GLOBAL LVL HEADERS, BEAMS AND COLUMNS

2.0E-3300Fb

User guide

lvlglobal.com

PRODUCT

GLOBAL LVL 2.0E-3300Fb LIMIT STATES DESIGN (LSD)

Global LVL, the product of choice for all of your residential, commercial and industrial construction applications.

GLOBAL Laminated Veneer Lumber (LVL) 2.0E-3300Fb is manufactured from specially selected birch and aspen veneers. State-of-the-art manufacturing technology, coupled with a rigid quality control program, assures a precise veneer lay-up and provides for proper distribution of the natural characteristics in wood, further assurance of GLOBAL LVL structural integrity.

ADVANTAGES

- An alternate product to large sawn beams, steel beams and long-span trusses;
- Standard thickness: 1 3/4 ";
- Standard lengths, 8' through 60'. In billets or specified widths. Precision end trimmed lengths available;
- Assured structural properties exceeding most solid lumber stress values, for precise design and improved applications;
- Easily worked with conventional tools;
- Always edge sealed and paper-wrapped for storage, unless mentioned;
- Great dimensional stability;
- Nails easily;
- Glues easily with minimum preparation;
- High load capacity;
- Long spans;
- Appearance (visual application);
- Easy handling, lightweight;
- Product guarantee;
- Full technical support.

PRODUCT

GLOBAL LVL 2.0E-3300Fb

LIMIT STATES DESIGN (LSD)

NOTES FOR ALL TABLES IN THIS DOCUMENT

1- CALCULATED VALUES IN THIS DOCUMENT ARE IN ACCORDANCE WITH THE CSA 086-09 "ENGINEERING DESIGN IN WOOD" ;
2- GLOBAL LVL SHALL BE USED IN DRY SERVICE CONDITIONS ONLY (K_S = 1.0), WHERE THE AVERAGE EQUILIBRIUM MOISTURE CONTENT IS LESS THAN 16 PERCENT;
3- ALL TABULATED VALUES ARE BASED ON A NORMAL DURATION OF LOAD (K_D = 1,0) AND WITHOUT TREATMENT (K_T = 1.0);
4- CONTACT GLOBAL LVL INC. PRIOR TO PRESERVATIVE OR FIRE-RETARDANT TREATMENT. UNAUTHORIZED TREATMENT MAY VOID ALL WARRANTIES;
5- DO NOT DRILL, NOTCH, CUT OR ALTER GLOBAL LVL EXCEPT AS APPROVED BY LVL GLOBAL INC. IN WRITING;
6- WHEN GLOBAL LVL ARE USED AS FLOOR JOISTS, THEY SHALL BE DESIGNED TO MEET RECOMMENDED DEFLECTION AND VIBRATION CRITERIA;
7- UNLESS OTHERWISE INDICATED, TABLES ARE BASED ON "TRUE" MODULUS OF ELASTICITY E = 2.0 x 10^6 PSI (SHEAR-FREE);
8- DESIGNER MUST USE THE "APPARENT" MODULUS OF ELASTICITY E = 1.9 x 10^6 PSI FOR OTHER CONDITIONS OF LOADING;
9- CONTACT GLOBAL LVL INC. TECHNICAL DEPARTMENT FOR OTHER USES, APLICATIONS OR USE IN WET SERVICE CONDITIONS.

FACTORED RESISTANCES (JOIST AND BEAM)

Width (b) (in): 1-3/4	Depth (d) (in)											
	5½	7¼	9¼	9½	11¼	11½	11⅞	12½	14	16	18	18¾
Factored resistance in bending Mr (lb-ft)	4 531	7 553	11 854	12 454	17 027	17 734	18 819	20 692	25 518	32 669	40 623	43 809
Factored resistance in shear Vr (lb)	3 061	4 035	5 148	5 287	6 261	6 400	6 608	6 956	7 791	8 904	10 017	10 434
Moment of inertia (po^4)	24	56	115	125	208	222	244	285	400	597	851	961
Area (po^2)	9,6	12,7	16,2	16,6	19,7	20,1	20,8	21,9	24,5	28,0	31,5	32,8
Weight (lb/ft)	2,27	2,99	3,82	3,92	4,65	4,75	4,90	5,16	5,78	6,61	7,43	7,74

NOTES:

1- PROVIDE CONTINUOUS LATERAL SUPPORT OF MEMBER COMPRESSION EDGE;
2- PROVIDE LATERAL SUPPORT AT BEARING TO PREVENT LATERAL DISPLACEMENT OR ROTATION.

SPECIFIED STRENGTHS AND MOE psi (5)

Mechanical property			LVL Orientation	
			Joist/beam	Plank
Bending strength (2)	f_b	=	6091	6091
Modulus of elasticity (8)	E	=	2.0x10^6 (true)	2.0x10^6 (true)
Tension parallel to grain (3)	f_t	=	4206	4206
Compression perpendicular to grain	$f_{c\perp}$	=	1050	900
Compression parallel to grain	$f_{c//}$	=	4293	4293
Longitudinal shear (4)	f_v	=	530	261
Specific gravity (6)	SG	=	0,5	0,5

FOR SI: 1 inch = 25.4 mm. 1 foot = 304.8 mm, 1bf = 0,454 kg, 1 psi = 6.9 kPa

NOTES:

1- DATA BASED ON NORMAL LOAD DURATION FOR DRY SERVICE CONDITIONS, NO TREATMENT AND WITHOUT THE 0,90 RESISTANCE FACTOR (Φ);
2- TABULATED BENDING SPECIFIED STRENGTH (f_b) ARE BASED ON A REFERENCE OF 12 INCHES. FOR OTHERS DEPTHS, WHEN LOADED EDGEWISE, THE TABULATED BENDING SPECIFIED STRENGTH MUST BE ADJUSTED BY A SIZE FACTOR $K_{Zb} = (12/d)^{0.15}$, WHERE d = DEPTH OF MEMBER. FOR DEPTHS LESS THAN 3 1/2", THE K_{Zb} FACTOR FOR 3 1/2" DEPTH SHALL BE USED;
3- TABULATED TENSION PARALLEL TO GRAIN SPECIFIED STRENGTH (f_t) IS ADJUSTED TO A SPECIFIED LENGTH OF 20 FEET. FOR A LONGER LENGTH, THE TABULATED TENSION TO GRAIN SPECIFIED STRENGTH MUST BE ADJUSTED BY THE LENGTH FACTOR $K_{Zt} = (20/L)^{0.075}$, WHERE L = LENGTH OF THE MEMBER IN FEET;
4- TABULATED LONGITUDINAL SHEAR SPECIFIED STRENGTHS (F_v) HAVE A SHEAR SIZE FACTOR K_{Zv} = 1,0;
5- APPLICABLE TO ALL TABULATED VALUES EXCEPT SPECIFIC GRAVITY (SG);
6- APPLICABLE FOR NAILED AND BOLTED CONNECTION;
7- JOIST/BEAM = LOAD PARALLEL TO GLUELINE, PLANK = LOAD PERPENDICULAR TO GLUELINE;
8- FOR UNIFORMLY LOADED SIMPLE-SPAN BEAMS AND JOISTS, DELECTION IS CALCULATED AS FOLLOWS:

$$\delta = \frac{270\ wL^4}{Ebh^3} + \frac{28.8\,wL^2}{Ebh}$$

Where: δ = estimated deflection, inches; w = uniform load, pounds per linear foot; L = span, feet; h = beam depth, inches; b = beam width, inches; E = true (shear-free) modulus of elasticity, pounds per square inch

PRODUCT

GLOBAL LVL 2.0E-3300Fb

LIMIT STATES DESIGN (LSD)

ALLOWABLE UNIFORM LOAD (pounds per linear foot)

