Project: Loving

Location: 3.125x6 GLB header
Roof Beam
[2009 International Residential Code(2005 NDS)]
3.125 IN x 6.0 IN x 5.0 FT
24F-V4 - Visually Graded Western Species - Dry Use
Section Adequate By: 74.3%
Controlling Factor: Moment

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DEFLECTIONS Center

Live Load	0.08	IN L/772
Dead Load	0.03	in
Total Load	0.11	IN L/546

Live Load Deflection Criteria: L/240 Total Load Deflection Criteria: L/180

REACTIONS

	A		B	
Live Load	1400	lb	1400	lb
Dead Load	579	lb	579	lb
Total Load	1979	lb	1979	lb
Bearing Length	0.97	in	0.97	in

BEAM DATA

Span Length	5	ft
Unbraced Length-Top	0	ft
Unbraced Length-Bottom	0	ft
Roof Pitch	5	:12
Roof Duration Factor	1.15	

MATERIAL PROPERTIES

24F-V4 - Visually Graded Western Species

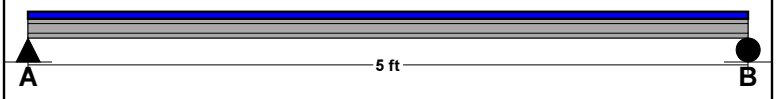
		Base Values		Adjusted	
Bending Stress:	Fb =	2400	psi	*Controlled by:*	
	Fb_cmpr =	1850	psi	Fb' =	2760 psi
	Cd=1.15				
Shear Stress:	Fv =	265	psi	Fv' =	305 psi
	Cd=1.15				
Modulus of Elasticity:	E =	1800	ksi	E' =	1800 ksi
Min. Mod. of Elasticity:	E_min =	930	ksi	E_min' =	930 ksi
Comp. ⊥ to Grain:	Fc - ⊥ =	650	psi	Fc - ⊥' =	650 psi

Controlling Moment: 2474 ft-lb
2.5 ft from left support
Created by combining all dead and live loads.

Controlling Shear: -1583 lb
At a distance d from support.
Created by combining all dead and live loads.

Comparisons with required sections:	Req'd	Provided
Section Modulus:	10.75 in3	18.75 in3
Area (Shear):	7.79 in2	18.75 in2
Moment of Inertia (deflection):	18.55 in4	56.25 in4
Moment:	2474 ft-lb	4313 ft-lb
Shear:	-1583 lb	3809 lb

LOADING DIAGRAM



ROOF LOADING

Side One:

Roof Live Load:	LL =	40	psf
Roof Dead Load:	DL =	15	psf
Tributary Width:	TW =	12	ft

Side Two:

Roof Live Load:	LL =	40	psf
Roof Dead Load:	DL =	15	psf
Tributary Width:	TW =	2	ft
Wall Load:	WALL =	0	plf

SLOPE/PITCH ADJUSTED LENGTHS AND LOADS

Adjusted Beam Length:	Ladj =	5	ft
Beam Self Weight:	BSW =	4	plf
Beam Uniform Live Load:	wL =	560	plf
Beam Uniform Dead Load:	wD_adj =	232	plf
Total Uniform Load:	wT =	792	plf