



# NORDIC LAM™

## COLUMNS



*Built for life*



Distributed by:



# ES11

# COLUMNS

# ES11

## AXIAL RESISTANCES (lbs)

EFFECTIVE COLUMN LENGTH (ft)	LAMINATION NET WIDTH = 3-1/2 in.			NET WIDTH = 5-1/2 in.		NET WIDTH = 7 in.
	NET DEPTH 3-1/2 in. (3 lams)	NET DEPTH 5-1/2 in. (4 lams)	NET DEPTH 7 in. (5 lams)	NET DEPTH 5-1/2 in. (4 lams)	NET DEPTH 7 in. (5 lams)	NET DEPTH 7 in. (5 lams)
6	9,500	17,009	21,920	31,276	41,077	53,680
7	8,311	14,825	18,864	29,401	38,907	51,354
8	7,192	12,649	16,099	27,384	36,334	48,886
9	6,190	10,746	13,676	25,255	33,688	46,312
10	5,310	9,113	11,598	23,098	31,029	43,677
11	4,552	7,727	9,830	21,044	28,420	41,026
12	3,903	6,559	8,334	19,118	25,913	38,402
13	3,346	5,578	7,082	17,352	23,529	35,841
14	2,871	4,754	6,034	15,714	21,329	33,371
15				14,222	19,284	31,011
16				12,867	17,391	28,775
17				11,641	15,664	26,671
18				10,534	14,114	24,700
19				9,537	12,726	22,863
20				8,639	11,483	21,155
21				7,832	10,366	19,572
22				7,107	9,367	18,092
23						16,717
24						15,447

## BEARING RESISTANCES (lbs)

SPECIES OR GRADE	BEARING AREA (in. <sup>2</sup> )					
	12.25	19.25	24.50	30.25	38.50	49.00
D. Fir-L	11,442	17,980	22,884	28,255	35,961	45,768
Hem-Fir	7,519	11,816	15,038	18,567	23,631	30,076
S-P-F	8,663	13,614	17,327	21,393	27,227	34,653
Northern	5,721	8,990	11,442	14,127	17,980	22,884
ES11	9,481	14,898	18,961	23,411	29,796	37,922

### NOTES:

1. The tabulated 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 maximum loads apply only to combination ES11 glulam members.
3. The values are based on standard term duration of load and dry-use conditions.
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. When the column is used in a wall system, review bearing resistance requirements to ensure adequacy.

# ES12

## COLUMNS

# ES12



### AXIAL RESISTANCES (lbs)

EFFECTIVE COLUMN LENGTH (ft)	LAMINATION NET WIDTH = 3-1/2 in.			NET WIDTH = 5-1/2 in.		NET WIDTH = 7 in.
	NET DEPTH 3-1/2 in. (3 lams)	NET DEPTH 5-1/2 in. (4 lams)	NET DEPTH 7 in. (5 lams)	NET DEPTH 5-1/2 in. (4 lams)	NET DEPTH 7 in. (5 lams)	NET DEPTH 7 in. (5 lams)
6	12,436	22,967	29,217	44,334	58,602	77,048
7	10,787	19,497	24,812	41,238	54,993	73,207
8	9,250	16,421	20,900	37,955	50,802	69,166
9	7,909	13,805	17,570	34,615	46,659	65,002
10	6,736	11,604	14,768	31,366	42,520	60,801
11	5,735	9,765	12,423	28,309	38,447	56,641
12	4,886	8,234	10,465	25,497	34,474	52,592
13	4,168	6,961	8,841	22,934	30,878	48,646
14	3,564	5,902	7,495	20,616	27,645	44,984
15				18,530	24,752	41,494
16				16,659	22,171	38,235
17				14,983	19,871	35,212
18				13,486	17,825	32,417
19				12,147	16,005	29,841
20				10,952	14,388	27,471
21				9,885	12,949	25,296
22				8,933	11,668	23,287
23						21,424
24						19,725

### BEARING RESISTANCES (lbs)

SPECIES OR GRADE	BEARING AREA (in. <sup>2</sup> )					
	12.25	19.25	24.50	30.25	38.50	49.00
D. Fir-L	11,442	17,980	22,884	28,255	35,961	45,768
Hem-Fir	7,519	11,816	15,038	18,567	23,631	30,076
S-P-F	8,663	13,614	17,327	21,393	27,227	34,653
Northern	5,721	8,990	11,442	14,127	17,980	22,884
ES12	11,442	17,980	22,884	28,255	35,961	45,768

#### NOTES:

1. The tabulated 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 maximum loads apply only to combination ES12 glulam members.
3. The values are based on standard term duration of load and dry-use conditions.
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. When the column is used in a wall system, review bearing resistance requirements to ensure adequacy.

