



GLOBAL LVL HEADERS, BEAMS AND COLUMNS

**2.0E-3300Fb**

*User guide*

[lvlglobal.com](http://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.

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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  $E = 2.0 \times 10^6$  PSI (SHEAR-FREE);
- 8- DESIGNER MUST USE THE "APPARENT" MODULUS OF ELASTICITY  $E = 1.9 \times 10^6$  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	11¾	14	16	18	20	22	24
Width (b) (in):	1-3/4											
Factored resistance in bending $M_r$ (lb-ft)	4 531	7 553	11 854	12 454	17 027	18 819	25 518	32 669	40 623	49 365	58 884	69 168
Factored resistance in shear $V_r$ (lb)	3 061	4 035	5 148	5 287	6 261	6 608	7 791	8 904	10 017	11 130	12 243	13 356
Moment of inertia ( $po^4$ )	24	56	115	125	208	244	400	597	851	1167	1553	2016
Area ( $po^2$ )	9,6	12,7	16,2	16,6	19,7	20,8	24,5	28,0	31,5	35,0	38,5	42,0
Weight (lb/ft)	2,27	2,99	3,82	3,92	4,65	4,90	5,78	6,61	7,43	8,26	9,08	9,91

### 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 <sup>(5)</sup>

Mechanical property	LVL Orientation	
	Joist/beam	Plank
Bending strength <sup>(2)</sup>	$f_b$ = 6091	6091
Modulus of elasticity <sup>(8)</sup>	$E$ = $2.0 \times 10^6$ (true)	$2.0 \times 10^6$ (true)
Tension parallel to grain <sup>(3)</sup>	$f_t$ = 4206	4206
Compression perpendicular to grain	$f_{c\perp}$ = 1050	900
Compression parallel to grain	$f_{c\parallel}$ = 4293	4293
Longitudinal shear <sup>(4)</sup>	$f_v$ = 530	261
Specific gravity <sup>(6)</sup>	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 ( $\Phi$ );
- 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, DEFECTION IS CALCULATED AS FOLLOWS:

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

Where:  $\delta$  = 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 inch

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## ALLOWABLE UNIFORM LOAD (pounds per linear foot)

Span (feet)	per ply 1 3/4"x5 1/2"			per ply 1 3/4"x7 1/4"			per ply 1 3/4"x9 1/4"			per ply 1 3/4"x9 1/2"			per ply 1 3/4"x11 1/4"			per ply 1 3/4"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	factored		unfactored	factored		unfactored	factored		unfactored	factored		unfactored	factored		unfactored	factored		
	$W_L$ L/360	$W_F$	$W_T=W_L+W_D$ L/240	$W_L$ L/360	$W_F$	$W_T=W_L+W_D$ L/240	$W_L$ L/360	$W_F$	$W_T=W_L+W_D$ L/240	$W_L$ L/360	$W_F$	$W_T=W_L+W_D$ L/240	$W_L$ L/360	$W_F$	$W_T=W_L+W_D$ L/240	$W_L$ L/360	$W_F$	$W_T=W_L+W_D$ L/240	
6	305	458	1006	659	989	1678			2309	1353		2394			3035			3287	6
7	196	294	739	430	646	1233	840		1886	902		1952	1406		2443	1614		2632	7
8	133	200	566	295	443	944	584	876	1481	628	943	1556	992		2044	1144		2195	8
9	93	140	447	211	316	746	421	632	1170	454	681	1230	723	1085	1681	837		1858	9
10	68	102	362	155	233	604	313	470	948	337	506	996	542	813	1362	628	943	1505	10
11	51	76	299	117	176	499	238	358	783	257	386	823	415	623	1125	483	725	1244	11
12	39	59	251	90	135	419	186	279	658	200	301	691	325	488	945	379	568	1045	12
13	31	46	214	71	106	357	147	221	561	159	239	589	259	388	806	302	453	890	13
14	24	37	184	57	85	308	118	177	483	128	192	508	209	314	694	244	367	768	14
15	20	30	161	46	69	268	96	144	421	104	156	442	171	257	605	200	301	669	15
16				38	57	236	79	118	370	85	128	389	142	214	532	166	250	588	16
17				31	47	209	66	99	328	71	107	344	118	178	471	139	209	520	17
18				26	40	186	55	83	292	60	90	307	100	150	420	117	176	464	18
19				22	34	167	47	71	262	51	76	275	85	127	377	100	150	417	19
20				19	29	151	40	60	237	43	65	249	73	109	340	85	128	376	20
21							35	52	215	38	57	225	63	94	308	74	111	341	21
22							30	45	195	33	49	205	54	82	281	64	96	311	22
23							26	40	179	28	43	188	48	72	257	56	84	284	23
24							23	35	164	25	38	172	42	63	236	49	74	261	24
25										22	33	159	37	56	217	43	65	240	25
26													33	49	201	39	58	222	26
27													29	44	186	34	52	206	27
28													26	39	173	31	46	192	28
29													23	35	161	28	42	179	29
30													21	32	151	25	38	167	30

