

VMG LIGNUM LVL

GRADE 2.0E
ROOF LOAD TABLES



UNIFORM LOAD SPAN TABLES

MAXIMUM ALLOWABLE UNIFORM LOAD TABLE NOTES

1. Allowable load tables are for single or multiple span beams with uniformly distributed loads based on the reference design values listed in ESR-5621 Table 1 (below). Clear spans are tabulated. The design span assumed in the table calculations is the clear span plus half the required bearing length on each end.
2. For multiple span beams, use the largest clear span. Other spans along the multiple span beam must be at least half of the largest span.
3. Continuous lateral restraint must be provided at the top edge of the beam. For multiple span beams, the bottom of the beam is assumed to be sufficiently braced to assume no reduction in strength for lateral stability. Lateral restraint is required at the supports to prevent rotation of the beam.
4. The Floor $L/360$ values on the 100% load duration tables are maximum live loads to meet the span based live load deflection criteria. Snow or Roof $L/240$ values on the 115% or 125% load duration tables are similar. The Total Load values are the maximum total allowable stress design (ASD) load for bending, shear, and total load deflection. Total load values have been reduced to account for the self-weight of the beam. A total load deflection limit of $L/240$ has been assumed for floor loads and $L/180$ for roof/snow load. Creep has not been considered.
5. The Req Brg values are the minimum required end/interior bearing lengths. Interior bearing is only applicable at interior supports along continuous, multiple span beams. Required bearing is based on 425 psi compression perpendicular to grain strength of a Spruce-Pine-Fir (SPF) wood plate with a bearing area factor, C_b , assuming the plate end is more than 3" away from the beam. For LVL grade 2.0E bearing on steel or other substrates where required bearing length is controlled by the LVL compression perpendicular to grain strength, the bearing lengths are shown in addition to the SPF plate bearing requirements. For the LVL grade 1.4E, the required bearing length does not change for substrates other than a SPF wood plate.
6. Ten year load duration ($CD = 1.0$) is assumed for floors with occupancy live loads, two month duration ($CD = 1.15$) is assumed for roofs with snow load, and seven day duration ($CD = 1.25$) is assumed for roof live load.
7. Dry conditions and sustained temperatures below 100°F have been assumed.
8. Table uniform load cells with no value (--) are less than 10 plf.

HOW TO USE MAXIMUM ALLOWABLE UNIFORM LOAD TABLES

1. Determine bearing condition at the supports. The clear span is the distance between the interior edges of the supports.
2. Calculate the applied uniform live/roof/snow load and total load on the beam using the appropriate ASD load combination (e.g., 1.0D + 1.0L). Determine the applicable live/roof/snow deflection criteria.
3. Use the span table for the appropriate live load type (floor, roof, or snow) and select a beam with tabulated maximum allowable loads that exceed the applied live load and total load. Confirm the available bearing length meets the tabulated minimum required bearing. The beam must satisfy all maximum uniform load requirements and have the minimum required bearing length to be adequate.

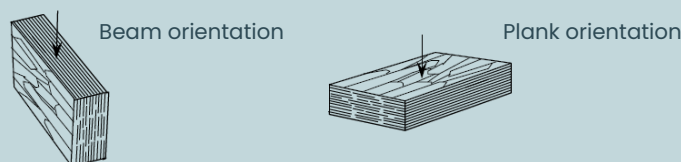


Figure 1 – an illustration of beam and plank orientation as noted in table 1

Table 1-reference design values for VMG LIGNUM LVL^{1,2}

BEAM ORIENTATION ³					PLANK ORIENTATION ³					AXIAL	
Modulus of elasticity		Bending ^{7,8} F _b (psi)	Shear F _v (psi)	Compression Perp-to-Grain F _{c⊥} ¹⁰ (psi)	Modulus of elasticity		Bending F _b (psi)	Shear F _v (psi)	Compression Perp-to-Grain F _{c⊥} ¹⁰ (psi)	Compression F _c (psi)	Tension F _t ⁹ (psi)
E _{true} ⁴ (x10 ⁶ psi)	E _{apparent} ^{5,6} (x10 ⁶ psi)				E _{true} ⁴ (x10 ⁶ psi)	E _{apparent} ^{5,6} (x10 ⁶ psi)					
1.4	1.3	1.850	250	550	1.4	1.3	2.200	150	300	2.300	1.600
2.0	1.9	3.050	350	700	2.0	1.9	3.300	150	380	3.000	2.700

