



SOLIDSTART®
ENGINEERED WOOD PRODUCTS



LP SOLIDSTART LVL
TECHNICAL GUIDE
2950F_b-2.0E AND 2650F_b-1.9E

Designed to Outperform Traditional Lumber

LP® SolidStart® Laminated Veneer Lumber (LVL) is a vast improvement over traditional lumber. Problems that naturally occur as sawn lumber dries – twisting, splitting, checking, crowning and warping – are greatly reduced.

THE STRENGTH IS IN THE ENGINEERING

LP SolidStart LVL is made from ultrasonically and visually graded veneers arranged in a specific pattern to maximize the strength and stiffness of the veneers and to disperse the naturally occurring characteristics of wood, such as knots, that can weaken a sawn lumber beam. The veneers are then bonded with waterproof adhesives under pressure and heat. LP SolidStart LVL beams are exceptionally strong, solid and straight, making them excellent for most primary load-carrying beam applications.

LP SolidStart LVL: AVAILABLE GRADES AND SIZES

LP SolidStart LVL is available in two standard grades of 2950F_b-2.0E and 2650F_b-1.9E. It comes in a range of depths and lengths, and is available in standard thicknesses of 1-3/4" and 3-1/2". The 2950F_b-2.0E grade is also available in factory-laminated thicknesses (known as "billet beam") of 5-1/4" and 7" to eliminate the need for field nailing and/or bolting of multiple plies. In addition, a water-resistant coating called SiteCote™ is available for extra weather protection during construction. LP also offers 2250F_b-1.5E and 1750F_b-1.3E grades that are not covered under this technical guide. Please verify availability with the LP SolidStart Engineered Wood Products distributor in your area before specifying these products.

LIFETIME LIMITED WARRANTY

LP SolidStart LVL is backed by a lifetime limited warranty. Visit www.lpcorp.com or call 1.888.820.0325 for a copy of the warranty.

SOFTWARE FOR EASY, RELIABLE DESIGN

Our design/specification software enhances your in-house design capabilities. It offers accurate designs for a wide variety of applications with interfaces for printed output or plotted drawings. Through our distributors, we offer component design review services for designs using LP SolidStart Engineered Wood Products.

CODE EVALUATION

LP SolidStart Laminated Veneer Lumber has been evaluated for compliance with major US building codes. For the most current code reports contact your LP SolidStart Engineered Wood Products distributor, visit www.lpcorp.com or for:

- ICC-ES evaluation report ESR-2403 visit www.icc-es.org
- APA product report PR-L280 visit www.apawood.org

FRIEND TO THE ENVIRONMENT

LP SolidStart LVL is a building material with built-in environmental benefits. It is made of engineered wood substrate, a renewable resource with a reduced environmental impact. LP uses SFI® certified forest management and procurement systems, which help ensure wood comes from well managed forests. Raw material procurement targets small, fast growing trees. In LP's manufacturing process, no part of the log goes to waste. And only safe, low formaldehyde-emitting resins are used.



IMPORTANT NOTES

1. LP SolidStart LVL shall be designed for dry-use conditions only. Dry-use applies to products installed in dry, covered and well ventilated interior conditions in which the equivalent moisture content in lumber will not exceed 16%.
2. This guide is valid only for LP SolidStart LVL members supporting loads applied parallel to the face of the veneers ("edge" orientation).
3. Ensure that the design loads, duration of load increases and deflection limits that you use to select products from this guide are appropriate for your application and comply with local code requirements. If you do not know the correct design criteria and all the loads imposed on the component from all parts of the structure, seek qualified help from the architect, engineer or designer of the structure. Additional reference data on wood construction is available in the form of building codes, code evaluation reports and other design references.
4. The Quick Reference and Allowable Load tables in this guide are only for uniform loads on simple (single) or equal, continuous (multiple) span members as noted in each table. For other conditions such as concentrated loads, unequal spans, etc., contact your LP SolidStart Engineered Wood Products distributor.
5. Spans are measured from center-to-center of supports. A structurally adequate bearing surface under the full width (thickness) of the beam must be provided at each support.
6. Minimum bearing length is 1-1/2" (at least one jack stud or cripple is required) unless otherwise noted for a specific table. Refer to the Reaction Capacity charts and the notes for each table. Verify local code requirements for minimum bearing.
7. Total load deflections are based on instantaneous loading. Long term deflection (creep) under sustained load has not been considered.
8. LP SolidStart LVL is not cambered.
9. Higher grades of LP SolidStart LVL can be substituted for the indicated grade.
10. LP SolidStart LVL sized with the tables and design values in this guide requires continuous lateral restraint of the compression edge. Continuous restraint is defined as a maximum unbraced length of 24'. This restraint is normally provided by sheathing and/or other framing members, which shall be adequately anchored to the LVL and the supporting structure. Framing conditions that do not provide continuous lateral restraint require special design. Contact your LP SolidStart Engineered Wood Products distributor. Caution: Failure to provide adequate lateral restraint could result in an unstable member and reduce its load capacity.
11. Lateral restraint shall also be provided at all supports to prevent rotation or twisting.
12. Refer to the Connection Details page for information on designing nailed and bolted connections, minimum nail spacing and end distances and for properly connecting multiple plies of LVL to form a built-up member.

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LVL 2950F_b-2.OE Product Specifications & Design Values

ALLOWABLE STRESS DESIGN VALUES (PSI)					
Grade	Bending Stress ³ F _b	Modulus of Elasticity ⁴ E (x 10 ⁶)	Shear Stress F _v	Compression Stress	
				F _c (Parallel To Grain)	F _{c⊥} (Perpendicular To Grain)
2950F _b -2.OE	2950	2.0	290	3200	750

NOTES:

- LP® SolidStart® LVL shall be designed for dry-use conditions only. Dry-use applies to products installed in dry, covered and well ventilated interior conditions in which the equivalent moisture content in lumber will not exceed 16%.
- The allowable strengths and stiffness are for normal load duration. Bending, Shear and Compression parallel-to-grain shall be adjusted according to code. Modulus of Elasticity and Compression perpendicular-to-grain shall not be adjusted.
- The allowable Bending Stress, F_b, for LP LVL is tabulated for a standard 12" depth. For depths greater than 12" multiply F_b by (12/depth)^{0.143}. For depths less than 12" multiply F_b by (12/depth)^{0.143}. For depths less than 3-1/2" multiply F_b by 1.147.
- Deflection calculations for LP LVL need only consider bending deformations. The tabulated Modulus of Elasticity, E, for LP LVL is the "apparent" E and includes an approximation of the effects of shear deformations.

$$\text{Deflection for a simple span, uniform load: } \Delta = \frac{270wL^4}{Ebd^3}$$

Where: Δ = deflection (in) E = modulus of elasticity (psi)
w = uniform load (plf) b = width of beam (in)
L = design span (ft) d = depth of beam (in)

Equations for other conditions can be found in engineering references.

SECTION PROPERTIES AND ALLOWABLE CAPACITIES

Depth	Weight (lb/ft)				Allowable Moment (lb-ft)				Allowable Shear (lb)				Moment of Inertia (in ⁴)			
	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"	1-3/4"	3-1/2"	5-1/4"	7"
7-1/4"	3.6	7.3	10.9	14.5	3986	7972	11958	15943	2453	4906	7359	9812	56	111	167	222
9-1/4"	4.6	9.3	13.9	18.5	6315	12630	18945	25260	3130	6259	9389	12518	115	231	346	462
9-1/2"	4.8	9.5	14.3	19.0	6641	13282	19924	26565	3214	6428	9642	12857	125	250	375	500
11-1/4"	5.6	11.3	16.9	22.5	9140	18280	27420	36560	3806	7613	11419	15225	208	415	623	831
11-7/8"	5.9	11.9	17.8	23.8	10123	20246	30368	40491	4018	8035	12053	16071	244	488	733	977
14"	7.0	14.0	21.0	28.0	13747	27495	41242	54990	4737	9473	14210	18947	400	800	1201	1601
16"	8.0	16.0	24.0	32.0	17616	35233	52849	70466	5413	10827	16240	21653	597	1195	1792	2389
18"	9.0	18.0	27.0	36.1	21924	43848	65772	87695	6090	12180	18270	24360	851	1701	2552	3402

NOTES:

- The Allowable Moment and Shear capacities are for normal load duration and shall be adjusted according to code.
- The 3-1/2" 5-1/4" and 7" beam widths listed above can be either a single piece or a combination of widths. For example, a 7" wide beam may be a single billet beam of 7" two plies of 3-1/2" a single 1-3/4" attached to a 5-1/4" billet beam, a 3-1/2" with a 1-3/4" ply attached to each face, or four plies of 1-3/4". Refer to the Connection Assemblies details on page 22 for additional information.
- The tabulated weight is an estimate and shall only be used for design purposes. Contact LP for actual shipping weights.

FASTENERS:

Refer to pages 22-23 for information on connecting multiple plies and for the equivalent specific gravity for design of nailed and bolted connections.

REACTION CAPACITY (LBS)

Width	Bearing Length																					
	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"	4-1/2"	5"	5-1/2"	6"	6-1/2"	7"	7-1/2"	8"	8-1/2"	9"	9-1/2"	10"	10-1/2"	11"	11-1/2"	12"
1-3/4"	1968	2625	3281	3937	4593	5250	5906	6562	7218	7875	8531	9187	9843	10500	11156	11812	12468	13125	13781	14437	15093	15750
3-1/2"	3937	5250	6562	7875	9187	10500	11812	13125	14437	15750	17062	18375	19687	21000	22312	23625	24937	26250	27562	28875	30187	31500
5-1/4"	5906	7875	9843	11812	13781	15750	17718	19687	21656	23625	25593	27562	29531	31500	33468	35437	37406	39375	41343	43312	45281	47250
7"	7875	10500	13125	15750	18375	21000	23625	26250	28875	31500	34125	36750	39375	42000	44625	47250	49875	52500	55125	57750	60375	63000

NOTES:

- The Reaction Capacity values are based on the compression strength, perpendicular-to-grain, of the LVL. This is suitable for beams bearing on steel or the end-grain of studs.
- Verify that the support for the beam is structurally adequate to carry the reaction. The compressive strength parallel-to-grain, of studs may require more studs than the bearing length above indicates.
- For beams bearing on wood plates, the required bearing length will increase based on the bearing strength (compression perpendicular-to-grain) of the species and grade used for the plate material.
- Verify local code requirements concerning minimum bearing.

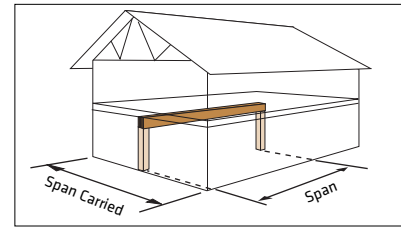
LVL 2950F_b-2.0E Floor Beam Quick Reference Tables

TO USE:

1. Select the correct table for the supported floor joist condition (simple or continuous – see notes below).
2. Choose the required center-to-center span for the beam in the Span column.
3. Select the span carried by the beam across the top of the table.
4. Read the beam size or choice of beam sizes from the table.

EXAMPLE: A beam with a 10' span carries 15'-0" simple span joists on each side.

SOLUTION: Using the Simple-Span Floor Joists table with 30'-0" span carried, select either **3-1/2" x 9-1/4"** or **5-1/4" x 9-1/4"**.

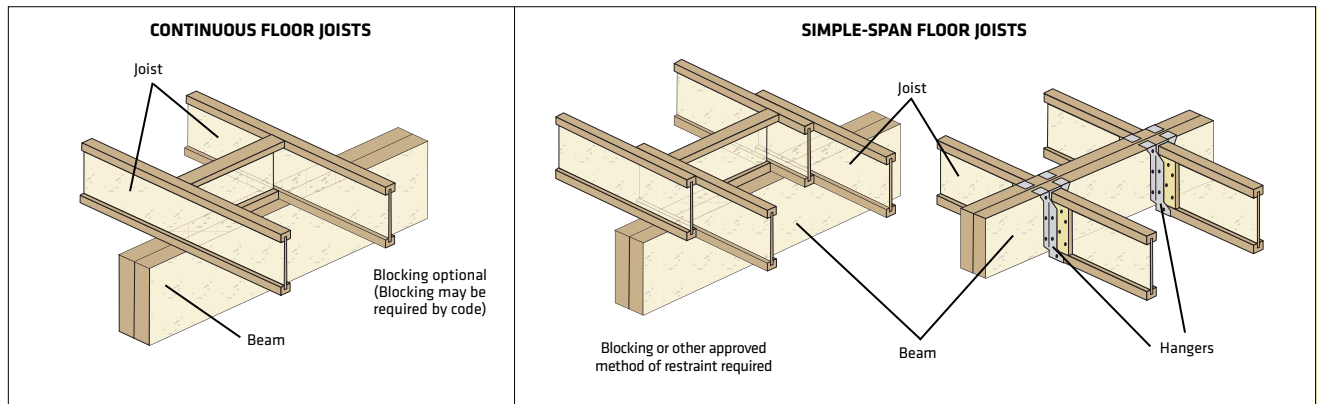


CONTINUOUS FLOOR JOISTS	Span	Beam Width	Span Carried By Beam										
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	8'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"
	10'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	12'-0"	3-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	-
		5-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
14'-0"	3-1/2"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	-	-	-	
	5-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	14"	
16'-0"	3-1/2"	14"	14"	16"	16"	16"	-	-	-	-	-	-	
	5-1/4"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	14"	14"	
18'-0"	3-1/2"	16"	16"	16"	16"	-	-	-	-	-	-	-	
	5-1/4"	14"	14"	14"	14"	16"	16"	16"	16"	16"	16"	16"	
20'-0"	3-1/2"	18"	18"	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	16"	16"	16"	16"	18"	18"	18"	-	
22'-0"	3-1/2"	18"	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	18"	18"	18"	18"	18"	18"	18"	18"	-	-	
24'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	18"	18"	18"	-	-	-	-	-	-	-	-	

SIMPLE-SPAN FLOOR JOISTS DESIGN FLOOR LOADS: 40 PSF LIVE, 15 PSF DEAD	Span	Beam Width	Span Carried By Beam											
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'	
	6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	8'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	10'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	12'-0"	3-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
	14'-0"	3-1/2"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"
		5-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"
	16'-0"	3-1/2"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"	-
		5-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"
	18'-0"	3-1/2"	14"	16"	16"	16"	16"	16"	16"	16"	16"	-	-	-
5-1/4"		14"	14"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"	
20'-0"	3-1/2"	16"	16"	18"	18"	18"	18"	18"	-	-	-	-	-	
	5-1/4"	14"	14"	16"	16"	16"	16"	16"	16"	16"	16"	16"	16"	
22'-0"	3-1/2"	18"	18"	18"	18"	18"	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	16"	16"	16"	18"	18"	18"	18"	18"	18"	
24'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	18"	18"	18"	18"	18"	18"	18"	18"	-	-	-	

NOTES:

1. Use the Continuous Floor Joists table where the floor joists are continuous (multiple span) over the beam.
2. Use the Simple-Span Floor Joists table where the floor joists frame into the side of or end on top of the beam.
3. Span is center-to-center of supports and is valid for simple and equal, continuous beam spans.
4. End supports require 3" bearing. Interior supports require 6" bearing except 7-1/2" is required where **bold**. The bearing length is based on the compression strength, perpendicular-to-grain, of the LVL. See the Reaction Capacity table on page 4 for additional information.
5. Deflections are limited to L/360 live load and L/240 total load.
6. Beam width can be either a single piece of LVL or built up from multiple plies that are nailed, bolted or connected with other approved fasteners. Refer to pages 22-23 for connection details.
7. Do not use where marked "-".



