Rosboro Glulam Ridge Beam, Header and Floor Beam Application Tables











The open, airy designs and high ceilings common in residential construction today make glulam the perfect choice for ridge beam applications as shown below. They can span long distances and carry virtually any design load. The Glulam Ridge Beam Application Tables are designed to provide the smallest glulam beam section required to support the applied loading shown. Tables are provided for either typical roof live load (LDF = 1.25) or the higher roof snow load (LDF = 1.15). In both tables, the beam size provided satisifies all requirements for the International Building Code compliance for strength and deflection.

Using the Tables:

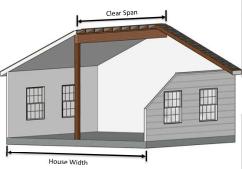
- 1. Determine the required design loads that are applicable to your project.
- 2. Determine the full width of the house or bearing to bearing dimension of the roof rafters (framing).
- 3. Determine the required clear span dimension for the desired open area.
- 4. Choose the appropriate beam size from the chart that corresponds with the Clear Span and Width of House measurements.

ROSBORO BEAM DESIGN VALUES

Rosboro X-Beam and Rosboro 1.8 ESL | EWS 24F-V4 | Dry-Use | F_{b+} = 2,400 psi | F_{b-} = 1,850 psi | F_{c-} = 265 psi | F_{c-} perp = 650 psi | F_{c-} perp = 650 psi | F_{c-} perp = 650 psi | F_{c-} perp = 1.8 x 10⁶ psi | F_{c-} psi | F_{c-} properties = 1.8 x 10⁶ psi | F_{c-} properties = 1.8 x 10⁶ psi | F_{c-} properties = 1.8 x 10⁶ psi | F_{c-} properties = 1.9 x 10

Allowable Glulam Ridge Beam Sizes (LDF = 1.25 Non-Snow Load)

	Clear Span				Width of I	louse (Ft.)		
Load	(Ft.)	Product	20	24	28	32	36	40
		X-Beam or	3½ x 7½	3½ x 7½	3½ x 9	3½ x 9	3½ x 9	3½ x 9
	10'-0"	1.8ESL	5½ x 6	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 7½
	10 -0	1.6 ESL	3½ x 7½	3½ x 7½	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½
20 PSF Live Load		1.0 E3L	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 9
		X-Beam or	3½ x 11%	3½ x 11%	3½ x 13½	3½ x 13½	3½ x 13½	3½ x 15
	14'-6"	1.8ESL	5½ x 10½	5½ x 10½	5½ x 11%	5½ x 11%	5½ x 11%	5½ x 13½
		1.6 ESL	3½ x 11%	3½ x 13½	3½ x 13½	3½ x 13½	3½ x 15	3½ x 15
		1.0 E3L	5½ x 10½	5½ x 10½	5½ x 11%	5½ x 11%	5½ x 13½	5½ x 13½
		X-Beam or	3½ x 16½	3½ x 18	3½ x 18	3½ x 19½	3½ x 19½	
	19'-0	1.8ESL	5½ x 15	5½ x 15	5½ x 16½	5½ x 16½	5½ x 18	5½ x 18
	19 -0	1.6 ESL	3½ x 16½	3½ x 18	3½ x 19½	3½ x 19½		
			5½ x 15	5½ x 16½	5½ x 16½	5½ x 18	5½ x 18	5½ x 18
		X-Beam or	5½ x 19½	5½ x 19½	5½ x 21	5½ x 22½	5½ x 22½	5½ x 24
	23'-6"	1.8ESL	6¾ x 18	6¾ x 19½	6¾ x 19½	6¾ x 21	6¾ x 21	6¾ x 22½
20 PSF	23 -0	1.6 ESL	5½ x 19½	5½ x 21	5½ x 22½	5½ x 22½	5½ x 24	5½ x 24
Dead Load		1.0 E3L	6¾ x 18	6¼ x 19½	6¾ x 21	6¾ x 21	6¾ x 22½	6¾ x 22½
		X-Beam or	6¾ x 22½	6¾ x 24				
	28'-0"	1.8ESL	8¾ x 21	8¾ x 22½	8¾ x 22½	8¾ x 24		
	20 -0		6¾ x 24	6¾ x 24				
		1.6 ESL	8¾ x 21	8¾ x 22½				



Roof Ridge Support Beam

Allowable Glulam Ridge Beam (LDF = 1.15 Snow Load)

	Clear Span				Width of I	House (Ft.)		
Load	(Ft.)	Product	20	24	28	32	36	40
	10'-0"	X-Beam or	3½ x 7½	3½ x 9	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½
		1.8ESL	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 9	5½ x 9
	10 -0	1.6 ESL	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½	3½ x 10½	3½ x 11%
		1.0 E3L	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 9	5½ x 9	5½ x 9
30 PSF		X-Beam or	3½ x 11%	3½ x 13½	3½ x 13½	3½ x 15	3½ x 15	3½ x 15
Snow Load	14'-6"	1.8ESL	5½ x 10½	5½ x 11%	5½ x 11%	5½ x 13½	5½ x 13½	5½ x 13½
	14 -0	1.6 ESL	3½ x 13½	3½ x 13½	3½ x 15	3½ x 15	3½ x 15	3½ x 16½
		1.0 E3L	5½ x 11%	5½ x 11%	5½ x 13½	5½ x 13½	5½ x 13½	5½ x 13½
	19'-0	X-Beam or	3½ x 18	3½ x 19½	3½ x 19½			
		1.8ESL	5½ x 15	5½ x 16½	5½ x 16½	5½ x 18	5½ x 18	5½ x 19½
		1.6 ESL	3½ x 18	3½ x 19½				
			5½ x 16½	5½ x 16½	5½ x 18	5½ x 18	5½ x 19½	5½ x 19½
		X-Beam or	5½ x 21	5½ x 21	5½ x 22½	5½ x 24	5½ x 24	
	23'-6"	1.8ESL	6¾ x 19½	6¾ x 19½	6¾ x 21	6¾ x 22½	6¾ x 22½	6¾ x 24
20 PSF	23 -0	1.6 ESL	5½ x 21	5½ x 22½	5½ x 24	5½ x 24		
Dead Load		1.0 E3L	6¾ x 19½	6¾ x 21	6¾ x 22½	6¾ x 22½	6¾ x 24	6¾ x 24
		X-Beam or	6¾ x 24					
	28'-0"	1.8ESL	8¾ x 22½	8¾ x 24	8¾ x 24			
	20 -0	1.6 ESL						
		1.0 ESL	8¾ x 22½	8¾ x 24				

