



# LP LVL 2650F<sub>b</sub>-1.9E Technical Guide

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This LP LVL guide (formerly Gang-Lam LVL) must be used in conjunction with the Engineered Wood Product Guide.

# Product Specifications & Design Values

DESIGN VALUES (ALLOWABLE STRESS DESIGN-PSI)					
Grade	BENDING $F_b^*$	MOE (x 10 <sup>3</sup> )	COMPRESSION $F_c$ (parallel to grain)	COMPRESSION $F_{cp}$ (perpendicular to grain)	SHEAR $F_v$
2650F <sub>b</sub> -1.9E	2650	1.9	2350	750	285

**NOTES:**

\*  $F_b$  is for 12" depth (d).  
 For depths greater than 12", adjust  $F_b$  by  $(12/d)^{1/2}$ .  
 For depths less than 12", adjust  $F_b$  by  $(12/d)^{1/3}$ .  
 For depths less than 5-1/2", adjust  $F_b$  by 1.09.

The values above are valid for the following LVL species:  
 LVL — Southern Yellow Pine  
 LVL W — Douglas Fir-Larch or Western Hemlock, separately or mixed  
 LVL L — Lodgepole Pine  
 LVL LW — Lodgepole Pine and Douglas Fir mixed

The values above are for normal load duration (100%). Bending ( $F_b$ ), Compression Parallel-to-Grain ( $F_c$ ) and Shear ( $F_v$ ) may be adjusted according to code. MOE (E) and Compression Perpendicular-to-Grain ( $F_{cp}$ ) shall NOT be adjusted.

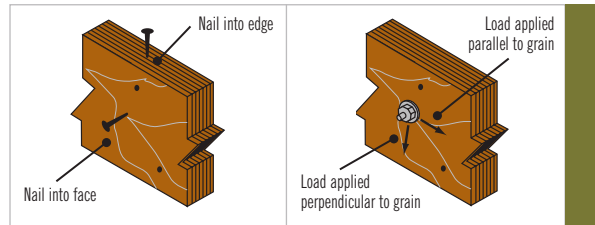
SECTION PROPERTIES AND ALLOWABLE CAPACITIES												
Depth	Weight (lb/ft)			Allowable Moment (lb-ft)			Allowable Shear (lb)			Moment of Inertia (in <sup>4</sup> )		
	1-3/4"	3-1/2"	5-1/4"	1-3/4"	3-1/2"	5-1/4"	1-3/4"	3-1/2"	5-1/4"	1-3/4"	3-1/2"	5-1/4"
7-1/4"	3.6	7.3	10.9	3580	7161	10741	2411	4821	7232	55	111	167
9-1/2"	4.8	9.5	14.3	5966	11932	17898	3159	6318	9476	125	250	375
11-7/8"	5.9	11.9	17.8	9093	18187	27280	3948	7897	11845	244	488	733
14"	7.0	14.0	21.0	12349	24699	37048	4655	9310	13965	400	800	1201
16"	8.0	16.0	24.0	15825	31650	47475	5320	10640	15960	597	1195	1792
18"	9.0	18.0	27.0	19694	39389	59083	5985	11970	17955	851	1701	2552

**MODIFICATION FACTORS:**

The Allowable Moment (M) and Shear (V) above are for normal load duration (100%) and may be adjusted according to code.

**FASTENER VALUES:**

Refer to the current ICC ES evaluation report (ICC-ES Report ESR-1254) for species-specific information on the equivalent specific gravity for design of nail and bolt connections. ICC ES evaluation reports can be obtained online at [www.iccsafe.org](http://www.iccsafe.org)



**BEARING LENGTH AND MAXIMUM REACTION CHART**

**How to use bearing charts:**

1. Determine the thickness required for the LP LVL beam and calculate the maximum reaction.
2. Select the appropriate table for 1-ply (1-3/4"), 2-ply (3-1/2") or 3-ply (5-1/4").
3. Select a bearing length with a maximum reaction that meets or exceeds your calculated value.
4. Make sure the support is structurally adequate to carry the reaction.

Example: 3-1/2" LP LVL with a reaction of 9,500 lbs.

Solution: Select a 4" bearing length with a maximum reaction of 10,500 lbs.

