



GLOBAL LVL HEADERS, BEAMS AND COLUMNS

1.9E-2850Fb

User guide

lvlglobal.com

PRODUCT

GLOBAL LVL 1.9E-2850Fb

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) 1.9E-2850Fb is manufactured from specially selected 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 stability;
- Nails easily;
- Glues easily with minimum preparation;
- High load capacity;
- Long spans;
- Appearance (visual application);
- Easy handling, lightweight;
- Product guarantee;
- Full technical support.

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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 ($K_D = 1.0$), 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 $E = 1.9 \times 10^6$ PSI (SHEAR-FREE);
- 8- DESIGNER MUST USE THE "APPARENT" MODULUS OF ELASTICITY $E = 1.8 \times 10^6$ PSI FOR OTHER CONDITIONS OF LOADING;
- 9- CONTACT GLOBAL LVL INC. TECHNICAL DEPARTMENT FOR OTHER USES, APPLICATIONS OR USE IN WET SERVICE CONDITIONS.

FACTORED RESISTANCES (JOIST AND BEAM)

Width (b) (in):	Depth (d) (in)											
	5½	7¼	9¼	9½	11¼	11½	11¾	12½	14	16	18	18¾
Width (b) (in):	1-3/4											
Factored resistance in bending M_r (lb-ft)	3 674	5 957	9 125	9 561	12 852	13 356	14 128	15 455	18 845	23 806	29 255	31 421
Factored resistance in shear V_r (lb)	2 374	3 129	3 992	4 100	4 855	4 963	5 125	5 394	6 042	6 905	7 768	8 092
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)	2,21	2,91	3,71	3,81	4,51	4,61	4,76	5,01	5,61	6,42	7,22	7,52

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⁾	$f_b = 4568$	4568
Modulus of elasticity ⁽⁸⁾	$E = 1.9 \times 10^6$ (true)	1.9×10^6 (true)
Tension parallel to grain ⁽³⁾	$f_t = 3150$	3150
Compression perpendicular to grain	$f_{c\perp} = 786$	786
Compression parallel to grain	$f_{c\parallel} = 3030$	3030
Longitudinal shear ⁽⁴⁾	$f_v = 411$	223
Specific gravity ⁽⁶⁾	SG = 0.43	0.43

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 $K_{zb} = (12/d)^{0.25}$, 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 APPLICABLE TO LENGTHS UP TO 20 FEET. FOR LENGTHS GREATER THAN 20 FEET, THE TABULATED TENSION TO GRAIN SPECIFIED STRENGTH MUST BE ADJUSTED BY THE LENGTH FACTOR THE $K_{zt} = (20/L)^{0.075}$, WHERE L = LENGTH OF THE MEMBER (ft);
- 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/B EAM = LOAD PARALLEL TO G LUELINE, P LANK = LOAD PERPENDICULAR TO G LUELINE;
- 8- FOR UNIFORMLY LOADED SIMPLE-SPAN BEAMS AND JOISTS, DEFECTION IS CALCULATED AS FOLLOWS:

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

Where: δ = estimated deflection, inches
 L = span, feet
 b = beam width, inches

w = uniform load, pounds per linear foot
 h = beam depth, inches
 E = true (shear-free) modulus of elasticity, pounds per square inches

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ALLOWABLE UNIFORM LOAD (pounds per linear foot)

Span (feet)	per ply 1 1/4"x5 1/2"			per ply 1 1/4"x7 1/4"			per ply 1 1/4"x9 1/4"			per ply 1 1/4"x9 1/2"			per ply 1 1/4"x11 1/4"			per ply 1 1/4"x11 1/2"			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 _L +W _D L/240	W _F	W _L L/360	W _L +W _D L/240	W _F	W _L L/360	W _L +W _D L/240	W _F	W _L L/360	W _L +W _D L/240	W _F	W _L L/360	W _L +W _D L/240	W _F	W _L L/360	W _L +W _D L/240	W _F	
6	290	435	816	626		1305			1790			1856			2353			2430	6
7	186	280	599	409	613	972	798		1462	857		1513			1894			1952	7
8	126	189	459	280	421	744	555		1140	597		1195	942		1585	999		1631	8
9	88	133	362	200	301	588	400	600	901	431		944	687		1269	729		1319	9
10	64	97	293	148	222	476	297	446	729	321	481	764	514		1028	547		1068	10
11	48	72	242	111	167	393	226	340	603	244	367	632	395		849	420		883	11
12	37	56	204	85	128	330	176	265	506	190	286	531	309	463	714	329	493	742	12
13	29	44	173	67	101	282	140	210	431	151	227	452	246	369	608	262	393	632	13
14	23	35	149	54	81	243	112	168	372	121	182	390	199	298	524	212	318	545	14
15	19	28	130	43	65	211	91	136	324	98	148	339	163	245	456	174	261	474	15
16				36	54	186	75	112	285	81	122	298	135	202	401	144	216	417	16
17				30	45	164	62	93	252	67	101	264	112	169	355	120	180	369	17
18				25	38	147	52	79	225	57	85	236	94	142	317	101	152	329	18
19				21	32	132	44	67	202	48	72	211	80	121	284	86	129	295	19
20				18	27	119	38	57	182	41	62	191	69	103	257	73	110	267	20
21							33	49	165	36	54	173	59	89	233	63	95	242	21
22							28	43	150	31	46	158	52	78	212	55	83	220	22
23							25	37	137	27	41	144	45	68	194	48	72	201	23
24							22	33	126	24	36	132	40	60	178	42	64	185	24
25										21	32	122	35	53	164	37	56	170	25
26													31	47	152	33	50	158	26
27													28	42	141	30	45	146	27
28													25	37	131	26	40	136	28
29													22	34	122	24	36	127	29
30													20	30	114	21	32	118	30

DATA IN SHADED AREA CONTROL THE DESIGN.