- 1. Roofs shall be designed and constructed in compliance with all applicable building codes as adopted by governing jurisdiction.
- 2. Glulam beam is subject to uniform gravity loads only. Dead loads are in addition to beam self-weight, which is assumed to be 35 PCF.
- 3. Maximum deflection under Live Load = span/240; Maximum deflection under Total Load = span/180. Table total deflection limit = 0.6".
 4. Minimum bearing length for glulam beam = 1-1/2" x beam width. Sufficient bearing should be determined to resist applied loads and beam end reactions:
- reactions.

 5. Glulam ridge beams may be installed flush or dropped below roof rafters.



Glulam headers are a great economical solution for header applications and can easily span distances long enough to allow garage door openings for two or three cars. Full-length glulam headers at an end-wall provide an excellent nailing surface for structural wood panels, which help to provide compliance with bracing requirements. The Single Story Glulam Header Application Tables are designed to provide the smallest glulam beam section required to support the applied loading shown. Tables are provided for either typical roof live load (LDF = 1.25) or the higher roof snow load (LDF = 1.15). In both tables, the beam size provided satisifies all requirements for the International Building Code compliance for strength and deflection. Beam sizes are representative for the given clear opening (Ft.) and have been designed to carry half of the overall roof span, including a maximum 2 Ft. roof overhang as indicated.

Using the Tables:

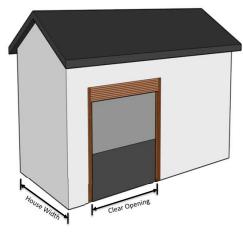
- ${\bf 1.}\ {\bf Determine}\ {\bf the}\ {\bf required}\ {\bf design}\ {\bf loads}\ {\bf that}\ {\bf are}\ {\bf applicable}\ {\bf to}\ {\bf your}\ {\bf project}.$
- 2. Determine the full width of the house or bearing to bearing dimension of the roof trusses (framing).
- 3. Determine the required clear (rough framed) opening dimension for the desired door or window to be installed.
- 4. Choose the appropriate beam size from the chart that corresponds with the Clear Opening and Width of House measurements.

ROSBORO BEAM DESIGN VALUES

Rosboro X-Beam and Rosboro 1.8 ESL | EWS 24F-V4 | Dry-Use | F_{b+} = 2,400 psi | F_b = 1,850 psi | F_v = 265 psi | F_{c, perp} = 650 psi | E_{Apparent} = 1.8 x 10⁶ psi | E_{True} = 1.9 x 10⁶ psi Rosboro 1.6 ESL | EWS 20F-V7 | Dry-Use | F_b = 2,000 psi | F_v = 265 psi | $F_{c,perp}$ = 650 psi | $E_{Apparent}$ = 1.6 x 10^6 psi | E_{True} = 1.7 x 10^6 psi

Allowable Glulam Beam Sizes for Single Story Headers (LDF = 1.25 Non-Snow Load)

Allowable			Width of House (Ft.)								
	Clear Opening				Width of I	House (Ft.)					
Load	(Ft.)	Product	20	24	28	32	36	40			
		X-Beam or	3½ x 6	3½ x 6	3½ x 6	3½ x 6	3½ x 6	3½ x 6			
	6'-3"	1.8ESL	5½ x 6	5½ x 6	5½ x 6	5½ x 6	5½ x 6	5½ x 6			
	0 3	1.6 ESL	3½ x 6	3½ x 6	3½ x 6	3½ x 6	3½ x 7½	3½ x 7½			
1		1.0 L3L	5½ x 6	5½ x 6	5½ x 6	5½ x 6	5½ x 6	5½ x 6			
20 PSF		X-Beam or	3½ x 7½	3½ x 7½	3½ x 7½	3½ x 7½	3½ x 9	3½ x 9			
Live Load	9'-3"	1.8ESL	5½ x 6	5½ x 6	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 7½			
] 9-3	1.6 ESL	3½ x 7½	3½ x 7½	3½ x 9	3½ x 9	3½ x 9	3½ x 9			
		1.0 L3L	5½ x 6	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 7½			
	12'-3"	X-Beam or	3½ x 10½	3½ x 10½	3½ x 10½	3½ x 11%	3½ x 11%	3½ x 11%			
		1.8ESL	5½ x 9	5½ x 9	5½ x 9	5½ x 10½	5½ x 10½	5½ x 10½			
		1.6 ESL	3½ x 10½	3½ x 10½	3½ x 11%	3½ x 11⅓	3½ x 11%	3½ x 13½			
1		1.6 ESL	5½ x 9	5½ x 9	5½ x 10½	5½ x 10½	5½ x 10½	5½ x 11%			
		X-Beam or	3½ x 15	3½ x 15	3½ x 16½	3½ x 16½	3½ x 16½	3½ x 18			
	16'-3"	1.8ESL	5½ x 11%	5½ x 13½	5½ x 13½	5½ x 13½	5½ x 15	5½ x 15			
20 PSF	10-3	1.6 ESL	3½ x 15	3½ x 15	3½ x 16½	3½ x 16½	3½ x 18	3½ x 18			
Dead Load		1.0 L3L	5½ x 13½	5½ x 13½	5½ x 13½	5½ x 15	5½ x 15	5½ x 15			
1		X-Beam or	3½ x 16½	3½ x 18	3½ x 18	3½ x 19½	3½ x 19½				
1	18'-3"	1.8ESL	5½ x 15	5½ x 15	5½ x 16½	5½ x 16½	5½ x 16½	5½ x 18			
1	10-2	1.6 ESL	3½ x 18	3½ x 19½	3½ x 19½	3½ x 19½					
		1.0 E3L	5½ x 15	5½ x 16½	5½ x 16½	5½ x 16½	5½ x 18	5½ x 18			