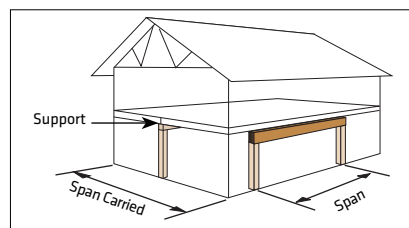
LVL 2950F_b-2.0E Combined Beam Quick Reference Tables

TO USE:

1. Select the correct table for the roof loads needed.
2. Choose the required center-to-center span for the beam in the Span column.
3. Select the span carried by the beam across the top of the table.
4. Read the beam size or choice of beam sizes from the table.

EXAMPLE: A beam with a 9'-6" span supports a 32'-0" span carried for a 20 psf roof live load.

SOLUTION: Using the correct table for the roof load with 32'-0" span carried, select either **3-1/2" x 9-1/4"** or **5-1/4" x 9-1/4"**.



DESIGN LOADS ROOF: 20 PSF SNOW OR LIVE (115% or 125%), 15 PSF DEAD FLOOR: 40 PSF LIVE, 15 PSF DEAD	Span	Beam Width	Span Carried By Beam										
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	8'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	9'-6"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	10'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	12'-0"	3-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"
		5-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
	14'-0"	3-1/2"	14"	14"	14"	14"	14"	14"	14"	14"	14"	16"	16"
		5-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	14"
	16'-0"	3-1/2"	14"	14"	16"	16"	16"	16"	16"	16"	16"	18"	18"
5-1/4"		14"	14"	14"	14"	14"	14"	14"	14"	14"	16"	16"	
16'-6"	3-1/2"	16"	16"	16"	-	-	-	-	-	-	-	-	
	5-1/4"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"	
18'-0"	3-1/2"	16"	16"	18"	18"	18"	18"	18"	18"	-	-	-	
	5-1/4"	14"	14"	16"	16"	16"	16"	16"	16"	16"	16"	18"	
18'-6"	3-1/2"	16"	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	14"	16"	16"	16"	16"	16"	16"	16"	18"	-	-	
20'-0"	3-1/2"	18"	18"	18"	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	16"	18"	18"	18"	18"	18"	18"	18"	
22'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	18"	18"	18"	18"	18"	-	-	-	-	-	-	
24'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	18"	-	-	-	-	-	-	-	-	-	-	

DESIGN LOADS ROOF: 25 PSF SNOW (115%), 15 PSF DEAD FLOOR: 40 PSF LIVE, 15 PSF DEAD	Span	Beam Width	Span Carried By Beam										
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	8'-0"	3-1/2"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"
	9'-6"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	10'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	12'-0"	3-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	14"	14"	14"	14"	14"	14"
		5-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
	14'-0"	3-1/2"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"
		5-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"
	16'-0"	3-1/2"	14"	16"	16"	16"	16"	16"	16"	18"	18"	18"	-
5-1/4"		14"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"	
16'-6"	3-1/2"	16"	16"	-	-	-	-	-	-	-	-	-	
	5-1/4"	14"	14"	14"	14"	14"	16"	16"	16"	16"	16"	-	
18'-0"	3-1/2"	16"	18"	18"	18"	18"	18"	18"	-	-	-	-	
	5-1/4"	14"	16"	16"	16"	16"	16"	16"	16"	18"	18"	18"	
18'-6"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	16"	16"	16"	16"	-	-	-	-	
20'-0"	3-1/2"	18"	18"	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	18"	18"	18"	18"	18"	18"	18"	-	-	
22'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	18"	18"	18"	18"	-	-	-	-	-	-	-	
24'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	-	-	-	-	-	-	-	-	-	-	-	

NOTES:

1. Span is center-to-center of supports and is valid for simple beam spans only.
2. End supports require 3" bearing except 4-1/2" is required where **bold**. The end supports for the standard garage door spans of 9'-6", 16'-6" and 18'-6" have been limited to 3" (two trimmers) on each end. The bearing length is based on the compression strength, perpendicular-to-grain, of the LVL. See the Reaction Capacity table on page 4 for additional information.
3. Deflections are limited to L/360 live or snow load and L/240 total load.
4. Loads include 100 plf for an exterior wall and assume a 2' maximum overhang on the roof and an interior support at mid-span of the floor joists.
5. Beam width can be either a single piece of LVL or built up from multiple plies that are nailed, bolted or connected with other approved fasteners. Refer to pages 22-23 for connection details.
6. Do not use where marked "-".

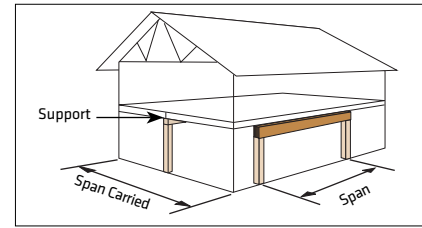
LVL 2950F_b-2.0E Combined Beam Quick Reference Tables

TO USE:

1. Select the correct table for the roof loads needed.
2. Choose the required center-to-center span for the beam in the Span column.
3. Select the span carried by the beam across the top of the table.
4. Read the beam size or choice of beam sizes from the table.

EXAMPLE: A beam with a 9'-6" span supports a 32'-0" span carried for a 40 psf roof snow load.

SOLUTION: Using the correct table for the roof load with 32'-0" span carried, select either **3-1/2" x 11-1/4"** or **5-1/4" x 9-1/4"**.



DESIGN LOADS ROOF: 30 PSF SNOW (115%), 15 PSF DEAD FLOOR: 40 PSF LIVE, 15 PSF DEAD	Span	Beam Width	Span Carried By Beam										
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	8'-0"	3-1/2"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"
	9'-6"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	10'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"
	12'-0"	3-1/2"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"
		5-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"
	14'-0"	3-1/2"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"	16"
		5-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"
	16'-0"	3-1/2"	16"	16"	16"	16"	16"	18"	18"	18"	18"	18"	-
5-1/4"		14"	14"	14"	14"	14"	14"	16"	16"	16"	16"	16"	
16'-6"	3-1/2"	16"	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	14"	14"	14"	14"	16"	16"	16"	16"	16"	-	-	
18'-0"	3-1/2"	18"	18"	18"	18"	18"	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	16"	16"	16"	16"	18"	18"	18"	18"	
18'-6"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	16"	16"	18"	-	-	-	-	-	
20'-0"	3-1/2"	18"	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	18"	18"	18"	18"	18"	18"	18"	-	-	-	
22'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	18"	18"	-	-	-	-	-	-	-	-	-	
24'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	-	-	-	-	-	-	-	-	-	-	-	

DESIGN LOADS ROOF: 40 PSF SNOW (115%), 15 PSF DEAD FLOOR: 40 PSF LIVE, 15 PSF DEAD	Span	Beam Width	Span Carried By Beam											
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'	
	6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	
	8'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	11-1/4"	
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	
	9'-6"	3-1/2"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	-	-	-	
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	
	10'-0"	3-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	14"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	
	12'-0"	3-1/2"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	16"	16"
		5-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	11-7/8"	
	14'-0"	3-1/2"	14"	14"	14"	14"	16"	16"	16"	16"	16"	18"	-	-
		5-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	14"	14"
	16'-0"	3-1/2"	16"	16"	16"	18"	18"	18"	-	-	-	-	-	-
5-1/4"		14"	14"	14"	14"	16"	16"	16"	16"	16"	16"	16"	16"	
16'-6"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	14"	14"	16"	16"	16"	16"	-	-	-	-	-	-	
18'-0"	3-1/2"	18"	18"	18"	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	16"	18"	18"	18"	18"	18"	18"	18"	18"	
18'-6"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	-	-	-	-	-	-	-	-	-	
20'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	18"	18"	18"	18"	18"	18"	-	-	-	-	-	-	
22'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	18"	-	-	-	-	-	-	-	-	-	-	-	
24'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	-	-	-	-	-	-	-	-	-	-	-	-	

NOTES:

1. Span is center-to-center of supports and is valid for simple beam spans only.
2. End supports require 3" bearing except 4-1/2" is required where **bold**. The end supports for the standard garage door spans of 9'-6", 16'-6" and 18'-6" have been limited to 3" (two trimmers) on each end. The bearing length is based on the compression strength, perpendicular-to-grain, of the LVL. See the Reaction Capacity table on page 4 for additional information.
3. Deflections are limited to L/360 live or snow load and L/240 total load.
4. Loads include 100 plf for an exterior wall and assume a 2' maximum overhang on the roof and an interior support at mid-span of the floor joists.
5. Beam width can be either a single piece of LVL or built up from multiple plies that are nailed, bolted or connected with other approved fasteners. Refer to pages 22-23 for connection details.
6. Do not use where marked "-".

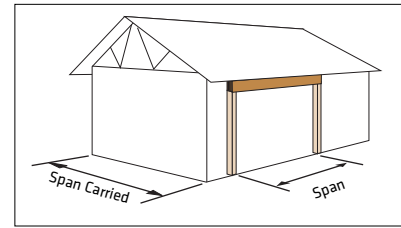
LVL 2950F_b-2.0E Roof Beam Quick Reference Tables

TO USE:

1. Select the correct table for the roof loads needed.
2. Choose the required center-to-center span for the beam in the Span column.
3. Select the span carried by the beam across the top of the table.
4. Read the beam size or choice of beam sizes from the table.

EXAMPLE: A beam with a 16'-6" span supports a 38'-0" span carried for a 25 psf roof snow load.

SOLUTION: Using the correct table for the roof load with 38'-0" span carried, select either **3-1/2" x 16"** or **5-1/4" x 14"**.



DESIGN LOADS ROOF: 20 PSF SNOW OR LIVE (115% or 125%), 15 PSF DEAD	Span	Beam Width	Span Carried By Beam										
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	8'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	9'-6"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	10'-0"	3-1/2"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"
	12'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	14'-0"	3-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	11-7/8"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
	16'-0"	3-1/2"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"
5-1/4"		11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	11-7/8"	
16'-6"	3-1/2"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	14"	
	5-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	
18'-0"	3-1/2"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"	
	5-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	
18'-6"	3-1/2"	14"	14"	14"	14"	16"	16"	16"	16"	16"	16"	16"	
	5-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	
20'-0"	3-1/2"	14"	16"	16"	16"	16"	16"	16"	16"	18"	18"	18"	
	5-1/4"	14"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"	
22'-0"	3-1/2"	16"	16"	18"	18"	18"	18"	18"	18"	-	-	-	
	5-1/4"	14"	14"	16"	16"	16"	16"	16"	16"	16"	18"	18"	
24'-0"	3-1/2"	18"	18"	18"	18"	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	16"	18"	18"	18"	18"	18"	18"	18"	

DESIGN LOADS ROOF: 25 PSF SNOW (115%), 15 PSF DEAD	Span	Beam Width	Span Carried By Beam										
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	8'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	9'-6"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"
	10'-0"	3-1/2"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	12'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"
	14'-0"	3-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"
		5-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
	16'-0"	3-1/2"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	14"	16"
5-1/4"		11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	
16'-6"	3-1/2"	14"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"	
	5-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	
18'-0"	3-1/2"	14"	14"	14"	16"	16"	16"	16"	16"	16"	16"	16"	
	5-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	14"	
18'-6"	3-1/2"	14"	14"	16"	16"	16"	16"	16"	16"	16"	-	-	
	5-1/4"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	16"	16"	
20'-0"	3-1/2"	16"	16"	16"	16"	16"	18"	18"	18"	18"	18"	18"	
	5-1/4"	14"	14"	14"	14"	14"	16"	16"	16"	16"	16"	16"	
22'-0"	3-1/2"	16"	18"	18"	18"	18"	18"	-	-	-	-	-	
	5-1/4"	14"	16"	16"	16"	16"	16"	16"	18"	18"	18"	18"	
24'-0"	3-1/2"	18"	18"	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	18"	18"	18"	18"	18"	18"	-	-	-	

NOTES:

1. Span is center-to-center of supports and is valid for simple beam spans only.
2. End supports require 3" bearing except 4-1/2" is required where **bold**. The end supports for the standard garage door spans of 9'-6", 16'-6" and 18'-6" have been limited to 3" (two trimmers) on each end. The bearing length is based on the compression strength, perpendicular-to-grain, of the LVL. See the Reaction Capacity table on page 4 for additional information.
3. Deflections are limited to L/360 live or snow load and L/240 total load.
4. Loads assume a 2' maximum overhang on the roof.
5. Beam width can be either a single piece of LVL or built up from multiple plies that are nailed, bolted or connected with other approved fasteners. Refer to pages 22-23 for connection details.
6. Do not use where marked "-".

LVL 2950F_b-2.0E Roof Beam Quick Reference Tables

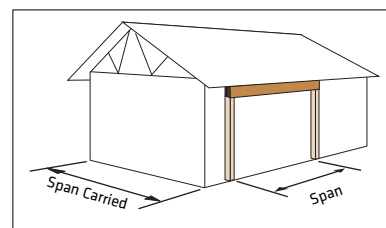
TO USE:

1. Select the correct table for the roof loads needed.
2. Choose the required center-to-center span for the beam in the Span column.
3. Select the span carried by the beam across the top of the table.
4. Read the beam size or choice of beam sizes from the table.

EXAMPLE: A beam with a 16'-6" span supports a 38'-0" span carried for a 40 psf roof snow load.