For SI: 1 inch = 25.4 mm, 1 psi = 6894.8 Pa

¹ The tabulated values are design values for normal duration of load and must be adjusted by the applicable adjustment factors in accordance with Section 8.3 of the 2024 and 2018 NDS. Modulus of elasticity and compression perpendicular-to-grain must not be adjusted for duration of load.

² The tabulated values are limited to dry interior conditions where the average moisture content in lumber is less than 16 percent.

³ Refer to Figure 1 for LVL orientations.

⁴ Reference E_{true} values are the shear-free modulus of elasticity, which do not include the effects of the shear deformation. When calculating the total deflection, both bending and shear deformations must be included. Equations for various span and load conditions are available in engineering references.

⁵ Reference E_{apparent} values are the apparent modulus of elasticity, which include the effects of shear deformation. When calculating the total deflection, standard engineering formulae for the pure bending deflection is sufficient.

⁶ Reference modulus of elasticity, E_{min}, used for beam stability calculations, must be calculated using the tabulated E_{apparent} in accordance with Appendix D of the 2024 and 2018 NDS. The COV_E may be taken as 0.10 when calculating E_{min}.

⁷ Reference bending design value in the beam orientation, F_b, may be increased by 4% when the member qualifies as a repetitive member, in accordance with Section 8.3.7 of the 2024 and 2018 NDS.

⁸ Reference bending design value in beam orientation is based on a reference depth of 12 inches. For other depths, the allowable bending stress, F_b, must be adjusted by multiplying F_b by (12/d)^{0.15}, where d is depth member in inches. For depths 3½ inches or less, multiply F_b by 1.203.

⁹ Reference tension design values, F_t, are assigned for a standard length of 36 inches. For lengths longer than 36 inches, multiply F_t by (36/L)^{0.09}, where L is the length in inches. For lengths less than 36 inches, use the reference tension design value given in the table above.

¹⁰ The bearing area factor, C_b, is permitted to be applied to the reference compression perpendicular-to-grain design values, F_{c1}, in accordance with the 2024 and 2018 NDS.

ROOF LOAD TABLE 125% LOAD DURATION (PLF)