Single-Story Roof Support Header

Allowable Glulam Beam Sizes for Single Story Headers (LDF = 1.15 Snow Load)

	Clear Opening				Width of I	louse (Ft.)		
Load	(Ft.)	Product	20	24	28	32	36	40
		X-Beam or	3½ x 6	3½ x 6	3½ x 6	3½ x 6	3½ x 7½	3½ x 7½
	6'-3"	1.8ESL	5½ x 6	5½ x 6	5½ x 6	5½ x 6	5½ x 6	5½ x 6
		1.6 ESL	3½ x 6	3½ x 6	3½ x 7½	3½ x 7½	3½ x 7½	3½ x 7½
		1.0 E3L	5½ x 6	5½ x 6	5½ x 6	5½ x 6	5½ x 6	5½ x 6
30 PSF		X-Beam or	3½ x 7½	3½ x 9	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½
Snow Load	9'-3"	1.8ESL	5½ x 6	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 9
	9-3	1.6 ESL	3½ x 9	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½	3½ x 10½
		1.0 L3L	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 9	5½ x 9	5½ x 9
	12'-3"	X-Beam or	3½ x 10½	3½ x 11%	3½ x 11%	3½ x 11%	3½ x 13½	3½ x 13½
		1.8ESL	5½ x 9	5½ x 10½	5½ x 10½	5½ x 10½	5½ x 10½	5½ x 11%
		1.6 ESL	3½ x 10½	3½ x 11%	3½ x 11%	3½ x 13½	3½ x 13½	3½ x 15
		1.0 L3L	5½ x 10½	5½ x 10½	5½ x 10½	5½ x 10½	5½ x 11%	5½ x 11%
		X-Beam or	3½ x 15	3½ x 16½	3½ x 16½	3½ x 18	3½ x 18	3½ x 19½
	16'-3"	1.8ESL	5½ x 11%	5½ x 13½	5½ x 13½	5½ x 15	5½ x 15	5½ x 16½
20 PSF	10-5	1.6 ESL	3½ x 16½	3½ x 16½	3½ x 18	3½ x 18	3½ x 19½	
Dead Load		1.0 L3L	5½ x 13½	5½ x 15	5½ x 15	5½ x 16½	5½ x 16½	5½ x 16½
1		X-Beam or	3½ x 18	3½ x 19½	3½ x 19½			
1	19'-2"	1.8ESL	5½ x 15	5½ x 16½	5½ x 16½	5½ x 18	5½ x 18	5½ x 19½
1	18'-3" 1.6 ESL	3½ x 18	3½ x 19½					
		1.0 L3L	5½ x 16½	5½ x 16½	5½ x 18	5½ x 18	5½ x 19½	5½ x 19½

- 1. Roofs shall be designed and constructed in compliance with all applicable building codes as adopted by governing jurisdiction.
- 2. Glulam beam is subject to uniform gravity loads only. Dead loads are in addition to beam self-weight, which is assumed to be 35 PCF.
- 3. Maximum deflection under Live Load = span/240; Maximum deflection under Total Load = span/180. Table total deflection limit = 0.6".

 4. Minimum bearing length for glulam beam = 1-1/2" x beam width. Sufficient bearing should be determined to resist applied loads and beam end
- reactions.



The Two-Story Glulam Header Application Tables are designed to provide the smallest glulam beam section required to support the applied loading shown. In addition to the roof loading, either typical roof live load (LDF = 1.25) or the higher roof snow load (LDF = 1.15), the beams have been designed to support the floor load (LDF = 1.0) and a second story exterior wall. All floor loading assumes a central bearing location within the home and a maximum 9 Ft. exterior wall height. In both tables, the beam size provided satisifies all requirements for the International Building Code compliance for strength and deflection. Beam sizes are representative for the given clear opening (Ft.) and have been designed to carry half of the overall roof span, including a maximum 2 Ft. roof overhang, 1/4 of the overall floor span and exterior wall dead load as indicated.

Using the Tables:

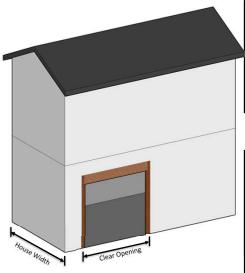
- 1. Determine the required design loads that are applicable to your project.
- 2. Determine the full width of the house or bearing to bearing dimension of the roof trusses (framing).
- 3. Determine the required clear (rough framed) opening dimension for the desired door or window to be installed.
- 4. Choose the appropriate beam size from the chart that corresponds with the Clear Opening and Width of House measurements.

ROSBORO BEAM DESIGN VALUES

Rosboro X-Beam and Rosboro 1.8 ESL | EWS 24F-V4 | Dry-Use | F_{b+} = 2,400 psi | F_{b-} = 1,850 psi | F_{v} = 265 psi | $F_{c, perp}$ = 650 psi | $F_{c, perp}$ = 1.8 x 10⁶ psi | $F_{c, perp}$ = 1.8 x 10⁶ psi | $F_{c, perp}$ = 650 psi | $F_{c, perp}$ = 650 psi | $F_{c, perp}$ = 1.6 x 10⁶ psi | $F_{c, perp}$ = 1.7 x 10⁶ psi

Allowable Glulam Beam Sizes for Two-Story Headers (LDF = 1.25 Non-Snow Load & 1.00 Floor Load)