Span (feet)	per ply 1¾"x5½"			per ply 1¾"x7¼"			per ply 1¾"x9¼"			per ply 1¾"x9½"			per ply 1¾"x11¼"			per ply 1¾"x11½"			Span (feet)
	Live Load	Total load		Live Load	Total load		Live Load	Total load		Live Load	Total load		Live Load	Total load		Live Load	Total load		
	unfactored	unfactored	factored	unfactored	unfactored	factored	unfactored	unfactored	factored	unfactored	unfactored	factored	unfactored	unfactored	factored	unfactored	unfactored	factored	
	W_L L/360	$W_T=W_L+W_D$ L/240	W_F	W_L L/360	$W_T=W_L+W_D$ L/240	W_F	W_L L/360	$W_T=W_L+W_D$ L/240	W_F	W_L L/360	$W_T=W_L+W_D$ L/240	W_F	W_L L/360	$W_T=W_L+W_D$ L/240	W_F	W_L L/360	$W_T=W_L+W_D$ L/240	W_F	
6	305	458	1006	659	989	1678			2309	1353		2394			3035			3134	6
7	196	294	739	430	646	1233	840		1886	902		1952	1406		2443	1487		2517	7
8	133	200	566	295	443	944	584	876	1481	628	943	1556	992		2044	1051		2104	8
9	93	140	447	211	316	746	421	632	1170	454	681	1230	723	1085	1681	767	1151	1751	9
10	68	102	362	155	233	604	313	470	948	337	506	996	542	813	1362	575	863	1418	10
11	51	76	299	117	176	499	238	358	783	257	386	823	415	623	1125	442	663	1172	11
12	39	59	251	90	135	419	186	279	658	200	301	691	325	488	945	346	519	985	12
13	31	46	214	71	106	357	147	221	561	159	239	589	259	388	806	276	414	839	13
14	24	37	184	57	85	308	118	177	483	128	192	508	209	314	694	223	335	723	14
15	20	30	161	46	69	268	96	144	421	104	156	442	171	257	605	183	274	630	15
16				38	57	236	79	118	370	85	128	389	142	214	532	152	228	554	16
17				31	47	209	66	99	328	71	107	344	118	178	471	127	190	490	17
18				26	40	186	55	83	292	60	90	307	100	150	420	107	160	437	18
19				22	34	167	47	71	262	51	76	275	85	127	377	91	136	392	19
20				19	29	151	40	60	237	43	65	249	73	109	340	78	117	354	20
21							35	52	215	38	57	225	63	94	308	67	101	321	21
22							30	45	195	33	49	205	54	82	281	58	87	293	22
23							26	40	179	28	43	188	48	72	257	51	76	268	23
24							23	35	164	25	38	172	42	63	236	45	67	246	24
25										22	33	159	37	56	217	39	59	226	25
26													33	49	201	35	53	209	26
27													29	44	186	31	47	194	27
28													26	39	173	28	42	180	28
29													23	35	161	25	38	168	29
30													21	32	151	23	34	157	30

DATA IN SHADED AREA CONTROL THE DESIGN.

HOWEVER, THE USER MUST CHECK THE THREE CASES W_L, W_T ET W_F

NOTES :

1- BEAMS OVER 14" DEPTH MUST BE USED IN 2 OR MORE PLIES. MULTIPLE MEMBER MUST BE CORRECTLY CONNECTED TOGETHER (SEE CONNECTION DETAILS ON PAGE 11);
2- USER MUST SELECT THE DATA CONTAINED IN THE SHADED BOXES IN PRIORITY;
3- LATERAL SUPPORT IS REQUIRED ALONG COMPRESSION EDGE OF BEAM AT INTERVALS OF 24" C/C OR CLOSER;
4- LATERAL SUPPORT IS REQUIRED AT BEARING POINTS TO PREVENT ROTATION AND LATERAL DISPLACEMENT;
5- TABLE IS BASED ON UNIFORM LOADS AND SINGLE SPAN MEMBER;
6- LOADS ARE BASED ON SPAN SPACING CENTRE-TO-CENTRE BETWEEN SUPPORTS;
7- THERE IS NO LOAD INCREASE FOR SNOW LOAD ACCUMULATION (NBCC 2005);
8- SEE PAGE 10 FOR REQUIRED BEARING LENGHTS;
9- FOR L/180 ALLOWABLE DEFLECTION, MULTIPLY UNFACTORED TOTAL LOAD (W_T) VALUE BY 1,33 (NOT RECOMMENDED). THIS NEW VALUE WHEN MULTIPLY BY 1,5 SHOULD NOT EXCEED THE TOTAL FACTORED LOAD (W_F); FOR L/480 ALLOWABLE DEFLECTION, MULTIPLY LIVE LOAD VALUE BY 0,75 (RECOMMENDED FOR LESS VIBRATIONS);
10- CONTACT LVL GLOBAL INC. TECHNICAL DEPARTMENT FOR OTHER LOADS AND CONDITIONS.

PRODUCT

GLOBAL LVL 2.0E-3300Fb

LIMIT STATES DESIGN (LSD)

ALLOWABLE UNIFORM LOAD (pounds per linear foot) (continue)

Span (feet)	per ply 1¾"x11⅞"			per ply 1¾"x12½"			per ply 1¾"x14"			per ply 1¾"x16"			per ply 1¾"x18"			per ply 1¾"x18¾"			Span (feet)
	Live Load	Total load		Live Load	Total load		Live Load	Total load		Live Load	Total load		Live Load	Total load		Live Load	Total load		
	unfactored	unfactored	factored	unfactored	unfactored	factored	unfactored	unfactored	factored	unfactored	unfactored	factored	unfactored	unfactored	factored	unfactored	unfactored	factored	
	W_L L/360	$W_T=W_L+W_D$ L/240	W_F	W_L L/360	$W_T=W_L+W_D$ L/240	W_F	W_L L/360	$W_T=W_L+W_D$ L/240	W_F	W_L L/360	$W_T=W_L+W_D$ L/240	W_F	W_L L/360	$W_T=W_L+W_D$ L/240	W_F	W_L L/360	$W_T=W_L+W_D$ L/240	W_F	
6			3287			3552			4249			5342			6678			7258	6
7	1614		2632	1835		2829			3339			4109			5008			5385	7
8	1144		2195	1307		2351	1745		2749			3339			4006			4280	8
9	837		1858	960		2011	1292		2337	1815		2811			3339			3552	9
10	628	943	1505	723	1085	1655	980		2032	1390		2428	1872		2862			3035	10
11	483	725	1244	557	835	1368	759		1687	1084		2136	1472		2504	1633		2650	11
12	379	568	1045	437	656	1149	599	898	1417	860		1814	1176		2226	1307		2351	12
13	302	453	890	349	524	979	480	720	1207	693		1546	952		1922	1061		2073	13
14	244	367	768	283	425	844	390	585	1041	566	849	1333	780		1658	871		1788	14
15	200	301	669	232	349	735	321	482	907	467	701	1161	647		1444	723		1557	15
16	166	250	588	193	290	646	267	401	797	390	585	1020	542	813	1269	606	909	1369	16
17	139	209	520	162	243	572	225	337	706	329	493	904	458	687	1124	513	769	1212	17
18	117	176	464	137	206	510	190	286	630	279	419	806	390	585	1003	437	656	1081	18
19	100	150	417	116	175	458	163	245	565	239	359	723	335	502	900	376	564	970	19
20	85	128	376	100	150	413	140	211	510	207	310	653	289	434	812	325	488	876	20
21	74	111	341	86	129	375	121	182	462	179	269	592	252	378	736	283	425	794	21
22	64	96	311	75	112	342	105	158	421	157	236	539	220	331	671	248	372	724	22
23	56	84	284	65	98	312	92	138	385	138	207	494	194	291	614	218	327	662	23
24	49	74	261	57	86	287	81	122	354	121	182	453	171	257	564	193	290	608	24
25	43	65	240	51	76	264	72	108	326	107	161	418	152	229	519	171	257	560	25
26	39	58	222	45	68	244	64	96	301	95	143	386	136	204	480	153	230	518	26
27	34	52	206	40	61	227	57	85	280	85	128	358	121	182	445	137	206	480	27
28	31	46	192	36	54	211	51	76	260	76	114	333	109	163	414	123	184	447	28
29	28	42	179	32	49	196	46	69	242	68	103	310	98	147	386	110	166	416	29
30	25	38	167	29	44	183	41	62	226	62	93	290	88	133	361	100	150	389	30

EXEMPLE:

- SINGLE SPAN FLOOR JOIST
- DEAD LOAD (DL): 10 LBS/PI^2 (TYPICAL HOUSE FLOOR)
- LIVE LOAD (LL): 40 LBS/PI^2 (KITCHEN)
- TRIBUTARY WIDTH: 20 FEET
- SPAN: 14 FEET
- BEAM DEPTH BETWEEN 11¼" AND 11⅞"

SEE NOTES ON PAGE 4.