Clear span (ft)		VMG LIGNUM 2.0E LVL, 1 Ply, 1.5" Thickness												
		Depth (in)												
		3.5	5.5	7.25	9.25	9.5	11.25	11.875	14	16	18	20	22	24
4	Roof L/240	328	1117	1803	2273	2273	2272	2272	2271	2270	2270	2269	2268	2267
	Total Load	436	1176	1803	2273	2273	2272	2272	2271	2270	2270	2269	2268	2267
	Req Brg (in) SPF	1.5 / 3	3.4 / 8.5	5.6 / 14	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 2.3	2.6 / 6.5	4.3 / 10.6	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
5	Roof L/240	174	613	1244	1804	1879	1908	1908	1907	1906	1905	1905	1904	1903
	Total Load	231	787	1244	1804	1879	1908	1908	1907	1906	1905	1905	1904	1903
	Req Brg (in) SPF	1.5 / 2	2.8 / 7	4.5 / 11.3	7.1 / 17.8	7.4 / 18.5	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	2.1 / 5.3	3.4 / 8.5	5.4 / 13.5	5.6 / 14	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
6	Roof L/240	102	374	798	1338	1395	1644	1644	1643	1642	1642	1641	1640	1639
	Total Load	135	497	900	1338	1395	1644	1644	1643	1642	1642	1641	1640	1639
	Req Brg (in) SPF	1.5 / 1.5	2 / 5	3.8 / 9.5	5.9 / 14.8	6.2 / 15.5	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 3.8	2.9 / 7.2	4.5 / 11.2	4.7 / 11.8	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
7	Roof L/240	65	243	522	1020	1066	1398	1444	1443	1443	1442	1441	1440	1439
	Total Load	85	322	678	1022	1066	1398	1444	1443	1443	1442	1441	1440	1439
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 3.8	3.3 / 8.3	5.1 / 12.8	5.4 / 13.5	7.3 / 18.3	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 2.8	2.5 / 6.3	3.9 / 9.7	4.1 / 10.2	5.5 / 13.9	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
8	Roof L/240	44	165	363	711	766	1111	1211	1287	1286	1285	1284	1284	1283
	Total Load	57	218	481	802	840	1111	1211	1287	1286	1285	1284	1284	1283
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 3	2.6 / 6.5	4.5 / 11.3	4.7 / 11.8	6.4 / 16	7.1 / 17.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 2.3	2 / 4.9	3.4 / 8.5	3.6 / 8.9	4.9 / 12.1	5.4 / 13.5	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
9	Roof L/240	31	117	260	514	554	883	984	1161	1160	1159	1158	1157	1157
	Total Load	40	154	344	645	676	900	984	1161	1160	1159	1158	1157	1157
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 2.3	2.1 / 5.3	4 / 10	4.2 / 10.5	5.7 / 14.3	6.3 / 15.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.7	1.6 / 4	3 / 7.6	3.2 / 8	4.3 / 10.8	4.8 / 12	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
10	Roof L/240	23	86	193	384	413	663	769	1057	1056	1055	1055	1054	1053
	Total Load	29	113	254	509	547	743	813	1057	1056	1055	1055	1054	1053
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 2	1.7 / 4.3	3.4 / 8.5	3.7 / 9.3	5.1 / 12.8	5.7 / 14.3	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 3.2	2.6 / 6.5	2.8 / 7	3.9 / 9.7	4.3 / 10.8	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
11	Roof L/240	17	65	146	294	317	508	591	901	969	969	968	967	966
	Total Load	21	84	192	388	419	621	682	901	969	969	968	967	966
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.8	1.5 / 3.5	2.9 / 7.3	3.1 / 7.8	4.7 / 11.8	5.2 / 13	7 / 17.5	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 2.7	2.2 / 5.5	2.4 / 5.9	3.6 / 8.9	3.9 / 9.9	5.3 / 13.3	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
12	Roof L/240	13	50	114	230	248	398	464	736	896	895	894	893	893
	Total Load	16	65	149	303	327	526	580	769	896	895	894	893	893
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 3	2.4 / 6	2.6 / 6.5	4.3 / 10.8	4.7 / 11.8	6.4 / 16	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 2.3	1.8 / 4.6	2 / 4.9	3.3 / 8.2	3.6 / 8.9	4.9 / 12.1	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
13	Roof L/240	10	40	90	183	197	319	371	590	832	832	831	830	829
	Total Load	12	51	117	240	259	421	490	663	832	832	831	830	829
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 2.5	2.1 / 5.3	2.3 / 5.8	3.7 / 9.3	4.3 / 10.8	5.9 / 14.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.9	1.6 / 4	1.7 / 4.4	2.8 / 7	3.3 / 8.2	4.5 / 11.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
14	Roof L/240	--	32	72	147	159	259	302	479	697	777	776	775	774
	Total Load	--	40	93	193	208	341	398	577	726	777	776	775	774
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 2.3	1.8 / 4.5	2 / 5	3.2 / 8	3.7 / 9.3	5.5 / 13.8	7 / 17.5	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.7	1.5 / 3.4	1.5 / 3.8	2.4 / 6.1	2.8 / 7	4.2 / 10.4	5.3 / 13.3	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2

ROOF LOAD TABLE 125% LOAD DURATION (PLF)