SOLUTION: Using the correct table for the roof load with 38'-0" span carried, select a **5-1/4" x 16"**.

NOTE: A 3-1/2" beam does not work.



DESIGN LOADS ROOF: 30 PSF SNOW (115%), 15 PSF DEAD	Span	Beam Width	Span Carried By Beam										
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
6'-0"		3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
8'-0"		3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
9'-6"		3-1/2"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"
10'-0"		3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
12'-0"		3-1/2"	9-1/4"	9-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"
14'-0"		3-1/2"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"
		5-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
16'-0"		3-1/2"	14"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"
		5-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"
16'-6"		3-1/2"	14"	14"	14"	14"	14"	14"	16"	16"	16"	-	-
		5-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"
18'-0"		3-1/2"	14"	14"	14"	16"	16"	16"	16"	16"	18"	18"	18"
		5-1/4"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"
18'-6"		3-1/2"	14"	16"	16"	16"	16"	16"	16"	-	-	-	-
		5-1/4"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"
20'-0"		3-1/2"	16"	16"	16"	18"	18"	18"	18"	18"	18"	-	-
		5-1/4"	14"	14"	14"	16"	16"	16"	16"	16"	16"	16"	18"
22'-0"		3-1/2"	18"	18"	18"	18"	-	-	-	-	-	-	-
		5-1/4"	16"	16"	16"	16"	16"	18"	18"	18"	18"	18"	18"
24'-0"		3-1/2"	-	-	-	-	-	-	-	-	-	-	-
		5-1/4"	16"	18"	18"	18"	18"	18"	-	-	-	-	-

DESIGN LOADS ROOF: 40 PSF SNOW (115%), 15 PSF DEAD	Span	Beam Width	Span Carried By Beam										
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
6'-0"		3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
8'-0"		3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
9'-6"		3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
10'-0"		3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
12'-0"		3-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
14'-0"		3-1/2"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	16"
		5-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"
16'-0"		3-1/2"	14"	14"	14"	16"	16"	16"	16"	16"	16"	16"	18"
		5-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	16"
16'-6"		3-1/2"	14"	14"	16"	16"	16"	16"	-	-	-	-	-
		5-1/4"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"
18'-0"		3-1/2"	16"	16"	16"	16"	18"	18"	18"	18"	18"	18"	-
		5-1/4"	14"	14"	14"	14"	16"	16"	16"	16"	16"	16"	16"
18'-6"		3-1/2"	16"	16"	18"	18"	-	-	-	-	-	-	-
		5-1/4"	14"	14"	14"	16"	16"	16"	16"	16"	16"	18"	18"
20'-0"		3-1/2"	18"	18"	18"	18"	-	-	-	-	-	-	-
		5-1/4"	16"	16"	16"	16"	16"	18"	18"	18"	18"	18"	18"
22'-0"		3-1/2"	-	-	-	-	-	-	-	-	-	-	-
		5-1/4"	16"	18"	18"	18"	18"	18"	-	-	-	-	-
24'-0"		3-1/2"	-	-	-	-	-	-	-	-	-	-	-
		5-1/4"	18"	18"	-	-	-	-	-	-	-	-	-

NOTES:

1. Span is center-to-center of supports and is valid for simple beam spans only.
2. End supports require 3" bearing except 4-1/2" is required where **bold**. The end supports for the standard garage door spans of 9'-6", 16'-6" and 18'-6" have been limited to 3" (two trimmers) on each end. The bearing length is based on the compression strength, perpendicular-to-grain, of the LVL. See the Reaction Capacity table on page 4 for additional information.
3. Deflections are limited to L/360 live or snow load and L/240 total load.
4. Loads assume a 2' maximum overhang on the roof.
5. Beam width can be either a single piece of LVL or built up from multiple plies that are nailed, bolted or connected with other approved fasteners. Refer to pages 22-23 for connection details.
6. Do not use where marked "-".

LVL 2950F_b-2.0E Uniform Floor Load (PLF) Tables

TO USE:

1. Select the required Span.
2. Divide the design loads by the desired number of plies to verify each ply of the beam.
3. Select a beam that exceeds the Total Load and the appropriate Live Load.
4. Check the bearing requirements.

EXAMPLE:

For a 16'-6" span, select a 2- and 3-ply beam that satisfies an L/360 Live Load deflection limit for the following design loads:
Live Load = 480 plf, Total Load = 660 plf

SOLUTION FOR A 2-PLY BEAM:

Design Total Load per ply = $660 / 2 = 330$ plf
Design Live Load per ply = $480 / 2 = 240$ plf

Use 2 plies 1-3/4" x 14"

(Total Load = 388 plf, Live Load L/360 = 263 plf)

SOLUTION FOR A 3-PLY BEAM:

Design Total Load per ply = $660 / 3 = 220$ plf
Design Live Load per ply = $480 / 3 = 160$ plf

Use 3 plies 1-3/4" x 11-7/8"

(Total Load = 235 plf, Live Load L/360 = 161 plf)

Span	1-3/4" x 7-1/4"			1-3/4" x 9-1/4"			1-3/4" x 9-1/2"			1-3/4" x 11-1/4"			Span
	Live Load		Total Load	Live Load		Total Load	Live Load		Total Load	Live Load		Total Load	
	L/480	L/360		L/480	L/360		L/480	L/360		L/480	L/360		
5'			781			996			1023			1212	5'
6'	571		650			829			852			1009	6'
7'	360	480	557			710			729			864	7'
8'	241	321	478	500		621	542		638			755	8'
9'	169	225	335	351	469	551	381	508	566	632		671	9'
9'-6"	144	192	284	299	398	522	324	432	536	538		635	9'-6"
10'	123	164	243	256	341	496	277	370	509	461		603	10'
11'	92	123	181	192	256	380	208	278	412	346	462	548	11'
12'	71	95	139	148	197	292	160	214	316	267	356	501	12'
13'	56	74	108	116	155	228	126	168	248	210	280	414	13'
14'	45	60	86	93	124	182	101	135	197	168	224	330	14'
15'	36	48	69	75	101	147	82	109	159	136	182	267	15'
16'	30	40	56	62	83	120	67	90	130	112	150	219	16'
16'-6"	-	-	-	57	76	109	61	82	118	102	136	199	16'-6"
17'	-	-	-	52	69	99	56	75	108	93	125	182	17'
18'	-	-	-	43	58	83	47	63	90	79	105	152	18'
18'-6"	-	-	-	40	54	76	43	58	83	72	97	140	18'-6"
19'	-	-	-	37	49	70	40	54	76	67	89	128	19'
20'	-	-	-	32	42	59	34	46	64	57	76	109	20'
21'	-	-	-	-	-	-	30	40	55	49	66	94	21'
22'	-	-	-	-	-	-	-	-	-	43	57	81	22'

Span	1-3/4" x 11-7/8"			1-3/4" x 14"			1-3/4" x 16"			1-3/4" x 18"			Span
	Live Load		Total Load	Live Load		Total Load	Live Load		Total Load	Live Load		Total Load	
	L/480	L/360		L/480	L/360		L/480	L/360		L/480	L/360		
5'			1279			1508			1724			1939	5'
6'			1065			1256			1435			1614	6'
7'			912			1075			1229			1382	7'
8'			797			940			1074			1208	8'
9'			708			835			954			1073	9'
9'-6"	632		670			790			903			1016	9'-6"
10'	542		636			750			858			965	10'
11'	407	543	578	668		681			779			876	11'
12'	314	418	529	514		624			713			802	12'
13'	247	329	473	404	539	575	604		658			740	13'
14'	197	263	389	324	432	534	483		610			686	14'
15'	160	214	315	263	351	481	393	524	569	560		640	15'
16'	132	176	259	217	289	422	324	432	533	461		599	16'
16'-6"	120	161	235	197	263	388	295	393	509	420	560	581	16'-6"
17'	110	147	214	181	241	354	270	360	479	384	512	564	17'
18'	93	124	180	152	203	297	227	303	426	324	432	532	18'
18'-6"	85	114	165	140	187	273	209	279	403	298	398	503	18'-6"
19'	79	105	152	129	172	252	193	258	379	275	367	476	19'
20'	67	90	129	111	148	215	165	221	323	236	315	429	20'
21'	58	78	111	96	128	185	143	191	278	204	272	388	21'
22'	50	67	95	83	111	160	124	166	241	177	236	345	22'
23'	44	59	83	73	97	139	109	145	210	155	207	301	23'
24'	39	52	72	64	85	121	96	128	184	136	182	264	24'
25'	34	46	63	56	75	106	84	113	161	120	161	232	25'
26'	30	41	55	50	67	94	75	100	143	107	143	206	26'
27'	-	-	-	45	60	83	67	89	126	96	128	183	27'
28'	-	-	-	40	54	74	60	80	112	86	114	163	28'
29'	-	-	-	36	48	65	54	72	100	77	103	145	29'
30'	-	-	-	32	43	58	49	65	90	70	93	130	30'

DESIGN ASSUMPTIONS:

1. Span is the center-to-center distance of the supports and is valid for simple or equal, continuous span applications.
2. The values in the tables are for uniform loads only.
3. Total Load is for normal (100%) duration and has been adjusted to account for the self-weight of the member.
4. Live Load deflection has been limited to L/360 or L/480 as noted in the table.
5. Total deflection has been limited to L/240. Long term deflection (creep) has not been considered.
6. These tables assume full lateral support of the compression edge. Full support is considered to be a maximum unbraced length of 24'.
7. Proper bearing must be provided. Bearing length must be checked for support reactions with the table on page 4.

ADDITIONAL NOTES:

1. The allowable loads represent the capacity of the member in pounds per lineal foot (plf) of length.
2. The designer shall check both the Total Load and the appropriate Live Load column.
3. Where the Live Load is blank, the Total Load governs the design.
4. Depths of 16" and greater shall be used with a minimum of two plies unless designed specifically as a single ply with proper lateral bracing, such as a marriage beam for each half of a manufactured home before the units are joined.
5. The allowable loads in the table are for a single ply of LVL. Multiply the values by the number of plies of equal thickness to size a built-up member or divide the required loads by the number of equal thickness plies to directly verify the capacity of each individual ply. Example: double the allowable loads in the table for a 2-ply member or divide the required uniform loads by 2 to verify each ply of a 2-ply member.
6. The member width shall be properly built up by connecting plies of the same grade of LVL. Refer to the multiple-ply connections on pages 22-23.
7. Do not use a product where designated "-" without further analysis by a professional engineer.

ACTUAL DEFLECTION BASED ON SPAN AND LIMIT

Span (ft)	10'	12'	14'	16'	18'	20'	22'	24'	26'	28'	30'
L/480	1/4"	5/16"	3/8"	3/8"	7/16"	1/2"	9/16"	5/8"	5/8"	11/16"	3/4"
L/360	5/16"	3/8"	7/16"	9/16"	5/8"	11/16"	3/4"	13/16"	7/8"	15/16"	1"
L/240	1/2"	5/8"	11/16"	13/16"	7/8"	1"	1-1/8"	1-3/16"	1-5/16"	1-3/8"	1-1/2"

LVL 2950F_b-2.0E Uniform Roof Load (PLF) Tables

TO USE:

- Select the required Span. For beams with a pitch greater than 1:12, multiply the horizontal span by the slope adjustment factor from the table below.
- Divide the design loads by the desired number of plies to verify each ply of the beam.
- Select a beam that exceeds the appropriate Total Load (Snow 115% or Non-Snow 125%) and the appropriate Snow/Live Load (L/360 or L/240).
- Check the bearing requirements.

EXAMPLE:

For a 16' horizontal span with a pitch of 4:12, select a 2- and 3-ply beam that satisfies an L/360 Snow Load deflection limit for the following design loads: Snow Load = 720 plf, Total Load = 1128 plf

CALCULATE BEAM SPAN: $16' \times 1.054 = 16.9' \rightarrow$ Use Span = 17'

SOLUTION FOR A 2-PLY BEAM:

Design Total Load per ply = $1128 / 2 = 564$ plf

Design Snow Load per ply = $720 / 2 = 360$ plf

Use 2 plies 1-3/4" x 18"

(Total Load = 650 plf, Snow Load L/360 = 512 plf)

SOLUTION FOR A 3-PLY BEAM:

Design Total Load per ply = $1128 / 3 = 376$ plf

Design Snow Load per ply = $720 / 3 = 240$ plf

Use 3 plies 1-3/4" x 18"

(Total Load = 430 plf, Snow Load L/360 = 241 plf)

Span	1-3/4" x 7-1/4"				1-3/4" x 9-1/4"				1-3/4" x 9-1/2"				1-3/4" x 11-1/4"				Span
	Snow/Live Load		Total Load		Snow/Live Load		Total Load		Snow/Live Load		Total Load		Snow/Live Load		Total Load		
	L/360	L/240	Snow 115%	Non-Snow 125%	L/360	L/240	Snow 115%	Non-Snow 125%	L/360	L/240	Snow 115%	Non-Snow 125%	L/360	L/240	Snow 115%	Non-Snow 125%	
5'			899	977			1147	1247			1178	1280			1395	1516	5'
6'	762		748	814			955	1038			980	1066			1161	1263	6'
7'	480		641	697			818	889			840	913			994	1081	7'
8'	321	482	560	609	667		715	777	723		734	798			869	945	8'
9'	225	338	448	448	469		635	690	508		652	709			772	840	9'
9'-6"	192	288	380	380	398	598	601	654	432	648	617	671	717		731	795	9'-6"
10'	164	246	325	325	341	512	571	621	370	555	586	638	615		694	755	10'
11'	123	185	243	243	256	385	475	509	278	417	500	544	462		631	686	11'
12'	95	142	186	186	197	296	391	391	214	321	419	424	356	534	577	628	12'
13'	74	112	146	146	155	233	306	306	168	252	332	332	280	420	491	535	13'
14'	60	90	116	116	124	186	244	244	135	202	265	265	224	336	423	442	14'
15'	48	73	93	93	101	151	198	198	109	164	214	214	182	273	358	358	15'
16'	40	60	76	76	83	125	162	162	90	135	176	176	150	225	294	294	16'
16'-6"	36	54	69	69	76	114	147	147	82	123	160	160	136	205	268	268	16'-6"
17'	33	50	63	63	69	104	134	134	75	113	146	146	125	187	244	244	17'
18'	-	-	-	-	58	87	112	112	63	95	122	122	105	158	205	205	18'
18'-6"	-	-	-	-	54	81	103	103	58	87	112	112	97	145	188	188	18'-6"
19'	-	-	-	-	49	74	95	95	54	81	103	103	89	134	173	173	19'
20'	-	-	-	-	42	64	80	80	46	69	87	87	76	115	148	148	20'
21'	-	-	-	-	36	55	69	69	40	60	75	75	66	99	127	127	21'
22'	-	-	-	-	32	48	59	59	34	52	64	64	57	86	109	109	22'