THEN:

W_D = DL x TRIBUTARY WIDTH = 10 PSF x 20' = 200 PLF (POUNDS PER LINEAR FOOT)

W_L = LL x TRIBUTARY WIDTH = 40 PSF x 20' = 800 PLF

$W_T = W_D + W_L$ = 200 + 800 = 1000 PLF

$W_F = 1{,}25 \times W_D + 1{,}5 \times W_L$

W_F = 1.25 x 200 + 1.5 x 800 = 1450 PLF

FIRST CHECK: DATA IN SHADED AREA

4 - 1¾ X 11¼: W_L = 800 PLF / 4 PLIES = 200 PLF < 209 PLF (PER PLY)

W_T = 1000 PLF/ 4 PLIES = 250 PLF < 314 PLF (PER PLY)

SECOND CHECK: W_F = 1450 PLF / 4 PLIES = 362,5 PLF < 694 PLF (PER PLY)

FINAL SELECTION: 4 PLIES OF 1 ¾ X 11 ¼ (SEE CONNECTION DETAILS ON PAGE 11)

PRODUCT

GLOBAL LVL 2.0E-3300Fb

LIMIT STATES DESIGN (LSD)

FLOOR BEAM SPAN TABLES (feet)

Loads (lb/feet^2)	Tributary width (feet)	5½"		7¼"		9¼"		9½"		11¼"		11½"		11⅞"		12½"		14"		16"		18"		18¾"	
		2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply
DL=10 LL=30 UNFACTORED	8	8,30	9,53	10,94	12,57	13,96	16,04	14,34	16,47	16,98	19,51	17,36	19,94	17,92	20,59	18,87	21,68	21,13	24,28	24,15	27,75	27,17	31,22	28,30	32,52
	10	7,68	8,83	10,13	11,65	12,93	14,86	13,28	15,26	15,72	18,08	16,07	18,48	16,60	19,08	17,47	20,08	19,57	22,50	22,36	25,71	25,16	28,92	26,21	30,13
	12	7,21	8,30	9,51	10,94	12,14	13,96	12,46	14,34	14,76	16,98	15,09	17,36	15,58	17,92	16,40	18,87	18,37	21,13	21,00	24,15	23,62	27,17	24,61	28,30
	14	6,84	7,87	9,01	10,38	11,50	13,24	11,81	13,60	13,99	16,10	14,30	16,46	14,77	17,00	15,55	17,89	17,41	20,04	19,90	22,90	22,39	25,77	23,32	26,84
	16	6,53	7,51	8,60	9,91	10,98	12,64	11,28	12,98	13,35	15,38	13,65	15,72	14,10	16,23	14,84	17,09	16,62	19,14	18,99	21,87	21,37	24,61	22,26	25,63
	18	6,26	7,21	8,26	9,51	10,54	12,14	10,82	12,46	12,81	14,76	13,10	15,09	13,53	15,58	14,24	16,40	15,95	18,37	18,23	21,00	20,51	23,62	21,36	24,61
	20	6,03	6,95	7,96	9,17	10,15	11,70	10,43	12,02	12,35	14,23	12,62	14,55	13,03	15,02	13,72	15,81	15,37	17,71	17,56	20,24	19,76	22,77	20,58	23,72
DL=15 LL=30 UNFACTORED	8	8,30	9,53	10,94	12,57	13,96	16,04	14,34	16,47	16,98	19,51	17,36	19,94	17,92	20,59	18,87	21,68	21,13	24,28	24,15	27,75	27,17	31,22	28,30	32,52
	10	7,68	8,83	10,13	11,65	12,93	14,86	13,28	15,26	15,72	18,08	16,07	18,48	16,60	19,08	17,47	20,08	19,57	22,50	22,36	25,71	25,16	28,92	26,21	30,13
	12	7,21	8,30	9,51	10,94	12,14	13,96	12,46	14,34	14,76	16,98	15,09	17,36	15,58	17,92	16,40	18,87	18,37	21,13	21,00	24,15	23,62	27,17	24,61	28,30
	14	6,84	7,87	9,01	10,38	11,50	13,24	11,81	13,60	13,99	16,10	14,30	16,46	14,77	17,00	15,55	17,89	17,41	20,04	19,90	22,90	22,39	25,77	23,32	26,84
	16	6,53	7,51	8,60	9,91	10,98	12,64	11,28	12,98	13,35	15,38	13,65	15,72	14,10	16,23	14,84	17,09	16,62	19,14	18,99	21,87	21,37	24,61	22,26	25,63
	18	6,26	7,21	8,26	9,51	10,53	12,14	10,82	12,46	12,81	14,76	13,10	15,09	13,53	15,58	14,24	16,40	15,95	18,37	18,23	21,00	20,51	23,62	21,36	24,61
	20	6,03	6,95	7,96	9,17	10,15	11,70	10,43	12,02	12,35	14,23	12,62	14,55	13,03	15,02	13,72	15,81	15,37	17,71	17,56	20,24	19,76	22,77	20,58	23,72
DL=10 LL=40 UNFACTORED	8	7,51	8,64	9,91	11,39	12,64	14,54	12,98	14,93	15,38	17,68	15,72	18,07	16,23	18,66	17,09	19,65	19,14	22,00	21,87	25,15	24,61	28,29	25,63	29,47
	10	6,95	8,00	9,17	10,55	11,70	13,46	12,02	13,83	14,23	16,38	14,55	16,74	15,02	17,29	15,81	18,20	17,71	20,38	20,24	23,29	22,77	26,20	23,72	27,30
	12	6,53	7,51	8,60	9,91	10,98	12,64	11,28	12,98	13,35	15,38	13,65	15,72	14,10	16,23	14,84	17,09	16,62	19,14	18,99	21,87	21,37	24,61	22,26	25,63
	14	6,18	7,12	8,15	9,39	10,40	11,98	10,68	12,31	12,65	14,58	12,93	14,90	13,35	15,39	14,06	16,20	15,74	18,14	18,00	20,73	20,25	23,33	21,09	24,30
	16	5,90	6,80	7,78	8,97	9,92	11,44	10,19	11,75	12,07	13,91	12,34	14,22	12,74	14,69	13,41	15,46	15,02	17,32	17,17	19,79	19,31	22,27	20,12	23,19
	18	5,66	6,53	7,46	8,60	9,52	10,98	9,77	11,28	11,58	13,35	11,83	13,65	12,22	14,10	12,86	14,84	14,41	16,62	16,47	18,99	18,53	21,37	19,30	22,26
	20	5,45	6,29	7,18	8,29	9,17	10,58	9,41	10,87	11,15	12,87	11,40	13,16	11,77	13,59	12,39	14,30	13,88	16,02	15,86	18,31	17,84	20,60	18,59	21,45
DL=15 LL=40 UNFACTORED	8	7,51	8,64	9,91	11,39	12,64	14,54	12,98	14,93	15,38	17,68	15,72	18,07	16,23	18,66	17,09	19,65	19,14	22,00	21,87	25,15	24,61	28,29	25,63	29,47
	10	6,95	8,00	9,17	10,55	11,70	13,46	12,02	13,83	14,23	16,38	14,55	16,74	15,02	17,29	15,81	18,20	17,71	20,38	20,24	23,29	22,77	26,20	23,72	27,30
	12	6,53	7,51	8,60	9,91	10,98	12,64	11,28	12,98	13,35	15,38	13,65	15,72	14,10	16,23	14,84	17,09	16,62	19,14	18,99	21,87	21,37	24,61	22,26	25,63
	14	6,18	7,12	8,15	9,39	10,40	11,98	10,68	12,31	12,65	14,58	12,93	14,90	13,35	15,39	14,06	16,20	15,74	18,14	18,00	20,73	20,25	23,33	21,09	24,30
	16	5,90	6,80	7,78	8,97	9,92	11,44	10,19	11,75	12,07	13,91	12,34	14,22	12,74	14,69	13,41	15,46	15,02	17,32	17,17	19,79	19,31	22,27	20,12	23,19
	18	5,66	6,53	7,46	8,60	9,52	10,98	9,77	11,28	11,58	13,35	11,83	13,65	12,22	14,10	12,86	14,84	14,41	16,62	16,47	18,99	18,53	21,37	19,30	22,26
	20	5,45	6,29	7,18	8,29	9,17	10,58	9,41	10,87	11,15	12,87	11,40	13,16	11,77	13,59	12,39	14,30	13,88	16,02	15,86	18,31	17,84	20,60	18,59	21,45

MINIMUM BEARING REQUIREMENTS:

3" BEARING AT BOTH ENDS AND 7½" AT INTERMEDIATE

SHADED AREAS:

