



Site Report

Report Name UMN 21st Ave Ramp
Report Date 1/20/2016 9:53:31 AM
Declination 10d 27m
Location Lat/Long specified
Lat/Long 44.969 / -93.243
Weather Station Minneapolis-St Paul Intl AP, MN, Elevation: 833 Feet, (44.883/-93.233)
Site Distance 6 Miles

Report Type Ecological

Array Type Fixed Angle
Tilt Angle 30.00 deg
Ideal Tilt Angle 44.97 deg
Azimuth 180.00 deg
Ideal Azimuth 180.00 deg

Layout Configuration Four Corner
Layout Point Count 4

Notes: 4 Pathfinder Photos taken at corners of ramp roof. Proposed system is carport style awning mounted on top story of parking ramp. System tilt estimated at 30 degrees, although actual system tilt depends on final racking design.



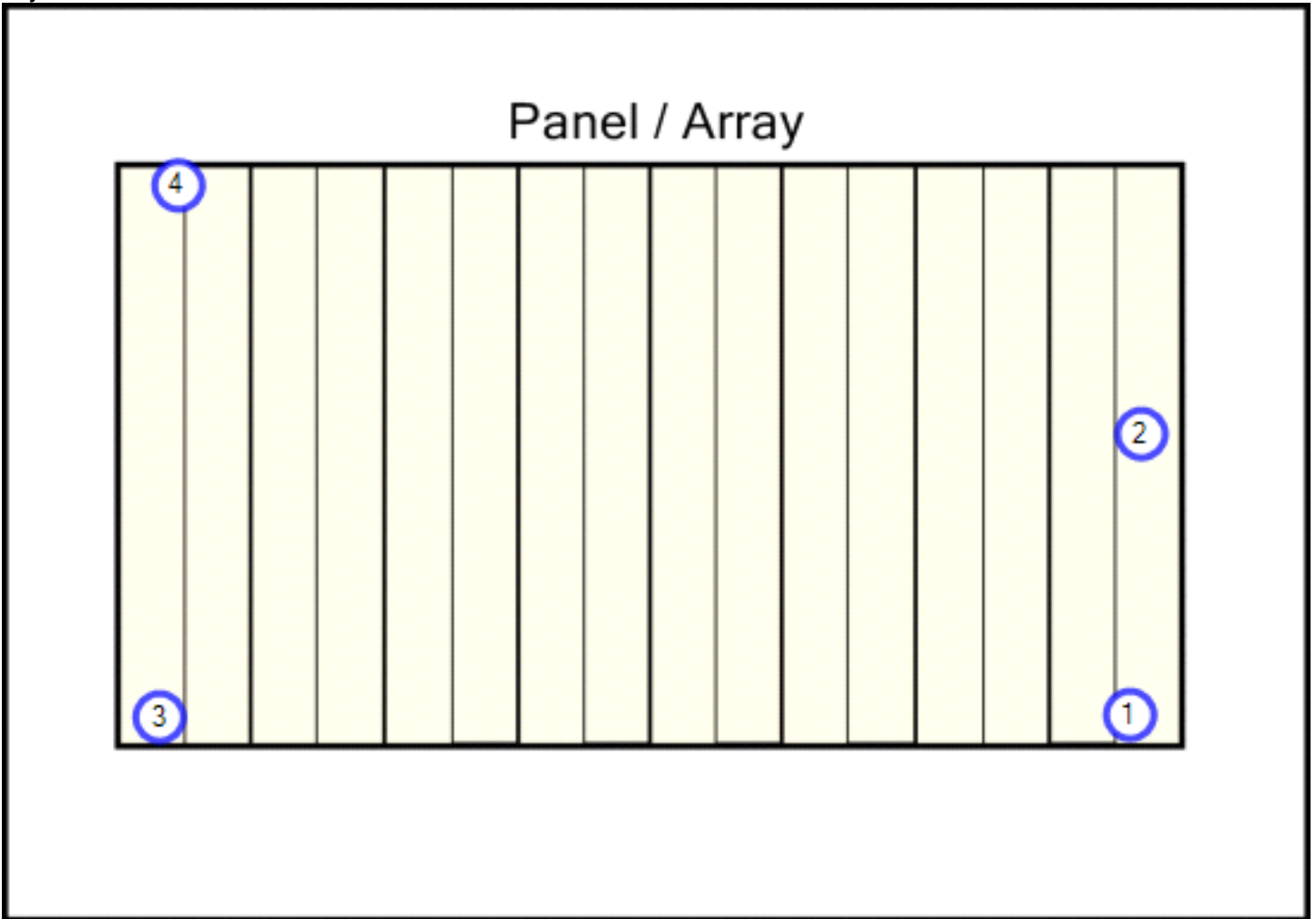
System Picture Layout

Layout Type

Four Corner

Layout Point Count

4





Summary Report

