ultralam™

LVL 2.0E/2900Fb

Allied Structural Materials, LLC

Allied Structural Materials (ASM) is the exclusive national manufacturer's representative for Ultralam LVL in the USA. Having decades of experience in marketing engineered wood products, our team knows what is needed to fulfill your LVL supply requirements.

Currently, we are stocking inventory in the ports of Baltimore, Tampa, Cleveland and Houston. We have the capability to provide customized container deliveries from the mill to any designated location. Cut-to-length bundles are available in one foot increments in any length from 8' to 38' at prices well below the stock 48' lengths at the ports.

Our mission is to earn your business every day and make it feel like your LVL manufacturer is next door to each one of your locations.

Warranty Certificate

Modern Lumber Technology Ltd

(MLT Ltd)

warrants

that its Ultralam™ *laminated veneer lumber (LVL) will be free from manufacturing errors and defects and will meet or exceed its published performance specifications.*

Ultralam™ *LVL, when properly stored, handled and installed in dry use service conditions will be warranted to perform according to its specifications for the expected life of the structure.*

If any defect in manufacturing is apparent prior to installation, this warranty shall only cover the cost of providing replacement material.

Modern Lumber Technology Ltd

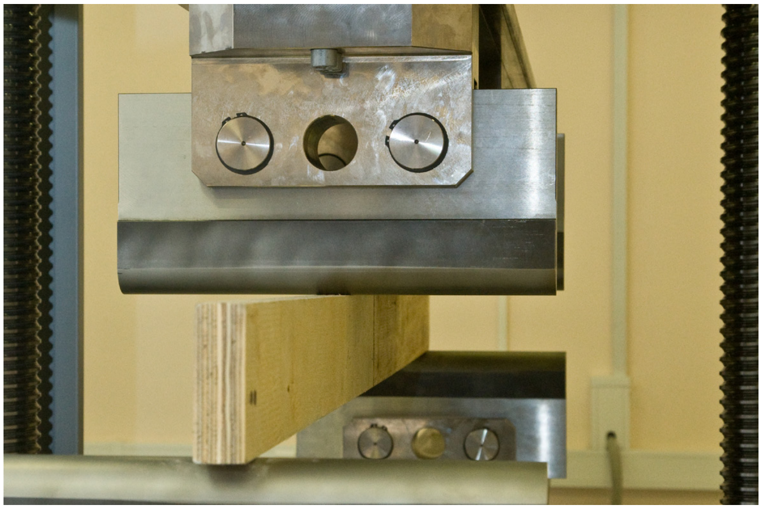
14, BolshayaMorskaya Street
St. Petersburg 191186
Russia

In the US, please, dial: 323-285-8370

Our Warranty

Ultralam certifications, assuring the ultimate in reliability, are unmatched in the industry. However, for added customer confidence, ASM carries an occurence-based insurance policy with a $10 million umbrella, in addition to Modern Lumber Technology, Ltd's manufacturer's warranty.

Ultralam LVL—Reliability



Independently certified by agencies in the United States, Australia, Europe, Japan and the United Kingdom, Ultralam LVL is an extremely reliable product. Daily in house monitoring of the modulus of elasticity and fiber bending, along with monthly onsite inspections by each certifying agency, provides the assurance that every member will perform to its published strength properties. These strength properties, some of which are the highest in the industry, are developed through extensive ASTM testing.

Ultralam LVL, having the highest compression perpendicular-to-grain value at 900 psi, results in shorter bearing lengths. Multiple member connections also provide higher load values for single-side loaded conditions. This reduces the number of nails or size and number of bolts required versus other LVL with lower values.

Uniformity and reliability are obtained using the latest manufacturing equipment, but it starts with the tree source. Ultralam LVL comes from old growth forests that are leased for the next forty years. The trees are harvested under Forest Stewardship Council (FSC) supervision and the veneers are produced at the plant, thus controlling the source, cost and quality of the wood fiber used in every beam. All of the veneers are scarfed on the ends to assure uniformity in billet thickness. The 60-meter-long continuous press manufactured by Dieffenbacher, the world leader in LVL manufacturing equipment, provides the ultimate in manufacturing control.

In summary, you can count on Ultralam LVL to be a reliable and cost efficient part of your structure for the expected life of each building.

An Elite LVL Manufacturing Facility

The Taleon-Terra plant was specifically designed for manufacturing Ultralam LVL. Utilizing state-of-the-art equipment from the United States and Germany, it has an enormous production capacity. Cutting-edge technology implemented includes the world's longest continuous press (60 meters). With this press, the length of LVL beams can be custom cut to meet the demands of our customers and transport conditions. Integrating this advanced technology of continuous pressing, in conjunction with microwave pre-heating, improves bonding, enhances resin propagation into the wood fibers, and yields new, uniform, high-strength material.

60 Meter Continuous Press

Environmentally conscious and committed to sustaining natural resources, Ultralam production is non-waste. All remains are recovered and used for other products. The logging site has been certified by FSC and meets all of their requirements.

These production protocols and techniques make Ultralam a high-strength laminated veneer lumber that is cost effective, easy to use, and environmentally friendly for the construction of energy-saving structures.

FSC

Production Snap Shot

Modern, high-tech wood processing techniques are utilized in the production of Ultralam LVL. Pine and Spruce are harvested from the logging site and then delivered to the mill where they are sorted by species, quality and size. Logs are debarked, conditioned, slashed and trimmed into 2.65 m peeling blocks. These blocks are scanned by laser beams to ensure optimum block positioning and the highest veneer recovery. A computerized video control and scanner system reveals defects precluding their presence in veneer sheets. Peeling of the blocks is performed at a very high speed, 18 blocks per minute. Control systems read and calculate moisture content for each sheet before they are dried in a 6-level roller-type thermal oil dryer.

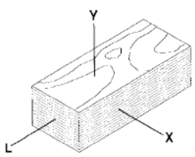
From the dryer outfeed, further veneer testing takes place on the sorting conveyor. Ultrasonic signals are used to measure signal propagation time to determine density. Veneers are separated into four grades. Only A-class veneers are used for structural LVL manufacturing. High water resistance and low emissions class glue is then applied to the veneers via curtain coater before proceeding to the lay-up section.

The 2-level lay-up section loads the veneer, places it on the conveyor and then shuttles it to the press infeed section. Veneer fan is continuously formed and conveyed to the microwave pre-heater incorporated into the hot press. In the continuous press, the LVL billet is conveyed with constant speed through several zones with different temperature and pressure settings where it is densified to the required thickness. Upon exit, billets pass through the blow detector and thickness meter before the sides are hogged to final dimension and cut by a diagonal saw to the required length. After at least 24 hours hold time, billets are cut at the rip saw.

Boards are then conveyed to the packaging line to be stamped and stacked. LVL stacks are cut automatically by length, edges are squared and the boards are wrapped with a special film and banded with metal strap for storage.