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

NOTES :

- BEAMS OVER 14" DEPTH MUST BE USED IN 2 OR MORE PLYS. MULTIPLE MEMBER MUST BE CORRECTLY CONNECTED TOGETHER (SEE CONNECTION DETAILS ON PAGE 11);
- USER MUST SELECT THE DATA CONTAINED IN THE SHADED BOXES IN PRIORITY;
- LATERAL SUPPORT IS REQUIRED ALONG COMPRESSION EDGE OF BEAM AT INTERVALS OF 24" C/C OR CLOSER;
- LATERAL SUPPORT IS REQUIRED AT BEARING POINTS TO PREVENT ROTATION AND LATERAL DISPLACEMENT;
- TABLE IS BASED ON UNIFORM LOADS AND SINGLE SPAN MEMBER;
- LOADS ARE BASED ON SPAN SPACING CENTRE-TO-CENTRE BETWEEN SUPPORTS;
- THERE IS NO LOAD INCREASE FOR SNOW LOAD ACCUMULATION (NBCC 2005);
- SEE PAGE 10 FOR REQUIRED BEARING LENGTHS;
- FOR L/180 ALLOWABLE DEFLECTION, MULTIPLY UNFACTORED TOTAL LOAD (W_L) 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);
- CONTACT LVL GLOBAL INC. TECHNICAL DEPARTMENT FOR OTHER LOADS AND CONDITIONS.

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

Span (feet)	per ply 1 1/2" x 11 1/2"			per ply 1 1/2" x 12 1/2"			per ply 1 1/2" x 14"			per ply 1 1/2" x 16"			per ply 1 1/2" x 18"			per ply 1 1/2" x 18 1/2"			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			2549			2754			3295			4142			5178			5628	6
7			2041			2194			2589			3186			3883			4176	7
8	1087		1702			1823			2132			2589			3107			3319	8
9	795		1395	912		1526			1812			2180			2589			2754	9
10	597		1130	687		1236	931		1507			1883			2219			2353	10
11	459		934	529		1021	721		1245	1030		1573			1934			2055	11
12	360		784	415		858	569		1046	817		1322			1625			1745	12
13	287	430	668	332		731	456		892	658		1126	904		1384			1487	13
14	232	348	576	269	403	630	370		769	537		971	741		1194	827		1282	14
15	190	286	502	221	331	549	305		670	444		846	614		1040	687		1117	15
16	158	237	441	183	275	482	254	381	588	370		743	514		914	576		981	16
17	132	198	391	154	231	427	213	320	521	312		658	435		809	487		869	17
18	111	167	348	130	195	381	181	272	465	265		587	370		722	415		775	18
19	94	142	313	110	166	342	155	232	417	227	341	527	318		648	357		696	19
20	81	122	282	94	142	309	133	200	376	196	295	476	275		585	309		628	20
21	70	105	256	82	123	280	115	172	341	170	256	431	239		530	269		569	21
22	61	91	233	71	106	255	100	150	311	149	224	393	209	314	483	235		519	22
23	53	80	213	62	93	233	87	131	284	130	196	360	184	277	442	207	311	475	23
24	47	70	196	54	82	214	77	115	261	115	172	330	163	245	406	183	275	436	24
25	41	62	180	48	72	197	68	102	241	101	152	304	145	217	374	163	245	402	25
26	37	55	167	43	64	182	60	91	223	90	135	281	129	193	346	145	218	371	26
27	33	49	155	38	57	169	54	81	206	80	121	261	115	172	321	130	195	344	27
28	29	44	144	34	51	157	48	72	192	72	108	242	103	154	298	116	175	320	28
29	26	40	134	31	46	147	43	65	179	65	97	226	92	139	278	105	157	298	29
30	24	36	125	28	42	137	39	59	167	58	88	211	84	126	260	94	142	279	30

EXAMPLE:

- SINGLE SPAN FLOOR JOIST
- DEAD LOAD (DL): 10 LBS/PI² (TYPICAL HOUSE FLOOR)
- LIVE LOAD (LL): 40 LBS/PI² (KITCHEN)
- TRIBUTARY WIDTH: 20 FEET
- SPAN: 14 FEET
- BEAM DEPTH BETWEEN 11 1/2" AND 11 3/4"

SEE NOTES ON PAGE 4.

THEN:

$$W_D = DL \times \text{TRIBUTARY WIDTH} = 10 \text{ PSF} \times 20' = 200 \text{ PLF (POUNDS PER LINEAR FOOT)}$$

$$W_L = LL \times \text{TRIBUTARY WIDTH} = 40 \text{ PSF} \times 20' = 800 \text{ PLF}$$

$$W_T = W_D + W_L = 200 + 800 = 1000 \text{ PLF}$$

$$W_F = 1.25 \times W_D + 1.5 \times W_L$$

$$W_F = 1.25 \times 200 + 1.5 \times 800 = 1450 \text{ PLF}$$

FIRST CHECK:

DATA IN SHADED AREA

$$4 - 1 \frac{1}{2} \times 11 \frac{1}{2}: W_L = 800 \text{ PLF} / 4 \text{ PLYS} = 200 \text{ PLF} < 212 \text{ PLF (PER PLY)}$$

$$W_T = 1000 \text{ PLF} / 4 \text{ PLYS} = 250 \text{ PLF} < 318 \text{ PLF (PER PLY)}$$

SECOND CHECK:

$$W_F = 1450 \text{ PLF} / 4 \text{ PLYS} = 362.5 \text{ PLF} < 545 \text{ PLF (PER PLY)}$$

FINAL SELECTION:

4 PLYS OF 1 1/2" X 11 1/2" (SEE CONNECTION DETAILS ON PAGE 11)

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FLOOR BEAM SPAN TABLES (feet)