MAXIMUM REACTION (LBS.)		Bearing Length (in)																				
Width	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

**NOTES:**

1. Tabulated values are based on the allowable compression stress, perpendicular to grain, of the LVL. This is suitable for beams bearing on steel or the end grain of studs.
2. Make sure the support is structurally adequate to carry the reaction. Compressive strength parallel to grain of studs may require more studs than the bearing length above indicates.
3. 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.
4. Verify local code requirements concerning minimum bearing.

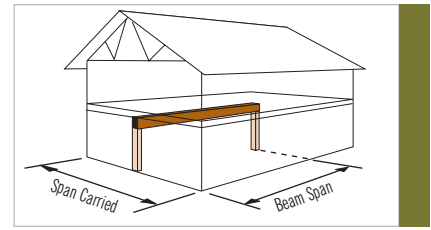
# Floor Beam Quick Reference Tables

## To use these charts:

1. Select the correct table for the beam application you need.
2. Choose the required beam span in the left column.
3. Select the span carried on the top line.
4. Read the beam size or choice of beam sizes from table.

Example: A 14'-0" span beam carries 15'-0" simple span joists on each side.

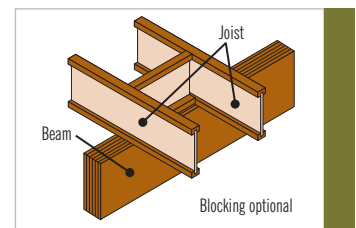
Solution: Using table below, 30'-0" span carried, select either 3-1/2" x 14" or 5-1/4" x 11-7/8".



FOR FLOOR JOISTS THAT ARE CONTINUOUS (ONE PIECE) (40 PSF LIVE, 15 PSF DEAD, 100%)												
Beam Span (ft)	Beam Width	Span Carried By Beam (ft)										
		20	22	24	26	28	30	32	34	36	38	40
8	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	3-1/2"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	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"	9-1/4"	9-1/4"
12	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"	9-1/4"	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	3-1/2"	11-7/8"	14"	14"	14"	14"	14"	16"	16"	16"	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	3-1/2"	14"	14"	16"	16"	16"	16"	18"	18"	18"	18"	18"
	5-1/4"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"	14"	16"
18	3-1/2"	16"	16"	18"	18"	18"	18"	-	-	-	-	-
	5-1/4"	14"	14"	14"	14"	16"	16"	16"	16"	16"	16"	16"
20	3-1/2"	18"	18"	18"	-	-	-	-	-	-	-	-
	5-1/4"	16"	16"	16"	16"	16"	16"	18"	18"	18"	18"	18"

For floor joists that are continuous over the beam:

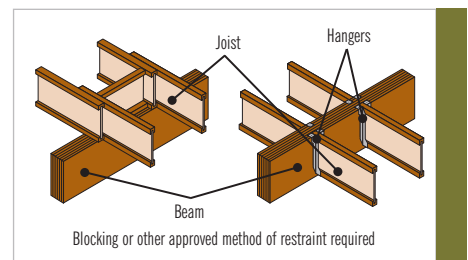
- Floor joist spans are approximately equal on each side of beam.
- Beam Span is valid for simple span beams and continuous, equal span beams.
- 3" bearing length is required at end supports.
- 6" bearing length is required at interior supports EXCEPT 7-1/2" bearing is required where **bold**.



FOR FLOOR JOISTS THAT ARE NOT CONTINUOUS (40 PSF LIVE, 15 PSF DEAD, 100%)												
Beam Span (ft)	Beam Width	Span Carried By Beam (ft)										
		20	22	24	26	28	30	32	34	36	38	40
8	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	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"	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	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"
	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"
14	3-1/2"	11-1/4"	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"	11-7/8"	11-7/8"	11-7/8"
16	3-1/2"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"	18"
	5-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"
18	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"
20	3-1/2"	16"	16"	18"	18"	18"	18"	-	-	-	-	-
	5-1/4"	14"	14"	16"	16"	16"	16"	16"	16"	16"	16"	18"

For floor joists that are NOT continuous over the beam:

- Floor joists either lap or butt on top of beam, or frame into beam with hangers.
- Beam Span is valid for simple span beams and continuous, equal span beams.
- 3" bearing length is required at end supports.
- 6" bearing length is required at interior supports EXCEPT 7-1/2" bearing is required where **bold**.