Reference Design Values for Ultralam™ LVL (Allowable Stress Design)[1, 2, 3, 4]

Bending, F_b (psi) (Mpa)	Tension, F_t (psi) (Mpa)	Compression, F_c (psi) (Mpa)		Horizontal Shear, F_v (psi) (Mpa)	Modulus of Elasticity, E (psi) (Mpa)		Modulus of Elasticity for Beam & Column Stability, E_{min} (psi) (Mpa)	Shear Modulus of Elasticity, G (psi) (Mpa)
Beam[6, 7]	Parallel-to-Grain[8]	Parallel-to-Grain	Perpendicular-to-Grain[9]	Beam	True[5]	Apparent[5]		
2900 (20.0)	2150 (14.8)	3150 (21.7)	900 (6.2)	320 (2.2)	$2.0x10^6$ (13790)	$1.9x10^6$ (13100)	$1.0x10^6$ (6895)	125,000 (862)

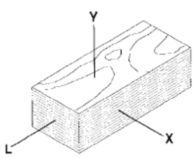


LVL

1. 1 psi = 0.00689 MPa or 1 MPa = 145 psi.
2. The reference design values in this table are applicable for the product used in dry, well-ventilated interior applications, in which the equivalent moisture content of sawn lumber is less than 16%.
3. The reference design values in this table are for normal load duration. Loads of longer or shorter duration shall be adjusted in accordance with the applicable code. Duration of load adjustments shall not be applied to F_{cPerp}, E, E_{min} and G.
4. Orientation nomenclature for Ultralam™ LVL.
5. The Apparent E for both beams and planks can be used directly in traditional beam deflection formulas. The True E values (i.e., shear-free) are for both beams and planks. Using True E, deflection is calculated as follows for uniformly loaded simple span beams:
   $\Delta = [5WL^4/(32Ebh^3)] + [12WL^2/(5Ebh)]$
   where: Δ = deflection in inches (mm)
   W = uniform load in pounds/inches. (N/mm)
   L = span in inches (mm)
   E = modulus of elasticity in psi (MPa)
   b = width of beam in inches (mm)
   h = depth of beam in inches (mm)
6. The bending values in these tables are based on a referenced depth of 12" (305 mm). For other depths, the bending values shall be adjusted by a size factor adjustment of $(12/d)^{0.162}$, where d is measured in inches with a minimum depth of 2" (51 mm).
7. When structural members qualify as repetitive members in accordance with the applicable code, a 4% increase is permitted.
8. Design value shall be multiplied by $(3.58/L)^{0.125}$ for length effect factors, with L measured in feet. Value limited to members 16" (406 mm) deep and less.
9. Compression value for Y-L plane only.

Equivalent Specific Gravities & Minimum Fastener Spacing for Design of Mechanical Connections[1, 2, 3]

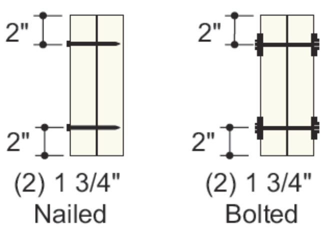
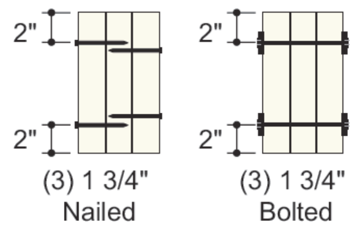
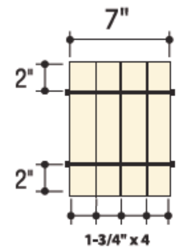
Product	Fastener	Fastener Axis Orientation[1]	Load Direction	Equivalent Specific Gravity for Design Purpose	Maximum Spacing
Ultralam™ LVL	Nails	Y axis	Withdrawal	0.46	See footnote 4
		X axis	Withdrawal	0.45	
	Nails & Screws	Y axis	X and L	0.53	
	Screws	Y axis	X axis	0.53	Per applicable code
		Y axis	L axis	0.49	



LVL

1. Orientation nomenclature for Ultralam™ LVL.
2. Adjustment of the design stresses for duration of load shall be in accordance with the applicable code or NDS, as applicable.
3. Connection design values are as provided in NDS for sawn lumber having equivalent specific gravities as shown.
4. Spacing, edge distance and end distance of nails installed perpendicular to the glue lines of the LVL are the same as those permitted in the applicable code for sawn lumber. Spacing of nails installed parallel to the glue lines of the LVL must be a minimum of 3" (76 mm) for 8d (0.131" x 2½") (3.3 mm x 63 mm) common nails, 4" (102 mm) for 10d (0.148" x 3") (3.8 mm x 76 mm) and 12d (0.148" x 3¼") (3.8 mm x 83 mm) common nails. The end distances must be a minimum of 2" (51 mm) for 8d (0.131" x 2 ½") (3.3 mm x 63 mm) common nails, 3" (76 mm) for 10d (0.148" x 3") (3.8 mm x 76 mm) and 12d (0.148" x 3¼") (3.8 mm x 83 mm) common nails. The minimum nail spacing must be 8" (204 mm) for 16d (0.162" x 3½") (4.1 mm x 89 mm) common nails installed parallel to the glue lines of the LVL that is at least 1¾" thick by 5½" wide (44mm by 133 mm), and the minimum end distance must be 3" (76 mm). Minimum edge distance must be sufficient to prevent splitting of the LVL. In addition, maximum nail penetration into the LVL must be limited as to prevent splitting.

Connection Requirements for Multiple Member Side-Loaded Beams

Assembly A (2-ply Beam)	Assembly B (3-ply Beam)	Assembly C (4-ply Beam)
		

Connection Requirements for Multiple Member Side-Loaded Beams[1, 2, 3, 4, 5, 6]

Maximum Uniformly Distributed Load (plf) (kgm) that can be Applied to Either Side of the Beam					
Assembly Detail (See Figure Above)	2 Rows of 16d (0.162" x 3½") (4.1 mm x 89 mm) Nails at 12" o.c. (305 mm)	3 Rows of 16d (0.162" x 3½") (4.1 mm x 89 mm) Nails at 12" o.c. (305 mm)	2 Rows of 12d (0.148" x 3¼") (3.3 mm x 83 mm) Nails at 12" o.c. (305 mm)	3 Rows of 12d (0.148" x 3¼") (3.3 mm x 83 mm) Nails at 12" o.c. (305 mm)	2 Rows of ½" (13 mm) Diameter Bolts at 12" o.c.[7, 8] (305 mm)
A	620 (923)	935 (1391)	520 (774)	785 (1168)	1480 (2203)
B[9]	465 (692)	700 (1042)	390 (580)	585 (871)	1110 (1652)
C	–	–	–	–	985 (1466)

For SI: 1 plf = 1.488 kg/m

1. Multiply the appropriate table value by:
   a. 1.5 for nails or bolts spaced at 8" o.c. (203 mm) per row.
   b. 2 for nails or bolts spaced at 6" o.c. (152 mm) per row.
   c. 3 for nails or bolts spaced at 4" o.c. (102 mm) per row.
   d. 0.5 for bolts spaced at 24" o.c. (610 mm) per row.
2. Determine the appropriate beam size required to support the load before determining the connection requirements.
3. Screws can be used in place of bolts, provided additional fasteners are used such that the sum of the screw capacities is equal to or greater than that of the ½"-diameter bolts (13 mm). Refer to the screw manufacturer's literature.
4. Tabulated values assume adequate end distance, edge distance and spacing per Chapter 12 of the 2015 edition of NDS.
5. Tabulated values are for normal load duration. Adjustment of the design stresses for duration of load shall be in accordance with the building code or NDS, as applicable.
6. For beams greater than 4 plies wide, consult a registered design professional for the attachment requirements.
7. A standard cut steel washer of minimum 0.118" thickness (3 mm), with a minimum outside dimension of 1⅜" (35 mm), is required on each side of the beam between the wood and bolt head and nut.
8. Bolted connections assume full diameter bolts with bending yield strength (F_{yb}) of 45,000 psi (310 Mpa).
9. Nailing is required from both sides for 3-ply beams.

Design Assumptions for Ultralam™ 2.0E/2900Fb Joist & Rafter Tables

SUPPORT REQUIREMENTS

Joists and rafters must have adequate support. Ridge beams must be installed at roof peaks with rafters bearing directly on the ridge beam or supported by hangers or framing anchors. Ceiling joists are not required when properly designed ridge beams are used. A ridge board may be substituted for a ridge beam when the roof slope equals or exceeds 3 in 12, except that ridge beams are required for cathedral ceilings. Ridge boards must be at least 1" nominal in thickness and not less than the depth of the cut end of the rafter. Rafters must be placed directly opposite each other, and ceiling joists must be installed parallel to the rafters to provide a continuous tie between exterior walls.

SPANS

The spans provided in these tables were determined on the same basis as those given in the code-recognized *Span Tables for Joists and Rafters* and *Wood Structural Design Data*, both published by AF&PA. Maximum spans were computed using Allowable Stress Design (ASD) and standard engineering design formulas for simple span beams with uniformly distributed gravity loads. The calculated spans assume fully supported members, properly sheathed and nailed on the top edge of the joist or rafter. They do not, however, include composite action of adhesive and sheathing. Listed spans also do not include checks for concentrated or partition loads that may be required by building codes for specific occupancy or use categories. Uplift loads caused by wind also have not been considered. Spans in the tables are given in feet and inches and are the maximum allowable horizontal span of the member from inside to inside of bearings. For sloping rafters, the span is also measured along the horizontal projection.

