Project:

The Vitruvius Project, Inc.

Location: BEDROOM 2 HEADER
Roof Beam
Roof Beam [2021 International Building Code(2018 NDS)
(2) 1.75 IN x 9.25 IN x 6.0 FT
1.9E-2600F - APA EWS LVL Stress Classes
Section Adequate By: 69.8%
Controlling Factor: Shear

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CAUTIONS

* Laminations are to be fully connected to provide uniform transfer of loads to all members

DEFLECTIONS	Center	
Live Load	0.03	IN L/2599
Dead Load	0.06	in
Total Load	0.08	IN L/852

Live Load Deflection Criteria: L/360 Total Load Deflection Criteria: L/240

REACTIONS	A		B	
Live Load	1250	lb	1250	lb
Dead Load	2916	lb	1604	lb
Total Load	4166	lb	2854	lb
Bearing Length	1.70	in	1.16	in

BEAM DATA		
Span Length	6	ft
Unbraced Length-Top	2	ft
Unbraced Length-Bottom	0	ft
Roof Pitch	8	:12
Roof Duration Factor	1.15	
Notch Depth	0.00	

MATERIAL PROPERTIES

1.9E-2600F - APA EWS LVL Stress Classes

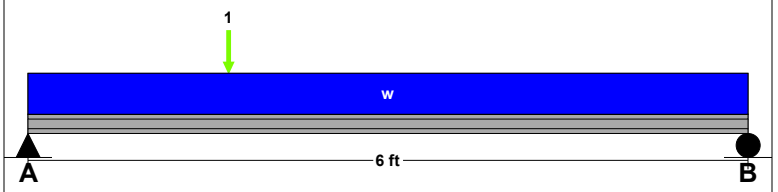
	Base Values		Adjusted	
Bending Stress:	Fb = 2600	psi	Fb' = 3072	psi
	Cd=1.15 Cl=0.99 CF=1.03			
Shear Stress:	Fv = 285	psi	Fv' = 328	psi
	Cd=1.15			
Modulus of Elasticity:	E = 1900	ksi	E' = 1900	ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 700	psi	Fc - ⊥' = 700	psi

Controlling Moment: 6018 ft-lb
3.0 ft from left support
Created by combining all dead and live loads.

Controlling Shear: 4166 lb
At support.
Created by combining all dead and live loads.

Comparisons with required sections:	Req'd	Provided
Section Modulus:	23.51 in3	49.91 in3
Area (Shear):	19.07 in2	32.38 in2
Moment of Inertia (deflection):	65.04 in4	230.84 in4
Moment:	6018 ft-lb	12777 ft-lb
Shear:	4166 lb	7074 lb

LOADING DIAGRAM



ROOF LOADING

Side One:

Roof Live Load:	LL =	20	psf
Roof Dead Load:	DL =	10	psf
Tributary Width:	TW =	19.5	ft

Side Two:

Roof Live Load:	LL =	20	psf
Roof Dead Load:	DL =	10	psf
Tributary Width:	TW =	1.3	ft

Wall Load: WALL = 0 plf

SLOPE/PITCH ADJUSTED LENGTHS AND LOADS

Adjusted Beam Length:	Ladj =	6	ft
Beam Self Weight:	BSW =	9	plf
Beam Uniform Live Load:	wL =	417	plf
Beam Uniform Dead Load:	wD_adj =	260	plf
Total Uniform Load:	wT =	677	plf

POINT LOADS - CENTER SPAN

Load Number	One	
Live Load	0	lb
Dead Load	2960	lb
Location	1.67	ft