/4"	4"		6-3/4"	4-1/2"	3-1/2"
21000			7"	5-1/4"		8"	5-1/2"	4"		7-1/4"	4-3/4"	3-3/4"
22000			7-1/2"	5-1/2"		8-1/2"	5-3/4"	4-1/4"		7-1/2"	5"	3-3/4"
23000			7-3/4"	5-3/4"		9"	6"	4-1/2"		7-3/4"	5-1/4"	4"

Notes:

1. The minimum required RigidLam LVL bearing length is 1½".
2. Duration of load factors may not be applied to bearing length requirements.
3. All beams require support across their full width.
4. All beams require lateral support at bearing points.
5. Use these values when the beam is supported by a wall plate, sill plate, timber or built-up girder.
6. Use these values when the beam is supported by the end of a column or connection hardware.
7. The support member must be sized to carry the load from the beam.
8. For 1-1/2", 3", 4-1/2" or 6" thick LVL, multiply the appropriate bearing length from the table for 1-3/4", 3-1/2", 5-1/4" or 7" respectively by 1.17. (see example below)

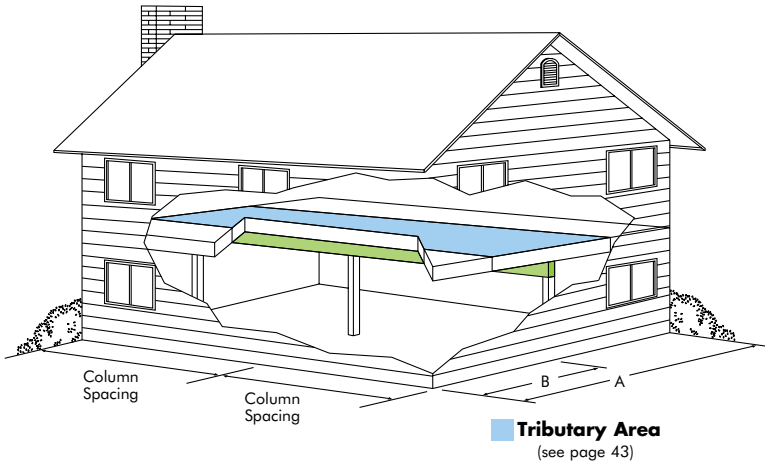
Example:
Given: Design reaction = 10,000 lbs
Support material = Douglas Fir - Larch
Solve:
Case 1 - 3 ply, 1-3/4" beam ⇒ Beam width = 5-1/4"
⇒ Required bearing length = 3-1/2"

Case 2 - 3 ply, 1-1/2" beam ⇒ Beam width = 4-1/2"
⇒ Required bearing length = 3-1/2" x 1.17 = 4.1"

Floor Beams

The tables below show the size of the beams needed to support various floor systems. The tables are valid for loads of one floor only, i.e., a second story floor or one story floor over a basement.

When floor joists span continuously from wall to wall (not cut at beam) this table requires that "B" be not less than 45%, or greater than 55% of "A".



FLOOR BEAM - 1.5E RIGIDLAM LVL

Width of Building (ft)	Beam Support Spacing (ft)									
	11	12	13	14	15	16	17	18	19	20
24	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 14 3 - 14	2 - 16 3 - 14	2 - 16 * 3 - 14	2 - 18 * 3 - 16	2 - 18 * 3 - 16	2 - 20 * 3 - 18	2 - 20 * 3 - 18
28	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 16 * 3 - 14	2 - 16 * 3 - 14	2 - 18 * 3 - 16	2 - 18 * 3 - 16	2 - 20 * 3 - 18	-- 3 - 18	-- 3 - 18
32	2 - 11-7/8 3 - 11-7/8	2 - 14 * 3 - 11-7/8	2 - 16 * 3 - 14	2 - 16 * 3 - 14	2 - 18 * 3 - 16	2 - 18 * 3 - 16	-- 3 - 16	-- 3 - 18 *	-- 3 - 18 *	-- 3 - 20 *
36	2 - 14 * 3 - 11-7/8	2 - 16 * 3 - 11-7/8	2 - 16 * 3 - 14	2 - 18 * 3 - 14	-- 3 - 16	-- 3 - 16 *	-- 3 - 18 *	-- 3 - 18 *	-- 3 - 20 *	-- 3 - 20 *
40	2 - 16 * 3 - 11-7/8	2 - 16 * 3 - 14	2 - 18 * 3 - 14	-- 3 - 16	-- 3 - 16 *	-- 3 - 18 *	-- 3 - 18 *	-- 3 - 20 *	-- 3 - 20 *	-- --

FLOOR BEAM - 2.0E RIGIDLAM LVL

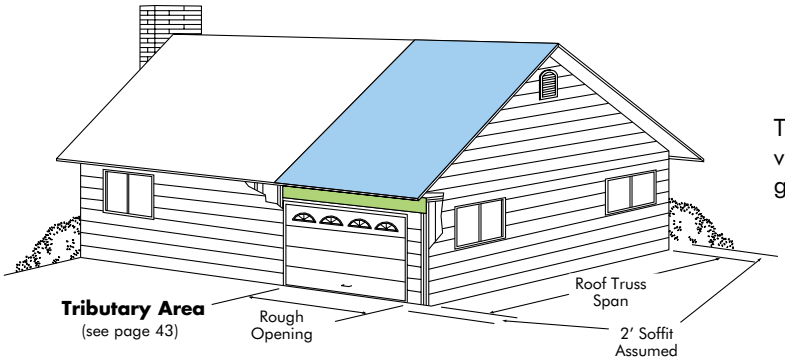
Width of Building (ft)	Beam Support Spacing (ft)									
	11	12	13	14	15	16	17	18	19	20
24	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 16 3 - 14	2 - 16 3 - 14	2 - 16 3 - 14	2 - 18 3 - 16	2 - 18 3 - 16
28	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 14 3 - 14	2 - 16 3 - 14	2 - 16 3 - 14	2 - 18 * 3 - 16	2 - 18 * 3 - 16	2 - 20 * 3 - 18
32	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 14 3 - 14	2 - 16 3 - 14	2 - 16 * 3 - 14	2 - 18 * 3 - 16	2 - 18 * 3 - 16	2 - 20 * 3 - 18	2 - 20 * 3 - 18
36	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 16 * 3 - 14	2 - 16 * 3 - 14	2 - 18 * 3 - 16	2 - 18 * 3 - 16	2 - 20 * 3 - 16	2 - 20 * 3 - 18	-- 3 - 18
40	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 14 * 3 - 14	2 - 16 * 3 - 14	2 - 16 * 3 - 14	2 - 18 * 3 - 16	2 - 18 * 3 - 16	-- 3 - 18	-- 3 - 18 *	-- 3 - 20 *
44	2 - 14 3 - 11-7/8	2 - 14 * 3 - 11-7/8	2 - 16 * 3 - 14	2 - 16 * 3 - 14	2 - 18 * 3 - 16	-- 3 - 16	-- 3 - 18 *	-- 3 - 18 *	-- 3 - 18 *	-- 3 - 20 *

* see note 3

Notes:

1. **Beam sizes are listed as the number of 1¾" thick pieces by the beam depth (e.g. 2-9½" indicates two 1¾" pieces by 9½" deep).**
2. Beams sizes are based on continuous floor joist spans and simple or continuous beam spans. If the floor joists are not continuous, it is permissible to consider a Total Floor Joist Span "A" that is equal to 0.8 times the actual "A" dimension.
3. The minimum required end and intermediate bearing lengths (based on 575 psi for 1.5E LVL and 750 psi for 2.0E LVL) are 3" and 7½" respectively unless the * symbol is shown. In that case, 4½" and 10½" end and intermediate bearing lengths are required.
4. All beams require support across their full width.
5. Beam sizes are based on residential floor loading of 40 psf live load and 10 psf dead load. The roof framing must be trusses supported at the exterior walls only.
6. Deflection is limited to L/360 at live load and L/240 at total load.