REFERENCE DESIGN VALUES

The reference design values used to determine the spans in the accompanying tables are as published in Technical Evaluation Report TER No. 1203-02: *MLT Ultralam™ Laminated Veneer Lumber (LVL)*. Reference design values are based on normal load duration and dry service conditions.

ADJUSTMENT FACTORS

Reference design values must be multiplied by all applicable adjustment factors to determine adjusted design values. Adjusted design values are then used to calculate the maximum allowable span for a specified load condition. The adjustment factors used to develop the accompanying span tables are described below. For more complete information on adjustment factors, refer to TER No. 1203-02 and *NDS®, National Design Specification® for Wood Construction*.

REPETITIVE MEMBER FACTOR, C_r – Bending design values, F_b, for the Ultralam™ product listed in these tables are multiplied by the repetitive member factor, C_r = 1.04, when such members are in contact or spaced not more than 24" on-center, are not less than three in number, and are joined by floor, roof or other load-distributing elements adequate to support the design load.

LOAD DURATION FACTOR, C_D – Wood has the ability to carry substantially greater loads for short durations than for long durations. Reference design values apply to the normal ten-year load duration. With the exception of modulus of elasticity (E and E_{min}), compression perpendicular-to-grain (F_{cPerp}) and shear modulus of elasticity (G) reference design values must be multiplied by the appropriate load duration factor, C_D. Floor joist and ceiling joist tables are based on the normal load duration, which implies C_D = 1.0. For rafters, the load duration factor, C_D, is typically either 1.15 for snow loads (two months duration) or 1.25 for construction loads (seven-day duration). All rafter tables are labeled to indicate the load duration factor used.

CALCULATIONS

The spans provided in these tables are limited to the minimum value calculated for the following design parameters using ASD:

- **BENDING (FLEXURE)**
- **DEFLECTION (BASED ON LIVE LOAD)**
- **COMPRESSION PERPENDICULAR-TO-GRAIN**
- **SHEAR PARALLEL-TO-GRAIN (HORIZONTAL SHEAR)**

BENDING

Bending design values assume a fully supported member, with structural sheathing nailed on the top edge of the joist or rafter. The repetitive member factor, C_r, of 1.04 was included due to the assumption of the installation of at least three joists or rafters spaced not more than 24" on-center. The load duration factor, C_D, has also been applied as appropriate.

DEFLECTION

Deflection may be the controlling factor in determining the member size required when appearance or rigidity is important. Control of floor vibration is another important reason to limit deflection. Deflection limits are expressed as a fraction of the span length in inches (l), and consider only live load in accordance with established engineering practice for the design of joists and rafters. The live load deflection ratio used to develop each table is listed in the caption for each table.

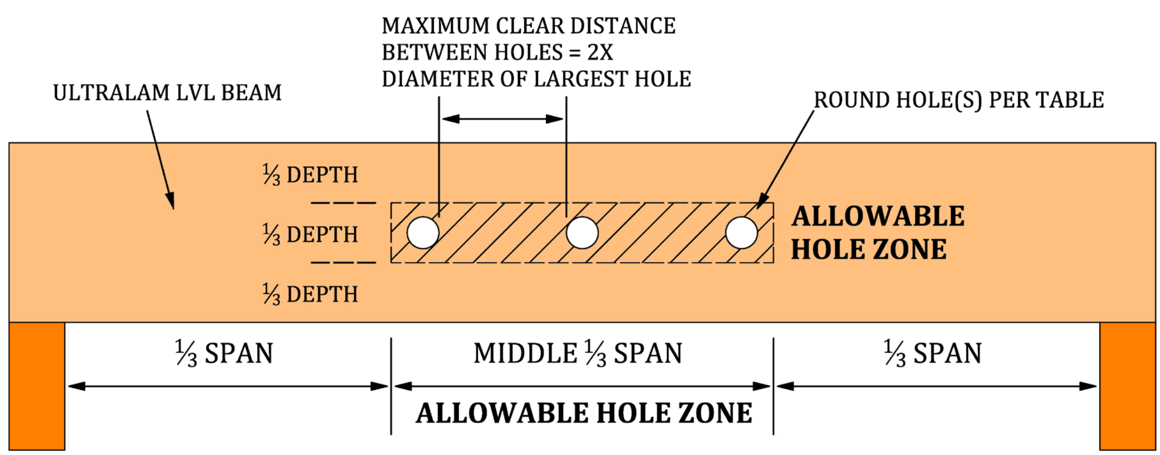
COMPRESSION PERPENDICULAR-TO-GRAIN

The compression perpendicular-to-grain check used to develop these span tables assumes a 2.0" bearing length to account for the end of the joist or rafter bearing on a 2x4 wall with a 1½” rim board applied along the outside edge of the wall. An additional check is required for shorter bearing lengths, such as for 1.5" ledgers.

SHEAR PARALLEL-TO-GRAIN (HORIZONTAL SHEAR)

All uniformly distributed loads within a distance from the inside face of each support equal to the depth of the member have been ignored for determining the maximum allowable span based on horizontal shear.

Allowable Horizontal Holes in Ultralam LVL Beam(s)



NOTES:

1. Hole(s) must be located completely in the allowable hole zone.
2. No rectangular holes are allowed.
3. No more than three (3) holes allowed per span.
4. Table is valid for single span, uniformly loaded beams only. Table is not valid for cantilever sections.
5. Hole location, clearance and effect of beam deflection should be considered to avoid problems with piping.
6. All connections of beams to supports shall be designed by others.
7. Notching of beam not permitted.

Allowable Hole SIzes

Beam Depth	Max Round Hole Diameter
7 1/4" - 9 1/4"	1 1/2"
9 1/2" - 16"	2"
Deeper than 16"	3"

General Notes for the following 1 ¾" Ultralam™ 2.0E/2900Fb Load Tables

1. All uniform loads given in the tables are in pounds per lineal foot (plf).

2. Floor Systems are designed using a Load Duration Factor (C_D) = 1.0.

3. Roof Systems are designed using C_D = 1.15 or 1.25.

4. All loads are adjusted for the weight of the beam.

5. The top line (LL) of each table indicates the allowable load-carrying capacity using the live load deflection limit.

6. The middle line (TL) of each table indicates the allowable load carrying capacity using the total load deflection limit of the member. Beam self weight is accounted for in the calculations.

7. The bottom line (Brg) of each table indicates the required bearing length at each end of the beam in inches when loaded to the maximum loads allowed and assumes that the compression strength of the bearing material is greater than or equal to the compression perpendicular-to-grain design value of the Ultralam™ beam. Shorter bearing lengths may be required with lighter loads, and longer bearing lengths may be required where the bearing strength of the supporting material is less than the bearing strength of the Ultralam™ beam. Calculations are based on a design span measured from centerline of support to centerline of support. If different bearing lengths are required, design span should be evaluated accordingly.

8. For live load deflection factors of l/180 and l/360, multiply the maximum live load value (LL) by 1.333 and 0.667, respectively. The result shall not exceed the maximum allowable total load (TL).

9. Design span is assumed to be the clear opening plus ½ the tabulated required bearing length at each end.

10. These tables are for gravity loads only. Consult a professional engineer for wind and seismic load analysis and design.

11. All tables are based on uniform load conditions. Any concentrated load applications must be analyzed separately or converted to an equivalent uniform load.

12. The compression edge of the header or beam must be laterally supported at intervals of 24" or less. In addition, lateral support must be provided at bearing points.