Loads (lb/feet ²)	Tributary width (feet)	5½"		7¼"		9¼"		9½"		11¼"		11½"		11¾"		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	8,15	9,37	10,75	12,35	13,71	15,76	14,08	16,18	16,68	19,17	17,05	19,59	17,61	20,23	18,53	21,30	20,76	23,85	23,73	27,26	26,70	30,67	27,81	31,95
	10	7,55	8,68	9,95	11,44	12,70	14,60	13,04	14,99	15,44	17,76	15,79	18,15	16,30	18,74	17,16	19,73	19,22	22,09	21,97	25,26	24,72	28,42	25,74	29,61
	12	7,09	8,15	9,34	10,75	11,92	13,71	12,24	14,08	14,50	16,68	14,82	17,05	15,30	17,61	16,11	18,53	18,05	20,76	20,63	23,73	23,20	26,70	24,17	27,81
	14	6,72	7,73	8,85	10,19	11,30	13,00	11,60	13,36	13,74	15,82	14,04	16,17	14,51	16,70	15,27	17,58	17,10	19,69	19,55	22,50	21,99	25,32	22,91	26,37
	16	6,41	7,38	8,45	9,73	10,78	12,42	11,07	12,75	13,11	15,10	13,41	15,44	13,84	15,94	14,57	16,78	16,32	18,80	18,65	21,49	20,99	24,17	21,86	25,18
	18	6,15	7,09	8,11	9,34	10,35	11,92	10,62	12,24	12,58	14,50	12,86	14,82	13,28	15,30	13,98	16,11	15,66	18,05	17,90	20,63	20,14	23,20	20,97	24,17
20	5,92	6,83	7,81	9,01	9,97	11,49	10,24	11,80	12,12	13,98	12,39	14,29	12,80	14,75	13,47	15,53	15,09	17,40	17,25	19,89	19,40	22,37	20,21	23,30	
DL=15 LL=30 UNFACTORED	8	8,15	9,37	10,75	12,35	13,71	15,76	14,08	16,18	16,68	19,17	17,05	19,59	17,61	20,23	18,53	21,30	20,76	23,85	23,73	27,26	26,69	30,67	27,81	31,94
	10	7,55	8,68	9,95	11,44	12,70	14,60	13,04	14,99	15,44	17,76	15,79	18,15	16,30	18,74	17,16	19,73	19,22	22,09	21,97	25,26	24,72	28,42	25,74	29,60
	12	7,09	8,15	9,34	10,75	11,92	13,71	12,24	14,08	14,50	16,68	14,82	17,05	15,30	17,61	16,11	18,53	18,05	20,76	20,63	23,73	23,20	26,69	24,17	27,80
	14	6,72	7,73	8,85	10,19	11,30	13,00	11,60	13,36	13,74	15,82	14,04	16,17	14,51	16,70	15,27	17,58	17,10	19,69	19,55	22,50	21,99	25,31	22,91	26,36
	16	6,41	7,38	8,45	9,73	10,78	12,42	11,07	12,75	13,11	15,10	13,41	15,44	13,84	15,94	14,57	16,78	16,32	18,80	18,65	21,49	20,99	24,17	21,86	25,17
	18	6,15	7,09	8,11	9,34	10,35	11,92	10,62	12,24	12,58	14,50	12,86	14,82	13,28	15,30	13,98	16,11	15,66	18,05	17,90	20,63	20,14	23,19	20,93	24,16
20	5,92	6,83	7,81	9,01	9,97	11,49	10,24	11,80	12,12	13,98	12,39	14,29	12,80	14,75	13,47	15,53	15,09	17,40	17,25	19,88	19,16	22,36	19,85	23,29	
DL=10 LL=40 UNFACTORED	8	7,38	8,49	9,73	11,19	12,42	14,28	12,75	14,67	15,10	17,37	15,44	17,76	15,94	18,33	16,78	19,30	18,80	21,62	21,49	24,71	24,18	27,80	25,18	28,96
	10	6,83	7,86	9,01	10,36	11,49	13,23	11,80	13,58	13,98	16,09	14,29	16,44	14,75	16,98	15,53	17,87	17,40	20,02	19,89	22,88	22,37	25,75	23,30	26,82
	12	6,41	7,38	8,45	9,73	10,78	12,42	11,07	12,75	13,11	15,10	13,41	15,44	13,84	15,94	14,57	16,78	16,32	18,80	18,65	21,49	20,99	24,17	21,86	25,18
	14	6,07	7,00	8,00	9,22	10,21	11,77	10,49	12,09	12,42	14,32	12,70	14,64	13,11	15,11	13,81	15,91	15,46	17,82	17,67	20,37	19,88	22,91	20,71	23,86
	16	5,79	6,68	7,64	8,81	9,74	11,24	10,01	11,54	11,85	13,67	12,11	13,97	12,51	14,43	13,17	15,19	14,75	17,01	16,86	19,44	18,96	21,87	19,75	22,78
	18	5,55	6,41	7,32	8,45	9,34	10,78	9,60	11,07	11,37	13,11	11,62	13,41	12,00	13,84	12,63	14,57	14,14	16,32	16,17	18,65	18,19	20,99	18,94	21,86
20	5,35	6,18	7,05	8,14	9,00	10,39	9,24	10,67	10,95	12,64	11,19	12,92	11,56	13,34	12,17	14,04	13,62	15,73	15,57	17,98	17,52	20,22	18,25	21,07	
DL=15 LL=40 UNFACTORED	8	7,38	8,49	9,73	11,19	12,42	14,28	12,75	14,67	15,10	17,37	15,44	17,76	15,94	18,33	16,78	19,30	18,80	21,62	21,49	24,71	24,18	27,80	25,18	28,96
	10	6,83	7,86	9,01	10,36	11,49	13,23	11,80	13,58	13,98	16,09	14,29	16,44	14,75	16,98	15,53	17,87	17,40	20,02	19,89	22,88	22,37	25,75	23,30	26,82
	12	6,41	7,38	8,45	9,73	10,78	12,42	11,07	12,75	13,11	15,10	13,41	15,44	13,84	15,94	14,57	16,78	16,32	18,80	18,65	21,49	20,99	24,17	21,86	25,18
	14	6,07	7,00	8,00	9,22	10,21	11,77	10,49	12,09	12,42	14,32	12,70	14,64	13,11	15,11	13,81	15,91	15,46	17,82	17,67	20,37	19,88	22,91	20,71	23,86
	16	5,79	6,68	7,64	8,81	9,74	11,24	10,01	11,54	11,85	13,67	12,11	13,97	12,51	14,43	13,17	15,19	14,75	17,01	16,86	19,44	18,96	21,87	19,75	22,78
	18	5,55	6,41	7,32	8,45	9,34	10,78	9,60	11,07	11,37	13,11	11,62	13,41	12,00	13,84	12,63	14,57	14,14	16,32	16,17	18,65	18,17	20,99	18,83	21,86
20	5,35	6,18	7,05	8,14	9,00	10,39	9,24	10,67	10,95	12,64	11,19	12,92	11,56	13,34	12,17	14,04	13,62	15,73	15,55	17,98	17,23	20,22	17,86	21,07	

