

VMG LIGNUM LVL

GRADE 2.0E

FLOOR SPAN / FLOOR 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.

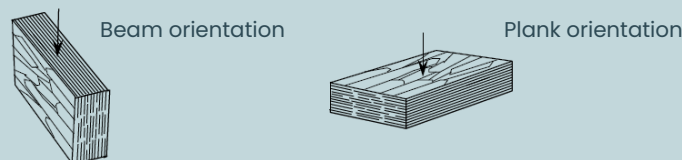


Figure 1 – an illustration of beam and plank orientation as noted in table 1

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 _{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 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.

FLOOR LOAD TABLE 100% 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	Floor L/360	223	772	1503	2149	2225	2272	2272	2271	2270	2270	2269	2268	2267
	Total Load	333	962	1503	2149	2225	2272	2272	2271	2270	2270	2269	2268	2267
	Req Brg (in) SPF	1.5 / 2.3	2.8 / 7	4.5 / 11.3	7 / 17.5	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 / 1.7	2.1 / 5.3	3.4 / 8.5	5.3 / 13.3	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
5	Floor L/360	117	420	896	1505	1567	1908	1908	1907	1906	1905	1905	1904	1903
	Total Load	174	628	1020	1505	1567	1908	1908	1907	1906	1905	1905	1904	1903
	Req Brg (in) SPF	1.5 / 1.5	2.2 / 5.5	3.7 / 9.3	5.7 / 14.3	6 / 15	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	1.7 / 4.2	2.8 / 7	4.3 / 10.8	4.6 / 11.4	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	Floor L/360	69	255	547	1062	1142	1502	1631	1643	1642	1642	1641	1640	1639
	Total Load	102	380	733	1100	1150	1502	1631	1643	1642	1642	1641	1640	1639
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 3.8	3.1 / 7.8	4.8 / 12	5 / 12.5	6.8 / 17	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	2.4 / 5.9	3.6 / 9.1	3.8 / 9.5	5.2 / 12.9	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
7	Floor L/360	44	164	358	704	757	1156	1258	1443	1443	1442	1441	1440	1439
	Total Load	64	243	534	835	874	1156	1258	1443	1443	1442	1441	1440	1439
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 3	2.5 / 6.3	4.1 / 10.3	4.3 / 10.8	5.8 / 14.5	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 / 2.3	1.9 / 4.7	3.1 / 7.8	3.3 / 8.2	4.4 / 11	4.9 / 12.3	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	Floor L/360	29	111	246	487	524	838	968	1287	1286	1285	1284	1284	1283
	Total Load	42	165	366	653	683	911	995	1287	1286	1285	1284	1284	1283
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 2.3	2 / 5	3.6 / 9	3.8 / 9.5	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 / 1.7	1.5 / 3.8	2.7 / 6.8	2.9 / 7.2	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
9	Floor L/360	21	79	176	350	377	606	706	1058	1160	1159	1158	1157	1157
	Total Load	29	116	261	521	548	733	805	1058	1160	1159	1158	1157	1157
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.8	1.6 / 4	3.2 / 8	3.4 / 8.5	4.6 / 11.5	5 / 12.5	6.8 / 17	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	2.4 / 6.1	2.6 / 6.5	3.5 / 8.7	3.8 / 9.5	5.2 / 12.9	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
10	Floor L/360	15	58	130	261	282	453	528	832	1056	1055	1055	1054	1053
	Total Load	21	84	192	388	418	603	662	876	1056	1055	1055	1054	1053
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 3.3	2.6 / 6.5	2.8 / 7	4.1 / 10.3	4.5 / 11.3	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 / 2.5	2 / 4.9	2.1 / 5.3	3.1 / 7.8	3.4 / 8.5	4.6 / 11.6	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
11	Floor L/360	11	43	98	199	215	346	404	640	921	969	968	967	966
	Total Load	16	63	145	295	318	503	553	735	921	969	968	967	966
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 2.8	2.2 / 5.5	2.4 / 6	3.8 / 9.5	4.1 / 10.3	5.6 / 14	7.1 / 17.8	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	1.7 / 4.2	1.8 / 4.6	2.9 / 7.2	3.1 / 7.8	4.3 / 10.6	5.4 / 13.5	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
12	Floor L/360	--	34	76	155	168	271	315	503	729	895	894	893	893
	Total Load	--	48	111	229	247	402	468	625	785	895	894	893	893
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 2.3	1.8 / 4.5	2 / 5	3.3 / 8.3	3.8 / 9.5	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 / 1.7	1.5 / 3.4	1.5 / 3.8	2.5 / 6.3	2.9 / 7.2	3.9 / 9.7	5 / 12.5	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
13	Floor L/360	--	26	60	123	133	216	252	402	585	811	831	830	829
	Total Load	--	37	87	181	196	320	373	537	677	828	831	830	829
	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	4.7 / 11.8	6.1 / 15.3	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	3.6 / 8.9	4.6 / 11.6	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
14	Floor L/360	--	21	48	99	107	175	204	326	476	662	776	775	774
	Total Load	--	30	70	145	157	258	302	466	589	722	776	775	774
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.8	1.5 / 3.5	1.5 / 3.8	2.4 / 6	2.8 / 7	4.4 / 11	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 / 2.7	1.5 / 2.8	1.8 / 4.6	2.1 / 5.3	3.3 / 8.3	4.3 / 10.6	5.3 / 13.3	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2