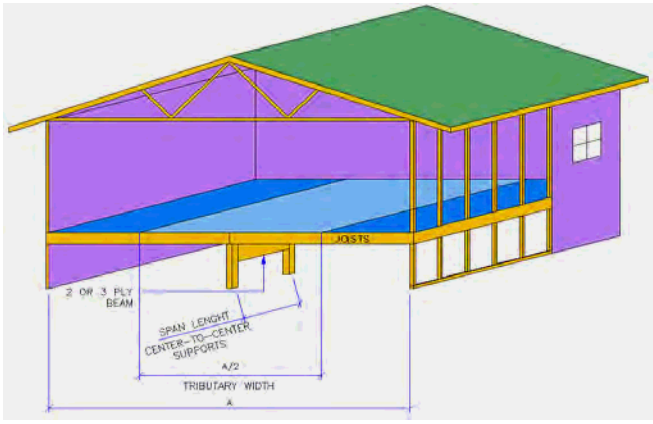
- 4½" BEARING AT BOTH ENDS AND 11¼" BEARING AT INTERMEDIATE
- 6" BEARING AT BOTH ENDS AND 15" BEARING AT INTERMEDIATE
- 7½"BEARING AT BOTH ENDS AND 18¾" BEARING AT INTERMEDIATE

NOTES

1- TABLE ASSUME UNIFORM LOADS AND SINGLE FLOOR JOIST SPANS. WHEN THE FLOOR JOISTS ARE CONTINUOUS OVER THE BEAM, MULTIPLY TRIBUTARY WIDTH BY 1,25 AND ALWAYS SELECT THE NEXT HIGHER TRIBUTARY WIDTH:

EXAMPLE: TRIBUTARY WIDTH OF 12' MULTIPLIED BY 1,25 = 15'.
IN TABLES, USE 16' FOR TRIBUTARY WIDTH;

2- LATERAL RESTRAINT IS REQUIRED ALONG COMPRESSION EDGE OF BEAM AT INTERVALS OF 24" OR CLOSER;
3- LATERAL SUPPORT IS REQUIRED AT BEARING POINT TO PREVENT ROTATION OR LATERAL DISPLACEMENT;
4- MAXIMUM SPANS SHOWN ARE MEASURED CENTRE-TO-CENTRE BETWEEN SUPPORTS;
5- DEFLECTION LIMITATIONS: L/360 FOR LIVE LOAD AND L/240 FOR TOTAL LOAD;
6- DL = DEAD LOAD LL = LIVE LOAD
7- CONTACT LVL GLOBAL INC. TECHNICAL DEPARTMENT FOR OTHER APPICATIONS AND SIZES.



PRODUCT

GLOBAL LVL 2.0E-3300Fb

LIMIT STATES DESIGN (LSD)

RIDGE BEAM SPAN TABLE (feet)

Loads (psf)	tributary width (feet)	5½"		7¼"		9¼"		9½"		11¼"		11½"		11⅞"		12½"		14"		16"		18"		18¾"	
		2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply	2 ply	3 ply
DL=15 LL=30 UNFACTORED	16	8,26	9,47	10,89	12,48	13,90	15,92	14,28	16,35	16,91	19,37	17,28	19,80	17,85	20,44	18,79	21,52	21,04	24,10	24,05	27,55	27,05	30,99	28,18	32,28
	20	7,67	8,78	10,11	11,58	12,90	14,78	13,25	15,18	15,69	17,97	16,04	18,37	16,56	18,97	17,43	19,97	19,52	22,37	22,31	25,56	25,10	28,76	26,15	29,96
	24	7,21	8,26	9,51	10,89	12,13	13,90	12,46	14,28	14,76	16,91	15,09	17,28	15,58	17,85	16,40	18,79	18,37	21,04	20,99	24,05	23,61	27,05	24,60	28,18
	28	6,84	7,85	9,01	10,35	11,50	13,20	11,81	13,56	13,99	16,06	14,30	16,41	14,77	16,95	15,55	17,84	17,41	19,98	19,90	22,84	22,39	25,69	23,32	26,76
	32	6,53	7,50	8,60	9,89	10,98	12,62	11,28	12,96	13,35	15,35	13,65	15,69	14,10	16,21	14,84	17,06	16,62	19,11	18,99	21,84	21,37	24,57	22,26	25,59
	36	6,26	7,21	8,26	9,51	10,54	12,13	10,82	12,46	12,81	14,76	13,10	15,09	13,53	15,58	14,24	16,40	15,95	18,37	18,23	20,99	20,51	23,61	21,36	24,60
	40	6,03	6,95	7,96	9,17	10,15	11,70	10,43	12,02	12,35	14,23	12,62	14,55	13,03	15,02	13,72	15,81	15,37	17,71	17,56	20,24	19,76	22,77	20,58	23,72
DL=15 LL=40 UNFACTORED	16	7,51	8,64	9,91	11,39	12,64	14,54	12,98	14,93	15,38	17,68	15,72	18,07	16,23	18,66	17,09	19,65	19,14	22,00	21,87	25,15	24,61	28,29	25,63	29,47
	20	6,95	8,00	9,17	10,55	11,70	13,46	12,02	13,83	14,23	16,38	14,55	16,74	15,02	17,29	15,81	18,20	17,71	20,38	20,24	23,29	22,77	26,20	23,72	27,30
	24	6,53	7,51	8,60	9,91	10,98	12,64	11,28	12,98	13,35	15,38	13,65	15,72	14,10	16,23	14,84	17,09	16,62	19,14	18,99	21,87	21,37	24,61	22,26	25,63
	28	6,18	7,12	8,15	9,39	10,40	11,98	10,68	12,31	12,65	14,58	12,93	14,90	13,35	15,39	14,06	16,20	15,75	18,14	18,00	20,73	20,25	23,33	21,09	24,30
	32	5,90	6,80	7,78	8,96	9,92	11,44	10,19	11,75	12,07	13,91	12,34	14,22	12,74	14,69	13,41	15,46	15,02	17,32	17,17	19,79	19,31	22,27	20,12	23,19
	36	5,66	6,53	7,46	8,60	9,52	10,98	9,77	11,28	11,58	13,35	11,83	13,65	12,22	14,10	12,86	14,84	14,41	16,62	16,47	18,99	18,53	21,37	19,30	22,26
	40	5,45	6,29	7,18	8,29	9,17	10,58	9,41	10,87	11,15	12,87	11,40	13,16	11,77	13,59	12,39	14,30	13,88	16,02	15,86	18,31	17,84	20,60	18,59	21,45
DL=15 LL=50 UNFACTORED	16	6,95	8,00	9,17	10,55	11,70	13,46	12,02	13,83	14,23	16,38	14,55	16,74	15,02	17,29	15,81	18,20	17,71	20,38	20,24	23,29	22,77	26,20	23,72	27,30
	20	6,43	7,41	8,48	9,77	10,82	12,46	11,12	12,80	13,16	15,16	13,46	15,50	13,90	16,00	14,63	16,85	16,38	18,87	18,73	21,56	21,07	24,26	21,94	25,27
	24	6,03	6,95	7,96	9,17	10,15	11,70	10,43	12,02	12,35	14,23	12,62	14,55	13,03	15,02	13,72	15,81	15,37	17,71	17,56	20,24	19,76	22,77	20,58	23,72
	28	5,71	6,59	7,53	8,69	9,61	11,09	9,87	11,39	11,69	13,49	11,95	13,79	12,34	14,24	12,99	14,99	14,55	16,78	16,63	19,18	18,71	21,58	19,49	22,48
	32	5,45	6,29	7,18	8,29	9,17	10,58	9,41	10,87	11,15	12,87	11,40	13,16	11,77	13,59	12,39	14,30	13,88	16,02	15,86	18,31	17,84	20,60	18,59	21,45
	36	5,22	6,03	6,89	7,95	8,79	10,15	9,03	10,43	10,69	12,35	10,93	12,62	11,28	13,03	11,88	13,72	13,30	15,37	15,21	17,56	17,11	19,76	17,82	20,58
	40	5,03	5,81	6,63	7,66	8,46	9,78	8,69	10,05	10,29	11,90	10,52	12,16	10,86	12,56	11,44	13,22	12,81	14,81	14,64	16,92	16,47	19,04	17,16	19,83
DL=15 LL=60 UNFACTORED	16	6,53	7,51	8,60	9,91	10,98	12,64	11,28	12,98	13,35	15,38	13,65	15,72	14,10	16,23	14,84	17,09	16,62	19,14	18,99	21,87	21,37	24,61	22,26	25,63
	20	6,03	6,95	7,96	9,17	10,15	11,70	10,43	12,02	12,35	14,23	12,62	14,55	13,03	15,02	13,72	15,81	15,37	17,71	17,56	20,24	19,76	22,77	20,58	23,72
	24	5,66	6,53	7,46	8,60	9,52	10,98	9,77	11,28	11,58	13,35	11,83	13,65	12,22	14,10	12,86	14,84	14,41	16,62	16,47	18,99	18,53	21,37	19,30	22,26
	28	5,35	6,18	7,06	8,15	9,01	10,40	9,25	10,68	10,96	12,65	11,20	12,93	11,57	13,35	12,18	14,06	13,64	15,75	15,59	18,00	17,54	20,24	18,27	21,09
	32	5,10	5,90	6,73	7,77	8,59	9,92	8,82	10,19	10,45	12,07	10,68	12,34	11,03	12,74	11,61	13,41	13,00	15,02	14,86	17,17	16,72	19,31	17,41	20,12
	36	4,89	5,66	6,45	7,46	8,23	9,52	8,45	9,77	10,01	11,58	10,23	11,83	10,57	12,22	11,12	12,86	12,46	14,41	14,24	16,47	16,02	18,52	16,69	19,30
	40	4,71	5,45	6,21	7,18	7,92	9,17	8,14	9,41	9,63	11,15	9,85	11,40	10,17	11,77	10,71	12,39	11,99	13,88	13,70	15,86	15,42	17,84	16,06	18,59

