
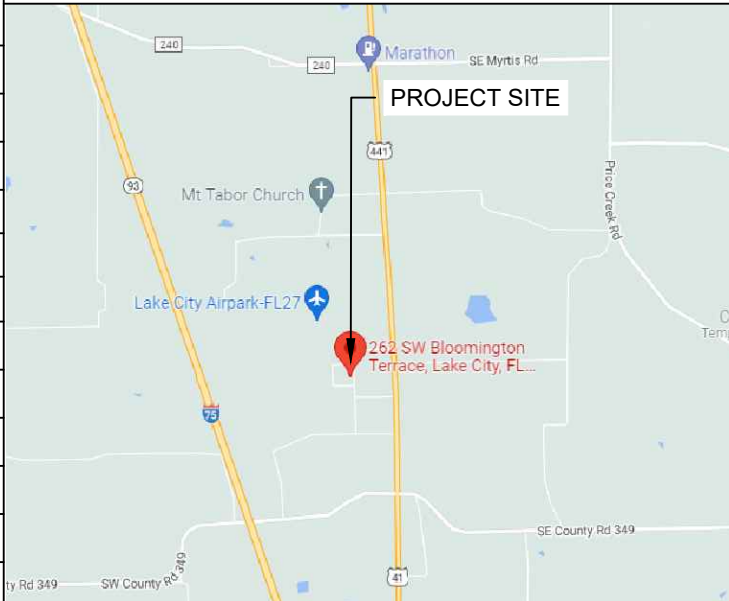


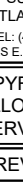



ENDSLEY RESIDENCE
16.590 kW DC - 12.180 kW AC PV SYSTEM
262 SW BLOOMINGTON TERRACE,
LAKE CITY, FL 32025


PROJECT DESCRIPTION:	CODES AND STANDARDS	OWNER	HOUSE PHOTO		
<p>42x395 CANADIAN SOLAR: CS3N-395MS (395W) MODULES ROOF MOUNTED SOLAR PHOTOVOLTAIC MODULES</p> <p>SYSTEM SIZE: 16.590 kW DC - 12.180 kW AC ARRAY AREA #1: 503.97 SQ FT. ARRAY AREA #2: 43.82 SQ FT. ARRAY AREA #3: 372.50 SQ FT.</p> <p><u>EQUIPMENT SUMMARY</u> 42 CANADIAN SOLAR: CS3N-395MS (395W) MODULES 42 ENPHASE: IQ8PLUS-72-2-US MICROINVERTERS</p> <p>RACKING: UNIRAC LIGHT RAIL ATTACHMENT: UNIRAC FLASHLOC</p> <p><u>DESIGN CRITERIA:</u> WIND SPEED (ULT): 120 MPH WIND SPEED (ASD): 93 MPH RISK CATEGORY: II EXPOSURE: B</p>	<p><u>GOVERNING CODES:</u> FLORIDA RESIDENTIAL CODE, 7TH EDITION 2020 (FRC) FLORIDA PLUMBING CODE, 7TH EDITION 2020 (FPC) FLORIDA BUILDING CODE, 7TH EDITION 2020 (FBC) FLORIDA MECHANICAL CODE, 7TH EDITION 2020 (FMC) NATIONAL ELECTRICAL CODE 2017 (NEC) ASCE 7-16 FLORIDA FIRE PREVENTION CODE, 7TH EDITION 2020 (FFPC)</p>	ENDSLEY			
		<u>INSTALLER</u>			
		ADT SOLAR 4492 Eagle Falls Place, Tampa, FL 33619 PH: (866) 450-1012			
		<u>ENGINEER</u>			
		Castillo Engineering Services LLC 620 N. Wymore Road, Suite 250, Maitland, FL 32751 TEL: (407) 289-2575 Ermocrates E. Castillo License#: FL PE 52590			
<u>SHEET INDEX</u>					
		SHEET #	SHEET DESCRIPTION		
		G-01	COVER SHEET		
		A-00	NOTES AND DESCRIPTION		
		A-01	ROOF PLAN		
		S-01	MODULE LAYOUT		
		S-01.1	PARTIAL PRESSURE AND MODULES EXPOSURE		
		S-02	ATTACHMENT DETAIL		
		S-02.1	STRUCTURE CALCULATION		
		E-01	ELECTRICAL LINE DIAGRAM		
		E-02	WIRING CALCULATIONS		
		E-03	SYSTEM LABELING		
		DS-01-07	DATA SHEETS		
		BOM	BILL OF MATERIALS		
STRUCTURAL CERTIFICATION:	ELECTRICAL CERTIFICATION:				
I ERMOCRATES CASTILLO PE# 52590 AN ENGINEER LICENSED PURSUANT TO CHAPTER 471, CERTIFY THAT THE INSTALLATION OF THE MODULES IS IN COMPLIANCE WITH FBC: RESIDENTIAL 2020 7th ED., CHAPTER 3. BUILDING STRUCTURE WILL SAFELY ACCOMMODATE WIND LATERAL AND UPLIFT FORCES, AND EQUIPMENT DEAD LOADS.	I ERMOCRATES CASTILLO PE# 52590 AN ENGINEER LICENSED PURSUANT TO CHAPTER 471, CERTIFY THAT THE PV ELECTRICAL SYSTEM AND ELECTRICAL COMPONENTS ARE DESIGNED AND APPROVED USING THE STANDARDS CONTAINED IN THE MOST RECENT VERSION OF THE FLORIDA BUILDING CODE. FBC 107, THE NEC 2017, AND THOSE SET FORTH BY THE FLORIDA SOLAR ENERGY CENTER CERTIFICATION.				

