Project Details

Project Name: MTSOLAR_7AJLJ4L53AC4B
Date: Thu Feb 13 2025
Location: 4675 KY-181, Greenville, KY 42345, USA
Number of Modules: 45
Unique ID: 4P-22.5-6TOP-HD-57-L-3Hx15W-EF32
Number of Poles: 4
Dealer: _____
Date Sold: _____

Array Dimensions N/S	11.38 ft
Array Dimensions E/W	86.25 ft
Winter Tilt Angle	30
Front Edge Clearance	5 ft

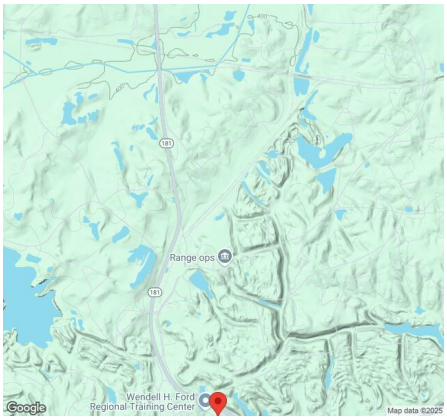
MT Solar Bill of Materials (4P-22.5-6TOP-HD-57-L-3Hx15W-EF32)

Part	Short Description	BOM Qty
MTS-PC-6	6IN Pole Cap Assembly	4
MTS-HF-HD	H-Frame Assembly-HD	4
MTS-HD-Wing-57	57IN HD Wing	4
MTS-HD-Splice-90	90IN HD Splice	12
MTS-CLAMP-HOOK-4PK	Hook Clamp	15

Rail Bill of Materials

Part	Qty
Rails (135in)	30
Rail Attachment	60
Module Mid Clamp	60
Module End Clamp	60
Ground Lug	15

Site Details:



Site Address: 4675 KY-181, Greenville, KY 42345, USA

Array Specification

Duty Classification:	HD
Module Width:	45.00 in
Module Length:	68.00in
Number of Rows:	3
Number of Columns:	15
Total Number of Modules:	45
Winter Tilt Angle:	30
Front Edge Clearance:	5
Total Array Height at Tilt:	10.69 ft
Total Frame Length:	84.50 ft
Frame Weight:	4106 lbs
Array Dimensions N/S:	11.38 ft
Array Dimensions E/W:	86.25 ft
Rail Length:	136.50 in
Rail Spacing:	2.88 ft

Support Specifications

Pole Size:	6in Pipe Sch 40
Pole Length above Grade:	7.84 ft
Number of Poles:	4
Pole Spacing:	22.5 ft

Foundation Specifications

Foundation Type:	Round
Foundation Dimensions:	
Foundation Depth (below grade):	
Foundation Volume:	0.000 y^3

Site Info

Risk Category:	I
Exposure:	C
Soil Classification:	sand
Site Location:	4675 KY-181, Greenville, KY 42345, USA
Wind Speed:	99 mph
Snow Load:	15 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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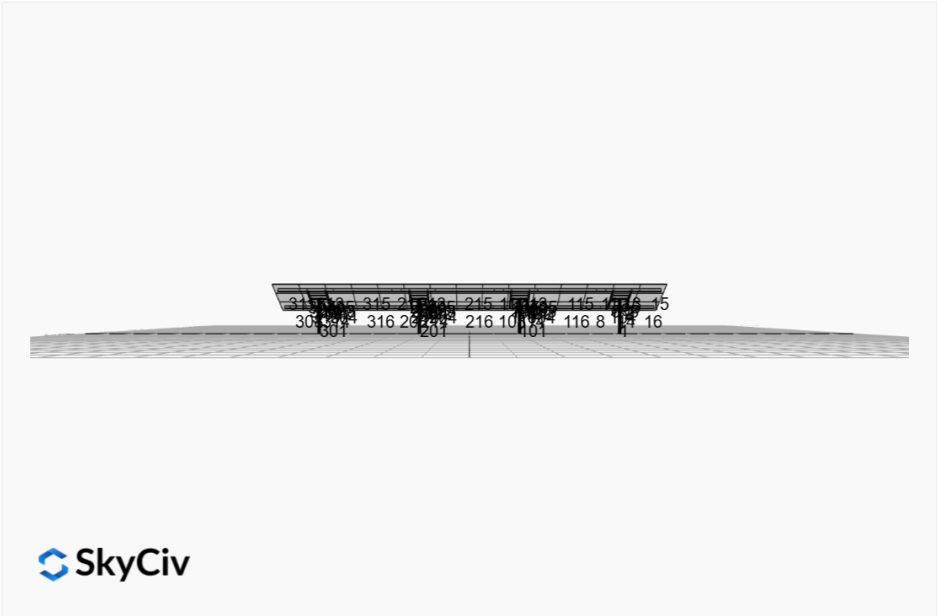
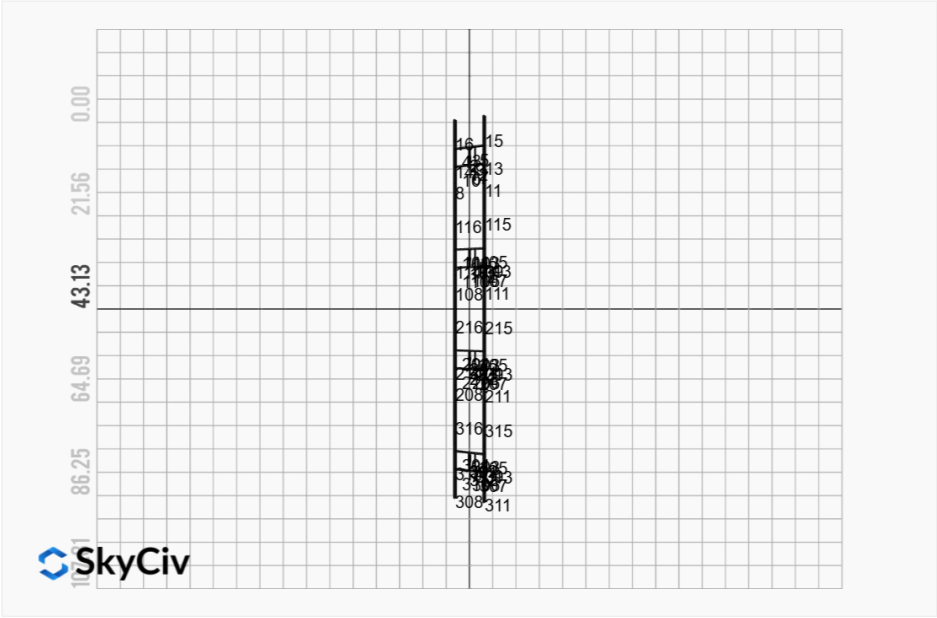
Design Notes:

- 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

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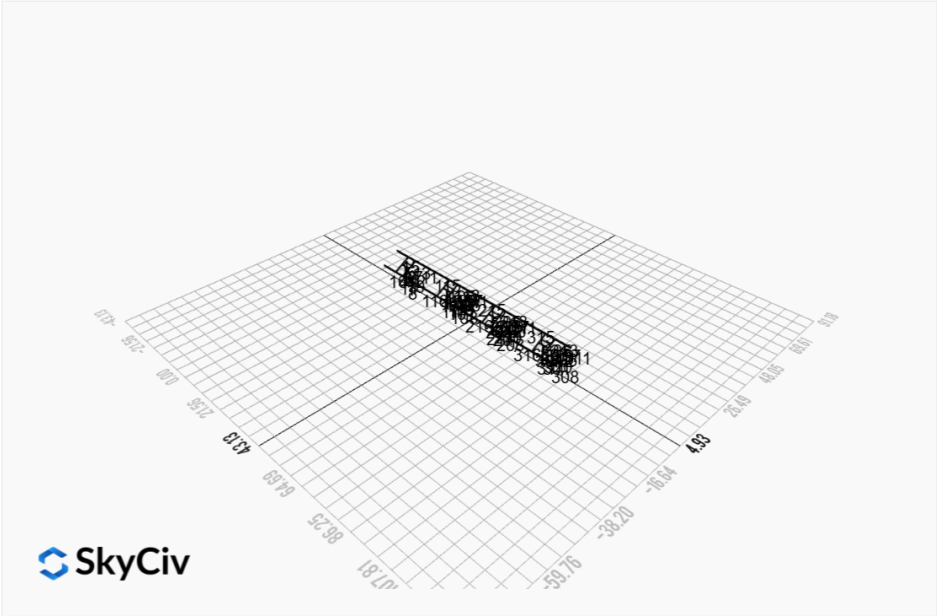
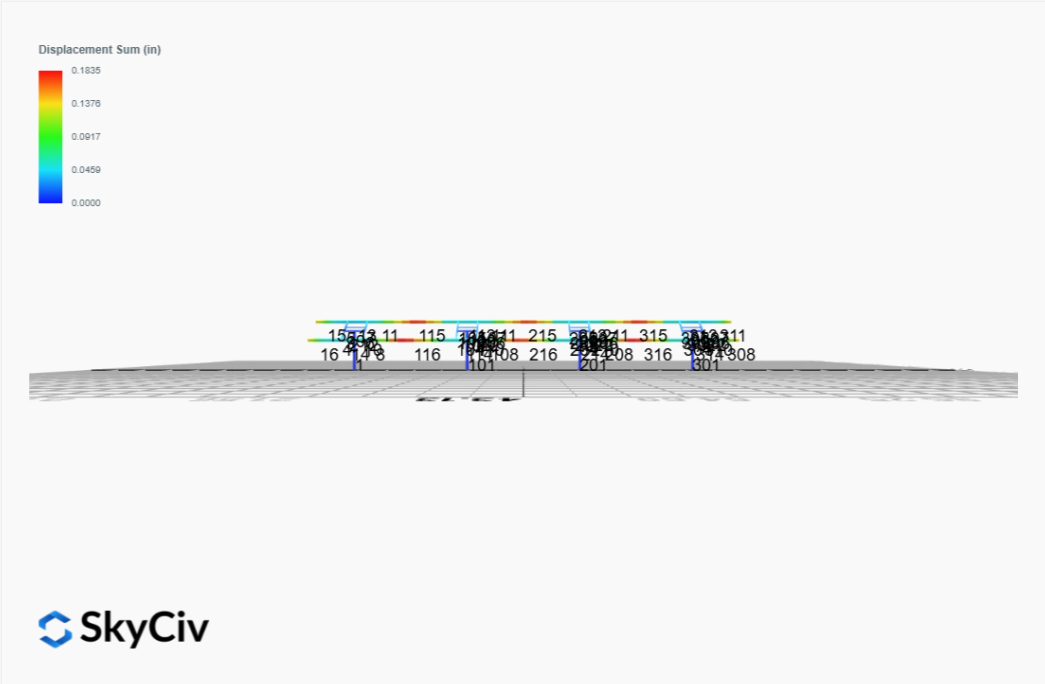
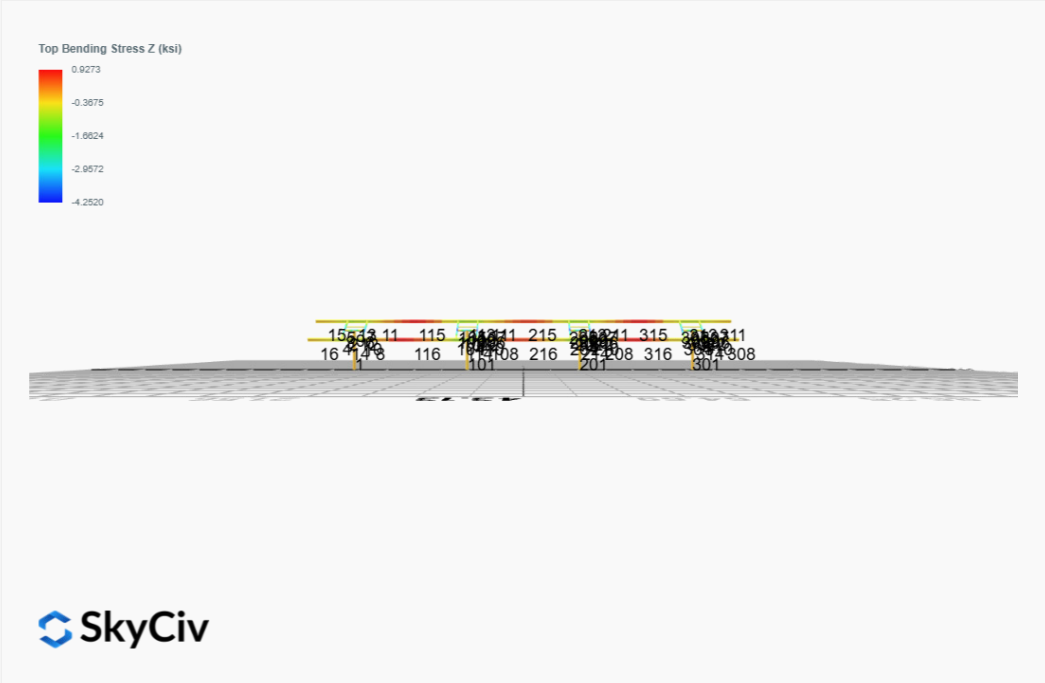
SkyCiv

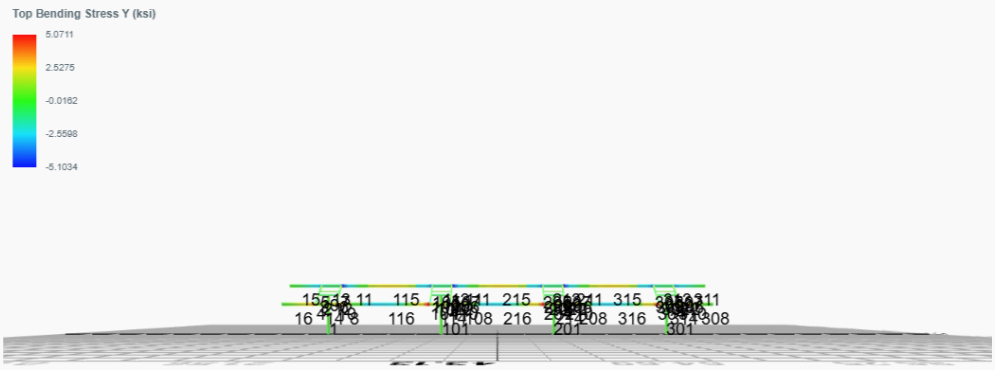

SkyCiv


SkyCiv

FEM Results (Envelope Worst Case for each member)







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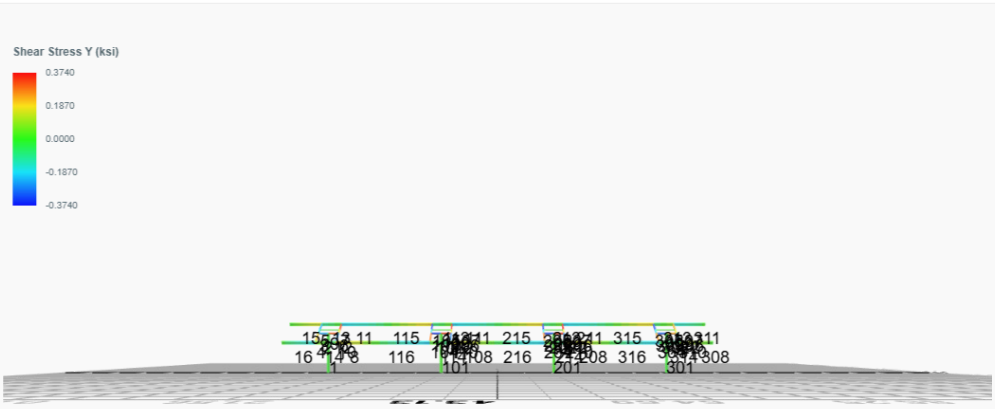