DATA IN SHADED AREA CONTROL THE DESIGN.

HOWEVER, THE USER MUST CHECK THE THREE CASES  $W_L$ ,  $W_T$  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 ( $W_T$ ) 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);
- 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 3/4"x14"			per ply 1 3/4"x16"			per ply 1 3/4"x18"			per ply 1 3/4"x20"			per ply 1 3/4"x22"			per ply 1 3/4"x24"			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 <sub>L</sub> L/360	W <sub>L</sub> =W <sub>L</sub> +W <sub>D</sub> L/240	W <sub>F</sub>	W <sub>L</sub> L/360	W <sub>L</sub> =W <sub>L</sub> +W <sub>D</sub> L/240	W <sub>F</sub>	W <sub>L</sub> L/360	W <sub>L</sub> =W <sub>L</sub> +W <sub>D</sub> L/240	W <sub>F</sub>	W <sub>L</sub> L/360	W <sub>L</sub> =W <sub>L</sub> +W <sub>D</sub> L/240	W <sub>F</sub>	W <sub>L</sub> L/360	W <sub>L</sub> =W <sub>L</sub> +W <sub>D</sub> L/240	W <sub>F</sub>	W <sub>L</sub> L/360	W <sub>L</sub> =W <sub>L</sub> +W <sub>D</sub> L/240	W <sub>F</sub>	
6			4249			5342			6678			8347			10494			13356	6
7			3339			4109			5008			6070			7345			8904	7
8	1745		2749			3339			4006			4770			5650			6678	8
9	1292		2337	1815		2811			3339			3928			4591			5342	9
10	980		2032	1390		2428	1872		2862			3339			3866			4452	10
11	759		1687	1084		2136	1472		2504	1920		2903			3339			3816	11
12	599	898	1417	860		1814	1176		2226	1543		2568			2938			3339	12
13	480	720	1207	693		1546	952		1922	1256		2302	1604		2623			2968	13
14	390	585	1041	566	849	1333	780		1658	1034		2014	1327		2369	1657		2671	14
15	321	482	907	467	701	1161	647		1444	860		1755	1108		2093	1390		2428	15
16	267	401	797	390	585	1020	542	813	1269	723		1542	934		1840	1176		2161	16
17	225	337	706	329	493	904	458	687	1124	613		1366	794		1630	1002		1914	17
18	190	286	630	279	419	806	390	585	1003	523	785	1218	680		1453	860		1707	18
19	163	245	565	239	359	723	335	502	900	450	676	1093	586		1304	744		1532	19
20	140	211	510	207	310	653	289	434	812	390	585	987	509	764	1177	647		1383	20
21	121	182	462	179	269	592	252	378	736	340	510	895	444	667	1068	566		1254	21
22	105	158	421	157	236	539	220	331	671	298	447	815	390	585	973	497	746	1143	22
23	92	138	385	138	207	494	194	291	614	262	394	746	344	516	890	439	659	1046	23
24	81	122	354	121	182	453	171	257	564	232	349	685	305	458	817	390	585	960	24
25	72	108	326	107	161	418	152	229	519	207	310	631	271	407	753	348	522	885	25
26	64	96	301	95	143	386	136	204	480	185	277	584	243	364	696	311	467	818	26
27	57	85	280	85	128	358	121	182	445	165	248	541	218	327	646	279	419	759	27
28	51	76	260	76	114	333	109	163	414	149	224	503	196	294	600	252	378	705	28
29	46	69	242	68	103	310	98	147	386	134	201	469	177	266	560	228	342	657	29
30	41	62	226	62	93	290	88	133	361	121	182	438	161	241	523	207	310	614	30