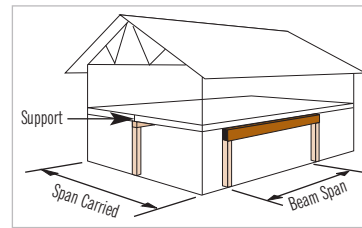
## GENERAL NOTES:

1. Deflection criteria for quick reference tables: roofs: L/240 deflection limit for live load and L/180 for total load floors: L/360 deflection limit for live load and L/240 for total load.
2. A deflection criteria of L/240 indicates the maximum deflection allowed for a 10'-0" span beam is  $10 \times 12 / 240 = 1/2"$ .
3. Deeper beams or an additional ply will increase beam stiffness and reduce deflection.
4. Beam Width can be either a single piece of LVL or built up from individual plies of LVL that are nailed and/or bolted together. Refer to page 13 of the Engineered Wood Product Guide for connection details.
5. Floor live loads have been reduced in accordance with the 2000/2003 IBC (ICC) section 1607.9.2, 1997 UBC (ICBO) section 1607.5, 1999 NBC (BOCA) section 1606.7 and 1999 SBC (SBCCI) section 1604.2.

# Combined Header Quick Reference Tables

## For combined roof and floor loads:

- For simple span headers only (headers with a support at each end).
- Roof loads include a 2' overhang.
- Loads include 100 plf wall load.
- Interior support at mid-span of floor joists is required.
- Minimum bearing length is 3", 4-1/2" bearing length is required where **bold**.
- Read notes and instructions for quick reference tables on page 3.



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

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

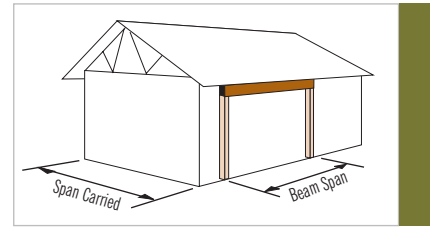
Beam Span (ft)	Beam Width	Span Carried By Beam (ft)											
		20	22	24	26	28	30	32	34	36	38	40	
		6	3-1/2"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"	7-1/4"
8	3-1/2"	7-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/4"	9-1/2"
	5-1/4"	7-1/4"	7-1/4"	7-1/4"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

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

# Roof Header Quick Reference Tables

## For roof loads:

- For simple span headers only (headers with a support at each end).
- Roof loads include a 2' overhang.
- Minimum bearing length is 3", 4-1/2" bearing length is required where **bold**.
- Read notes and instructions for quick reference tables on page 3.



Beam Span (ft)	Beam Width	Span Carried By Beam (ft)											
		20	22	24	26	28	30	32	34	36	38	40	
		<b>ROOF: 20 PSF LIVE 15 PSF DEAD 115% SNOW OR 125% NON-SNOW</b>											
8	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"
10	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"	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"
12	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"	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"	9-1/4"
14	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"	11-1/4"
16	3-1/2"	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"	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"	11-1/4"
18	3-1/2"	11-7/8"	11-7/8"	14"	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"

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

Beam Span (ft)	Beam Width	Span Carried By Beam (ft)											
		20	22	24	26	28	30	32	34	36	38	40	
		<b>ROOF: 30 PSF LIVE 15 PSF DEAD 115% SNOW</b>											
8	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"
10	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"	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"
12	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"	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"
14	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"	14"	14"
	5-1/4"	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"	11-1/4"
16	3-1/2"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	16"	16"	<b>16"</b>
	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"	14"	14"
18	3-1/2"	14"	14"	14"	14"	16"	16"	16"	16"	16"	<b>18"</b>	<b>18"</b>	<b>18"</b>
	5-1/4"	11-1/4"	11-7/8"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	14"