13. For 3 ½" thick Ultralam, use 1 ¾" 2 ply table.

14. Multiply 1.75" load values by 0.857 when using 1.5" thick Ultralam. Do not adjust bearing length.

Allowable loads (plf) for 1¾" Ultralam™ LVL 2.0E/2900Fb – Load Duration of 1.15 – Snow Loads

TO USE THE CHARTS ON THE FOLLOWING PAGES:

1. Calculate the live load and total load to be applied to the beam. Beam self weight is accounted for in the load calculations.
2. Select the correct table based on the beam application you need (i.e., roof, floor, etc.).
3. From the "clear span" column, select the span required for the application.
4. Moving left to right, find the column where both the live load and total load from the table is greater that the loads applied to the beam as calculated in step 1.
5. Check the bearing requirements to ensure proper bearing.
6. Note that there may be several options available that will meet the requirements. Chose the one that best fits the application.

Clear Span		2.0E 1 Ply LL/240 TL/180 C_D = 1.15							
		7¼	9¼	9½	11¼	11⅞	14	16	18
6	LL	971	1476	1544	2043	2230	2891	3541	4211
	TL	971	1476	1544	2043	2230	2891	3541	4211
	Brg	2	3	3.25	4.25	4.75	6.5	8.25	10
8	LL	437	859	900	1207	1324	1748	2177	2629
	TL	558	859	900	1207	1324	1748	2177	2629
	Brg	1.5	2.25	2.5	3.25	3.75	5	6.25	7.75
10	LL	228	465	503	790	869	1157	1454	1772
	TL	302	558	585	790	869	1157	1454	1772
	Brg	1.5	1.75	2	2.75	3	4	5	6.25
12	LL	133	273	295	484	567	818	1033	1266
	TL	176	361	391	555	611	818	1033	1266
	Brg	1.5	1.5	1.5	2.25	2.5	3.25	4.25	5.25
14	LL	84	174	188	309	362	585	769	946
	TL	110	229	248	408	452	607	769	946
	Brg	1.5	1.5	1.5	2	2	2.75	3.5	4.5
16	LL	56	117	127	209	245	397	586	732
	TL	73	153	166	275	322	467	593	732
	Brg	1.5	1.5	1.5	1.5	1.75	2.5	3.25	4
18	LL	40	82	89	147	173	281	416	582
	TL	50	107	116	193	227	370	471	582
	Brg	1.5	1.5	1.5	1.5	1.5	2.25	2.75	3.5
20	LL	29	60	65	108	127	206	305	431
	TL	36	77	84	140	165	270	382	473
	Brg	1.5	1.5	1.5	1.5	1.5	1.75	2.5	3
22	LL	21	45	49	81	95	156	231	326
	TL	26	57	62	105	123	203	302	391
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	2.25	2.75
24	LL	- -	35	38	62	74	120	178	252
	TL	- -	43	47	80	94	156	233	329
	Brg	- -	1.5	1.5	1.5	1.5	1.5	1.75	2.5
26	LL	- -	27	29	49	58	95	141	199
	TL	- -	33	36	62	73	122	183	260
	Brg	- -	1.5	1.5	1.5	1.5	1.5	1.5	2.25
28	LL	- -	22	23	39	46	76	113	160
	TL	- -	26	28	49	58	97	146	208
	Brg	- -	1.5	1.5	1.5	1.5	1.5	1.5	2
30	LL	- -	- -	- -	32	38	62	92	131
	TL	- -	- -	- -	39	46	78	117	168
	Brg	- -	- -	- -	1.5	1.5	1.5	1.5	1.75

Clear Span		2.0E 2 Ply LL/240 TL/180 C_D = 1.15										
		7¼	9¼	9½	11¼	11⅞	14	16	18	20	22	24
6	LL	1942	2952	3088	4087	4461	5782	7082	8422	9436	9435	9433
	TL	1942	2952	3088	4087	4461	5782	7082	8422	9436	9435	9433
	Brg	2	3	3.25	4.25	4.75	6.5	8.25	10	12	12	12
8	LL	875	1718	1801	2415	2649	3496	4354	5259	6177	7119	7543
	TL	1116	1718	1801	2415	2649	3496	4354	5259	6177	7119	7543
	Brg	1.5	2.25	2.5	3.25	3.75	5	6.25	7.75	9.5	11.25	12
10	LL	457	931	1006	1580	1738	2315	2909	3545	4213	4910	5627
	TL	605	1116	1171	1580	1738	2315	2909	3545	4213	4910	5627
	Brg	1.5	1.75	2	2.75	3	4	5	6.25	7.5	9	10.5
12	LL	267	547	591	969	1135	1636	2067	2533	3030	3554	4101
	TL	352	723	782	1110	1222	1636	2067	2533	3030	3554	4101
	Brg	1.5	1.5	1.5	2.25	2.5	3.25	4.25	5.25	6.25	7.5	8.75
14	LL	169	348	377	618	724	1171	1539	1893	2273	2677	3103
	TL	221	458	496	816	904	1214	1539	1893	2273	2677	3103
	Brg	1.5	1.5	1.5	2	2	2.75	3.5	4.5	5.5	6.5	7.5
16	LL	113	234	254	418	490	794	1172	1464	1763	2082	2421
	TL	147	307	332	550	645	934	1187	1464	1763	2082	2421
	Brg	1.5	1.5	1.5	1.5	1.75	2.5	3.25	4	4.75	5.75	6.5
18	LL	80	165	179	295	347	562	832	1164	1404	1662	1936
	TL	101	214	232	387	454	740	942	1164	1404	1662	1936
	Brg	1.5	1.5	1.5	1.5	1.5	2.25	2.75	3.5	4.25	5	6
20	LL	58	121	131	216	254	413	611	863	1143	1355	1581
	TL	73	155	168	281	331	541	765	946	1143	1355	1581
	Brg	1.5	1.5	1.5	1.5	1.5	1.75	2.5	3	3.75	4.5	5.25
22	LL	43	91	98	163	191	312	462	653	889	1125	1314
	TL	53	115	125	210	247	406	605	783	948	1125	1314
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	2.25	2.75	3.5	4	4.75
24	LL	33	70	76	125	148	241	357	505	689	912	1108
	TL	40	87	95	160	189	312	466	658	797	947	1108
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	1.75	2.5	3.25	3.75	4.5
26	LL	26	55	59	99	116	190	282	399	545	721	931
	TL	30	67	73	124	147	244	366	521	680	808	946
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.25	3	3.5	4
28	LL	21	44	47	79	93	152	227	321	438	580	749
	TL	23	52	57	98	116	194	292	416	571	697	816
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2.75	3.25	3.75
30	LL	- -	36	39	64	76	124	184	262	357	473	612
	TL	- -	41	45	78	93	156	235	337	463	607	711
	Brg	- -	1.5	1.5	1.5	1.5	1.5	1.5	1.75	2.25	3	3.5

