

Glulam 5.5"x13.5" 1.8E X-Beam Dining & kitchen Area (ASCE 7-16)

Beam Span	19 ft
Tributary width of Roof Construction	12.5 ft
Tributary area of Roof Construction	31.5 ft-sq
Wall Height	8 ft
Roof Height	13 ft

Dead Load

Roof Construction (light Frame)	15 lb-sf
Roof Dead Load on Beam	187.5 lb-lf
Total Dead Load on Beam	187.5 lb-lf

Live Load

Roof Sloped/Pitched	20 lb-sf	Live Load Reduced (Sec. 4.7.2)	10 lb-sf
Roof Live Load on Beam			125 lb-lf
Total Live Load on Beam			125 lb-lf

Snow Load

Sloped Roof Snow Load	0 lb-sf
Total Beam Roof Snow Load	0 lb-lf

Wind Load

Wind Speed	115 mph
Min. Design Pressure at Roof Mean Height	8 lb-sf
Wind Pressure on Beam - Roof	104 lb-lf
Total Wind Pressure on Beam	104 lb-lf

Seismic Load

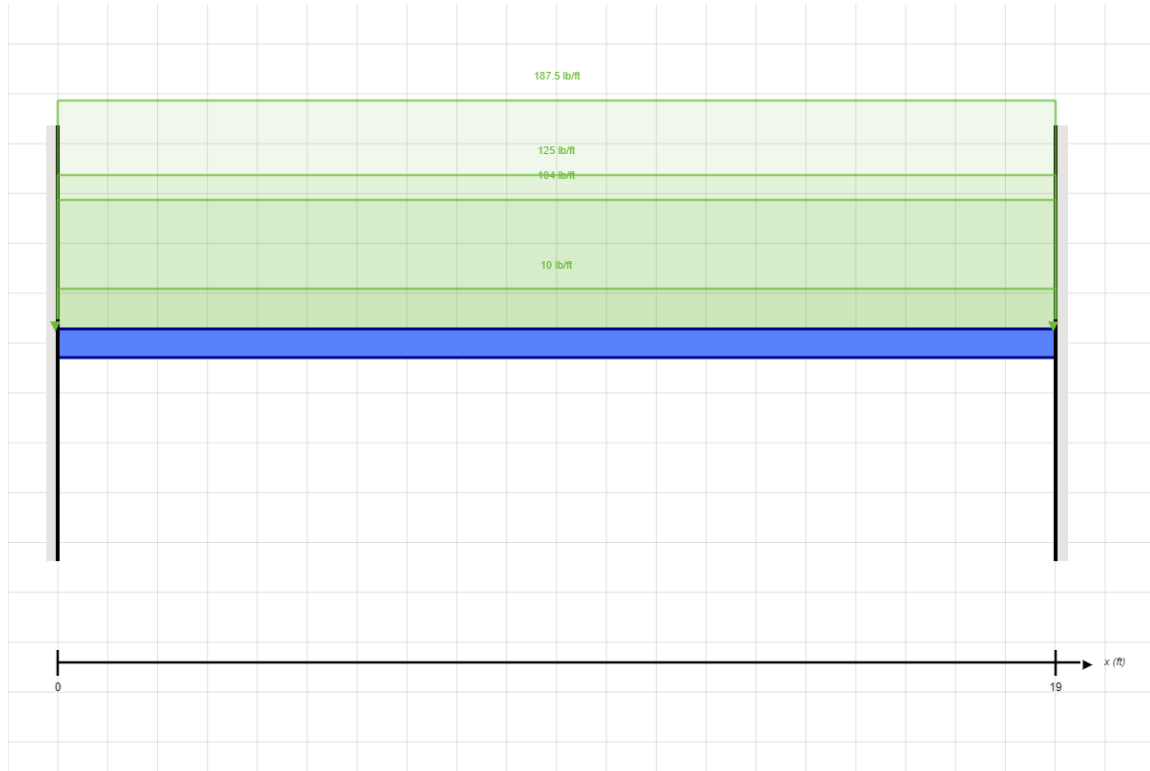
Weight (Dead Load)	3562.5 lbs
Seismic Base Shear	0.192 kip
Shear Load on Beam	10.105263 lb-lf

One Side -Uniform Load for Top-Loaded Applications

Span	19 ft	
P1	5,937.50 lb	
L1	2.625 in	
P2	2,968.75 lb	
L2	5.25 in	
Actual Uniform Side Load	156.25 lb-ft	< 300 lb-ft OK!