Span	1-3/4" x 11-7/8"				1-3/4" x 14"				1-3/4" x 16"				1-3/4" x 18"				Span
	Snow/Live Load		Total Load		Snow/Live Load		Total Load		Snow/Live Load		Total Load		Snow/Live Load		Total Load		
	L/360	L/240	Snow 115%	Non-Snow 125%	L/360	L/240	Snow 115%	Non-Snow 125%	L/360	L/240	Snow 115%	Non-Snow 125%	L/360	L/240	Snow 115%	Non-Snow 125%	
5'			1472	1601			1736	1887			1984	2157			2232	2281	5'
6'			1226	1333			1445	1571			1652	1796			1858	1929	6'
7'			1050	1141			1238	1346			1414	1538			1591	1670	7'
8'			918	998			1082	1177			1237	1345			1391	1473	8'
9'			815	886			961	1045			1098	1194			1236	1317	9'
9'-6"			772	839			910	990			1040	1131			1170	1250	9'-6"
10'	723		733	797			864	940			988	1074			1111	1190	10'
11'	543		666	724			785	854			897	976			1009	1086	11'
12'	418	628	610	663	686		719	782			822	894			924	1005	12'
13'	329	494	545	593	539		663	721	805		758	824			852	927	13'
14'	263	395	469	510	432	648	615	669	644		703	765			791	860	14'
15'	214	321	407	422	351	526	555	603	524		656	713	746		738	802	15'
16'	176	264	347	347	289	434	487	529	432	648	614	668	615		691	752	16'
16'-6"	161	241	316	316	263	395	457	497	393	590	587	639	560		670	729	16'-6"
17'	147	220	288	288	241	362	430	468	360	540	552	601	512		650	707	17'
18'	124	186	242	242	203	304	383	399	303	455	492	535	432	648	613	667	18'
18'-6"	114	171	222	222	187	280	362	367	279	419	465	506	398	597	580	631	18'-6"
19'	105	158	205	205	172	259	338	338	258	387	440	479	367	551	549	598	19'
20'	90	135	174	174	148	222	289	289	221	331	397	432	315	472	495	539	20'
21'	78	117	150	150	128	192	249	249	191	286	359	374	272	408	448	488	21'
22'	67	101	129	129	111	167	215	215	166	249	324	324	236	354	407	443	22'
23'	59	89	112	112	97	146	187	187	145	218	282	282	207	310	372	405	23'
24'	52	78	98	98	85	128	164	164	128	192	248	248	182	273	341	355	24'
25'	46	69	86	86	75	113	144	144	113	169	218	218	161	241	313	313	25'
26'	41	61	76	76	67	101	127	127	100	151	193	193	143	215	277	277	26'
27'	36	55	67	67	60	90	113	113	89	134	171	171	128	192	247	247	27'
28'	32	49	59	59	54	81	101	101	80	120	153	153	114	172	220	220	28'
29'	-	-	-	-	48	72	90	90	72	108	137	137	103	154	197	197	29'
30'	-	-	-	-	43	65	80	80	65	98	123	123	93	140	177	177	30'

DESIGN ASSUMPTIONS:

- Span is the center-to-center distance of the supports, along the sloped length of the member and is valid for simple or equal, continuous span applications.
- The values in the tables are for uniform loads only.
- Total Load is for Snow (115%) or Non-Snow (125%) duration, as noted in the table, and has been adjusted to account for the self-weight of the member.
- Snow/Live Load deflection has been limited to L/360 or L/240 as noted in the table. To design for a Snow or Roof Live Load deflection of L/480, use the Uniform Floor Load tables on page 10.
- Total deflection has been limited to L/180. Long term deflection (creep) has not been considered.
- These tables assume full lateral support of the compression edge. Full support is considered to be a maximum unbraced length of 24'.
- Proper bearing must be provided. Bearing length must be checked for support reactions with the table on page 4.

ADDITIONAL NOTES:

- The allowable loads represent the capacity of the member in pounds per lineal foot (plf) of length.
- The designer shall check both the appropriate Total Load and the appropriate Live Load column.
- For roofs with a slope of 2:12 or greater, the horizontal span shall be multiplied by the appropriate slope adjustment factor from the table below.
- Where the Live Load is blank, the Total Load governs the design.
- Depths of 16" and greater shall be used with a minimum of two plies unless designed specifically as a single ply with proper lateral bracing, such as a marriage beam for each half of a manufactured home before the units are joined.
- The allowable loads in the table are for a single ply of LVL. Multiply the values by the number of plies of equal thickness to size a built-up member or divide the required loads by the number of equal thickness plies to directly verify the capacity of each individual ply. Example: double the allowable loads in the table for a 2-ply member or divide the required uniform loads by 2 to verify each ply of a 2-ply member.
- The member width shall be properly built up by connecting plies of the same grade of LVL. Refer to the multiple-ply connections on pages 22-23.
- Do not use a product where designated "-" without further analysis by a professional engineer.

SLOPE ADJUSTMENT FACTOR										
Slope	2:12	3:12	4:12	5:12	6:12	7:12	8:12	9:12	10:12	11:12
Factor	1.014	1.031	1.054	1.083	1.118	1.158	1.202	1.250	1.302	1.357
										1.414

LVL 2650F_b-1.9E Product Specifications & Design Values

ALLOWABLE STRESS DESIGN VALUES (PSI)					
Grade	Bending Stress ³ F _b	Modulus of Elasticity ⁴ E (x 10 ⁶)	Shear Stress F _v	Compression Stress	
				F _c (Parallel To Grain)	F _{c⊥} (Perpendicular To Grain)
2650F _b -1.9E	2650	1.9	285	2350	750

NOTES:

- LP® SolidStart® LVL shall be designed for dry-use conditions only. Dry-use applies to products installed in dry, covered and well ventilated interior conditions in which the equivalent moisture content in lumber will not exceed 16%.
- The allowable strengths and stiffness are for normal load duration. Bending, Shear and Compression parallel-to-grain shall be adjusted according to code. Modulus of Elasticity and Compression perpendicular-to-grain shall not be adjusted.
- The allowable Bending Stress, F_b, for LP LVL is tabulated for a standard 12" depth. For depths greater than 12" multiply F_b by (12/depth)^{0.143}. For depths less than 12" multiply F_b by (12/depth)^{0.143}. For depths less than 3-1/2" multiply F_b by 1.147.
- Deflection calculations for LP LVL need only consider bending deformations. The tabulated Modulus of Elasticity, E, for LP LVL is the "apparent" E and includes an approximation of the effects of shear deformations.

Deflection for a simple span, uniform load: $\Delta = \frac{270wL^4}{Ebd^3}$ Where: Δ = deflection (in) E = modulus of elasticity (psi)
 w = uniform load (plf) b = width of beam (in)
 L = design span (ft) d = depth of beam (in)

Equations for other conditions can be found in engineering references.

SECTION PROPERTIES AND ALLOWABLE CAPACITIES

Depth	Weight (lb/ft)				Allowable Moment (lb-ft)				Allowable Shear (lb)				Moment of Inertia (in ⁴)			
	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"	1-3/4"	3-1/2"	5-1/4"	7"
7-1/4"	3.6	7.3	10.9	14.5	3580	7161	10741	14322	2411	4821	7232	9643	56	111	167	222
9-1/4"	4.6	9.3	13.9	18.5	5673	11346	17018	22691	3076	6151	9227	12303	115	231	346	462
9-1/2"	4.8	9.5	14.3	19.0	5966	11932	17898	23863	3159	6318	9476	12635	125	250	375	500
11-1/4"	5.6	11.3	16.9	22.5	8211	16421	24632	32842	3741	7481	11222	14963	208	415	623	831
11-7/8"	5.9	11.9	17.8	23.8	9093	18187	27280	36373	3948	7897	11845	15794	244	488	733	977
14"	7.0	14.0	21.0	28.0	12349	24699	37048	49397	4655	9310	13965	18620	400	800	1201	1601
16"	8.0	16.0	24.0	32.0	15825	31650	47475	63300	5320	10640	15960	21280	597	1195	1792	2389
18"	9.0	18.0	27.0	36.1	19694	39389	59083	78777	5985	11970	17955	23940	851	1701	2552	3402

NOTES:

- The Allowable Moment and Shear capacities are for normal load duration and shall be adjusted according to code.
- The 3-1/2" beam widths listed above may be either a single piece or two plies of 1-3/4". The 5-1/4" and 7" beam widths are a combination of 1-3/4" and/or 3-1/2" plies. For example, a 7" wide beam may be two plies of 3-1/2", a 3-1/2" with a 1-3/4" ply attached to each face, or four plies of 1-3/4". Billet beam is not available in this grade. Refer to the Connection Assemblies details on page 22 for additional information.
- The tabulated weight is an estimate and shall only be used for design purposes. Contact LP for actual shipping weights.

FASTENERS:

Refer to pages 22-23 for information on connecting multiple plies and for the equivalent specific gravity for design of nailed and bolted connections.

REACTION CAPACITY (LBS)

Width	Bearing Length																			
	1-1/2"	2"	2-1/2"	3"	3-1/2"	4"	4-1/2"	5"	5-1/2"	6"	6-1/2"	7"	7-1/2"	8"	8-1/2"	9"	9-1/2"	10"	10-1/2"	11"
1-3/4"	1968	2625	3281	3937	4593	5250	5906	6562	7218	7875	8531	9187	9843	10500	11156	11812	12468	13125	13781	14437
3-1/2"	3937	5250	6562	7875	9187	10500	11812	13125	14437	15750	17062	18375	19687	21000	22312	23625	24937	26250	27562	28875
5-1/4"	5906	7875	9843	11812	13781	15750	17718	19687	21656	23625	25593	27562	29531	31500	33468	35437	37406	39375	41343	43312
7"	7875	10500	13125	15750	18375	21000	23625	26250	28875	31500	34125	36750	39375	42000	44625	47250	49875	52500	55125	57750

NOTES:

- The Reaction Capacity values are based on the compression strength, perpendicular-to-grain, of the LVL. This is suitable for beams bearing on steel or the end-grain of studs.
- Verify that the support for the beam is structurally adequate to carry the reaction. The compressive strength parallel-to-grain, of studs may require more studs than the bearing length above indicates.
- For beams bearing on wood plates, the required bearing length will increase based on the bearing strength (compression perpendicular-to-grain) of the species and grade used for the plate material.
- Verify local code requirements concerning minimum bearing.

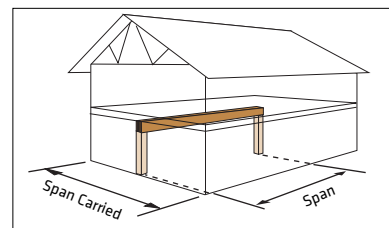
LVL 2650F_b-1.9E Floor Beam Quick Reference Tables

TO USE:

1. Select the correct table for the supported floor joist condition (simple or continuous – see notes below).
2. Choose the required center-to-center span for the beam in the Span column.
3. Select the span carried by the beam across the top of the table.
4. Read the beam size or choice of beam sizes from the table.

EXAMPLE: A beam with a 10'-0" span carries 15'-0" simple span joists on each side.

SOLUTION: Using the Simple-Span Floor Joists table with 30'-0" span carried, select either **3-1/2" x 9-1/4"** or **5-1/4" x 9-1/4"**.

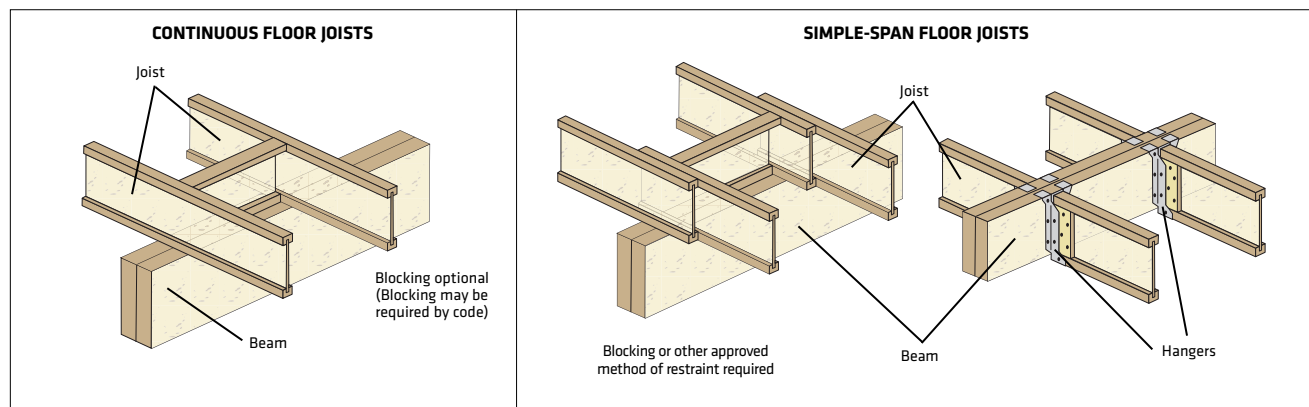


CONTINUOUS FLOOR JOISTS DESIGN FLOOR LOADS: 40 PSF LIVE, 15 PSF DEAD	Span	Beam Width	Span Carried By Beam										
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	8'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"
	10'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	12'-0"	3-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	14"	14"	14"	14"	14"	-
		5-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
	14'-0"	3-1/2"	11-7/8"	14"	14"	14"	14"	14"	16"	16"	-	-	-
		5-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"
	16'-0"	3-1/2"	14"	14"	16"	16"	16"	16"	-	-	-	-	-
		5-1/4"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	16"	16"
	18'-0"	3-1/2"	16"	16"	18"	18"	18"	-	-	-	-	-	-
5-1/4"		14"	14"	14"	16"	16"	16"	16"	16"	16"	16"	18"	
20'-0"	3-1/2"	18"	18"	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	16"	16"	16"	18"	18"	18"	18"	-	
22'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	18"	18"	18"	18"	18"	18"	-	-	-	-	
24'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	18"	18"	-	-	-	-	-	-	-	-	-	

SIMPLE-SPAN FLOOR JOISTS DESIGN FLOOR LOADS: 40 PSF LIVE, 15 PSF DEAD	Span	Beam Width	Span Carried By Beam											
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'	
	6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	
	8'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	
	10'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	
		5-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	
	12'-0"	3-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
	14'-0"	3-1/2"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	16"
		5-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"
	16'-0"	3-1/2"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"	16"	-
		5-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"
	18'-0"	3-1/2"	16"	16"	16"	16"	16"	18"	18"	18"	18"	-	-	-
5-1/4"		14"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"	
20'-0"	3-1/2"	16"	16"	18"	18"	18"	18"	-	-	-	-	-	-	
	5-1/4"	14"	14"	16"	16"	16"	16"	16"	16"	16"	16"	16"	18"	
22'-0"	3-1/2"	18"	18"	18"	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	16"	18"	18"	18"	18"	18"	18"	18"	18"	
24'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	18"	18"	18"	18"	18"	18"	18"	-	-	-	-	-	

NOTES:

1. Use the Continuous Floor Joists table where the floor joists are continuous (multiple span) over the beam.
Use the Simple-Span Floor Joists table where the floor joists frame into the side of or end on top of the beam.
2. Span is center-to-center of supports and is valid for simple and equal, continuous beam spans.
3. End supports require 3" bearing. Interior supports require 6" bearing except 7-1/2" is required where **bold**. The bearing length is based on the compression strength, perpendicular-to-grain, of the LVL. See the Reaction Capacity table on page 12 for additional information.
4. Deflections are limited to L/360 live load and L/240 total load.
5. Beam width can be either a single piece of LVL or built up from multiple plies that are nailed, bolted or connected with other approved fasteners. Refer to pages 22-23 for connection details.
7. Do not use where marked "-".