Clear Span		2.0E 3 Ply LL/240 TL/180 C_D = 1.15										
		7¼	9¼	9½	11¼	11⅞	14	16	18	20	22	24
6	LL	2997	4591	4801	6347	6925	8962	10962	13022	14154	14152	14150
	TL	3024	4591	4801	6347	6925	8962	10962	13022	14154	14152	14150
	Brg	2	3.25	3.25	4.5	5	6.75	8.5	10.25	12	12	12
8	LL	1311	2652	2804	3758	4122	5434	6761	8158	9569	11017	11315
	TL	1739	2676	2804	3758	4122	5434	6761	8158	9569	11017	11315
	Brg	1.5	2.5	2.5	3.5	3.75	5	6.5	8	9.75	11.5	12
10	LL	686	1394	1506	2458	2707	3603	4524	5510	6542	7618	8723
	TL	908	1740	1825	2462	2707	3603	4524	5510	6542	7618	8723
	Brg	1.5	2	2	2.75	3	4	5.25	6.5	7.75	9.25	11
12	LL	401	821	887	1451	1699	2549	3218	3942	4712	5524	6370
	TL	528	1085	1173	1730	1905	2549	3218	3942	4712	5524	6370
	Brg	1.5	1.5	1.5	2.25	2.5	3.5	4.25	5.5	6.5	7.75	9.25
14	LL	254	522	565	926	1084	1754	2397	2948	3538	4166	4825
	TL	331	687	744	1224	1409	1892	2397	2948	3538	4166	4825
	Brg	1.5	1.5	1.5	2	2.25	3	3.75	4.5	5.5	6.75	7.75
16	LL	170	352	381	627	735	1189	1756	2281	2746	3242	3768
	TL	220	460	499	825	968	1457	1850	2281	2746	3242	3768
	Brg	1.5	1.5	1.5	1.5	1.75	2.5	3.25	4	5	5.75	7
18	LL	120	248	268	443	520	843	1246	1757	2188	2590	3016
	TL	152	322	349	580	682	1110	1469	1814	2188	2590	3016
	Brg	1.5	1.5	1.5	1.5	1.5	2.25	3	3.5	4.25	5.25	6
20	LL	87	181	196	324	381	619	915	1293	1759	2112	2464
	TL	109	232	252	422	496	812	1193	1475	1782	2112	2464
	Brg	1.5	1.5	1.5	1.5	1.5	1.75	2.5	3.25	4	4.75	5.5
22	LL	65	136	147	244	287	468	693	978	1332	1754	2048
	TL	80	172	187	315	371	610	908	1222	1478	1754	2048
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	2.25	3	3.5	4.25	5
24	LL	50	105	114	188	222	361	536	758	1033	1366	1728
	TL	60	131	142	240	284	468	699	993	1244	1478	1728
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	1.75	2.75	3.25	4	4.5
26	LL	39	82	89	148	174	285	424	599	816	1081	1395
	TL	46	101	110	187	221	366	549	781	1060	1261	1475
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.25	3	3.5	4.25
28	LL	32	66	71	119	140	229	340	482	657	869	1123
	TL	35	79	86	147	175	291	438	625	856	1087	1273
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2.75	3.25	4
30	LL	26	54	58	97	114	186	277	393	536	710	917
	TL	27	62	68	118	140	234	353	506	695	924	1110
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.75	2.25	3	3.75

Allowable loads (plf) for 1¾" Ultralam™ LVL 2.0E/2900Fb – Load Duration of 1.25 – Construction Loads

Clear Span		2.0E 1 Ply LL/240 TL/180 C_D = 1.25								2.0E 2 Ply LL/240 TL/180 C_D = 1.25											2.0E 3 Ply LL/240 TL/180 C_D = 1.25										
		7¼	9¼	9½	11¼	11⅞	14	16	18	7¼	9¼	9½	11¼	11⅞	14	16	18	20	22	24	7¼	9¼	9½	11¼	11⅞	14	16	18	20	22	24
6	LL	995	1593	1666	2199	2398	3098	3784	4490	1991	3187	3332	4399	4797	6197	7569	8980	9436	9435	9433	2976	4954	5180	6830	7445	9600	11709	13877	14154	14152	14150
	TL	1051	1593	1666	2199	2398	3098	3784	4490	2102	3187	3332	4399	4797	6197	7569	8980	9436	9435	9433	3272	4954	5180	6830	7445	9600	11709	13877	14154	14152	14150
	Brg	2	3.25	3.5	4.75	5.25	7	9	10.75	2	3.25	3.5	4.75	5.25	7	9	10.75	12	12	12	2.25	3.5	3.5	5	5.5	7.25	9.25	11.25	12	12	12
8	LL	436	881	951	1305	1431	1884	2342	2823	873	1762	1902	2611	2862	3769	4685	5646	6613	7545	7543	1310	2635	2844	4062	4452	5857	7271	8755	10240	11317	11315
	TL	579	930	975	1305	1431	1884	2342	2823	1159	1861	1950	2611	2862	3769	4685	5646	6613	7545	7543	1739	2898	3035	4062	4452	5857	7271	8755	10240	11317	11315
	Brg	1.5	2.5	2.5	3.5	4	5.25	6.75	8.25	1.5	2.5	2.5	3.5	4	5.25	6.75	8.25	10.25	12	12	1.5	2.5	2.75	3.75	4	5.5	7	8.75	10.5	12	12
10	LL	228	463	501	816	941	1251	1570	1911	457	927	1002	1633	1882	2503	3141	3822	4534	5274	6033	686	1389	1500	2443	2852	3895	4884	5939	7038	8180	9349
	TL	302	605	635	856	941	1251	1570	1911	605	1211	1270	1712	1882	2503	3141	3822	4534	5274	6033	908	1843	1978	2666	2931	3895	4884	5939	7038	8180	9349
	Brg	1.5	2	2	2.75	3.25	4.25	5.5	6.75	1.5	2	2	2.75	3.25	4.25	5.5	6.75	8.25	9.75	11.5	1.5	2	2.25	3	3.25	4.5	5.75	7	8.5	10.25	12
12	LL	133	273	295	482	565	886	1118	1369	267	547	591	965	1130	1772	2237	2738	3271	3832	4415	401	821	887	1446	1691	2718	3482	4260	5085	5953	6855
	TL	176	361	391	602	662	886	1118	1369	352	723	782	1204	1325	1772	2237	2738	3271	3832	4415	528	1085	1173	1876	2065	2760	3482	4260	5085	5953	6855
	Brg	1.5	1.5	1.5	2.5	2.75	3.5	4.5	5.75	1.5	1.5	1.5	2.5	2.75	3.5	4.5	5.75	6.75	8.25	9.5	1.5	1.5	1.5	2.5	2.75	3.75	4.75	5.75	7	8.5	10
14	LL	84	174	188	308	361	583	833	1024	169	348	377	617	722	1166	1667	2049	2459	2893	3349	254	522	565	926	1083	1746	2566	3191	3826	4500	5207
	TL	110	229	248	408	477	658	833	1024	221	458	496	816	955	1316	1667	2049	2459	2893	3349	331	687	744	1224	1432	2052	2597	3191	3826	4500	5207
	Brg	1.5	1.5	1.5	2	2.25	3	4	4.75	1.5	1.5	1.5	2	2.25	3	4	4.75	5.75	7	8.25	1.5	1.5	1.5	2	2.25	3.25	4	5	6	7.25	8.5
16	LL	56	117	127	209	245	395	584	793	113	234	254	418	490	791	1168	1587	1909	2254	2617	170	352	381	627	735	1185	1748	2457	2974	3508	4073
	TL	73	153	166	275	322	507	644	793	147	307	332	550	645	1014	1288	1587	1909	2254	2617	220	460	499	825	968	1566	2007	2472	2974	3508	4073
	Brg	1.5	1.5	1.5	1.5	1.75	2.75	3.5	4.25	1.5	1.5	1.5	1.5	1.75	2.75	3.5	4.25	5.25	6	7.25	1.5	1.5	1.5	1.5	1.75	2.75	3.5	4.5	5.25	6.25	7.5
18	LL	40	82	89	147	173	281	414	584	80	165	179	295	347	562	829	1169	1523	1801	2097	120	248	268	443	520	843	1242	1750	2372	2805	3264
	TL	50	107	116	193	227	370	511	631	101	214	232	387	454	740	1023	1263	1523	1801	2097	152	322	349	580	682	1110	1595	1968	2372	2805	3264
	Brg	1.5	1.5	1.5	1.5	1.5	2.25	3	3.75	1.5	1.5	1.5	1.5	1.5	2.25	3	3.75	4.5	5.5	6.5	1.5	1.5	1.5	1.5	1.5	2.25	3.25	4	4.75	5.75	6.75
20	LL	29	60	65	108	127	206	304	430	58	121	131	216	254	413	609	860	1170	1470	1714	87	181	196	324	381	619	914	1288	1751	2290	2670
	TL	36	77	84	140	165	270	401	513	73	155	168	281	331	541	802	1027	1240	1470	1714	109	232	252	422	496	812	1203	1602	1934	2290	2670
	Brg	1.5	1.5	1.5	1.5	1.5	1.75	2.75	3.5	1.5	1.5	1.5	1.5	1.5	1.75	2.75	3.5	4	5	5.75	1.5	1.5	1.5	1.5	1.5	1.75	2.75	3.5	4.25	5	6
22	LL	21	45	49	81	95	156	231	325	43	91	98	163	191	312	462	651	886	1171	1425	65	136	147	244	287	468	693	976	1328	1753	2221
	TL	26	57	62	105	123	203	302	425	53	115	125	210	247	406	605	851	1029	1221	1425	80	172	187	315	371	610	908	1283	1604	1903	2221
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	2.25	3	1.5	1.5	1.5	1.5	1.5	1.5	2.25	3	3.75	4.5	5.25	1.5	1.5	1.5	1.5	1.5	1.5	2.25	3.25	4	4.75	5.5
24	LL	- -	35	38	62	74	120	178	252	33	70	76	125	148	241	357	505	687	909	1171	50	105	114	188	222	361	536	758	1030	1361	1754
	TL	- -	43	47	80	94	156	233	331	40	87	95	160	189	312	466	662	866	1029	1203	60	131	142	240	284	468	699	993	1351	1604	1875
	Brg	- -	1.5	1.5	1.5	1.5	1.5	1.75	2.75	1.5	1.5	1.5	1.5	1.5	1.5	1.75	2.75	3.5	4	4.75	1.5	1.5	1.5	1.5	1.5	1.5	1.75	2.75	3.5	4.25	5
26	LL	- -	27	29	49	58	95	141	199	26	55	59	99	116	190	282	399	544	719	928	39	82	89	148	174	285	424	599	816	1077	1390
	TL	- -	33	36	62	73	122	183	260	30	67	73	124	147	244	366	521	712	878	1027	46	101	110	187	221	366	549	781	1068	1370	1602
	Brg	- -	1.5	1.5	1.5	1.5	1.5	1.5	2.25	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.25	3	3.75	4.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.25	3	4	4.5
28	LL	- -	22	23	39	46	76	113	160	21	44	47	79	93	152	227	321	438	579	747	32	66	71	119	140	229	340	482	657	868	1119
	TL	- -	26	28	49	58	97	146	208	23	52	57	98	116	194	292	416	571	757	887	35	79	86	147	175	291	438	625	856	1135	1383
	Brg	- -	1.5	1.5	1.5	1.5	1.5	1.5	2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2.75	3.5	4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2.75	3.5	4.25
30	LL	- -	- -	- -	32	38	62	92	131	- -	36	39	64	76	124	184	262	357	473	610	26	54	58	97	114	186	277	393	536	710	914
	TL	- -	- -	- -	39	46	78	117	168	- -	41	45	78	93	156	235	337	463	616	773	27	62	68	118	140	234	353	506	695	924	1195
	Brg	- -	- -	- -	1.5	1.5	1.5	1.5	1.75	- -	1.5	1.5	1.5	1.5	1.5	1.5	1.75	2.25	3	3.75	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.75	2.25	3	4