SKYCIV BEAM ANALYSIS REPORT

Load Combination: Envelope Absolute Max



Software: SkyCiv Beam v3.2.4
Wed Jun 19 2024 16:20:10 GMT-0400 (Eastern Daylight Time)

Project Info

File Name: 1539W 6th St

Engineer: Edgardo Mejia (edgardo146@yahoo.com)

Included in this Report:

- Input Summary
- Beam Section
- Free Body Diagram (FBD)
- Analysis Summary
- Analysis Results
- Bending Moment Diagram (BMD)
- Shear Force Diagram (SFD)
- Deflection Results
- Stress Results

INPUT SUMMARY

General Info

Beam Length:	19 ft
Section Name:	5-1/2 x 13-1/2
Self Weight:	True

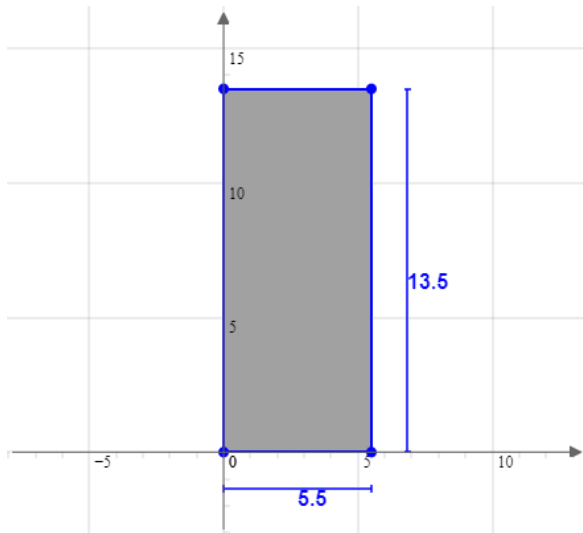
Supports

Support Type	Location
Fixed	0 ft
Fixed	19 ft

Loads

Load Type	Location	Magnitude	Load Case
Distributed Load	0 ft to 19 ft	-187.5 lb to -187.5 lb	DL
Distributed Load	0 ft to 19 ft	-125 lb to -125 lb	LL
Distributed Load	0 ft to 19 ft	-104 lb to -104 lb	WL
Distributed Load	0 ft to 19 ft	-10 lb to -10 lb	EL

Beam Section



Geometric Properties		
A	74.25	in ²
C _z	2.75	in
C _y	6.75	in

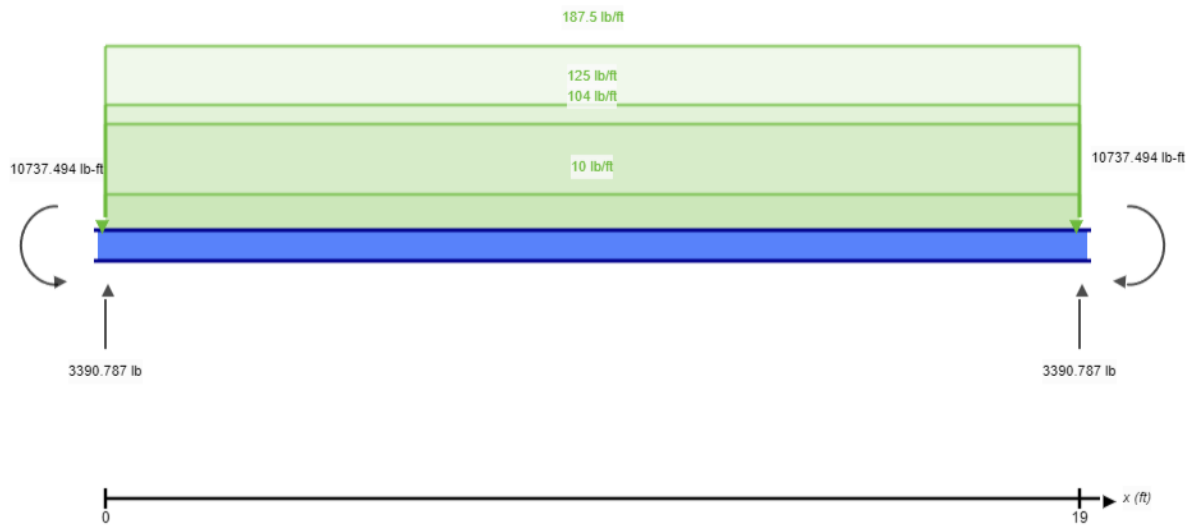
Bending Properties		
I _z	1128	in ⁴
I _y	187.2	in ⁴

