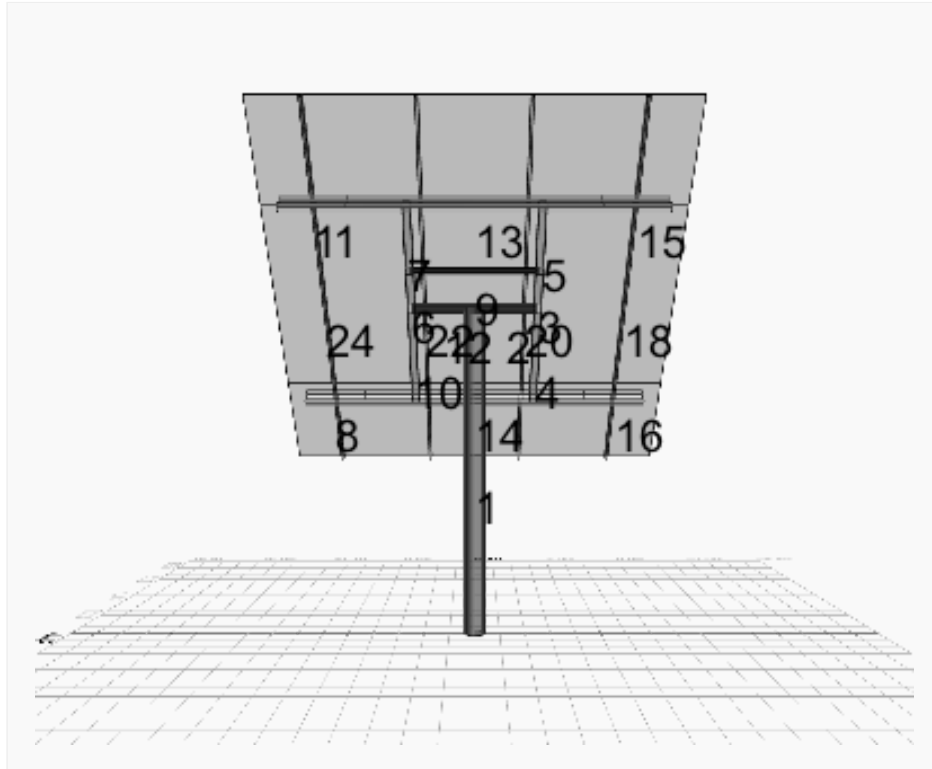


Project Details



Project Name: MTSOLAR_McCook 8 panel
Location: McCook, TX 78541, USA
Unique ID: 1P-0-8TOP-SD-24-L-4Hx2W-8D80
Dealer: _____

Date: Thu Dec 05 2024
Number of Modules: 8
Number of Poles: 1
Date Sold: _____



Array Dimensions N/S	13.79 ft
Array Dimensions E/W	12.79 ft
Winter Tilt Angle	50
Front Edge Clearance	5 ft

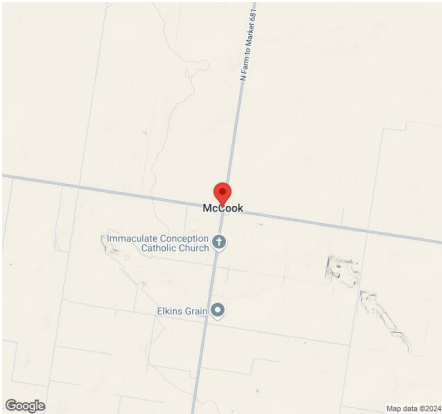
MT Solar Bill of Materials (1P-0-8TOP-SD-24-L-4Hx2W-8D80)

Part	Short Description	BOM Qty
MTS-PC-8	8IN Pole Cap Assembly	1
MTS-HF-SD	H-Frame Assembly-SD	1
MTS-SD-Wing-24	24IN SD Wing	4
MTS-CLAMP-HOOK-4PK	Hook Clamp	2

Rail Bill of Materials

Part	Qty
Rails (163in)	4
Rail Attachment	8
Module Mid Clamp	12
Module End Clamp	8
Ground Lug	2

Site Details:



Site Address: McCook, TX 78541, USA

Array Specification

Duty Classification:	SD
Module Width:	40.87 in
Module Length:	75.75in
Number of Rows:	4
Number of Columns:	2
Total Number of Modules:	8
Winter Tilt Angle:	50
Front Edge Clearance:	5
Total Array Height at Tilt:	15.56 ft
Total Frame Length:	11.50 ft
Frame Weight:	807 lbs
Array Dimensions N/S:	13.79 ft
Array Dimensions E/W:	12.79 ft
Rail Length:	165.48 in
Rail Spacing:	3.20 ft