1-Story Garage Door Headers



The tables indicate the appropriate size header for various roof truss spans with 2' soffit. If the soffit is greater than 2', additional engineering is necessary.

1 STORY – 1.5E RIGIDLAM LVL

Roof Loading		Snow - 115%								
		25 psf LL + 20 psf DL			30 psf LL + 20 psf DL			40 psf LL + 20 psf DL		
Rough Opening (ft)		9'-3"	16'-3"	18'-3"	9'-3"	16'-3"	18'-3"	9'-3"	16'-3"	18'-3"
Roof Truss Span with 2' Soffit Assumed	20	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 14
	24	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 16 3 - 14	2 - 16 * 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 16
	28	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 18 * 3 - 14	-- 3 - 16 *
	32	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 18 * 3 - 14	2 - 20 * 3 - 16	2 - 11-7/8 3 - 9-1/2	-- 3 - 16 *	-- 3 - 18 *
	36	2 - 9-1/2 3 - 9-1/2	2 - 18 * 3 - 14	2 - 20 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 18 * 3 - 14	-- 3 - 16 *	2 - 11-7/8 3 - 9-1/2	-- 3 - 16 *	-- 3 - 18 *

Roof Loading		Non-Snow - 125%								
		20 psf LL + 15 psf DL			20 psf LL + 20 psf DL			20 psf LL + 25 psf DL		
Rough Opening (ft)		9'-3"	16'-3"	18'-3"	9'-3"	16'-3"	18'-3"	9'-3"	16'-3"	18'-3"
Roof Truss Span with 2' Soffit Assumed	20	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14
	24	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 14 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14
	28	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 * 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 14 * 3 - 14	2 - 16 * 3 - 14
	32	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 14 * 3 - 14	2 - 16 * 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 16
	36	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 14	2 - 16 * 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 16

1 STORY – 2.0E RIGIDLAM LVL

Roof Loading		Snow - 115%								
		25 psf LL + 20 psf DL			30 psf LL + 20 psf DL			40 psf LL + 20 psf DL		
Rough Opening (ft)		9'-3"	16'-3"	18'-3"	9'-3"	16'-3"	18'-3"	9'-3"	16'-3"	18'-3"
Roof Truss Span with 2' Soffit Assumed	20	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 14 3 - 14
	24	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 14 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 * 3 - 14
	28	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 14 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 16 * 3 - 14
	32	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 * 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 14
	36	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 * 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 16

Roof Loading		Non-Snow - 125%								
		20 psf LL + 15 psf DL			20 psf LL + 20 psf DL			20 psf LL + 25 psf DL		
Rough Opening (ft)		9'-3"	16'-3"	18'-3"	9'-3"	16'-3"	18'-3"	9'-3"	16'-3"	18'-3"
Roof Truss Span with 2' Soffit Assumed	20	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8
	24	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 14 3 - 11-7/8
	28	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 14 3 - 14
	32	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 14 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14
	36	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 14 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 * 3 - 14

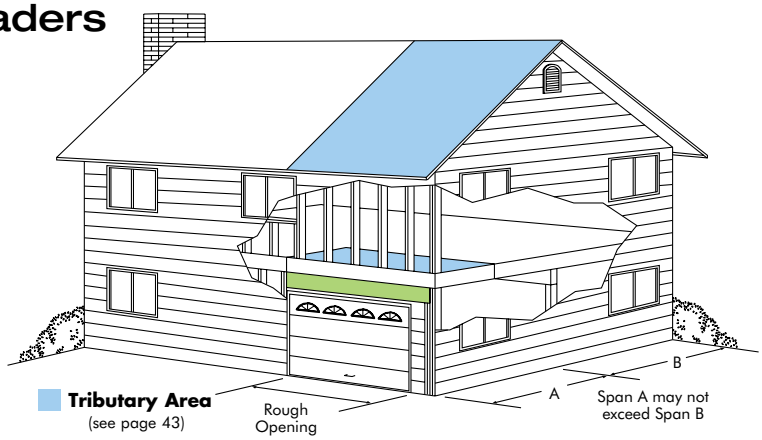
* see note 2

Notes:

1. **Header sizes are listed as the number of 1¾" thick pieces by the header depth (e.g. 2-9½" indicates two 1¾" pieces by 9½" deep).**
2. The minimum required end bearing length (based on 575 psi for 1.5E LVL and 750 psi for 2.0E LVL) is 4½" unless the * symbol is shown. In that case, 6" is required.
3. All headers require support across their full width. Use 2x4 cripples for two-piece headers and 2x6 cripples for three-piece headers.
4. The roof framing is assumed to be trusses supported by the exterior walls only.
5. Deflection is limited to L/240 at live load and L/180 at total load.

2-Story Garage Door Headers

The tables consider the combined loads from a wall, second story floor (1/4 of total floor joist span) and various roof truss spans with a 2′ soffit. Intermediate floor beam assumed. If the soffit exceeds 2′, additional engineering will be necessary.



2 STORY – 1.5E RIGIDLAM LVL

Roof Loading		Snow - 115%								
		25 psf LL + 20 psf DL			30 psf LL + 20 psf DL			40 psf LL + 20 psf DL		
Rough Opening (ft)		9′-3″	16′-3″	18′-3″	9′-3″	16′-3″	18′-3″	9′-3″	16′-3″	18′-3″
Roof Truss Span with 2′ Soffit Assumed	20	2 - 9-1/2 3 - 9-1/2	2 - 18 * 3 - 16	2 - 20 * 3 - 16	2 - 11-7/8 3 - 9-1/2	2 - 18 * 3 - 16	2 - 20 * 3 - 18	2 - 11-7/8 3 - 9-1/2	2 - 18 * 3 - 16	-- 3 - 18 *
	24	2 - 11-7/8 3 - 9-1/2	2 - 18 * 3 - 16	-- 3 - 18 *	2 - 11-7/8 3 - 9-1/2	-- 3 - 16 *	-- 3 - 18 *	2 - 11-7/8 3 - 9-1/2	-- 3 - 16 *	-- 3 - 18 *
	28	2 - 11-7/8 3 - 9-1/2	-- 3 - 16 *	-- 3 - 18 *	2 - 11-7/8 3 - 9-1/2	-- 3 - 16 *	-- 3 - 18 *	2 - 11-7/8 * 3 - 11-7/8	-- 3 - 18 *	-- 3 - 20 *
	32	2 - 11-7/8 * 3 - 9-1/2	-- 3 - 18 *	-- 3 - 18 *	2 - 11-7/8 * 3 - 9-1/2	-- 3 - 18 *	-- 3 - 20 *	2 - 14 * 3 - 11-7/8	-- 3 - 18 *	-- --
	36	2 - 11-7/8 * 3 - 11-7/8	-- 3 - 18 *	-- 3 - 20 *	2 - 14 * 3 - 11-7/8	-- 3 - 18 *	-- --	2 - 14 * 3 - 11-7/8	-- --	-- --