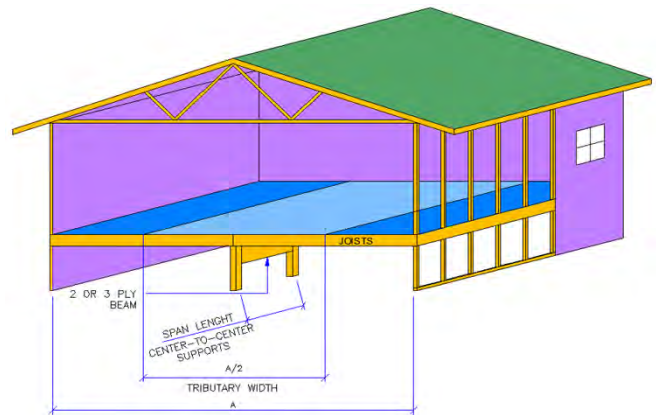
MINIMUM BEARING REQUIREMENTS:
3" BEARING AT BOTH ENDS AND 7½" AT INTERMEDIATE

SHADED AREAS:
 4½" BEARING AT BOTH ENDS AND 11½" BEARING AT INTERMEDIATE
 6" BEARING AT BOTH ENDS AND 15" BEARING AT INTERMEDIATE
 7½" BEARING AT BOTH ENDS AND 18½" BEARING AT INTERMEDIATE

NOTES

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



PRODUCT

GLOBAL LVL 1.9E-2850Fb

LIMIT STATES DESIGN (LSD)



RIDGE BEAM SPAN TABLE (feet)