FLOOR LOAD TABLE 100% 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	Floor L/360	--	17	39	81	87	143	168	268	391	547	728	727	726
	Total Load	--	24	56	118	127	211	247	396	516	635	728	727	726
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 3	1.5 / 3.3	2.1 / 5.3	2.5 / 6.3	4 / 10	5.3 / 13.3	6.5 / 16.3	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 / 2.3	1.5 / 2.5	1.6 / 4	1.9 / 4.7	3 / 7.6	4 / 10.1	4.9 / 12.3	5.7 / 14.2	5.7 / 14.2	5.7 / 14.2
16	Floor L/360	--	14	32	67	72	119	139	223	326	456	614	684	683
	Total Load	--	19	46	97	105	174	204	329	457	562	674	684	683
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.8	1.5 / 3	1.9 / 4.8	2.2 / 5.5	3.5 / 8.8	4.9 / 12.3	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 / 2.1	1.5 / 2.3	1.5 / 3.6	1.7 / 4.2	2.7 / 6.6	3.7 / 9.3	4.6 / 11.6	5.6 / 14	5.7 / 14.2	5.7 / 14.2
17	Floor L/360	--	12	27	56	61	99	116	188	274	384	518	646	645
	Total Load	--	16	38	80	87	145	170	276	405	500	601	646	645
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.5	1.5 / 2.5	1.7 / 4.3	2 / 5	3.1 / 7.8	4.6 / 11.5	5.8 / 14.5	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 / 1.9	1.5 / 1.9	1.5 / 3.2	1.5 / 3.8	2.4 / 5.9	3.5 / 8.7	4.4 / 11	5.3 / 13.3	5.7 / 14.2	5.7 / 14.2
18	Floor L/360	--	10	23	47	51	84	99	159	233	327	441	580	611
	Total Load	--	13	31	67	73	122	143	233	344	448	539	612	611
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.3	1.5 / 2.3	1.5 / 3.8	1.7 / 4.3	2.8 / 7	4.2 / 10.5	5.4 / 13.5	6.6 / 16.5	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 / 1.7	1.5 / 2.8	1.5 / 3.2	2.1 / 5.3	3.2 / 8	4.1 / 10.2	5 / 12.5	5.7 / 14.2	5.7 / 14.2
19	Floor L/360	--	--	19	40	44	72	84	136	200	280	378	496	581
	Total Load	--	--	26	57	62	103	121	199	294	403	486	575	581
	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	5.2 / 13	6.3 / 15.8	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 / 1.5	1.5 / 1.5	1.5 / 2.5	1.5 / 3	1.9 / 4.7	2.8 / 7	3.9 / 9.9	4.8 / 12	5.7 / 14.2	5.7 / 14.2
20	Floor L/360	--	--	17	35	37	62	72	117	173	242	327	429	553
	Total Load	--	--	22	48	52	88	104	170	253	355	440	521	553
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.8	1.5 / 2	1.5 / 3	1.5 / 3.5	2.3 / 5.8	3.4 / 8.5	4.8 / 12	6 / 15	7.1 / 17.8	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 / 2.3	1.5 / 2.7	1.7 / 4.4	2.6 / 6.5	3.6 / 9.1	4.6 / 11.4	5.4 / 13.5	5.7 / 14.2
22	Floor L/360	--	--	13	26	28	47	55	89	131	184	249	327	420
	Total Load	--	--	16	35	38	65	77	128	190	269	365	433	505
	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	4 / 10	5.4 / 13.5	6.5 / 16.3	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 / 1.9	1.5 / 2.3	1.5 / 3.6	2.1 / 5.3	3 / 7.6	4.1 / 10.2	4.9 / 12.3	5.7 / 14.2
24	Floor L/360	--	--	--	20	22	36	42	69	102	143	194	255	328
	Total Load	--	--	--	26	29	49	59	97	146	208	283	366	427
	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	5.9 / 14.8	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 / 1.7	1.5 / 1.9	1.5 / 3	1.8 / 4.6	2.6 / 6.5	3.5 / 8.7	4.5 / 11.2	5.2 / 13.1
26	Floor L/360	--	--	--	16	17	28	33	54	80	114	154	203	260
	Total Load	--	--	--	20	22	38	45	76	114	163	224	296	365
	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	6.4 / 16
	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	4.9 / 12.1
28	Floor L/360	--	--	--	13	14	23	27	44	65	91	124	164	210
	Total Load	--	--	--	15	17	30	35	60	91	130	179	237	306
	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	1.5 / 3	1.8 / 4.5	2.5 / 6.3	3.4 / 8.5	4.5 / 11.3	5.8 / 14.5
	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 / 1.5	1.5 / 2.3	1.5 / 3.4	1.9 / 4.7	2.6 / 6.5	3.4 / 8.5	4.4 / 11
30	Floor L/360	--	--	--	10	11	18	22	35	53	75	102	134	173
	Total Load	--	--	--	12	13	23	28	48	73	105	145	193	250
	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 / 1.5	1.5 / 1.8	1.5 / 2.8	1.6 / 4	2.2 / 5.5	3 / 7.5	3.9 / 9.8	5.1 / 12.8
	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 / 1.5	1.5 / 2.1	1.5 / 3	1.7 / 4.2	2.3 / 5.7	3 / 7.4	3.9 / 9.7