_	Al	lowable Glulam	Beam Sizes to	or Two-Story	Headers (LDF	= 1.25 Non-S	now Load & 1	1.00 Floor Loa	ia)
		Clear Opening				Width of I	louse (Ft.)		
	Load	(Ft.)	Product	20	24	28	32	36	40
Г			X-Beam or	3½ x 6	3½ x 6	3½ x 6	3½ x 7½	3½ x 7½	3½ x 7½
	ROOF	6'-3"	1.8ESL	5½ x 6	5½ x 6				
1	20 PSF	0-3	1.6 ESL	3½ x 6	3½ x 7½	3½ x 9½	3½ x 9	3½ x 9	3½ x 9
	Live Load		1.0 E3L	5½ x 6	5½ x 6				
	20 PSF		X-Beam or	3½ x 9	3½ x 9	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½
	Dead Load	9'-3"	1.8ESL	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 9	5½ x 9	5½ x 9
1			1 6 501	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½	3½ x 10½	3½ x 11%
I'''			1.6 ESL	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 9	5½ x 9	5½ x 9
1	FLOOR		X-Beam or	3½ x 10½	3½ x 11%	3½ x 11⅓	3½ x 11%	3½ x 13½	3½ x 13½
1	40 PSF	12'-3"	1.8ESL	5½ x 9	5½ x 10½	5½ x 10½	5½ x 10½	5½ x 11%	5½ x 11%
	Live Load	12 -3	1.6 ESL	3½ x 11%	3½ x 11%	3½ x 13½	3½ x 13½	3½ x 15	3½ x 15
Т	10PSF		1.0 E3L	5½ x 10½	5½ x 10½	5½ x 10½	5½ x 11%	5½ x 11%	5½ x 11%
1	Dead Load		X-Beam or	3½ x 15	3½ x 16½	3½ x 16½	3½ x 18	3½ x 19½	3½ x 19½
ı		16'-3"	1.8ESL	5½ x 13½	5½ x 13½	5½ x 15	5½ x 15	5½ x 16½	5½ x 16½
		10-5	1.6 ESL	3½ x 16½	3½ x 18	3½ x 18	3½ x 19½	3½ x 19½	3½ x 19½
	WALL		1.0 L3L	5½ x 15	5½ x 15	5½ x 16½	5½ x 16½	5½ x 16½	5½ x 18
1	10 PSF		X-Beam or	3½ x 18	3½ x 19½				
1	Dead Load		1.8ESL	5½ x 16½	5½ x 16½	5½ x 18	5½ x 18	5½ x 18	5½ x 19½
1			1.6 ESL	3½ x 19½					
1			1.0 ESL	5½ x 16½	5½ x 16½	5½ x 18	5½ x 19½	5½ x 19½	5½ x 21



Two-Story Roof Support Header

Assumes roof loading from full house width, floor loading with support at center of house width and maximum 9 Ft. second level exterior wall height.

Allowable Glulam Beam Sizes for Two-Story Headers (LDF = 1.15 Snow Load & 1.00 Floor Load)

	Clear Opening				Width of I	louse (Ft.)		
Load	(Ft.)	Product	20	24	28	32	36	40
		X-Beam or	3½ x 6	3½ x 7½	3½ x 7½	3½ x 7½	3½ x 7½	3½ x 7½
ROOF	6'-3"	1.8ESL	5½ x 6	5½ x 6	5½ x 6	5½ x 6	5½ x 7½	5½ x 7½
30 PSF	0-3	1.6 ESL	3½ x 7½	3½ x 7½	3½ x 7½	3½ x 7½	3½ x 9	3½ x 9
Snow Load		1.0 ESL	5½ x 6	5½ x 6	5½ x 6	5½ x 6	5½ x 7½	5½ x 7½
20 PSF		X-Beam or	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½	3½ x 11%	3½ x 11%
Dead Load	9'-3"	1.8ESL	5½ x 7½	5½ x 9	5½ x 9	5½ x 9	5½ x 9	5½ x 10½
	9'-3"	1.6 ESL	3½ x 9	3½ x 10½	3½ x 10½	3½ x 11%	3½ x 11%	3½ x 13½
		1.0 E3L	5½ x 7½	5½ x 9	5½ x 9	5½ x 9	5½ x 10½	5½ x 10½
FLOOR		X-Beam or	3½ x 11%	3½ x 11%	3½ x 13½	3½ x 13½	3½ x 15	3½ x 15
40 PSF	12'-3"	1.8ESL	5½ x 10½	5½ x 11%	5½ x 11%	5½ x 11%	5½ x 11%	5½ x 13½
Live Load	12 -3	1.6 ESL	3½ x 11⅓	3½ x 13½	3½ x 13½	3½ x 15	3½ x 15	3½ x 16½
10PSF		1.0 L3L	5½ x 10½	5½ x 10½	5½ x 11%	5½ x 11%	5½ x 13½	5½ x 13½
Dead Load		X-Beam or	3½ x 16½	3½ x 18	3½ x 19½	3½ x 19½	3½ x 19½	
	16'-3"	1.8ESL	5½ x 15	5½ x 15	5½ x 16½	5½ x 16½	5½ x 16½	5½ x 18
	10-5	1.6 ESL	3½ x 18	3½ x 18	3½ x 19½	3½ x 19½		
WALL	18'-3"	1.0 L3L	5½ x 15	5½ x 16½	5½ x 16½	5½ x 16½	5½ x 18	5½ x 18
10 PSF		X-Beam or	3½ x 19½					
Dead Load		1.8ESL	5½ x 16½	5½ x 18	5½ x 18	5½ x 19½	5½ x 19½	5½ x 21
		1.6 ESL						
		1.0 LJL	5½ x 18	5½ x 18	5½ x 19½	5½ x 19½	5½ x 19½	5½ x 21

- 1. Roofs shall be designed and constructed in compliance with all applicable building codes as adopted by governing jurisdiction.
- 2. Glulam beam is subject to uniform gravity loads only. Dead loads are in addition to beam self-weight, which is assumed to be 35 PCF.
- 3. Maximum deflection under Live Load = span/240; Maximum deflection under Total Load = span/180. Table total deflection limit = 0.6".
- 4. Minimum bearing length for glulam beam = 1-1/2" x beam width. Sufficient bearing should be determined to resist applied loads and beam end reactions.



The superior strength of glulam allows for longer clear spans than solid-sawn lumber. Rosboro glulam is also manufactured from kiln-dried lumber so shrinkage and warping are minimized. The Glulam Floor Beam Application Tables are designed to provide the smallest glulam beam section required to support the applied loading shown. Tables are provided for either a single span beam or a beam continuous over a central support under floor loading (LDF = 1.00). In both tables, the beam size provided satisifies all requirements for the International Building Code compliance for strength and deflection. Beam sizes are representative for the given clear opening (Ft.) and have been designed to carry half of the overall floor span. Selected beams can be installed in either a flush or dropped orientation.