Clear span (ft)		VMG LIGNUM 2.0E LVL, 1 Ply, 1.5" Thickness												
		Depth (in)												
		3.5	5.5	7.25	9.25	9.5	11.25	11.875	14	16	18	20	22	24
15	Roof L/240	--	26	59	121	130	213	248	395	575	728	728	727	726
	Total Load	--	32	76	157	170	279	326	506	638	728	728	727	726
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 2	1.6 / 4	1.7 / 4.3	2.8 / 7	3.3 / 8.3	5.1 / 12.8	6.6 / 16.5	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 3	1.5 / 3.2	2.1 / 5.3	2.5 / 6.3	3.9 / 9.7	5 / 12.5	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
16	Roof L/240	--	21	49	100	108	176	206	329	480	670	685	684	683
	Total Load	--	26	62	129	140	231	270	433	565	686	685	684	683
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.8	1.5 / 3.5	1.5 / 3.8	2.5 / 6.3	2.9 / 7.3	4.7 / 11.8	6.2 / 15.5	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.7	1.5 / 2.8	1.9 / 4.7	2.2 / 5.5	3.6 / 8.9	4.7 / 11.8	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
17	Roof L/240	--	18	41	83	90	148	173	277	405	565	647	646	645
	Total Load	--	22	51	108	117	193	226	364	503	618	647	646	645
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 3.3	1.5 / 3.5	2.2 / 5.5	2.6 / 6.5	4.2 / 10.5	5.8 / 14.5	7.2 / 18	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.5	1.5 / 2.7	1.7 / 4.2	2 / 4.9	3.2 / 8	4.4 / 11	5.5 / 13.7	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
18	Roof L/240	--	15	34	71	76	125	147	236	344	481	613	612	611
	Total Load	--	18	43	90	98	163	191	309	451	555	613	612	611
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.8	1.5 / 3	2 / 5	2.3 / 5.8	3.7 / 9.3	5.5 / 13.8	6.8 / 17	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.1	1.5 / 2.3	1.5 / 3.8	1.7 / 4.4	2.8 / 7	4.2 / 10.4	5.2 / 12.9	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
19	Roof L/240	--	13	29	60	65	107	125	202	295	413	559	582	581
	Total Load	--	15	36	76	83	138	162	264	387	501	582	582	581
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.5	1.5 / 2.8	1.8 / 4.5	2.1 / 5.3	3.4 / 8.5	5 / 12.5	6.4 / 16	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.9	1.5 / 2.1	1.5 / 3.4	1.6 / 4	2.6 / 6.5	3.8 / 9.5	4.9 / 12.1	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
20	Roof L/240	--	11	25	52	56	92	108	174	256	357	482	554	553
	Total Load	--	12	30	65	71	118	139	227	334	453	546	554	553
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.3	1.5 / 2.5	1.6 / 4	1.9 / 4.8	3 / 7.5	4.5 / 11.3	6.1 / 15.3	7.4 / 18.5	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.7	1.5 / 1.9	1.5 / 3	1.5 / 3.6	2.3 / 5.7	3.4 / 8.5	4.6 / 11.6	5.6 / 14	5.7 / 14.2	5.7 / 14.2
22	Roof L/240	--	--	19	39	42	70	82	132	195	272	367	485	505
	Total Load	--	--	22	48	52	88	104	171	253	356	454	505	505
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2	1.5 / 2	1.5 / 3.3	1.6 / 4	2.5 / 6.3	3.7 / 9.3	5.3 / 13.3	6.8 / 17	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.5	1.5 / 3	1.9 / 4.7	2.8 / 7	4 / 10.1	5.2 / 12.9	5.7 / 14.2	5.7 / 14.2
24	Roof L/240	--	--	15	30	32	54	63	103	151	213	287	377	464
	Total Load	--	--	16	36	40	67	79	131	195	276	375	455	464
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.8	1.5 / 1.8	1.5 / 2.8	1.5 / 3.3	2.1 / 5.3	3.2 / 8	4.5 / 11.3	6.1 / 15.3	7.4 / 18.5	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.1	1.5 / 2.5	1.6 / 4	2.4 / 6.1	3.4 / 8.5	4.6 / 11.6	5.6 / 14	5.7 / 14.2
26	Roof L/240	--	--	11	24	26	42	50	81	120	169	229	300	387
	Total Load	--	--	12	28	30	52	62	102	153	218	297	389	429
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.5	1.5 / 2.8	1.8 / 4.5	2.7 / 6.8	3.8 / 9.5	5.2 / 13	6.8 / 17	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.9	1.5 / 2.1	1.5 / 3.4	2 / 5.1	2.9 / 7.2	3.9 / 9.9	5.2 / 12.9	5.7 / 14.2
28	Roof L/240	--	--	--	19	21	34	40	65	96	136	185	243	311
	Total Load	--	--	--	22	24	41	49	81	122	174	239	315	393
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2	1.5 / 2.5	1.6 / 4	2.3 / 5.8	3.3 / 8.3	4.5 / 11.3	5.9 / 14.8	7.4 / 18.5
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.9	1.5 / 3	1.7 / 4.4	2.5 / 6.3	3.4 / 8.5	4.5 / 11.2	5.6 / 14
30	Roof L/240	--	--	--	15	17	28	32	53	79	111	151	199	256
	Total Load	--	--	--	17	18	32	39	65	99	141	194	257	331
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.8	1.5 / 2.3	1.5 / 3.5	2 / 5	2.9 / 7.3	3.9 / 9.8	5.2 / 13	6.7 / 16.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.7	1.5 / 2.7	1.5 / 3.8	2.2 / 5.5	3 / 7.4	3.9 / 9.9	5.1 / 12.7