Loads (psf)	tributary width (feet)	5½"		7¼"		9¼"		9½"		11¼"		11½"		11¾"		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	8,01	9,21	10,56	8,15	13,48	15,49	13,84	15,91	16,39	18,84	16,76	19,26	17,31	19,89	18,22	20,93	20,40	23,44	23,31	26,80	26,24	30,15	27,33	31,41
	20	7,42	8,53	9,78	7,55	12,48	14,35	12,82	14,74	15,17	17,46	15,52	17,84	16,02	18,43	16,87	19,39	18,89	21,72	21,59	24,83	24,29	27,93	25,31	29,10
	24	6,96	8,01	9,18	7,09	11,71	13,48	12,03	13,84	14,24	16,40	14,56	16,76	15,04	17,31	15,83	18,21	17,73	20,40	20,26	23,32	22,80	26,23	23,76	27,33
	28	6,60	7,60	8,70	6,72	11,10	12,78	11,40	13,12	13,50	15,55	13,80	15,89	14,25	16,41	15,00	17,27	16,80	19,34	19,20	22,11	21,61	24,88	22,51	25,92
	32	6,30	7,25	8,30	6,41	10,59	12,20	10,88	12,53	12,88	14,84	13,17	15,17	13,60	15,67	14,32	16,49	16,04	18,47	18,33	21,12	20,62	23,76	21,48	24,75
	36	6,04	6,96	7,96	6,15	10,16	11,71	10,44	12,03	12,36	14,25	12,64	14,57	13,05	15,04	13,74	15,83	15,39	17,73	17,58	20,27	19,75	22,81	20,47	23,75
40	5,82	6,71	7,67	5,92	9,79	11,29	10,06	11,60	11,91	13,74	12,18	14,04	12,57	14,50	13,24	15,26	14,82	17,09	16,90	19,54	18,73	21,99	19,42	22,90	
DL=15 LL=40 UNFACTORED	16	7,38	8,49	9,73	8,15	12,42	14,28	12,75	14,67	15,10	17,37	15,44	17,76	15,94	18,34	16,78	19,30	18,80	21,62	21,48	24,71	24,17	27,79	25,18	28,95
	20	6,83	7,86	9,01	7,55	11,49	13,22	11,80	13,58	13,98	16,09	14,29	16,45	14,75	16,98	15,53	17,87	17,40	20,02	19,88	22,88	22,37	25,74	23,30	26,81
	24	6,41	7,38	8,45	7,09	10,78	12,42	11,07	12,75	13,11	15,10	13,40	15,44	13,84	15,94	14,57	16,78	16,32	18,80	18,65	21,48	20,99	24,17	21,86	25,19
	28	6,07	7,00	8,00	6,72	10,21	11,77	10,49	12,09	12,42	14,32	12,70	14,64	13,11	15,11	13,80	15,91	15,46	17,82	17,67	20,37	19,88	22,91	20,71	23,87
	32	5,79	6,68	7,64	6,41	9,74	11,23	10,01	11,54	11,85	13,67	12,11	13,97	12,51	14,43	13,17	15,19	14,75	17,01	16,86	19,44	18,92	21,87	19,61	22,79
	36	5,55	6,41	7,32	6,15	9,34	10,78	9,60	11,07	11,36	13,12	11,62	13,41	11,99	13,84	12,63	14,57	14,15	16,32	16,09	18,65	17,84	20,99	18,49	21,87
40	5,35	6,18	7,05	5,92	9,00	10,39	9,24	10,67	10,95	12,64	11,19	12,92	11,55	13,34	12,16	14,04	13,58	15,73	15,27	17,98	16,93	20,22	17,54	21,07	
DL=15 LL=50 UNFACTORED	16	6,83	7,86	9,01	7,38	11,49	13,23	11,80	13,58	13,98	16,09	14,28	16,45	14,75	16,98	15,53	17,87	17,40	20,02	19,88	22,88	22,37	25,74	23,30	26,82
	20	6,32	7,28	8,33	6,83	10,63	12,24	10,92	12,57	12,93	14,89	13,21	15,22	13,65	15,72	14,37	16,55	16,09	18,53	18,39	21,18	20,69	23,83	21,55	24,83
	24	5,92	6,83	7,81	6,41	9,97	11,49	10,24	11,80	12,12	13,98	12,39	14,29	12,80	14,75	13,47	15,53	15,09	17,39	17,24	19,88	19,40	22,37	20,21	23,30
	28	5,61	6,47	7,40	6,07	9,44	10,89	9,69	11,18	11,48	13,25	11,73	13,54	12,12	13,98	12,76	14,72	14,29	16,48	16,33	18,84	18,37	21,19	19,14	22,08
	32	5,35	6,18	7,05	5,79	9,00	10,39	9,24	10,67	10,94	12,64	11,19	12,92	11,55	13,34	12,16	14,04	13,62	15,73	15,57	17,98	17,39	20,22	18,03	21,07
	36	5,13	5,92	6,76	5,55	8,63	9,97	8,86	10,24	10,49	12,13	10,72	12,40	11,08	12,80	11,66	13,47	13,06	15,09	14,79	17,25	16,40	19,40	16,99	20,22
40	4,91	5,71	6,47	5,35	8,26	9,60	8,48	9,86	10,04	11,68	10,26	11,94	10,60	12,33	11,16	12,98	12,48	14,54	14,03	16,62	15,56	18,69	16,12	19,48	
DL=15 LL=60 UNFACTORED	16	6,41	7,38	8,45	7,38	10,78	12,42	11,07	12,75	13,11	15,10	13,41	15,44	13,84	15,94	14,57	16,78	16,32	18,80	18,65	21,48	20,99	24,17	21,86	25,18
	20	5,92	6,83	7,81	6,83	9,97	11,49	10,24	11,80	12,12	13,98	12,39	14,29	12,80	14,76	13,47	15,53	15,09	17,39	17,25	19,88	19,40	22,37	20,21	23,30
	24	5,55	6,41	7,32	6,41	9,34	10,78	9,59	11,07	11,37	13,11	11,62	13,41	12,00	13,84	12,63	14,57	14,15	16,32	16,17	18,65	18,19	20,99	18,95	21,86
	28	5,26	6,07	6,93	6,07	8,84	10,21	9,08	10,49	10,75	12,42	11,00	12,70	11,35	13,11	11,95	13,81	13,39	15,46	15,30	17,67	17,21	19,89	17,93	20,71
	32	5,01	5,79	6,60	5,79	8,43	9,74	8,66	10,01	10,25	11,85	10,48	12,11	10,82	12,51	11,39	13,17	12,76	14,75	14,58	16,86	16,18	18,97	16,77	19,75
	36	4,72	5,55	6,22	5,55	7,94	9,34	8,15	9,60	9,66	11,37	9,87	11,62	10,19	12,00	10,73	12,63	12,02	14,14	13,74	16,17	15,26	18,19	15,81	18,95
40	4,25	5,35	5,60	5,35	7,15	9,00	7,34	9,24	8,69	10,95	8,88	11,19	9,17	11,56	9,66	12,16	10,82	13,62	12,36	15,57	13,91	17,52	14,49	18,25	

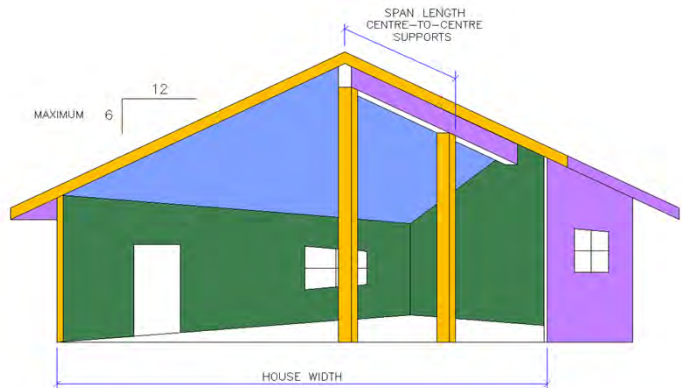
MINIMUM BEARING REQUIREMENTS:
3" BEARING AT BOTH ENDS AND 7½" AT INTERMEDIATE

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

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



PRODUCT

GLOBAL LVL 1.9E-2850Fb

LIMIT STATES DESIGN (LSD)