Beam Span (ft)	Beam Width	Span Carried By Beam (ft)											
		20	22	24	26	28	30	32	34	36	38	40	
		<b>ROOF: 40 PSF LIVE 15 PSF DEAD 115% SNOW</b>											
8	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	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"	11-1/4"
	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"
12	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"	11-7/8"	11-7/8"	14"	14"
	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"	11-1/4"	11-1/4"
14	3-1/2"	11-1/4"	11-1/4"	11-7/8"	11-7/8"	14"	14"	14"	14"	14"	14"	<b>16"</b>	<b>16"</b>
	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"	11-7/8"	11-7/8"
16	3-1/2"	14"	14"	14"	14"	16"	16"	16"	16"	16"	16"	<b>18"</b>	<b>18"</b>
	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"	14"
18	3-1/2"	14"	16"	16"	16"	<b>16"</b>	<b>18"</b>	<b>18"</b>	<b>18"</b>	-	-	-	-
	5-1/4"	11-7/8"	14"	14"	14"	14"	14"	14"	14"	16"	16"	16"	16"

# Uniform Floor Load (PLF) Tables

## How to use maximum uniform load tables:

1. Select the correct table for the beam application you need.
2. Choose the required beam span in the left column.
3. Select a beam depth from the tables that satisfies both the live and total load plf on the beam.
4. Check the bearing requirements as shown on page 2.

## EXAMPLE:

Floor live load 480 PLF, L/360 deflection limit.  
 Floor total load 660 PLF, L/240 deflection limit.  
 Beam span 14'-0".

## SOLUTION:

- Try 2-ply 1-3/4" x 11-7/8", which can carry:
- Live load 2 x 250 = 500 > 480 PLF ✓ OK
  - Total load 2 x 365 = 730 > 660 PLF ✓ OK

### ALLOWABLE FLOOR LOADS (PLF) 100%

Span (ft)	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"		
	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	
6	543	724	762			1027			1062			1324
7	342	456	580	710		848	769		876			1082
8	229	305	443	475	634	704	515	687	740	856		915
9	160	214	318	334	445	555	362	482	584	601		792
10	117	156	231	243	324	449	263	351	472	438	584	651
11	88	117	172	183	244	361	198	264	389	329	439	537
12	67	90	132	141	188	277	152	203	300	253	338	450
13	53	71	103	110	147	217	120	160	235	199	266	383
14	42	57	81	88	118	172	96	128	187	159	213	313
15	34	46	65	72	96	139	78	104	151	129	173	254
16	-	-	-	59	79	114	64	85	124	107	142	208
17	-	-	-	49	66	94	53	71	102	89	118	172
18	-	-	-	41	55	78	45	60	85	75	100	144
19	-	-	-	35	47	66	38	51	72	63	85	122
20	-	-	-	30	40	56	32	43	61	54	73	103
21	-	-	-	-	-	-	-	-	-	47	63	89
22	-	-	-	-	-	-	-	-	-	41	54	76
23	-	-	-	-	-	-	-	-	-	36	48	66
24	-	-	-	-	-	-	-	-	-	31	42	57

Span (ft)	1-3/4" x 11-7/8"			1-3/4" x 14"			1-3/4" x 16"			1-3/4" x 18"		
	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	
6			1424			1794			2193			2650
7			1160			1443			1741			2072
8			978			1207			1442			1700
9	707		845			1037			1231			1441
10	515	687	721	844		908			1074			1250
11	387	516	595	634		808	947		951			1104
12	298	397	499	488	651	679	729		854			988
13	234	312	424	384	512	577	573		741	817		894
14	187	250	365	307	410	497	459	612	637	654		794
15	152	203	299	250	333	432	373	498	554	532		691
16	125	167	245	206	274	378	307	410	486	438	584	606
17	104	139	203	171	229	334	256	342	430	365	487	536
18	88	117	170	144	193	282	216	288	382	307	410	477
19	75	100	144	123	164	239	183	245	342	261	349	427
20	64	85	122	105	140	204	157	210	307	224	299	384
21	55	74	105	91	121	175	136	181	264	193	258	348
22	48	64	90	79	105	151	118	157	228	168	224	316
23	42	56	78	69	92	131	103	138	199	147	196	286
24	37	49	68	61	81	115	91	121	174	129	173	250
25	32	43	60	54	72	101	80	107	153	114	153	220
26	-	-	-	48	64	89	71	95	135	102	136	195
27	-	-	-	42	57	78	64	85	120	91	121	173
28	-	-	-	38	51	69	57	76	106	81	109	154
29	-	-	-	34	46	62	51	68	95	73	98	138
30	-	-	-	31	41	55	46	62	85	66	88	123