ROOF LOAD TABLE 125% LOAD DURATION (PLF)

Clear span (ft)		VMG LIGNUM 2.0E LVL, 1 Ply, 1.75" Thickness												
		Depth (in)												
		3.5	5.5	7.25	9.25	9.5	11.25	11.875	14	16	18	20	22	24
4	Roof L/240	383	1296	2087	2576	2576	2575	2575	2574	2573	2572	2571	2570	2569
	Total Load	509	1366	2087	2576	2576	2575	2575	2574	2573	2572	2571	2570	2569
	Req Brg (in) SPF	1.5 / 3	3.5 / 8.8	5.8 / 14.5	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 2.2	2.6 / 6.5	4.3 / 10.7	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
5	Roof L/240	203	715	1442	2093	2163	2162	2162	2161	2160	2159	2158	2157	2156
	Total Load	269	918	1442	2093	2163	2162	2162	2161	2160	2159	2158	2157	2156
	Req Brg (in) SPF	1.5 / 2	2.8 / 7	4.7 / 11.8	7.3 / 18.3	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	2.1 / 5.2	3.5 / 8.7	5.4 / 13.5	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
6	Roof L/240	119	435	927	1553	1619	1863	1863	1862	1861	1860	1859	1858	1857
	Total Load	157	578	1047	1553	1619	1863	1863	1862	1861	1860	1859	1858	1857
	Req Brg (in) SPF	1.5 / 1.5	2.1 / 5.3	3.9 / 9.8	6.1 / 15.3	6.4 / 16	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 3.9	2.9 / 7.2	4.5 / 11.2	4.7 / 11.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
7	Roof L/240	76	282	607	1187	1241	1624	1637	1636	1635	1634	1633	1632	1631
	Total Load	100	374	789	1189	1241	1624	1637	1636	1635	1634	1633	1632	1631
	Req Brg (in) SPF	1.5 / 1.5	1.6 / 4	3.4 / 8.5	5.2 / 13	5.5 / 13.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 2.9	2.5 / 6.3	3.8 / 9.6	4.1 / 10.1	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
8	Roof L/240	51	193	422	827	891	1291	1407	1458	1457	1456	1455	1454	1453
	Total Load	66	254	559	934	978	1291	1407	1458	1457	1456	1455	1454	1453
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 3	2.7 / 6.8	4.6 / 11.5	4.8 / 12	6.6 / 16.5	7.3 / 18.3	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 2.2	2 / 5	3.4 / 8.5	3.5 / 8.8	4.9 / 12.2	5.4 / 13.5	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
9	Roof L/240	36	137	304	598	644	1025	1145	1315	1314	1313	1312	1311	1311
	Total Load	46	180	402	752	787	1046	1145	1315	1314	1313	1312	1311	1311
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 2.5	2.1 / 5.3	4.1 / 10.3	4.3 / 10.8	5.9 / 14.8	6.5 / 16.3	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.8	1.5 / 3.9	3 / 7.6	3.2 / 7.9	4.3 / 10.9	4.8 / 12	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
10	Roof L/240	26	100	224	447	481	770	895	1198	1197	1196	1195	1194	1193
	Total Load	33	131	296	592	637	864	947	1198	1197	1196	1195	1194	1193
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 2	1.8 / 4.5	3.5 / 8.8	3.8 / 9.5	5.3 / 13.3	5.8 / 14.5	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 3.3	2.6 / 6.5	2.8 / 7	3.9 / 9.8	4.3 / 10.7	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
11	Roof L/240	20	76	170	342	369	592	688	1049	1098	1098	1097	1096	1095
	Total Load	25	98	224	452	488	724	794	1049	1098	1098	1097	1096	1095
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.8	1.5 / 3.8	3 / 7.5	3.2 / 8	4.8 / 12	5.3 / 13.3	7.2 / 18	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 2.8	2.2 / 5.5	2.4 / 5.9	3.5 / 8.8	3.9 / 9.8	5.3 / 13.3	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
12	Roof L/240	15	59	132	268	289	464	540	855	1015	1014	1013	1012	1011
	Total Load	19	76	173	353	381	613	675	895	1015	1014	1013	1012	1011
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 3	2.5 / 6.3	2.7 / 6.8	4.4 / 11	4.9 / 12.3	6.6 / 16.5	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 2.2	1.8 / 4.6	2 / 5	3.2 / 8.1	3.6 / 9	4.9 / 12.2	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
13	Roof L/240	12	46	105	213	230	371	432	685	943	942	941	940	940
	Total Load	14	59	136	280	302	490	570	772	943	942	941	940	940
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 2.8	2.1 / 5.3	2.3 / 5.8	3.8 / 9.5	4.4 / 11	6.1 / 15.3	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 2	1.5 / 3.9	1.7 / 4.2	2.8 / 7	3.2 / 8.1	4.5 / 11.2	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
14	Roof L/240	--	37	84	172	186	301	351	557	810	880	879	878	877
	Total Load	--	47	109	225	243	397	463	671	845	880	879	878	877
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 2.3	1.9 / 4.8	2 / 5	3.3 / 8.3	3.8 / 9.5	5.7 / 14.3	7.2 / 18	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.7	1.5 / 3.5	1.5 / 3.7	2.4 / 6.1	2.8 / 7	4.2 / 10.5	5.3 / 13.3	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8