Support Specifications

Pole Size:	8in Pipe Sch 40
Pole Length above Grade:	10.28 ft
Number of Poles:	1
Pole Spacing:	0

Foundation Specifications

Foundation Type:	
Foundation Dimensions:	
Foundation Depth (below grade):	
Foundation Volume:	-

Site Info

Risk Category:	I
Exposure:	C
Soil Classification:	sand
Site Location:	McCook, TX 78541, USA
Wind Speed:	118 mph
Snow Load:	0 psf

Design Disclaimer

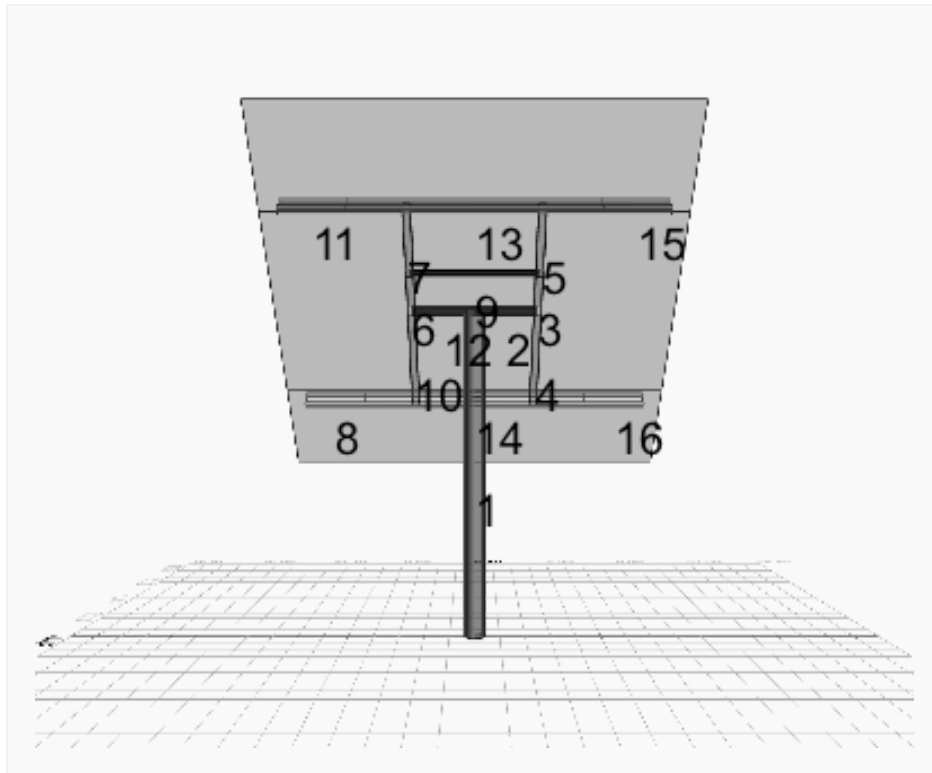
This software should be used for preliminary designs and should not be used as a final design unless reviewed, verified and designed by a qualified structural engineer.