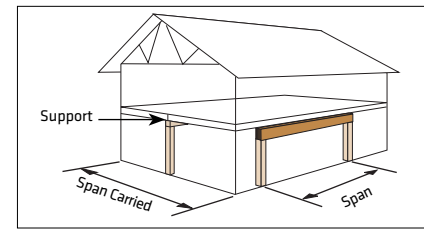
LVL 2650F_b-1.9E Combined Beam Quick Reference Tables

TO USE:

1. Select the correct table for the roof loads needed.
2. Choose the required center-to-center span for the beam in the Span column.
3. Select the span carried by the beam across the top of the table.
4. Read the beam size or choice of beam sizes from the table.

EXAMPLE: A beam with a 9'-6" span supports a 32'-0" span carried for a 20 psf roof live load.

SOLUTION: Using the correct table for the roof load with 32'-0" span carried, select either **3-1/2" x 9-1/2"** or **5-1/4" x 9-1/4"**.



DESIGN LOADS ROOF: 20 PSF SNOW OR LIVE (115% or 125%), 15 PSF DEAD FLOOR: 40 PSF LIVE, 15 PSF DEAD	Span	Beam Width	Span Carried By Beam										
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	8'-0"	3-1/2"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"
	9'-6"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	10'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	12'-0"	3-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"
		5-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
	14'-0"	3-1/2"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"	16"
		5-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"
	16'-0"	3-1/2"	14"	16"	16"	16"	16"	16"	18"	18"	18"	18"	18"
5-1/4"		14"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"	
16'-6"	3-1/2"	16"	16"	16"	-	-	-	-	-	-	-	-	
	5-1/4"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"	16"	
18'-0"	3-1/2"	16"	18"	18"	18"	18"	18"	-	-	-	-	-	
	5-1/4"	14"	16"	16"	16"	16"	16"	16"	16"	16"	18"	18"	
18'-6"	3-1/2"	18"	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	16"	16"	16"	16"	18"	18"	-	-	
20'-0"	3-1/2"	18"	18"	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	18"	18"	18"	18"	18"	18"	18"	-	
22'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	18"	18"	18"	18"	-	-	-	-	-	-	-	
24'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	-	-	-	-	-	-	-	-	-	-	-	

DESIGN LOADS ROOF: 25 PSF SNOW (115%), 15 PSF DEAD FLOOR: 40 PSF LIVE, 15 PSF DEAD	Span	Beam Width	Span Carried By Beam											
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'	
	6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	8'-0"	3-1/2"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	9'-6"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	10'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	9-1/2"
	12'-0"	3-1/2"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"
		5-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
	14'-0"	3-1/2"	14"	14"	14"	14"	14"	16"	16"	16"	16"	16"	16"	18"
		5-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"
	16'-0"	3-1/2"	16"	16"	16"	16"	16"	18"	18"	18"	18"	18"	-	-
5-1/4"		14"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"	16"	
16'-6"	3-1/2"	16"	16"	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	14"	14"	14"	14"	14"	16"	16"	16"	16"	16"	-	-	
18'-0"	3-1/2"	18"	18"	18"	18"	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	16"	16"	16"	16"	16"	18"	18"	18"	18"	
18'-6"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	16"	16"	16"	16"	18"	-	-	-	-	
20'-0"	3-1/2"	18"	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	18"	18"	18"	18"	18"	18"	18"	-	-	-	
22'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	18"	18"	18"	-	-	-	-	-	-	-	-	-	
24'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	-	-	-	-	-	-	-	-	-	-	-	-	

NOTES:

1. Span is center-to-center of supports and is valid for simple beam spans only.
2. End supports require 3" bearing except 4-1/2" is required where **bold**. The end supports for the standard garage door spans of 9'-6", 16'-6" and 18'-6" have been limited to 3" (two trimmers) on each end. The bearing length is based on the compression strength, perpendicular-to-grain, of the LVL. See the Reaction Capacity table on page 12 for additional information.
3. Deflections are limited to L/360 live or snow load and L/240 total load.
4. Loads include 100 plf for an exterior wall and assume a 2' maximum overhang on the roof and an interior support at mid-span of the floor joists.
5. Beam width can be either a single piece of LVL or built up from multiple plies that are nailed, bolted or connected with other approved fasteners. Refer to pages 22-23 for connection details.
6. Do not use where marked "-".

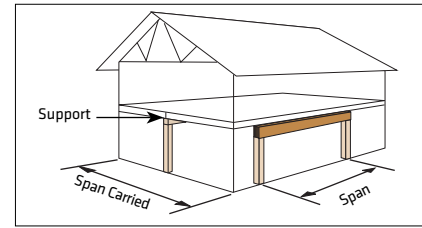
LVL 2650F_b-1.9E Combined Beam Quick Reference Tables

TO USE:

1. Select the correct table for the roof loads needed.
2. Choose the required center-to-center span for the beam in the Span column.
3. Select the span carried by the beam across the top of the table.
4. Read the beam size or choice of beam sizes from the table.

EXAMPLE: A beam with a 9'-6" span supports a 32'-0" span carried for a 40 psf roof snow load.

SOLUTION: Using the correct table for the roof load with 32'-0" span carried, select either **3-1/2" x 11-1/4"** or **5-1/4" x 9-1/4"**.



Span	Beam Width	Span Carried By Beam										
		20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
8'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"
	5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
9'-6"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
	5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
10'-0"	3-1/2"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"
	5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"
12'-0"	3-1/2"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	16"
	5-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"
14'-0"	3-1/2"	14"	14"	14"	14"	16"	16"	16"	16"	16"	18"	18"
	5-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"
16'-0"	3-1/2"	16"	16"	16"	16"	18"	18"	18"	18"	18"	18"	18"
	5-1/4"	14"	14"	14"	14"	14"	16"	16"	16"	16"	16"	16"
16'-6"	3-1/2"	16"	-	-	-	-	-	-	-	-	-	-
	5-1/4"	14"	14"	14"	16"	16"	16"	16"	16"	-	-	-
18'-0"	3-1/2"	18"	18"	18"	-	-	-	-	-	-	-	-
	5-1/4"	16"	16"	16"	16"	16"	16"	18"	18"	18"	18"	18"
18'-6"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-
	5-1/4"	16"	16"	16"	16"	18"	18"	-	-	-	-	-
20'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-
	5-1/4"	16"	18"	18"	18"	18"	18"	18"	-	-	-	-
22'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-
	5-1/4"	18"	18"	-	-	-	-	-	-	-	-	-
24'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-
	5-1/4"	-	-	-	-	-	-	-	-	-	-	-

Span	Beam Width	Span Carried By Beam										
		20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"
	5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
8'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"
	5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
9'-6"	3-1/2"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	-	-	-
	5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"
10'-0"	3-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"
	5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
12'-0"	3-1/2"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	16"	16"	16"
	5-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"
14'-0"	3-1/2"	14"	14"	16"	16"	16"	16"	18"	18"	18"	-	-
	5-1/4"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	16"	16"
16'-0"	3-1/2"	16"	16"	18"	18"	18"	-	-	-	-	-	-
	5-1/4"	14"	14"	14"	16"	16"	16"	16"	16"	16"	18"	18"
16'-6"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-
	5-1/4"	14"	16"	16"	16"	16"	-	-	-	-	-	-
18'-0"	3-1/2"	18"	-	-	-	-	-	-	-	-	-	-
	5-1/4"	16"	16"	16"	16"	18"	18"	18"	18"	18"	-	-
18'-6"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-
	5-1/4"	16"	16"	18"	-	-	-	-	-	-	-	-
20'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-
	5-1/4"	18"	18"	18"	18"	-	-	-	-	-	-	-
22'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-
	5-1/4"	-	-	-	-	-	-	-	-	-	-	-
24'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-
	5-1/4"	-	-	-	-	-	-	-	-	-	-	-

NOTES:

1. Span is center-to-center of supports and is valid for simple beam spans only.
2. End supports require 3" bearing except 4-1/2" is required where **bold**. The end supports for the standard garage door spans of 9'-6", 16'-6" and 18'-6" have been limited to 3" (two trimmers) on each end. The bearing length is based on the compression strength, perpendicular-to-grain, of the LVL. See the Reaction Capacity table on page 12 for additional information.
3. Deflections are limited to L/360 live or snow load and L/240 total load.
4. Loads include 100 plf for an exterior wall and assume a 2' maximum overhang on the roof and an interior support at mid-span of the floor joists.
5. Beam width can be either a single piece of LVL or built up from multiple plies that are nailed, bolted or connected with other approved fasteners. Refer to pages 22-23 for connection details.
6. Do not use where marked "-".

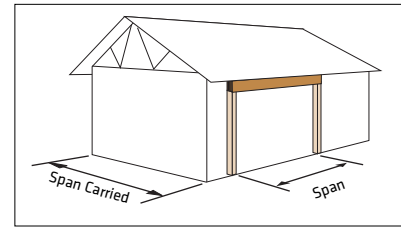
LVL 2650F_b-1.9E Roof Beam Quick Reference Tables

TO USE:

1. Select the correct table for the roof loads needed.
2. Choose the required center-to-center span for the beam in the Span column.
3. Select the span carried by the beam across the top of the table.
4. Read the beam size or choice of beam sizes from the table.

EXAMPLE: A beam with a 16'-6" span supports a 38'-0" span carried for a 25 psf roof snow load.

SOLUTION: Using the correct table for the roof load with 38'-0" span carried, select either **3-1/2" x 16"** or **5-1/4" x 14"**.



DESIGN LOADS ROOF: 20 PSF SNOW OR LIVE (115% or 125%), 15 PSF DEAD	Span	Beam Width	Span Carried By Beam										
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	8'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	9'-6"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	10'-0"	3-1/2"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"
	12'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	14'-0"	3-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	11-7/8"	14"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
	16'-0"	3-1/2"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"
5-1/4"		11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	11-7/8"	14"	
16'-6"	3-1/2"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	14"	16"	
	5-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	
18'-0"	3-1/2"	14"	14"	14"	14"	14"	16"	16"	16"	16"	16"	16"	
	5-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	
18'-6"	3-1/2"	14"	14"	14"	16"	16"	16"	16"	16"	16"	16"	16"	
	5-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	14"	
20'-0"	3-1/2"	16"	16"	16"	16"	16"	16"	18"	18"	18"	18"	18"	
	5-1/4"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"	16"	
22'-0"	3-1/2"	16"	16"	18"	18"	18"	18"	18"	-	-	-	-	
	5-1/4"	14"	14"	16"	16"	16"	16"	16"	16"	18"	18"	18"	
24'-0"	3-1/2"	18"	18"	18"	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	18"	18"	18"	18"	18"	18"	18"	-	

DESIGN LOADS ROOF: 25 PSF SNOW (115%), 15 PSF DEAD	Span	Beam Width	Span Carried By Beam										
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	8'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	9'-6"	3-1/2"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"
	10'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	12'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"
	14'-0"	3-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	14"
		5-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
	16'-0"	3-1/2"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	14"	16"
5-1/4"		11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	14"	
16'-6"	3-1/2"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"	
	5-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	
18'-0"	3-1/2"	14"	14"	14"	16"	16"	16"	16"	16"	16"	16"	18"	
	5-1/4"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	14"	16"	
18'-6"	3-1/2"	14"	16"	16"	16"	16"	16"	16"	16"	18"	-	-	
	5-1/4"	14"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"	
20'-0"	3-1/2"	16"	16"	16"	16"	18"	18"	18"	18"	18"	18"	-	
	5-1/4"	14"	14"	14"	14"	16"	16"	16"	16"	16"	16"	16"	
22'-0"	3-1/2"	18"	18"	18"	18"	18"	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	16"	16"	16"	18"	18"	18"	18"	18"	
24'-0"	3-1/2"	18"	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	18"	18"	18"	18"	18"	18"	-	-	-	

NOTES:

1. Span is center-to-center of supports and is valid for simple beam spans only.
2. End supports require 3" bearing except 4-1/2" is required where **bold**. The end supports for the standard garage door spans of 9'-6", 16'-6" and 18'-6" have been limited to 3" (two trimmers) on each end. The bearing length is based on the compression strength, perpendicular-to-grain, of the LVL. See the Reaction Capacity table on page 12 for additional information.
3. Deflections are limited to L/360 live or snow load and L/240 total load.
4. Loads assume a 2' maximum overhang on the roof.
5. Beam width can be either a single piece of LVL or built up from multiple plies that are nailed, bolted or connected with other approved fasteners. Refer to pages 22-23 for connection details.
6. Do not use where marked "-".