MINIMUM BEARING REQUIREMENTS:

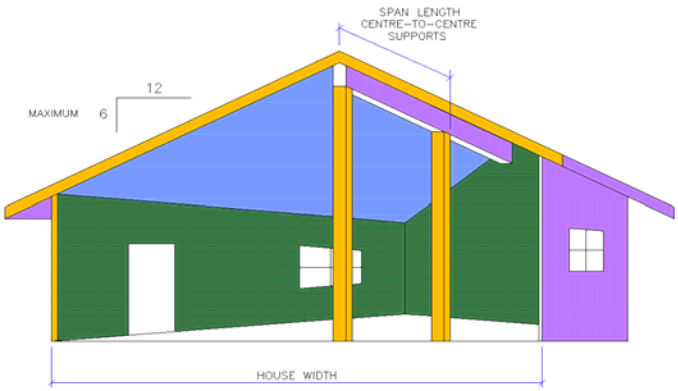
3" BEARING AT BOTH ENDS AND 7½" AT INTERMEDIATE

SHADED AREAS:

- 4½" BEARING AT BOTH ENDS AND 11¼" BEARING AT INTERMEDIATE
- 6" BEARING AT BOTH ENDS AND 15" BEARING AT INTERMEDIATE
- 7½"BEARING AT BOTH ENDS AND 18¾" BEARING AT INTERMEDIATE

NOTES

1- THIS TABLE IS BASED ON A MAXIMUM ROOF SLOPE OF 6/12 AND UNIFORM LOADS;
2- THIS TABLE IS CALCULATED WITH SINGLE SPAN ROOF JOISTS ONLY;
3- LATERAL RESTRAINT IS REQUIRED ALONG COMPRESSION EDGE OF BEAM AT INTERVALS OF 24" CENTRE-TO-CENTRE OR CLOSER;
4- LATERAL SUPPORT IS REQUIRED AT BEARING POINTS TO PREVENT ROTATION AND LATERAL DISPLACEMENT;
5- MAXIMUM SPANS SHOWN ARE MEASURED CENTRE-TO-CENTRE BETWEEN SUPPORTS;
6- DEFLECTION LIMITATIONS : L/360 FOR LIVE LOAD AND L/240 FOR TOTAL LOAD;
7- DL = DEAD LOAD LL = LIVE LOAD
8- CONTACT LVL GLOBAL INC. TECHNICAL DEPARTMENT FOR OTHER APPICATIONS AND SIZES.



PRODUCT

GLOBAL LVL 2.0E-3300Fb

LIMIT STATES DESIGN (LSD)

GARAGE & HOUSE HEADER TABLE

garage or house depth (feet)	Dead load of **15** lb/ft² and live load of **30** lb/ft² (unfactored) SPAN (feet)						Dead load of **15** lb/ft² and live load of **40** lb/ft² (unfactored) SPAN (feet)						garage or house depth (feet)
	6	8	10	12	14	16	6	8	10	12	14	16	
16	3½ x 5½	3½ x 7¼	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 11½	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 9½	3½ x 11¼	3½ x 14	16
		5¼ x 5½			5¼ x 9¼	5¼ x 11¼		5¼ x 5½	5¼ x 7¼	5¼ x 9¼		5¼ x 11¼	
	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 9½	3½ x 11¼	3½ x 14	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	
		5¼ x 5½	5¼ x 7¼	5¼ x 9¼		5¼ x 11¼				5¼ x 9¼	5¼ x 11¼	5¼ x 12½	
18	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 11½	3½ x 14	18
		5¼ x 5½	5¼ x 7¼		5¼ x 9¼	5¼ x 11¼			5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 11½	
	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 11½	3½ x 14	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	
			5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 11½				5¼ x 9½	5¼ x 11¼	5¼ x 12½	
20	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	20
		5¼ x 5½	5¼ x 7¼		5¼ x 9½	5¼ x 11¼				5¼ x 9¼	5¼ x 11¼	5¼ x 12½	
	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	3½ x 7¼	3½ x 9¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	
				5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 5½	5¼ x 7¼			5¼ x 11½	5¼ x 14	
22	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 9½	3½ x 11¼	3½ x 12½	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	22
		5¼ x 5½	5¼ x 7¼	5¼ x 9¼		5¼ x 11¼				5¼ x 9¼	5¼ x 11¼	5¼ x 12½	
	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	3½ x 7¼	3½ x 9¼	3½ x 9½	3½ x 11½	3½ x 14	(3½ x 16)	
				5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 11⅞	5¼ x 14	
24	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 11¼	3½ x 14	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	24
			5¼ x 7¼	5¼ x 9¼		5¼ x 11¼				5¼ x 9¼	5¼ x 11¼	5¼ x 12½	
	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 11⅞	3½ x 14	(3½ x 16)	
				5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 14	
26	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 11½	3½ x 14	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	26
			5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 11½				5¼ x 9½	5¼ x 11¼	5¼ x 14	
	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	(3½ x 16)	
				5¼ x 9½	5¼ x 11¼	5¼ x 14	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 14	
28	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	3½ x 7¼	3½ x 9¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	28
				5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 5½	5¼ x 7¼			5¼ x 11½	5¼ x 14	
	3½ x 7¼	3½ x 9¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	(3½ x 18)	
	5¼ x 5½	5¼ x 7¼			5¼ x 11½	5¼ x 14	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 16	
30	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	3½ x 7¼	3½ x 9¼	3½ x 9½	3½ x 11½	3½ x 14	(3½ x 16)	30
				5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 11½	5¼ x 14	
	3½ x 7¼	3½ x 9¼	3½ x 9½	3½ x 11½	3½ x 14	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	(3½ x 18)	
	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 11½	5¼ x 14	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 14	5¼ x 16	
32	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 11½	3½ x 14	(3½ x 16)	32
				5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 14	
	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 11½	3½ x 14	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18)	
	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 14			5¼ x 9¼	5¼ x 11¼	5¼ x 14	5¼ x 16	
34	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	(3½ x 16)	34
				5¼ x 9½	5¼ x 11¼	5¼ x 12½	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 14	
	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18)	
	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 14			5¼ x 9½	5¼ x 11¼	5¼ x 14	5¼ x 16	
36	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	(3½ x 16)	36
				5¼ x 9½	5¼ x 11¼	5¼ x 14	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 14	
	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18)	
	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 14				5¼ x 11½	5¼ x 14	5¼ x 16	

MINIMUM BEARING REQUIREMENTS:

3" BEARING AT BOTH ENDS AND 7½" AT INTERMEDIATE

SHADED AREAS:

- 4½" BEARING AT BOTH ENDS AND 11¼" BEARING AT INTERMEDIATE
- 6" BEARING AT BOTH ENDS AND 15" BEARING AT INTERMEDIATE
- 7½" BEARING AT BOTH ENDS AND 18¾" BEARING AT INTERMEDIATE

DEFLECTION LIMITATIONS

GARAGE OR HOUSE DEPTH (feet) (see figure)

LOADS (psf)

SPAN (feet)

LIVE LOAD :	**L/360**	CHOICE ACCORDING TO NBCC (2005)
TOTAL LOAD:	**L/240**	
LIVE LOAD :	**L/480**	CHOICE FOR BETTER PERFORMANCE
TOTAL LOAD :	**L/240**	

SEE ALSO NOTES ON PAGE 9

PRODUCT

GLOBAL LVL 2.0E-3300Fb

LIMIT STATES DESIGN (LSD)

