UNIRAC

U-BUILDER PROJECT REPORT

VERSION: 3.0.9

PROJECT TITLE	PROJECT ID	CREATED
ULA	E9A15CEF	Oct. 22, 2020, 12:03 p.m.

NAME	
ADDRESS	26 Neal Dr, Chester, NY 10918, USA
CITY, STATE	Chester, NY
MODULE	LG LG360N1C-N5

Designed by Uri.Lieber

ULA

LG

36 - LG360N1C-N5

669.20 ft^2

12.96 KW

BILL OF MATERIALS

LEGEND: Base System Part Accessory

PART NUMBER	PART TYPE	DESCRIPTION	QUANTITY	SUGGESTED QUANTITY	UNIT PRICE (USD)	TOTAL LIST PRICE (USD)
320208M	Rail	SM RAIL 208" MILL	24	24	49.06	1177.44
302030M	Mid Clamp	SM MIDCLAMP PRO MILL	48	48	2.10	100.80
302035M	End Clamp	SM ENDCLAMP PRO W/END CAP	48	48	2.52	120.96
403213C	Structure	ULA RAIL BRACKET, 2"	48	48	9.97	478.56
403200C	Structure	ULA BRACE, 2"@ 7 FT	1	1	35.70	35.70
403201C	Structure	ULA BRACE, 2"@ 10.5 FT	8	8	51.98	415.84
403215C	Structure	ULA SLIDER, 2", AL	10	10	10.75	107.50
403211C	Structure	ULA FRONT CAP, 2", AL	7	7	22.58	158.06
403214C	Structure	ULA REAR CAP, 2", AL	7	7	22.58	158.06
UserSupplied	Structure	2" SCHEDULE 40 PIPE	227	227	0.00	0.00
008002S	Grounding Lug (Weeb)	GROUND WEEBLUG #1	12	12	6.44	77.28

BASE SYSTEM PRICE	ACCESSORIES PRICE	TOTAL PRICE
$2752.92	$77.28	$2830.20
$0.212 PER WATT	$0.006 PER WATT	$0.218 PER WATT

This design is to be evaluated to the product appropriate Unirac Code Compliant Installation Manual which references International Building Code 2009, 2012, 2015, 2018 and ASCE 7-05, ASCE 7-10, ASCE 7-16 and California Building Code 2010, 2016. The installation of products related to this design is subject to requirements in the above mentioned installation manual.

DETAILED PARTS DESCRIPTION

QTY

Rail 320208M SM RAIL 208" MILL

Structural aluminum extrusion containing slots that accept module and roof attachment hardware, electrical bonding accessories, and splice bars.

24

Mid Clamp 302030M SM MIDCLAMP PRO MILL

SOLARMOUNT Pro Series universal height mid clamps: Installed between modules and provide top-down clamping to secure module frame to SM rail. These pre-assembled, self-standing clamps will accommodate module frame heights from 30mm to 51mm. Mill finished (bare) aluminum.

48

End Clamp 302035M SM ENDCLAMP PRO W/END CAP

SOLARMOUNT Pro Series universal end clamps: Installed at the beginning and end of a row of modules. These clamps slide into the top rail channel and secure the module frame bottom-side return flange. Rail should be cut flush with the module frame for a clean look. End cap included for each clamp; end cap works on both SM standard and light rail profiles.

48

Structure 403213C ULA RAIL BRACKET, 2"

Rail bracket connects SOLARMOUNT and SOLARMOUNT HD rail to 2" horizontal pipe structure.

48

Structure 403200C ULA BRACE, 2"@ 7 FT

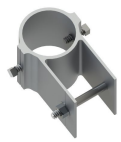
7' Square aluminum tube for ULA seismic bracing. Used to create diagonal bracing between upright foundations. Cut to length and drill for installation.

1

Structure 403201C ULA BRACE, 2"@ 10.5 FT

10.5' Square aluminum tube for ULA seismic bracing. Used to create diagonal bracing between upright foundations. Cut to length and drill for installation.

