

Rosboro Beams: Design Values	Product	Layup Combination	Flexural Stress $F_b$ (psi) <sup>1</sup>		Compression Perpendicular to Grain $F_{c\perp}$ (psi)	Shear <sup>2</sup> $F_v$ (psi)	Modulus of Elasticity MOE (10 <sup>6</sup> psi)
			Tension Zone	Compression Zone			
			BigBeam	30F-E2M3			
Rosboro Glulam	24F-V4	2,400	1,850	650	265	1.8	
1.8E IJC	24F-V8	2,400	2,400	650	265	1.8	
Treated Glulam	24F-V5M/SP	2,400	2,400	740	300	1.8	
Wet-Use factor		0.80	0.80	0.53	0.875	0.833	

Notes for Glulam Beams Design Values:

(1)  $F_b$  shall be adjusted by the volume effect factor using the following formula:

$$C_v = (5.125/b)^{1/10} \times (12/d)^{1/10} \times (21/L)^{1/10} \leq 1.0$$

Where: b = beam width (in.), d = beam depth (in.), L = beam length (ft.).

(2) For non-prismatic members, notched members, members subject to impact or cyclic loading, or shear design of bending members at connections (NDS-05 3.4.3.3), the design shear ( $F_v$ ) shall be multiplied by a factor of 0.72.

(3) Glulam MOE is expressed in apparent MOE some other engineered wood products state true MOE. Go to [www.rosboro.com/pdfs/APATrueApparentE2005.pdf](http://www.rosboro.com/pdfs/APATrueApparentE2005.pdf)

Rosboro Columns: Design Values	Layup Combination	Flexural Stress		Compression Parallel to Grain $F_{c\parallel}$ (psi)	Modulus of Elasticity MOE (10 <sup>6</sup> psi)
		$F_{by}$ (psi)	$F_{bx}$ (psi)		
EWS 3 DF		1,800 <sup>1</sup>	1,700 <sup>2</sup>	1,900 <sup>3</sup>	1.8

Notes for Glulam Columns Design Values:

(1) Applicable to 4 or more lams. This value shall be reduced to 1,600 psi for 3 lams and 1,300 psi for 2 lams.

(2) Applicable to column depths up to 15" without tension lam. For column depths exceeding 15" without tension lams,  $F_{bx} = 1,500$  psi. When tension lams are used,  $F_{bx} = 2,000$  psi for 4 lams or deeper.

(3) Applicable to 4 or more lams. This value shall be reduced to 1,600 psi for 2 or 3 lams.

## Camber at Midpoint of the Beam Length (inches)

Length of Beam (ft.)	5,000 ft. Radius																									
	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66
Camber at Midpoint (in.)	1/8	1/8	1/8	1/8	1/8	1/4	1/4	1/4	3/8	3/8	3/8	1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4	7/8	1	1	1	1 1/8	1 1/4	1 1/4

Note for Camber at Midpoint of Beam Length Table:

(1) Industry accepted manufacturing tolerance on camber is  $\pm 1/4"$  for lengths up to 20 feet with an increase in tolerance of  $1/8"$  per additional 20 feet of length or fraction thereof, but not to exceed  $3/4"$ .

(2) Camber is measured prior to installation while beam is laying on it's side.

If you would like to calculate the camber for a select length, or figure the radius for a beam, use the formulas below.

## Camber Formulas

	Formula	Example
To Calculate the Radius (ft.)	$\text{Radius} = \frac{(\text{length in feet})^2 \times 1.5}{\text{Camber in inches}}$	Length = 20', Camber = 1/4" or .25" $\frac{20^2 \times 1.5}{.25} = 2,400' \text{ Radius}$
To Calculate the Camber (in.)	$\text{Camber} = \frac{(\text{length in feet})^2 \times 1.5}{\text{Radius in feet}}$	Length = 24', Radius = 5,000' $\frac{24^2 \times 1.5}{5,000} = 0.17" \text{ Camber}$