 Castillo Engineering SOLAR DONE RIGHT®		
CASTILLO ENGINEERING SERVICES, LLC COA # 28345 620 N. WYMORE ROAD, SUITE 250, MAITLAND, FL 32751 TEL: (407) 289-2575 ERMOCRATES E. CASTILLO - FL PE 52590		
COPYRIGHTED BY CASTILLO ENGINEERING SERVICES, LLC		
REVISIONS		
DESCRIPTION	DATE	REV
PROJECT INSTALLER		
		
<div style="display: flex; align-items: center; justify-content: center;">  <div style="margin-left: 20px;"> <p>Signature with Seal</p> <p>Digitally signed by: Ermocrates E Castillo</p> <p>Date: 2022.10.10 16:07:39</p> </div> </div>		
PROJECT NAME		
<div style="display: flex; justify-content: space-between;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); color: blue; font-weight: bold; font-size: 1.2em;"> ENDSLEY RESIDENCE </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold; font-size: 1.2em;"> 262 SW BLOOMINGTON TERRACE, LAKE CITY, FL 32025 </div> </div>		
SHEET NAME		
COVER SHEET		
SHEET SIZE		
ANSI B 11" X 17"		
SHEET NUMBER		
G-01		

Symbols:


Section.....

Sheet where section is located

Elevation


Detail ID Letter

Sheet where section is located

Detail

Detail ID Letter

Sheet where section is located

Detail
(Enlarged Plan)

Detail ID Letter

Area to be enlarged


Sheet where section is located

Keyed Notes 1

Keyed note designation on applicable sheet

Ground Terminal

Grounding Point/rod....


Solar Panel or 00


Module with Source Circuit number


Combiner Box CB


AC Disconnect ACD

Main Distribution Panel MDP


Fuse


Overcurrent Breaker ..


Inverter


Transformer


Automatic
Transfer Switch ATS

Vent, Attic fan
(Roof obstruction)

PV Roof Attachment

Trusses

Conduit

Fire Access

Abbreviations:

AC	Alternating Current
ACD	AC Disconnect
APPROX	Approximate
AWG	American Wire Gauge
BAT	Battery
CB	Combiner Box
DC	Direct Current
DISC	Disconnect
(E)	Existing
EL	Elevation
EQ	Equal
GP	Generation Panel
JB	Junction Box
MCB	Main Combiner Box
MFR	Manufacturer
MID	Microgrid Interconnect Device
MIN	Minimum
MISC	Miscellaneous
MDP	Main Distribution Panel
(N)	New
NAVD	North American Vertical datum
OCPD	OverCurrent Protection Device
POCC	Point Of Common Coupling
PV	Photovoltaic
SF	Squarefoot/feet
STC	Standard Test Conditions
SD	Soladeck
TBD	To Be Determined
TYP	Typical
UNO	Unless Noted Otherwise
UM	Utility meter
VIF	Verify In Field
WP	Weather Proof

System Description

This system is a grid-tied, PV system, with PV generation consisting of 42x395 CANADIAN SOLAR: CS3N-395MS (395W) Modules with a combined STC rated dc output power of 16,590W. The modules are connected into 42 ENPHASE: IQ8PLUS-72-2-US Microinverters 12,180W AC. The inverter has electronic maximum power point tracking to maximize energy captured by the PV modules. The inverter also has an internal ground fault detection and interruption device that is set to disconnect the array in the event that a ground fault that exceeds one ampere should occur. The inverter has DC and AC disconnect integrated system and labels are provided as required by the *National Electrical Code*.

When the sun is shining, power from the PV array is fed into the inverter, where it is converted from DC to AC. The inverter output is then used to contribute to the power requirements of the occupancy. If PV power meets the requirements of the loads of the occupancy, any remaining PV power is sold back to the utility. When utility power is available, but PV power is not available, building loads are supplied by the utility.

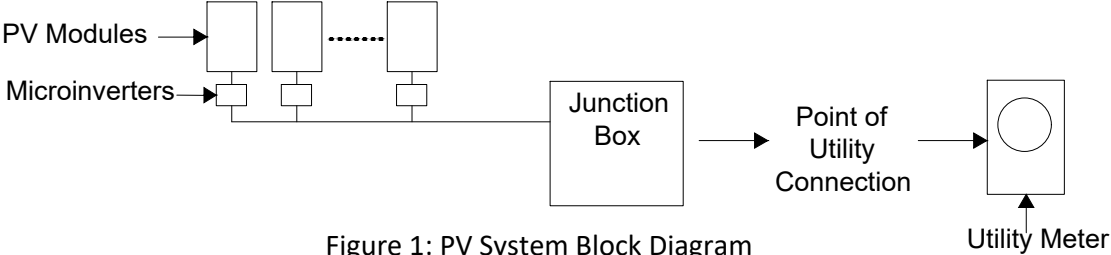


Figure 1: PV System Block Diagram

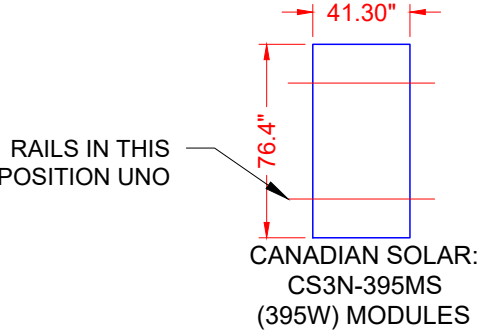
The inverter meets the requirements of IEEE 1547 and UL 1741.