LVL 2650F_b-1.9E Roof Beam Quick Reference Tables

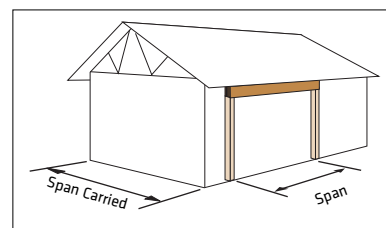
TO USE:

1. Select the correct table for the roof loads needed.
2. Choose the required center-to-center span for the beam in the Span column.
3. Select the span carried by the beam across the top of the table.
4. Read the beam size or choice of beam sizes from the table.

EXAMPLE: A beam with a 16'-6" span supports a 38'-0" span carried for a 40 psf roof snow load.

SOLUTION: Using the correct table for the roof load with 38'-0" span carried, select a **5-1/4" x 16"**.

NOTE: A 3-1/2" beam does not work.



DESIGN LOADS ROOF: 30 PSF SNOW (115%), 15 PSF DEAD	Span	Beam Width	Span Carried By Beam										
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	8'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	9'-6"	3-1/2"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"
	10'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	12'-0"	3-1/2"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"	11-1/4"
	14'-0"	3-1/2"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"
		5-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"
	16'-0"	3-1/2"	14"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"
5-1/4"		11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	
16'-6"	3-1/2"	14"	14"	14"	14"	14"	16"	16"	16"	16"	16"	-	
	5-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	
18'-0"	3-1/2"	14"	16"	16"	16"	16"	16"	16"	18"	18"	18"	18"	
	5-1/4"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"	
18'-6"	3-1/2"	16"	16"	16"	16"	16"	16"	18"	-	-	-	-	
	5-1/4"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"	16"	
20'-0"	3-1/2"	16"	16"	18"	18"	18"	18"	18"	18"	18"	-	-	
	5-1/4"	14"	14"	16"	16"	16"	16"	16"	16"	16"	18"	18"	
22'-0"	3-1/2"	18"	18"	18"	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	16"	18"	18"	18"	18"	18"	18"	-	
24'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	18"	18"	18"	18"	18"	18"	-	-	-	-	-	

DESIGN LOADS ROOF: 40 PSF SNOW (115%), 15 PSF DEAD	Span	Beam Width	Span Carried By Beam										
			20'	22'	24'	26'	28'	30'	32'	34'	36'	38'	40'
	6'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	8'-0"	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
		5-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
	9'-6"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	9-1/2"	11-1/4"	11-1/4"
		5-1/4"	7-1/4"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	10'-0"	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"
	12'-0"	3-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"
		5-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"
	14'-0"	3-1/2"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	14"	16"
		5-1/4"	11-1/4"	11-1/4"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	14"
	16'-0"	3-1/2"	14"	14"	16"	16"	16"	16"	16"	16"	16"	16"	18"
5-1/4"		11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	14"	16"	
16'-6"	3-1/2"	14"	16"	16"	16"	16"	16"	16"	-	-	-	-	
	5-1/4"	14"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"	
18'-0"	3-1/2"	16"	16"	16"	18"	18"	18"	18"	18"	18"	18"	-	
	5-1/4"	14"	14"	14"	16"	16"	16"	16"	16"	16"	16"	18"	
18'-6"	3-1/2"	16"	16"	18"	18"	18"	-	-	-	-	-	-	
	5-1/4"	14"	14"	16"	16"	16"	16"	16"	16"	18"	18"	18"	
20'-0"	3-1/2"	18"	18"	18"	-	-	-	-	-	-	-	-	
	5-1/4"	16"	16"	16"	16"	18"	18"	18"	18"	18"	18"	18"	
22'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	18"	18"	18"	18"	18"	18"	-	-	-	-	-	
24'-0"	3-1/2"	-	-	-	-	-	-	-	-	-	-	-	
	5-1/4"	18"	-	-	-	-	-	-	-	-	-	-	

NOTES:

1. Span is center-to-center of supports and is valid for simple beam spans only.
2. End supports require 3" bearing except 4-1/2" is required where **bold**. The end supports for the standard garage door spans of 9'-6", 16'-6" and 18'-6" have been limited to 3" (two trimmers) on each end. The bearing length is based on the compression strength, perpendicular-to-grain, of the LVL. See the Reaction Capacity table on page 12 for additional information.
3. Deflections are limited to L/360 live or snow load and L/240 total load.
4. Loads assume a 2' maximum overhang on the roof.
5. Beam width can be either a single piece of LVL or built up from multiple plies that are nailed, bolted or connected with other approved fasteners. Refer to pages 22-23 for connection details.
6. Do not use where marked "-".

LVL 2650F_b-1.9E Uniform Floor Load (PLF) Tables

TO USE:

1. Select the required Span.
2. Divide the design loads by the desired number of plies to verify each ply of the beam.
3. Select a beam that exceeds the Total Load and the appropriate Live Load.
4. Check the bearing requirements.

EXAMPLE:

For a 16'-6" span, select a 2- and 3-ply beam that satisfies an L/360 Live Load deflection limit for the following design loads:
Live load = 480 plf, Total Load = 660 plf

SOLUTION FOR A 2-PLY BEAM:

Design Total Load per ply = $660 / 2 = 330$ plf
Design Live Load per ply = $480 / 2 = 240$ plf

Use 2 plies 1-3/4" x 14"

(Total Load = 355 plf, Live Load L/360 = 250 plf)

SOLUTION FOR A 3-PLY BEAM:

Design Total Load per ply = $660 / 3 = 220$ plf
Design Live Load per ply = $480 / 3 = 160$ plf

Use 3 plies 1-3/4" x 14"

(Total Load = 355 plf, Live Load L/360 = 250 plf)

Span	1-3/4" x 7-1/4"			1-3/4" x 9-1/4"			1-3/4" x 9-1/2"			1-3/4" x 11-1/4"			Span
	Live Load		Total Load	Live Load		Total Load	Live Load		Total Load	Live Load		Total Load	
	L/480	L/360		L/480	L/360		L/480	L/360		L/480	L/360		
5'			767			979			1006			1191	5'
6'	543		639			815			837			991	6'
7'	342	456	547			698			717			849	7'
8'	229	305	443	475		610	515		626			742	8'
9'	160	214	318	334	445	542	362	482	556	601		659	9'
9'-6"	136	182	270	284	378	498	307	410	524	511		624	9'-6"
10'	117	156	231	243	324	449	263	351	472	438	584	592	10'
11'	88	117	172	183	244	361	198	264	389	329	439	537	11'
12'	67	90	132	141	188	277	152	203	300	253	338	450	12'
13'	53	71	103	110	147	217	120	160	235	199	266	383	13'
14'	42	57	81	88	118	172	96	128	187	159	213	313	14'
15'	34	46	65	72	96	139	78	104	151	129	173	254	15'
16'	-	-	-	59	79	114	64	85	124	107	142	208	16'
16'-6"	-	-	-	54	72	103	58	78	112	97	130	189	16'-6"
17'	-	-	-	49	66	94	53	71	102	89	118	172	17'
18'	-	-	-	41	55	78	45	60	85	75	100	144	18'
18'-6"	-	-	-	38	51	72	41	55	78	69	92	132	18'-6"
19'	-	-	-	35	47	66	38	51	72	63	85	122	19'
20'	-	-	-	30	40	56	32	43	61	54	73	103	20'
21'	-	-	-	-	-	-	-	-	-	47	63	89	21'
22'	-	-	-	-	-	-	-	-	-	41	54	76	22'

Span	1-3/4" x 11-7/8"			1-3/4" x 14"			1-3/4" x 16"			1-3/4" x 18"			Span
	Live Load		Total Load	Live Load		Total Load	Live Load		Total Load	Live Load		Total Load	
	L/480	L/360		L/480	L/360		L/480	L/360		L/480	L/360		
5'			1257			1482			1694			1906	5'
6'			1046			1234			1410			1586	6'
7'			896			1056			1207			1358	7'
8'			783			923			1055			1187	8'
9'			695			820			937			1054	9'
9'-6"	601		659			776			887			998	9'-6"
10'	515		625			737			843			948	10'
11'	387	516	568	634		670			765			861	11'
12'	298	397	499	488		613			701			788	12'
13'	234	312	424	384	512	565	573		646			727	13'
14'	187	250	365	307	410	497	459		599	654		674	14'
15'	152	203	299	250	333	432	373	498	554	532		629	15'
16'	125	167	245	206	274	378	307	410	486	438	584	589	16'
16'-6"	114	153	223	188	250	355	280	374	457	399	532	569	16'-6"
17'	104	139	203	171	229	334	256	342	430	365	487	536	17'
18'	88	117	170	144	193	282	216	288	382	307	410	477	18'
18'-6"	81	108	156	133	177	259	199	265	361	283	378	451	18'-6"
19'	75	100	144	123	164	239	183	245	342	261	349	427	19'
20'	64	85	122	105	140	204	157	210	307	224	299	384	20'
21'	55	74	105	91	121	175	136	181	264	193	258	348	21'
22'	48	64	90	79	105	151	118	157	228	168	224	316	22'
23'	42	56	78	69	92	131	103	138	199	147	196	286	23'
24'	37	49	68	61	81	115	91	121	174	129	173	250	24'
25'	32	43	60	54	72	101	80	107	153	114	153	220	25'
26'	-	-	-	48	64	89	71	95	135	102	136	195	26'
27'	-	-	-	42	57	78	64	85	120	91	121	173	27'
28'	-	-	-	38	51	69	57	76	106	81	109	154	28'
29'	-	-	-	34	46	62	51	68	95	73	98	138	29'
30'	-	-	-	31	41	55	46	62	85	66	88	123	30'

DESIGN ASSUMPTIONS:

1. Span is the center-to-center distance of the supports and is valid for simple or equal, continuous span applications.
2. The values in the tables are for uniform loads only.
3. Total Load is for normal (100%) duration and has been adjusted to account for the self-weight of the member.
4. Live Load deflection has been limited to L/360 or L/480 as noted in the table.
5. Total deflection has been limited to L/240. Long term deflection (creep) has not been considered.
6. These tables assume full lateral support of the compression edge. Full support is considered to be a maximum unbraced length of 24'.
7. Proper bearing must be provided. Bearing length must be checked for support reactions with the table on page 12.

ADDITIONAL NOTES:

1. The allowable loads represent the capacity of the member in pounds per lineal foot (plf) of length.
2. The designer shall check both the Total Load and the appropriate Live Load column.
3. Where the Live Load is blank, the Total Load governs the design.
4. Depths of 16" and greater shall be used with a minimum of two plies unless designed specifically as a single ply with proper lateral bracing, such as a marriage beam for each half of a manufactured home before the units are joined.
5. The allowable loads in the table are for a single ply of LVL. Multiply the values by the number of plies of equal thickness to size a built-up member or divide the required loads by the number of equal thickness plies to directly verify the capacity of each individual ply. Example: double the allowable loads in the table for a 2-ply member or divide the required uniform loads by 2 to verify each ply of a 2-ply member.
6. The member width shall be properly built up by connecting plies of the same grade of LVL. Refer to the multiple-ply connections on pages 22-23.
7. Do not use a product where designated "-" without further analysis by a professional engineer.

ACTUAL DEFLECTION BASED ON SPAN AND LIMIT												
Span (ft)	10'	12'	14'	16'	18'	20'	22'	24'	26'	28'	30'	
L/480	1/4"	5/16"	3/8"	3/8"	7/16"	1/2"	9/16"	5/8"	5/8"	11/16"	3/4"	
L/360	5/16"	3/8"	7/16"	9/16"	5/8"	11/16"	3/4"	13/16"	7/8"	15/16"	1"	
L/240	1/2"	5/8"	11/16"	13/16"	7/8"	1"	1-1/8"	1-3/16"	1-5/16"	1-3/8"	1-1/2"	

LVL 2650F_b-1.9E Uniform Roof Load (PLF) Tables

TO USE:

1. Select the required Span. For beams with a pitch greater than 1:12, multiply the horizontal span by the slope adjustment factor from the table below.
2. Divide the design loads by the desired number of plies to verify each ply of the beam.
3. Select a beam that exceeds the appropriate Total Load (Snow 115% or Non-Snow 125%) and the appropriate Snow/Live Load (L/360 or L/240).
4. Check the bearing requirements.

EXAMPLE:

For a 16' horizontal span with a pitch of 4:12, select a 2- and 3-ply beam that satisfies an L/360 Snow Load deflection limit for the following design loads: Snow load = 720 plf, Total Load = 1128 plf

CALCULATE BEAM SPAN: 16' * 1.054 = 16.9' → Use Span = 17'

SOLUTION FOR A 2-PLY BEAM:

Design Total Load per ply = 1128 / 2 = 564 plf
Design Snow Load per ply = 720 / 2 = 360 plf

Use 2 plies 1-3/4" x 18"

(Total Load = 617 plf, Snow Load L/360 = 487 plf)

SOLUTION FOR A 3-PLY BEAM:

Design Total Load per ply = 1128 / 3 = 376 plf
Design Snow Load per ply = 720 / 3 = 240 plf

Use 3 plies 1-3/4" x 18"

(Total Load = 495 plf, Snow Load L/360 = 342 plf)

Span	1-3/4" x 7-1/4"				1-3/4" x 9-1/4"				1-3/4" x 9-1/2"				1-3/4" x 11-1/4"				Span
	Snow/Live Load		Total Load		Snow/Live Load		Total Load		Snow/Live Load		Total Load		Snow/Live Load		Total Load		
	L/360	L/240	Snow 115%	Non-Snow 125%	L/360	L/240	Snow 115%	Non-Snow 125%	L/360	L/240	Snow 115%	Non-Snow 125%	L/360	L/240	Snow 115%	Non-Snow 125%	
5'			883	960			1127	1225			1157	1258			1370	1490	5'
6'	724		735	799			938	1020			963	1048			1141	1241	6'
7'	456	684	630	685			803	874			825	897			977	1063	7'
8'	305	458	511	555	634		702	764	687		721	784			854	929	8'
9'	214	321	403	425	445	668	624	678	482		641	697	801		759	825	9'
9'-6"	182	273	361	361	378	568	573	623	410	615	603	656	681		718	781	9'-6"
10'	156	234	309	309	324	487	517	562	351	527	544	591	584		682	742	10'
11'	117	176	231	231	244	366	426	464	264	396	448	488	439	658	618	672	11'
12'	90	135	177	177	188	282	357	371	203	305	376	402	338	507	518	564	12'
13'	71	106	138	138	147	221	291	291	160	240	315	315	266	399	441	480	13'
14'	57	85	110	110	118	177	232	232	128	192	251	251	213	319	379	413	14'
15'	46	69	89	89	96	144	187	187	104	156	203	203	173	259	330	340	15'
16'	38	57	72	72	79	118	154	154	85	128	167	167	142	214	279	279	16'
16'-6"	34	52	66	66	72	108	140	140	78	117	151	151	130	195	254	254	16'-6"
17'	31	47	60	60	66	99	127	127	71	107	138	138	118	178	232	232	17'
18'	-	-	-	-	55	83	106	106	60	90	115	115	100	150	194	194	18'
18'-6"	-	-	-	-	51	76	97	97	55	83	106	106	92	138	178	178	18'-6"
19'	-	-	-	-	47	71	90	90	51	76	97	97	85	127	164	164	19'
20'	-	-	-	-	40	60	76	76	43	65	83	83	73	109	140	140	20'
21'	-	-	-	-	35	52	65	65	38	57	71	71	63	94	120	120	21'
22'	-	-	-	-	30	45	56	56	33	49	61	61	54	82	104	104	22'