Roof Loading		Non-Snow - 125%								
		20 psf LL + 15 psf DL			20 psf LL + 20 psf DL			20 psf LL + 25 psf DL		
Rough Opening (ft)		9′-3″	16′-3″	18′-3″	9′-3″	16′-3″	18′-3″	9′-3″	16′-3″	18′-3″
Roof Truss Span with 2′ Soffit Assumed	20	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 18 * 3 - 16	2 - 20 * 3 - 16
	24	2 - 9-1/2 3 - 9-1/2	2 - 18 * 3 - 16	2 - 20 * 3 - 16	2 - 11-7/8 3 - 9-1/2	2 - 18 * 3 - 16	2 - 20 * 3 - 18	2 - 11-7/8 3 - 9-1/2	2 - 18 * 3 - 16	-- 3 - 18 *
	28	2 - 11-7/8 3 - 9-1/2	2 - 18 * 3 - 16	-- 3 - 18 *	2 - 11-7/8 3 - 9-1/2	2 - 18 * 3 - 16 *	-- 3 - 18 *	2 - 11-7/8 3 - 9-1/2	-- 3 - 16 *	-- 3 - 18 *
	32	2 - 11-7/8 3 - 9-1/2	-- 3 - 16 *	-- 3 - 18 *	2 - 11-7/8 3 - 9-1/2	-- 3 - 16 *	-- 3 - 18 *	2 - 11-7/8 * 3 - 9-1/2	-- 3 - 18 *	-- 3 - 18 *
	36	2 - 11-7/8 3 - 9-1/2	-- 3 - 16 *	-- 3 - 18 *	2 - 11-7/8 * 3 - 9-1/2	-- 3 - 18 *	-- 3 - 20 *	2 - 11-7/8 * 3 - 11-7/8	-- 3 - 18 *	-- 3 - 20 *

2 STORY – 2.0E RIGIDLAM LVL

Roof Loading		Snow - 115%								
		25 psf LL + 20 psf DL			30 psf LL + 20 psf DL			40 psf LL + 20 psf DL		
Rough Opening (ft)		9′-3″	16′-3″	18′-3″	9′-3″	16′-3″	18′-3″	9′-3″	16′-3″	18′-3″
Roof Truss Span with 2′ Soffit Assumed	20	2 - 9-1/2 3 - 9-1/2	2 - 16 3 - 14	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 16 3 - 14	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 16
	24	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 18 * 3 - 16	2 - 20 * 3 - 18
	28	2 - 9-1/2 3 - 9-1/2	2 - 18 * 3 - 16	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 18 * 3 - 16	2 - 20 * 3 - 18	2 - 11-7/8 3 - 9-1/2	2 - 18 * 3 - 16	-- 3 - 18 *
	32	2 - 11-7/8 3 - 9-1/2	2 - 18 * 3 - 16	-- 3 - 18 *	2 - 11-7/8 3 - 9-1/2	2 - 18 * 3 - 16	-- 3 - 18 *	2 - 11-7/8 3 - 9-1/2	-- 3 - 16 *	-- 3 - 18 *
	36	2 - 11-7/8 3 - 9-1/2	-- 3 - 16 *	-- 3 - 18 *	2 - 11-7/8 3 - 9-1/2	-- 3 - 16 *	-- 3 - 18 *	2 - 11-7/8 * 3 - 9-1/2	-- 3 - 18 *	-- 3 - 18 *

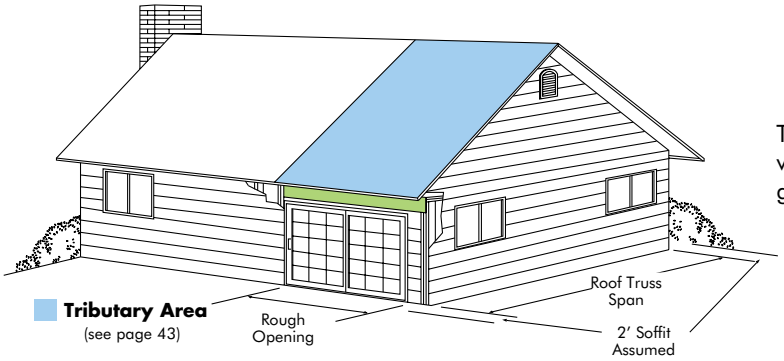
Roof Loading		Non-Snow - 125%								
		20 psf LL + 15 psf DL			20 psf LL + 20 psf DL			20 psf LL + 25 psf DL		
Rough Opening (ft)		9′-3″	16′-3″	18′-3″	9′-3″	16′-3″	18′-3″	9′-3″	16′-3″	18′-3″
Roof Truss Span with 2′ Soffit Assumed	20	2 - 9-1/2 3 - 9-1/2	2 - 14 3 - 14	2 - 16 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 16 3 - 14	2 - 18 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 16 3 - 14	2 - 18 * 3 - 16
	24	2 - 9-1/2 3 - 9-1/2	2 - 16 3 - 14	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 16
	28	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 18 * 3 - 16	2 - 18 * 3 - 16
	32	2 - 9-1/2 3 - 9-1/2	2 - 16 * 3 - 14	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 18 * 3 - 16	2 - 20 * 3 - 16	2 - 11-7/8 3 - 9-1/2	2 - 18 * 3 - 16	-- 3 - 18 *
	36	2 - 9-1/2 3 - 9-1/2	2 - 18 * 3 - 16	2 - 20 * 3 - 18	2 - 11-7/8 3 - 9-1/2	2 - 18 * 3 - 16	-- 3 - 18 *	2 - 11-7/8 3 - 9-1/2	-- 3 - 16 *	-- 3 - 18 *

* see note 3

Notes:

1. **Header sizes are listed as the number of 1¾″ thick pieces by the header depth (e.g. 2-9½″ indicates two 1¾″ pieces by 9½″ deep).**
2. Header sizes are based on the assumption that the floor joists are supported in the middle of the building by a beam or wall.
3. The minimum required end bearing length (based on 575 psi for 1.5E LVL and 750 psi for 2.0E LVL) is 4½″ unless the * symbol is shown. In that case, 6″ is required.
4. All headers require support across their full width. Use 2x4 cripples for two-piece headers and 2x6 cripples for three-piece headers.
5. Header sizes are based on residential floor loading of 40 psf live load, 10 psf dead load and 80 plf wall load. The roof framing must be trusses supported by the exterior walls only.
6. Deflection is limited to L/360 at live load and L/240 at total load.

1-Story Window & Patio Door Headers



The tables indicate the appropriate size header for various roof truss spans with 2′ soffit. If the soffit is greater than 2′, additional engineering is necessary.

1 STORY – 1.5E RIGIDLAM LVL

Roof Loading		Snow - 115%									
		25 psf LL + 20 psf DL					40 psf LL + 20 psf DL				
Rough Opening (ft)		6′-0″	8′-0″	9′-0″	10′-0″	12′-0″	6′-0″	8′-0″	9′-0″	10′-0″	12′-0″
Roof Truss Span with 2′ Soffit Assumed	20	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 16 3 - 14
	24	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 16 3 - 14
	28	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14
	32	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 18 * 3 - 16
	36	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 * 3 - 11-7/8	2 - 18 * 3 - 16

Roof Loading		Non-Snow - 125%									
		20 psf LL + 15 psf DL					20 psf LL + 25 psf DL				
Rough Opening (ft)		6′-0″	8′-0″	9′-0″	10′-0″	12′-0″	6′-0″	8′-0″	9′-0″	10′-0″	12′-0″
Roof Truss Span with 2′ Soffit Assumed	20	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8
	24	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8
	28	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 16 3 - 14
	32	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 16 3 - 14
	36	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14