8



Structure 403215C ULA SLIDER, 2", AL

Slider connects the lower end of diagonal seismic bracing. Mounts on 2" vertical pipe.

10

Structure 403211C ULA FRONT CAP, 2", AL

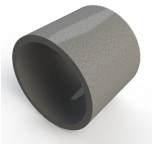
Aluminum front cap. Connects short (front of array) upright post with 2" horizontal pipe structure.

7

Structure 403214C ULA REAR CAP, 2", AL

7

Aluminum rear cap. Connects tall (rear of array) upright post with 2" horizontal pipe structure.



Structure UserSupplied 2" SCHEDULE 40 PIPE

227

2" SCHEDULE 40 GALVANIZED PIPE SERVES AS THE STRUCTURE TO MOUNT RACKING. SOURCE THIS PIPE LOCALLY.

Grounding Lug (Weeb) 008002S GROUND WEEBLUG #1

12

For electrical bonding of PV modules and rails. Accepts one 14AWG to 6AWG or two 12 AWG to 10 AWG copper wires. Tin plated copper body, 1/4" stainless steel fasteners.

ENGINEERING REPORT

Plan review

TOTAL NUMBER OF MODULES	36
TOTAL NUMBER OF TABLES	1
TOTAL KW	12.96 KW

Loads Used for Design

BUILDING CODE	ASCE 7-10
BASIC WIND SPEED	105.00 mph
GROUND SNOW LOAD	0.00 psf
RISK CATEGORY	I
SEISMIC (SS)	0.21
SEISMIC (S1)	0.06
ELEVATION	653.00 ft
WIND EXPOSURE	C

Loads Determined by Zip 10918

CITY, STATE	Chester, NY
BASIC WIND SPEED	115.00 mph
GROUND SNOW LOAD	0.00 psf

Inspection

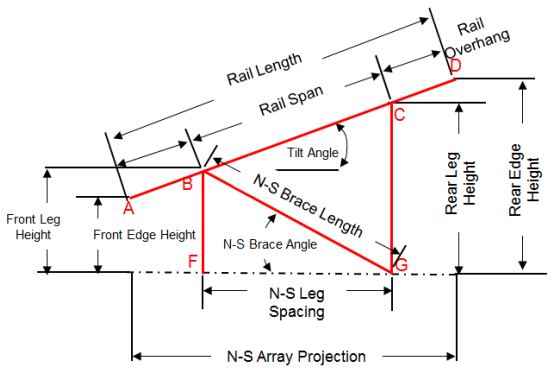
PRODUCT	ULA
MODULE MANUFACTURER	LG
MODEL	36 - LG360N1C-N5
MODULE WATTS	360 watts
MODULE LENGTH	66.92"
MODULE WIDTH	40.00"
MODULE THICKNESS	1.57"
MODULE WEIGHT	39.70 lbs
TILT	25 degrees
CLAMP TYPE	Pro Series Top Clamps
FOUNDATION TYPE	CONCRETE
FRONT EDGE HEIGHT	2.00 ft

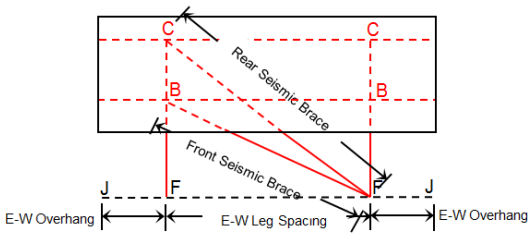
Site Area 1 / Table Size 1 (count:1)

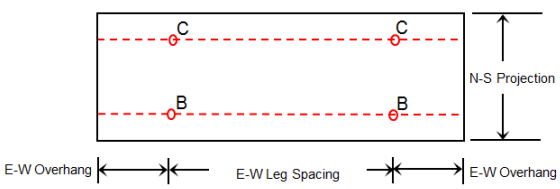
NUMBER OF MODULES:	36
TOTAL KW:	12.96 KW
TABLE SIZE:	3 X 12
RAIL USED:	SM
ORIENTATION:	PORTRAIT
SUGGESTED ROW SPACING	182.16"

(Not required for design. Calculated based on latitude, tilt, and no module shading between 10am and 2pm on Dec. 21st. Customer is responsible for final row spacing and energy production.)