Shear Properties		
A _z	61.877	in ²
A _y	61.875	in ²

Torsion Properties		
J	556.648	in ⁴
r	5.31	in

Shape	Material	E (ksi)	v	ρ (lb/ft ³)
5-1/2 x 13-1/2	Oakwood	1600	0.3	56

FREE BODY DIAGRAM



RESULT SUMMARY

Check	Status	Limit	Ratio	Max
Deflection	PASS	L/250	0.127	L/1965
Custom Stress Limit	PASS	39 ksi	0.02	0.771 ksi

ANALYSIS RESULTS

Reactions

Support at	X	Y	Mx
0	0 lb	3390.787 lb	10737.494 lb-ft
19	0 lb	3390.787 lb	-10737.494 lb-ft

Force Extremes

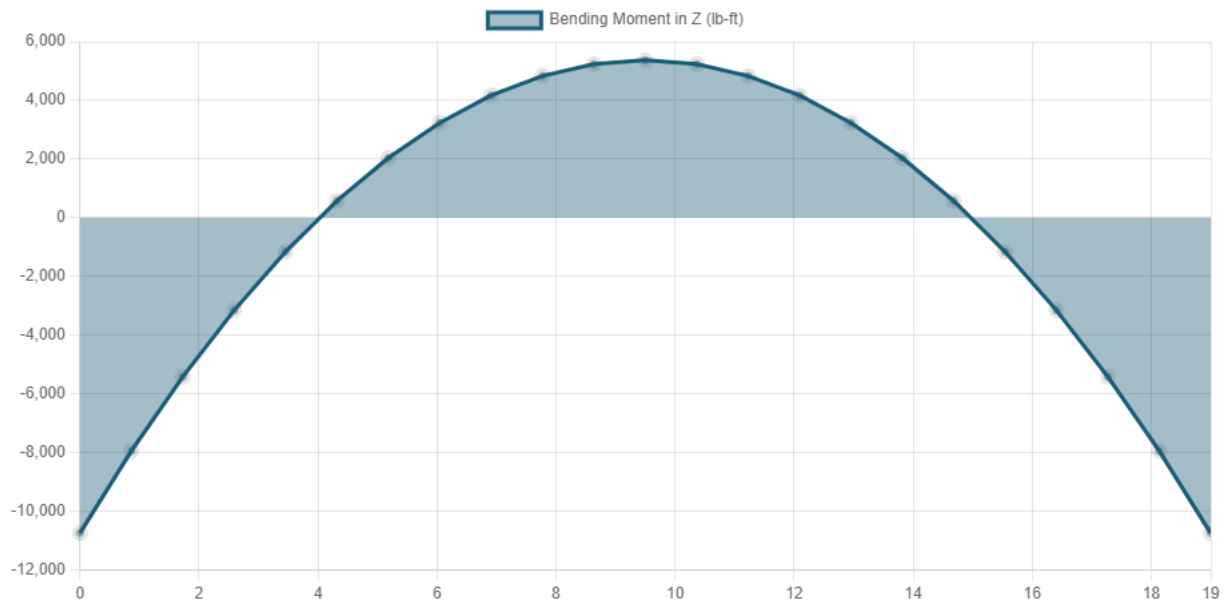
Result	Max	Min
Bending Moment	5368.747 lb-ft	-10737.494 lb-ft
Shear	3390.787 lb	-3390.787 lb
Displacement	0 in	-0.116 in