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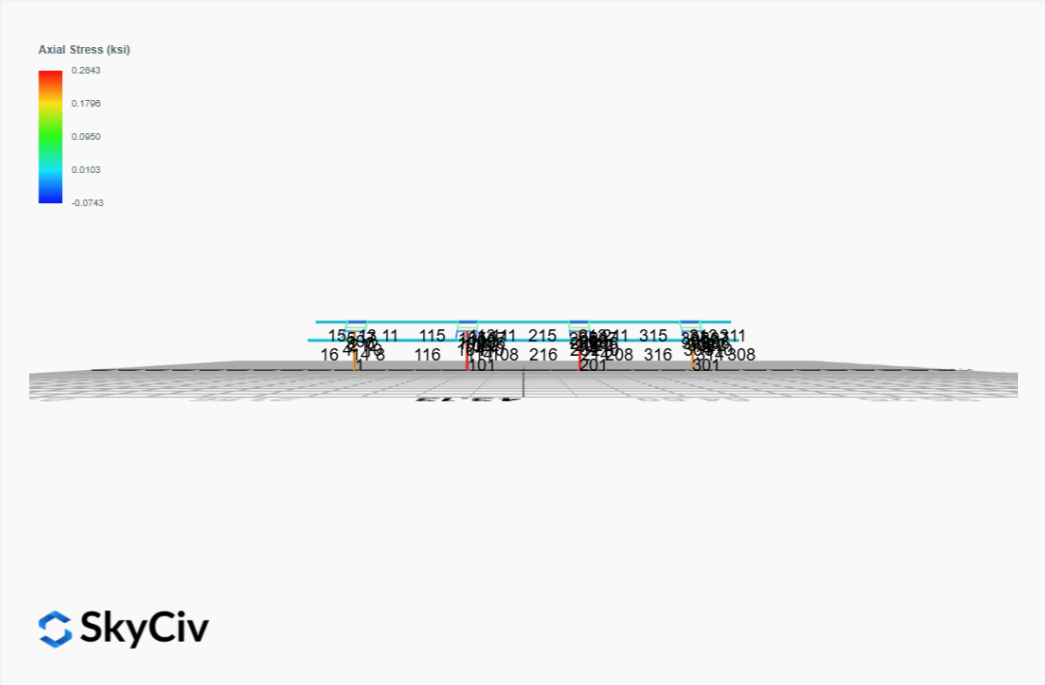
Axial Stress (ksi)
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0.1796
0.0950
0.0103
-0.0743
SkyCiv

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	0.0080	1.8712	0.0380	0.0861	-0.0123	-0.0321
ULS: 2. D + L	0.0080	1.8712	0.0380	0.0861	-0.0123	-0.0321
ULS: 3. D + (S or Lr or R)	0.0147	3.1422	0.0702	0.1589	-0.0227	-0.0797
ULS: 3. D + (S or Lr or R)	0.0080	1.8712	0.0380	0.0861	-0.0123	-0.0321
ULS: 4. D + 0.75L + 0.75(S or Lr or R)	0.0131	2.8245	0.0622	0.1407	-0.0201	-0.0678
ULS: 4. D + 0.75L + 0.75(S or Lr or R)	0.0080	1.8712	0.0380	0.0861	-0.0123	-0.0321
ULS: 5b. D + 0.7E	0.0080	1.8712	0.0380	0.0861	-0.0123	-0.0321
ULS: 6b. D + 0.75L + 0.75(0.7)E + 0.75S	0.0131	2.8245	0.0622	0.1407	-0.0201	-0.0678
ULS: 8. 0.6D + 0.7E	0.0048	1.1227	0.0228	0.0516	-0.0074	-0.0192
ULS: 5a. D + 0.6W_Wind downforce Case A only	-2.1623	5.6095	0.1625	0.3522	-0.1921	17.4838
ULS: 5a. D + 0.6W_Wind downforce Case B only	-2.1623	5.6095	0.1625	0.3522	-0.1921	17.4838
ULS: 5a. D + 0.6W_Wind uplift Case A only	1.8671	-1.3324	-0.0659	-0.1357	0.1381	-14.4096
ULS: 5a. D + 0.6W_Wind uplift Case B only	1.5671	-0.8033	-0.0635	-0.1301	0.1384	-19.7557
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case A only	-1.6147	5.6282	0.1555	0.3403	-0.1550	13.0691
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case B only	-1.6147	5.6282	0.1555	0.3403	-0.1550	13.0691
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case A only	1.4074	0.4218	-0.0158	-0.0257	0.0926	-10.8510
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case B only	1.1824	0.8186	-0.0139	-0.0214	0.0928	-14.8605
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case A only	-1.6198	4.6750	0.1314	0.2857	-0.1471	13.1048
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case B only	-1.6198	4.6750	0.1314	0.2857	-0.1471	13.1048
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case A only	1.4023	-0.5315	-0.0399	-0.0803	0.1005	-10.8152
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case B only	1.1773	-0.1347	-0.0381	-0.0760	0.1007	-14.8248
ULS: 7. 0.6D + 0.6W_Wind downforce Case A only	-2.1655	4.8610	0.1473	0.3178	-0.1872	17.4966
ULS: 7. 0.6D + 0.6W_Wind downforce Case B only	-2.1655	4.8610	0.1473	0.3178	-0.1872	17.4966
ULS: 7. 0.6D + 0.6W_Wind uplift Case A only	1.8639	-2.0809	-0.0811	-0.1701	0.1430	-14.3968
ULS: 7. 0.6D + 0.6W_Wind uplift Case B only	1.5639	-1.5518	-0.0787	-0.1645	0.1433	-19.7429

Worst Case Reactions LRFD

These calculations are taken directly from the FEA via SkyCiv and are used in the Concrete Checks of the Foundatino Module.
Note: Worst case values are assumed as downforce wind load cases.

Result	Value (kip, kip-ft)
Axial	9.1117
Shear X	-3.6172
Shear Z	0.2705
Moment X	0.5867
Moment Y (Twist)	0.3214
Moment Z	33.3645

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	5.6282
Shear X	-2.1655
Shear Z	0.1625
Moment X	0.3522
Moment Y (Twist)	0.1921
Moment Z	19.7557

Reaction Forces for Foundation 2 (Node ID#101), (kip, kip-ft)

ASD Load Combination Results

Name	Fx	Fy	Fz	Mx	My	Mz
ULS: 1. D	-0.0080	2.1136	-0.0043	-0.0096	0.0055	0.0855
ULS: 2. D + L	-0.0080	2.1136	-0.0043	-0.0096	0.0055	0.0855
ULS: 3. D + (S or Lr or R)	-0.0147	3.5886	-0.0079	-0.0177	0.0102	0.1374
ULS: 3. D + (S or Lr or R)	-0.0080	2.1136	-0.0043	-0.0096	0.0055	0.0855
ULS: 4. D + 0.75L + 0.75(S or Lr or R)	-0.0130	3.2198	-0.0070	-0.0156	0.0090	0.1244