Solar Obstruction Data		
Month	Unshaded % of Ideal Site Azimuth=180 Tilt=44.97	Actual Shaded Solar Radiation Azimuth=180.0 Tilt=30.0 kWh/m²
January	90.97 %	2.78
February	95.69 %	3.75
March	98.44 %	4.65
April	98.81 %	5.25
May	98.95 %	6.02
June	98.68 %	6.23
July	98.57 %	5.94
August	98.72 %	5.47
September	98.50 %	4.83
October	96.32 %	3.77
November	94.86 %	2.50
December	91.90 %	2.03
Totals	96.70%	53.22
	Unweighted	Effect: 97.07%
	Yearly Avg	Sun Hrs: 4.43

Notes: 4 Pathfinder Photos taken at corners of ramp roof. Proposed system is carport style awning mounted on top story of parking ramp. System tilt estimated at 30 degrees, although actual system tilt depends on final racking design.

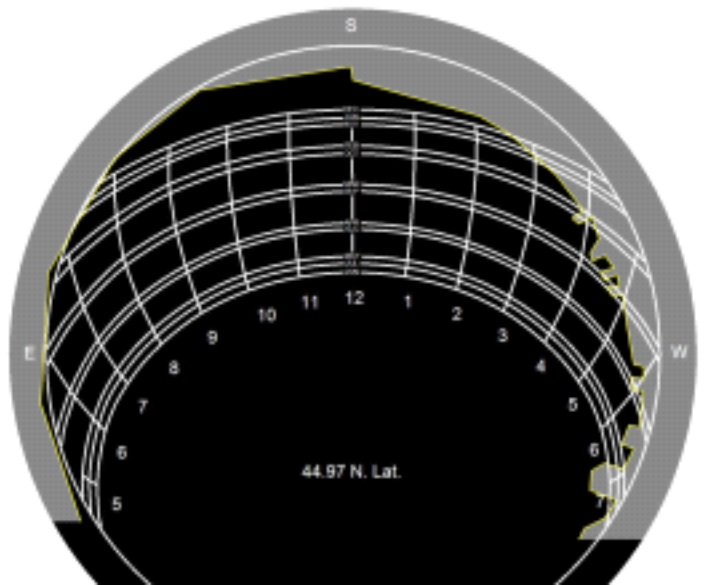
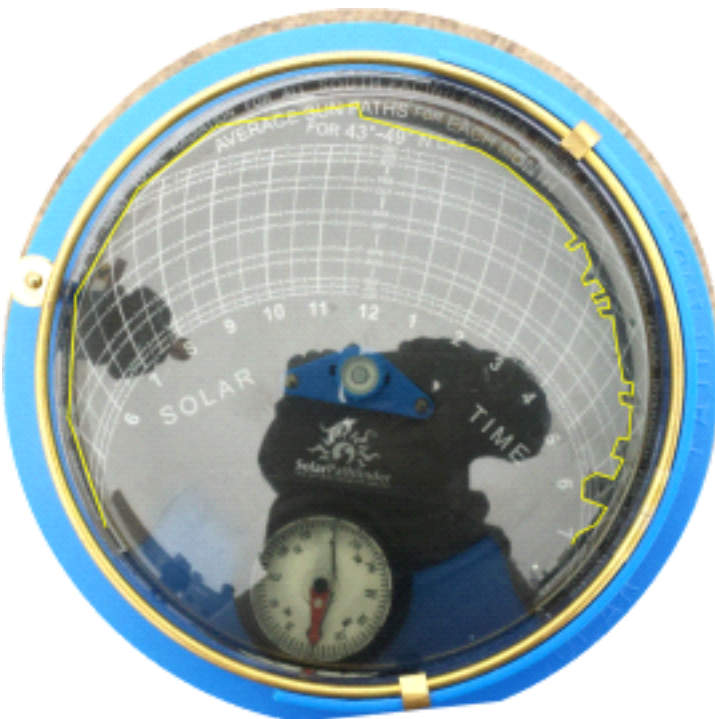


Solar Site Analysis Report

Image File: "20160115_100551.jpg"

