

Wood Beam Calculator

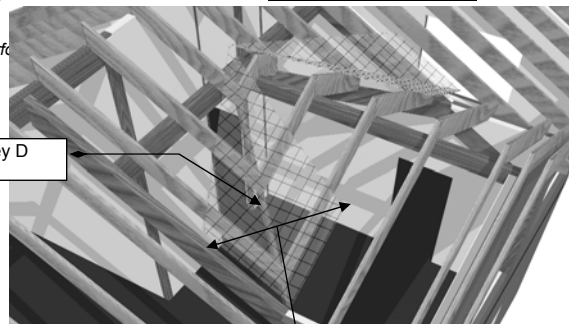


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Assumptions: Beams are simple span (no overhangs, etc.). Full length of top of beam is laterally supported. No shear stress modifications. Bending in strong axis only. No wet use or high moisture content. No high temperature use. Dynamic loading not 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.: Valley D
Other Info.:



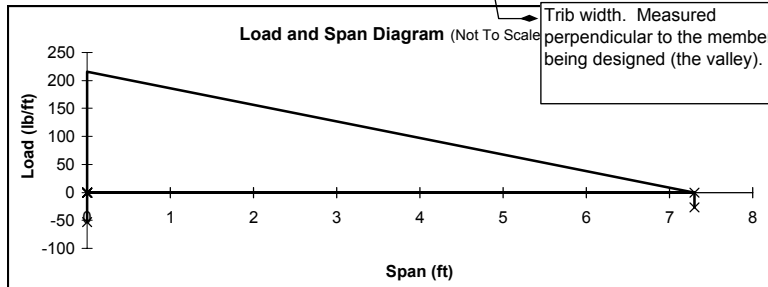
General Information

Span, L =
 Max. Allowed Live Deflection, L / = 0.24 in
 Max. Allowed Total Deflection, L / = 0.37 in

Load Duration

Add Self Wt.? Yes No

Worst case live load is unbalanced snow.



Wedge Loads (Max at Left End, Zero at Right End)

	Live Load, psf	Dead Load, psf	Tributary width, ft	Live Load, plf	Dead Load, plf	Comb'd Load, plf	Total Wedge Load, lb
Wedge Load A	38 psf	16 psf	4.00 ft	152.0 lb/ft	64.0 lb/ft	216.0 lb/ft	788 lb

4x And Smaller (Lumber)

Lumber Material
 Lumber Grade
 Repetitive Member Use?

2 x 6	3 x 5
(2) 2 x 5	4 x 4
(3) 2 x 4	

5x And Larger (Timbers)

Timber Material
 Timber Grade

5 x 5	-	-
-	-	-
-	-	-
-	-	-

Glued Laminated Members

Glulam Grade

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

9-1/2" TJI / Pro 150	11-7/8" TJI / Pro 350
9-1/2" TJI / Pro 250	11-7/8" TJI / Pro 550

Final Member:

Final Size:

Minimum Bearing Length = 1.50 in
 (Assuming Full-Width Bearing)

Final Member Selected: 2 x 6, Douglas Fir-Larch, No. 2

Reactions Including Self-Weight

	R ₁	R ₂
Live Load:	370 lb	185 lb
Dead Load:	163 lb	86 lb
Total Load:	533 lb	270 lb

Efficiency of Member:
 Bending Overdesign: 12.7%
 Shear Overdesign: 37.7%
 Deflection Overdesign: 66.4%

This member makes it by: 12.7%
 Controlling criteria is: **Bending**

Add'l Detail - Incl. Self Wt.

Max Moment: 752 ft-lb
 Member Design Shear: 436 lb
 Total Deflection: 0.212 in
 Live Deflection: 0.146 in
 Req'd EI, no self-weight added 1.999E+07 (in²-lb)
 Approx. Self Weight 2.11 plf
 Min. Calc'd Bearing Length 0.57 in