Name	Fx	Fy	Fz	Mx	My	Mz
ULS: 4. D + 0.75L + 0.75(S or Lr or R)	-0.0080	2.1136	-0.0043	-0.0096	0.0055	0.0855
ULS: 5b. D + 0.7E	-0.0080	2.1136	-0.0043	-0.0096	0.0055	0.0855
ULS: 6b. D + 0.75L + 0.75(0.7)E + 0.75S	-0.0130	3.2198	-0.0070	-0.0156	0.0090	0.1244
ULS: 8. 0.6D + 0.7E	-0.0048	1.2681	-0.0026	-0.0057	0.0033	0.0513
ULS: 5a. D + 0.6W_Wind downforce Case A only	-2.5101	6.4682	-0.0064	-0.0162	-0.0000	20.1455
ULS: 5a. D + 0.6W_Wind downforce Case B only	-2.5101	6.4682	-0.0064	-0.0162	-0.0000	20.1455
ULS: 5a. D + 0.6W_Wind uplift Case A only	2.1379	-1.6197	-0.0011	-0.0013	0.0079	-16.3071
ULS: 5a. D + 0.6W_Wind uplift Case B only	1.7704	-0.9926	-0.0103	-0.0209	0.0238	-22.1791
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case A only	-1.8897	6.4859	-0.0086	-0.0206	0.0049	15.1695
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case B only	-1.8897	6.4859	-0.0086	-0.0206	0.0049	15.1695
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case A only	1.5964	0.4199	-0.0046	-0.0094	0.0108	-12.1700
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case B only	1.3208	0.8902	-0.0115	-0.0241	0.0227	-16.5740
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case A only	-1.8846	5.3796	-0.0059	-0.0145	0.0014	15.1305
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case B only	-1.8846	5.3796	-0.0059	-0.0145	0.0014	15.1305
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case A only	1.6014	-0.6864	-0.0019	-0.0034	0.0073	-12.2090
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case B only	1.3258	-0.2161	-0.0088	-0.0181	0.0192	-16.6130
ULS: 7. 0.6D + 0.6W_Wind downforce Case A only	-2.5070	5.6228	-0.0047	-0.0123	-0.0022	20.1114
ULS: 7. 0.6D + 0.6W_Wind downforce Case B only	-2.5070	5.6228	-0.0047	-0.0123	-0.0022	20.1114
ULS: 7. 0.6D + 0.6W_Wind uplift Case A only	2.1411	-2.4651	0.0006	0.0025	0.0057	-16.3413
ULS: 7. 0.6D + 0.6W_Wind uplift Case B only	1.7736	-1.8380	-0.0086	-0.0171	0.0216	-22.2133

Worst Case Reactions LRFD

These calculations are taken directly from the FEA via SkyCiv and are used in the Concrete Checks of the Foundatino Module.
Note: Worst case values are assumed as downforce wind load cases.

Result	Value (kip, kip-ft)
Axial	10.5314
Shear X	-4.1826
Shear Z	-0.0178
Moment X	-0.0358
Moment Y (Twist)	0.0409
Moment Z	37.5079

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	6.4859
Shear X	-2.5101
Shear Z	-0.0115
Moment X	-0.0241
Moment Y (Twist)	0.0238
Moment Z	22.2133

Reaction Forces for Foundation 3 (Node ID#201), (kip, kip-ft)

ASD Load Combination Results

Name	Fx	Fy	Fz	Mx	My	Mz
ULS: 1. D	-0.0080	2.1136	0.0043	0.0096	-0.0055	0.0854
ULS: 2. D + L	-0.0080	2.1136	0.0043	0.0096	-0.0055	0.0854
ULS: 3. D + (S or Lr or R)	-0.0147	3.5886	0.0079	0.0176	-0.0101	0.1374
ULS: 3. D + (S or Lr or R)	-0.0080	2.1136	0.0043	0.0096	-0.0055	0.0854
ULS: 4. D + 0.75L + 0.75(S or Lr or R)	-0.0130	3.2198	0.0070	0.0156	-0.0090	0.1244
ULS: 4. D + 0.75L + 0.75(S or Lr or R)	-0.0080	2.1136	0.0043	0.0096	-0.0055	0.0854
ULS: 5b. D + 0.7E	-0.0080	2.1136	0.0043	0.0096	-0.0055	0.0854
ULS: 6b. D + 0.75L + 0.75(0.7)E + 0.75S	-0.0130	3.2198	0.0070	0.0156	-0.0090	0.1244
ULS: 8. 0.6D + 0.7E	-0.0048	1.2681	0.0026	0.0057	-0.0033	0.0513
ULS: 5a. D + 0.6W_Wind downforce Case A only	-2.5101	6.4682	0.0064	0.0162	0.0000	20.1455
ULS: 5a. D + 0.6W_Wind downforce Case B only	-2.5101	6.4682	0.0064	0.0162	0.0000	20.1455
ULS: 5a. D + 0.6W_Wind uplift Case A only	2.1379	-1.6197	0.0011	0.0013	-0.0079	-16.3071
ULS: 5a. D + 0.6W_Wind uplift Case B only	1.7704	-0.9926	0.0103	0.0209	-0.0238	-22.1791

Name	Fx	Fy	Fz	Mx	My	Mz
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case A only	-1.8897	6.4859	0.0086	0.0206	-0.0048	15.1695
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case B only	-1.8897	6.4859	0.0086	0.0206	-0.0048	15.1695
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case A only	1.5964	0.4199	0.0046	0.0094	-0.0108	-12.1700
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case B only	1.3208	0.8902	0.0115	0.0241	-0.0227	-16.5740
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case A only	-1.8846	5.3796	0.0059	0.0145	-0.0014	15.1305
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case B only	-1.8846	5.3796	0.0059	0.0145	-0.0014	15.1305
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case A only	1.6014	-0.6864	0.0019	0.0034	-0.0073	-12.2090
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case B only	1.3258	-0.2161	0.0088	0.0181	-0.0192	-16.6130
ULS: 7. 0.6D + 0.6W_Wind downforce Case A only	-2.5070	5.6228	0.0047	0.0123	0.0022	20.1114
ULS: 7. 0.6D + 0.6W_Wind downforce Case B only	-2.5070	5.6228	0.0047	0.0123	0.0022	20.1114
ULS: 7. 0.6D + 0.6W_Wind uplift Case A only	2.1411	-2.4651	-0.0006	-0.0025	-0.0057	-16.3413
ULS: 7. 0.6D + 0.6W_Wind uplift Case B only	1.7736	-1.8380	0.0086	0.0171	-0.0216	-22.2133

Worst Case Reactions LRFD

These calculations are taken directly from the FEA via SkyCiv and are used in the Concrete Checks of the Foundatino Module.
Note: Worst case values are assumed as downforce wind load cases.

Result	Value (kip, kip-ft)
Axial	10.5314
Shear X	-4.1826
Shear Z	0.0178
Moment X	0.0361
Moment Y (Twist)	0.0408
Moment Z	37.5079

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	6.4859
Shear X	-2.5101
Shear Z	0.0115
Moment X	0.0241
Moment Y (Twist)	0.0238
Moment Z	22.2133

Reaction Forces for Foundation 4 (Node ID#301), (kip, kip-ft)