**EXAMPLE:**

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

**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 3/4" X 11 1/4":  $W_L = 800 \text{ PLF} / 4 \text{ PLIES} = 200 \text{ PLF} < 209 \text{ PLF (PER PLY)}$   
 $W_T = 1000 \text{ PLF} / 4 \text{ PLIES} = 250 \text{ PLF} < 314 \text{ PLF (PER PLY)}$

**SECOND CHECK:**

$W_F = 1450 \text{ PLF} / 4 \text{ PLIES} = 362.5 \text{ PLF} < 694 \text{ PLF (PER PLY)}$

**FINAL SELECTION:**

4 PLIES OF 1 3/4" X 11 1/4" (SEE CONNECTION DETAILS ON PAGE 11)

SEE NOTES ON PAGE 4.

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## FLOOR BEAM SPAN TABLES (feet)

Loads (lb/feet <sup>2</sup> )	Tributary width (feet)	5½"		7¼"		9¼"		9½"		11¼"		11½"		14"		16"		18"		20"		22"		24"	
		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	17.92	20.59	21.13	24.28	24.15	27.75	27.17	31.22	30.18	34.68	33.20	38.14	36.22	41.61
	10	7.68	8.83	10.13	11.65	12.93	14.86	13.28	15.26	15.72	18.08	16.60	19.08	19.57	22.50	22.36	25.71	25.16	28.92	27.95	32.13	30.74	35.34	33.54	38.56
	12	7.21	8.30	9.51	10.94	12.14	13.96	12.46	14.34	14.76	16.98	15.58	17.92	18.37	21.13	21.00	24.15	23.62	27.17	26.24	30.18	28.86	33.20	31.49	36.22
	14	6.84	7.87	9.01	10.38	11.50	13.24	11.81	13.60	13.99	16.10	14.77	17.00	17.41	20.04	19.90	22.90	22.39	25.77	24.87	28.62	27.36	31.48	29.85	34.35
	16	6.53	7.51	8.60	9.91	10.98	12.64	11.28	12.98	13.35	15.38	14.10	16.23	16.62	19.14	18.99	21.87	21.37	24.61	23.74	27.33	26.11	30.06	28.49	32.80
	18	6.26	7.21	8.26	9.51	10.54	12.14	10.82	12.46	12.81	14.76	13.53	15.58	15.95	18.37	18.23	21.00	20.51	23.62	22.78	26.24	25.05	28.86	27.34	31.49
	20	6.03	6.95	7.96	9.17	10.15	11.70	10.43	12.02	12.35	14.23	13.03	15.02	15.37	17.71	17.56	20.24	19.76	22.77	21.95	25.30	24.14	27.82	26.34	30.36
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	17.92	20.59	21.13	24.28	24.15	27.75	27.17	31.22	30.18	34.68	33.20	38.14	36.22	41.61
	10	7.68	8.83	10.13	11.65	12.93	14.86	13.28	15.26	15.72	18.08	16.60	19.08	19.57	22.50	22.36	25.71	25.16	28.92	27.95	32.13	30.74	35.34	33.54	38.56
	12	7.21	8.30	9.51	10.94	12.14	13.96	12.46	14.34	14.76	16.98	15.58	17.92	18.37	21.13	21.00	24.15	23.62	27.17	26.24	30.18	28.86	33.20	31.49	36.22
	14	6.84	7.87	9.01	10.38	11.50	13.24	11.81	13.60	13.99	16.10	14.77	17.00	17.41	20.04	19.90	22.90	22.39	25.77	24.87	28.62	27.36	31.48	29.85	34.35