ROOF LOAD TABLE 125% LOAD DURATION (PLF)

Clear span (ft)		VMG LIGNUM 2.0E LVL, 1 Ply, 1.5" Thickness												
		Depth (in)												
		3.5	5.5	7.25	9.25	9.5	11.25	11.875	14	16	18	20	22	24
15	Roof L/240	--	30	69	141	152	248	289	459	669	825	824	823	823
	Total Load	--	38	88	183	198	325	380	589	743	825	824	823	823
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 2	1.6 / 4	1.8 / 4.5	2.9 / 7.3	3.4 / 8.5	5.3 / 13.3	6.8 / 17	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.9	1.5 / 3.3	2.1 / 5.3	2.5 / 6.3	3.9 / 9.8	5 / 12.5	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
16	Roof L/240	--	25	57	116	126	206	240	383	559	777	776	775	774
	Total Load	--	31	72	151	163	269	315	504	658	777	776	775	774
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.8	1.5 / 3.5	1.6 / 4	2.5 / 6.3	3 / 7.5	4.8 / 12	6.3 / 15.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.6	1.5 / 2.9	1.8 / 4.6	2.2 / 5.5	3.5 / 8.8	4.6 / 11.6	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
17	Roof L/240	--	21	47	97	105	173	202	323	471	657	733	732	731
	Total Load	--	25	60	125	136	225	264	424	586	720	733	732	731
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 3.3	1.5 / 3.5	2.3 / 5.8	2.7 / 6.8	4.3 / 10.8	6 / 15	7.4 / 18.5	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.4	1.5 / 2.6	1.7 / 4.2	2 / 5	3.2 / 7.9	4.4 / 11.1	5.5 / 13.6	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
18	Roof L/240	--	17	40	82	89	146	171	275	400	560	694	694	693
	Total Load	--	21	50	105	114	190	223	360	526	646	694	694	693
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 3	1.5 / 3	2 / 5	2.4 / 6	3.8 / 9.5	5.6 / 14	7 / 17.5	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.2	1.5 / 2.2	1.5 / 3.7	1.8 / 4.4	2.8 / 7	4.1 / 10.3	5.2 / 12.9	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
19	Roof L/240	--	15	34	70	76	125	146	235	344	481	652	659	658
	Total Load	--	17	42	89	97	161	190	307	451	583	660	659	658
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.5	1.5 / 2.8	1.8 / 4.5	2.1 / 5.3	3.5 / 8.8	5.1 / 12.8	6.6 / 16.5	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.8	1.5 / 2	1.5 / 3.3	1.5 / 3.9	2.6 / 6.5	3.8 / 9.4	4.9 / 12.2	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
20	Roof L/240	--	13	29	60	65	107	126	203	298	415	561	627	626
	Total Load	--	14	36	76	83	138	162	264	390	528	628	627	626
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.3	1.5 / 2.5	1.7 / 4.3	1.9 / 4.8	3.1 / 7.8	4.6 / 11.5	6.3 / 15.8	7.5 / 18.8	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.7	1.5 / 1.8	1.5 / 3.1	1.5 / 3.5	2.3 / 5.7	3.4 / 8.5	4.6 / 11.6	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