ASD Load Combination Results

Name	Fx	Fy	Fz	Mx	My	Mz
ULS: 1. D	0.0080	1.8712	-0.0381	-0.0861	0.0123	-0.0321
ULS: 2. D + L	0.0080	1.8712	-0.0381	-0.0861	0.0123	-0.0321
ULS: 3. D + (S or Lr or R)	0.0147	3.1422	-0.0702	-0.1589	0.0228	-0.0797
ULS: 3. D + (S or Lr or R)	0.0080	1.8712	-0.0381	-0.0861	0.0123	-0.0321
ULS: 4. D + 0.75L + 0.75(S or Lr or R)	0.0130	2.8245	-0.0622	-0.1407	0.0201	-0.0678
ULS: 4. D + 0.75L + 0.75(S or Lr or R)	0.0080	1.8712	-0.0381	-0.0861	0.0123	-0.0321
ULS: 5b. D + 0.7E	0.0080	1.8712	-0.0381	-0.0861	0.0123	-0.0321
ULS: 6b. D + 0.75L + 0.75(0.7)E + 0.75S	0.0130	2.8245	-0.0622	-0.1407	0.0201	-0.0678
ULS: 8. 0.6D + 0.7E	0.0048	1.1227	-0.0228	-0.0516	0.0074	-0.0192
ULS: 5a. D + 0.6W_Wind downforce Case A only	-2.1623	5.6095	-0.1625	-0.3522	0.1921	17.4838
ULS: 5a. D + 0.6W_Wind downforce Case B only	-2.1623	5.6095	-0.1625	-0.3522	0.1921	17.4838
ULS: 5a. D + 0.6W_Wind uplift Case A only	1.8671	-1.3324	0.0659	0.1357	-0.1381	-14.4096
ULS: 5a. D + 0.6W_Wind uplift Case B only	1.5671	-0.8033	0.0635	0.1300	-0.1383	-19.7557
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case A only	-1.6147	5.6282	-0.1555	-0.3403	0.1550	13.0691
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case B only	-1.6147	5.6282	-0.1555	-0.3403	0.1550	13.0691
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case A only	1.4074	0.4218	0.0158	0.0256	-0.0926	-10.8510
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case B only	1.1824	0.8186	0.0139	0.0214	-0.0928	-14.8605
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case A only	-1.6198	4.6750	-0.1314	-0.2857	0.1472	13.1048
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind downforce Case B only	-1.6198	4.6750	-0.1314	-0.2857	0.1472	13.1048
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case A only	1.4023	-0.5315	0.0399	0.0803	-0.1005	-10.8152
ULS: 6a. D + 0.75L + 0.75(0.6)W + 0.75(S or Lr or R)_Wind uplift Case B only	1.1773	-0.1347	0.0381	0.0760	-0.1007	-14.8248

Name	Fx	Fy	Fz	Mx	My	Mz
ULS: 7. 0.6D + 0.6W_Wind downforce Case A only	-2.1655	4.8610	-0.1473	-0.3178	0.1872	17.4966
ULS: 7. 0.6D + 0.6W_Wind downforce Case B only	-2.1655	4.8610	-0.1473	-0.3178	0.1872	17.4966
ULS: 7. 0.6D + 0.6W_Wind uplift Case A only	1.8639	-2.0809	0.0811	0.1701	-0.1430	-14.3968
ULS: 7. 0.6D + 0.6W_Wind uplift Case B only	1.5639	-1.5518	0.0787	0.1645	-0.1432	-19.7429

Worst Case Reactions LRFD

These calculations are taken directly from the FEA via SkyCiv and are used in the Concrete Checks of the Foundatino Module.
Note: Worst case values are assumed as downforce wind load cases.

Result	Value (kip, kip-ft)
Axial	9.1117
Shear X	-3.6172
Shear Z	-0.2705
Moment X	-0.5868
Moment Y (Twist)	0.3216
Moment Z	33.3653

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	5.6282
Shear X	-2.1655
Shear Z	-0.1625
Moment X	-0.3522
Moment Y (Twist)	0.1921
Moment Z	19.7557

Project Details

Design Code: AISC 360-16 LRFD
Provision: LRFD
Country: United States

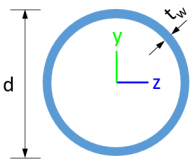
User Name: sales@mtsolar.us
Project Name: MTSOLAR_7AJLJ4L53AC4B
Unit System: imperial

Design Input Information

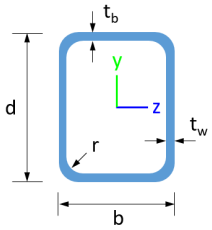
Design Factors			
Φ_t	Φ_c	Φ_b	Φ_v
0.9	0.9	0.9	0.9

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

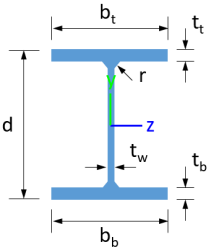
Section Dimensions



ID	Name	d (in)	t_w (in)					
2	2in Pipe Sch 80	2.38	0.22					
5	4in Pipe Sch 80	4.50	0.34					
7	6in Pipe Sch 40	6.63	0.28					



ID	Name	d (in)	b (in)	t_w (in)	t_b (in)	r (in)		
16	HSS5x3x3/16	5.00	3.00	0.17	0.17	0.17		



ID	Name	d (in)	t_w (in)	b_t (in)	b_b (in)	t_t (in)	t_b (in)	r (in)
19	W8x10	7.89	0.17	3.94	3.94	0.20	0.20	0.30

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)

2	2in Pipe Sch 80	1.48	1.74	0.87	0.87	0.00	1.02	1.02
5	4in Pipe Sch 80	4.41	19.22	9.61	9.61	0.00	5.85	5.85
7	6in Pipe Sch 40	5.58	56.28	28.14	28.14	0.00	11.28	11.28
16	HSS5x3x3/16	2.58	8.64	3.85	8.53	0.73	2.96	4.21
19	W8x10	2.96	0.04	2.09	30.80	30.90	1.66	8.87