GEOMETRY







Member Description

N-S RAIL LENGTH: AD	205.76"
N-S RAIL SPAN: BC	114.31"
N-S RAIL OVERHANG: AB, CD	45.72"
FRONT EDGE HEIGHT	24.00 "
REAR EDGE HEIGHT	109.69 "
FRONT LEG LENGTH: BF	35.54"
REAR LEG LENGTH: CG	83.85"
N-S BRACE LENGTH: BG	104.50"
N-S BRACE ANGLE	18.42 degrees
N-S LEG SPACING: FG	103.60"
E-W ARRAY LENGTH	491.00"
E-W BRACE LENGTH(FRONT)	74.12"
E-W BRACE LENGTH(REAR)	103.78"
E-W BRACE ANGLE(FRONT)	24.0 degrees
E-W BRACE ANGLE(REAR)	49.56 degrees
E-W SPAN/LEG SPACING	72.21"
E-W OVERHANG: JF,FJ	28.88"
NUMBER OF POSTS	14

LOAD VARIABLES

Dead Loads	psf
VERTICAL	1.94
HORIZONTAL	0.90

Seismic Load	psf
VERTICAL	0.30
HORIZONTAL	0.49

Wind Loads on table (Front Post)	psf
LC 0, A	-28.89
LC 0, B	-6.36
LC 180, A	31.78
LC 180, B	40.44

Snow Load	psf
VERTICAL	0.00
HORIZONTAL	0.00

Wind Loads on table (Rear Post)	psf
LC 0, A	-27.73
LC 0, B	-42.18
LC 180, A	32.93
LC 180, B	13.87

NORTH-SOUTH(N-S) RAIL DESIGN

Maximum Loads	SM
MAXIMUM VERTICAL LOAD	36.16 plf
MINIMUM VERTICAL LOAD	-40.24 plf
MAXIMUM EAST-WEST LOAD	1.93 plf
MINIMUM EAST-WEST LOAD	2.08 plf
MAXIMUM MOMENT VERTICAL	317.02 ft-lbs
MAXIMUM MOMENT EAST-WEST	15.08 ft-lbs
MAXIMUM SHEAR	170.35 lbs
MAXIMUM AXIAL (NORTH-SOUTH)	35.62 lbs
MAXIMUM DEFLECTION	0.08"

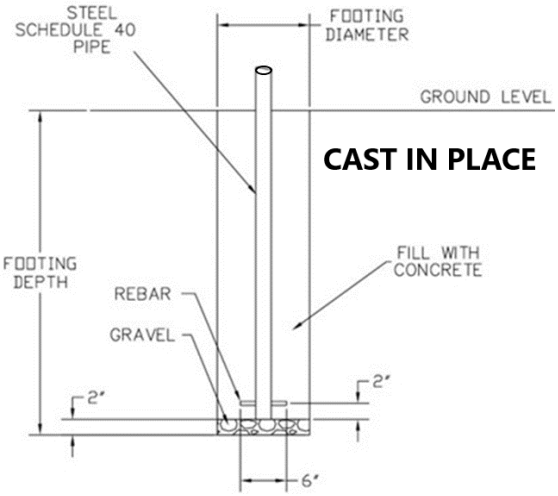
FOUNDATION

Design Inputs

	pcf
CONCRETE DENSITY	140.00
SOIL DENSITY	110.00

Concrete Design

FOOTING DIAMETER	18.00"
FOOTING DEPTH	5.35 ft



INSTALLATION AND DESIGN PLAN

Site Area 1