## NOTES:

1. Span is defined as center-to-center of bearings and is valid for simple span and equal, multiple span conditions.
2. These loads assume full lateral bracing of the compression edge. Full support is considered to be a maximum unbraced length of 24".
3. The designer must check the Total Load column AND the appropriate Live Load column, either the L/480 or L/360 deflection limit. Live Load values that are blank are governed by Total Load. Do not use a product where designated "-" without further analysis by a professional engineer.
4. The Total Load columns are limited to a deflection of L/240 under Total Load and do not include the effects of long term loading (creep).
5. The Total Load columns have been adjusted to account for the self-weight of the beam.
6. Proper bearing must be provided. Bearing length must be checked for support reactions with the table on page 2.
7. Depths of 16" and greater should be used with a minimum of two plies unless designed specifically as a single ply of 1-3/4" with proper lateral bracing spaced at most every 24" along the length of the beam. (Example: The marriage beam for each half of a manufactured home before the units are joined.)
8. The values in the table are for a single ply of 1-3/4" LVL. Double the values for 2-ply or 3-1/2" thickness. (Or divide design loads by 2 to use the table directly to verify each ply of a 2-ply beam.) Triple the values for 3-ply or 5-1/4" thickness. (Or divide design loads by 3 to use the table directly to verify each ply of a 3-ply beam.) Quadruple the values for 4-ply or 7" thickness. (Or divide the design loads by 4 to use the table directly to verify each ply of a 4-ply beam.)
9. Values have NOT been evaluated for vibration.

### ACTUAL DEFLECTION BASED ON SPAN AND LIMIT

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

\* Deflections rounded to the nearest 1/16".

# Uniform Roof Load (PLF) Tables

ALLOWABLE ROOF LOADS (PLF)												
Span (ft)	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"		
	Live Load	Total Load		Live Load	Total Load		Live Load	Total Load		Live Load	Total Load	
		Snow	Non-Snow		Snow	Non-Snow		Snow	Non-Snow		Snow	Non-Snow
6	L/240	115%	125%	L/240	115%	125%	L/240	115%	125%	L/240	115%	125%
7	684	877	954	976	1182	1285	1008	1223	1329	1245	1523	1656
8	458	668	727	810	881	955	852	927	1008	1097	1245	1354
9	321	511	555	668	639	695	724	672	731	912	991	1145
10	234	403	425	487	517	562	527	544	591	749	815	991
11	176	309	309	366	426	464	396	448	488	658	618	672
12	135	231	231	282	357	371	305	376	402	507	518	564
13	106	177	177	221	291	291	240	315	315	399	441	480
14	85	138	138	177	232	232	192	251	251	319	379	413
15	69	110	110	144	187	187	156	203	203	259	330	340
16	57	89	89	118	154	154	128	167	167	214	279	279
17	47	72	72	99	127	127	107	138	138	178	232	232
18	-	60	60	83	106	106	90	115	115	150	194	194
19	-	-	-	71	90	90	76	97	97	127	164	164
20	-	-	-	60	76	76	65	83	83	109	140	140
21	-	-	-	52	65	65	57	71	71	94	120	120
22	-	-	-	45	56	56	49	61	61	82	104	104
23	-	-	-	-	-	-	-	-	-	72	90	90
24	-	-	-	-	-	-	-	-	-	63	78	78