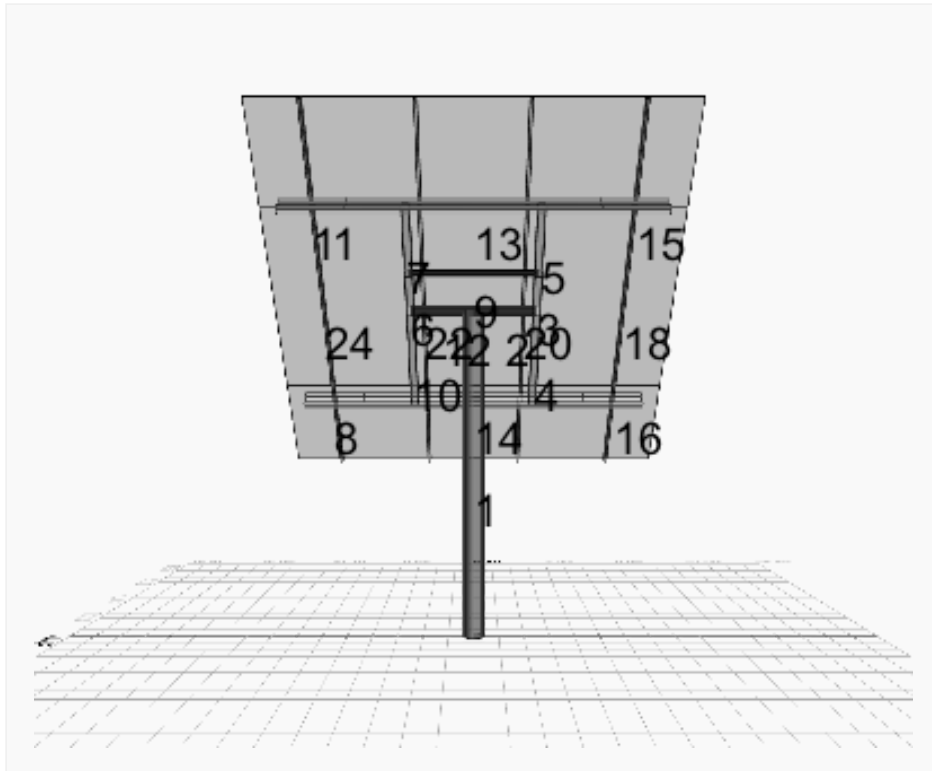
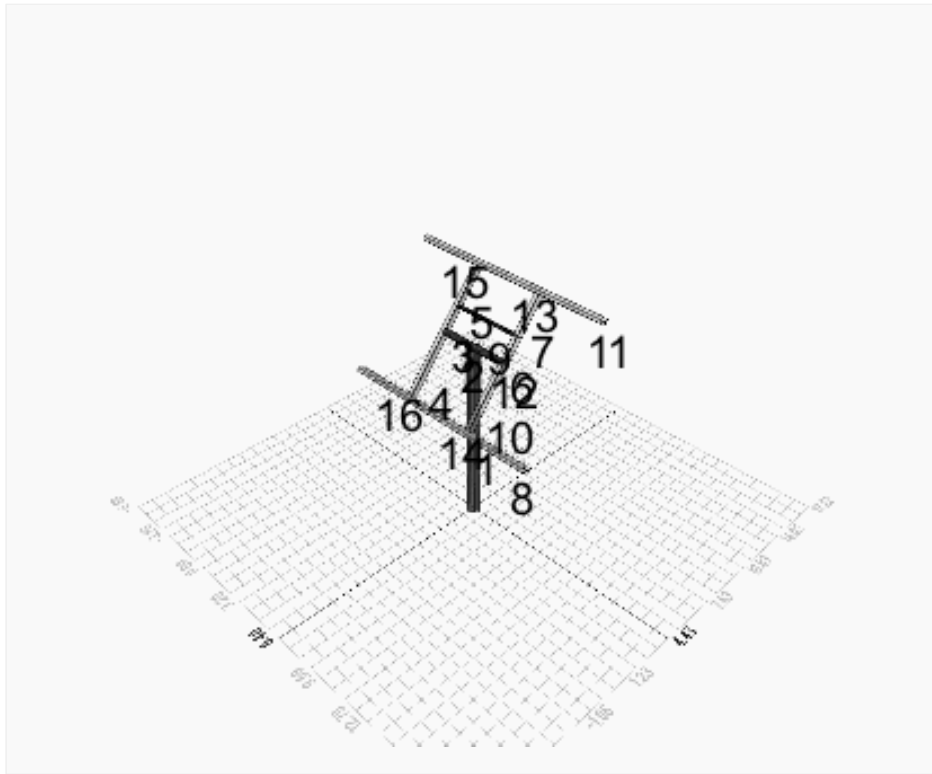
AutoDesigner Input