FALL PROTECTION:
ANCHORAGES USED FOR ATTACHMENT OF PERSONAL FALL ARREST EQUIPMENT MUST BE INDEPENDENT OF ANY ANCHORAGE BEING USED TO SUPPORT OR SUSPEND PLATFORMS, AND CAPABLE OF SUPPORTING AT LEAST 5,000 POUNDS PER EMPLOYEE ATTACHED, OR MUST BE DESIGNED AND USED AS FOLLOWS:

- AS PART OF A COMPLETE PERSONAL FALL ARREST SYSTEM WHICH MAINTAINS A SAFETY FACTOR OF AT LEAST TWO.
- UNDER THE SUPERVISION OF A QUALIFIED PERSON

ADDITIONAL INFORMATION

- 29 CFR 1926 SUBPART M, FALL PROTECTION. OSHA STANDARD.
- 1926.502, FALL PROTECTION SYSTEMS CRITERIA AND PRACTICES
- ... 1926.502(D)(15)



ALLOWABLE/DESIGN PRESSURE	PSF
DOWN PRESSURE	104.4
UPLIFT PRESSURE, 2 RAILS	76

MODULE RAILING MAY BE INSTALLED IN LANDSCAPE ORIENTATION FOR MODULES WITH WEIGHTED PRESSURES BELOW 33 PSF

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ERMOCRATES E. CASTILLO - FL PE 52590

REVISIONS		
DESCRIPTION	DATE	REV

PROJECT INSTALLER



Digitally signed by:
Ermocrates E Castillo
Date: 2022.10.10 16:07:39



PROJECT NAME

ENDSLEY RESIDENCE

262 SW BLOOMINGTON TERRACE,
LAKE CITY, FL 32025

SHEET NAME

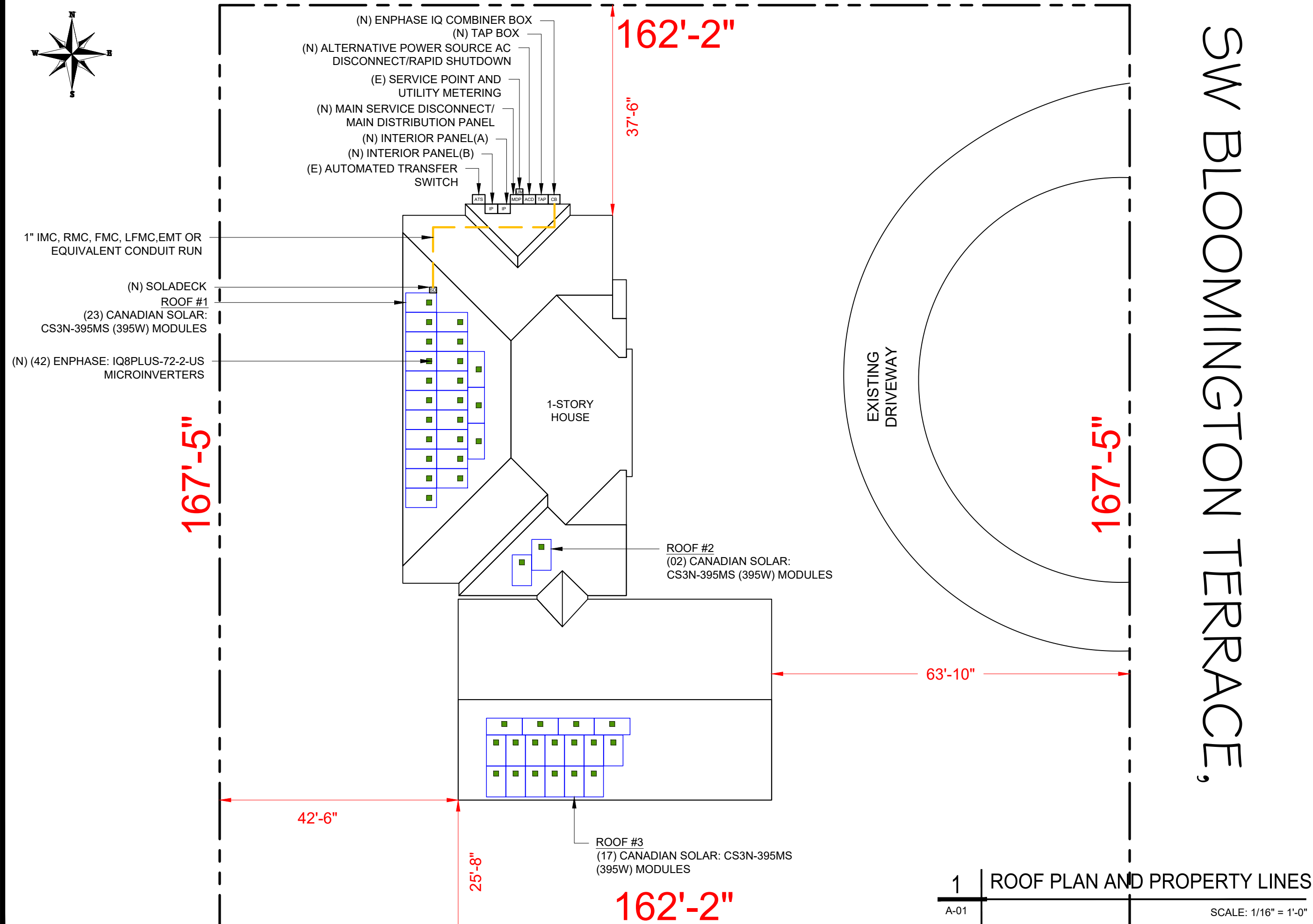
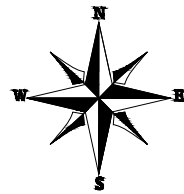
NOTES AND DESCRIPTION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