GARAGE & HOUSE HEADER TABLE

garage or house depth (feet)	Dead load of **15** lb/ft² and live load of **50** lb/ft² (unfactored) SPAN (feet)						Dead load of **15** lb/ft² and live load of **60** lb/ft² (unfactored) SPAN (feet)						garage or house depth (feet)
	6	8	10	12	14	16	6	8	10	12	14	16	
16	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	16
				5¼ x 9¼	5¼ x 11¼	5¼ x 12½				5¼ x 9½	5¼ x 11¼	5¼ x 14	
	3½ x 7¼	3½ x 9¼	3½ x 9½	3½ x 11¼	3½ x 14	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	(3½ x 16)	
	5¼ x 5½	5¼ x 7¼	5¼ x 9¼		5¼ x 11½	5¼ x 14	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 14	
18	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 9½	3½ x 11¼	3½ x 14	(3½ x 16)	18
				5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 5½	5¼ x 7¼	5¼ x 9¼		5¼ x 11½	5¼ x 14	
	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 11⅞	3½ x 14	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	(3½ x 18)	
	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 14	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 14	5¼ x 16	
20	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 11½	3½ x 14	(3½ x 16)	20
				5¼ x 9½	5¼ x 11¼	5¼ x 14	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 14	
	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18)	
	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 14			5¼ x 9¼	5¼ x 11¼	5¼ x 14	5¼ x 16	
22	3½ x 7¼	3½ x 9¼	3½ x 9½	3½ x 11¼	3½ x 14	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	(3½ x 16)	22
	5¼ x 5½	5¼ x 7¼	5¼ x 9¼		5¼ x 11½	5¼ x 14	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 14	
	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	(3½ x 18)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18)	
	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 16			5¼ x 9½	5¼ x 11½	5¼ x 14	5¼ x 16	
24	3½ x 7¼	3½ x 9¼	3½ x 9½	3½ x 11½	3½ x 14	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	(3½ x 18)	24
	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 11⅞	5¼ x 14	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 16	
	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18)	
	5¼ x 5½		5¼ x 9¼	5¼ x 11¼	5¼ x 14	5¼ x 16				5¼ x 11⅞	5¼ x 14	5¼ x 16	
26	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 11⅞	3½ x 14	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	(3½ x 18)	26
	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 14	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 14	5¼ x 16	
	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18)	3½ x 7¼	3½ x 9¼	3½ x 11½	3½ x 14	(3½ x 16)	(3½ x 18¾)	
			5¼ x 9½	5¼ x 11¼	5¼ x 14	5¼ x 16			5¼ x 11¼	5¼ x 12½	5¼ x 14	5¼ x 16	
28	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18)	28
	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 14			5¼ x 9¼	5¼ x 11¼	5¼ x 14	5¼ x 16	
	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18)	3½ x 7¼	3½ x 9½	3½ x 11⅞	3½ x 14	(3½ x 18)	(3½ x 18¾)	
				5¼ x 11½	5¼ x 14	5¼ x 16		5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 16	5¼ x 18	
30	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	(3½ x 18)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18¾)	30
	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 16			5¼ x 9½	5¼ x 11½	5¼ x 14	5¼ x 16	
	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18)	3½ x 7¼	3½ x 9½	3½ x 12½	(3½ x 16)	(3½ x 18)		
				5¼ x 12½	5¼ x 14	5¼ x 16		5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 16	5¼ x 18	
32	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	(3½ x 18)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 18)		32
	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 14	5¼ x 16				5¼ x 11½	5¼ x 14	5¼ x 16	
	3½ x 7¼	3½ x 9¼	3½ x 11½	3½ x 14	(3½ x 16)	(3½ x 18¾)	3½ x 7¼	3½ x 11¼	3½ x 12½	(3½ x 16)	(3½ x 18)		
			5¼ x 11¼	5¼ x 12½	5¼ x 14	5¼ x 16		5¼ x 9¼	5¼ x 11¼	5¼ x 14	5¼ x 16	5¼ x 18	
34	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18)	3½ x 7¼	3½ x 9¼	3½ x 11¼	(3½ x 16)	(3½ x 18)		34
			5¼ x 9¼	5¼ x 11¼	5¼ x 14	5¼ x 16				5¼ x 12½	5¼ x 14	5¼ x 16	
	3½ x 7¼	3½ x 9¼	3½ x 11⅞	3½ x 14	(3½ x 18)	(3½ x 18¾)	3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	(3½ x 18)		
			5¼ x 11¼	5¼ x 12½	5¼ x 16	5¼ x 18	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 14	5¼ x 16	5¼ x 18	
36	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18¾)	3½ x 7¼	3½ x 9¼	3½ x 11½	(3½ x 16)	(3½ x 16)		36
			5¼ x 9½	5¼ x 11¼	5¼ x 14	5¼ x 16			5¼ x 11¼	5¼ x 12½	5¼ x 14	5¼ x 16	
	3½ x 7¼	3½ x 9½	3½ x 12½	(3½ x 16)	(3½ x 18)		3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	(3½ x 18)		
		5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 16	5¼ x 18	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 14	5¼ x 16	5¼ x 18	

NOTES (SEE ALSO NOTES ON PAGE 8)

1- TABLES ASSUME 24" SOFFIT AND A MAXIMUM ROOF SLOPE OF 6/12;

2- THESE TABLES ARE CALCULATED WITH A SINGLE SPAN TRUSS;

3- LATERAL SUPPORT IS REQUIRED ALONG COMPRESSION EDGE OF HEADER AT INTERVALS OF 24" CENTER-TO-CENTER OR CLOSER;

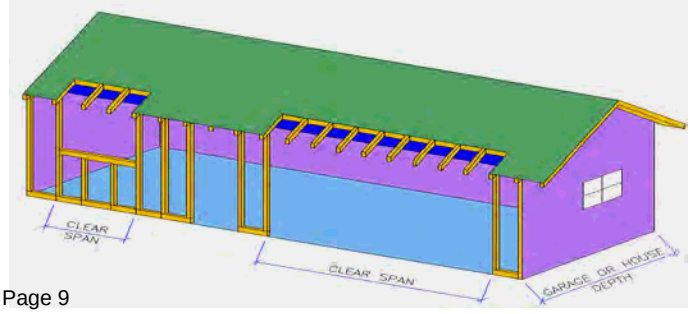
4- LATERAL SUPPORT IS REQUIRED AT BEARING POINT TO PREVENT ROTATION AND LATEAL DISPLACEMENT;

5- TABLES ASSUME SINGLE LVL BEAM SPANS;

6- CLEAR SPAN IS MEASURED CENTRE-TO-CENTRE BETWEEN SUPPORTS;

7- 3½" = TWO PLIES OF 1¾" 5¼" = THREE PLIES OF 1¾"

8- HEADER TABLE IS BASED ON APPARENT MODULUS OF ELASTICITY $E = 1.9 \times 10^6$ PSI .



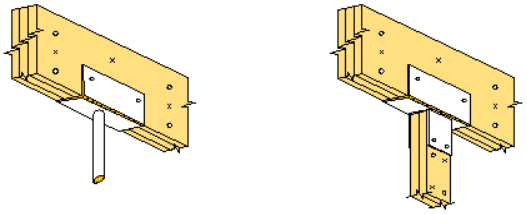
PRODUCT

GLOBAL LVL 2.0E-3300Fb

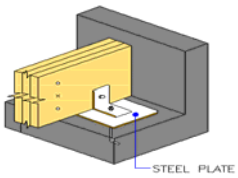
LIMIT STATES DESIGN (LSD)

MINIMUM BEARING LENGTH REQUIREMENTS (Inches)

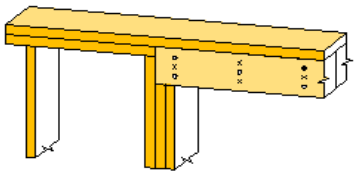
FACTORED REACTION R_F (lb)	1 PLY (b=1¾")	2 PLIES (b=3½")	3 PLIES (b=5¼")	4 PLIES (b=7")
1 000	1½	1½	1½	1½
2 000	1½	1½	1½	1½
3 000	2¼	1½	1½	1½
4 000	2¾	1½	1½	1½
5 000	3½	1¾	1½	1½
6 000	4¼	2¼	1½	1½
7 000	5	2½	1¾	1½
8 000	5½	2¾	2	1½
9 000	6¼	3¼	2¼	1¾
10 000	7	3½	2½	1¾
11 000	7½	3¾	2½	2
12 000		4¼	2¾	2¼
13 000		4½	3	2¼
14 000		5	3¼	2½
15 000		5¼	3½	2¾
16 000		5½	3¾	2¾
17 000		6	4	3
18 000		6¼	4¼	3¼
19 000		6½	4½	3¼
20 000		7	4¾	3½
21 000		7¼	5	3¾
22 000		7½	5	3¾
23 000		8	5¼	4
24 000			5½	4¼
25 000			5¾	4½
26 000			6	4½
27 000			6¼	4¾
28 000			6½	5
29 000			6¾	5
30 000			7	5¼
31 000			7¼	5½
32 000			7½	5½
33 000			7½	5¾
34 000			7¾	6
35 000				6
36 000				6¼
37 000				6½
38 000				6½
39 000				6¾
40 000				7
41 000				7
42 000				7¼