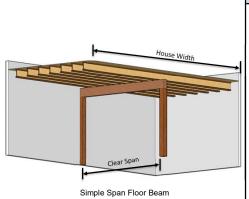
Using the Tables:

- 1. Determine the required design loads that are applicable to your project.
- 2. Determine the full width of the house or bearing to bearing dimension of the floor joists.
- 3. Determine the required clear span dimension for the desired support spacing.
- 4. Choose the appropriate beam size from the chart that corresponds with the Clear Span and Width of House measurements.

ROSBORO BEAM DESIGN VALUES

Rosboro X-Beam and Rosboro 1.8 ESL | EWS 24F-V4 | Dry-Use | F_{b+} = 2,400 psi | F_{b-} = 1,850 psi | F_{c-} = 265 psi | F_{c-} perp = 650 psi | F_{c-} perp = 650 psi | F_{c-} perp = 650 psi | F_{c-} perp = 1.8 x 10⁶ psi | F_{c-} psi | F_{c-} properties = 1.8 x 10⁶ psi | F_{c-} properties = 1.8 x 10⁶ psi | F_{c-} properties = 1.8 x 10⁶ psi | F_{c-} properties = 1.9 x 10

Allowable Glulam Beam Sizes for Single Span Floor Beams (LDF = 1.00 Floor Load)



	Allowable Glulam Beam Sizes for Single Span Floor Beams (LDF = 1.00 Floor Load)											
	Clear Span				Width of I	House (Ft.)						
Load	(Ft.)	Product	20	24	28	32	36	40				
		X-Beam or	3½ x 7½	3½ x 7½	3½ x 7½	3½ x 9	3½ x 9	3½ x 9				
	8'-0"	1.8ESL	5½ x 6	5½ x 6	5½ x 6	5½ x 7½	5½ x 7½	5½ x 7½				
	0-0	1.6 ESL	3½ x 7½	3½ x 7½	3½ x 9	3½ x 9	3½ x 9	3½ x 10½				
40 PSF Live Load		1.0 L3L	5½ x 6	5½ x 6	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 7½				
		X-Beam or	3½ x 9	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½	3½ x 11%				
	10'-0"	1.8ESL	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 9	5½ x 9	5½ x 9				
	10-0	1.6 ESL	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½	3½ x 11%	3½ x 11%				
		1.0 E3L	5½ x 7½	5½ x 7½	5½ x 9	5½ x 9	5½ x 9	5½ x 10½				
	12'-0"	X-Beam or	3½ x 10½	3½ x 10½	3½ x 11%	3½ x 11%	3½ x 13½	3½ x 13½				
		1.8ESL	5½ x 9	5½ x 9	5½ x 9	5½ x 10½	5½ x 10½	5½ x 10½				
		1.6 ESL	3½ x 10½	3½ x 11%	3½ x 11%	3½ x 13½	3½ x 13½	3½ x 15				
			5½ x 9	5½ x 9	5½ x 10½	5½ x 10½	5½ x 10½	5½ x 11%				
		X-Beam or	3½ x 15	3½ x 15	3½ x 16½	3½ x 16½	3½ x 16½	3½ x 18				
	16'-0"	1.8ESL	5½ x 11%	5½ x 13½	5½ x 13½	5½ x 15	5½ x 15	5½ x 15				
10 PSF	10-0	1.6 ESL	3½ x 15	3½ x 15	3½ x 16½	3½ x 18	3½ x 18	3½ x 19½				
Dead Load _		1.0 L3L	5½ x 13½	5½ x 13½	5½ x 15	5½ x 15	5½ x 15	5½ x 16½				
		X-Beam or	3½ x 19½	3½ x 19½	3½ x 21	3½ x 22½	3½ x 22½	3½ x 24				
	20'-0"	1.8ESL	5½ x 16½	5½ x 18	5½ x 18	5½ x 19½	5½ x 19½	5½ x 21				
	20-0		3½ x 19½									
		1.6 ESL	5½ x 16½	5½ x 18	5½ x 19½	5½ x 19½	5½ x 21	5½ x 21				

Allowable Glulam Beam Sizes for Continuous Span Floor Beams (LDF = 1.00 Floor Load)



	Allowable Glulam Beam Sizes for Continuous Span Floor Beams (LDF = 1.00 Floor Load)											
	Clear Span				Width of I	louse (Ft.)						
Load	(Ft.)	Product	20	24	28	32	36	40				
		X-Beam or	3½ x 6	3½ x 7½	3½ x 7½	3½ x 7½	3½ x 7½	3½ x 7½				
	6'-0"	1.8ESL	5½ x 6	5½ x 6	5½ x 6	5½ x 6	5½ x 6	5½ x 6				
	0-0	1.6 ESL	3½ x 6	3½ x 7½	3½ x 7½	3½ x 7½	3½ x 7½	3½ x 7½				
40 PSF Live Load		1.0 L3L	5½ x 6	5½ x 6	5½ x 6	5½ x 6	5½ x 6	5½ x 6				
		X-Beam or	3½ x 9	3½ x 9	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½				
	8'-0"	1.8ESL	5½ x 6	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 9				
	8-0	1.6 ESL	3½ x 9	3½ x 9	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½				
		1.0 L3L	5½ x 6	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 9	5½ x 9				
	10'-0"	X-Beam or	3½ x 9	3½ x 10½	3½ x 10½	3½ x 11⅓	3½ x 11⅓	3½ x 13½				
		1.8ESL	5½ x 9	5½ x 9	5½ x 9	5½ x 9	5½ x 10½	5½ x 10½				
		1.6 ESL	3½ x 9	3½ x 10½	3½ x 10½	3½ x 11%	3½ x 11%	3½ x 13½				
			5½ x 9	5½ x 9	5½ x 9	5½ x 9	5½ x 10½	5½ x 10½				
		X-Beam or	3½ x 13½	3½ x 13½	3½ x 13½	3½ x 15	3½ x 15	3½ x 15				
	12'-0"	1.8ESL	5½ x 10½	5½ x 10½	5½ x 10½	5½ x 10½	5½ x 11%	5½ x 11%				
10 PSF	12 -0	1.6 ESL	3½ x 13½	3½ x 13½	3½ x 13½	3½ x 15	3½ x 15	3½ x 15				
Dead Load		1.0 L3L	5½ x 10½	5½ x 10½	5½ x 10½	5½ x 10½	5½ x 11%	5½ x 11%				
		X-Beam or	3½ x 13½	3½ x 15	3½ x 15	3½ x 16½	3½ x 18					
	14'-0"	1.8ESL	5½ x 10½	5½ x 11%	5½ x 11⅓	5½ x 13½	5½ x 13½	5½ x 15				
	14-0	1.6 ESL	3½ x 13½	3½ x 15	3½ x 15	3½ x 16½	3½ x 18					
		1.0 L3L	5½ x 10½	5½ x 11%	5½ x 11%	5½ x 13½	5½ x 13½	5½ x 15				