	16	6.53	7.51	8.60	9.91	10.98	12.64	11.28	12.98	13.35	15.38	14.10	16.23	16.62	19.14	18.99	21.87	21.37	24.61	23.74	27.33	26.11	30.06	28.49	32.80
	18	6.26	7.21	8.26	9.51	10.53	12.14	10.82	12.46	12.81	14.76	13.53	15.58	15.95	18.37	18.23	21.00	20.51	23.62	22.78	26.24	25.05	28.86	27.34	31.49
	20	6.03	6.95	7.96	9.17	10.15	11.70	10.43	12.02	12.35	14.23	13.03	15.02	15.37	17.71	17.56	20.24	19.76	22.77	21.95	25.30	24.14	27.82	26.34	30.36
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	16.23	18.66	19.14	22.00	21.87	25.15	24.61	28.29	27.33	31.43	30.06	34.57	32.80	37.72
	10	6.95	8.00	9.17	10.55	11.70	13.46	12.02	13.83	14.23	16.38	15.02	17.29	17.71	20.38	20.24	23.29	22.77	26.20	25.30	29.11	27.82	32.02	30.36	34.93
	12	6.53	7.51	8.60	9.91	10.98	12.64	11.28	12.98	13.35	15.38	14.10	16.23	16.62	19.14	18.99	21.87	21.37	24.61	23.74	27.33	26.11	30.06	28.49	32.80
	14	6.18	7.12	8.15	9.39	10.40	11.98	10.68	12.31	12.65	14.58	13.35	15.39	15.74	18.14	18.00	20.73	20.25	23.33	22.49	25.91	24.74	28.50	26.99	31.10
	16	5.90	6.80	7.78	8.97	9.92	11.44	10.19	11.75	12.07	13.91	12.74	14.69	15.02	17.32	17.17	19.79	19.31	22.27	21.46	24.74	23.60	27.21	25.75	29.68
	18	5.66	6.53	7.46	8.60	9.52	10.98	9.77	11.28	11.58	13.35	12.22	14.10	14.41	16.62	16.47	18.99	18.53	21.37	20.58	23.74	22.63	26.11	24.70	28.49
	20	5.45	6.29	7.18	8.29	9.17	10.58	9.41	10.87	11.15	12.87	11.77	13.59	13.88	16.02	15.86	18.31	17.84	20.60	19.82	22.88	21.80	25.16	23.79	27.46
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	16.23	18.66	19.14	22.00	21.87	25.15	24.61	28.29	27.33	31.43	30.06	34.57	32.80	37.72
	10	6.95	8.00	9.17	10.55	11.70	13.46	12.02	13.83	14.23	16.38	15.02	17.29	17.71	20.38	20.24	23.29	22.77	26.20	25.30	29.11	27.82	32.02	30.36	34.93
	12	6.53	7.51	8.60	9.91	10.98	12.64	11.28	12.98	13.35	15.38	14.10	16.23	16.62	19.14	18.99	21.87	21.37	24.61	23.74	27.33	26.11	30.06	28.49	32.80
	14	6.18	7.12	8.15	9.39	10.40	11.98	10.68	12.31	12.65	14.58	13.35	15.39	15.74	18.14	18.00	20.73	20.25	23.33	22.49	25.91	24.74	28.50	26.99	31.10
	16	5.90	6.80	7.78	8.97	9.92	11.44	10.19	11.75	12.07	13.91	12.74	14.69	15.02	17.32	17.17	19.79	19.31	22.27	21.46	24.74	23.60	27.21	25.75	29.68
	18	5.66	6.53	7.46	8.60	9.52	10.98	9.77	11.28	11.58	13.35	12.22	14.10	14.41	16.62	16.47	18.99	18.53	21.37	20.58	23.74	22.63	26.11	24.70	28.49
	20	5.45	6.29	7.18	8.29	9.17	10.58	9.41	10.87	11.15	12.87	11.77	13.59	13.88	16.02	15.86	18.31	17.84	20.60	19.82	22.88	21.80	25.16	23.79	27.46