FLOOR LOAD TABLE 100% 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	Floor L/360	260	900	1740	2489	2576	2575	2575	2574	2573	2572	2571	2570	2569
	Total Load	389	1123	1740	2489	2576	2575	2575	2574	2573	2572	2571	2570	2569
	Req Brg (in) SPF	1.5 / 2.3	2.8 / 7	4.7 / 11.8	7.2 / 18	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 / 1.7	2.1 / 5.2	3.5 / 8.7	5.3 / 13.3	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	Floor L/360	137	490	1041	1751	1823	2162	2162	2161	2160	2159	2158	2157	2156
	Total Load	203	733	1186	1751	1823	2162	2162	2161	2160	2159	2158	2157	2156
	Req Brg (in) SPF	1.5 / 1.5	2.2 / 5.5	3.8 / 9.5	5.8 / 14.5	6.1 / 15.3	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
	Req Brg (in) LVL	1.5 / 1.5	1.6 / 4.1	2.8 / 7	4.3 / 10.7	4.5 / 11.2	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	Floor L/360	80	296	638	1235	1327	1743	1863	1862	1861	1860	1859	1858	1857
	Total Load	118	441	855	1281	1338	1743	1863	1862	1861	1860	1859	1858	1857
	Req Brg (in) SPF	1.5 / 1.5	1.6 / 4	3.1 / 7.8	4.9 / 12.3	5.1 / 12.8	7 / 17.5	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
	Req Brg (in) LVL	1.5 / 1.5	1.5 / 2.9	2.3 / 5.7	3.6 / 9	3.8 / 9.4	5.2 / 12.9	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	Floor L/360	51	191	416	818	880	1342	1464	1636	1635	1634	1633	1632	1631
	Total Load	75	284	621	972	1017	1342	1464	1636	1635	1634	1633	1632	1631
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 3	2.6 / 6.5	4.2 / 10.5	4.4 / 11	6 / 15	6.6 / 16.5	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 / 2.2	1.9 / 4.8	3.1 / 7.7	3.2 / 8.1	4.4 / 11.1	4.9 / 12.2	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	Floor L/360	34	130	287	566	610	972	1126	1458	1457	1456	1455	1454	1453
	Total Load	49	192	427	760	795	1058	1158	1458	1457	1456	1455	1454	1453
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 2.3	2 / 5	3.7 / 9.3	3.9 / 9.8	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 / 1.7	1.5 / 3.7	2.7 / 6.8	2.9 / 7.2	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
9	Floor L/360	24	92	205	407	439	706	819	1230	1314	1313	1312	1311	1311
	Total Load	34	135	305	607	638	854	936	1230	1314	1313	1312	1311	1311
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.8	1.6 / 4	3.3 / 8.3	3.5 / 8.8	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 / 2.9	2.4 / 6.1	2.6 / 6.5	3.5 / 8.7	3.8 / 9.6	5.2 / 12.9	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
10	Floor L/360	18	67	151	304	328	527	613	966	1197	1196	1195	1194	1193
	Total Load	25	98	224	452	487	702	770	1019	1197	1196	1195	1194	1193
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 3.3	2.7 / 6.8	2.9 / 7.3	4.2 / 10.5	4.7 / 11.8	6.3 / 15.8	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 / 2.4	2 / 5	2.1 / 5.3	3.1 / 7.7	3.5 / 8.7	4.6 / 11.6	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
11	Floor L/360	13	51	115	232	251	402	469	744	1072	1098	1097	1096	1095
	Total Load	18	74	169	344	371	586	644	855	1072	1098	1097	1096	1095
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 2.8	2.2 / 5.5	2.4 / 6	3.9 / 9.8	4.3 / 10.8	5.8 / 14.5	7.3 / 18.3	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	1.6 / 4.1	1.8 / 4.4	2.9 / 7.2	3.2 / 7.9	4.3 / 10.7	5.4 / 13.5	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
12	Floor L/360	10	39	89	181	195	316	367	585	849	1014	1013	1012	1011
	Total Load	14	56	130	267	288	469	545	727	915	1014	1013	1012	1011
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 2.3	1.9 / 4.8	2.1 / 5.3	3.3 / 8.3	3.9 / 9.8	5.3 / 13.3	6.7 / 16.8	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 / 1.7	1.5 / 3.5	1.5 / 3.9	2.4 / 6.1	2.9 / 7.2	3.9 / 9.8	4.9 / 12.3	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
13	Floor L/360	--	31	70	143	155	252	293	467	681	942	941	940	940
	Total Load	--	44	102	211	228	372	434	625	789	942	941	940	940
	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	4.9 / 12.3	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 / 2.9	1.5 / 3.3	2.1 / 5.3	2.5 / 6.3	3.6 / 9	4.6 / 11.4	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
14	Floor L/360	--	25	56	115	125	204	238	379	553	769	879	878	877
	Total Load	--	35	81	169	183	300	351	543	686	840	879	878	877
	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	4.5 / 11.3	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 / 2.6	1.5 / 2.8	1.8 / 4.6	2.1 / 5.3	3.3 / 8.3	4.3 / 10.7	5.3 / 13.3	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8

