



# NORDIC LAM™

COLUMNS



*Built for life*



Distributed By:



# COLUMNS

## ES 11 GLULAM COLUMNS AXIAL FACTORED RESISTANCES (Pounds)

Side loads are not permitted. Eccentric end loads are limited to a maximum eccentricity of either 1/6 column width or depth, whichever is worse.

Effective Column Length (ft)	Lamination Net Width = 3-1/2 in.					
	Net Depth = 3-1/2 in. (3 lams) Maximum Loads		Net Depth = 5-1/2 in. (4 lams) Maximum Loads		Net Depth = 7 in. (5 lams) Maximum Loads	
	Eccentric <sup>(1)</sup>	Concentric <sup>(2)</sup>	Eccentric <sup>(1)</sup>	Concentric <sup>(2)</sup>	Eccentric <sup>(1)</sup>	Concentric <sup>(2)</sup>
6	9509	17923	14298	30766	16209	39156
7	8318	14864	12522	25119	14343	31970
8	7194	12113	10858	20188	12567	25694
9	6182	9787	9375	16124	10948	20522
10	5305	7894	8071	12885	9509	16399
11	4541	6386	6924	10346	8228	13158
12	3912	5195	5957	8369	7126	10624
13	3350	4257	5126	6827	6160	8658
14	2878	3517	4429	5617	5350	7124

Effective Column Length (ft)	Lamination Net Width = 5-1/2 in.				Lamination Net Width = 7 in.	
	Net Depth = 5-1/2 in. (4 lams) Maximum Loads		Net Depth = 7 in. (5 lams) Maximum Loads		Net Depth = 7 in. (5 lams) Maximum Loads	
	Eccentric <sup>(1)</sup>	Concentric <sup>(2)</sup>	Eccentric <sup>(1)</sup>	Concentric <sup>(2)</sup>	Eccentric <sup>(1)</sup>	Concentric <sup>(2)</sup>
6	31248	67504	40218	85914	53617	116043
7	29360	62452	37745	79245	51301	109429
8	27337	56796	34935	71183	48829	102471
9	25224	50711	32125	63230	46266	95236
10	23088	44537	29405	55655	43613	87856
11	21020	38852	26797	48655	40960	80489
12	19109	33745	24347	42341	38352	73291
13	17333	29241	22076	36755	35790	66397
14	15692	25323	20008	31880	33317	59908
15	14208	21946	18097	27666	30956	53893
16	12837	19053	16366	24048	28708	48383
17	11623	16583	14815	20952	26617	43387
18	10521	14477	13399	18306	24639	38890
19	9532	12680	12140	16046	22796	34867
20	8633	11145	10993	14113	21110	31283
21	7823	9832	9959	12457	19513	28099
22	7104	8704	9037	11034	18052	25276
23	-	-	-	-	16681	22774
24	-	-	-	-	15399	20557

### NOTES:

1. The tabulated eccentric maximum loads are based on simply axially loaded columns subjected to a maximum eccentricity of either 1/6 column width or 1/6 column depth, whichever is worse. For side loads, other eccentric end loads, or other combined axial and flexural loads, see CSA O86-01.
2. The tabulated concentric maximum loads are based on simply axially loaded columns subjected to concentric end loads only. For limited eccentric end loads, see (1). For side loads, other eccentric end loads, or other combined axial and flexural loads, see CSA O86-01.
3. The tabulated maximum loads apply only to glulam members made with all C4/ES laminations (Combination ES 11) without special tension laminations.
4. Duration of load = normal. Service condition = dry.
5. The column is assumed to be unbraced, except at the column ends, and the effective column length is equal to the actual column length.
6. These values are for preliminary design use only. Final design should include a complete analysis, including bearing capacity of the foundation supporting the column.

## ES 12 GLULAM COLUMNS AXIAL FACTORED RESISTANCES (Pounds)

Side loads are not permitted. Eccentric end loads are limited to a maximum eccentricity of either 1/6 column width or depth, whichever is worse.

Effective Column Length (ft)	Lamination Net Width = 3-1/2 in.					
	Net Depth = 3-1/2 in. (3 lams) Maximum Loads		Net Depth = 5-1/2 in. (4 lams) Maximum Loads		Net Depth = 7 in. (5 lams) Maximum Loads	
	Eccentric <sup>(1)</sup>	Concentric <sup>(2)</sup>	Eccentric <sup>(1)</sup>	Concentric <sup>(2)</sup>	Eccentric <sup>(1)</sup>	Concentric <sup>(2)</sup>
6	12432	22195	19109	41859	21717	53276
7	10926	18318	16523	33379	18974	42483
8	9487	14862	14185	26292	16456	33462
9	8161	11965	12117	20659	14185	26293
10	6992	9622	10341	16298	12207	20743
11	5957	7765	8813	12958	10499	16481
12	5081	6305	7531	10401	9037	13209
13	4339	5159	6452	8435	7778	10703
14	3709	4257	5530	6908	6699	8766