Span	1-3/4" x 11-7/8"				1-3/4" x 14"				1-3/4" x 16"				1-3/4" x 18"				Span
	Snow/Live Load		Total Load		Snow/Live Load		Total Load		Snow/Live Load		Total Load		Snow/Live Load		Total Load		
	L/360	L/240	Snow 115%	Non-Snow 125%	L/360	L/240	Snow 115%	Non-Snow 125%	L/360	L/240	Snow 115%	Non-Snow 125%	L/360	L/240	Snow 115%	Non-Snow 125%	
5'			1447	1573			1706	1854			1949	2119			2193	2281	5'
6'			1204	1310			1420	1544			1623	1765			1826	1929	6'
7'			1031	1122			1216	1322			1390	1511			1564	1670	7'
8'			902	981			1063	1156			1215	1321			1367	1487	8'
9'			801	871			944	1027			1079	1174			1214	1320	9'
9'-6"	801		758	825			894	972			1022	1111			1150	1250	9'-6"
10'	687		720	783			849	923			970	1055			1092	1187	10'
11'	516		654	711			771	839			881	959			992	1079	11'
12'	397	596	575	625	651		706	768			807	878			908	988	12'
13'	312	469	489	532	512		651	709	765		744	810			838	911	13'
14'	250	375	420	458	410	615	572	623	612		691	751			777	845	14'
15'	203	305	365	398	333	500	497	541	498		639	695	709		725	788	15'
16'	167	251	320	329	274	412	436	475	410		560	610	584		679	739	16'
16'-6"	153	229	300	300	250	376	410	446	374	561	526	573	532		656	714	16'-6"
17'	139	209	273	273	229	343	386	420	342	513	495	539	487		617	672	17'
18'	117	176	229	229	193	289	343	374	288	432	441	480	410		550	598	18'
18'-6"	108	162	211	211	177	266	324	348	265	398	417	454	378		520	566	18'-6"
19'	100	150	194	194	164	246	307	321	245	367	395	430	349	523	492	536	19'
20'	85	128	165	165	140	211	274	274	210	315	355	387	299	448	443	483	20'
21'	74	111	142	142	121	182	236	236	181	272	322	350	258	387	401	437	21'
22'	64	96	123	123	105	158	204	204	157	236	292	307	224	337	365	397	22'
23'	56	84	107	107	92	138	178	178	138	207	267	268	196	295	333	363	23'
24'	49	74	93	93	81	122	155	155	121	182	235	235	173	259	305	332	24'
25'	43	65	82	82	72	108	137	137	107	161	207	207	153	229	280	297	25'
26'	39	58	72	72	64	96	121	121	95	143	183	183	136	204	259	263	26'
27'	34	52	63	63	57	85	107	107	85	128	162	162	121	182	234	234	27'
28'	31	46	56	56	51	76	95	95	76	114	145	145	109	163	209	209	28'
29'	-	-	-	-	46	69	85	85	68	103	129	129	98	147	187	187	29'
30'	-	-	-	-	41	62	76	76	62	93	116	116	88	133	168	168	30'

DESIGN ASSUMPTIONS:

1. Span is the center-to-center distance of the supports, along the sloped length of the member and is valid for simple or equal, continuous span applications.
2. The values in the tables are for uniform loads only.
3. Total Load is for Snow (115%) or Non-Snow (125%) duration, as noted in the table, and has been adjusted to account for the self-weight of the member.
4. Snow/Live Load deflection has been limited to L/360 or L/240 as noted in the table. To design for a Snow or Roof Live Load deflection of L/480, use the Uniform Floor Load tables on page 18.
5. Total deflection has been limited to L/180. Long term deflection (creep) has not been considered.
6. These tables assume full lateral support of the compression edge. Full support is considered to be a maximum unbraced length of 24'.
7. Proper bearing must be provided. Bearing length must be checked for support reactions with the table on page 12.

ADDITIONAL NOTES:

1. The allowable loads represent the capacity of the member in pounds per lineal foot (plf) of length.
2. The designer shall check both the appropriate Total Load and the appropriate Live Load column.
3. For roofs with a slope of 2:12 or greater, the horizontal span shall be multiplied by the appropriate slope adjustment factor from the table below.
4. Where the Live Load is blank, the Total Load governs the design.
5. Depths of 16" and greater shall be used with a minimum of two plies unless designed specifically as a single ply with proper lateral bracing, such as a marriage beam for each half of a manufactured home before the units are joined.
6. The allowable loads in the table are for a single ply of LVL. Multiply the values by the number of plies of equal thickness to size a built-up member or divide the required loads by the number of equal thickness plies to directly verify the capacity of each individual ply. Example: double the allowable loads in the table for a 2-ply member or divide the required uniform loads by 2 to verify each ply of a 2-ply member.
7. The member width shall be properly built up by connecting plies of the same grade of LVL. Refer to the multiple-ply connections on pages 22-23.
8. Do not use a product where designated "-" without further analysis by a professional engineer.

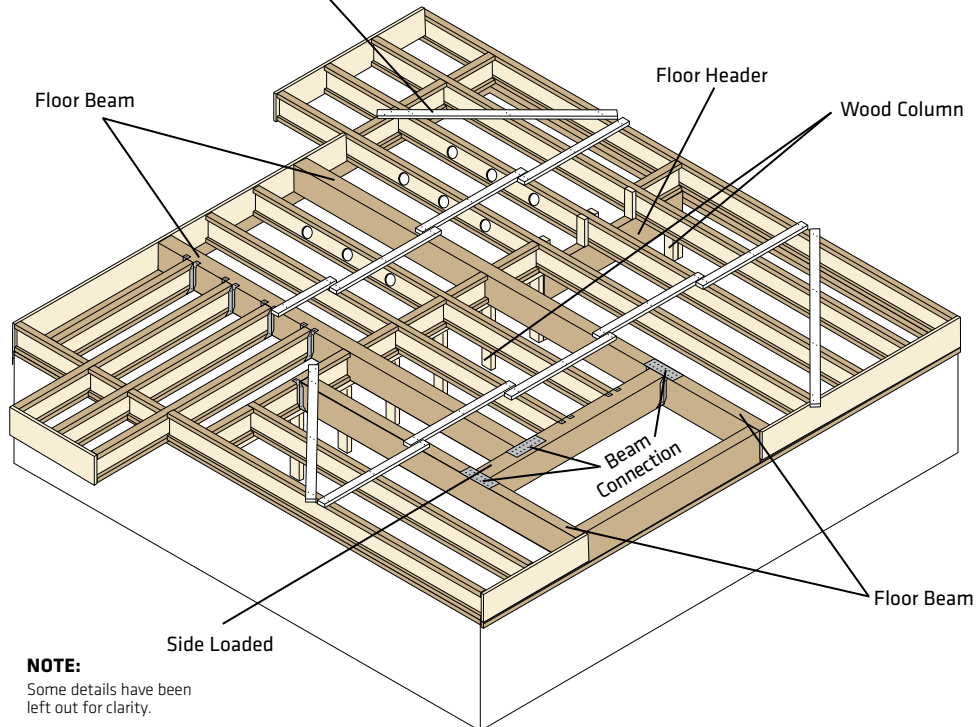
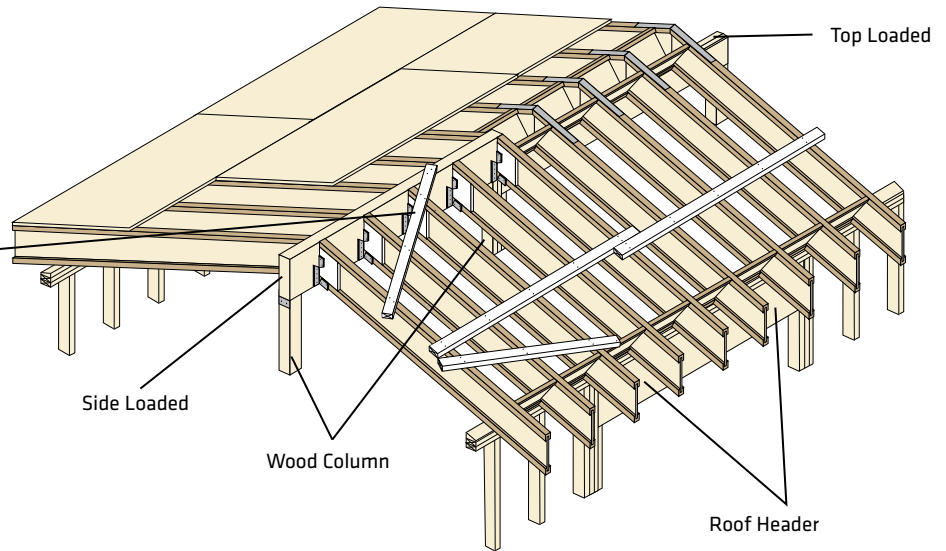
SLOPE ADJUSTMENT FACTOR

Slope	2:12	3:12	4:12	5:12	6:12	7:12	8:12	9:12	10:12	11:12	12:12
Factor	1.014	1.031	1.054	1.083	1.118	1.158	1.202	1.250	1.302	1.357	1.414

Temporary Bracing & Warnings

WARNING:

Temporary construction bracing required for lateral support before decking is completed. Failure to use bracing could result in serious injury or death. See Installation Guide for specifics.

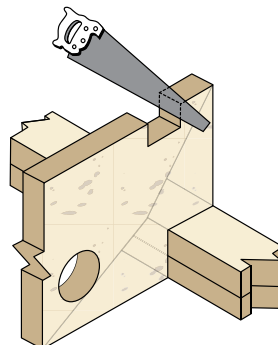


NOTE:

Some details have been left out for clarity.

WARNING

***DON'T* USE VISUALLY DAMAGED PRODUCTS WITHOUT FIRST CHECKING WITH YOUR LOCAL LP® SolidStart® ENGINEERED WOOD PRODUCTS DISTRIBUTOR OR SALES OFFICE. (SEE BACK COVER FOR DETAILS.)**



***DON'T* BORE HOLES OR NOTCH UNLESS REVIEWED BY A DESIGN PROFESSIONAL. EXCEPTION: SMALL HOLES MAY BE DRILLED IN ACCORDANCE WITH THE BEAM HOLE DETAILS ON PAGE 21.**

P3 BEAM CONNECTION

Hanger shall apply load equally to each ply or special design required

P4 STEEL COLUMN & WOOD COLUMN

Framing details such as joists and sheathing shall be provided to prevent beam from twisting or rotating at support

P5

P6 FLOOR BEAM (Flush ceiling)

P7 CONCRETE WALL

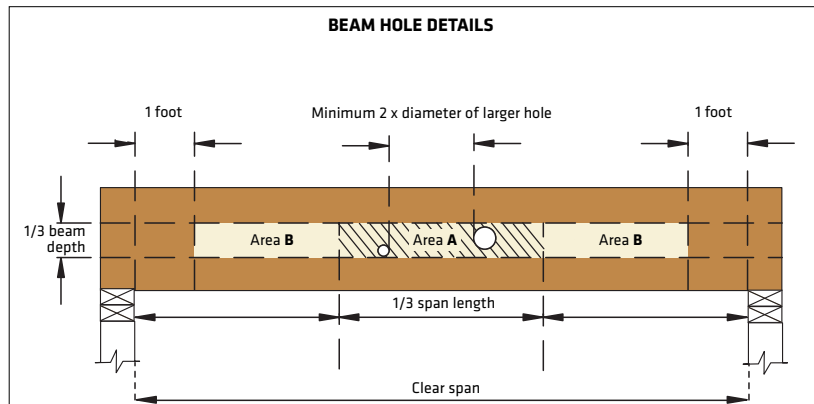
Simpson GLB, USP LBS or equal seat

Q1 WINDOW/DOOR HEADER

Provide specified or prescriptive bearing length

Q2 WINDOW/DOOR HEADER

Provide specified or prescriptive bearing length



Q4 MASONRY HANGER

NOTE: Protect wood from contact with concrete as required by code

NOTES:

- These guidelines apply to beams selected from the Quick Reference Tables or the Uniform Load Tables or designed with LP's design/specification software supporting uniform loads only. For all other applications, such as beams with concentrated loads, please contact your LP® SolidStart® Engineered Wood Products distributor for assistance.
- Round holes can be drilled anywhere in "Area A" provided that: no more than four holes are cut, with the minimum spacing described in the diagram. The maximum hole size is 1-1/2" for depths up to 9-1/4", and 2" for depths greater than 9-1/4".
- Rectangular holes are NOT allowed.
- DO NOT drill holes in cantilevers without prior approval from the project engineer/architect.
- Other hole sizes and configurations MAY be possible with further engineering analysis. For more information, contact your LP SolidStart Engineered Wood Products distributor.
- Up to three 3/4" holes may be drilled in "Area B" to accommodate wiring and/or water lines. These holes shall be at least 12" apart. The holes shall be located in the middle third of the depth, or a minimum of 3" from the bottom and top of the beam. For beams shallower than 9-1/4", locate holes at mid-depth.
- Protect plumbing holes from moisture.

Connection Details

P1 TOP-LOADED BEAM - NAILED CONNECTION
(See Connection Assemblies for more details)

Minimum nail sizes:
1-3/4" & 2" plies – 16d box (3.5" x 0.135"Ø)
1-1/2" plies – 10d box (3" x 0.128"Ø)

12" oc

Two rows for depths up to 12"
Three rows for depths up to 18"
Framing is applied to top of the beam so that each ply carries an equal load

P2 TOP-LOADED BEAM - BOLTED CONNECTION
(See Connection Assemblies for more details)

3"

3"

1/2" diameter ASTM grade A-307 (or better) bolts. Use washers on both faces.