A-00



REVISIONS		
DESCRIPTION	DATE	REV

PROJECT INSTALLER



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Ermocrates E. Castillo
Date:
2022.10.10 16:07:39

PROJECT NAME
ENDSLEY RESIDENCE
262 SW BLOOMINGTON TERRACE,
LAKE CITY, FL 32025

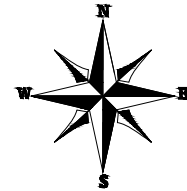
SHEET NAME
ROOF PLAN

SHEET SIZE
ANSI B
11" X 17"

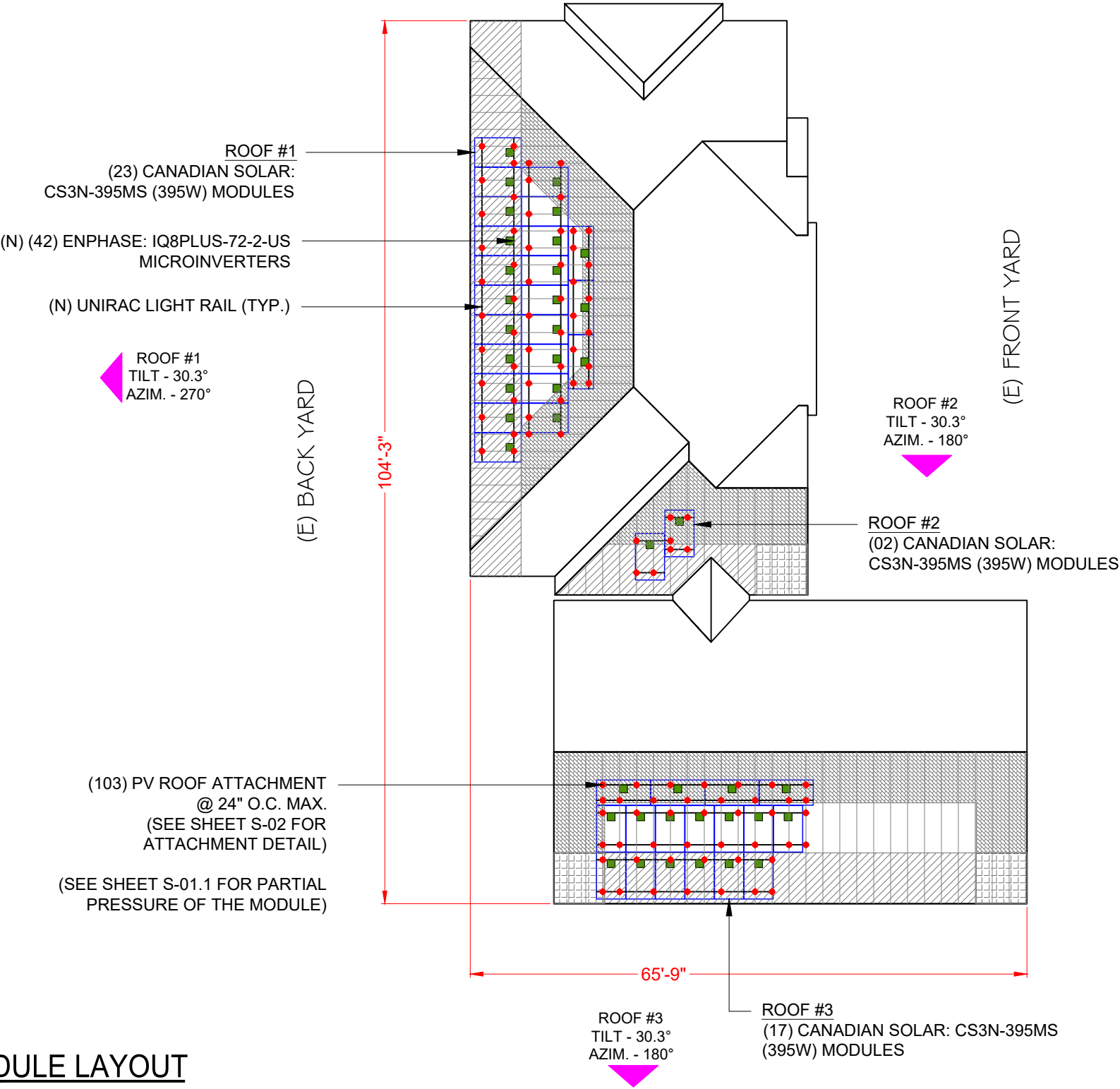
SHEET NUMBER
A-01

MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 42 MODULES
MODULE TYPE = CANADIAN SOLAR: CS3N-395MS (395W) MODULES
MODULE WEIGHT = 51.59 LBS / 23.4 KG.
MODULE DIMENSIONS = 76.4" x 41.30" = 21.91 SF
UNIT WEIGHT OF ARRAY = 2.35 PSF



ARRAY AREA & ROOF AREA CALC'S								
ROOF	ROOF TYPE	ARRAY AREA (sq.Ft.)	ROOF AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)	TILT	AZIMUTH	TRUSS SIZE	TRUSS SPACING
#1	ASPHALT SHINGLE	503.97	774.11	65.10	30.3°	270°	2"X4"	24" O.C.
#2	ASPHALT SHINGLE	43.82	287.26	15.26	30.3°	180°	2"X4"	24" O.C.
#3	ASPHALT SHINGLE	372.50	1000.53	37.23	30.3°	180°	2"X4"	24" O.C.
TOTAL PLAN VIEW		920.30	4719.28	19.50				