GARAGE & HOUSE HEADER TABLE

garage or house depth (feet)	Dead load of 15 lb/ft ² and live load of 30 lb/ft ² (unfactored)						Dead load of 15 lb/ft ² and live load of 40 lb/ft ² (unfactored)						garage or house depth (feet)
	SPAN (feet)						SPAN (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 9¼	3½ x 11¼	3½ x 11¼	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 11¼	3½ x 14	16
		5¼ x 5½	5¼ x 7¼		5¼ x 9¼	5¼ x 11¼			5¼ x 7¼	5¼ x 9¼		5¼ x 11¼	
	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)	
	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 11¼	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 11¼	
	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 11¼	3½ x 14	3½ x 5½	3½ x 9¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	
			5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 11¼		5¼ x 7¼			5¼ x 11¼	5¼ x 14	
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 9¼	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 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 7¼	5¼ x 9¼	5¼ x 9¼	5¼ x 14	
22	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	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 7¼	5¼ x 9¼	5¼ x 11¼	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 11¼	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 9¼	5¼ x 11¼	5¼ x 11¼	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 14	(3½ x 16)	24
			5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 11¼				5¼ x 9¼	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 11¼	3½ x 14	(3½ x 16)	
				5¼ x 9¼	5¼ x 11¼	5¼ x 14	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 11¼	3½ x 14	3½ x 7¼	3½ x 9¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	26
				5¼ x 9¼	5¼ x 11¼	5¼ x 11¼	5¼ x 5½	5¼ x 7¼			5¼ x 11¼	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 11¼	5¼ x 14	5¼ x 5½	5¼ x 7¼	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 16	
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 9¼		5¼ x 11¼	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 9¼		5¼ x 11¼	5¼ x 14	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 14	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 11¼	3½ x 11¼	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 11¼	5¼ x 14	
	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 11¼	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 11¼	5¼ x 14			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 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 11¼	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 11¼	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 9¼	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 11¼	5¼ x 14	5¼ x 16	
36	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)	36
	5¼ x 5½	5¼ x 7¼			5¼ x 11¼	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 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 11¼	5¼ x 14	5¼ x 16	

MINIMUM BEARING REQUIREMENTS:
3" BEARING AT BOTH ENDS AND 7½" AT INTERMEDIATE

SHADED AREAS:

- 4" BEARING AT BOTH ENDS AND 11¼" BEARING AT INTERMEDIATE
- 6" BEARING AT BOTH ENDS AND 15" BEARING AT INTERMEDIATE
- 7" BEARING AT BOTH ENDS AND 18" BEARING AT INTERMEDIATE

DEFLECTION LIMITATIONS			
GARAGE OR HOUSE DEPTH (feet) (see figure)	LOADS (psf)		
	SPAN (feet)		
	16	LIVE LOAD : L/360	}
TOTAL LOAD : L/240			
18	LIVE LOAD : L/480	}	CHOICE FOR BETTER PERFORMANCE
	TOTAL LOAD : L/240		

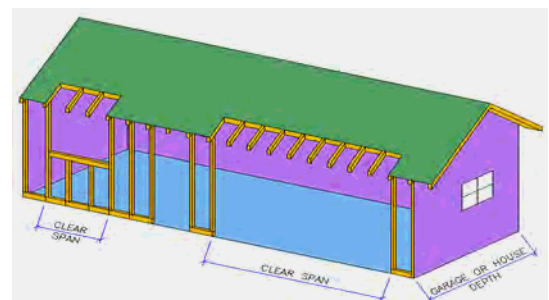


GARAGE & HOUSE HEADER TABLE

garage or house depth (feet)	Dead load of 15 lb/ft ² and live load of 50 lb/ft ² (unfactored)						Dead load of 15 lb/ft ² and live load of 60 lb/ft ² (unfactored)						garage or house depth (feet)	
	SPAN (feet)						SPAN (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 7¼	3½ x 9¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	16	
				5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 5½	5¼ x 7¼	5¼ x 9¼		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 16)	(3½ x 18)		
18	5¼ x 5½	5¼ x 7¼		5¼ x 11¼	5¼ x 11½	5¼ x 14	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 16	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)		
	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 11¼	3½ x 14	(3½ x 16)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18)		
20	5¼ x 5½	5¼ x 7¼		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 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)		
	3½ x 5½	3½ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 16			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 16)	(3½ x 18)	22	
	5¼ x 5½	5¼ x 7¼		5¼ x 11¼	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)		
24	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 14	5¼ x 16				5¼ x 11¼	5¼ x 14	5¼ x 16	24	
	3½ x 7¼	3½ x 9¼	3½ x 11¼	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)		
	3½ x 5½	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%)
26			5¼ x 9¼	5¼ x 11¼	5¼ x 14	5¼ x 16			5¼ x 11¼	5¼ x 11½	5¼ x 14	5¼ x 16	26	
	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)		(3½ x 18)
	3½ x 5½	3½ x 7¼	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%)		
28	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)	28	
	5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 16			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 11¼	(3½ x 16)	(3½ x 18)			
30			5¼ x 11¼	5¼ x 12½	5¼ x 14	5¼ x 16			5¼ x 11¼	5¼ x 12½	5¼ x 14	5¼ x 16	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 18%)		
	3½ x 5½	3½ x 7¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18%)	3½ x 7¼	3½ x 11¼	3½ x 12½	(3½ x 16)	(3½ x 18)			
32			5¼ x 11¼	5¼ x 12½	5¼ x 14	5¼ x 16			5¼ x 9¼	5¼ x 11¼	5¼ x 14	5¼ x 16	32	
	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 12½	(3½ x 16)	(3½ x 18)		
	3½ x 5½	3½ x 7¼	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)		
34			5¼ x 11¼	5¼ x 12½	5¼ x 14	5¼ x 16			5¼ x 11¼	5¼ x 12½	5¼ x 14	5¼ x 16	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 14	(3½ x 16)	(3½ x 18)		
	3½ x 5½	3½ x 7¼	3½ x 11¼	(3½ x 16)	(3½ x 18)		3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18)			
36			5¼ x 11¼	5¼ x 12½	5¼ x 14	5¼ x 16			5¼ x 11¼	5¼ x 12½	5¼ x 14	5¼ x 16	36	
	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)	(3½ x 18)		
	3½ x 5½	3½ x 7¼	3½ x 11¼	(3½ x 16)	(3½ x 18)		3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18)			

NOTES

- 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 PLYS OF 1½" 5¼" = THREE PLYS OF 1½"
- 8- HEADER TABLE IS BASED ON APPARENT MODULUS OF ELASTICITY E = 1.8 x 10⁶ PSI .