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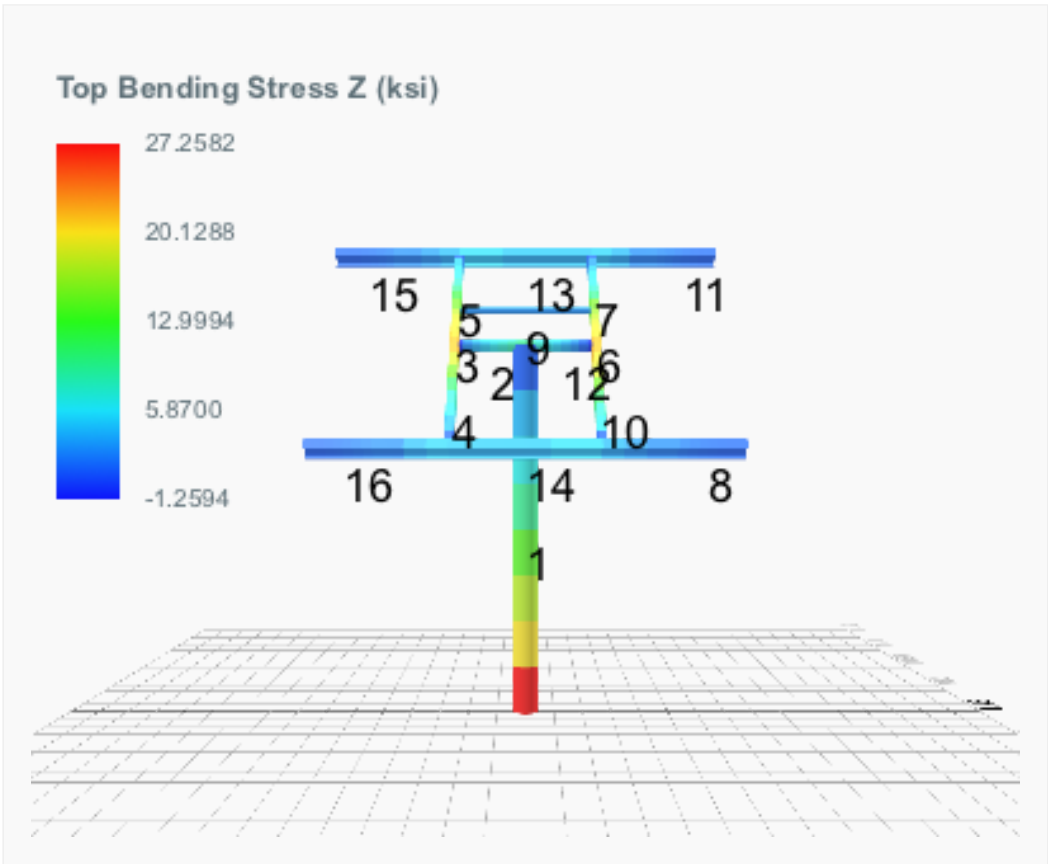
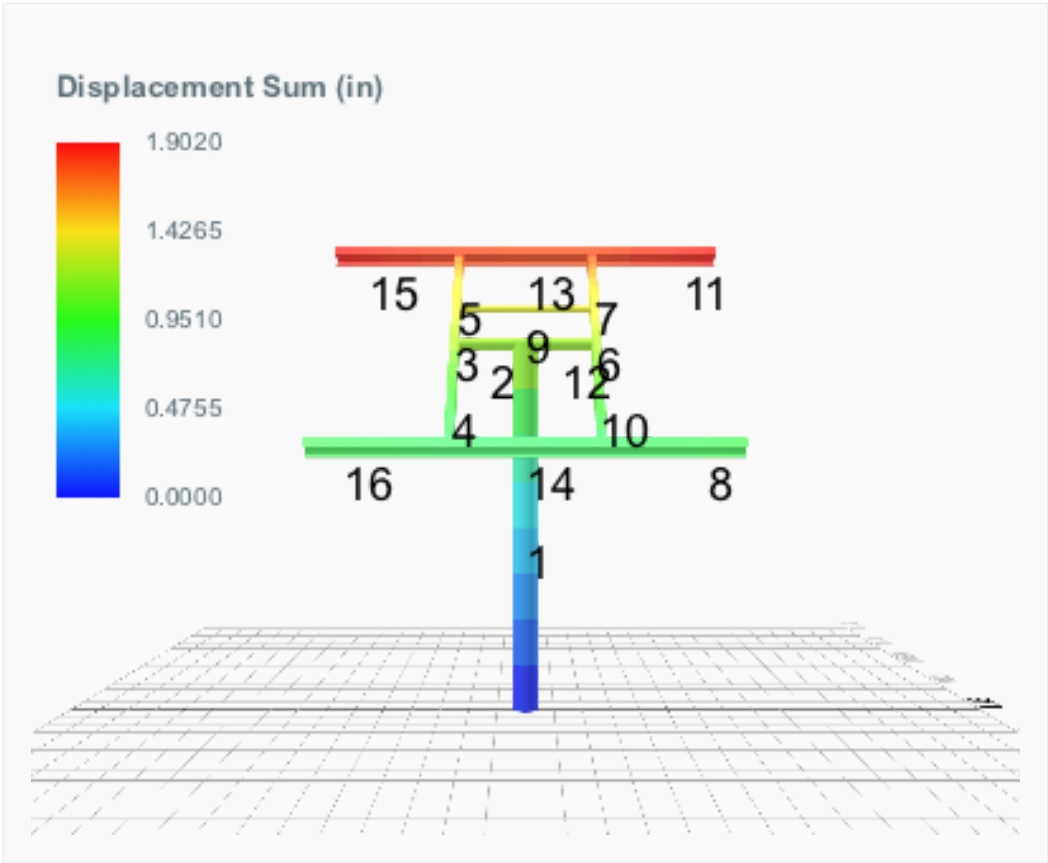
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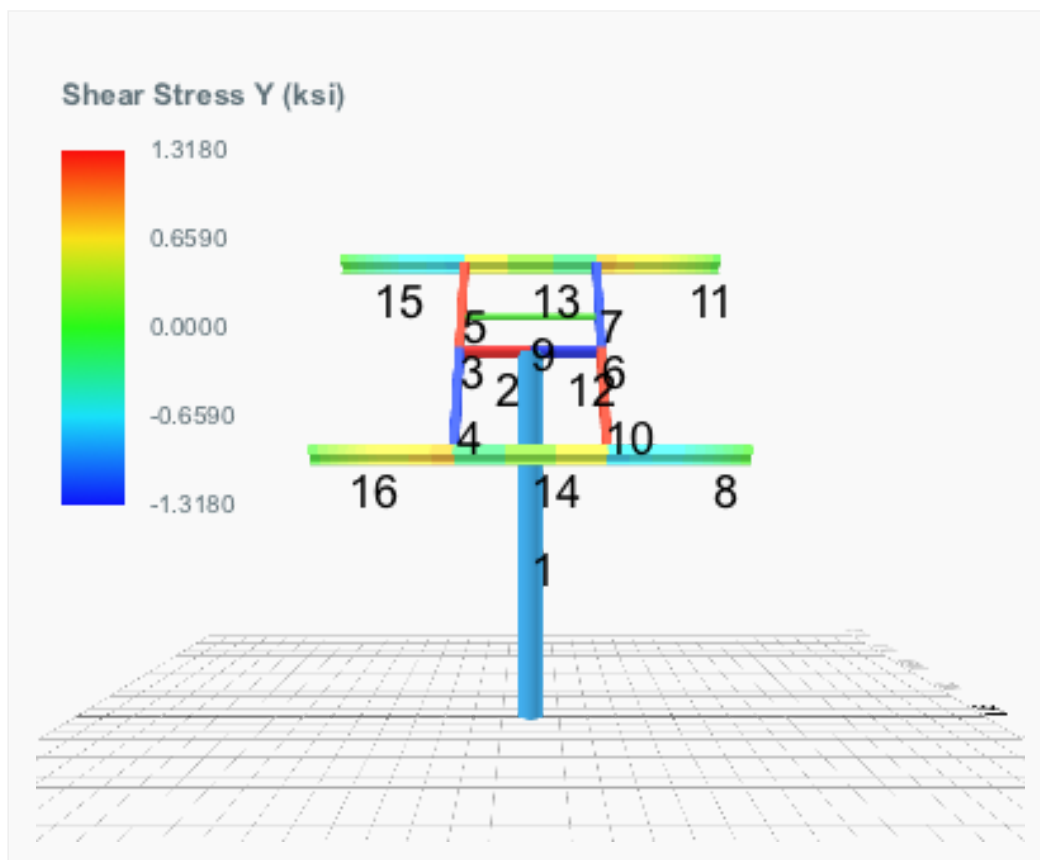
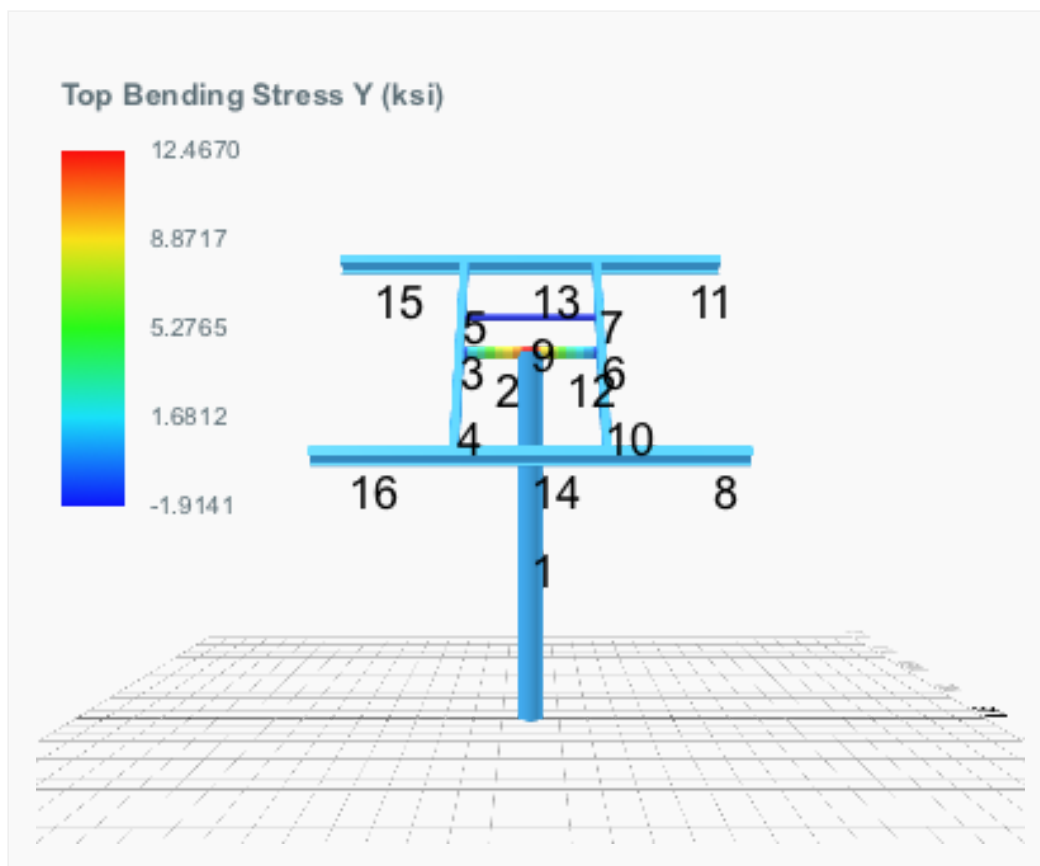
- AISC Deflection checks are set to L/1 due to structure design intent
- Foundation Soil Parameters used in this Autodesign are all estimates, proper geotechnical reports are required to confirm soil profiles
- Wind speeds, snow loads and other site specific results are based on ASCE 7 2016
- Steel frame design checks are based on AISC 360 2016 (LRFD)
- Foundation Design and Sizing is approximate only