1 STORY – 2.0E RIGIDLAM LVL

Roof Loading		Snow - 115%									
		25 psf LL + 20 psf DL					40 psf LL + 20 psf DL				
Rough Opening (ft)		6′-0″	8′-0″	9′-0″	10′-0″	12′-0″	6′-0″	8′-0″	9′-0″	10′-0″	12′-0″
Roof Truss Span with 2′ Soffit Assumed	20	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8
	24	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8
	28	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 16 3 - 14
	32	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 16 3 - 14
	36	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14

Roof Loading		Non-Snow - 125%									
		20 psf LL + 15 psf DL					20 psf LL + 25 psf DL				
Rough Opening (ft)		6′-0″	8′-0″	9′-0″	10′-0″	12′-0″	6′-0″	8′-0″	9′-0″	10′-0″	12′-0″
Roof Truss Span with 2′ Soffit Assumed	20	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8
	24	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8
	28	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8
	32	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8
	36	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 14

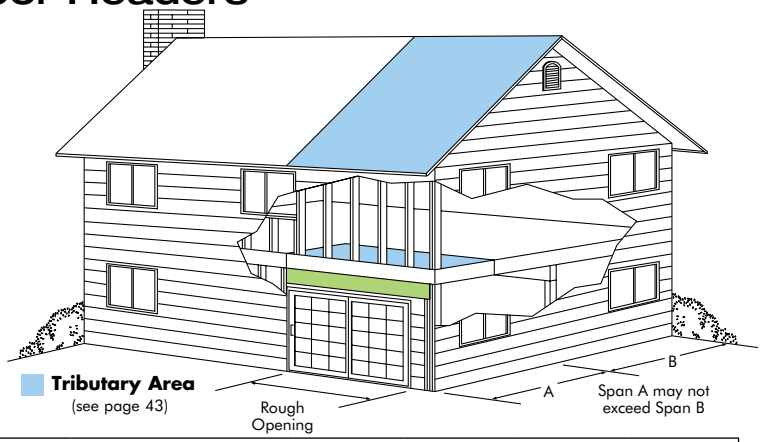
* see note 2

Notes:

1. **Header sizes are listed as the number of 1¾″ thick pieces by the header depth (e.g. 2-9½″ indicates two 1¾″ pieces by 9½″ deep).**
2. The minimum required bearing length (based on 575 psi for 1.5E LVL and 750 psi for 2.0E LVL) is 4½″ unless the * symbol is shown. In that case, 6″ is required.
3. All headers require support across their full width. Use 2x4 cripples for two piece headers and 2x6 cripples for three piece headers.
4. The roof framing is assumed to be trusses supported by the exterior walls only.
5. Deflection is limited to L/240 at live load and the lesser of L/180 or 5/16″ at total load.

2-Story Window & Patio Door Headers

The tables consider the combined loads from a wall, second story floor (1/4 of total floor joist span) and various roof truss spans with a 2′ soffit. Intermediate floor beam assumed. If the soffit exceeds 2′, additional engineering will be necessary.



2 STORY – 1.5E RIGIDLAM LVL

Roof Loading		Snow - 115%									
		25 psf LL + 20 psf DL					40 psf LL + 20 psf DL				
Rough Opening (ft)		6′-0″	8′-0″	9′-0″	10′-0″	12′-0″	6′-0″	8′-0″	9′-0″	10′-0″	12′-0″
Roof Truss Span with 2′ Soffit Assumed	20	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 18 * 3 - 16
	24	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 16 * 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 * 3 - 11-7/8	2 - 18 * 3 - 16
	28	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 * 3 - 11-7/8	2 - 14 * 3 - 14	2 - 18 * 3 - 16
	32	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 * 3 - 11-7/8	2 - 14 * 3 - 11-7/8	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 * 3 - 9-1/2	2 - 14 * 3 - 11-7/8	2 - 16 * 3 - 14	-- 3 - 16 *
	36	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 * 3 - 11-7/8	2 - 16 * 3 - 14	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 * 3 - 11-7/8	2 - 14 * 3 - 11-7/8	2 - 16 * 3 - 14 *	-- 3 - 18 *

Roof Loading		Non-Snow - 125%									
		20 psf LL + 15 psf DL					20 psf LL + 25 psf DL				
Rough Opening (ft)		6′-0″	8′-0″	9′-0″	10′-0″	12′-0″	6′-0″	8′-0″	9′-0″	10′-0″	12′-0″
Roof Truss Span with 2′ Soffit Assumed	20	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14
	24	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 16 * 3 - 14
	28	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 * 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 18 * 3 - 16
	32	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 * 3 - 11-7/8	2 - 14 * 3 - 11-7/8	2 - 18 * 3 - 16
	36	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 * 3 - 11-7/8	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 * 3 - 11-7/8	2 - 16 * 3 - 14	2 - 18 * 3 - 16

2 STORY – 2.0E RIGIDLAM LVL

Roof Loading		Snow - 115%									
		25 psf LL + 20 psf DL					40 psf LL + 20 psf DL				
Rough Opening (ft)		6′-0″	8′-0″	9′-0″	10′-0″	12′-0″	6′-0″	8′-0″	9′-0″	10′-0″	12′-0″
Roof Truss Span with 2′ Soffit Assumed	20	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 16 3 - 14
	24	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 3 - 14
	28	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 * 3 - 14
	32	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 * 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 * 3 - 11-7/8	2 - 18 * 3 - 16
	36	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 * 3 - 11-7/8	2 - 14 * 3 - 11-7/8	2 - 18 * 3 - 16

Roof Loading		Non-Snow - 125%									
		20 psf LL + 15 psf DL					20 psf LL + 25 psf DL				
Rough Opening (ft)		6′-0″	8′-0″	9′-0″	10′-0″	12′-0″	6′-0″	8′-0″	9′-0″	10′-0″	12′-0″
Roof Truss Span with 2′ Soffit Assumed	20	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 14
	24	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 16 3 - 14
	28	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 16 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 11-7/8 3 - 11-7/8	2 - 16 3 - 14
	32	2 - 9-1/2 3 - 9-1/2	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 14 3 - 11-7/8	2 - 16 * 3 - 14	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 * 3 - 11-7/8	2 - 18 * 3 - 16
	36	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 3 - 11-7/8	2 - 14 3 - 11-7/8	2 - 18 * 3 - 16	2 - 9-1/2 3 - 9-1/2	2 - 11-7/8 3 - 9-1/2	2 - 11-7/8 * 3 - 11-7/8	2 - 14 * 3 - 11-7/8	2 - 18 * 3 - 16

* see note 3

Notes:

1. **Header sizes are listed as the number of 1¾″ thick pieces by the header depth (e.g. 2-9½″ indicates two 1¾″ pieces by 9½″ deep).**
2. Header sizes are based on the assumption that the floor joists are supported in the middle of the building by a beam or wall.
3. The minimum required end bearing length (based on 575 psi for 1.5E LVL and 750 psi for 2.0E LVL) is 4½″ unless the * symbol is shown. In that case, 6″ is required.
4. All headers require support across their full width. Use 2x4 cripples for two-piece headers and 2x6 cripples for three-piece headers.
5. Header sizes are based on residential floor loading of 40 psf live load, 10 psf dead load and 80 plf wall load. The roof framing must be trusses supported by the exterior walls only
6. Deflection is limited to L/360 at live load and the lesser of L/240 or 5/16″ at total load.