22	Roof L/240	--	--	22	45	49	81	95	154	227	317	428	566	572
	Total Load	--	--	26	56	61	103	121	199	295	415	529	573	572
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2	1.5 / 2.3	1.5 / 3.5	1.6 / 4	2.6 / 6.5	3.8 / 9.5	5.4 / 13.5	7 / 17.5	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.7	1.5 / 2.6	1.5 / 2.9	1.9 / 4.8	2.8 / 7	4 / 10	5.2 / 12.9	5.5 / 13.8	5.5 / 13.8
24	Roof L/240	--	--	17	35	38	63	74	119	176	248	334	439	525
	Total Load	--	--	19	42	46	78	93	153	228	322	436	526	525
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.8	1.5 / 1.8	1.5 / 3	1.5 / 3.5	2.2 / 5.5	3.2 / 8	4.6 / 11.5	6.2 / 15.5	7.5 / 18.8	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.2	1.5 / 2.6	1.6 / 4.1	2.4 / 5.9	3.4 / 8.5	4.6 / 11.4	5.5 / 13.8	5.5 / 13.8
26	Roof L/240	--	--	13	28	30	49	58	94	140	197	266	349	451
	Total Load	--	--	14	32	35	61	72	119	179	254	346	453	486
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.5	1.5 / 3	1.9 / 4.8	2.8 / 7	3.9 / 9.8	5.3 / 13.3	7 / 17.5	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.8	1.5 / 2.2	1.5 / 3.5	2.1 / 5.2	2.9 / 7.2	3.9 / 9.8	5.2 / 12.9	5.5 / 13.8
28	Roof L/240	--	--	11	22	24	40	47	76	112	159	215	283	363
	Total Load	--	--	11	25	28	48	57	95	143	203	278	367	452
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.3	1.5 / 2.5	1.6 / 4	2.4 / 6	3.4 / 8.5	4.6 / 11.5	6.1 / 15.3	7.5 / 18.8
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.7	1.5 / 1.8	1.5 / 2.9	1.8 / 4.4	2.5 / 6.3	3.4 / 8.5	4.5 / 11.2	5.5 / 13.8
30	Roof L/240	--	--	--	18	19	32	38	62	92	130	176	232	298
	Total Load	--	--	--	20	22	38	45	76	115	165	226	300	386
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2	1.5 / 2.3	1.5 / 3.5	2.1 / 5.3	3 / 7.5	4 / 10	5.3 / 13.3	6.9 / 17.3
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.7	1.5 / 2.6	1.5 / 3.9	2.2 / 5.5	2.9 / 7.4	3.9 / 9.8	5.1 / 12.7

ALLOWABLE UNIFORM LOADS APPLIED TO EITHER FACE OF BEAM

ALLOWABLE UNIFORM LOADS APPLIED TO EITHER FACE OF BEAM NOTES

1. Allowable uniform loads in pounds per linear foot (plf) applied to either face of multi-ply beams with various ply-to-ply fastening. Tabulated allowable loads assume normal load duration.
2. Refer to screw manufacturer's various evaluation reports for spacing requirements.
3. When fastening from both sides, stagger fastener rows by half the row spacing.
4. Concentrated face loads require additional analysis when the concentrated load divided by the tabulated fastener spacing exceeds the tabulated allowable uniform load.