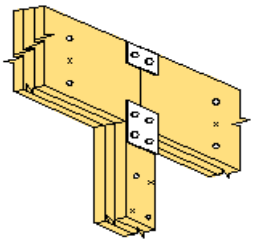
BEARING FOR SINGLE OR CONTINUOUS BEAM SPAN



BEARING ON CONCRETE WALL



BEARING FOR DOOR OR WINDOW HEADER



BEARING FOR SINGLE BEAM SPAN

NOTES

1- ARTICLE 9.23.9.1.1) OF THE NBCC 2005 REQUIRES A BEARING LENGTH OF AT LEAST 1½" FOR JOISTS;

2- ARTICLE 9.23.8.1.1) OF THE NBCC 2005 REQUIRES A BEARING LENGTH OF AT LEAST 3½" FOR BEAMS;

3- A MINIMUM OF 3½" (JOIST) AND 7½" (BEAM) BEARING LENGTH IS RECOMMENDED FOR AN INTERMEDIATE BEARING SUPPORT;

4- LATERAL SUPPORT IS REQUIRED AT EACH BEARING SUPPORT TO PREVENT ROTATION AND LATERAL DISPLACEMENT;

5- BEARING LENGTH SPECIFIED REQUIRES WIDTH EQUAL TO OR LARGER THAN THE WIDTH OF THE SUPPORTED BEAM.

PRODUCT

GLOBAL LVL 2.0E-3300Fb

LIMIT STATES DESIGN (LSD)

MULTIPLE MEMBER CONNECTIONS

TOP LOAD (1)			
Depth (in)	Number of plies		
	2	3	4
5¼ à 12½	2 rows 16d nails at 12" o.c.	2 rows 16d nails at 12" o.c.	2 rows ½" bolts at 24" o.c.
14 à 18¾	3 rows 16d nails at 12" o.c.	3 rows 16d nails at 12" o.c.	3 rows ½" bolts at 24" o.c.

NOTES

1- LOAD MUST BE APPLIED EVENLY ACROSS ENTIRE MEMBER WIDTH.

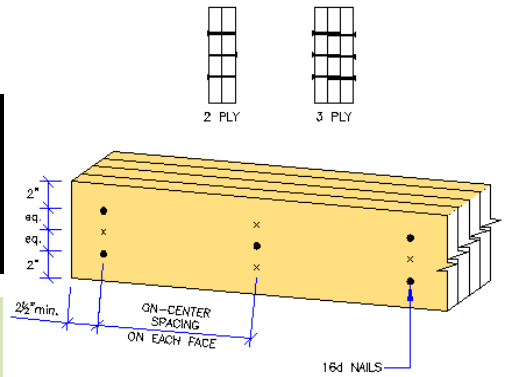
NAILED CONNECTION UNIFORM FACTORED LOAD APPLIED TO EITHER OUTSIDE MEMBER (plf)				
NUMBER OF PLIES	2 rows 16d nails at 12" o.c.	2 rows 16d nails at 6" o.c.	3 rows 16d nails at 12" o.c.	3 rows 16d nails at 6" o.c.
2	885	1775	1330	2660
3 (2)	660	1330	1000	1995

NOTES

1- THE MAXIMUM LOAD MUST BE VERIFIED WITH W_F;

2- THE TABULATED NAILLING PATTERN IS FROM EACH SIDE OF A 3 PLY MEMBER;

3- ALL NAILS SHOWN SHALL BE MINIMUM 16d: DIAMETER 0,162 INCH, LENGTH 3½", BENDING YIELD STRENGTH (Fy) = 90 000 PSI;



BOLTED CONNECTION UNIFORM FACTORED LOAD APPLIED TO EITHER OUTSIDE MEMBER (plf)				
NUMBER OF PLIES	2 rows ½" bolts at 24" o.c.	2 rows ½" bolts at 12" o.c.	3 rows ½" bolts at 24" o.c.	3 rows ½" bolts at 12" o.c.
2	780	1560	1170	2345
3	585	1170	875	1755
4	520	1040	780	1560

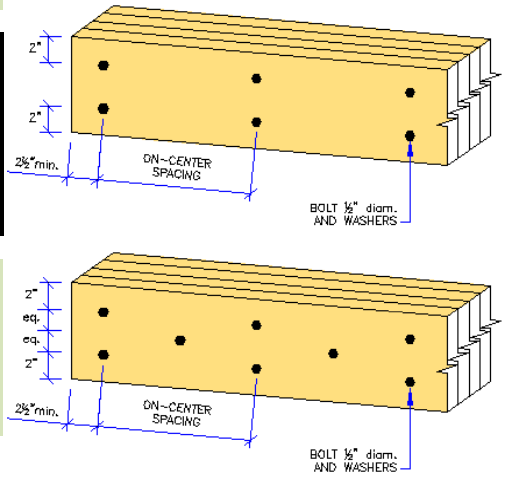
NOTES

1- THE MAXIMUM LOAD MUST BE VERIFIED WITH W_F;

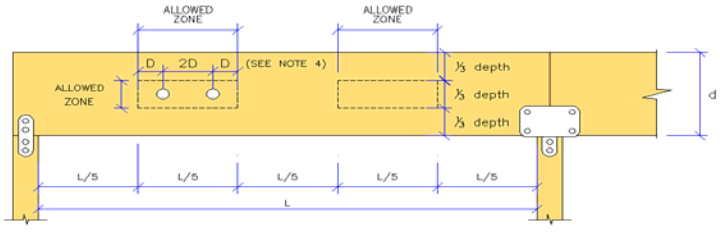
2- ALL BOLTS SHOWN SHALL BE MINIMUM: GRADE A307, DIAMETER 1/2", BENDING YIELD STRENGTH Fy = 45 000 PSI;

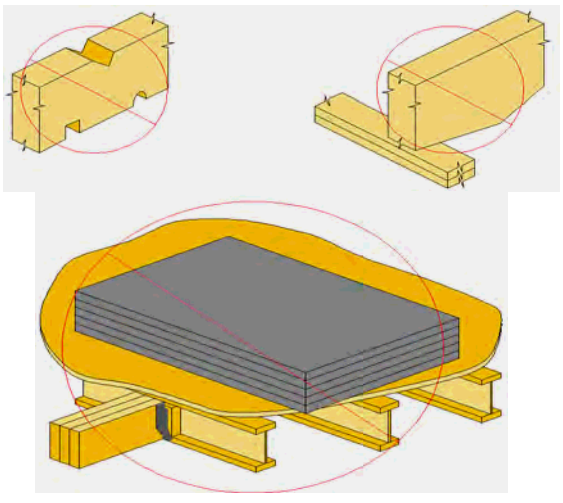
3- 2" (EXTERIOR) DIAMETER WASHERS SHALL BE USED UNDER THE HEAD AND NUT OF ALL BOLTS;

4- PREDRILL ALL BOLT HOLES TO 9/16" DIAMETER.



ALLOWABLE HOLES AND INSTALLATION





NOTES

1- MAXIMUM 1" HOLE DIAMETER (D=1") FOR BEAM DEPTHS BETWEEN 7¼" TO 9¼"; MAXIMUM 2" HOLE DIAMETER (D=2") FOR BEAM DEPTHS BETWEEN 11¼" TO 18¾";

2- THE ALLOWED HOLE ZONE IS FOR UNIFORMLY LOADED MEMBERS, SINGLE OR CONTINUOUS;

3- WHENEVER POSSIBLE HOLES SHOULD BE CENTERED IN THE ALLOWABLE ZONE;

4- WHERE MORE THAN ONE HOLE IS NECESSARY, THE DISTANCE BETWEEN ADJACENT HOLE EDGES SHALL EQUAL OR EXCEED TWICE THE DIAMETER OF THE LARGEST ROUND HOLE;

5- DO NOT DRILL, NOTCH, CUT OR ALTER MEMBER UNLESS AUTORIZED BY GLOBAL LVL INC;

6- AVOID OVERLOADING FLOOR;

7- FOR ALL OTHER CONDITIONS, CONTACT GLOBAL LVL INC. TECHNICAL DEPARTMENT.