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

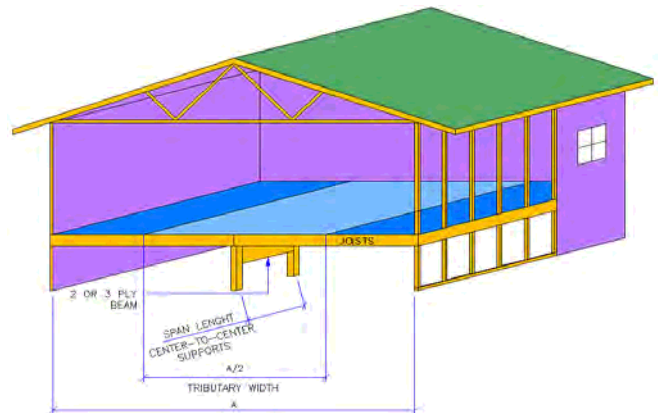
**SHADED AREAS:**  
 4½" BEARING AT BOTH ENDS AND 11¼" BEARING AT INTERMEDIATE  
 6" BEARING AT BOTH ENDS AND 15" BEARING AT INTERMEDIATE  
 7½" BEARING AT BOTH ENDS AND 18½" BEARING AT INTERMEDIATE

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

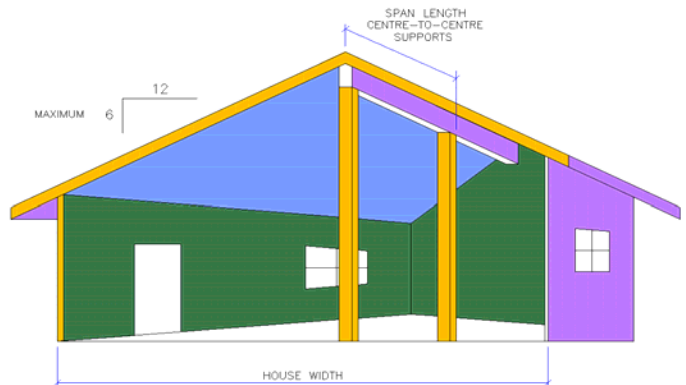
**MINIMUM BEARING REQUIREMENTS:**  
3" BEARING AT BOTH ENDS AND 7½" AT INTERMEDIATE

**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 APPLICATIONS 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/ft <sup>2</sup> and live load of 30 lb/ft <sup>2</sup> (unfactored)						Dead load of 15 lb/ft <sup>2</sup> and live load of 40 lb/ft <sup>2</sup> (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 7¼	3½ x 9¼	3½ x 11¼	3½ x 11¼	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 9¼	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 9¼	3½ x 11¼	3½ x 14	3½ x 5½	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	3½ x 14	
18		5¼ x 5½	5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 11¼				5¼ x 9¼	5¼ x 11¼	5¼ x 12½	18
	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)	
			5¼ x 7¼	5¼ x 9¼	5¼ x 11¼	5¼ x 11¼				5¼ x 9¼	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 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)	
22				5¼ x 9¼	5¼ x 11¼	5¼ x 12½	5¼ x 5½	5¼ x 7¼			5¼ x 11¼	5¼ x 14	22
	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	
		5¼ x 5½	5¼ x 7¼	5¼ x 9¼		5¼ x 11¼				5¼ x 9¼	5¼ x 11¼	5¼ x 12½	
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 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 11¼	3½ x 14	(3½ x 16)	
26				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 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 11¼				5¼ x 9¼	5¼ x 11¼	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 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)	
30				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 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 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	
	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)	
32	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	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)	
34				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	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)	
	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)	
36	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	36
				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 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)	

**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 18½" BEARING AT INTERMEDIATE

DEFLECTION LIMITATIONS			
GARAGE OR HOUSE DEPTH (feet) (see figure)	LOADS (psf)		
	SPAN (feet)		
	LIVE LOAD :	L/360	}
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)



