

NORDIC LAM™

COLUMNS



Built for life



Distributed by:



ALLOWABLE AXIAL LOADS

COLUMNS

ES 11 GLULAM COLUMNS ALLOWABLE AXIAL LOADS (lbs)

Side loads are not permitted. 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) Load Duration Factor		Net Depth = 5-1/2 in. (4 lams) Load Duration Factor		Net Depth = 7 in. (5 lams) Load Duration Factor	
	1.00	1.15	1.00	1.15	1.00	1.15
6	6,863	7,420	12,861	13,742	16,369	17,490
7	5,932	6,316	10,833	11,408	13,788	14,520
8	5,094	5,367	9,116	9,514	11,602	12,108
9	4,383	4,585	7,723	8,012	9,830	10,197
10	3,794	3,948	6,604	6,821	8,405	8,681
11	3,307	3,427	5,700	5,867	7,254	7,467
12	2,903	2,998	4,963	5,094	6,316	6,483
13	2,566	2,643	4,356	4,461	5,544	5,678
14	2,283	2,345	3,852	3,938	4,903	5,012

EFFECTIVE COLUMN LENGTH (ft)	LAMINATION NET WIDTH = 5-1/2 in.				LAMINATION NET WIDTH = 7 in.	
	Net Depth = 5-1/2 in. (4 lams) Load Duration Factor		Net Depth = 7 in. (5 lams) Load Duration Factor		Net Depth = 7 in. (5 lams) Load Duration Factor	
	1.00	1.15	1.00	1.15	1.00	1.15
6	22,712	25,410	30,562	34,454	39,438	44,602
7	21,252	23,531	29,116	32,532	37,878	42,571
8	19,667	21,522	27,431	30,297	36,139	40,319
9	18,016	19,481	25,523	27,827	34,246	37,888
10	16,374	17,525	23,482	25,264	32,234	35,334
11	14,823	15,736	21,314	22,467	30,143	32,730
12	13,407	14,146	19,109	20,019	28,032	30,171
13	12,143	12,748	17,167	17,900	25,969	27,741
14	11,023	11,525	15,471	16,071	24,010	25,490
15	10,034	10,456	13,993	14,491	22,189	23,438
16	9,162	9,519	12,704	13,122	20,517	21,583
17	8,391	8,696	11,575	11,930	18,995	19,911
18	7,708	7,971	10,585	10,888	17,614	18,407
19	7,101	7,329	9,712	9,973	16,361	17,053
20	6,561	6,760	8,939	9,166	15,227	15,833
21	6,078	6,252	8,253	8,451	14,197	14,732
22	5,644	5,798	7,641	7,815	13,262	13,736
23	-	-	-	-	12,412	12,833
24	-	-	-	-	11,637	12,013

NOTES:

1. The tabulated allowable loads apply only to glulam members made with all C4/ES laminations (Combination ES 11) without special tension laminations.
2. Applicable service conditions = dry.
3. The tabulated allowable 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, use an approved software. Higher allowable axial loads may be achieved with full concentric loading. Contact Nordic Technical Services.
4. The column is assumed to be unbraced, except at the column ends, and the effective column length is equal to the actual column length.
5. 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 ALLOWABLE AXIAL LOADS (lbs)

Side loads are not permitted. 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) Load Duration Factor		Net Depth = 5-1/2 in. (4 lams) Load Duration Factor		Net Depth = 7 in. (5 lams) Load Duration Factor	
	1.00	1.15	1.00	1.15	1.00	1.15
6	8,932	9,612	16,591	17,567	21,116	22,358
7	7,639	8,094	13,724	14,367	17,467	18,286
8	6,500	6,819	11,428	11,877	14,545	15,116
9	5,554	5,787	9,618	9,945	12,241	12,658
10	4,781	4,957	8,185	8,431	10,417	10,730
11	4,148	4,284	7,039	7,228	8,959	9,200
12	3,627	3,735	6,111	6,260	7,778	7,968
13	3,195	3,282	5,352	5,471	6,812	6,963
14	2,834	2,905	4,724	4,820	6,012	6,135