Layout Point: 4

Solar Obstruction Data		
Month	Unshaded % of Ideal Site Azimuth=180 Tilt=44.97	Actual Shaded Solar Radiation Azimuth=180.0 Tilt=30.0 kWh/m ²
January	87.04%	2.65
February	94.14%	3.69
March	97.03%	4.58
April	99.33%	5.27
May	99.96%	6.07
June	99.49%	6.28
July	99.42%	5.99
August	99.90%	5.53
September	98.02%	4.81
October	96.00%	3.77
November	93.59%	2.47
December	88.64%	1.97
Totals	96.05%	53.09
	Unweighted	Effect: 96.84%
	Yearly Avg	Sun Hrs: 4.42



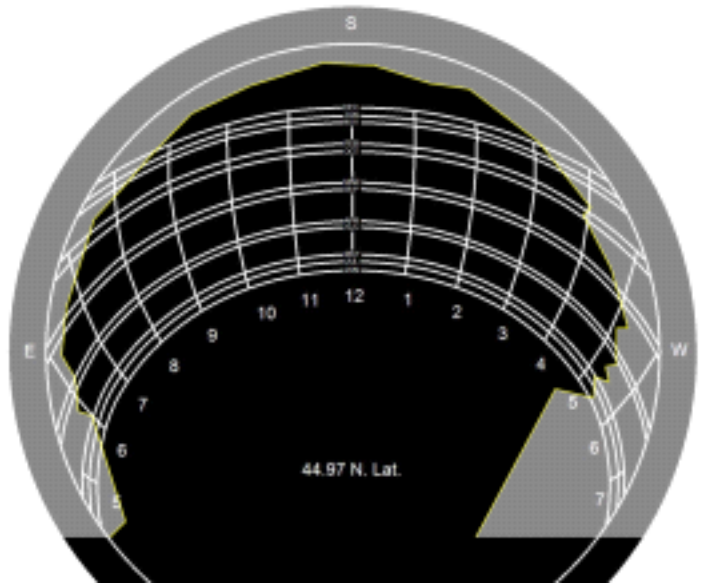
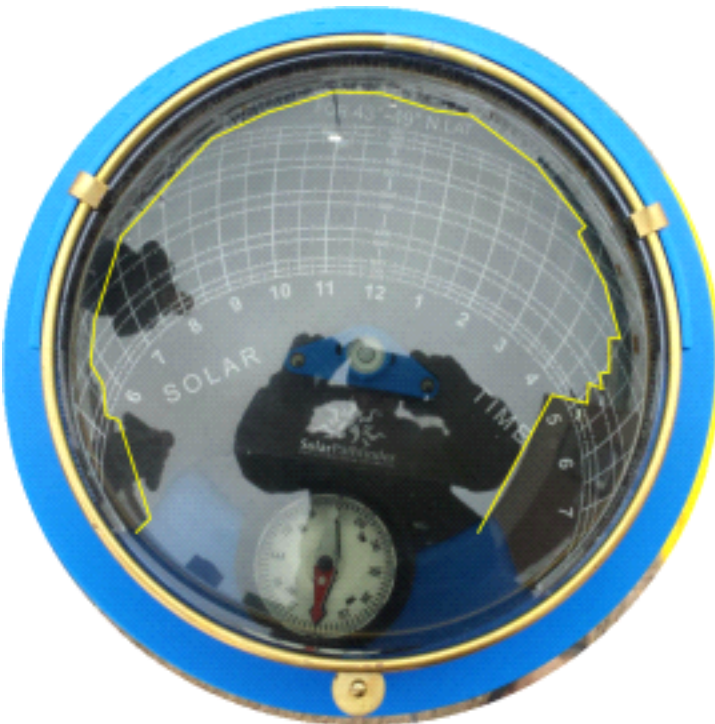


Solar Site Analysis Report

Image File: "20160115_095220.jpg"

Layout Point: 1

Solar Obstruction Data		
Month	Unshaded % of Ideal Site Azimuth=180 Tilt=44.97	Actual Shaded Solar Radiation Azimuth=180.0 Tilt=30.0 kWh/m ²
January	89.83%	2.74
February	94.60%	3.71
March	97.85%	4.62
April	97.73%	5.19
May	96.71%	5.89
June	96.24%	6.08
July	96.12%	5.79
August	97.26%	5.39
September	97.97%	4.81
October	95.40%	3.74
November	93.48%	2.46
December	91.35%	2.02
Totals	95.38%	52.45
	Unweighted	Effect: 95.68%
	Yearly Avg	Sun Hrs: 4.37