FLOOR LOAD TABLE 100% 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	Floor L/360	--	20	46	94	102	167	195	312	456	636	824	823	823
	Total Load	--	28	65	137	149	245	287	461	602	739	824	823	823
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 3	1.5 / 3.3	2.2 / 5.5	2.6 / 6.5	4.1 / 10.3	5.4 / 13.5	6.7 / 16.8	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 / 2.2	1.5 / 2.4	1.6 / 4.1	1.9 / 4.8	3 / 7.6	4 / 10	4.9 / 12.3	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
16	Floor L/360	--	17	38	78	84	139	162	260	379	531	715	775	774
	Total Load	--	22	53	113	122	203	237	384	532	654	776	775	774
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.8	1.5 / 3	1.9 / 4.8	2.3 / 5.8	3.6 / 9	5.1 / 12.8	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 / 2	1.5 / 2.2	1.5 / 3.5	1.7 / 4.2	2.7 / 6.6	3.8 / 9.4	4.6 / 11.6	5.5 / 13.8	5.5 / 13.8	5.5 / 13.8
17	Floor L/360	--	14	32	65	70	116	136	219	319	447	602	732	731
	Total Load	--	18	44	93	101	169	198	322	471	583	700	732	731
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.5	1.5 / 2.8	1.7 / 4.3	2 / 5	3.2 / 8	4.8 / 12	5.9 / 14.8	7.2 / 18	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 / 3.1	1.5 / 3.7	2.4 / 5.9	3.5 / 8.8	4.3 / 10.9	5.3 / 13.3	5.5 / 13.8	5.5 / 13.8
18	Floor L/360	--	12	27	55	60	98	115	186	272	380	513	677	693
	Total Load	--	15	37	78	85	142	167	272	400	522	628	694	693
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 2.3	1.5 / 2.3	1.5 / 3.8	1.8 / 4.5	2.9 / 7.3	4.3 / 10.8	5.6 / 14	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 / 1.7	1.5 / 1.7	1.5 / 2.8	1.5 / 3.3	2.1 / 5.3	3.2 / 7.9	4.1 / 10.3	5 / 12.5	5.5 / 13.8	5.5 / 13.8
19	Floor L/360	--	--	23	47	51	84	98	159	233	326	441	578	658
	Total Load	--	--	31	66	72	120	142	232	342	470	567	659	658
	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	3.9 / 9.8	5.3 / 13.3	6.4 / 16	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	2.9 / 7.2	3.9 / 9.8	4.7 / 11.8	5.5 / 13.8	5.5 / 13.8
20	Floor L/360	--	--	19	40	44	72	84	137	201	282	381	499	626
	Total Load	--	--	26	56	61	103	121	199	294	414	513	607	626