Span (ft)	1-3/4" x 11-7/8"			1-3/4" x 14"			1-3/4" x 16"			1-3/4" x 18"		
	Live Load	Total Load		Live Load	Total Load		Live Load	Total Load		Live Load	Total Load	
		Snow	Non-Snow		Snow	Non-Snow		Snow	Non-Snow		Snow	Non-Snow
6	L/240	115%	125%	L/240	115%	125%	L/240	115%	125%	L/240	115%	125%
7	1638	1638	1782	2065	2065	2245	2523	2523	2743	3049	3049	3315
8	1335	1335	1451	1661	1661	1806	2003	2003	2178	2384	2384	2593
9	1126	1126	1224	1389	1389	1510	1660	1660	1805	1957	1957	2128
10	973	973	1058	1193	1193	1298	1417	1417	1541	1659	1659	1804
11	830	830	903	1046	1046	1137	1236	1236	1344	1439	1439	1565
12	685	685	745	930	930	1012	1095	1095	1191	1271	1271	1382
13	596	596	625	781	781	850	984	984	1070	1138	1138	1237
14	469	469	532	665	665	723	853	853	928	1029	1029	1120
15	375	375	458	615	615	623	734	734	799	915	915	995
16	305	305	398	500	500	541	639	639	695	796	796	866
17	251	251	329	412	412	475	560	560	610	698	698	760
18	209	209	273	343	343	420	513	513	539	617	617	672
19	176	176	229	289	289	374	432	432	480	550	550	598
20	150	150	194	246	246	321	367	367	430	523	492	536
21	128	128	165	211	211	274	315	315	387	448	443	483
22	111	111	142	182	182	236	272	272	350	387	401	437
23	96	96	123	158	158	204	236	236	307	337	365	397
24	84	84	107	138	138	178	207	207	268	295	333	363
25	74	74	93	122	122	155	182	182	235	259	305	332
26	65	65	82	108	108	137	161	161	207	229	280	297
27	58	58	72	96	96	121	143	143	183	204	259	263
28	52	52	63	85	85	107	128	128	162	182	234	234
29	46	46	56	76	76	95	114	114	145	163	209	209
30	-	-	-	62	62	76	93	116	116	133	168	168

## NOTES:

- Span is defined as center-to-center of bearings along the slope of the beam, and is valid for simple span and equal, multiple span conditions. For beams with a slope 2:12 or greater, the horizontal span must be multiplied by the appropriate slope adjustment factor from the table to the right.
- These loads assume full lateral bracing of the compression edge. Full support is considered to be a maximum unbraced length of 24".
- The designer must check the appropriate Total Load column and the Live Load L/240 column. To design for a Live Load deflection of L/360 or L/480, use the appropriate column from the Uniform Floor Load tables on page 6. Do not use a product where designated "-" without further analysis by a professional engineer.
- The Total Load columns are limited to a deflection of L/180 under Total Load and do not include the effects of long term loading (creep).
- The Total Load columns have been adjusted to account for the self-weight of the beam.
- The Total Load columns for Snow (115%) are for normal snow load designs. Check local code requirements for design snow loads and the appropriate load duration factor. Use the Total Load column from the Uniform Floor Load tables when the load duration factor is less than 115%.
- Proper bearing must be provided. Bearing length must be checked for support reactions with the table on page 2.
- Depths of 16" and greater should be used with a minimum of two plies unless designed specifically as a single ply of 1-3/4" with proper lateral bracing spaced at most every 24" along the length of the beam. (Example: The marriage beam for each half of a manufactured home before the units are joined.)
- The values in the table are for a single ply of 1-3/4" LVL. Double the values for a 2-ply or 3-1/2" thickness. (Or divide design loads by 2 to use the table directly to verify each ply of a 2-ply beam.) Triple the values for 3-ply or 5-1/4" thickness. (Or divide design loads by 3 to use the table directly to verify each ply of a 3-ply beam.) Quadruple the values for 4-ply or 7" thickness. (Or divide the design loads by 4 to use the table directly to verify each ply of a 4-ply beam.)
- Side-loaded beams built up from multiple plies of LVL (e.g., supporting joists connected to the beam by hangers) may have a limited load capacity depending on the method of connecting the plies. Refer to page 13 of the Engineered Wood Product Guide for connection details and limits on side-loaded members.

## SLOPE ADJUSTMENT

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

## LP LVL 2650F<sub>b</sub>-1.9E

LP LVL 2650F<sub>b</sub> 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"
- available depths of 7-1/4", 9-1/2", 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.

### Code Evaluation

LP Laminated Veneer Lumber has been evaluated for compliance with the major code evaluation services and many others. For the most current code reports contact your LP Engineered Wood Products distributor or visit [www.lpcorp.com](http://www.lpcorp.com).

\* Contact your local distributor for availability.

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

For more information on the full line of LP Engineered Wood Products or the nearest distributor, please contact **1.800.999.9105** or e-mail [customer.support@lpcorp.com](mailto:customer.support@lpcorp.com). Visit our web site at [www.lpcorp.com](http://www.lpcorp.com).

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