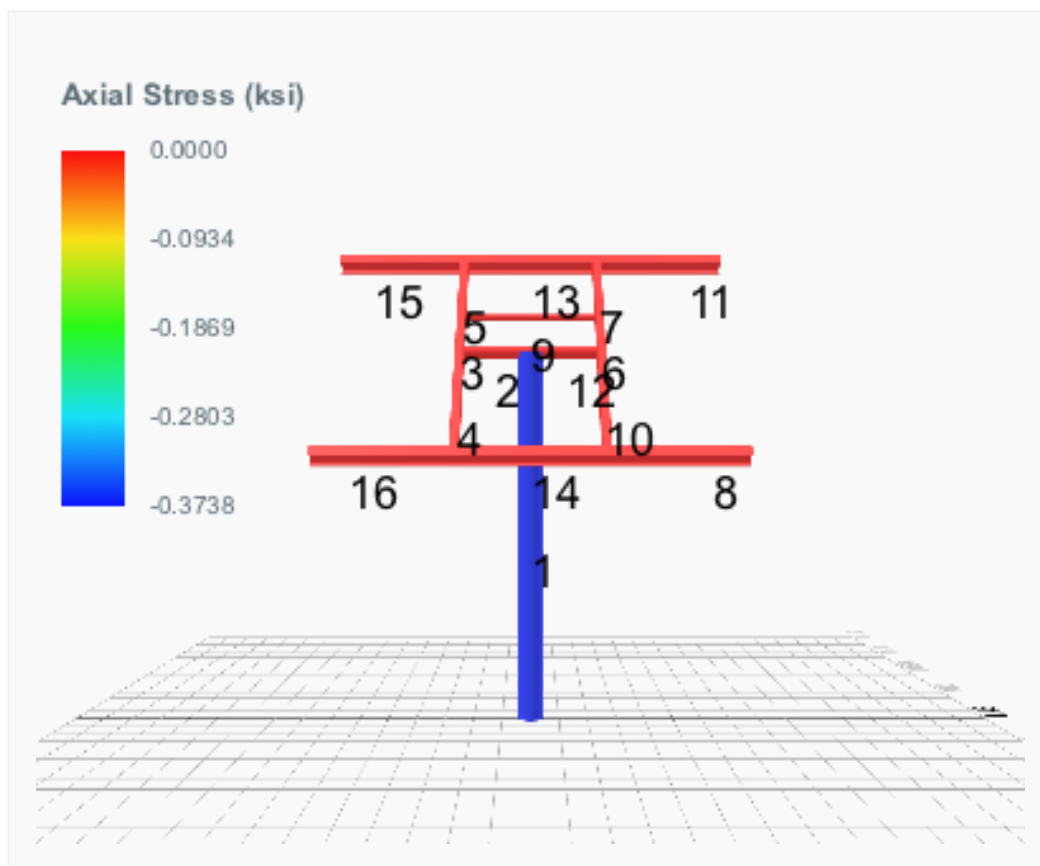




FEM Results (Envelope Worst Case for each member)