	Req Brg (in) SPF	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 / 3.8	2.4 / 6	3.5 / 8.8	4.9 / 12.3	6.1 / 15.3	7.3 / 18.3	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 / 2.4	1.5 / 2.8	1.8 / 4.4	2.6 / 6.5	3.6 / 9	4.5 / 11.2	5.4 / 13.5	5.5 / 13.8
22	Floor L/360	--	--	15	30	33	54	64	103	153	215	290	381	490
	Total Load	--	--	19	41	45	76	90	149	222	314	425	505	572
	Req Brg (in) SPF	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.5	1.5 / 1.8	1.5 / 2.5	1.5 / 3	2 / 5	2.9 / 7.3	4.1 / 10.3	5.6 / 14	6.6 / 16.5	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 / 3.7	2.1 / 5.3	3 / 7.6	4.1 / 10.3	4.9 / 12.2	5.5 / 13.8
24	Floor L/360	--	--	11	23	25	42	49	80	119	167	226	297	382
	Total Load	--	--	14	31	34	58	68	114	170	242	330	426	498
	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	1.7 / 4.3	2.5 / 6.3	3.5 / 8.8	4.7 / 11.8	6.1 / 15.3	7.1 / 17.8
	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 / 3.1	1.8 / 4.6	2.6 / 6.5	3.5 / 8.7	4.5 / 11.2	5.2 / 13.1
26	Floor L/360	--	--	--	18	20	33	39	63	94	132	180	236	303
	Total Load	--	--	--	23	26	44	53	88	133	190	261	344	426
	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	6.6 / 16.5
	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 / 1.7	1.5 / 2.6	1.5 / 3.9	2.2 / 5.5	2.9 / 7.4	3.9 / 9.8	4.9 / 12.2
28	Floor L/360	--	--	--	15	16	26	31	51	75	107	145	191	245
	Total Load	--	--	--	18	20	34	41	70	106	152	208	277	357
	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	1.5 / 3	1.8 / 4.5	2.6 / 6.5	3.5 / 8.8	4.6 / 11.5	6 / 15
	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 / 1.5	1.5 / 2.2	1.5 / 3.3	1.9 / 4.8	2.6 / 6.5	3.4 / 8.5	4.4 / 11.1
30	Floor L/360	--	--	--	12	13	22	25	41	61	87	119	157	201
	Total Load	--	--	--	14	15	27	32	56	85	122	169	225	291
	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 / 1.5	1.5 / 1.8	1.5 / 2.8	1.6 / 4	2.2 / 5.5	3.1 / 7.8	4 / 10	5.2 / 13
	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 / 1.5	1.5 / 2	1.5 / 2.9	1.6 / 4.1	2.3 / 5.7	2.9 / 7.4	3.8 / 9.6

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.

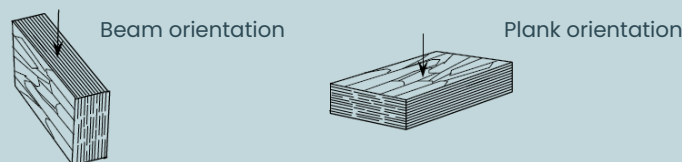


Figure 1 – an illustration of beam and plank orientation as noted in table1

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.