

# Wood Beam Calculator

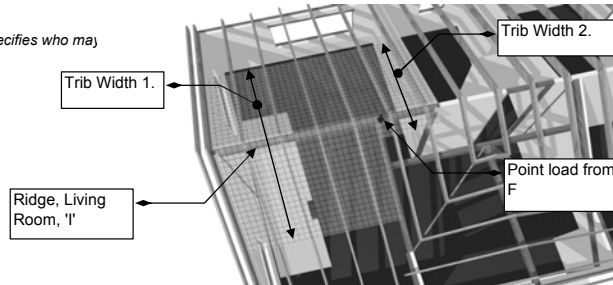
**Assumptions:** Beams are simple span (no overhangs, etc.). Full length of top of beam is laterally supported. No shear stress modifications. Bending in strong axis only. No wet use or high moisture content. No high temperature use. Dynamic loading not considered. Design values from 1997 National Design Specification for Wood Construction.

**Disclaimer:** All users of this software shall comply with State Engineering Law, which specifies who may perform engineering, and defines the practice of engineering.



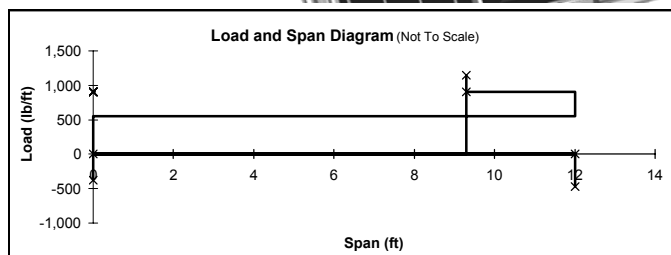
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**Job Name:** Two story wood framed example  
**Beam I.D.:** Ridge I  
**Other Info.:**



## General Information

Span, L = 12.00 ft  
 Max. Allowed Live Deflection, L / Δ = 360 = 0.40 in  
 Max. Allowed Total Deflection, L / Δ = 240 = 0.60 in  
 Load Duration: Two Months (Snow)  
 Add Self Wt.?  Yes  No  
 Loads Other Than Uniform Loads? Yes  No



## Concentrated (Point) Loads

Live Load, psf	Dead Load, psf	Trib. Width, ft.	Trib. Length, ft.	Live, lbs	Dead, lbs	Location, ft.
						$x_c =$
Point Load C			From F	1,559 lb	807 lb	9.30 ft

Note: Location Measured From Left Support

## Partial Uniform Loads

Live Load, psf	Dead Load, psf	Tributary width, ft	Live Load, plf	Dead Load, plf	Comb'd Load, plf	Start Point, ft.	End Point, ft.	
Partial Load A	30 psf	16 psf	12.00 ft	360.0 lb/ft	192.0 lb/ft	552.0 lb/ft	0.00 ft	9.30 ft
Partial Load B	30 psf	16 psf	7.70 ft	231.0 lb/ft	123.2 lb/ft	354.2 lb/ft	9.30 ft	12.00 ft

Note: Start and End Points Measured From Left Support

### 4x And Smaller (Lumber)

Lumber Material: Douglas Fir-Larch  
 Lumber Grade: No. 2  
 Repetitive Member Use?  Yes  No

### 5x And Larger (Timbers)

Timber Material: Douglas Fir - Larch  
 Timber Grade: WCLIB - No. 2

-	12 x 12	-
6 x 14	14 x 14	-
8 x 14	16 x 16	-
10 x 12	-	-

### Glued Laminated Members

Glulam Grade: 24F-V4

2.5 x 12	5.125 x 10.5
3 x 12	6.75 x 9
3.125 x 12	8.75 x 9
5 x 10.5	

(Applies Only To Western Species Glued-Laminated Beams)

### 2.0E Parallam PSL

1-3/4" x 14"	5-1/4" x 9-1/4"
2-11/16" x 11-1/4"	7" x 9-1/4"
3-1/2" x 11-1/4"	

### Truss-Joist MacMillan I-Joists

-	-
-	-

**Final Member:** Glued Laminated  
**Final Size:** 2.5 x 12  
**Minimum Bearing Length = 2.90 in**  
 (Assuming Full-Width Bearing)

**Reactions Including Self-Weight**

	R <sub>1</sub>	R <sub>2</sub>
Live Load:	2,472 lb	3,059 lb
Dead Load:	1,358 lb	1,657 lb
Total Load:	3,829 lb	4,717 lb

**Efficiency of Member:**  
 Bending Overdesign: 5.3%  
 Shear Overdesign: 0.3%  
 Deflection Overdesign: 13.3%

**Add'l Detail - Incl. Self Wt.**  
 Max Moment: 13,106 ft-lb  
 Member Design Shear: 4,355 lb  
 Total Deflection: 0.530 in  
 Live Deflection: 0.346 in  
 Req'd EI, no self-weight added 5,661E+08 (in<sup>2</sup>-lb)  
 Approx. Self Weight 7.48 plf  
 Min. Calc'd Bearing Length 2.90 in

**Final Member Selected: 2.5 x 12, Glued Laminated, 24F-V4**

This member makes it by: **0.3%**  
 Controlling criteria is: **Shear**