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					

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 40 and 41 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 50

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					

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 40 and 41 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 52

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 40 and 41 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

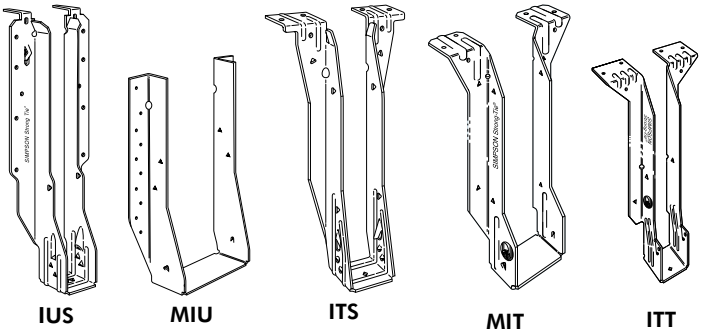
Refer to notes on page 54

I-Joist Framing Connectors

SIMPSON StrongTie® CONNECTORS

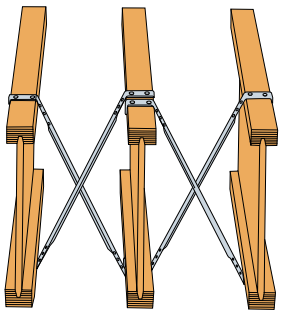
FACE MOUNT HANGERS

Single I-Joist				Double I-Joist			
Width	Depth	Hanger	Down Load	Width	Depth	Hanger	Down Load
1-3/4″	9-1/2″	IUS1.81/9.5	935	3-1/2″	9-1/2″	MIU3.56/9	2270
	11-7/8″	IUS1.81/11.88	1170		11-7/8″	MIU3.56/11	2840
	14″	IUS1.81/14	1405		14″	MIU3.56/14	3125
	16″	IUS1.81/16	1640		16″	MIU3.56/16	3410
2-1/16″	9-1/2″	IUS2.06/9.5	935	4-1/8″	9-1/2″	MIU4.28/9	2270
	11-7/8″	IUS2.06/11.88	1170		11-7/8″	MIU4.28/11	2840
	14″	IUS2.06/14	1405		14″	MIU4.28/14	3125
	16″	IUS2.06/16	1640		16″	MIU4.28/16	3410
2-5/16″	9-1/2″	IUS2.37/9.5	935	4-5/8″	9-1/2″	MIU4.75/9	2270
	11-7/8″	IUS2.37/11.88	1170		11-7/8″	MIU4.75/11	2840
	14″	IUS2.37/14	1405		14″	MIU4.75/14	3125
	16″	IUS2.37/16	1640		16″	MIU4.75/16	3410
2-1/2″	9-1/2″	IUS2.56/9.5	935	5″	9-1/2″	MIU5.12/9	2270
	11-7/8″	IUS2.56/11.88	1170		11-7/8″	MIU5.12/11	2840
	14″	IUS2.56/14	1405		14″	MIU5.12/14	3125
	16″	IUS2.56/16	1640		16″	MIU5.12/16	3410
3-1/2″	11-7/8″	IUS3.56/11.88	1405	7″	11-7/8″	HU412-2	2950
	14″	IUS3.56/14	1405		14″	HU414-2	3485
	16″	IUS3.56/16	1640		16″	HU414-2	3485



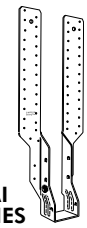
TENSION BRIDGING FOR I-JOIST

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



TOP FLANGE HANGERS

Single I-Joist				Double I-Joist			
Width	Depth	Hanger	Down Load	Width	Depth	Hanger	Down Load
1-3/4″	9-1/2″	ITS1.81/9.5	1520	3-1/2″	9-1/2″	MIT49.5	2305
	11-7/8″	ITS1.81/11.88	1520		11-7/8″	MIT411.88	2305
	14″	ITS1.81/14	1520		14″	MIT414	2305
	16″	ITS1.81/16	1520		16″	MIT416	2305
2-1/16″	9-1/2″	ITS2.06/9.5	1520	4-1/8″	9-1/2″	MIT4.28/9.5	2305
	11-7/8″	ITS2.06/11.88	1520		11-7/8″	MIT4.28/11.88	2305
	14″	ITS2.06/14	1520		14″	MIT4.28/14	2305
	16″	ITS2.06/16	1520		16″	LBV4.28/16	2460
2-5/16″	9-1/2″	ITS2.37/9.5	1520	4-5/8″	9-1/2″	MIT359.5-2	2305
	11-7/8″	ITS2.37/11.88	1520		11 7/8″	MIT3511.88-2	2305
	14″	ITS2.37/14	1520		14″	MIT3514-2	2305
	16″	ITS2.37/16	1520		16″	MIT4.75/16	2305
2-1/2″	9-1/2″	ITS2.56/9.5	1520	5″	9-1/2″	MIT39.5-2	2305
	11-7/8″	ITS2.56/11.88	1520		11-7/8″	MIT311.88-2	2305
	14″	ITS2.56/14	1520		14″	MIT314-2	2305
	16″	ITS2.56/16	1520		16″	MIT5.12/16	2305
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



THAI SERIES

SKEWED 45 HANGERS

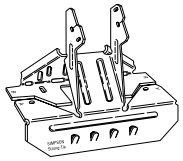
Single I-Joist				Double I-Joist			
Width	Depth	Hanger	Down Load	Width	Depth	Hanger	Down Load
1-3/4″	9-1/2″	SUR/L1.81/9	1595	3-1/2″	9-1/2″	SUR/L410	1860
	11-7/8″	SUR/L1.81/11	2130		1-7/8″	SUR/L410	1860
	14″	SUR/L1.81/14	2500		14″	SUR/L414	2395
	16″	SUR/L1.81/14	2500		16″	SUR/L414	2395
2-1/16″	9-1/2″	SUR/L2.1/9	2015	4-1/8″	9-1/2″	HSUR/L4.28/9	1655
	11-7/8″	SUR/L2.1/11	2305		11-7/8″	HSUR/L4.28/11	2210
	14″	SUR/L2.1/14	2305		14″	HSUR/L4.28/11	2210
	16″	SUR/L2.1/14	2305		16″	HSUR/L4.28/11	2210
2-5/16″	9-1/2″	SUR/L2.37/9	2015	4-5/8″	9-1/2″	HSUR/L4.75/9	1655
	11-7/8″	SUR/L2.37/11	2305		11-7/8″	HSUR/L4.75/11	2210
	14″	SUR/L2.37/14	2590		14″	HSUR/L4.75/14	2760
	16″	SUR/L2.37/14	2590		16″	HSUR/L4.75/16	3050
2-1/2″	9-1/2″	SUR/L2.56/9	2015	5″	9-1/2″	HSUR/L5.12/9	1655
	11-7/8″	SUR/L2.56/11	2305		11-7/8″	HSUR/L5.12/11	2210
	14″	SUR/L2.56/14	2590		14″	HSUR/L5.12/14	2760
	16″	SUR/L2.56/14	2590		16″	HSUR/L5.12/16	3050
3-1/2″	11-7/8″	SUR/L410	1860	7″	11-7/8″	HU412-2X	2360
	14″	SUR/L414	2395		14″	HU414-2X	2790
	16″	SUR/L414	2395		16″	HU414-2X	2790

HU4-X are special order. Specify angle and direction

ADJUSTABLE HEIGHT HANGERS

Single I-Joist				Double I-Joist			
Width	Depth	Hanger	Down Load	Width	Depth	Hanger	Down Load
1-3/4″	9-1/2″-14″	THAI1.81/22	1715	3-1/2″	9-1/2″-14″	THAI422	1715
2-1/16″	9-1/2″-14″	THAI2.1/22	1715	4-1/8″	9-1/2″-14″	THAI-2	2020
2-5/16″	9-1/2″-14″	THAI3522	1715	4-5/8″	9-1/2″-14″	THAI-2	2020
2-1/2″	9-1/2″-14″	THAI322	1715	5″	9-1/2″-14″	THAI-2	2020
3-1/2″	9-1/2″-14″	THAI422	1715	7″	9-1/2″-14″	THAI-2	2020