Member Properties

Member ID	Section ID	K_zL (ft)	K_yL (ft)	L_b(ft)	C_b	LST	LSC	LD
1	7	16.47	16.47	7.84	-	300	200	1
2	5	1.30	1.30	2.00	-	300	200	1
3	16	0.92	0.92	1.42	1.19,1.18,1.19,1.18,1.19,1.19,1.18,1.18,1.17,1.17,1.18,1.18,1.17,1.17,1.18,1.18,1.24,1.15,1.18,1.18,1.16,1.17,1.18,1.18,1.17,1.17	300	200	1
4	16	2.44	2.44	3.75	1.69,1.68,1.69,1.68,1.69,1.69,1.67,1.67,1.66,1.73,1.67,1.67,1.66,1.13,1.67,1.67,1.79,1.68,1.67,1.67,1.64,1.71,1.67,1.67,1.66,1.61	300	200	1
5	16	1.52	1.52	2.33	1.68,1.68,1.68,1.67,1.68,1.68,1.67,1.67,1.66,1.66,1.67,1.67,1.66,1.66,1.67,1.67,1.74,1.64,1.67,1.67,1.65,1.66,1.67,1.67,1.66,1.66	300	200	1
6	16	0.92	0.92	1.42	1.19,1.19,1.19,1.18,1.19,1.19,1.18,1.18,1.18,1.18,1.18,1.18,1.18,1.18,1.18,1.18,1.24,1.17,1.18,1.18,1.17,1.18,1.18,1.18,1.18,1.18	300	200	1
7	16	1.52	1.52	2.33	1.68,1.68,1.68,1.67,1.68,1.68,1.67,1.67,1.66,1.66,1.67,1.67,1.66,1.66,1.67,1.67,1.76,1.65,1.67,1.67,1.65,1.66,1.67,1.67,1.66,1.66	300	200	1
8	19	1.33	1.33	2.05	2.09,2.09,2.09,2.09,2.09,2.09,2.08,2.08,2.08,1.39,2.08,2.08,2.08,1.00,2.09,2.09,2.24,2.14,2.09,2.09,2.08,2.21,2.08,2.08,2.08,1.19	300	200	1
9	2	2.60	2.60	4.00	-	300	200	1
10	16	2.44	2.44	3.75	1.69,1.68,1.69,1.68,1.68,1.69,1.67,1.67,1.66,1.74,1.67,1.67,1.66,1.43,1.67,1.67,1.78,1.68,1.67,1.67,1.65,1.71,1.67,1.67,1.66,1.62	300	200	1
11	19	1.33	1.33	2.05	2.10,2.10,2.10,2.10,2.10,2.10,2.11,2.11,2.12,2.21,2.11,2.11,2.12,2.16,2.11,2.11,1.35,2.19,2.11,2.11,2.14,2.35,2.12,2.12,2.12,2.15	300	200	1
12	5	1.30	1.30	2.00	-	300	200	1
13	19	4.88	4.00	7.50	1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.22,1.28,1.08,1.08,1.07,1.08,1.08,1.08,1.08,1.08	300	200	1
14	19	4.88	4.00	7.50	1.08,1.08,1.08,1.08,1.08,1.08,1.09,1.09,1.09,2.55,1.09,1.09,1.09,1.18,1.08,1.08,1.07,1.10,1.08,1.08,1.09,1.32,1.09,1.09,1.09,1.07	300	200	1
15	19	9.97	9.97	4.75	2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33	300	200	1
16	19	9.97	9.97	4.75	2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33	300	200	1
101	7	16.47	16.47	7.84	-	300	200	1
102	5	1.30	1.30	2.00	-	300	200	1
103	16	0.92	0.92	1.42	1.19,1.18,1.19,1.18,1.19,1.19,1.18,1.18,1.17,1.17,1.18,1.18,1.17,1.18,1.18,1.18,1.23,1.16,1.18,1.18,1.17,1.17,1.18,1.18,1.18,1.18	300	200	1
104	16	2.44	2.44	3.75	1.68,1.68,1.68,1.68,1.68,1.68,1.67,1.67,1.66,1.75,1.67,1.67,1.66,1.54,1.67,1.67,1.77,1.68,1.67,1.67,1.65,1.71,1.67,1.67,1.66,1.63	300	200	1
105	16	1.52	1.52	2.33	1.68,1.67,1.68,1.67,1.68,1.68,1.67,1.67,1.66,1.66,1.67,1.67,1.66,1.66,1.67,1.67,1.72,1.65,1.67,1.67,1.65,1.66,1.67,1.67,1.66,1.66	300	200	1
106	16	0.92	0.92	1.42	1.19,1.18,1.19,1.18,1.19,1.19,1.18,1.18,1.17,1.18,1.18,1.18,1.18,1.18,1.18,1.18,1.23,1.17,1.18,1.18,1.17,1.18,1.18,1.18,1.18,1.18	300	200	1
107	16	1.52	1.52	2.33	1.68,1.67,1.68,1.67,1.68,1.68,1.67,1.67,1.66,1.66,1.67,1.67,1.66,1.66,1.67,1.67,1.74,1.65,1.67,1.67,1.66,1.66,1.67,1.67,1.66,1.66	300	200	1
108	19	1.33	1.33	2.05	2.25,2.25,2.25,2.25,2.25,2.25,2.24,2.24,2.24,1.71,2.24,2.24,2.24,1.22,2.25,2.25,2.34,2.28,2.25,2.25,2.24,2.27,2.24,2.24,2.24,1.60	300	200	1
109	2	2.60	2.60	4.00	-	300	200	1
110	16	2.44	2.44	3.75	1.68,1.68,1.68,1.68,1.68,1.68,1.67,1.67,1.66,1.74,1.67,1.67,1.66,1.49,1.67,1.67,1.78,1.68,1.67,1.67,1.65,1.71,1.67,1.67,1.66,1.63	300	200	1
111	19	1.33	1.33	2.05	2.26,2.26,2.26,2.26,2.26,2.26,2.29,2.29,2.33,2.35,2.30,2.30,2.32,2.34,2.28,2.28,1.36,1.95,2.29,2.29,2.36,2.31,2.30,2.30,2.31,2.34	300	200	1
112	5	1.30	1.30	2.00	-	300	200	1

113	19	4.88	4.00	7.50	1.03,1.03,1.03,1.03,1.03,1.03,1.03,1.03,1.04,1.06,1.03,1.03,1.04,1.05,1.03,1.03,1.05,1.43,1.03,1.03,1.04,1.08,1.03,1.03,1.04,1.04	300	200	1
114	19	4.88	4.00	7.50	1.03,1.03,1.03,1.03,1.03,1.03,1.03,1.03,1.03,1.15,1.03,1.03,1.03,1.02,1.03,1.03,1.05,1.05,1.03,1.03,1.03,1.37,1.03,1.03,1.03,1.02	300	200	1
115	19	8.42	8.42	12.95	1.17,1.17,1.17,1.17,1.17,1.17,1.16,1.16,1.15,1.14,1.16,1.16,1.15,1.15,1.16,1.16,1.78,1.12,1.16,1.16,1.14,1.14,1.16,1.16,1.15,1.15	300	200	1
116	19	8.42	8.42	12.95	1.17,1.17,1.17,1.17,1.17,1.17,1.17,1.17,1.18,1.17,1.17,1.17,1.18,1.76,1.17,1.17,1.14,1.16,1.17,1.17,1.18,1.14,1.17,1.17,1.18,1.32	300	200	1
201	7	16.47	16.47	7.84	-	300	200	1
202	5	1.30	1.30	2.00	-	300	200	1
203	16	0.92	0.92	1.42	1.19,1.18,1.19,1.18,1.19,1.19,1.18,1.18,1.17,1.18,1.18,1.18,1.18,1.18,1.18,1.18,1.22,1.17,1.18,1.18,1.17,1.17,1.18,1.18,1.18,1.18	300	200	1
204	16	2.44	2.44	3.75	1.68,1.68,1.68,1.68,1.68,1.68,1.67,1.67,1.66,1.74,1.67,1.67,1.66,1.49,1.67,1.67,1.78,1.68,1.67,1.67,1.65,1.71,1.67,1.67,1.66,1.63	300	200	1
205	16	1.52	1.52	2.33	1.68,1.67,1.68,1.67,1.68,1.68,1.67,1.67,1.66,1.66,1.67,1.67,1.66,1.66,1.67,1.67,1.74,1.65,1.67,1.67,1.66,1.66,1.67,1.67,1.66,1.66	300	200	1
206	16	0.92	0.92	1.42	1.19,1.18,1.19,1.18,1.19,1.19,1.18,1.18,1.17,1.17,1.18,1.18,1.17,1.18,1.18,1.18,1.23,1.16,1.18,1.18,1.17,1.17,1.18,1.18,1.18,1.18	300	200	1
207	16	1.52	1.52	2.33	1.68,1.67,1.68,1.67,1.68,1.68,1.67,1.67,1.66,1.66,1.67,1.67,1.66,1.66,1.67,1.67,1.72,1.65,1.67,1.67,1.65,1.66,1.67,1.67,1.66,1.66	300	200	1
208	19	1.33	1.33	2.05	2.29,2.29,2.29,2.29,2.29,2.29,2.28,2.28,2.27,1.28,2.28,2.28,2.27,1.31,2.28,2.28,2.10,2.35,2.28,2.28,2.26,2.09,2.28,2.28,2.27,1.61	300	200	1
209	2	2.60	2.60	4.00	-	300	200	1
210	16	2.44	2.44	3.75	1.68,1.68,1.68,1.68,1.68,1.68,1.67,1.67,1.66,1.75,1.67,1.67,1.66,1.54,1.67,1.67,1.77,1.68,1.67,1.67,1.65,1.71,1.67,1.67,1.66,1.63	300	200	1
211	19	1.33	1.33	2.05	2.30,2.30,2.30,2.30,2.30,2.30,2.36,2.36,2.14,2.13,2.36,2.36,2.17,2.13,2.34,2.34,1.39,1.57,2.35,2.35,2.12,2.11,2.34,2.34,2.22,2.14	300	200	1
212	5	1.30	1.30	2.00	-	300	200	1
213	19	4.88	4.00	7.50	1.03,1.03,1.03,1.03,1.03,1.03,1.03,1.03,1.04,1.06,1.03,1.03,1.04,1.05,1.03,1.03,1.05,1.43,1.03,1.03,1.04,1.08,1.03,1.03,1.04,1.04	300	200	1
214	19	4.88	4.00	7.50	1.03,1.03,1.03,1.03,1.03,1.03,1.03,1.03,1.03,1.15,1.03,1.03,1.03,1.02,1.03,1.03,1.05,1.05,1.03,1.03,1.03,1.37,1.03,1.03,1.03,1.02	300	200	1
215	19	8.42	8.42	12.95	1.17,1.17,1.17,1.17,1.17,1.17,1.17,1.17,1.16,1.16,1.17,1.17,1.16,1.16,1.17,1.17,2.73,1.13,1.17,1.17,1.16,1.15,1.17,1.17,1.16,1.16	300	200	1
216	19	8.42	8.42	12.95	1.18,1.18,1.18,1.18,1.18,1.18,1.18,1.18,1.18,1.12,1.18,1.18,1.18,2.72,1.18,1.18,1.16,1.17,1.18,1.18,1.18,1.15,1.18,1.18,1.18,1.44	300	200	1
301	7	16.47	16.47	7.84	-	300	200	1
302	5	1.30	1.30	2.00	-	300	200	1
303	16	0.92	0.92	1.42	1.19,1.19,1.19,1.18,1.19,1.19,1.18,1.18,1.18,1.18,1.18,1.18,1.18,1.18,1.18,1.18,1.24,1.17,1.18,1.18,1.17,1.18,1.18,1.18,1.18,1.18	300	200	1
304	16	2.44	2.44	3.75	1.69,1.68,1.69,1.68,1.68,1.69,1.67,1.67,1.66,1.74,1.67,1.67,1.66,1.43,1.67,1.67,1.78,1.68,1.67,1.67,1.65,1.71,1.67,1.67,1.66,1.62	300	200	1
305	16	1.52	1.52	2.33	1.68,1.68,1.68,1.67,1.68,1.68,1.67,1.67,1.66,1.66,1.67,1.67,1.66,1.66,1.67,1.67,1.76,1.65,1.67,1.67,1.65,1.66,1.67,1.67,1.66,1.66	300	200	1
306	16	0.92	0.92	1.42	1.19,1.18,1.19,1.18,1.19,1.19,1.18,1.18,1.17,1.17,1.18,1.18,1.17,1.17,1.18,1.18,1.24,1.15,1.18,1.18,1.16,1.17,1.18,1.18,1.17,1.17	300	200	1
307	16	1.52	1.52	2.33	1.68,1.68,1.68,1.67,1.68,1.68,1.67,1.67,1.66,1.66,1.67,1.67,1.66,1.66,1.67,1.67,1.74,1.64,1.67,1.67,1.65,1.66,1.67,1.67,1.66,1.66	300	200	1
308	19	9.97	9.97	4.75	2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33	300	200	1
309	2	2.60	2.60	4.00	-	300	200	1
310	16	2.44	2.44	3.75	1.69,1.68,1.69,1.68,1.69,1.69,1.67,1.67,1.66,1.73,1.67,1.67,1.66,1.12,1.67,1.67,1.79,1.68,1.67,1.67,1.64,1.71,1.67,1.67,1.66,1.61	300	200	1
311	19	9.97	9.97	4.75	2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33,2.33	300	200	1
312	5	1.30	1.30	2.00	-	300	200	1
313	19	4.88	4.00	7.50	1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.08,1.22,1.29,1.08,1.08,1.07,1.08,1.08,1.08,1.08,1.08	300	200	1
314	19	4.88	4.00	7.5	1.08,1.08,1.08,1.08,1.08,1.08,1.09,1.09,1.09,2.55,1.09,1.09,1.09,1.18,1.08,1.08,1.07,1.10,1.08,1.08,1.0	30	20	1

