



## Loads:

Load	Type	Distribution	Pat- tern	Location [ft] Start      End	Magnitude Start      End	Unit
1	Dead	Full Area			10.00 (16.0")	psf
2	Live	Full Area			40.00 (16.0")	psf
Self-weight	Dead	Full UDL			2.8	plf

Diagram showing the elevation of a beam. The clear span is labeled as 15'-1". The total length of the beam is labeled as 15'-6". The beam is supported by two points, with the left support at 0' and the right support at 15'-1-7/8".

Unfactored:			
Dead	125		125
Live	413		413
Factored:			
Total	538		538
Bearing:			
Capacity			
Joist	1594		1594
Support	1992		1992
Des ratio			
Joist	0.34		0.34
Support	0.27		0.27
Load comb	#2		#2
Length	2.50		2.50
Min req'd	0.84		0.84
Cb	1.00		1.00
Cb min	1.00		1.00
Cb support	1.25		1.25
Fcp sup	425		425

Supports: All - Lumber-soft Sill plate, S-P-F No.1/No.2  
 Floor joist spaced at 16.0" c/c; Total length: 15' 6"; Clear span: 15' 1"; Volume = 1.5 cu.ft.  
 Lateral support: top = continuous, bottom = 90 (in); Repetitive factor: applied where permitted (refer to online help);

**WARNING:** This section violates the following design criteria: Bending

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	fv = 51	Fv' = 135	psi	fv/Fv' = 0.38
Bending(+)	fb = 1119	Fb' = 1107	psi	fb/Fb' = 1.01
Live Defl'n	0.46 = L/398	0.51 = L/360	in	0.90
Total Defl'n	0.66 = L/273	0.76 = L/240	in	0.88

FACTORS:	F/E(psi)	CD	CM	Ct	CL	CF	Cfu	Cr	Cfrt	Ci	Cn	LC#
Fv'	135	1.00	1.00	1.00	-	-	-	-	1.00	1.00	1.00	2
Fb'+	875	1.00	1.00	1.00	1.000	1.100	-	1.15	1.00	1.00	-	2
Fcp'	425	-	1.00	1.00	-	-	-	-	1.00	1.00	-	-
E'	1.4 million		1.00	1.00	-	-	-	-	1.00	1.00	-	2
Emin'	0.51 million		1.00	1.00	-	-	-	-	1.00	1.00	-	2

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Shear      : LC #2 = D+L
Bending(+): LC #2 = D+L
Deflection: LC #2 = D+L (live)
           LC #2 = D+L (total)
Bearing    : Support 1 - LC #2 = D+L
           Support 2 - LC #2 = D+L

D=dead L=live S=snow W=wind I=impact Lr=roof live Lc=concentrated E=earthquake
All LC's are listed in the Analysis output
Load combinations: ASD Basic from ASCE 7-10 2.4 / IBC 2015 1605.3.2
CALCULATIONS:
V max = 526, V design = 470 lbs; M(+) = 1994 lbs-ft
EI = 138.50e06 lb-in^2
"Live" deflection is due to all non-dead loads (live, wind, snow...)
Total deflection = 1.5 dead + "live"

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1. WoodWorks analysis and design are in accordance with the ICC International Building Code (IBC 2015), the National Design Specification (NDS 2015), and NDS Design Supplement.
2. Please verify that the default deflection limits are appropriate for your application.
3. Sawn lumber bending members shall be laterally supported according to the provisions of NDS Clause 4.4.1.