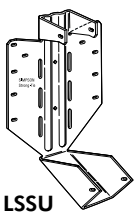
THAI-2 are special order. Specify width



VPA

VARIABLE PITCH - SINGLE I-JOISTS

Single I-Joist			
Width	Depth	Hanger	Down Load
1-3/4″	ALL	VPA25	1050
2-1/16″	ALL	VPA2.1	1230
2-5/16″	ALL	VPA35	1230
2-1/2″	ALL	VPA3	1230
3-1/2″	ALL	VPA4	1230



LSSU

FIELD SLOPE AND SKEW

Single I-Joist				Double I-Joist			
Width	Depth	Hanger	Down Load	Width	Depth	Hanger	Down Load
1-3/4″	9-1/2″-14″	LSSUI25	995	3-1/2″	9-1/2″-14″	LSSU410	1625
2-1/16″	9-1/2″-14″	LSSU2.1	995	4-1/8″	9-1/2″-14″	LSU4.28	2300
2-5/16″	9-1/2″-14″	LSSUI35	995	4-5/8″	9-1/2″-14″	LSU3510-2	2300
2-1/2″	9-1/2″-14″	LSSUH310	1600	5″	9-1/2″-14″	LSU5.12	1790
3-1/2″	9-1/2″-14″	LSSU410	1625	7″	-	-	-

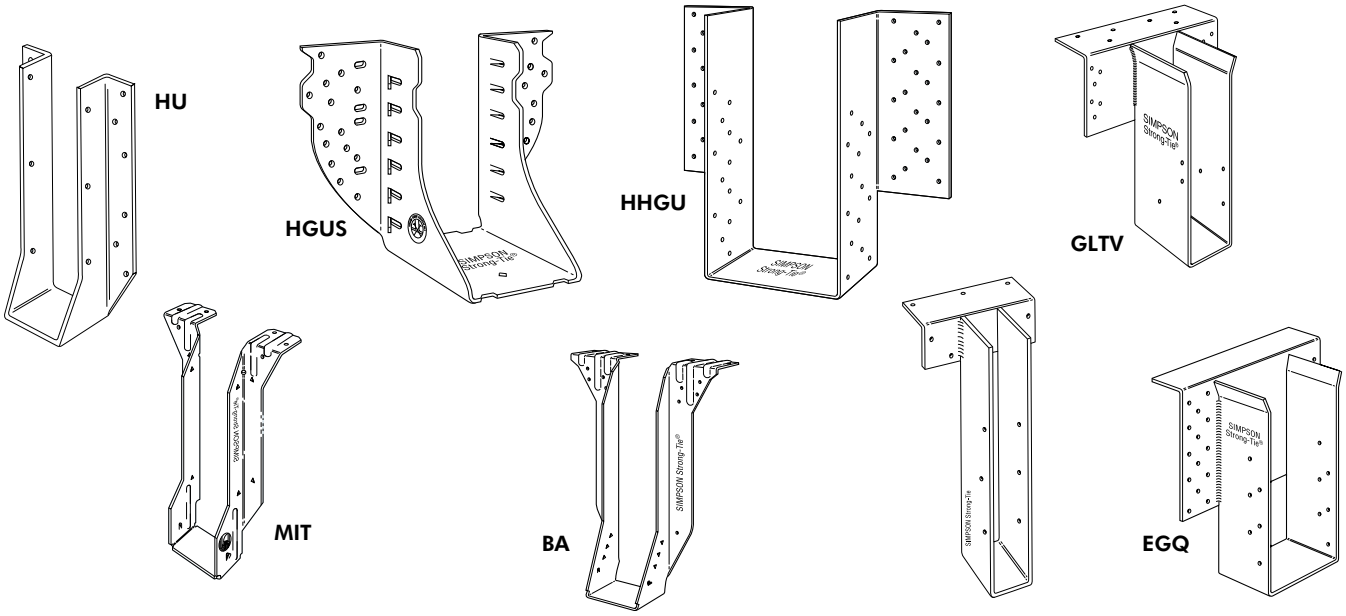
Highlighted hangers require web stiffeners at I-joist ends

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	3215	9-1/4"	HHUS410	5190	9-1/4"	HHUS5.50/10	5190	9-1/4"	HHUS7.25/10	5190
	HUS1.81/10	4900		HGUS410	8780		HGUS5.50/10	8780		HGUS7.25/10	8780
9-1/2"	HU9	3215	9-1/2"	HHUS410	5190	9-1/2"	HHUS5.50/10	5190	9-1/2"	HHUS7.25/10	5190
	HUS1.81/10	4900		HGUS410	8780		HGUS5.50/10	8780		HGUS7.25/10	8780
11-1/4"	HU11	4020	11-1/4"	HHUS410	5190	11-1/4"	HHUS5.50/10	5190	11-1/4"	HHUS7.25/10	5190
	HUS1.81/10	4900		HGUS412	9155		HGUS5.50/12	9155		HGUS7.25/12	9835
11-7/8"	HU11	4020	11-7/8"	HHUS410	5190	11-7/8"	HHUS5.50/10	5190	11-7/8"	HHUS7.25/10	5190
	HUS1.81/10	4900		HGUS412	9155		HGUS5.50/12	9155		HGUS7.25/12	9835
14"	HU14	4540	14"	HHUS410	5190	14"	HHUS5.50/10	5190	14"	HGUS7.25/14	11110
	HUS1.81/10	4900		HGUS414	10015		HGUS5.50/14	10015		HGU7.25-SDS	14145
16"	HU14	4540	16"	HHUS410	5190	16"	HGUS5.50/14	10015	16"	HGUS7.25/14	11110
	HUS1.81/10	4900		HGUS414	10015		HGU5.50-SDS	14145		HHGU7.25-SDS	17845
18"	-	-	18"	HHUS410	5190	18"	HGUS5.50/14	10015	18"	HGUS7.25/14	11110
	-	-		HGUS414	10015		HGU5.50-SDS	14145		HHGU7.25-SDS	17845

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	10500
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	10500		EGQ7.25-SDS	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-SDS	19800		EGQ7.25-SDS	19800
16"	MIT1.81/16	2550	16"	BA3.56/16	4715	16"	HB5.50/16	5815	16"	HGLTV416-2	10500
	B1.81/16	4135		GLTV3.516	7500		EGQ5.50-SDS	19800		EGQ7.25-SDS	19800
18"	-	-	18"	HB3.56/18	5815	18"	HGLTV5.518	10500	18"	HGLTV418-2	10500
	-	-		HGLTV3.518	10500		EGQ5.50-SDS	19800		EGQ7.25-SDS	19800

EGQ Hanger specify height

GENERAL NOTES

1. Loads listed for all hangers (except Top Flange LVL Hangers) are the lowest hanger/header/fastener 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. Loads shown are gravity (floor) loads. Other load durations may apply. Refer to the current version of *Wood Construction Connectors* for allowable increases.
3. Top Flange Hanger configurations and thickness of top flange need to be considered for flush frame conditions.