GENERAL INSTALLATION PLAN NOTES:

- 1) STRUCTURE PROPERTIES
- ROOF FINISH: SHINGLE ROOF
 - MEAN ROOF HEIGHT: 15 FT
 - ROOF SLOPES: 30.3
 - PRE-ENGINEERED TRUSSES
 - WOOD SPECIES: SYP
 - TRUSS SIZE: 2"X4"
 - TRUSS SPACING: 24" O.C.
 - ROOF SHEATHING: 7/16" OSB
- 2) ROOF ATTACHMENTS TO SYP TRUSSES SHALL BE INSTALLED AS SHOWN IN SHEET S-02 AND AS FOLLOWS FOR EACH WIND ZONE:

FOR HIP ROOF

WIND ZONES	NON - EXPOSED MODULES		EDGE / EXPOSED MODULES	
	SPAN	CANTILEVER	SPAN	CANTILEVER
ZONE 1	4' - 0"	1' - 4"	4' - 0"	1' - 4"
ZONE 1'	X	X	X	X
ZONE 2e	4' - 0"	1' - 4"	4' - 0"	1' - 4"
ZONE 2n	X	X	X	X
ZONE 2r	4' - 0"	1' - 4"	4' - 0"	1' - 4"
ZONE 3e	4' - 0"	1' - 4"	4' - 0"	1' - 4"
ZONE 3r	X	X	X	X

SEE SHEET S-02.1 FOR SUPPORTING CALCULATIONS.

- 3) THE EXISTING ROOF AND STRUCTURE IS IN GOOD CONDITION AND WILL NOT BE ADVERSELY AFFECTED BY THE ADDITIONAL LOADS IMPOSED BY THE PV INSTALLATION. THE INSTALLER OR CONTRACTOR IS TO FIELD VERIFY AND REPORT TO THE ENGINEER IF THERE ARE ANY DISCREPANCIES BETWEEN THE PLANS AND IN FIELD CONDITIONS
4. FIRE SETBACK TO BE 3' FROM RIDGES AND EDGES, AND 18" EACH WAY FROM HIPs AND VALLEYS PER NFPA 1, 11.12.2.
- * I CERTIFY THAT THE INSTALLATION OF THE MODULES IS IN COMPLIANCE WITH FBC 2020: RESIDENTIAL WILL SAFELY ACCOMMODATE WIND LATERAL AND UPLIFT FORCES, SNOW LOADS, AND EQUIPMENT DEAD LOADS.*

LEGEND

- WIND ZONE 1 (TYP)
- WIND ZONE 2e (TYP)
- WIND ZONE 2n (TYP)
- WIND ZONE 2r (TYP)
- WIND ZONE 3r (TYP)
- WIND ZONE 3e (TYP)

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CASTILLO ENGINEERING SERVICES, LLC
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ERMOCRATES E. CASTILLO - FL PE 52590

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REVISIONS		
DESCRIPTION	DATE	REV

PROJECT INSTALLER

ADT Solar

Digitally signed by:
Ermocrates E Castillo
Date: 2022.10.10 16:07:40

PROJECT NAME

ENDSLEY RESIDENCE

262 SW BLOOMINGTON TERRACE,
LAKE CITY, FL 32025

SHEET NAME

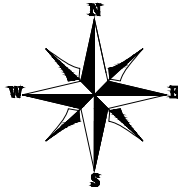
MODULE LAYOUT

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

S-01



ROOF #1
(23) CANADIAN SOLAR:
CS3N-395MS (395W) MODULES

0.5h

(E) BACK YARD

(E) FRONT YARD

ROOF #2
(02) CANADIAN SOLAR:
CS3N-395MS (395W) MODULES

ROOF #3
(17) CANADIAN SOLAR: CS3N-395MS
(395W) MODULES

2h₂ DISTANCE : 0' - 10"
0.5h DISTANCE : 7' - 6"

NOTE: PARTIAL PRESSURES OF THE WIND ZONES ON ALL MODULES HAVE BEEN VERIFIED AND ARE WITHIN THE ALLOWABLE PER THE MANUFACTURER SPECIFICATION, INSTALLER SHOULD FOLLOW THE LAYOUT TO AVOID HIGHER ZONAL PARTIAL PRESSURES. ANY CHANGES IN LAYOUT SHOULD BE REPORTED BACK TO THE ENGINEER OF RECORD.

FOR EXPOSED MODULES

1	1'	2e	2n	2r	3e	3r
15	0	24.8	0	26.1	33	0

Module Size 21.91 Sq. ft.

	1	1'	2e	2n	2r	3e	3r	Partial Pressure
P1	21.85	0	0	0	0.06	0	0	16.03
P2	5.64	0	0	0	16.27	0	0	23.50
P3	18.77	0	0	0	3.14	0	0	17.45
P4	12.24	0	0	0	9.67	0	0	20.46
P5	8.77	0	0	0	15.14	0	0	22.06
P6	17.82	0	0	0	4.08	0	0	17.89
P7	4.52	0	0	0	17.59	0	0	24.02
P8	15.99	0	5.92	0	0	0	0	18.38
P9	5.03	0	16.88	0	0	0	0	22.78
P10	0.21	0	21.70	0	0	0	0	24.72
P11	0.15	0	15.65	0	0.06	5.05	0	27.01

FOR NON-EXPOSED MODULES

1	1'	2e	2n	2r	3e	3r
15	0	16.6	0	17.4	22	0

Module Size 21.91 Sq. ft.

