

Wood Beam Calculator

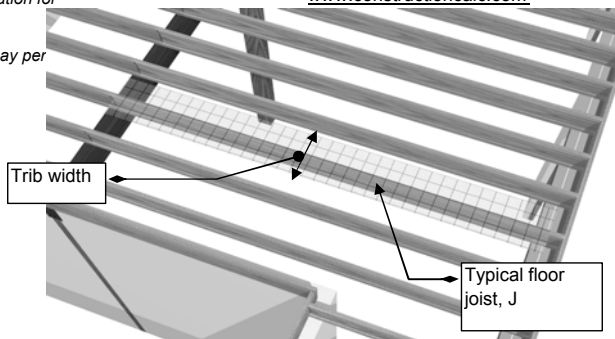


www.constructioncalc.com

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 per engineering, and defines the practice of engineering.

Job Name: Two story wood framed example
Beam I.D.: Floor Joist J
Other Info.:



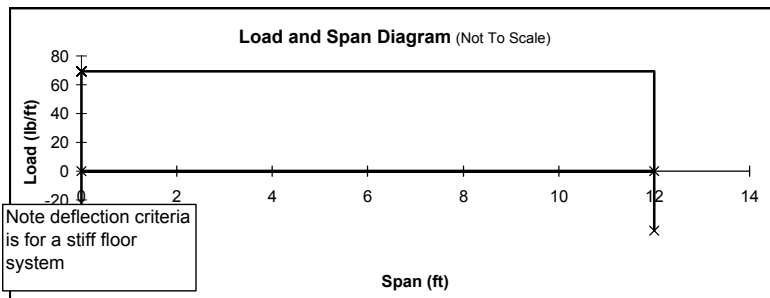
General Information

Span, L = 12.00 ft
 Max. Allowed Live Deflection, L / 480 = 0.30 in
 Max. Allowed Total Deflection, L / 360 = 0.40 in

Load Duration: Ten Years (Live)

Add Self Wt.? Yes No

Loads Other Than Uniform Loads? No



Note deflection criteria is for a stiff floor system

	Live, psf	Dead, psf	Tributary width, ft	Uniform Live Load, plf	Reduced Live Load, plf	Unif. Dead Load, plf
Floor Loads	40 psf	12 psf	1.33 ft	53.2 lb/ft	53.2 lb/ft	16.0 lb/ft
Load Subtotals				53.2 lb/ft	53.2 lb/ft	16.0 lb/ft
Total Uniform Loads				$W_L = 53.2$ lb/ft		$W_D = 16.0$ lb/ft
Combined Total Uniform Load				$W_U = 69.2$ lb/ft		

4x And Smaller (Lumber)

Lumber Material: Douglas Fir-Larch
 Lumber Grade: No. 2

Repetitive Member Use? Yes No

2 x 10	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 6	-	-
-	-	-
-	-	-

Glued Laminated Members

Glulam Grade: 24F-V4

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

(Applies Only To Western Species Glued-Laminated Beams)

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: TJM I-Joist
Final Size: 9-1/2" TJI / Pro 150
Minimum Bearing Length = Check Manuf.
 (Assuming Full-Width Bearing)

Reactions - Not Incl. Self Wt.

	R ₁	R ₂
Live Load:	319 lb	319 lb
Dead Load:	96 lb	96 lb
Total Load:	415 lb	415 lb

Member:
 Design: 119.3%
 Design: 169.9%
 Deflection Overdesign: 69.8%

Add'l Detail - Not Incl. Self Wt.

Max Moment: 1,245 ft-lb
 Member Design Shear: 415 lb
 Total Deflection: 0.230 in
 Live Deflection: 0.177 in
 Req'd EI, no self-weight added 8.274E+07 (in²-lb)
 Approx. Self Weight 0.00 plf
 Min. Calc'd Bearing Length N / A

Final Member Selected: 9-1/2" TJI / Pro 150, TJM I-Joist

This member makes it by: **69.8%**
 Controlling criteria is: **Deflection**

Note this joist easily calcs. We could even increase the trib width to 2' OC and this member would still be okay