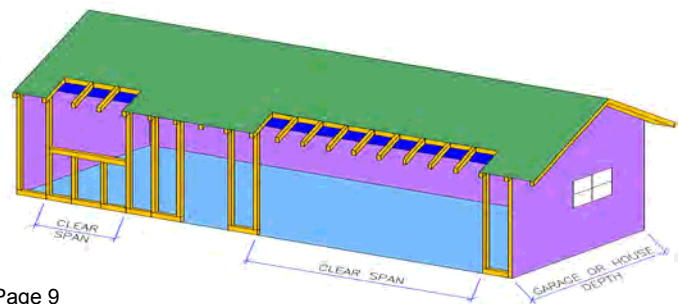
## GARAGE & HOUSE HEADER TABLE

garage or house depth (feet)	Dead load of 15 lb/ft <sup>2</sup> and live load of 50 lb/ft <sup>2</sup> (unfactored)						Dead load of 15 lb/ft <sup>2</sup> and live load of 60 lb/ft <sup>2</sup> (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 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 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 14	(3½ x 16)	
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 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 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)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	(3½ x 18)	
20	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	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 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)	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18)	
22	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 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)	
	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 12½	5¼ x 14			5¼ x 9¼	5¼ x 11¼	5¼ x 14	5¼ x 16	24
	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)	
	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)	
26	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	26
	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 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 18¼)	
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	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)	
	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 18¼)	
30	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	30
	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 12½	(3½ x 16)	(3½ x 18)	
	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	5¼ x 12½	5¼ x 16	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	5¼ x 16	5¼ x 18	
32	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	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)		
	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 16)	(3½ x 18¼)	3½ x 7¼	3½ x 11¼	3½ x 12½	(3½ x 16)	(3½ x 18)		
34	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	5¼ x 18	34
	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 16)	(3½ x 18)		
	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 14	(3½ x 18)	(3½ x 18¼)	3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	(3½ x 18)		
36	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	5¼ x 18	36
	3½ x 7¼	3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	(3½ x 18¼)	3½ x 7¼	3½ x 9¼	3½ x 11¼	(3½ x 16)	(3½ x 16)		
	3½ x 7¼	3½ x 9¼	3½ x 12½	(3½ x 16)	(3½ x 18)		3½ x 9¼	3½ x 11¼	3½ x 12½	(3½ x 16)	(3½ 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 CENTER-TO-CENTRE BETWEEN SUPPORTS;
- 7- 3/4" = TWO PLYS OF 1/4"      5/4" = THREE PLYS OF 1/4"
- 8- HEADER TABLE IS BASED ON APPARENT MODULUS OF ELASTICITY E = 1.9 x 10<sup>6</sup> PSI .



# PRODUCT

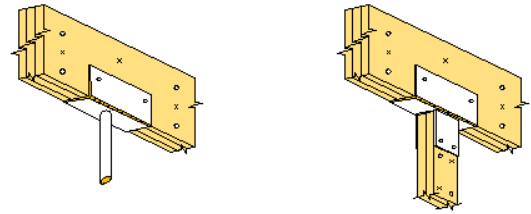
GLOBAL LVL 2.0E-3300Fb

LIMIT STATES DESIGN (LSD)

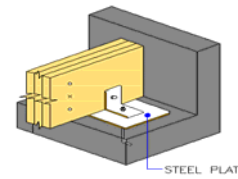


## MINIMUM BEARING LENGTH REQUIREMENTS (Inches)

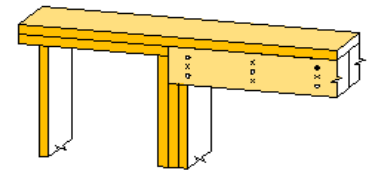
FACTORED REACTION $R_F$ (lb)	1 PLY (b=1¼")	2 PLYS (b=3½")	3 PLYS (b=5¼")	4 PLYS (b=7")
1 000	1½	1½	1½	1½
2 000	1½	1½	1½	1½
3 000	2¼	1½	1½	1½
4 000	2¼	1½	1½	1½
5 000	3½	1¾	1½	1½
6 000	4¼	2¼	1½	1½
7 000	5	2½	1¾	1½
8 000	5½	2¾	2	1½
9 000	6¼	3¼	2¼	1¾
10 000	7	3½	2½	1¾
11 000	7½	3¾	2½	2
12 000		4¼	2¾	2¼
13 000		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



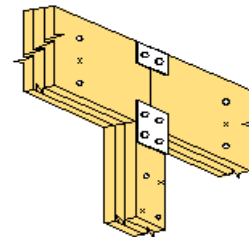
BEARING FOR SINGLE OR CONTINUOUS BEAM SPAN



BEARING ON CONCRETE WALL



BEARING FOR DOOR OR WINDOW HEADER



BEARING FOR SINGLE BEAM SPAN

### NOTES

- ARTICLE 9.23.9.1.1) OF THE NBCC 2005 REQUIRES A BEARING LENGTH OF AT LEAST 1½" FOR JOISTS;
- ARTICLE 9.23.8.1.1) OF THE NBCC 2005 REQUIRES A BEARING LENGTH OF AT LEAST 3½" FOR BEAMS;
- A MINIMUM OF 3½" (JOIST) AND 7½" (BEAM) BEARING LENGTH IS RECOMMENDED FOR AN INTERMEDIATE BEARING SUPPORT;
- LATERAL SUPPORT IS REQUIRED AT EACH BEARING SUPPORT TO PREVENT ROTATION AND LATERAL DISPLACEMENT;
- 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)

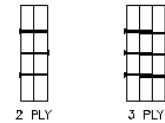


## MULTIPLE MEMBER CONNECTIONS

TOP LOAD <sup>(1)</sup>			
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**

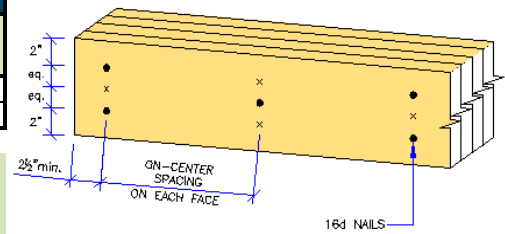
1- LOAD MUST BE APPLIED EVENLY ACROSS ENTIRE MEMBER WIDTH.