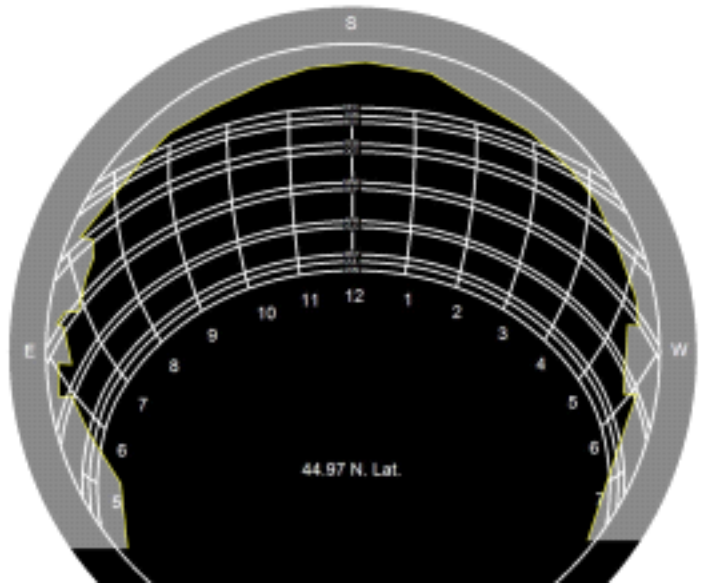
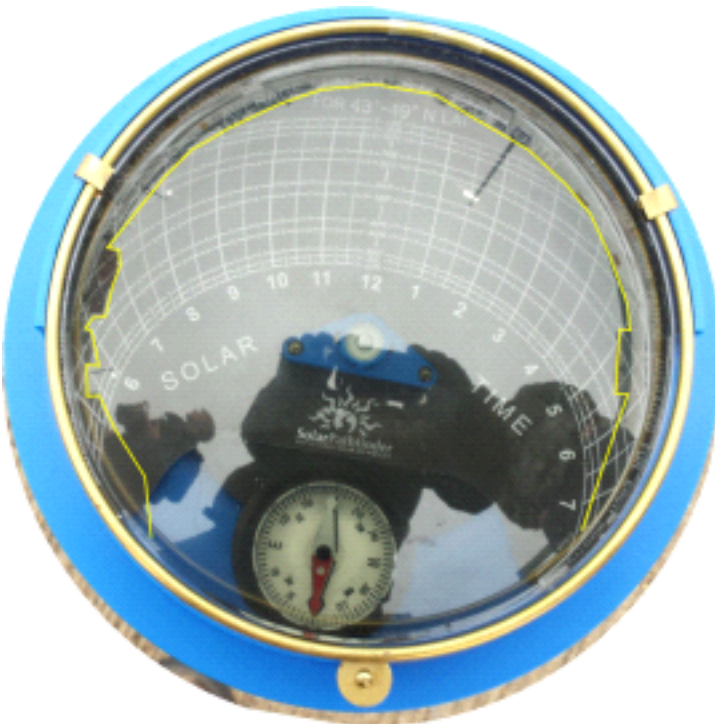


Solar Site Analysis Report

Image File: "20160115_095504.jpg"

Layout Point: 2

Solar Obstruction Data			
Month	Unshaded % of Ideal Site Azimuth=180 Tilt=44.97	Actual Shaded Solar Radiation Azimuth=180.0 Tilt=30.0 kWh/m ²	
January	93.04%		2.85
February	96.85%		3.79
March	99.28%		4.69
April	98.66%		5.24
May	99.26%		6.03
June	99.06%		6.26
July	98.91%		5.96
August	98.25%		5.45
September	98.90%		4.85
October	97.18%		3.80
November	96.50%		2.54
December	92.77%		2.05
Totals	97.39%		53.51
	Unweighted		Effect: 97.61%
	Yearly Avg		Sun Hrs: 4.46





Solar Site Analysis Report

Image File: "20160115_095719.jpg"

Layout Point: 3

Solar Obstruction Data		
Month	Unshaded % of Ideal Site Azimuth=180 Tilt=44.97	Actual Shaded Solar Radiation Azimuth=180.0 Tilt=30.0 kWh/m ²
January	93.98%	2.88
February	97.18%	3.80
March	99.61%	4.71
April	99.50%	5.28
May	99.88%	6.07
June	99.95%	6.30
July	99.84%	6.01
August	99.48%	5.51
September	99.11%	4.85
October	96.72%	3.78
November	95.85%	2.52
December	94.84%	2.09
Totals	97.99%	53.81
	Unweighted	Effect: 98.15%
	Yearly Avg	Sun Hrs: 4.48