	1	1'	2e	2n	2r	3e	3r	Partial Pressure
P12	15.80	0	0	0	6.11	0	0	16.99
P14	1.73	0	0	0	20.18	0	0	17.29
P15	2.04	0	0	0	18.87	0	0	17.27
P16	21.91	0	0	0	0	0	0	16.00
P17	12.42	0	0	0	9.49	0	0	16.61

FOR EDGE MODULES

1	1'	2e	2n	2r	3e	3r
15	0	24.8	0	26.1	33	0

Module Size 21.91 Sq. ft.

	1	1'	2e	2n	2r	3e	3r	Partial Pressure
P18	0.06	0	21.85	0	0	0	0	24.78
P19	0.06	0	21.85	0	0	0	0	24.78
P20	0.21	0	21.70	0	0	0	0	24.72

ALLOWABLE MODULE UPLIFT PRESSURE 2 RAILS: 76 PSF

LEGEND

- EXPOSED MODULE
- EDGE MODULE
- NON- EXPOSED MODULE
- MISSING MODULE
- MIN. MODULE EDGE DISTANCE LINE
- MODULE EXPOSURE LINE
- WIND ZONE 1 (TYP)
- WIND ZONE 2e (TYP)
- WIND ZONE 2n (TYP)
- WIND ZONE 2r (TYP)
- WIND ZONE 3r (TYP)
- WIND ZONE 3e (TYP)



CASTILLO ENGINEERING SERVICES, LLC
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REVISIONS

DESCRIPTION	DATE	REV

PROJECT INSTALLER



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Ermocrates E Castillo
Date: 2022.10.10 16:07:40

PROJECT NAME

ENDSLEY RESIDENCE
262 SW BLOOMINGTON TERRACE,
LAKE CITY, FL 32025

SHEET NAME

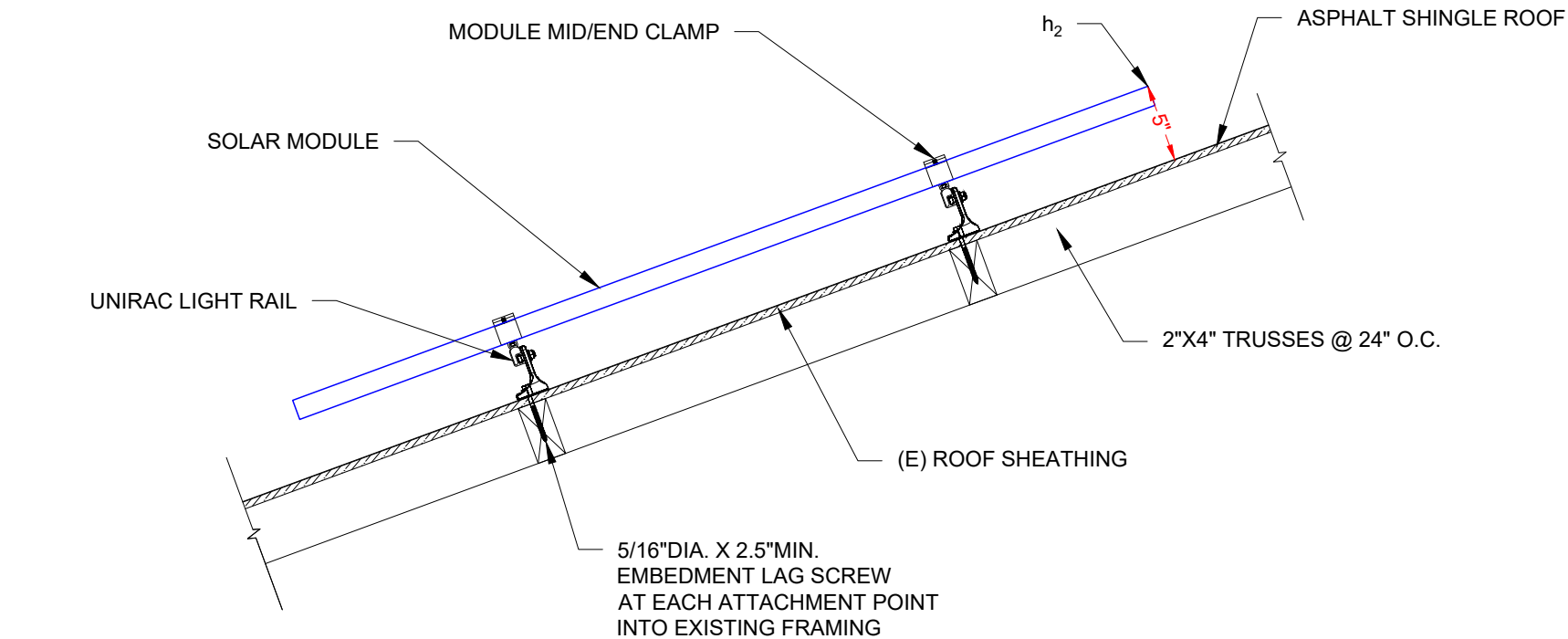
**PARTIAL PRESSURE AND
MODULES EXPOSURE**