NAILED CONNECTION UNIFORM FACTORED LOAD APPLIED TO EITHER OUTSIDE MEMBER (plf)				
NUMBER OF 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	885	1775	1330	2660
3 <sup>(2)</sup>	660	1330	1000	1995

**NOTES**

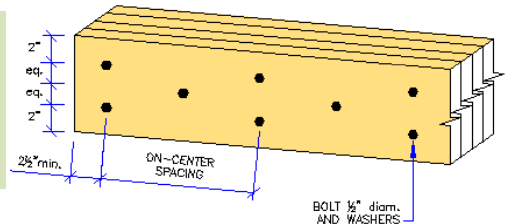
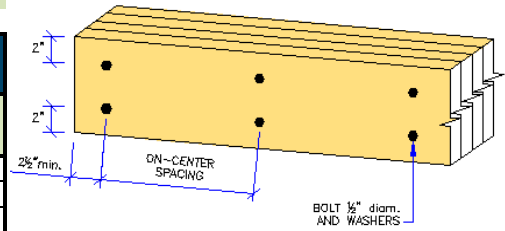
- 1- THE MAXIMUM LOAD MUST BE VERIFIED WITH  $W_F$ ;
- 2- THE TABULATED NAILING PATTERN IS FROM EACH SIDE OF A 3 PLY MEMBER;
- 3- ALL NAILS SHOWN SHALL BE MINIMUM 16d: DIAMETER 0.162 INCH, LENGTH 3½", BENDING YIELD STRENGTH ( $F_y$ ) = 90 000 PSI;



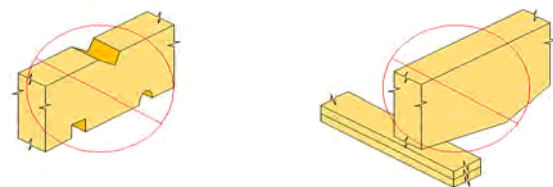
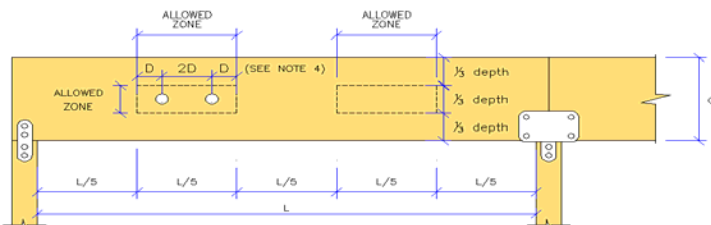
BOLTED CONNECTION UNIFORM FACTORED LOAD APPLIED TO EITHER OUTSIDE MEMBER (plf)				
NUMBER OF PLYS	2 rows ½" bolts at 24" o.c.	2 rows ½" bolts at 12" o.c.	3 rows ½" bolts at 24" o.c.	3 rows ½" bolts at 12" o.c.
2	780	1560	1170	2345
3	585	1170	875	1755
4	520	1040	780	1560