PRODUCT

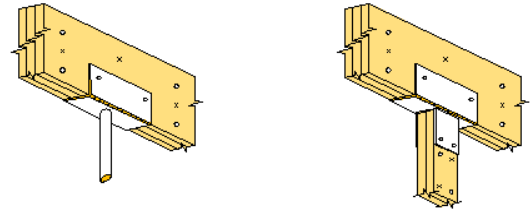
GLOBAL LVL 1.9E-2850Fb

LIMIT STATES DESIGN (LSD)

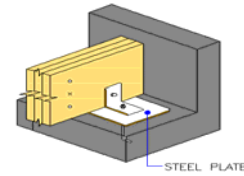


MINIMUM BEARING LENGTH REQUIREMENTS (Inches)

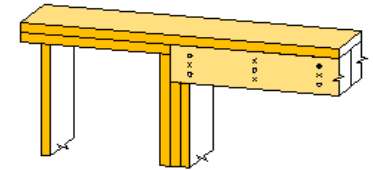
FACTORED REACTION R _F (lb)	1 PLY (b=1¼")	2 PLYS (b=3½")	3 PLYS (b=5¼")	4 PLYS (b=7")
1 000	1,50	1,50	1,50	1,50
2 000	2,00	1,50	1,50	1,50
3 000	2,75	1,50	1,50	1,50
4 000	3,75	2,00	1,50	1,50
5 000	4,75	2,50	1,75	1,50
6 000	5,50	2,75	2,00	1,50
7 000	6,50	3,25	2,25	1,75
8 000	7,50	3,75	2,50	2,00
9 000	8,25	4,25	2,75	2,25
10 000	9,25	4,75	3,25	2,50
11 000	10,00	5,00	3,50	2,50
12 000		5,50	3,75	2,75
13 000		6,00	4,00	3,00
14 000		6,50	4,25	3,25
15 000		7,00	4,75	3,50
16 000		7,50	5,00	3,75
17 000		7,75	5,25	4,00
18 000		8,25	5,50	4,25
19 000		8,75	6,00	4,50
20 000		9,25	6,25	4,75
21 000		9,75	6,50	5,00
22 000		10,00	6,75	5,00
23 000		10,50	7,00	5,25
24 000			7,50	5,50
25 000			7,75	5,75
26 000			8,00	6,00
27 000			8,25	6,25
28 000			8,50	6,50
29 000			9,00	6,75
30 000			9,25	7,00
31 000			9,50	7,25
32 000			9,75	7,50
33 000			10,00	7,50
34 000			10,50	7,75
35 000				8,00
36 000				8,25
37 000				8,50
38 000				8,75
39 000				9,00
40 000				9,25
41 000				9,50
42 000				9,75



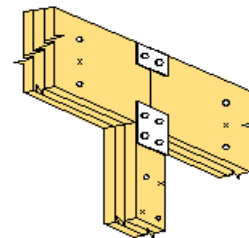
BEARING FOR SINGLE OR CONTINUOUS BEAM SPAN



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 1.9E-2850Fb

LIMIT STATES DESIGN (LSD)

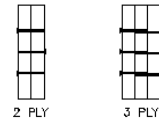


MULTIPLE MEMBER CONNECTIONS

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

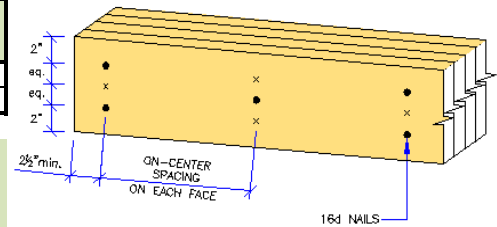
1- LOAD MUST BE APPLIED EVENLY ACROSS ENTIRE MEMBER WIDTH.



NAILED CONNECTION LOAD APPLIED TO EITHER OUTSIDE MEMBER (plf)				
NUMBER OF PLYS	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	800	1600	1200	2400
3 ⁽²⁾	600	1200	900	1800

NOTES

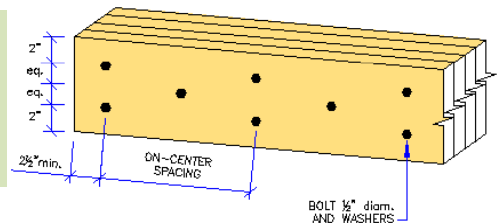
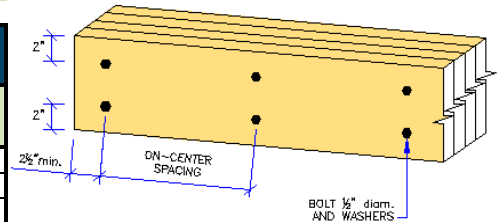
- 1- THE MAXIMUM LOAD MUST BE VERIFIED WITH W_F ;
- 2- THE TABULATED NAILING PATTERN IS FROM EACH SIDE OF A 3 PLY MEMBER;
- 3- ALL NAILS SHOWN SHALL BE MINIMUM 16d; DIAMETER 0,162 INCH, LENGTH 3½", BENDING YIELD STRENGTH (F_y) = 90 000 PSI;



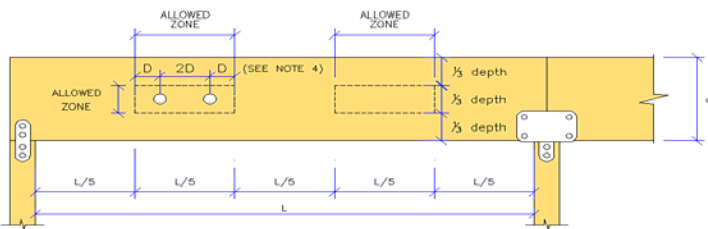
BOLTED CONNECTION LOAD APPLIED TO EITHER OUTSIDE MEMBER (plf)				
NUMBER OF PLYS	2 rows ½" bolts at 24" o.c.	2 rows ½" bolts at 12" o.c.	3 rows ½" bolts at 24" o.c.	3 rows ½" bolts at 12" o.c.
2	670	1340	1005	2015
3	500	1000	750	1510
4	445	890	670	1340

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 F_y = 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.

