

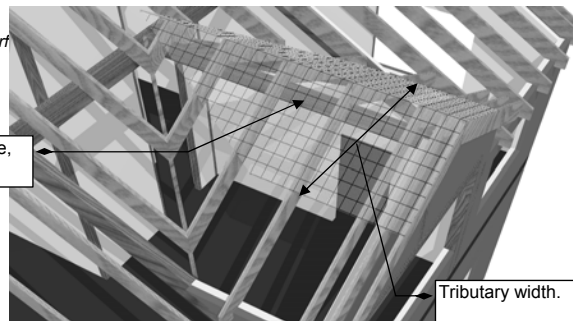
# Wood Beam Calculator



**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.

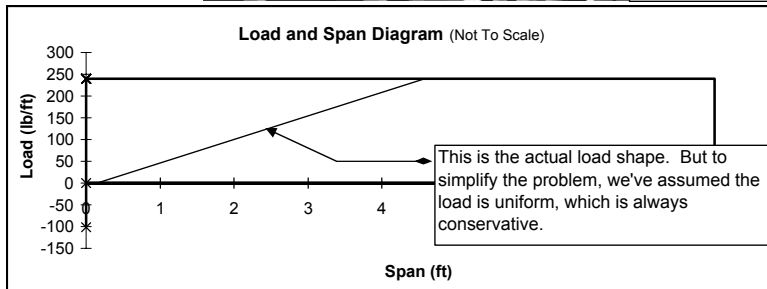
**Disclaimer:** All users of this software shall comply with State Engineering Law, which specifies who may perform engineering, and defines the practice of engineering.

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



## General Information

Span, L = 8.50 ft  
 Max. Allowed Live Deflection, L / 360 = 0.28 in  
 Max. Allowed Total Deflection, L / 240 = 0.43 in  
 Load Duration: Two Months (Snow)  
 Add Self Wt.?  Yes  No  
 Loads Other Than Uniform Loads? No



## Uniform Loads Over Full Length of Member

	Live, psf	Dead, psf	Tributary width, ft	Uniform Live Load, plf	Reduced Live Load, plf.	Unif. Dead Load, plf.
Roof Loads (not including snow)	16 psf	16 psf	5.20 ft	-	-	83.2 lb/ft
Roof Snow (only)	30 psf		5.20 ft	156.0 lb/ft	156.0 lb/ft	
Load Subtotals				156.0 lb/ft	156.0 lb/ft	83.2 lb/ft
Total Uniform Loads				$W_L = 156.0 \text{ lb/ft}$		$W_D = 83.2 \text{ lb/ft}$
Combined Total Uniform Load				$W_U = 239.2 \text{ lb/ft}$		

### 4x And Smaller (Lumber)

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

2 x 12	3 x 8
(2) 2 x 8	4 x 8
(3) 2 x 6	

### 5x And Larger (Timbers)

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

-	-	-
6 x 8	-	-
-	-	-
-	-	-

### Glued Laminated Members

Glulam Grade: 24F-V4

2.5 x 6	5.125 x 6
3 x 6	6.75 x 7.5
3.125 x 6	8.75 x 9
5 x 6	

### 2.0E Parallam PSL

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

### Truss-Joist MacMillan I-Joists

-	11-7/8" TJI / Pro 350
-	11-7/8" TJI / Pro 550

Final Member: Sawn Wood  
 Final Size: (2) 2 x 8  
 Minimum Bearing Length = 1.50 in  
 (Assuming Full-Width Bearing)

**Reactions Including Self-Weight**

	$R_1$	$R_2$
Live Load:	663 lb	663 lb
Dead Load:	377 lb	377 lb
Total Load:	1,040 lb	1,040 lb

**Efficiency of Member:**  
 Bending Overdesign: 23.1%  
 Shear Overdesign: 77.5%  
 Deflection Overdesign: 125.4%

**Add'l Detail - Incl. Self Wt.**  
 Max Moment: 2,210 ft-lb  
 Member Design Shear: 892 lb  
 Total Deflection: 0.189 in  
 Live Deflection: 0.123 in  
 Req'd EI, no self-weight added 6.610E+07 (in<sup>2</sup>-lb)  
 Approx. Self Weight 5.56 plf  
 Min. Calc'd Bearing Length 0.55 in

**Final Member Selected: (2) 2 x 8, Douglas Fir-Larch, No. 2**

This member makes it by: 23.1%  
 Controlling criteria is: Bending