Reaction Forces for Foundation 1 (Node ID#1), (kip, kip-ft)

ASD Load Combination Results

Name	Fx	Fy	Fz	Mx	My	Mz
ULS: 1. D	0.0000	1.4774	0.0000	0.0000	-0.0000	0.0147
ULS: 2. D + L	0.0000	1.4774	0.0000	0.0000	-0.0000	0.0147
ULS: 3. D + (S or Lr or R)	0.0000	1.4774	0.0000	0.0000	-0.0000	0.0147
ULS: 3. D + (S or Lr or R)	0.0000	1.4774	0.0000	0.0000	-0.0000	0.0147
ULS: 4. D + 0.75L + 0.75(S or Lr or R)	0.0000	1.4774	0.0000	0.0000	-0.0000	0.0147
ULS: 4. D + 0.75L + 0.75(S or Lr or R)	0.0000	1.4774	0.0000	0.0000	-0.0000	0.0147
ULS: 5b. D + 0.7E	0.0000	1.4774	0.0000	0.0000	-0.0000	0.0147
ULS: 6b. D + 0.75L + 0.75(0.7)E + 0.75S	0.0000	1.4774	0.0000	0.0000	-0.0000	0.0147
ULS: 8. 0.6D + 0.7E	0.0000	0.8864	0.0000	0.0000	-0.0000	0.0088
ULS: 5a. D + 0.6W_Wind downforce Case A only	-2.2450	3.3611	0.0000	0.0000	-0.0000	23.2739
ULS: 5a. D + 0.6W_Wind downforce Case B only	0.0000	1.4774	0.0000	0.0000	-0.0000	0.0147
ULS: 5a. D + 0.6W_Wind uplift Case A only	2.2450	-0.4064	0.0000	0.0000	-0.0000	-22.8946
ULS: 5a. D + 0.6W_Wind uplift Case B only	0.0000	1.4774	0.0000	0.0000	-0.0000	0.0147
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case A only	-1.6837	2.8902	0.0000	0.0000	-0.0000	17.4591
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case B only	0.0000	1.4774	0.0000	0.0000	-0.0000	0.0147
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case A only	1.6837	0.0645	0.0000	0.0000	-0.0000	-17.1673
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case B only	0.0000	1.4774	0.0000	0.0000	-0.0000	0.0147
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case A only	-1.6837	2.8902	0.0000	0.0000	-0.0000	17.4591
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case B only	0.0000	1.4774	0.0000	0.0000	-0.0000	0.0147
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case A only	1.6837	0.0645	0.0000	0.0000	-0.0000	-17.1673
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case B only	0.0000	1.4774	0.0000	0.0000	-0.0000	0.0147
ULS: 7. 0.6D + 0.6W_Wind downforce Case A only	-2.2450	2.7702	0.0000	0.0000	-0.0000	23.2680
ULS: 7. 0.6D + 0.6W_Wind downforce Case B only	0.0000	0.8864	0.0000	0.0000	-0.0000	0.0088
ULS: 7. 0.6D + 0.6W_Wind uplift Case A only	2.2450	-0.9973	0.0000	0.0000	-0.0000	-22.9005
ULS: 7. 0.6D + 0.6W_Wind uplift Case B only	0.0000	0.8864	0.0000	0.0000	-0.0000	0.0088

Worst Case Reactions LRFD

These calculations are taken directly from the FEA via SkyCiv and are used in the Concrete Checks of the Foundation Module.

Note: Worst case values are assumed as downforce wind load cases.

Result	Value (kip, kip-ft)
Axial	4.9125
Shear X	-3.7416
Shear Z	0.0000
Moment X	0.0000
Moment Y (Twist)	0.0000
Moment Z	38.9713

Worst Case Reactions ASD

These results are taken from the worst case values in the above table and are used in the Soil Checks in the Foundation Module.

Note: Worst case values are assumed as downforce wind load cases.

Result	Value (kip, kip-ft)
Axial	3.3611
Shear X	-2.2450
Shear Z	0.0000
Moment X	0.0000
Moment Y (Twist)	0.0000
Moment Z	23.2739

Project Details

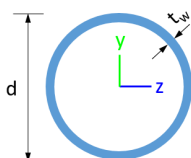
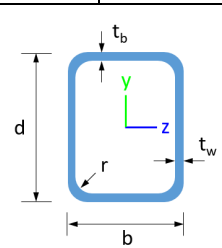
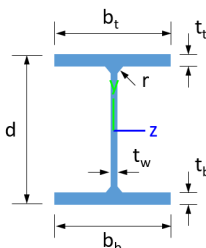
Design Code: AISC 360-16 LRFD
 Provision: LRFD
 Country: United States
 User Name: sales@mtsolar.us
 Unit System: imperial