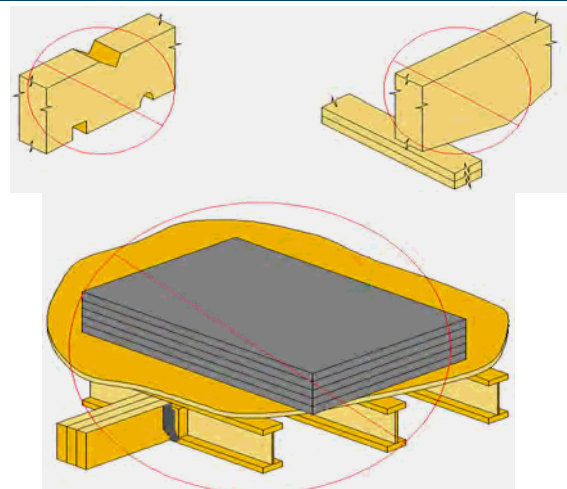


ALLOWABLE HOLES AND INSTALLATION



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 AUTHORIZED BY GLOBAL LVL INC.;
- 6- AVOID OVERLOADING FLOOR;
- 7- FOR ALL OTHER CONDITIONS, CONTACT GLOBAL LVL INC. TECHNICAL DEPARTMENT.



PRODUCT

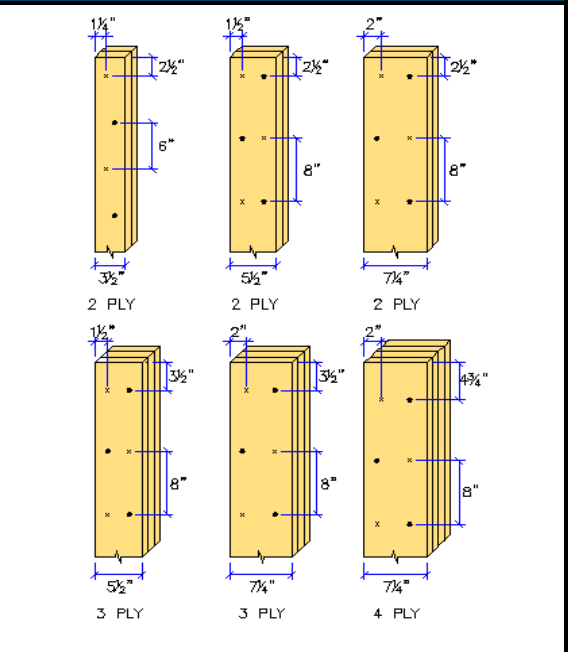
GLOBAL LVL 1.9E-2850Fb

LIMIT STATES DESIGN (LSD)

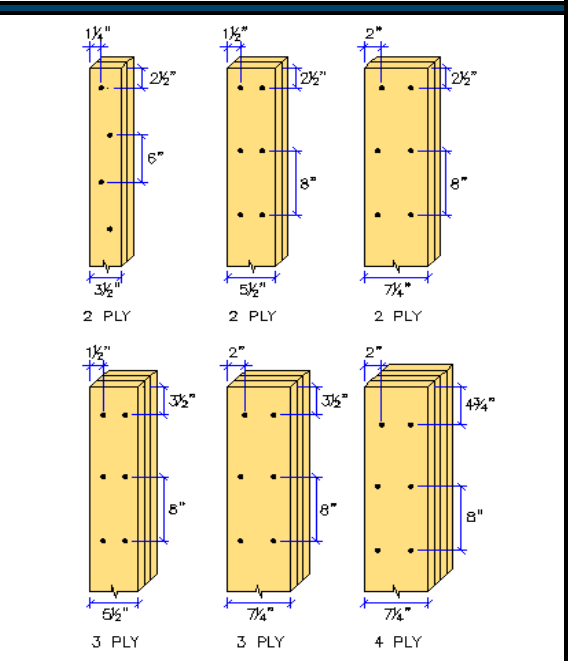


MAXIMUM FACTORED AXIAL LOAD (P_f , in pounds)

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	10457	16671	21926	30810	40616	57315
7	8928	14278	18809	28859	38195	55524
8	7496	11992	15769	26666	35427	53359
9	6228	9946	13082	24346	32439	50842
10	5148	8186	10783	21999	29366	48111
11	4249	6738	8875	19710	26330	45209
12	3513	5558	7320	17542	23431	42210
13	2916	4604	6064	15536	20735	39196
14	2433	3836	5052	13715	18284	36197
15				12077	16077	33296
16				10632	14135	30521
17				9363	12416	27899
18				8254	10934	25449
19				7292	9650	23179
20				6453	8532	21091
21				5724	7564	19183
22						17447
23						15873
24						14450



COLUMN 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	12324	19971	26308	36118	47784	66900
7	10563	17224	22740	33800	45047	64694
8	8925	14559	19172	31254	41929	62098
9	7470	12145	15993	28595	38560	59135
10	6220	10038	13242	25926	35076	55975
11	5169	8294	10937	23331	31608	52658
12	4298	6862	9045	20869	28267	49263
13	3584	5699	7509	18582	25131	45859
14	3001	4757	6266	16490	22251	42505
15				14602	19651	39250
16				12915	17335	36130
17				11421	15255	33172
18				10105	13472	30393
19				8951	11908	27802
20				7942	10547	25403
21				7061	9364	23194
22						21171
23						19324
24						17644



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 LENGTH 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 ($E = 1.8 \times 10^6$ 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 PLYS = 3½" COMMON NAILS (0,162" DIAM.);
 3 PLYS = 5" COMMON NAILS (0,162" DIAM.);
 4 PLYS = 7" COMMON NAILS (0,162" DIAM.);
- 8- TABLE ASSUME A SIMPLE AXIAL LOAD, FOR OTHER LOAD CASES, CONTACT GLOBAL LVL INC. TECHNICAL DEPARTMENT

PRODUCT

GLOBAL LVL 1.9E-2850Fb

LIMIT STATES DESIGN (LSD)



GENERAL INFORMATION

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REPORT OF EVALUATION ORGANIZATION

CCMC no. 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 13543-R 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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