Allowable loads (plf) for 1¾" Ultralam™ LVL 2.0E/2900Fb – Load Duration of 1.00 – Floor Loads

Clear Span		2.0E 1 Ply LL/360 TL/240 C_D = 1							
		7¼	9¼	9½	11¼	11⅞	14	16	18
6	LL	675	1297	1357	1803	1971	2568	3159	3773
	TL	850	1297	1357	1803	1971	2568	3159	3773
	Brg	1.75	2.75	2.75	3.75	4.25	5.75	7.25	8.75
8	LL	294	596	644	1045	1162	1539	1922	2329
	TL	439	751	787	1058	1162	1539	1922	2329
	Brg	1.5	2	2	2.75	3.25	4.25	5.5	6.75
10	LL	153	312	337	552	645	1014	1277	1560
	TL	227	465	503	690	760	1014	1277	1560
	Brg	1.5	1.5	1.75	2.25	2.5	3.5	4.25	5.5
12	LL	89	183	198	325	380	614	902	1110
	TL	131	272	295	483	533	715	904	1110
	Brg	1.5	1.5	1.5	2	2	2.75	3.75	4.5
14	LL	56	116	126	207	243	393	579	814
	TL	82	172	186	307	360	529	672	827
	Brg	1.5	1.5	1.5	1.5	1.75	2.5	3	3.75
16	LL	38	78	85	140	164	266	393	554
	TL	54	114	124	206	242	394	517	639
	Brg	1.5	1.5	1.5	1.5	1.5	2	2.75	3.5
18	LL	26	55	59	99	116	188	278	393
	TL	37	79	86	144	170	278	410	507
	Brg	1.5	1.5	1.5	1.5	1.5	1.75	2.5	3
20	LL	- -	40	43	72	85	138	205	289
	TL	- -	57	62	104	123	203	302	412
	Brg	- -	1.5	1.5	1.5	1.5	1.5	2	2.75
22	LL	- -	30	32	54	64	104	154	218
	TL	- -	42	46	78	92	152	227	322
	Brg	- -	1.5	1.5	1.5	1.5	1.5	1.75	2.25
24	LL	- -	23	25	42	49	80	119	169
	TL	- -	32	34	59	70	116	174	248
	Brg	- -	1.5	1.5	1.5	1.5	1.5	1.5	2
26	LL	- -	- -	- -	33	38	63	94	134
	TL	- -	- -	- -	45	54	90	136	195
	Brg	- -	- -	- -	1.5	1.5	1.5	1.5	1.75
28	LL	- -	- -	- -	26	31	50	75	107
	TL	- -	- -	- -	36	42	71	108	155
	Brg	- -	- -	- -	1.5	1.5	1.5	1.5	1.5
30	LL	- -	- -	- -	21	25	41	61	87
	TL	- -	- -	- -	28	34	57	87	125
	Brg	- -	- -	- -	1.5	1.5	1.5	1.5	1.5

Clear Span		2.0E 2 Ply LL/360 TL/240 C_D = 1										
		7¼	9¼	9½	11¼	11⅞	14	16	18	20	22	24
6	LL	1350	2594	2714	3606	3942	5136	6319	7546	8709	9435	9433
	TL	1700	2594	2714	3606	3942	5136	6319	7546	8709	9435	9433
	Brg	1.75	2.75	2.75	3.75	4.25	5.75	7.25	8.75	10.75	12	12
8	LL	589	1193	1288	2090	2325	3078	3845	4659	5495	6358	7233
	TL	879	1503	1575	2117	2325	3078	3845	4659	5495	6358	7233
	Brg	1.5	2	2	2.75	3.25	4.25	5.5	6.75	8.25	9.75	11.5
10	LL	307	625	675	1104	1291	2028	2554	3121	3719	4346	4994
	TL	455	931	1006	1381	1520	2028	2554	3121	3719	4346	4994
	Brg	1.5	1.5	1.75	2.25	2.5	3.5	4.25	5.5	6.5	7.75	9.25
12	LL	179	367	397	650	761	1229	1805	2221	2662	3129	3618
	TL	263	545	590	967	1066	1430	1809	2221	2662	3129	3618
	Brg	1.5	1.5	1.5	2	2	2.75	3.75	4.5	5.5	6.5	7.75
14	LL	113	233	252	415	486	786	1159	1629	1991	2349	2727
	TL	165	344	372	615	721	1059	1344	1655	1991	2349	2727
	Brg	1.5	1.5	1.5	1.5	1.75	2.5	3	3.75	4.75	5.5	6.5
16	LL	76	157	170	280	329	532	786	1109	1504	1822	2121
	TL	109	229	248	413	485	789	1035	1278	1541	1822	2121
	Brg	1.5	1.5	1.5	1.5	1.5	2	2.75	3.5	4	5	5.75
18	LL	53	110	119	198	232	377	557	787	1070	1411	1693
	TL	75	159	173	289	340	556	821	1015	1226	1452	1693
	Brg	1.5	1.5	1.5	1.5	1.5	1.75	2.5	3	3.75	4.25	5
20	LL	39	80	87	144	170	276	410	578	788	1040	1340
	TL	53	115	124	209	247	406	604	824	996	1182	1381
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	2	2.75	3.25	4	4.5
22	LL	29	60	65	109	128	208	309	437	596	788	1016
	TL	39	85	92	156	184	304	454	644	825	980	1146
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	1.75	2.25	3	3.5	4.25
24	LL	22	46	50	84	98	161	239	339	461	611	789
	TL	29	64	69	118	140	232	348	496	679	825	965
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2.75	3.25	3.75
26	LL	- -	36	39	66	77	127	189	268	365	483	624
	TL	- -	49	53	91	108	181	273	390	534	703	823
	Brg	- -	1.5	1.5	1.5	1.5	1.5	1.5	1.75	2.25	3	3.5
28	LL	- -	29	32	53	62	101	151	215	293	388	502
	TL	- -	38	41	72	85	143	217	310	427	568	710
	Brg	- -	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2.75	3.25
30	LL	- -	24	26	43	50	83	123	175	239	317	410
	TL	- -	29	32	57	68	115	174	251	346	461	598
	Brg	- -	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.75	2.25	3

