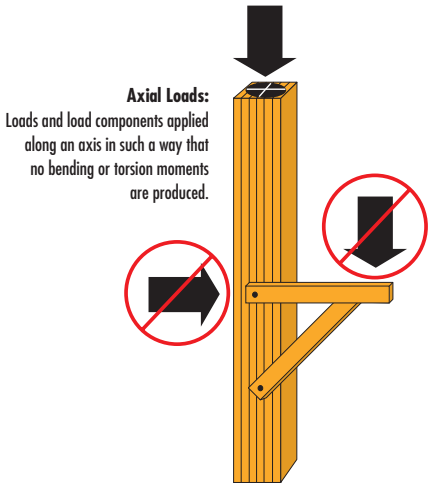
Rosboro Glulam Columns

Since compression parallel to grain stresses are distributed uniformly over the cross-section of a typical column member, Rosboro glulam columns are manufactured using a single grade of lumber throughout the depth of the member.

Two distinct values are provided for F_b depending on which axis the load is applied to, i.e., parallel to the wide or to the narrow face of the member. If a column is going to be loaded as a combined axial and bending member, it may be preferable to specify a product engineered to serve as a bending member such as a BigBeam or IJC-24F. Such members use a graded lumber layup throughout the depth of the member and are more efficient for resisting high bending stresses.

Figure 15. **Axial Loads**

Allowable Axial Load Tables:
Side loads and bracket loads are not permitted. End loads are limited to a maximum eccentricity of either 1/6 column width or 1/6 column depth.



EWS 2 Glulam Columns Width = 3 1/8"

Effective Column Length (ft.)	Net Depth = 4 1/2" (3 lams)			Net Depth = 6" (4 lams)			Net Depth = 7 1/2" (5 lams)		
	Load Duration Factor			Load Duration Factor			Load Duration Factor		
	1.00	1.15	1.25	1.00	1.15	1.25	1.00	1.15	1.25
8	6,071	6,327	6,474	8,396	8,722	8,909	10,495	10,902	11,137
9	5,132	5,319	5,426	7,061	7,299	7,436	8,826	9,124	9,295
10	4,382	4,523	4,604	6,007	6,186	6,288	7,508	7,732	7,860
11	3,779	3,887	3,950	5,164	5,302	5,381	6,455	6,628	6,727
12	3,288	3,374	3,423	4,483	4,592	4,654	5,604	5,740	5,817
13	2,885	2,953	2,993	3,926	4,013	4,062	4,907	5,016	5,078

EWS 2 Glulam Columns Width = 5 1/8"

Effective Column Length (ft.)	Net Depth = 6" (4 lams)			Net Depth = 7 1/2" (5 lams)		
	Load Duration Factor			Load Duration Factor		
	1.00	1.15	1.25	1.00	1.15	1.25
8	24,349	26,269	27,389	30,437	32,837	34,236
9	21,771	23,206	24,036	27,214	29,008	30,045
10	19,370	20,464	21,096	24,213	25,580	26,370
11	17,232	18,087	18,580	21,541	22,609	23,225
12	15,370	16,051	16,444	19,212	20,064	20,555
13	13,759	14,312	14,631	17,199	17,890	18,288
14	12,369	12,824	13,086	15,461	16,030	16,357
15	11,166	11,545	11,763	13,958	14,431	14,703
16	10,122	10,441	10,624	12,652	13,051	13,280
17	9,212	9,483	9,638	11,515	11,853	12,047
18	8,415	8,647	8,780	10,519	10,809	10,974
19	7,714	7,914	8,029	9,643	9,893	10,036
20	7,096	7,269	7,369	8,870	9,087	9,211
21	6,547	6,699	6,785	8,184	8,373	8,481

EWS 2 Glulam Columns Width = 6 3/4"

Effective Column Length (ft.)	Net Depth = 7 1/2" (5 lams)			Net Depth = 9" (6 lams)		
	Load Duration Factor			Load Duration Factor		
	1.00	1.15	1.25	1.00	1.15	1.25
8	46,419	51,735	55,055	57,007	63,204	67,033
9	43,906	48,470	51,252	53,421	58,620	61,752
10	41,184	44,902	46,984	49,641	53,883	56,381
11	38,162	41,002	42,653	45,794	49,203	51,184
12	35,027	37,314	38,637	42,032	44,777	46,365
13	32,072	33,936	35,013	38,486	40,723	42,016
14	29,356	30,897	31,788	35,228	37,077	38,145
15	26,898	28,188	28,933	32,278	33,826	34,720
16	24,690	25,782	26,412	29,628	30,938	31,694
17	22,712	23,644	24,182	27,254	28,373	29,019
18	20,942	21,745	22,207	25,130	26,094	26,648
19	19,356	20,052	20,453	23,227	24,062	24,543
20	17,933	18,541	18,890	21,519	22,249	22,668
21	16,653	17,187	17,493	19,984	20,624	20,992
22	15,500	15,971	16,241	18,600	19,165	19,489
23	14,458	14,876	15,115	17,349	17,851	18,138
24	13,514	13,886	14,099	16,217	16,663	16,919

Notes for EWS 2 Glulam Columns:

(1) The tabulated allowable loads apply to glulam members made with all L2 laminations (Combination 2) without special tension laminations.

(2) Applicable service conditions = dry.

(3) The tabulated allowable loads are based on 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 NDS-97.

(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) Design properties for normal load duration and dry-use service conditions:

a. Compression parallel to grain (F_c) = 1,900 psi for 4 or more lams, or 1,600 psi for 2 or 3 lams.

b. Modulus of elasticity (MOE) = 1.7 x 10^6 psi.

c. Flexural stress when loaded parallel to wide faces of lamination (F_{by}) = 1,800 psi for 4 or more lams, or 1,600 psi for 3 lams.

d. Flexural stress when loaded perpendicular to wide faces of lamination (F_{bx}) = 1,700 psi for 2 lams to 15 inches deep without special tension laminations.

e. Volume factor for F_{bx} is in accordance with NDS-97. Size factor for F_{by} is $(12/d)^{0.111}$, where d is equal to the lamination width in inches.

(6) This table is for preliminary design use only. Final design should include a complete analysis, including the bearing capability of the foundation supporting the column.