Effective Column Length (ft)	Lamination Net Width = 5-1/2 in.				Lamination Net Width = 7 in.	
	Net Depth = 5-1/2 in. (4 lams) Maximum Loads		Net Depth = 7 in. (5 lams) Maximum Loads		Net Depth = 7 in. (5 lams) Maximum Loads	
	Eccentric <sup>(1)</sup>	Concentric <sup>(2)</sup>	Eccentric <sup>(1)</sup>	Concentric <sup>(2)</sup>	Eccentric <sup>(1)</sup>	Concentric <sup>(2)</sup>
6	44310	96840	55505	123251	76975	168980
7	41207	88326	51616	112092	73153	158092
8	37948	79076	47345	99195	69129	146655
9	34621	69488	43163	86773	64970	134869
10	31361	60116	39139	75244	60766	123012
11	28303	51711	35385	64863	56607	111382
12	25493	44344	31923	55729	52560	100236
13	22931	37993	28753	47828	48649	89775
14	20615	32578	25876	41071	44962	80124
15	18524	27993	23290	35335	41477	71348
16	16658	24124	20952	30485	38218	63455
17	14995	20864	18861	26389	35205	56417
18	13489	18115	16996	22930	32417	50180
19	12162	15794	15309	20005	29832	44678
20	10948	13827	13826	17524	27472	39837
21	9892	12156	12477	15413	25291	35585
22	8947	10730	11285	13611	23290	31852
23	-	-	-	-	21424	28574
24	-	-	-	-	19716	25693

### NOTES:

1. The tabulated eccentric maximum loads are based on simply axially loaded columns subjected to a maximum eccentricity of either 1/6 column width or 1/6 column depth, whichever is worse. For side loads, other eccentric end loads, or other combined axial and flexural loads, see CSA O86-01.
2. The tabulated concentric maximum loads are based on simply axially loaded columns subjected to concentric end loads only. For limited eccentric end loads, see (1). For side loads, other eccentric end loads, or other combined axial and flexural loads, see CSA O86-01.
3. The tabulated maximum loads apply only to glulam members made with all 1.9E6/ES laminations (Combination ES 12) without special tension laminations.
4. Duration of load = normal. Service condition = dry.
5. The column is assumed to be unbraced, except at the column ends, and the effective column length is equal to the actual column length.
6. These values are for preliminary design use only. Final design should include a complete analysis, including bearing capacity of the foundation supporting the column.

## NORDIC LAM™

APA EWS Trademark  
Superior quality and competitively priced  
Residential and commercial applications

Depths: from 3-1/2 to 7 inches  
Widths: from 3-1/2 to 7 inches  
Lengths: up to 56 feet

### SPECIFIED STRENGTHS

NORDIC LAM™	ES11		ES12	
	2 or 3 lams	4 or more lams	2 or 3 lams	4 or more lams
Modulus of Elasticity <b>E</b>	1.5x10 <sup>6</sup> psi	1.5x10 <sup>6</sup> psi	1.8x10 <sup>6</sup> psi	1.8x10 <sup>6</sup> psi
Compression Parallel to Grain <b>f<sub>c</sub></b>	2813 psi	3230 psi	3543 psi	4793 psi
Flexural Stress (y) <b>f<sub>by</sub></b>	2594 psi	3243 psi	4262 psi	4447 psi
Flexural Stress (x) <b>f<sub>bx</sub></b>	2502 psi	2502 psi	3613 psi	3613 psi

#### NOTES:

1. Calculation of glulam columns shall be in accordance to CSA O86-01 Standard, *Engineering Design in Wood (Limit States Design)*.
2. Flexural strength when loaded parallel to wide faces of lamination (f<sub>by</sub>) may be adjusted to 2965 psi for 3 lams ES11 columns, and 4447 psi for 3 lams ES12 columns.
3. For more information, refer to Nordic Lam Construction Guide or contact your local distributor.
4. SI units conversion: 1 inch = 25,4 mm    1 MPa = 145,038 psi

While glued laminated timbers are typically used as some type of bending members, they are also ideally suited for use as columns. Because glulam is manufactured with dry lumber having a maximum moisture content at the time of fabrication of 16%, it has excellent dimensional stability. **Nordic Lam™** columns are made from MSR (Machine Stress-Rated) black spruce and bear the APA EWS trademark, which signifies that columns are produced to the requirements of American National Standards Institute (ANSI) Standard A190.1. This is the national consensus standard used by all agencies inspecting glulams.

*Nordic products - a comforting investment.*

#### NORDIC ENGINEERED WOOD

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