Design Input Information

Design Factors			
Φ_t	Φ_c	Φ_b	Φ_v
0.9	0.9	0.9	0.9

Design Materials			
ID	E (ksi)	F_y (ksi)	F_u (ksi)
1	29000	50	65

Section Dimensions								
								
ID	Name	d (in)	t_w (in)					
1	2in Pipe Sch 40	2.38	0.15					
4	4in Pipe Sch 40	4.50	0.24					
9	8in Pipe Sch 40	8.63	0.32					
								
ID	Name	d (in)	b (in)	t_w (in)	t_b (in)	r (in)		
15	HSS5x3x1/8	5.00	3.00	0.12	0.12	0.12		
								
ID	Name	d (in)	t_w (in)	b_t (in)	b_b (in)	t_t (in)	t_b (in)	r (in)
18	W6x9	5.90	0.17	3.94	3.94	0.21	0.21	0.25

Section Properties								
ID	Name	A (in ²)	J (in ⁴)	I_{yp} (in ⁴)	I_{zp} (in ⁴)	I_w (in ⁶)	S_{yp} (in ³)	S_{zp} (in ³)

15	120.60	96.18	23.36	6.45	30.09	45.74
16	120.60	96.18	23.36	6.45	30.09	45.74

Design Ratio

Member ID	P	M _z	M _y	V _y	V _z	(P,M _z ,M _y)	Worst LC	KL/r	δ	Status
1	0.023	0.468	0.000	0.033	0.000	0.479	#13	0.441	Not Required	Pass
2	0.000	0.237	0.217	0.053	0.044	0.455	#13	0.052	Not Required	Pass
3	0.004	0.490	0.040	0.050	0.010	0.526	#13	0.044	Not Required	Pass
4	0.004	0.489	0.035	0.049	0.007	0.519	#13	0.078	Not Required	Pass
5	0.004	0.304	0.034	0.049	0.006	0.309	#13	0.073	Not Required	Pass
6	0.004	0.490	0.040	0.050	0.010	0.526	#13	0.044	Not Required	Pass
7	0.004	0.304	0.034	0.049	0.006	0.309	#13	0.073	Not Required	Pass
8	0.000	0.021	0.015	0.016	0.002	0.034	#13	Not Required	Not Required	Pass
9	0.001	0.031	0.038	0.001	0.000	0.070	#13	0.132	Not Required	Pass
10	0.004	0.489	0.035	0.049	0.007	0.519	#13	0.078	Not Required	Pass
11	0.000	0.021	0.015	0.016	0.002	0.034	#13	Not Required	Not Required	Pass
12	0.000	0.237	0.217	0.053	0.044	0.455	#13	0.052	Not Required	Pass
13	0.001	0.102	0.053	0.031	0.004	0.136	#13	0.177	Not Required	Pass
14	0.001	0.105	0.053	0.031	0.004	0.136	#13	0.177	Not Required	Pass
15	0.000	0.021	0.015	0.016	0.002	0.034	#13	Not Required	Not Required	Pass
16	0.000	0.021	0.015	0.016	0.002	0.034	#13	Not Required	Not Required	Pass

Definitions

Φ _t	Safety factor for tensile
Φ _c	Safety factor for compression
Φ _b	Safety factor for flexure
Φ _v	Safety factor for shear
E	Modulus of elasticity
F _y	Specified minimum yield stress
F _u	Specified minimum tensile strength
A	Cross-sectional area
J	Torsional constant
I _{yp}	Moment of inertia about the Y axes
I _{zp}	Moment of inertia about the Z axes
I _w	Warping constant
S _{yp}	Plastic section modulus about the Y axis
S _{zp}	Plastic section modulus about the Z axis
KL	Effective length
C _b	Buckling modification factor (from all load combinations)
L _b	Length between braced points
LST	Limited slenderness for tension
LSC	Limited slenderness for compression
LD	Limited deflection
P _n	Nominal axial strength (tension/compression)
M _n	Nominal flexural strength (about Z/Y axis)
V _n	Nominal shear strength (along Z/Y axis)
P	Design ratio in case of axial force
M _z	Design ratio in case of bending about Z axis
M _y	Design ratio in case of bending about Y axis
V _y	Design ratio in case of shear along Y axis
V _z	Design ratio in case of shear along Z axis
(P,M _z ,M _y)	Design ratio in case of axial force and bending action
KL/r	Design ratio in case of section slenderness
δ	Design ratio in case of member deflection
OK	Capacity is provided
NG	Capacity is not provided