- 1. Floors shall be designed and constructed in compliance with all applicable building codes as adopted by governing jurisdiction.
- 2. Glulam beam is subject to uniform gravity loads only. Dead loads are in addition to beam self-weight, which is assumed to be 35 PCF.
- 3. Maximum deflection under Live Load = span/360; Maximum deflection under Total Load = span/240. Table total deflection limit = 0.6".

 4. Minimum bearing length for glulam beam = 1-1/2" x beam width. Sufficient bearing should be determined to resist applied loads and beam end
- 5. Glulam beams may be installed flush or dropped below floor joists.



The Glulam Two-Story Floor Beam Application Tables are designed to provide the smallest glulam beam section required to support the applied loading shown. Tables are provided for either a single span beam or a beam continuous over a central support. In addition to the floor loading (LDF = 1.00) the beams have been designed for the additional roof loading, either typical roof live load (LDF = 1.25) or the higher roof snow load (LDF = 1.15), and a second story interior bearing wall. In all of the tables, the beam size provided satisifies all requirements for the International Building Code compliance for strength and deflection. Beam sizes are representative for the given clear opening (Ft.) and have been designed to carry half of the overall floor and roof spans. Selected beams can be installed in either a flush or dropped orientation.

Using the Tables:

- 1. Determine the required design loads that are applicable to your project.
- 2. Determine the full width of the house or bearing to bearing dimension of the floor joists.
- 3. Determine the required clear span dimension for the desired support spacing.
- 4. Choose the appropriate beam size from the chart that corresponds with the Clear Span and Width of House measurements.

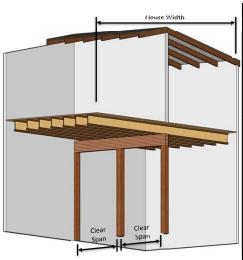
ROSBORO BEAM DESIGN VALUES

Rosboro X-Beam and Rosboro 1.8 ESL | EWS 24F-V4 | Dry-Use | F_{b+} = 2,400 psi | F_{b-} = 1,850 psi | $F_{c, perp}$ = 650 psi | $F_{c, perp}$ = 1.8 x 10⁶ psi | $F_{c,$

House Width

Two-Story Simple Span Floor Beam

	Clear Span				Width of I	House (Ft.)		
Load	(Ft.)	Product	20	24	28	32	36	40
		X-Beam or	3½ x 9	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½	3½ x 10½
ROOF	8'-0"	1.8ESL	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 9	5½ x 9	5½ x 9
20 PSF	8-0	1.6 ESL	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½	3½ x 11%	3½ x 11%
Live Load		1.0 L3L	5½ x 7½	5½ x 7½	5½ x 9	5½ x 9	5½ x 9	5½ x 10½
20 PSF		X-Beam or	3½ x 10½	3½ x 10½	3½ x 11%	3½ x 11%	3½ x 13½	3½ x 13½
Dead Load	10'-0"	1.8ESL	5½ x 9	5½ x 9	5½ x 9	5½ x 10½	5½ x 10½	5½ x 10½
		1.6 ESL	3½ x 10½	3½ x 11%	3½ x 13½	3½ x 13½	3½ x 13½	3½ x 15
		1.0 E3L	5½ x 9	5½ x 9	5½ x 10½	5½ x 10½	5½ x 11%	5½ x 11%
FLOOR		X-Beam or	3½ x 11%	3½ x 13½	3½ x 13½	3½ x 15	3½ x 16½	3½ x 16½
40 PSF	12'-0"	1.8ESL	5½ x 10½	5½ x 10½	5½ x 11%	5½ x 11%	5½ x 11%	5½ x 13½
Live Load	12 -0	1.6 ESL	3½ x 13½	3½ x 13½	3½ x 15	3½ x 16½	3½ x 16½	3½ x 18
10PSF		1.0 L3L	5½ x 10½	5½ x 11%	5½ x 11%	5½ x 13½	5½ x 13½	5½ x 13½
Dead Load		X-Beam or	3½ x 16½	3½ x 18	3½ x 19½			
	16'-0"	1.8ESL	5½ x 15	5½ x 15	5½ x 16½	5½ x 16½	5½ x 18	5½ x 18
	10 -0	1.6 ESL	3½ x 18	3½ x 18	3½ x 19½			
WALL	10 PSF	1.0 L3L	5½ x 15	5½ x 16½	5½ x 16½	5½ x 18	5½ x 18	5½ x 19½
10 PSF		X-Beam or	5½ x 19½	5½ x 21	5½ x 21	5½ x 22½	5½ x 22½	5½ x 24
Dead Load		1.8ESL	6¾ x 18	6¾ x 19½	6¾ x 19½	6¾ x 21	6¾ x 21	6¾ x 22½
		20 -0	5½ x 21	5½ x 21	5½ x 22½	5½ x 22½	5½ x 24	5½ x 24
		1.6 ESL	6¾ x 19½	6¾ x 19½	6¾ x 21	6¾ x 21	6¾ x 22½	6¾ x 24