EFFECTIVE COLUMN LENGTH (ft)	LAMINATION NET WIDTH = 5-1/2 in.				LAMINATION NET WIDTH = 7 in.	
	Net Depth = 5-1/2 in. (4 lams) Load Duration Factor		Net Depth = 7 in. (5 lams) Load Duration Factor		Net Depth = 7 in. (5 lams) Load Duration Factor	
	1.00	1.15	1.00	1.15	1.00	1.15
6	31,848	35,397	43,365	48,615	56,231	63,339
7	29,332	32,193	40,744	45,137	53,486	59,781
8	26,671	28,889	37,714	41,193	50,458	55,889
9	24,013	25,712	34,296	36,503	47,210	51,766
10	21,512	22,833	30,445	32,112	43,825	47,555
11	19,259	20,306	27,025	28,319	40,417	43,442
12	17,274	18,118	24,055	25,081	37,118	39,583
13	15,540	16,231	21,495	22,325	34,028	36,060
14	14,030	14,602	19,292	19,973	31,197	32,892
15	12,714	13,193	17,391	17,957	28,634	30,064
16	11,564	11,968	15,745	16,220	26,329	27,546
17	10,555	10,900	14,313	14,716	24,260	25,305
18	9,668	9,964	13,062	13,407	22,404	23,307
19	8,884	9,140	11,964	12,261	20,737	21,523
20	8,189	8,412	10,996	11,253	19,239	19,926
21	7,570	7,765	10,138	10,362	17,888	18,493
22	7,017	7,189	9,374	9,572	16,668	17,203
23	-	-	-	-	15,564	16,040
24	-	-	-	-	14,563	14,986

NOTES:

1. The tabulated allowable loads apply only to glulam members made with all 1.9E6/ES laminations (Combination ES 12) without special tension laminations.
2. Applicable service conditions = dry.
3. The tabulated allowable 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, use an approved software. Higher allowable axial loads may be achieved with full concentric loading. Contact Nordic Technical Services.
4. The column is assumed to be unbraced, except at the column ends, and the effective column length is equal to the actual column length.
5. 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

ALLOWABLE DESIGN STRESSES

NORDIC LAM™	ES11		ES12	
	2 or 3 lams	4 or more lams	2 or 3 lams	4 or more lams
Modulus of Elasticity E	1.5x10 ⁶ psi	1.5x10 ⁶ psi	1.8x10 ⁶ psi	1.8x10 ⁶ psi
Compression Parallel to Grain F_c	1350 psi	1550 psi	1700 psi	2300 psi
Flexural Stress (y) F_{by}	1400 psi	1750 psi	2300 psi	2400 psi
Flexural Stress (x) F_{bx}	1350 psi	1350 psi	1950 psi	1950 psi
Horizontal Shear (y) F_{vy}	135 psi	160 psi	150 psi	175 psi
Horizontal Shear (x) F_{vx}	180 psi	180 psi	200 psi	200 psi

NOTES:

- Design values are for normal load duration and dry-use conditions.
- Moment capacity must be adjusted for volume effect. The volume factor for F_{bx} shall be in accordance with 2001 NDS. Size factor for F_{by} is (12/d)^{1/9}, where d is equal to the lamination width in inches.
- Moment and shear capacities are based on a normal (10 years) duration of load and should be adjusted for the design duration of load per the applicable building code.
- Flexural stress when loaded parallel to wide faces of lamination (F_{by}) may be adjusted to 1600 psi for 3 lams ES11 columns, and 2400 psi for 3 lams ES12 columns.

While glued laminated timbers are typically used as some type of bending member, they are also ideally suited for use as columns. Because Nordic Lam products are manufactured from kiln dried lumber under controlled temperature and humidity conditions, they have exceptional dimension 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 glued laminated products.

Nordic products - a comforting investment.

NORDIC ENGINEERED WOOD
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