

Project: TIMOTHY AND AMELIA INMAN

Location: FRONT DOOR HEADER

Roof Beam

Roof Beam [2021 International Building Code(2018 NDS)

( 2 ) 1.75 IN x 9.25 IN x 5.5 FT

1.9E-2600F - APA EWS LVL Stress Classes

Section Adequate By: 371.4%

Controlling Factor: Shear



The Vitruvius Project, Inc.

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StruCalc Version 11.1.8.0

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### CAUTIONS

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

### DEFLECTIONS

Center

Live Load 0.02 IN L/4261

Dead Load 0.01 in

Total Load 0.03 IN L/2577

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

### REACTIONS

A

B

Live Load 908 lb 908 lb

Dead Load 593 lb 593 lb

Total Load 1501 lb 1501 lb

Bearing Length 0.61 in 0.61 in

### BEAM DATA

Span Length 5.5 ft

Unbraced Length-Top 2 ft

Unbraced Length-Bottom 0 ft

Roof Pitch 9 :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.  $\perp$  to Grain: Fc -  $\perp$  = 700 psi Fc -  $\perp$ ' = 700 psi

Controlling Moment: 2063 ft-lb

2.75 ft from left support

Created by combining all dead and live loads.

Controlling Shear: 1501 lb

At support.

Created by combining all dead and live loads.

### Comparisons with required sections:

Req'd

Provided

Section Modulus: 8.06 in3 49.91 in3

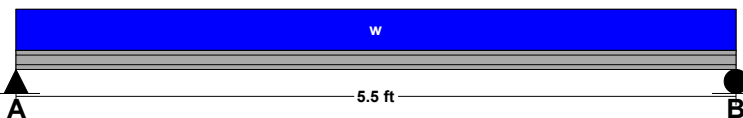
Area (Shear): 6.87 in2 32.38 in2

Moment of Inertia (deflection): 21.5 in4 230.84 in4

Moment: 2063 ft-lb 12777 ft-lb

Shear: 1501 lb 7074 lb

### LOADING DIAGRAM



### ROOF LOADING

Side One:

Roof Live Load: LL = 20 psf

Roof Dead Load: DL = 10 psf

Tributary Width: TW = 15.5 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 = 5.5 ft

Beam Self Weight: BSW = 9 plf

Beam Uniform Live Load: wL = 330 plf

Beam Uniform Dead Load: wD\_adj = 216 plf

Total Uniform Load: wT = 546 plf