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	USP Hanger	Down Load (100%)	Width	Depth	USP Hanger	Down Load (100%)
1-3/4″	9-1/2″	THF17925	1370	3-1/2″	9-1/2″	THF35925	1370
	11-7/8″	THF17112	1825		11-7/8″	THF35112	1825
	14″	THF17140	2280		14″	THF35140	2320
	16″	THF17157	2735		16″	THF35157	2550
2-1/16″	9-1/2″	THF20925	1370	4-1/8″	9-1/2″	THF20925-2	1390
	11-7/8″	THF20112	1825		11-7/8″	THF20112-2	1855
	14″	THF20140	2280		14″	THF20140-2	2320
	16″	THF20157	2735		16″	-- --	-- --
2-5/16″	9-1/2″	THF23925	1370	4-5/8″	9-1/2″	THF23925-2	1625
	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
2-1/2″	9-1/2″	THF25925	1370	5″	9-1/2″	THF25925-2	1390
	11-7/8″	THF25112	1595		11-7/8″	THF25112-2	1855
	14″	THF25140	2090		14″	THF25140-2	2540
	16″	THF25160	2550		16″	THF25160-2	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

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

TOP FLANGE HANGERS

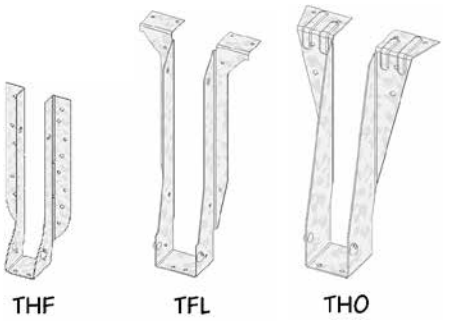
SINGLE I-JOISTS				DOUBLE I-JOISTS			
Width	Depth	USP Hanger	Down Load (100%)	Width	Depth	USP Hanger	Down Load (100%)
1-3/4″	9-1/2″	THO17950	1260	3-1/2″	9-1/2″	THO35950	2050
	11-7/8″	THO17118	1305		11-7/8″	THO35118	2050
	14″	TFL1714	1600		14″	THO35140	2715
	16″	TFL1716	1600		16″	THO35160	2715
2-1/16″	9-1/2″	TFL2095	1600	4-1/8″	9-1/2″	THO20950-2	2330
	11-7/8″	TFL20118	1600		11-7/8″	THO20118-2	2330
	14″	TFL2014	1600		14″	THO20140-2	2330
	16″	TFL2016	1600		16″	THO20160-2	2330
2-5/16″	9-1/2″	TFL2395	1600	4-5/8″	9-1/2″	THO23950-2	3535
	11-7/8″	TFL23118	1600		11-7/8″	THO23118-2	3535
	14″	TFL2314	1600		14″	THO23140-2	3535
	16″	TFL2316	1600		16″	THO23160-2	3535
2-1/2″	9-1/2″	TFL2595	1600	5″	9-1/2″	THO25950-2	3535
	11-7/8″	TFL25118	1600		11-7/8″	THO25118-2	3535
	14″	TFL2514	1600		14″	THO25140-2	3535
	16″	TFL2516	1600		16″	THO25160-2	3535
3-1/2″	11-7/8″	THO35118	2050	7″	11-7/8″	BPH71118	3510
	14″	THO35140	2715		14″	BPH7114	3510
	16″	THO35160	2715		16″	BPH7116	3510

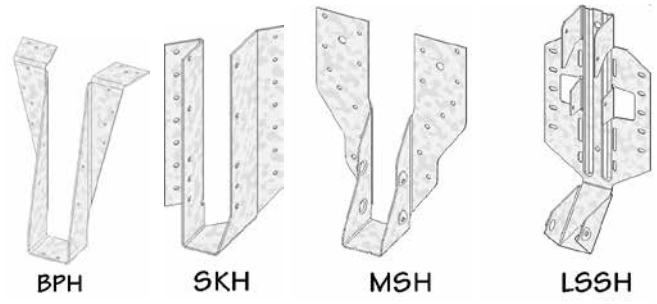
USP Notes:
For top flange hangers applied to I-joist headers, where header flange thickness is less than 1-1/2″, contact USP for possible hanger limitations.

ADJUSTABLE HEIGHT HANGERS

SINGLE I-JOISTS				DOUBLE I-JOISTS			
Width	Depth	USP Hanger	Down Load (100%)	Width	Depth	USP Hanger	Down Load (100%)
1-3/4″	9-1/2″	-- --	-- --	3-1/2″	9-1/2″	MSH422	2025
	11-7/8″	MSH1718	2165		11-7/8″	MSH422	2025
	14″	MSH1722	2165		14″	-- --	-- --
	16″	MSH1722	2165		16″	-- --	-- --
2-1/16″	9-1/2″	-- --	-- --	4-1/8″	9-1/2″	-- --	-- --
	11-7/8″	-- --	-- --		11-7/8″	-- --	-- --
	14″	-- --	-- --		14″	-- --	-- --
	16″	-- --	-- --		16″	-- --	-- --
2-5/16″	9-1/2″	-- --	-- --	4-5/8″	9-1/2″	MSH2322-2	2210
	11-7/8″	MSH2318	2165		11-7/8″	MSH2322-2	2210
	14″	MSH2318	2165		14″	MSH2322-2	2210
	16″	MSH2322	2165		16″	-- --	-- --
2-1/2″	9-1/2″	-- --	-- --	5″	9-1/2″	-- --	-- --
	11-7/8″	MSH318	2165		11-7/8″	-- --	-- --
	14″	MSH318	2165		14″	-- --	-- --
	16″	MSH318	2165		16″	-- --	-- --
3-1/2″	11-7/8″	MSH422	2025	7″	11-7/8″	MSH422-2	3690
	14″	-- --	-- --		14″	-- --	-- --
	16″	-- --	-- --		16″	-- --	-- --

Highlighted hangers require web stiffeners at I-joist ends





SKEWED 45° HANGERS

SINGLE I-JOISTS				DOUBLE I-JOISTS			
Width	Depth	USP Hanger	Down Load (100%)	Width	Depth	USP Hanger	Down Load (100%)
1-3/4″	9-1/2″	SKH1720L/R	1625	3-1/2″	9-1/2″	SKH410L/R[1]	2255
	11-7/8″	SKH1724L/R	1855		11-7/8″	SKH410L/R[1]	2255
	14″	SKH1724L/R	1855		14″	SKH414L/R[1]	3100
	16″	SKH1724L/R	1855		16″	SKH414L/R[1]	3100
2-1/16″	9-1/2″, 11-7/8″	SKH2020L/R	1625	4-1/8″	9-1/2″, 11-7/8″	SKH2020L/R-2	1665
	14″, 16″	SKH2024L/R	1855		14″, 16″	SKH2024L/R-2	1905
2-5/16″	9-1/2″, 11-7/8″	SKH2320L/R	1625	4-5/8″	9-1/2″, 11-7/8″	SKH2320L/R-2	1665
	14″, 16″	SKH2324L/R	1855		14″, 16″	SKH2324L/R-2	1905
2-1/2″	9-1/2″, 11-7/8″	SKH2520L/R	1625	5″	9-1/2″, 11-7/8″	SKH2520L/R-2	1665
	14″, 16″	SKH2524L/R	1855		14″, 16″	SKH2524L/R-2	1905
3-1/2″	11-7/8″	SKH410L/R[1]	2255	7″	11-7/8″	HD7120-SK45L/R[1,2]	2255
	14″	SKH414L/R[1]	3100		14″	HD7140-SK45L/R[1,2]	2820
	16″	SKH414L/R[1]	3100		16″	HD7160-SK45L/R[1,2]	3385