SHEET SIZE

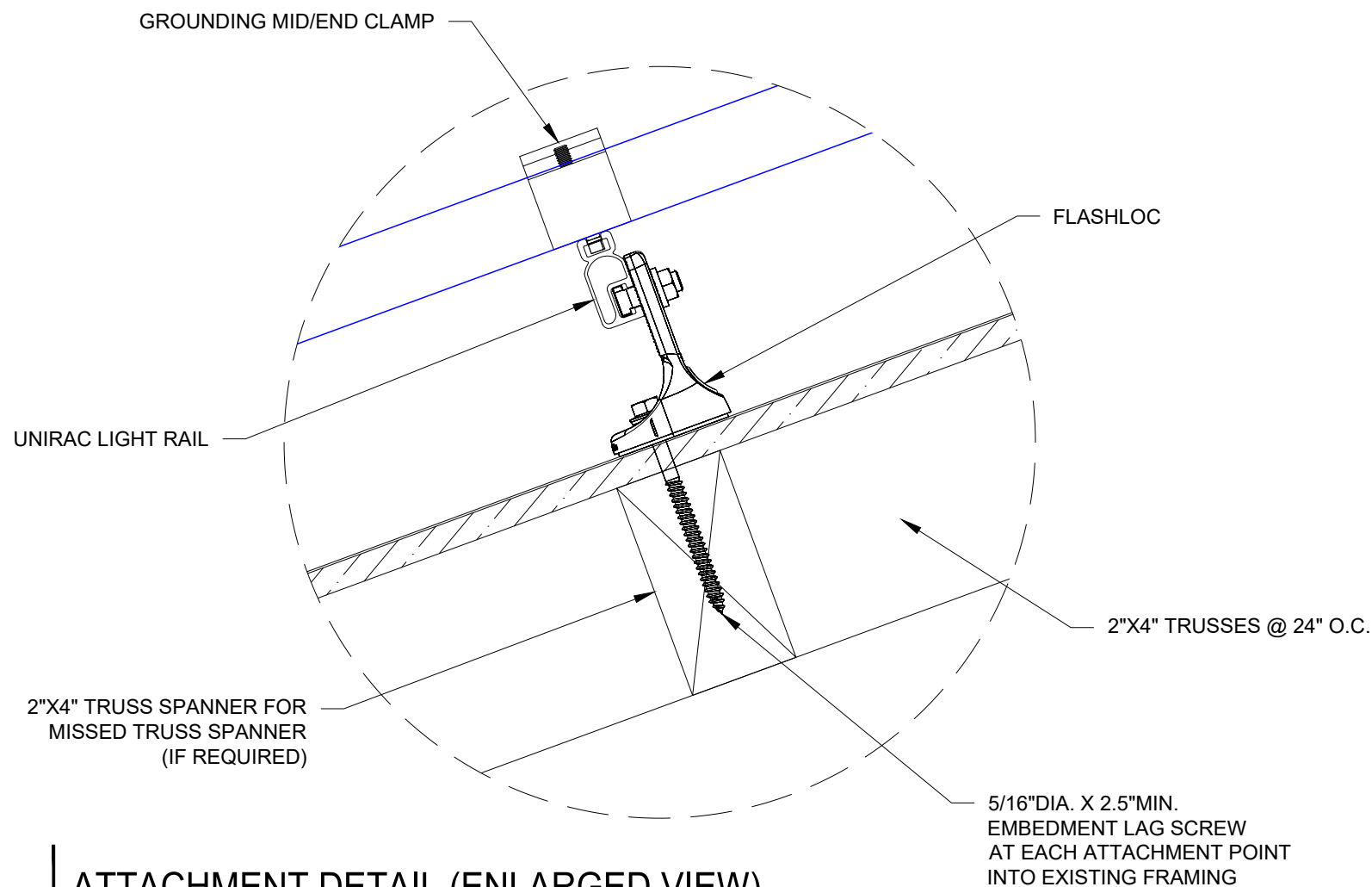
**ANSI B
11" X 17"**

SHEET NUMBER

S-01.1



1 ATTACHMENT DETAIL
S-02 SCALE - 1" = 1'-0"



2 ATTACHMENT DETAIL (ENLARGED VIEW)
S-02 SCALE: 4" = 1'-0"

REVISIONS		
DESCRIPTION	DATE	REV

PROJECT INSTALLER



Signature with
No. 52590
STATE OF
FLORIDA
Professional Engineer
Ermocrates E. Castillo
The Seal has been electronically signed
and sealed by Ermocrates Castillo
on 10/10/2022 at 16:07:41.
Date: 2022.10.10
16:07:41