**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  $F_y$  = 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.

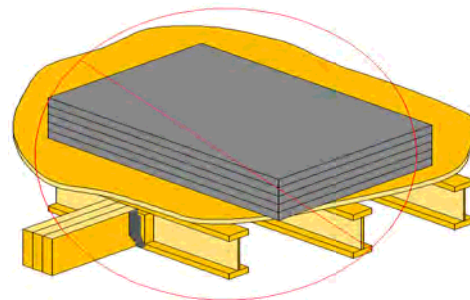


## ALLOWABLE HOLES AND INSTALLATION



**NOTES**

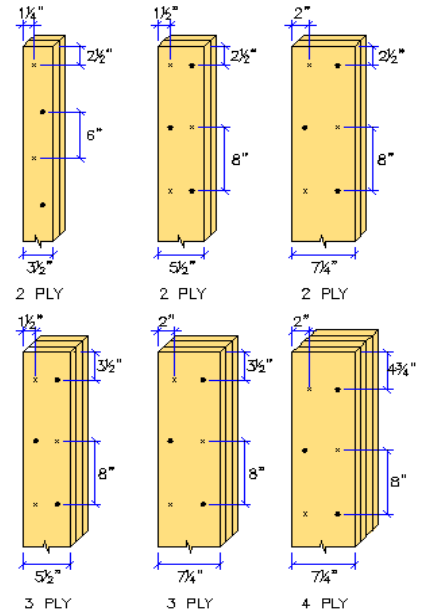
- 1- MAXIMUM 1" HOLE DIAMETER (D=1") FOR BEAM DEPTHS BETWEEN 7¼" TO 9¼"; MAXIMUM 2" HOLE DIAMETER (D=2") FOR BEAM DEPTHS BETWEEN 11¼" TO 18¾";
- 2- THE ALLOWED HOLE ZONE IS FOR UNIFORMLY LOADED MEMBERS, SINGLE OR CONTINUOUS;
- 3- WHENEVER POSSIBLE HOLES SHOULD BE CENTERED IN THE ALLOWABLE ZONE;
- 4- 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.



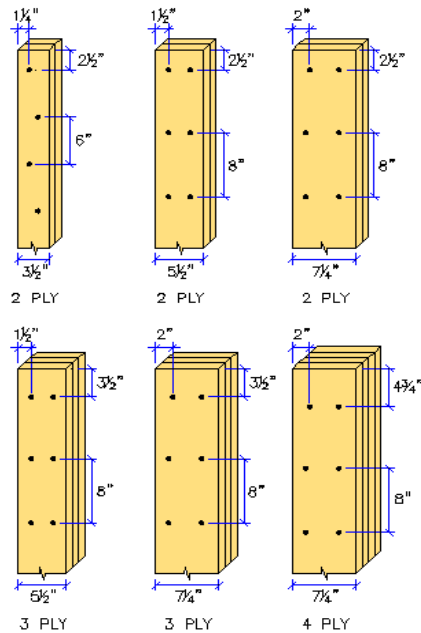


## MAXIMUM FACTORED AXIAL LOAD ( $P_f$ , in pounds)

COLUMN ASSEMBLED WITH NAILS <sup>(1)</sup>						
effective length of column (feet) <sup>(2)</sup>	Column size (inches)					
	3 1/2" x 3 1/2"	3 1/2" x 5 1/2"	3 1/2" x 7 1/4"	5 1/4" x 5 1/2"	5 1/4" x 7 1/4"	7" x 7 1/4"
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



COLUMN ASSEMBLED WITH BOLTS <sup>(1)</sup>						
effective length of column (feet) <sup>(2)</sup>	Column size (inches)					
	3 1/2" x 3 1/2"	3 1/2" x 5 1/2"	3 1/2" x 7 1/4"	5 1/4" x 5 1/2"	5 1/4" x 7 1/4"	7" x 7 1/4"
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

- TABLES ASSUME THAT THE COLUMN IS ASSEMBLED WITH NAILS OR BOLTS ACCORDING TO CSA 086-09. SEE FIGURES FOR CONNECTION DETAILS;
- THE EFFECTIVE LENGTH IS THE DISTANCE BETWEEN THE CENTRES OF RESTRAINING MEMBERS;
- TABLES ASSUME THAT THE COLUMN IS UNBRACED Laterally EXCEPT AT THE ENDS OF THE COLUMN;
- TABLES ASSUME AN ECCENTRICITY = 1/6 OF THE LARGER DIMENSION OF THE COLUMN (THICKNESS OR WIDTH);
- TABULATED MAXIMUM AXIAL LOADS ARE BASED ON APPARENT MODULUS OF ELASTICITY ( $E = 1.9 \times 10^6$  psi);
- 1/2" DIAM. BOLTS WITH 2" EXTERIOR DIAM. WASHER UNDER HEAD AND NUT, IN COMPLIANCE WITH ASTM STANDARD A307;
- TYPE OF NAILS:  
 2 PLYS = 3 1/2" COMMON NAILS (0.162" DIAM.);  
 3 PLYS = 5" COMMON NAILS (0.162" DIAM.);  
 4 PLYS = 7" COMMON NAILS (0.162" DIAM.);
- TABLE ASSUME A SIMPLE AXIAL LOAD, FOR OTHER LOAD CASES, CONTACT GLOBAL LVL INC. TECHNICAL DEPARTMENT

## PRODUCT

GLOBAL LVL 2.0E-3300Fb

LIMIT STATES DESIGN (LSD)



## GENERAL INFORMATION

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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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