Two-Story Continuous Span Floor Beam

Allowable Glulam Beam Sizes for Continuous Span Floor Beams (LDF = 1.00 Floor Load)

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	Clear Span				Width of I	House (Ft.)		
Load	(Ft.)	Product	20	24	28	32	36	40
		X-Beam or	3½ x 7½	3½ x 9	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½
ROOF	6'-0"	1.8ESL	5½ x 6	5½ x 6	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 9
20 PSF	0-0	1.6 ESL	3½ x 7½	3½ x 9	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½
Live Load		1.0 L3L	5½ x 6	5½ x 6	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 9
20 PSF		X-Beam or	3½ x 10½	3½ x 10½	3½ x 11%	3½ x 11%	3½ x 13½	3½ x 13½
Dead Load	8'-0"	1.8ESL	5½ x 7½	5½ x 9	5½ x 9	5½ x 9	5½ x 10½	5½ x 10½
	8 -0	1.6 ESL	3½ x 10½	3½ x 10½	3½ x 11%	3½ x 11%	3½ x 13½	3½ x 13½
		1.0 E3L	5½ x 7½	5½ x 9	5½ x 9	5½ x 9	5½ x 10½	5½ x 10½
FLOOR		X-Beam or	3½ x 11%	3½ x 13½	3½ x 13½	3½ x 15	3½ x 16½	3½ x 16½
40 PSF	10'-0"	1.8ESL	5½ x 9	5½ x 10½	5½ x 10½	5½ x 11%	5½ x 11%	5½ x 13½
Live Load	10-0	1.6 ESL	3½ x 11⅓	3½ x 13½	3½ x 13½	3½ x 15	3½ x 16½	3½ x 16½
10PSF		1.0 L3L	5½ x 9	5½ x 10½	5½ x 10½	5½ x 11%	5½ x 11%	5½ x 13½
Dead Load		X-Beam or	3½ x 15	3½ x 16½	3½ x 18	3½ x 18	3½ x 19½	
	12'-0"	1.8ESL	5½ x 11%	5½ x 11%	5½ x 13½	5½ x 13½	5½ x 15	5½ x 15
	12 -0	1.6 ESL	3½ x 15	3½ x 16½	3½ x 18	3½ x 18	3½ x 19½	
WALL	14'-0"	1.0 L3L	5½ x 11%	5½ x 11%	5½ x 13½	5½ x 13½	5½ x 15	5½ x 15
10 PSF		X-Beam or	5½ x 13½	5½ x 13½	5½ x 15	5½ x 16½	5½ x 16½	5½ x 18
Dead Load		1.8ESL	6¾ x 12	6¾ x 13½	6¾ x 13½	6¾ x 15	6¾ x 15	6¾ x 16½
1		1.6 ESL	5½ x 13½	5½ x 13½	5½ x 15	5½ x 16½	5½ x 16½	5½ x 18
		1.0 E3L	6¾ x 12	6¾ x 13½	6¾ x 13½	6¾ x 15	6¾ x 15	6¾ x 16½

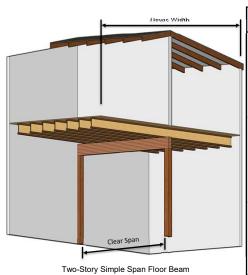
- 1. Floors shall be designed and constructed in compliance with all applicable building codes as adopted by governing jurisdiction.
- Glulam beam is subject to uniform gravity loads only. Dead loads are in addition to beam self-weight, which is assumed to be 35 PCF.
 Maximum deflection under Live Load = span/360; Maximum deflection under Total Load = span/240. Table total deflection limit = 0.6"
- 4. Minimum bearing length for glulam beam = 1-1/2" x beam width. Sufficient bearing should be determined to resist applied loads and beam end reactions.
- Glulam beams may be installed flush or dropped below floor joists.



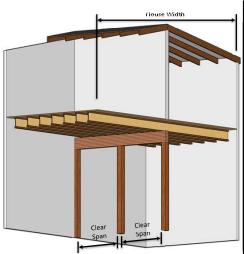
ROSBORO BEAM DESIGN VALUES

Rosboro X-Beam and Rosboro 1.8 ESL | EWS 24F-V4 | Dry-Use | F_{b+} =2,400 psi | F_b =1,850 psi | F_v = 265 psi | F_{c, perp} = 650 psi | E_{Apparent} = 1.8 x 10⁶ psi | E_{True} = 1.9 x 10⁶ psi Rosboro 1.6 ESL | EWS 20F-V7 | Dry-Use | F_b = 2,000 psi | F_v = 265 psi | $F_{c,perp}$ = 650 psi | $E_{Apparent}$ = 1.6 x 10^6 psi | E_{True} = 1.7 x 10^6 psi

Allowable Glulam Beam Sizes for Single Span Floor Beams (LDF = 1.00 Floor Load)