Stress Extremes

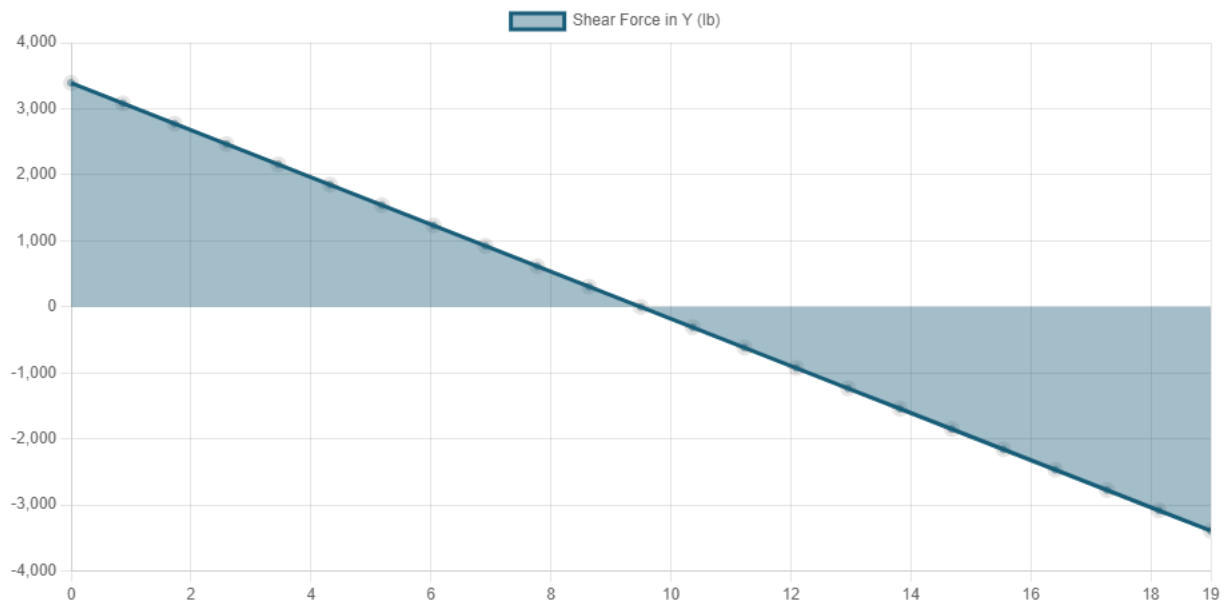
Result	Max	Min
Bending Stress	0.771 ksi	-0.771 ksi
Shear Stress Total	0.069 ksi	0 ksi
Max Combined Normal Stress	0.771 ksi	0.041 ksi
Min Combined Normal Stress	-0.041 ksi	-0.771 ksi