314	19	4.88	4.00	0	9,1.32,1.09,1.09,1.09,1.07	0	0	1
315	19	8.42	8.42	12.95	1.13,1.13,1.13,1.13,1.13,1.13,1.14,1.14,1.14,1.15,1.14,1.14,1.14,1.15,1.14,1.14,1.17,1.20,1.14,1.14,1.15,1.16,1.14,1.14,1.14,1.15	300	200	1
316	19	8.42	8.42	12.95	1.13,1.13,1.13,1.13,1.13,1.13,1.13,1.13,1.13,1.77,1.13,1.13,1.13,1.42,1.13,1.13,1.19,1.15,1.13,1.13,1.13,1.20,1.13,1.13,1.13,1.12	300	200	1

Member Design Capacity

Member ID	$\Phi_t P_n$ (kip)	$\Phi_c P_n$ (kip)	$\Phi_b M_{zn}$ (k-ft)	$\Phi_b M_{yn}$ (k-ft)	$\Phi_v V_{yn}$ (kip)	$\Phi_v V_{zn}$ (kip)
1	251.16	142.53	42.30	42.30	75.35	75.35
2	198.33	196.72	21.95	21.95	59.50	59.50
3	116.10	115.41	15.79	11.10	42.08	23.28
4	116.10	111.33	15.79	11.10	42.08	23.28
5	116.10	114.23	15.79	11.10	42.08	23.28
6	116.10	115.41	15.79	11.10	42.08	23.28
7	116.10	114.23	15.79	11.10	42.08	23.28
8	133.20	123.95	32.87	6.12	40.24	43.62
9	66.48	58.89	3.82	3.82	19.94	19.94
10	116.10	111.33	15.79	11.10	42.08	23.28
11	133.20	123.95	32.87	6.12	40.24	43.62
12	198.33	196.72	21.95	21.95	59.50	59.50
13	133.20	85.85	24.61	6.12	40.24	43.62
14	133.20	85.85	24.54	6.12	40.24	43.62
15	133.20	32.95	32.87	6.12	40.24	43.62
16	133.20	32.95	32.87	6.12	40.24	43.62
101	251.16	142.53	42.30	42.30	75.35	75.35
102	198.33	196.72	21.95	21.95	59.50	59.50
103	116.10	115.41	15.79	11.10	42.08	23.28
104	116.10	111.33	15.79	11.10	42.08	23.28
105	116.10	114.23	15.79	11.10	42.08	23.28
106	116.10	115.41	15.79	11.10	42.08	23.28
107	116.10	114.23	15.79	11.10	42.08	23.28
108	133.20	123.95	32.87	6.12	40.24	43.62
109	66.48	58.89	3.82	3.82	19.94	19.94
110	116.10	111.33	15.79	11.10	42.08	23.28
111	133.20	123.95	32.87	6.12	40.24	43.62
112	198.33	196.72	21.95	21.95	59.50	59.50
113	133.20	85.85	23.61	6.12	40.24	43.62
114	133.20	85.85	23.38	6.12	40.24	43.62
115	133.20	46.28	12.18	6.12	40.24	43.62
116	133.20	46.28	12.35	6.12	40.24	43.62
201	251.16	142.53	42.30	42.30	75.35	75.35
202	198.33	196.72	21.95	21.95	59.50	59.50
203	116.10	115.41	15.79	11.10	42.08	23.28
204	116.10	111.33	15.79	11.10	42.08	23.28
205	116.10	114.23	15.79	11.10	42.08	23.28
206	116.10	115.41	15.79	11.10	42.08	23.28
207	116.10	114.23	15.79	11.10	42.08	23.28
208	133.20	123.95	32.87	6.12	40.24	43.62
209	66.48	58.89	3.82	3.82	19.94	19.94
210	116.10	111.33	15.79	11.10	42.08	23.28
211	133.20	123.95	32.87	6.12	40.24	43.62