	Clear Span				Width of I	House (Ft.)		
Load	(Ft.)	Product	20	24	28	32	36	40
		X-Beam or	3½ x 9	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½	3½ x 11%
ROOF	8'-0"	1.8ESL	5½ x 7½	5½ x 7½	5½ x 9	5½ x 9	5½ x 9	5½ x 9
30 PSF	8-0	1.6 ESL	3½ x 9	3½ x 9	3½ x 10½	3½ x 10½	3½ x 11%	3½ x 11⅓
Snow Load		1.0 L3L	5½ x 7½	5½ x 7½	5½ x 9	5½ x 9	5½ x 9	5½ x 10½
20 PSF		X-Beam or	3½ x 10½	3½ x 10½	3½ x 11%	3½ x 13½	3½ x 13½	3½ x 13½
Dead Load	10'-0"	1.8ESL	5½ x 9	5½ x 9	5½ x 10½	5½ x 10½	5½ x 10½	5½ x 11%
	10 -0	1.6 ESL	3½ x 10½	3½ x 11%	3½ x 13½	3½ x 13½	3½ x 13½	3½ x 15
		1.0 L3L	5½ x 9	5½ x 9	5½ x 10½	5½ x 10½	5½ x 11%	5½ x 11%
FLOOR		X-Beam or	3½ x 11%	3½ x 13½	3½ x 15	3½ x 15	3½ x 16½	3½ x 16½
40 PSF	12'-0"	1.8ESL	5½ x 10½	5½ x 11%	5½ x 11%	5½ x 11%	5½ x 13½	5½ x 13½
Live Load	12 -0	1.6 ESL	3½ x 13½	3½ x 13½	3½ x 15	3½ x 16½	3½ x 16½	3½ x 18
10PSF		1.6 ESL	5½ x 10½	5½ x 11%	5½ x 11%	5½ x 13½	5½ x 13½	5½ x 15
Dead Load		X-Beam or	3½ x 18	3½ x 19½	3½ x 19½	3½ x 19½		
	16'-0"	1.8ESL	5½ x 15	5½ x 16½	5½ x 16½	5½ x 16½	5½ x 18	5½ x 18
	10-0	1.6 ESL	3½ x 18	3½ x 19½	3½ x 19½			
WALL		1.0 L3L	5½ x 15	5½ x 16½	5½ x 16½	5½ x 18	5½ x 18	5½ x 19½
10 PSF	20'-0"	X-Beam or	5½ x 19½	5½ x 21	5½ x 22½	5½ x 22½	5½ x 24	5½ x 24
Dead Load		1.8ESL	6¾ x 18	6¾ x 19½	6¾ x 21	6¾ x 21	6¾ x 22½	6¾ x 22½
1		1.6 ESL	5½ x 21	5½ x 22½	5½ x 22½	5½ x 24	5½ x 24	
		1.0 L3L	6¾ x 19½	6¾ x 21	6¾ x 21	6¾ x 22½	6¾ x 22½	6¾ x 24



Two-Story Continuous Span Floor Beam

	Allowable 0	Glulam Beam S	Sizes for Cont	inuous Span I	Floor Beams (LDF = 1.00 FI	oor Load)	
	Clear Span				Width of I	louse (Ft.)		
Load	(Ft.)	Product	20	24	28	32	36	40
		X-Beam or	3½ x 7½	3½ x 7½	3½ x 9	3½ x 9	3½ x 9	3½ x 10½
ROOF	6'-0"	1.8ESL	5½ x 6	5½ x 6	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 7½
30 PSF	0.40	1.6 ESL	3½ x 7½	3½ x 7½	3½ x 9	3½ x 9	3½ x 9	3½ x 10½
Snow Load		1.0 L3L	5½ x 6	5½ x 6	5½ x 7½	5½ x 7½	5½ x 7½	5½ x 7½
20 PSF		X-Beam or	3½ x 9	3½ x 10½	3½ x 10½	3½ x 11%	3½ x 11⅓	3½ x 13½
Dead Load	8'-0"	1.8ESL	5½ x 7½	5½ x 9	5½ x 9	5½ x 9	5½ x 10½	5½ x 10½
	8-0	1.6 ESL	3½ x 9	3½ x 10½	3½ x 10½	3½ x 11%	3½ x 11⅓	3½ x 13½
		1.0 L3L	5½ x 7½	5½ x 9	5½ x 9	5½ x 9	5½ x 10½	5½ x 10½
FLOOR		X-Beam or	3½ x 11%	3½ x 13½	3½ x 13½	3½ x 15	3½ x 16½	3½ x 16½
40 PSF	10'-0"	1.8ESL	5½ x 9	5½ x 10½	5½ x 10½	5½ x 11⅓	5½ x 11%	5½ x 13½
Live Load	10 0	1.6 ESL	3½ x 11%	3½ x 13½	3½ x 13½	3½ x 15	3½ x 16½	3½ x 16½
10PSF		1.0 L3L	5½ x 9	5½ x 10½	5½ x 10½	5½ x 11%	5½ x 11%	5½ x 13½
Dead Load		X-Beam or	3½ x 15	3½ x 16½	3½ x 18	3½ x 19½		
	12'-0"	1.8ESL	5½ x 11%	5½ x 11%	5½ x 13½	5½ x 13½	5½ x 15	5½ x 15
	12 0	1.6 ESL	3½ x 15	3½ x 16½	3½ x 18	3½ x 19½		
WALL			5½ x 11%	5½ x 11%	5½ x 13½	5½ x 13½	5½ x 15	5½ x 15
10 PSF	14'-0"	X-Beam or	5½ x 13½	5½ x 15	5½ x 15	5½ x 16½	5½ x 16½	5½ x 18
Dead Load		1.8ESL	6¾ x 12	6¾ x 13½	6¾ x 13½	6¾ x 15	6¾ x 15	6¾ x 16½
		1.6 ESL	5½ x 13½	5½ x 15	5½ x 15	5½ x 16½	5½ x 16½	5½ x 18
		1.0 LJL	6¾ x 12	6¾ x 13½	6¾ x 13½	6¾ x 15	6¾ x 15	6¾ x 16½

Notes:

- 1. Floors shall be designed and constructed in compliance with all applicable building codes as adopted by governing jurisdiction.
- 2. Glulam beam is subject to uniform gravity loads only. Dead loads are in addition to beam self-weight, which is assumed to be 35 PCF.
- 3. Maximum deflection under Live Load = span/360; Maximum deflection under Total Load = span/240. Table total deflection limit = 0.6"
- 4. Minimum bearing length for glulam beam = 1-1/2" x beam width. Sufficient bearing should be determined to resist applied loads and beam end reactions
- 5. Glulam beams may be installed flush or dropped below floor joists.

All beam sizes indicated in the included tables are representative of stock X-Beam and BigBeam sizes that are typically readily available in local markets. Rosboro (including our Custom Glulam Plant, Western Structures) has the combined capabiltiy of producing beams and columns from 3-1/2" to 16-1/4" in width and 3-1/2" to 53" in depth. There is also virtually no limit to the length of the beams that can be produced and is typically only limited by the means of transportation from our facility to your job site.

> For job specific information and/or design assistance for your project contact Rosboro's Technical Support. Email: info@Rosboro.com Phone: 1-877-457-4139

