Project:

The Vitruvius Project, Inc.

Location: GARAGE DOOR HEADER
Roof Beam
Roof Beam [2021 International Building Code(2018 NDS)
(2) 1.75 IN x 16.0 IN x 18.67 FT
1.8E-2600F - APA EWS LVL Stress Classes
Section Adequate By: 140.0%
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	0.05	IN L/4407
Dead Load	0.16	in
Total Load	0.21	IN L/1089

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

REACTIONS	A		B	
Live Load	373	lb	373	lb
Dead Load	3990	lb	693	lb
Total Load	4363	lb	1066	lb
Bearing Length	1.78	in	0.44	in

BEAM DATA		
Span Length	18.7	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

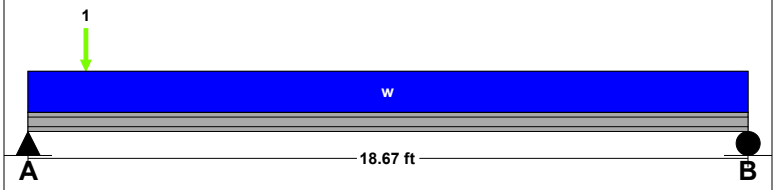
1.8E-2600F - APA EWS LVL Stress Classes

	Base Values		Adjusted	
Bending Stress:	Fb = 2600	psi	Fb' = 2240	psi
	Cd=0.90 Cl=0.99 CF=0.96			
Shear Stress:	Fv = 285	psi	Fv' = 257	psi
	Cd=0.90			
Modulus of Elasticity:	E = 1800	ksi	E' = 1800	ksi
Comp. ⊥ to Grain:	Fc - ⊥ = 700	psi	Fc - ⊥' = 700	psi

Controlling Moment: 5939 ft-lb
9.335 ft from left support
Created by dead loads only on all span(s).
Controlling Shear: 3990 lb
At support.
Created by dead loads only on all span(s).

Comparisons with required sections:	Req'd	Provided
Section Modulus:	31.81 in3	149.33 in3
Area (Shear):	23.33 in2	56 in2
Moment of Inertia (deflection):	263.19 in4	1194.67 in4
Moment:	5939 ft-lb	27880 ft-lb
Shear:	3990 lb	9576 lb

LOADING DIAGRAM



ROOF LOADING

Side One:

Roof Live Load:	LL =	20	psf
Roof Dead Load:	DL =	10	psf
Tributary Width:	TW =	1	ft

Side Two:

Roof Live Load:	LL =	20	psf
Roof Dead Load:	DL =	10	psf
Tributary Width:	TW =	1	ft

Wall Load: WALL = 0 plf

SLOPE/PITCH ADJUSTED LENGTHS AND LOADS

Adjusted Beam Length:	Ladj =	18.67	ft
Beam Self Weight:	BSW =	16	plf
Beam Uniform Live Load:	wL =	40	plf
Beam Uniform Dead Load:	wD_adj =	40	plf
Total Uniform Load:	wT =	80	plf

POINT LOADS - CENTER SPAN

Load Number	One
Live Load	0 lb
Dead Load	3929 lb
Location	1.5 ft