HOW TO USE THE ALLOWABLE UNIFORM LOADS APPLIED TO EITHER FACE OF BEAM TABLES

1. Compute the allowable stress design uniform load on the beam.
2. Ensure the calculated uniform load is less than the allowable uniform load for the desired fastening.

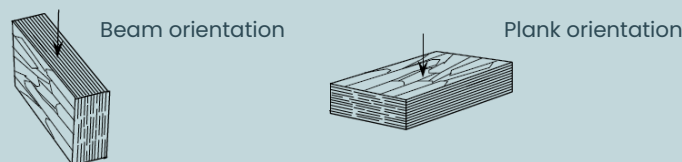


Figure 1 – an illustration of beam and plank orientation as noted in table1

Table 1-reference design values for VMG LIGNUM LVL^{1,2}

BEAM ORIENTATION ³					PLANK ORIENTATION ³					AXIAL	
Modulus of elasticity		Bending ^{7,8} F _b (psi)	Shear F _v (psi)	Compression Perp-to-Grain F _{c1} ¹⁰ (psi)	Modulus of elasticity		Bending F _b (psi)	Shear F _v (psi)	Compression Perp-to-Grain F _{c1} ¹⁰ (psi)	Compression F _c (psi)	Tension F _t ⁹ (psi)
E _{true} ⁴ (x10 ⁶ psi)	E _{apparent} ^{5,6} (x10 ⁶ psi)				E _{true} ⁴ (x10 ⁶ psi)	E _{apparent} ^{5,6} (x10 ⁶ psi)					
1.4	1.3	1.850	250	550	1.4	1.3	2.200	150	300	2.300	1.600
2.0	1.9	3.050	350	700	2.0	1.9	3.300	150	380	3.000	2.700

For SI: 1 inch = 25.4 mm, 1 psi = 6894.8 Pa

¹ The tabulated values are design values for normal duration of load and must be adjusted by the applicable adjustment factors in accordance with Section 8.3 of the 2024 and 2018 NDS. Modulus of elasticity and compression perpendicular-to-grain must not be adjusted for duration of load.

² The tabulated values are limited to dry interior conditions where the average moisture content in lumber is less than 16 percent.

³ Refer to Figure 1 for LVL orientations.

⁴ Reference E_{true} values are the shear-free modulus of elasticity, which do not include the effects of the shear deformation. When calculating the total deflection, both bending and shear deformations must be included. Equations for various span and load conditions are available in engineering references.

⁵ Reference E_{apparent} values are the apparent modulus of elasticity, which include the effects of shear deformation. When calculating the total deflection, standard engineering formulae for the pure bending deflection is sufficient.

⁶ Reference modulus of elasticity, E_{min} , used for beam stability calculations, must be calculated using the tabulated E_{apparent} in accordance with Appendix D of the 2024 and 2018 NDS. The COV_E may be taken as 0.10 when calculating E_{min} .

⁷ Reference bending design value in the beam orientation, $F_{b'}$, may be increased by 4% when the member qualifies as a repetitive member, in accordance with Section 8.3.7 of the 2024 and 2018 NDS.

⁸ Reference bending design value in beam orientation is based on a reference depth of 12 inches. For other depths, the allowable bending stress, $F_{b'}$, must be adjusted by multiplying F_b by $(12/d)^{0.15}$, where d is depth member in inches. For depths $3\frac{1}{2}$ inches or less, multiply F_b by 1.203.

⁹ Reference tension design values, F_t , are assigned for a standard length of 36 inches. For lengths longer than 36 inches, multiply F_t by $(36/L)^{0.09}$, where L is the length in inches. For lengths less than 36 inches, use the reference tension design value given in the table above.

¹⁰ The bearing area factor, C_b , is permitted to be applied to the reference compression perpendicular-to-grain design values, $F_{c1'}$ in accordance with the 2024 and 2018 NDS.