# DESIGN VALUES FOR NORDIC LAM™



## SPECIFIED STRENGTHS <sup>(1)(2)</sup>

NORDIC LAM	COLUMNS AND WALL STUDS	
	ES11	ES12
STRESS GRADE	ES11	ES12
EWS LAYUP COMBINATION	ES11	ES12
<b>Bending About X-X Axis</b> (Loaded Perpendicular to Wide Face of Laminations)		
Bending at Extreme Fibre <sup>(3)(4)</sup>	$F_{bx}$ 2502 psi	3613 psi
Longitudinal Shear <sup>(4)(5)</sup>	$F_{vx}$ 320 psi	320 psi
Compression Perpendicular to Grain	$F_{cpx}$ 841 psi	1015 psi
Shear-Free Modulus of Elasticity	$E_x$ $1.6 \times 10^6$ psi	$1.9 \times 10^6$ psi
Apparent Modulus of Elasticity <sup>(6)</sup>	$E_{x, app.}$ $1.5 \times 10^6$ psi	$1.8 \times 10^6$ psi
<b>Bending About Y-Y Axis</b> (Loaded Parallel to Wide Face of Laminations) <sup>(7)</sup>		
Bending at Extreme Fibre <sup>(4)</sup>	$F_{by}$	
3 laminations	2965 psi	4447 psi
4 or more laminations	3243 psi	4447 psi
Longitudinal Shear <sup>(4)(5)</sup>	$F_{vy}$	
3 laminations	260 psi	260 psi
4 or more laminations	275 psi	275 psi
Compression Perpendicular to Grain	$F_{cpy}$ 841 psi	1015 psi
Shear-Free Modulus of Elasticity	$E_y$ $1.6 \times 10^6$ psi	$1.9 \times 10^6$ psi
Apparent Modulus of Elasticity <sup>(6)</sup>	$E_{y, app.}$ $1.5 \times 10^6$ psi	$1.8 \times 10^6$ psi
<b>Axially Loaded</b>		
Compression Parallel to Grain <sup>(4)</sup>	$F_c$	
3 laminations	2813 psi	3543 psi
4 or more laminations	3230 psi	4793 psi
Tension Parallel to Grain	$F_t$ 1807 psi	2965 psi
Modulus of Elasticity	$E_a$ $1.5 \times 10^6$ psi	$1.8 \times 10^6$ psi

- (1) The tabulated design values are for dry service conditions. Nordic Lam is intended for 'dry service' use applications only.
- (2) The tabulated design values are for standard term duration of load. For other durations of load, see applicable building code.
- (3) Specified strengths in bending for beams up to 24 inches in depth (*consult Nordic for deeper beams*). Nordic Lam bending members are symmetrical throughout the depth of the member (balanced layups).
- (4) Specified strengths for glued-laminated timber members in a system consisting of three or more essentially parallel members spaced not more than 24 inches apart and supporting the applied load may be multiplied by a system factor,  $K_{st}$ , equal to 1.10.
- (5) Specified strengths in shear adjusted to a  $285 \text{ pi}^3$  ( $2 \text{ m}^3$ ) of beam volume. At the location of notches in rectangular members, the specified strength in shear ( $F_v$ ) shall be multiplied by a notch factor,  $K_{nt}$ , determined per CSA O86-01, Clause 6.5.7.2.2.
- (6) The tabulated "apparent E" values already include a 5% shear deflection.
- (7) Vertically glued-laminated beams, the narrow faces of whose laminations are normal to the direction of load, shall be designed using the above strength properties for bending about Y-Y axis.
- (8) Design of glulam members shall be in accordance to CSA O86-01 Standard.
- (9) The specific gravity for dowel-type fastener design is 0.41. Member weight shall be based on density of 35 pcf.

Refer to the *Nordic Lam Design/Construction Guide* for more information.  
CCMC Evaluation Report 13216-R



*Nordic products - a comforting investment.*

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