Clear Span		2.0E 3 Ply LL/360 TL/240 C_D = 1										
		7¼	9¼	9½	11¼	11⅞	14	16	18	20	22	24
6	LL	2020	4029	4222	5604	6124	7967	9790	11677	13450	14152	14150
	TL	2647	4035	4222	5604	6124	7967	9790	11677	13450	14152	14150
	Brg	1.75	2.75	3	4	4.25	6	7.5	9	11.25	12	12
8	LL	884	1785	1927	3125	3618	4786	5974	7232	8520	9848	11191
	TL	1318	2341	2453	3296	3618	4786	5974	7232	8520	9848	11191
	Brg	1.5	2	2.25	3	3.25	4.5	5.75	7	8.5	10	11.75
10	LL	460	937	1012	1653	1932	3095	3975	4853	5778	6747	7749
	TL	683	1397	1509	2152	2367	3158	3975	4853	5778	6747	7749
	Brg	1.5	1.5	1.75	2.5	2.5	3.5	4.5	5.5	6.75	8.25	9.5
12	LL	268	551	596	974	1140	1839	2700	3458	4142	4866	5623
	TL	395	818	885	1451	1662	2228	2818	3458	4142	4866	5623
	Brg	1.5	1.5	1.5	2	2.25	3	3.75	4.75	5.75	6.75	8
14	LL	169	350	378	623	729	1177	1735	2437	3100	3656	4242
	TL	247	516	558	923	1082	1651	2094	2579	3100	3656	4242
	Brg	1.5	1.5	1.5	1.5	1.75	2.5	3.25	4	5	5.75	6.75
16	LL	114	235	255	420	493	798	1178	1660	2251	2839	3303
	TL	163	344	373	620	728	1183	1614	1992	2401	2839	3303
	Brg	1.5	1.5	1.5	1.5	1.5	2	2.75	3.5	4.25	5	6
18	LL	80	166	179	297	348	566	835	1179	1603	2112	2638
	TL	113	239	260	434	511	835	1237	1582	1910	2263	2638
	Brg	1.5	1.5	1.5	1.5	1.5	1.75	2.5	3.25	3.75	4.5	5.25
20	LL	58	121	131	217	255	415	615	866	1180	1558	2005
	TL	80	172	187	314	370	609	906	1282	1554	1843	2152
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	2	2.75	3.5	4	4.75
22	LL	43	91	98	163	192	313	464	656	893	1180	1522
	TL	58	127	138	234	276	456	681	967	1287	1528	1787
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	1.75	2.25	3	3.75	4.25
24	LL	33	70	76	126	148	242	359	508	692	915	1181
	TL	43	96	104	178	210	349	523	745	1019	1286	1505
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2.75	3.5	4
26	LL	26	55	59	99	116	190	283	402	548	724	935
	TL	32	73	80	137	163	272	409	585	802	1064	1284
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.75	2.25	3	3.75
28	LL	21	44	48	79	93	152	227	322	440	583	752
	TL	24	57	62	108	128	215	325	466	641	853	1104
	Brg	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2.75	3.5
30	LL	- -	36	39	64	76	124	185	263	359	476	615
	TL	- -	44	49	85	102	172	262	376	519	692	898
	Brg	- -	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.75	2.25	3

1¾" Ultralam™ LVL 2.0E/2900Fb – Roof Rafter Span Tables

				35 psf live load, 10 psf dead load, l/240 deflection, C_D = 1.15				35 psf live load, 15 psf dead load, l/240 deflection, C_D = 1.15			
Size			Grade	12	16	19.2	24	12	16	19.2	24
1 ³/₄	x	7 ¹/₄	2.0E	19-2	17-5	16-5	15-3	19-2	17-5	16-5	15-3
1 ³/₄	x	9 ¹/₂		25-2	22-10	21-6	19-11	25-2	22-10	21-6	19-11
1 ³/₄	x	11 ⁷/₈		31-5	28-7	26-10	24-11	31-5	28-7	26-10	24-11
1 ³/₄	x	14		37-0	33-8	31-8	29-5	37-0	33-8	31-8	29-5
1 ³/₄	x	16		42-4	38-6	36-2	33-7	42-4	38-6	36-2	33-7
1 ³/₄	x	18		47-7	43-3	40-9	37-10	47-7	43-3	40-9	37-10
1 ³/₄	x	24		60-0	57-8	54-3	50-5	60-0	57-8	54-3	50-5

Ultralam™ LVL 2.0E/2900Fb – Floor Joist Span Tables

30 psf live load, 10 psf dead load		l/360 deflection				l/480 deflection				l/600 deflection			
Size	Grade	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
1 3/4 x 7 1/4	2.0E	17-8	16-0	15-1	14-0	16-0	14-7	13-8	12-9	14-11	13-6	12-9	11-10
1 3/4 x 9 1/2		23-1	21-0	19-9	18-4	21-0	19-1	17-11	16-8	19-6	17-9	16-8	15-6
1 3/4 x 11 7/8		28-11	26-3	24-8	22-11	26-3	23-10	22-5	20-10	24-4	22-2	20-10	19-4
1 3/4 x 14		34-1	30-11	29-1	27-0	30-11	28-1	26-6	24-7	28-9	26-1	24-7	22-10
1 3/4 x 16		38-11	35-4	33-3	30-11	35-4	32-2	30-3	28-1	32-10	29-10	28-1	26-1
1 3/4 x 18		43-10	39-9	37-5	34-9	39-9	36-2	34-0	31-7	36-11	33-7	31-7	29-4
1 3/4 x 24		58-5	53-1	49-11	46-4	53-1	48-2	45-4	42-1	49-3	44-9	42-1	39-1

40 psf live load, 10 psf dead load		l/360 deflection				l/480 deflection				l/600 deflection			
Size	Grade	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
1 3/4 x 7 1/4	2.0E	16-0	14-7	13-8	12-9	14-7	13-3	12-5	11-7	13-6	12-3	11-7	10-9
1 3/4 x 9 1/2		21-0	19-1	17-11	16-8	19-1	17-4	16-4	15-2	17-9	16-1	15-2	14-1
1 3/4 x 11 7/8		26-3	23-10	22-5	20-10	23-10	21-8	20-5	18-11	22-2	20-1	18-11	17-7
1 3/4 x 14		30-11	28-1	26-6	24-7	28-1	25-7	24-0	22-4	26-1	23-9	22-4	20-9
1 3/4 x 16		35-4	32-2	30-3	28-1	32-2	29-2	27-6	25-6	29-10	27-1	25-6	23-8
1 3/4 x 18		39-9	36-2	34-0	31-7	36-2	32-10	30-11	28-8	33-7	30-6	28-8	26-8
1 3/4 x 24		53-1	48-2	45-4	42-1	48-2	43-10	41-3	38-3	44-9	40-8	38-3	35-6