PRODUCT

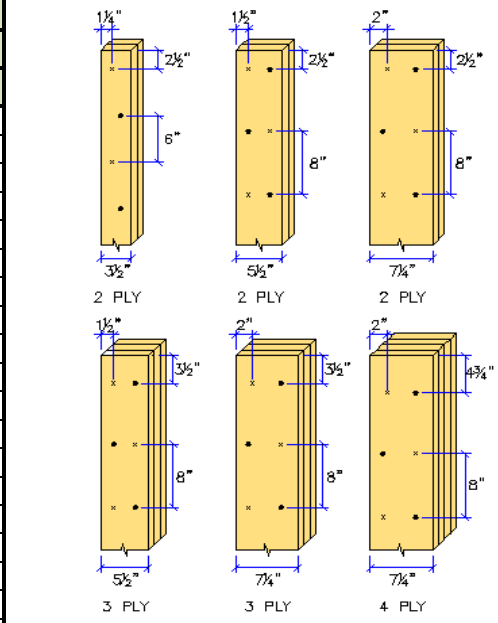
GLOBAL LVL 2.0E-3300Fb

LIMIT STATES DESIGN (LSD)

MAXIMUM FACTORED AXIAL LOAD (P_f, in pounds)

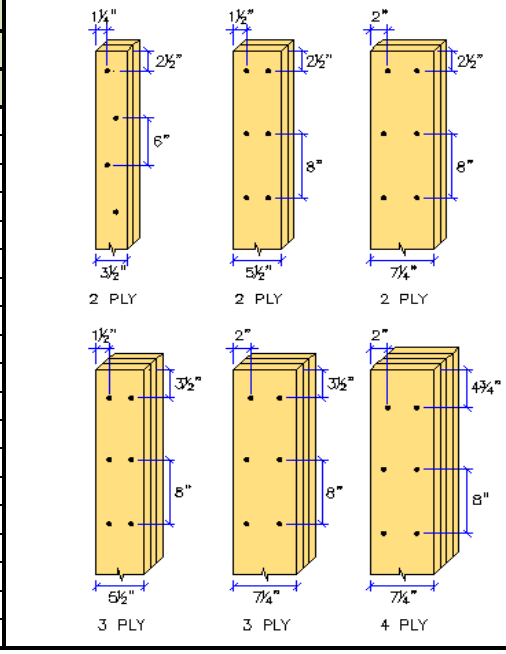
COLUMN ASSEMBLED WITH NAILS [1]

effective length of column (feet) [2]	Column size (inches)					
	3½" x 3½"	3½" x 5½"	3½" x 7¼"	5¼" x 5½	5¼" x 7¼"	7" x 7¼"
6	12987	21069	27872	40540	54026	78064
7	10818	17563	23246	37366	50071	74912
8	8888	14379	18948	33949	45673	71131
9	7244	11659	15354	30470	41084	66985
10	5889	9407	12409	27076	36525	62564
11	4794	7623	10050	23876	32160	58002
12	3918	6209	8183	20918	28140	53423
13	3222	5092	6709	18269	24518	48933
14	2668	4209	5544	15923	21315	44613
15				13869	18521	40523
16				12087	16106	36703
17				10550	14006	33173
18				9228	12232	29941
19				8093	10715	27004
20				7120	9417	24351
21				6287	8304	21966
22						19828
23						17916
24						16210



COLUM ASSEMBLED WITH BOLTS [1]

effective length of column (feet) [2]	Column size (inches)					
	3½" x 3½"	3½" x 5½"	3½" x 7¼"	5¼" x 5½	5¼" x 7¼"	7" x 7¼"
6	15043	25131	33396	46688	62903	90046
7	12632	21139	28102	43042	58538	86288
8	10484	17446	23047	39199	53693	81823
9	8638	14241	18789	35333	48606	77039
10	7093	11541	15254	31580	43500	72027
11	5823	9390	12398	28035	38568	66924
12	4791	7672	10121	24758	33940	61845
13	3960	6307	8314	21769	29732	56886
14	3292	5222	6881	19104	25970	52118
15				16745	22657	47594
16				14674	19770	43347
17				12868	17229	39397
18				11300	15083	35752
19				9944	13239	32411
20				8776	11654	29366
21				7762	10296	26604
22						24108
23						21859
24						19837



NOTES

1- TABLES ASSUME THAT THE COLUMN IS ASSEMBLED WITH NAILS OR BOLTS ACCORDING TO CSA 086-09. SEE FIGURES FOR CONNECTION DETAILS;

2- THE EFFECTIVE LENGHT IS THE DISTANCE BETWEEN THE CENTRES OF RESTRAINING MEMBERS;

3- TABLES ASSUME THAT THE COLUMN IS UNBRACED LATERALLY EXCEPT AT THE ENDS OF THE COLUMN;

4- TABLES ASSUME AN ECCENTRICITY = 1/6 OF THE LARGER DIMENSION OF THE COLUMN (THICKNESS OR WIDTH);

5- TABULATED MAXIMUM AXIAL LOADS ARE BASED ON APPARENT MODULUS OF ELASTICITY (E = 1.9×10^6 psi);

6- 1/2" DIAM. BOLTS WITH 2" EXTERIOR DIAM. WASHER UNDER HEAD AND NUT, IN COMPLIANCE WITH ASTM STANDARD A307;

7- TYPE OF NAILS:
2 PLIES = 3½" COMMON NAILS (0,162" DIAM.);
3 PLIES = 5" COMMON NAILS (0,162" DIAM.);
4 PLIES = 7" COMMON NAILS (0,162" DIAM.);

8- TABLE ASSUME A SIMPLE AXIAL LOAD, FOR OTHER LOAD CASES, CONTACT GLOBAL LVL INC. TECHNICAL DEPARTMENT

GENERAL INFORMATIONS

GLOBAL LVL Inc.
48 BOIVIN STREET
VILLE-MARIE (QUEBEC) CANADA
J9V 1B6
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REPORT OF EVALUATION ORGANIZATION

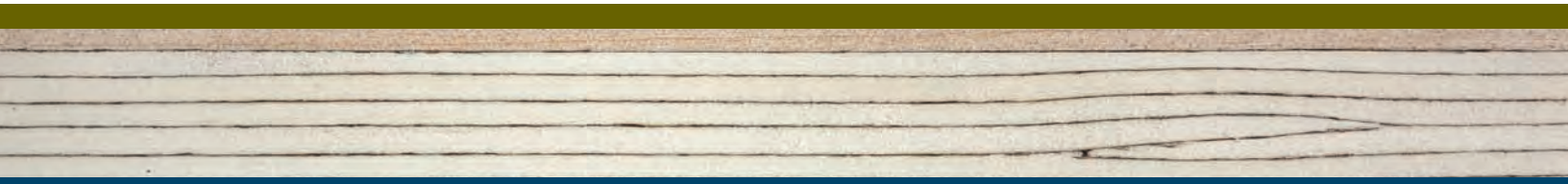
CCMC # 13543-R

GUARANTEE

GLOBAL LAMINATED VENEER LUMBER IS PRODUCED UNDER A QUALITY ASSURANCE PROGRAM AUDITED BY APA. PRODUCT SHALL BE IDENTIFIED BY A LABEL BEARING THE MANUFACTURER'S NAME (GLOBAL LVL INC.) AND/OR TRADEMARK, THE APA ASSIGNED PLANT NUMBER (1099), THE LVL GRADE, THE APA LOGO, THE APA REPORT NUMBER PR-L301, THE CCMC REPORT NUMBER AND A MEANS OF IDENTIFYING THE DATE OF MANUFACTURING.

GLOBAL LVL INC**.** GUARANTEES THAT, WHEN USED IN ACCORDANCE WITH TABLES AND RECOMMENDATIONS PUBLISHED IN THIS DOCUMENT AND INSTALLED TO MEET BUILDING CODE AND STANDARDS REQUIREMENTS, GLOBAL LVL WILL PERFORM TO THE

SHOULD THE USER OF GLOBAL LVL FAILS TO COMPLY WITH DATA AND INFORMATION PUBLISHED HEREIN, THIS GUARANTEE WILL BECOME NULL AND VOID, AND GLOBAL LVL INC. WILL NOT BE LIABLE FOR ANY DAMAGE RESULTING EITHER DIRECTLY OR INDIRECTLY FROM THE IMPROPER INSTALLATION AND/OR USE OF GLOBAL LVL.



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