DIAGRAMS

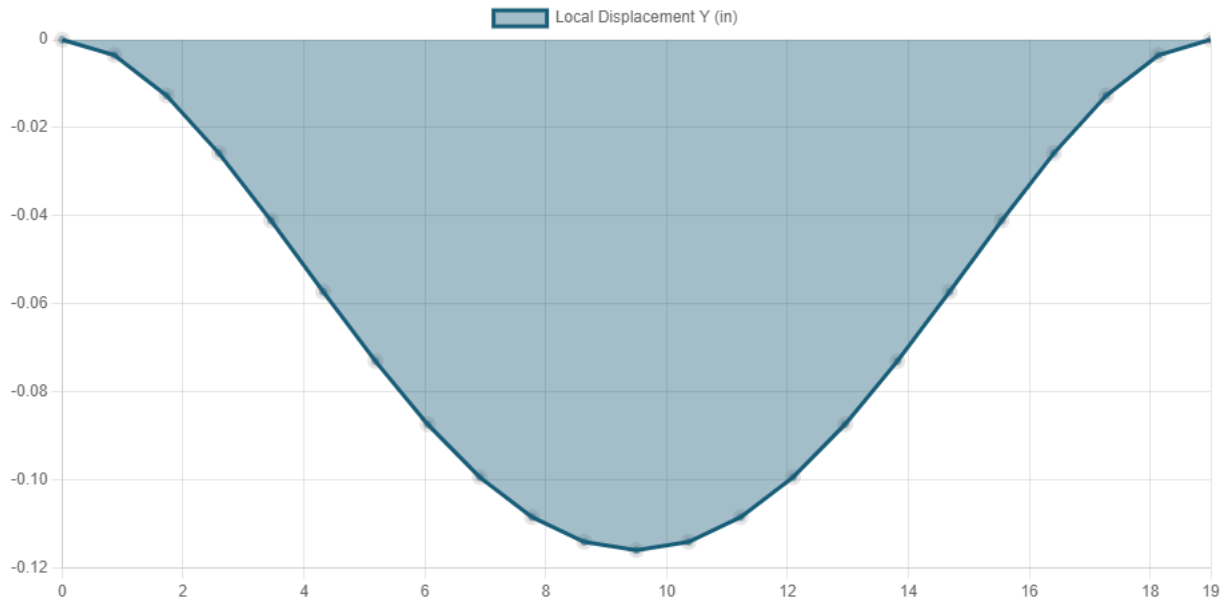
Bending Moment Diagram



Shear Force Diagram



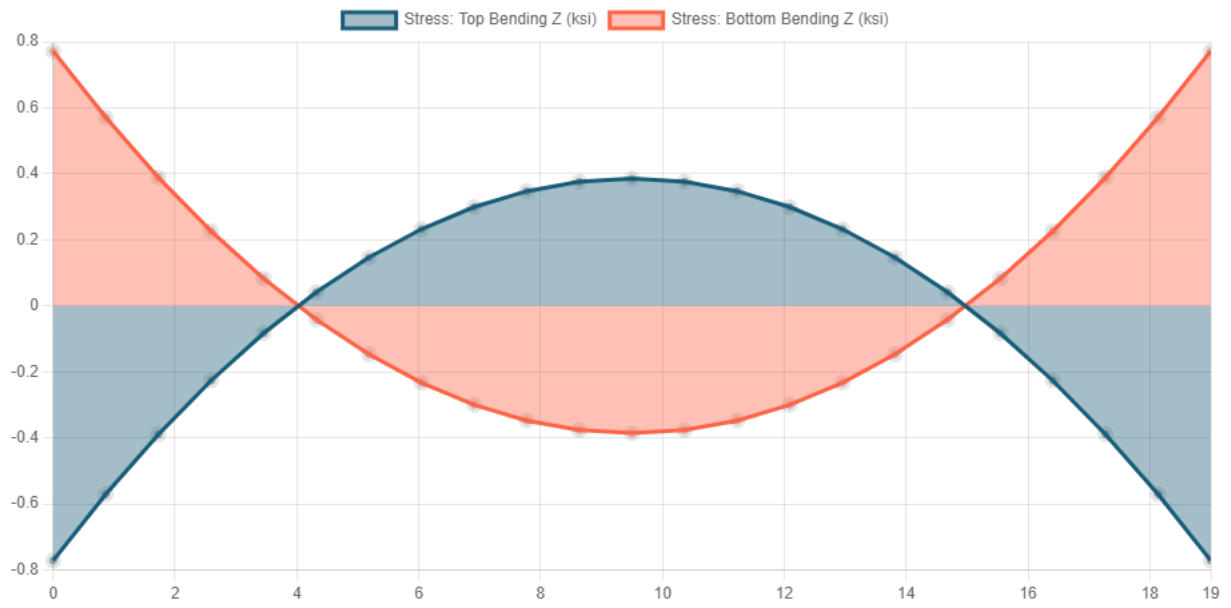
Displacement



Location (ft)	Total Deflection (in)	Span ⓘ
0	0 in	-
9.5	0.116 in	L/1965
19	0 in	-

ⓘ The Deflection/Span results are calculated using the analysis results and the Deflection Limit of L/250 set in the model settings.

Bending Stress



Shear Stress