212	198.33	196.72	21.95	21.95	59.50	59.50
213	133.20	85.85	23.61	6.12	40.24	43.62
214	133.20	85.85	23.33	6.12	40.24	43.62
215	133.20	46.28	12.21	6.12	40.24	43.62
216	133.20	46.28	12.11	6.12	40.24	43.62
301	251.16	142.53	42.30	42.30	75.35	75.35
302	198.33	196.72	21.95	21.95	59.50	59.50
303	116.10	115.41	15.79	11.10	42.08	23.28
304	116.10	111.33	15.79	11.10	42.08	23.28
305	116.10	114.23	15.79	11.10	42.08	23.28
306	116.10	115.41	15.79	11.10	42.08	23.28
307	116.10	114.23	15.79	11.10	42.08	23.28
308	133.20	32.95	32.87	6.12	40.24	43.62
309	66.48	58.89	3.82	3.82	19.94	19.94
310	116.10	111.33	15.79	11.10	42.08	23.28
311	133.20	32.95	32.87	6.12	40.24	43.62
312	198.33	196.72	21.95	21.95	59.50	59.50
313	133.20	85.85	24.61	6.12	40.24	43.62
314	133.20	85.85	24.51	6.12	40.24	43.62
315	133.20	46.28	12.29	6.12	40.24	43.62
316	133.20	46.28	12.14	6.12	40.24	43.62

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	0.064	0.789	0.036	0.048	0.004	0.797	#16	0.440	Not Required	Pass
2	0.002	0.319	0.155	0.070	0.029	0.475	#13	0.035	Not Required	Pass
3	0.004	0.526	0.021	0.052	0.003	0.531	#13	0.045	Not Required	Pass
4	0.004	0.527	0.079	0.053	0.017	0.574	#13	0.080	Not Required	Pass
5	0.004	0.326	0.073	0.052	0.019	0.334	#13	0.074	Not Required	Pass
6	0.005	0.600	0.037	0.061	0.005	0.629	#13	0.045	Not Required	Pass
7	0.005	0.372	0.102	0.060	0.026	0.392	#13	0.074	Not Required	Pass
8	0.001	0.061	0.109	0.043	0.009	0.122	#24	0.095	Not Required	Pass
9	0.009	0.061	0.047	0.002	0.001	0.110	#13	0.204	Not Required	Pass
10	0.005	0.584	0.099	0.059	0.021	0.604	#13	0.080	Not Required	Pass
11	0.002	0.055	0.110	0.044	0.009	0.129	#21	0.095	Not Required	Pass
12	0.002	0.389	0.170	0.080	0.032	0.559	#13	0.053	Not Required	Pass
13	0.003	0.224	0.230	0.054	0.011	0.358	#21	0.286	Not Required	Pass
14	0.005	0.220	0.228	0.053	0.011	0.344	#21	0.190	Not Required	Pass
15	0.000	0.082	0.091	0.028	0.005	0.152	#21	Not Required	Not Required	Pass
16	0.000	0.082	0.091	0.028	0.005	0.152	#21	Not Required	Not Required	Pass
101	0.074	0.887	0.002	0.056	0.000	0.891	#16	0.440	Not Required	Pass
102	0.002	0.412	0.189	0.087	0.035	0.601	#13	0.035	Not Required	Pass
103	0.005	0.647	0.026	0.065	0.001	0.667	#13	0.045	Not Required	Pass
104	0.005	0.656	0.097	0.066	0.020	0.698	#13	0.080	Not Required	Pass
105	0.005	0.401	0.102	0.064	0.026	0.419	#13	0.074	Not Required	Pass
106	0.005	0.650	0.026	0.065	0.002	0.666	#13	0.045	Not Required	Pass
107	0.005	0.403	0.098	0.065	0.025	0.421	#13	0.074	Not Required	Pass
108	0.002	0.068	0.103	0.044	0.008	0.153	#21	0.095	Not Required	Pass
109	0.010	0.063	0.040	0.001	0.000	0.104	#13	0.204	Not Required	Pass
110	0.005	0.648	0.095	0.065	0.020	0.688	#13	0.080	Not Required	Pass

110	0.003	0.048	0.095	0.063	0.020	0.688	#13	0.080	Not Required	Pass
111	0.001	0.060	0.104	0.044	0.008	0.151	#21	0.095	Not Required	Pass
112	0.002	0.409	0.189	0.087	0.035	0.599	#13	0.035	Not Required	Pass
113	0.003	0.246	0.230	0.056	0.011	0.401	#21	0.286	Not Required	Pass
114	0.006	0.265	0.229	0.057	0.011	0.410	#21	0.286	Not Required	Pass
115	0.004	0.411	0.121	0.045	0.009	0.490	#13	0.601	Not Required	Pass
116	0.003	0.404	0.123	0.046	0.009	0.484	#13	0.601	Not Required	Pass
201	0.074	0.887	0.002	0.056	0.000	0.891	#16	0.440	Not Required	Pass
202	0.002	0.409	0.189	0.087	0.035	0.599	#13	0.035	Not Required	Pass
203	0.005	0.650	0.026	0.065	0.002	0.666	#13	0.045	Not Required	Pass
204	0.005	0.648	0.095	0.065	0.020	0.688	#13	0.080	Not Required	Pass
205	0.005	0.403	0.098	0.065	0.025	0.421	#13	0.074	Not Required	Pass
206	0.005	0.647	0.026	0.065	0.001	0.667	#13	0.045	Not Required	Pass
207	0.005	0.401	0.102	0.064	0.026	0.419	#13	0.074	Not Required	Pass
208	0.001	0.065	0.110	0.046	0.009	0.157	#21	0.095	Not Required	Pass
209	0.010	0.063	0.040	0.001	0.000	0.104	#13	0.204	Not Required	Pass
210	0.005	0.656	0.097	0.066	0.020	0.698	#13	0.080	Not Required	Pass
211	0.002	0.053	0.111	0.045	0.009	0.153	#21	0.095	Not Required	Pass
212	0.002	0.412	0.189	0.087	0.035	0.601	#13	0.035	Not Required	Pass
213	0.003	0.246	0.230	0.056	0.011	0.401	#21	0.286	Not Required	Pass
214	0.006	0.265	0.229	0.057	0.011	0.410	#21	0.286	Not Required	Pass
215	0.004	0.371	0.121	0.044	0.008	0.449	#13	0.601	Not Required	Pass
216	0.004	0.347	0.122	0.044	0.008	0.427	#13	0.601	Not Required	Pass
301	0.064	0.789	0.036	0.048	0.004	0.797	#16	0.440	Not Required	Pass
302	0.002	0.389	0.170	0.080	0.032	0.559	#13	0.053	Not Required	Pass
303	0.005	0.600	0.037	0.061	0.005	0.629	#13	0.045	Not Required	Pass
304	0.005	0.584	0.099	0.059	0.021	0.604	#13	0.080	Not Required	Pass
305	0.005	0.372	0.102	0.060	0.026	0.392	#13	0.074	Not Required	Pass
306	0.004	0.526	0.021	0.052	0.003	0.531	#13	0.045	Not Required	Pass
307	0.004	0.326	0.073	0.052	0.019	0.334	#13	0.074	Not Required	Pass
308	0.000	0.082	0.091	0.028	0.005	0.152	#21	Not Required	Not Required	Pass
309	0.009	0.061	0.047	0.002	0.001	0.110	#13	0.204	Not Required	Pass
310	0.004	0.527	0.079	0.053	0.017	0.574	#13	0.080	Not Required	Pass
311	0.000	0.082	0.091	0.028	0.005	0.152	#21	Not Required	Not Required	Pass
312	0.002	0.319	0.155	0.070	0.029	0.475	#13	0.035	Not Required	Pass
313	0.003	0.224	0.230	0.054	0.011	0.358	#21	0.190	Not Required	Pass
314	0.005	0.220	0.228	0.053	0.011	0.344	#21	0.286	Not Required	Pass
315	0.004	0.415	0.121	0.044	0.009	0.492	#13	0.601	Not Required	Pass
316	0.003	0.414	0.122	0.043	0.009	0.494	#13	0.601	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/comression)
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