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

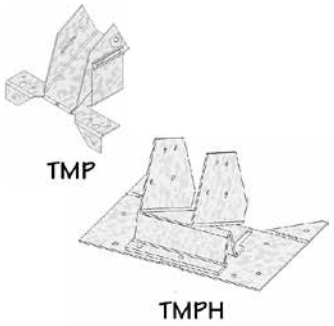
FIELD SLOPE AND SKEW

SINGLE I-JOISTS				DOUBLE I-JOISTS			
Width	Depth	USP Hanger	Down Load (100%)	Width	Depth	USP Hanger	Down Load (100%)
1-3/4″	9-1/2″-14″	LSSH179	1140	3-1/2″	9-1/2″-14″	LSSH35	1920
	16″	LSSH179[1]	1140		16″	LSSH35[1]	1920
2-1/16″	9-1/2″-14″	LSSH20	1140	4-1/8″	9-1/2″-14″	-- --	-- --
	16″	LSSH20[1]	1140		16″	-- --	-- --
2-5/16″	9-1/2″-14″	LSSH23	1140	4-5/8″	9-1/2″-14″	-- --	-- --
	16″	LSSH23[1]	1140		16″	-- --	-- --
2-1/2″	9-1/2″-14″	LSSH25	1825	5″	9-1/2″-14″	-- --	-- --
	16″	LSSH25[1]	1825		16″	-- --	-- --
3-1/2″	11-7/8″, 14″	LSSH35	1920	7″	11-7/8″, 14″	-- --	-- --
	16″	LSSH35[1]	1920		16″	-- --	-- --

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

VARIABLE PITCH HANGERS

SINGLE I-JOISTS			
Width	Depth	USP Hanger	Down Load (100%)
1-3/4″	9-1/2″ - 16″	TMP175	1150
		TMPH175	1945
2-1/8″	9-1/2″ - 16″	TMP21	1290
		TMPH21	1945
2-5/16″	9-1/2″ - 16″	TMP23	1970
		TMPH23	1945
2-1/2″	9-1/2″ - 16″	TMP25	1970
		TMPH25	1945
3-1/2″	11-7/8″ - 16″	TMP4	1970
		TMPH4	1945



LVL Framing Connectors

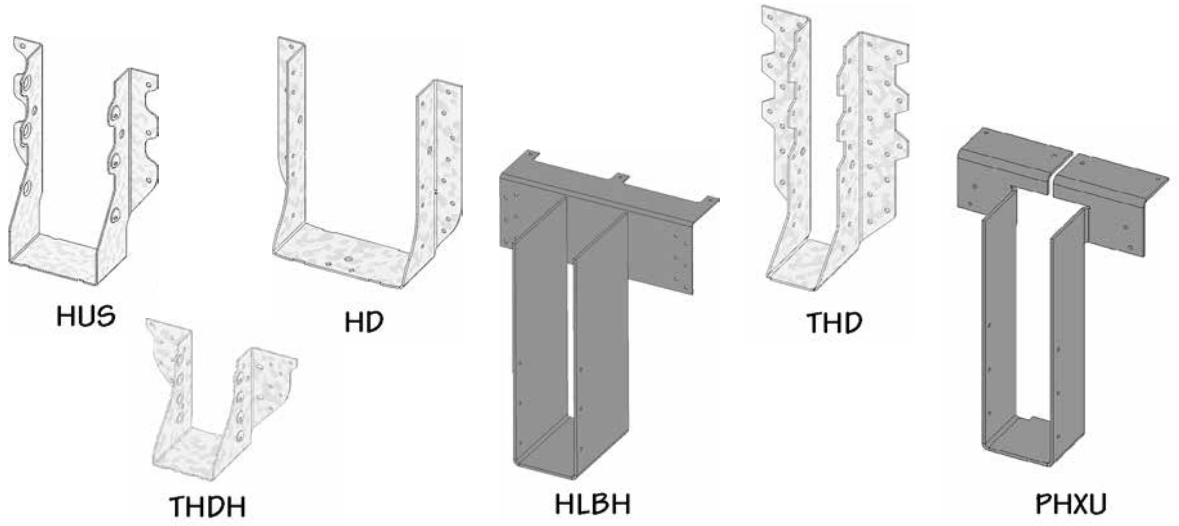
FACE MOUNT HANGERS

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	5360
	HUS179[1]	5310		THDH410[1]	8260
11-1/4", 11-7/8"	HD17112	2870	11-1/4", 11-7/8"	THD410	5360
	HUS179[1]	5310		THDH412[1]	9845
14"	HD1714	3100	14"	THD410	5360
	HUS179[1]	5310		THDH414[1]	9845
16"	HD1714	3100	16"	THD412	6770
	HUS179[1]	5310		THDH414[1]	9845
18"	HD1714	3100	18"	THD412	6770
	-- --	-- --		THDH414[1]	9845

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

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	5660	9-1/4", 9-1/2"	THD7210	5660
	THDH610[1]	8725		THDH7210[1]	8260
11-1/4", 11-7/8"	THD610	5660	11-1/4", 11-7/8"	THD7210	5660
	THDH612[1]	9935		THDH7212[1]	9845
14"	THD610	5660	14"	THD7210	5660
	THDH614[1]	11645		THDH7214[1]	9845
16"	THD612	7150	16"	HD7120	2255
	THDH614[1]	11645		THDH7214[1]	9845
18"	THD612	7150	18"	HD7140	2820
	THDH614[1]	11645		THDH7214[1]	9845

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



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"	THO17925	995	9-1/4"	PHXU35925	5285
	PHXU17925	4420		HLBH35925	9600
9-1/2"	THO17950	1260	9-1/2"	PHXU3595	5285
	PHXU1795	4420		HLBH3595	9600
11-1/4"	THO17112	1100	11-1/4"	PHXU35112	5285
	PHXU17112	4420		HLBH35112	9600
11-7/8"	THO17118	1305	11-7/8"	PHXU35118	5285
	PHXU17118	4420		HLBH35118	9600
14"	TFL1714	1600	14"	PHXU3514	5285
	PHXU1714	4420		HLBH3514	9600
16"	TFL1716	1600	16"	PHXU3516	5285
	-- --	-- --		HLBH3516	9600
18"	-- --	-- --	18"	PHXU3518	5285
	-- --	-- --		HLBH3518	9600

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"	PHXU52925	5285	9-1/4"	PHXU71925	5285
	HLBH52925	9600		HLBH71925	9600
9-1/2"	PHXU5295	5285	9-1/2"	PHXU7195	5285
	HLBH5295	9600		HLBH7195	9600
11-1/4"	PHXU52112	5285	11-1/4"	PHXU71112	5285
	HLBH52112	9600		HLBH71112	9600
11-7/8"	PHXU52118	5285	11-7/8"	PHXU71118	5285
	HLBH52118	9600		HLBH71118	9600
14"	PHXU5214	5285	14"	PHXU7114	5285
	HLBH5214	9600		HLBH7114	9600
16"	PHXU5216	5285	16"	PHXU7116	5285
	HLBH5216	9600		HLBH7116	9600
18"	PHXU5218	5285	18"	PHXU7118	5285
	HLBH5218	9600		HLBH7118	9600

GENERAL NOTES

1. Loads listed are the lowest hanger/header/fastener limitations assuming header material is Douglas Fir-Larch, Southern Pine, or LVL manufactured in the United States. Joist reaction should be checked by a qualified designer to ensure proper hanger selection.
2. Some loads shown may be increased for duration of load adjustments. Refer to USP full line catalog for details.

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

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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 above are available at www.Roseburg.com, in the Engineered Wood Products section, Technical Information.

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