2'-0"

Framing is applied to top of the beam so that each ply carries an equal load

Nails are permissible but NOT required. See notes for Connection Assemblies.

Q3 SIDE-LOADED BEAM
(See Connection Assemblies for more details)

Framing is applied to sides of the beam

SIDE LOADS ARE NOT RECOMMENDED FOR BEAMS OVER 5-1/2" WIDE UNLESS EQUALLY APPLIED TO BOTH FACES
See Connection Assemblies for more information

DETAIL A	DETAIL B	DETAIL C/E	DETAIL D	DETAIL F	DETAIL G	DETAIL H	CONNECTION ASSEMBLIES
MAXIMUM 4" WIDE 2-PLY BEAMS <p>2" max. ply thickness</p>	MAXIMUM 6" WIDE 3-PLY BEAMS <p>2" max. ply thickness</p>	MAXIMUM 7-1/4" WIDE 2-PLY BEAMS <p>2" maximum side member 3-1/2" main member for C 5-1/4" main member for E</p>	MAXIMUM 9-1/4" WIDE 3-PLY BEAMS <p>2" maximum side members 5-1/4" maximum main member</p>	MAXIMUM 7" WIDE 3- OR 4-PLY BEAMS 	MAXIMUM 7" WIDE 2-PLY BEAMS 	MAXIMUM 7" WIDE 2-, 3- OR 4-PLY BEAMS <p>Simpson SDS 1/4" x 6" Simpson SDW 6-3/4" or equal</p>	

UNIFORM SIDE-LOAD CAPACITY (PLF)				
Connection Detail	2 Rows of Nails at 12" oc	3 Rows of Nails at 12" oc	2 Rows of 1/2" Bolts at 24" oc	2 Rows of 1/2" Bolts at 12" oc
A	412	618	506	1012
B	309	464	380	760
C	309	464	522	1044
D	275	412	464	928
E	275	412	464	928
F	na	na	337	674
G	na	na	858	1716
H	Refer to Simpson Strong-Tie® catalog for SDS & SDW installation requirements & capacities.			

NAIL SCHEDULE				
Nail Length (in)	Nail Diameter (in)	Lateral Load Capacity (lbs)	Nail Size Factor	Nail Type
3-1/2"	0.162	141	1.37	16d common
	0.135	103	1.00	16d box
3-1/4"	0.148	118	1.15	16d sinker/12d common
	0.128	93	0.90	12d box
	0.120	81	0.79	Power-driven nail ¹³
3"	0.148	99	0.96	10d common
	0.128	91	0.88	10d box
	0.120	81	0.79	Power-driven nail ¹³

NOTES:

- The Uniform Side-Load Capacity values are the maximum load that can be applied to either side of the beam, based on the selected connection detail, and represent loads applied uniformly such as joists supported by hangers spaced 24" oc or less. Connections for discrete point loads may be determined with this table by calculating the equivalent fastener schedule within a 2' length centered about the point load. Details **B** and **D** shall have the back ply connected with a number of nails equal to half that used to connect the front ply – see the Side-Load Connection Example and detail on page 23. All nail and bolt spacing requirements shall be verified. The full length of the beam shall be connected with the standard connection or with the appropriate uniform side-load connection from this table. The beam shall be designed to support all applied loads.
- Values are for normal load duration and shall be adjusted according to code.
- The values for Uniform Side-Load Capacity for nails and Lateral Load Capacity (from Nail Schedule) are based on Douglas Fir lumber equivalence ($SG = 0.50$) for a 16d box (3-1/2" x 0.135"Ø) nails for 1-3/4" LVL. For other nail sizes, multiply the Uniform Side-Load Capacity by the Nail Size Factor from the Nail Schedule. For 1-1/2" LVL, multiply by the Nail Size Factor for the appropriate 3" nail. Higher capacities may be calculated using the equivalent specific gravities tabulated in the Fastener Design table on page 23.
- The values for the Uniform Side-Load Capacity for bolts are based on Douglas Fir lumber equivalence ($SG = 0.50$) for ASTM grade A-307, 1/2"Ø bolts, for loads applied perpendicular-to-grain. For 1-1/2" LVL, multiply these values by 0.86 or calculate for the needed detail. Higher bolt capacities may be calculated using the equivalent specific gravities tabulated in the Fastener Design table on page 23.
- For nails at 8" oc, multiply the capacity by 1.5. For nails at 6" oc, multiply the capacity by 2. For four rows of nails, double the two-row capacity.
- Use 2 rows of nails for depths to 12". Use 3 rows of nails for depths greater than 12" up to 18".
- Unless specifically designed, use 3-1/2" nails for 1-3/4" and 2" thick plies and use 3" nails for 1-1/2" thick plies. If the nails do not fully penetrate the second ply (main member), then the nails shall be driven from both faces.
- For detail **A**, or when attaching the first two plies for detail **B** (and optionally for details **F** and **H** – see note 11), the nails may be driven all from one face or alternating from both faces. If the nails do not fully penetrate the second ply, then the nails shall be driven from both faces.
- When driving nails from each face, alternate every other nail in each row.
- For details **C** and **E**, when side-loaded, the larger side-load shall be applied to the thicker ply (main member).
- For details **F** and **H**, it is permissible to nail the plies together before bolting or driving Simpson SDS or SDW (or equal) screws. Nail two plies together (see note 8) then nail one additional ply to each side.
- Beams wider than 5-1/2" shall be top-loaded or side-loaded from both sides to prevent rotation. For side loads applied to one side of a beam only, the project designer shall verify torsional capacity or detail the beam to prevent rotation due to any side loads. Consult a professional engineer for other options.
- Power-driven nails shall conform to ICC-ES report ESR-1539 (International Staple, Nail and Tool Association) for power-driven staples and nails.
- Other nail, screw or bolt configurations are possible. Refer to the Fastener Design table on page 23 or contact your LP® SolidStart® Engineered Wood Products distributor.

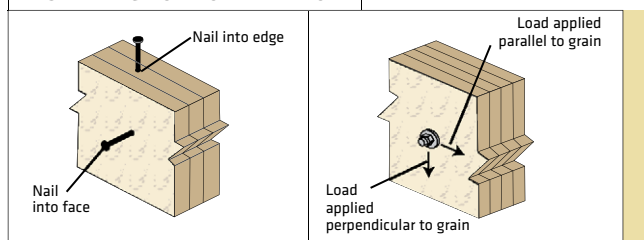
FASTENER DESIGN

Equivalent Specific Gravity					
Nails and Wood Screws			Bolts and Lag Screws		
Withdrawal		Dowel Bearing		Dowel Bearing (into the face only)	
Edge	Face	Edge	Face	Load Applied Parallel to Grain	Load Applied Perpendicular to Grain
0.46	0.50	0.50	0.55	0.46	0.50

NOTES:

- The equivalent specific gravity for each connection type listed above is for normal load duration and shall be adjusted according to code.
- Fastener spacing, end and edge distance shall be as specified by code except for nail spacing as specified below.
- See details to right for fastener and applied load orientation.

FASTENER & LOAD ORIENTATION



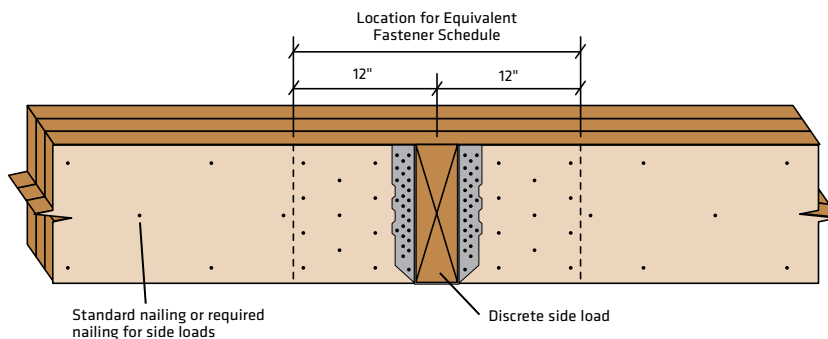
NAIL SPACING REQUIREMENTS

LVL Ply Thickness	Fastener Orientation ³	Common Nail Size ⁴	Minimum End Distance	Minimum Nail Spacing
≥ 1-1/2"	Edge	8d & smaller	2-1/2"	3"
		10d & 12d	2-1/2"	4"
		16d ⁵	3-1/2"	5"
	Face	8d & smaller	1-1/2"	3"
		10d & 12d	1-1/2"	3"
		16d ⁵	1-1/2"	5"

NOTES:

- Edge distance shall be such that does not cause splitting.
- Multiple rows of nails shall be offset at least 1/2" and staggered.
- Edge orientation refers to nails driven into the narrow edge of the LVL, parallel to the face of the veneers. Face orientation refers to nails driven into the wide face of the LVL, perpendicular to the face of the veneers. (See Fastener & Load Orientation details above.)
- For box nails, the end distance and minimum spacing of the next shorter nail may be used.
- 16d sinkers (3-1/4" x 0.148"Ø) can be spaced the same as the 10d & 12d nails.

SIDE-LOAD CONNECTION EXAMPLE



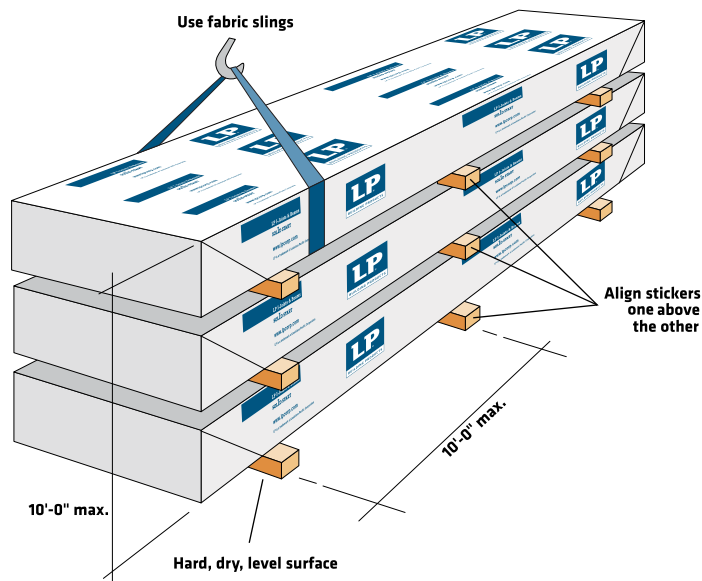
EXAMPLE: Assuming a properly designed 3-ply 14" beam, determine the equivalent connection to support a 3300 lb point load applied to the side of the beam.

SOLUTION:

- Determine the equivalent PLF load over the 2' length by dividing the applied load by 2: 3300 lb / 2' = 1650 plf
- Divide the equivalent PLF load by the capacity for the appropriate detail. For a 14" depth, 3 rows of nails are required. For Detail B with 3 rows of nails at 12" oc: 1650 plf / 464 plf = 3.6
- The required total number of nails is: 3.6 * 3 rows of nails @ 12" oc = 10.8 nails per foot
- Connect the front (loaded) ply with the nailing determined in step 3: drive 11 16d box nails within 12" to each side of the point load (a total of 22 nails). Verify nail spacing.
- Connect the back ply with half the number of nails determined in step 4: drive 6 16d box nails, from the back, within 12" to each side of the point load (a total of 12 nails). Verify nail spacing.
- Connect full length of member with the standard nailing or as required for side loads.
- Project designer shall detail to prevent rotation of the beam due to the applied side load.

Handling & Storage Guidelines

- Warning: Failure to follow proper procedures for handling, storage and installation could result in unsatisfactory performance, unsafe structures and possible collapse.
- Keep LP® SolidStart® LVL dry. These products are intended to resist the effects of moisture on structural performance from normal construction delays but are not intended for permanent exposure to the weather.
- Unload products carefully, by lifting. Support the bundles to reduce excessive bowing. Individual products should be handled in a manner which prevents physical damage during measuring, cutting, erection, etc.
- Keep products stored in wrapped and strapped bundles, stacked no more than 10' high. Support and separate bundles with 2 x 4 (or larger) stickers spaced no more than 10' apart. Keep stickers in line vertically.
- Product must not be stored in contact with the ground, or have prolonged exposure to the weather.
- Use forklifts and cranes carefully to avoid damaging product.
- Do not use a visually damaged product. Call your local LP SolidStart Engineered Wood Products distributor for assistance when damaged products are encountered.
- For satisfactory performance, LP SolidStart LVL must be used under dry, covered and well-ventilated interior conditions in which the equivalent moisture content in lumber will not exceed 16%.
- For built-up members, LP SolidStart LVL shall be dry before nailing or bolting to avoid trapping moisture.
- LP SolidStart LVL shall not be used for unintended purposes such as ramps and planks.



LP® SolidStart® LVL 2950F_b-2.0E

LP SolidStart LVL 2950F_b-2.0E is available in:

- lengths up to 60'
- thicknesses of 1-1/2" and 1-3/4"
- billet thicknesses of 3-1/2", 5-1/4" and 7"
- standard depths of 7-1/4", 9-1/4", 9-1/2", 11-1/4", 11-7/8", 14", 16", 18", 20", 22", and 23-7/8"

LP SolidStart LVL 2650F_b-1.9E

LP SolidStart LVL 2650F_b-1.9E is available in:

- lengths up to 60'
- thicknesses of 1-1/2" and 1-3/4"
- billet thickness of 3-1/2"
- standard depths of 7-1/4", 9-1/4", 9-1/2", 11-1/4", 11-7/8", 14", 16", 18", 20", 22", and 23-7/8"

In addition to the standard natural finish, a water-resistant coating called SiteCote™ is available for extra weather protection during construction. Contact your local distributor for availability.

CODE EVALUATION

ICC-ES evaluation report ESR-2403 can be obtained at www.icc-es.org.

APA product report PR-L280 can be obtained at www.apawood.org.

LP SolidStart Engineered Wood Products are manufactured at different locations in the United States and Canada. Please verify availability with the LP SolidStart Engineered Wood Products distributor in your area before specifying these products.

Cal. Prop 65 Warning: Use of this product may result in exposure to wood dust, known to the State of California to cause cancer.



For more information on the full line of LP SolidStart Engineered Wood Products or the nearest distributor, please contact 1.888.820.0325 or e-mail customer.support@lpcorp.com. Visit our web site at www.lpcorp.com.

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www.sfioprogram.org