30 psf live load, 15 psf dead load		l/360 deflection				l/480 deflection				l/600 deflection			
Size	Grade	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
1 3/4 x 7 1/4	2.0E	17-8	16-0	15-1	14-0	16-0	14-7	13-8	12-9	14-11	13-6	12-9	11-10
1 3/4 x 9 1/2		23-1	21-0	19-9	18-4	21-0	19-1	17-11	16-8	19-6	17-9	16-8	15-6
1 3/4 x 11 7/8		28-11	26-3	24-8	22-11	26-3	23-10	22-5	20-10	24-4	22-2	20-10	19-4
1 3/4 x 14		34-1	30-11	29-1	27-0	30-11	28-1	26-6	24-7	28-9	26-1	24-7	22-10
1 3/4 x 16		38-11	35-4	33-3	30-11	35-4	32-2	30-3	28-1	32-10	29-10	28-1	26-1
1 3/4 x 18		43-10	39-9	37-5	34-9	39-9	36-2	34-0	31-7	36-11	33-7	31-7	29-4
1 3/4 x 24		58-5	53-1	49-11	46-4	53-1	48-2	45-4	42-1	49-3	44-9	42-1	39-1

40 psf live load, 15 psf dead load		l/360 deflection				l/480 deflection				l/600 deflection			
Size	Grade	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
1 3/4 x 7 1/4	2.0E	16-0	14-7	13-8	12-9	14-7	13-3	12-5	11-7	13-6	12-3	11-7	10-9
1 3/4 x 9 1/2		21-0	19-1	17-11	16-8	19-1	17-4	16-4	15-2	17-9	16-1	15-2	14-1
1 3/4 x 11 7/8		26-3	23-10	22-5	20-10	23-10	21-8	20-5	18-11	22-2	20-1	18-11	17-7
1 3/4 x 14		30-11	28-1	26-6	24-7	28-1	25-7	24-0	22-4	26-1	23-9	22-4	20-9
1 3/4 x 16		35-4	32-2	30-3	28-1	32-2	29-2	27-6	25-6	29-10	27-1	25-6	23-8
1 3/4 x 18		39-9	36-2	34-0	31-7	36-2	32-10	30-11	28-8	33-7	30-6	28-8	26-8
1 3/4 x 24		53-1	48-2	45-4	42-1	48-2	43-10	41-3	38-3	44-9	40-8	38-3	35-6

50 psf live load, 10 psf dead load		l/360 deflection				l/480 deflection				l/600 deflection			
Size	Grade	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
1 3/4 x 7 1/4	2.0E	14-11	13-6	12-9	11-10	13-6	12-3	11-7	10-9	12-7	11-5	10-9	10-0
1 3/4 x 9 1/2		19-6	17-9	16-8	15-6	17-9	16-1	15-2	14-1	16-5	14-11	14-1	13-1
1 3/4 x 11 7/8		24-4	22-2	20-10	19-4	22-2	20-1	18-11	17-7	20-7	18-8	17-7	16-4
1 3/4 x 14		28-9	26-1	24-7	22-10	26-1	23-9	22-4	20-9	24-3	22-0	20-9	19-3
1 3/4 x 16		32-10	29-10	28-1	26-1	29-10	27-1	25-6	23-8	27-8	25-2	23-8	22-0
1 3/4 x 18		36-11	33-7	31-7	29-4	33-7	30-6	28-8	26-8	31-2	28-4	26-8	24-9
1 3/4 x 24		49-3	44-9	42-1	39-1	44-9	40-8	38-3	35-6	41-6	37-9	35-6	33-0

50 psf live load, 20 psf dead load		l/360 deflection				l/480 deflection				l/600 deflection			
Size	Grade	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
1 3/4 x 7 1/4	2.0E	14-11	13-6	12-9	11-10	13-6	12-3	11-7	10-9	12-7	11-5	10-9	10-0
1 3/4 x 9 1/2		19-6	17-9	16-8	15-6	17-9	16-1	15-2	14-1	16-5	14-11	14-1	13-1
1 3/4 x 11 7/8		24-4	22-2	20-10	19-4	22-2	20-1	18-11	17-7	20-7	18-8	17-7	16-4
1 3/4 x 14		28-9	26-1	24-7	22-10	26-1	23-9	22-4	20-9	24-3	22-0	20-9	19-3
1 3/4 x 16		32-10	29-10	28-1	26-1	29-10	27-1	25-6	23-8	27-8	25-2	23-8	22-0
1 3/4 x 18		36-11	33-7	31-7	29-4	33-7	30-6	28-8	26-8	31-2	28-4	26-8	24-9
1 3/4 x 24		49-3	44-9	42-1	39-1	44-9	40-8	38-3	35-6	41-6	37-9	35-6	33-0

Ultralam™ LVL Stud Allowable Superimposed Axial Load with Studs at 16" o.c. Load Table – 2.0E[1-14]

Wall Height	Load Deflection	1.5 in x 5.5 in		1.75 in x 5.5 in		1.5 in x 7.25 in		1.75 in x 7.25 in	
		Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Exterior
16	Axial Load Per Stud (lbs) (Deflection Ratio)	4256 (l/2546)	3948 (l/509)	4840 (l/2971)	4836 (l/594)	5637 (l/5780)	5637 (l/1156)	6407 (l/6743)	6407 (l/1348)
18		3535 (l/1793)	2909 (l/358)	4216 (l/2092)	3629 (l/418)	5620 (l/4078)	5620 (l/815)	6390 (l/4757)	6390 (l/951)
20		2850 (l/1309)	2126 (l/261)	3424 (l/1528)	2718 (l/305)	5602 (l/2982)	5602 (l/596)	6373 (l/3479)	6373 (l/695)
22		2306 (l/985)	1524 (l/197)	2794 (l/1149)	2017 (l/229)	5290 (l/2246)	4567 (l/449)	6293 (l/2620)	5645 (l/524)
24		1868 (l/759)	1052 (l/151)	2287 (l/886)	1469 (l/177)	4475 (l/1733)	3601 (l/346)	5349 (l/2022)	4524 (l/404)

1. Allowable superimposed axial line load (plf) is permitted to be calculated by dividing the axial load per stud by 1.333 and shall not be extrapolated to wider stud spacings.
2. The table specifies allowable superimposed load. Dead load of the stud, 2 psf exterior gypsum sheathing, and 2 psf interior gypsum sheathing have been considered.
3. Gypsum Sheathing is assumed to be adequately fastened to both the exterior and interior of the stud wall. The fasteners are assumed to be sufficient such that lateral movement of the stud is restrained.
4. Compression perpendicular to grain of the top and bottom plates is assumed to be 425 psi and is adjusted by a Bearing Area Factor (C_b) calculated in accordance with the National Design Specification for Wood Construction (NDS), based on the thickness of the stud.
5. Blocking between the studs is assumed to be provided 8 ft. on center along the length of the stud.
6. Interior studs are designed for combined axial and bending load with an in-plane uniform live load of 5 psf, using a Duration of Load Factor (C_D) of 1.0.
7. Exterior Studs are designed for combined axial and bending load, with an in-plane uniform wind load of 25 psf, using a Duration of Load Factor (C_D) of 1.6.
8. The wind load of 25 psf is determined using ASCE 7 – 10 Components and Cladding (C&C) with a Mean Roof Height of 33 ft, Exposure Category C, Enclosed Building, 125 mph Ultimate Windspeed, Risk Category II, and a Topographic Factor of 1.0.
9. In determining the 25 psf load, a reduction of 0.6 is applied to the calculated C&C load as allowed in the Load Combinations found in ASCE 7 – 10.
10. The Field Zone, or Zone 4, of the wall is assumed when calculating C&C loading.
11. The stated Components and Cladding Wind Load is reduced by a factor of 0.42 for determining deflection.
12. A value of 0.85 is used for the Column Buckling Length Coefficient (K_e).
13. A Repetitive Member Factor (C_r) of 1.04 is used.
14. A Volume Factor (C_v) of $(12/d)^{0.162}$ is used, where d is the depth of the stud.

State-by-state sealed Technical Evaluation Reports (TERs) can be acquired by visiting www.drjcertification.org/stateselect/75 and selecting the state required. These reports can be used for assuring any building code authority that Ultralam meets all the requirements for use throughout the USA.

Software for sizing and structural checks, isDesign™, is provided at no additional charge. CSD iStruct™ software is widely used throughout the industry. (Visit www.csdsoftware.com.)

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