PROJECT NAME

ENDSLEY RESIDENCE
262 SW BLOOMINGTON TERRACE,
LAKE CITY, FL 32025

SHEET NAME

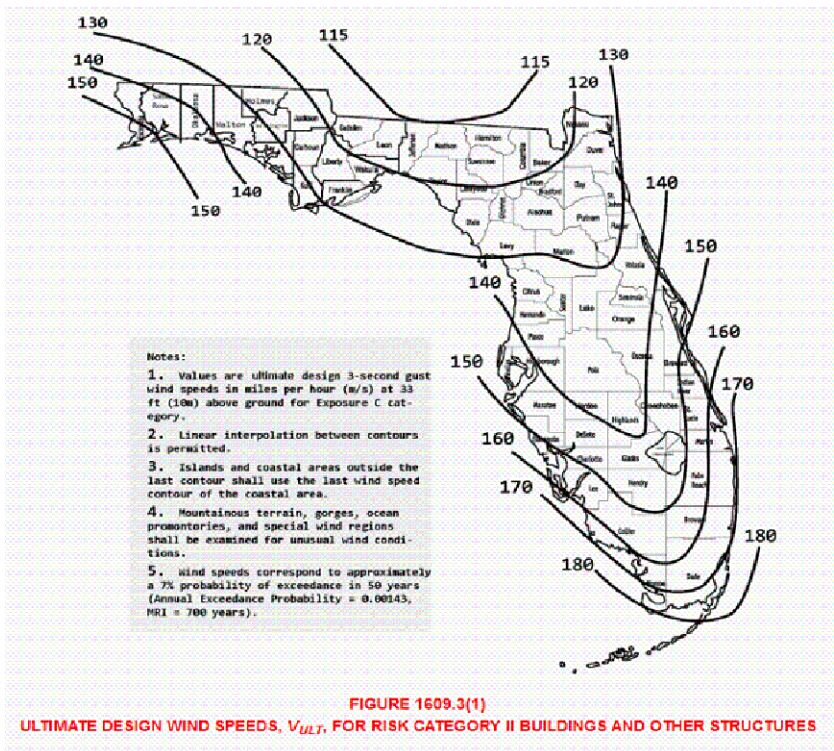
ATTACHMENT DETAIL

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

S-02



WIND LOAD CALCULATIONS FOR MODULES INSTALLED ON ROOFS WITH A HEIGHT LESS THAN 60'

SITE INFORMATION			
FBC VERSION	2020	RISK CATEGORY	II
MEAN ROOF HEIGHT (ft)	15.0	EXPOSURE CATEGORY	B
ROOF LENGTH (ft)	104.3	ROOF SLOPE	7 /12
ROOF WIDTH (ft)	65.9	ROOF SLOPE (°)	30.3
PARAPET HEIGHT (ft)	0.0	ROOF TYPE	HIP
MODULE LENGTH (in)	76.4	ULTIMATE WIND SPEED	120 mph
MODULE WIDTH (in)	41.3	NOMINAL WIND SPEED	93 mph
MODULE ORIENTATION	PORTRAIT	EXPOSURE FACTOR (C_e)	1.000
MODULE AREA (sq. ft.)	21.91	TEMPERATURE FACTOR (C_t)	1.000
GROUND SNOW LOAD (psf)	0.0	IMPORTANCE FACTOR (I_s)	1.000
DEAD LOAD (psf)	3.0	SLOPE FACTOR (C_s)	0.910
SLOPED ROOF SNOW LOAD (psf)	0.0	K_D	0.850
EFFECTIVE WIND AREA (ft ²)	21.9	K_{Z1}	1.000
GROUND ELEVATION (ft)	119.0	K_e	0.996
HVHZ	YES	K_z	0.575

DESIGN CALCULATIONS			
VELOCITY PRESSURE (q) = $.00256 \cdot K_e K_z K_{zt} K_D V^2$			
VELOCITY PRESSURE (ASD) 10.8 psf			
WIDTH OF PRESSURE COEFFICIENT	65.9' * 10%	=	6.59'
	15' * 40%	=	6'
	ZONE WIDTH A		6 FT
EXTERNAL PRESSURE COEFFICIENT	ZONE 1	0.560	-1.340
	ZONE 1'	0.560	X
	ZONE 2e	0.560	-2.319
INTERNAL PRESSURE COEFFICIENT (+/-)	ZONE 2n	0.560	X
	ZONE 2r	0.560	-2.439
	ZONE 3e	0.560	-3.079
INTERNAL PRESSURE COEFFICIENT (+/-)	ZONE 3r	0.560	X

DESIGN PRESSURES				
ROOF ZONE	DOWN	UP		
1	16.0	-14.4	psf	
1'	16.0	X	psf	
2e	16.0	-24.9	psf	Module allowable uplift pressure for 2 rails 76 psf
2n	16.0	X	psf	Module allowable down pressure 104.4 psf
2r	16.0	-26.2	psf	
3e	16.0	-33.1	psf	
3r	16.0	X	psf	

ARRAY FACTORS		
ARRAY EDGE FACTOR (EXPOSED)	1.5	SOLAR PANEL PRESSURE EQUALIZATION
ARRAY EDGE FACTOR (NON-EXPOSED)	1	FACTOR 0.66373

ADJUSTED DESIGN PRESSURES				
ROOF ZONE	DOWN	UP (Exposed)	UP (N. Exposed)	
1	16.0	-16.0	-16.0	psf
1'	16.0	X	X	psf
2e	16.0	-24.8	-16.6	psf
2n	16.0	X	X	psf
2r	16.0	-26.1	-17.4	psf
3e	16.0	-33.0	-22.0	psf
3r	16.0	X	X	psf

ATTACHMENTS USED		
ATTACHMENT MODEL	flashloc	
ATTACHMENT STRENGTH	476	lbs

MAX DESIGN LOADS ALLOWABLE						
LIMIT MAX SPAN TO		48	in			
RAFTER/SEAM SPACING		24	in	NO. OF RAILS	Exposed: 2	Non. Exp: 2
ROOF ZONE	DOWN	UP (Exposed)	UP (N. Exposed)	SPANS (E)		SPANS (N E)
1	203.7	203.7	203.7	lbs	48 in	48 in
1'	0.0	X	X	lbs	X in	X in
2e	203.7	316.3	210.9	lbs	48 in	48 in
2n	0.0	X	X	lbs	X in	X in
2r	203.7	332.7	221.8	lbs	48 in	48 in
3e	203.7	419.9	279.9	lbs	48 in	48 in
3r	0.0	X	X	lbs	X in	X in

REVISIONS

DESCRIPTION	DATE	REV

PROJECT INSTALLER



Signature with Digital
signed by:
Ermocrates E Castillo
Date: 2022.10.10
16:07:41

PROJECT NAME

ENDSLEY RESIDENCE

262 SW BLOOMINGTON TERRACE,
LAKE CITY, FL 32025

SHEET NAME

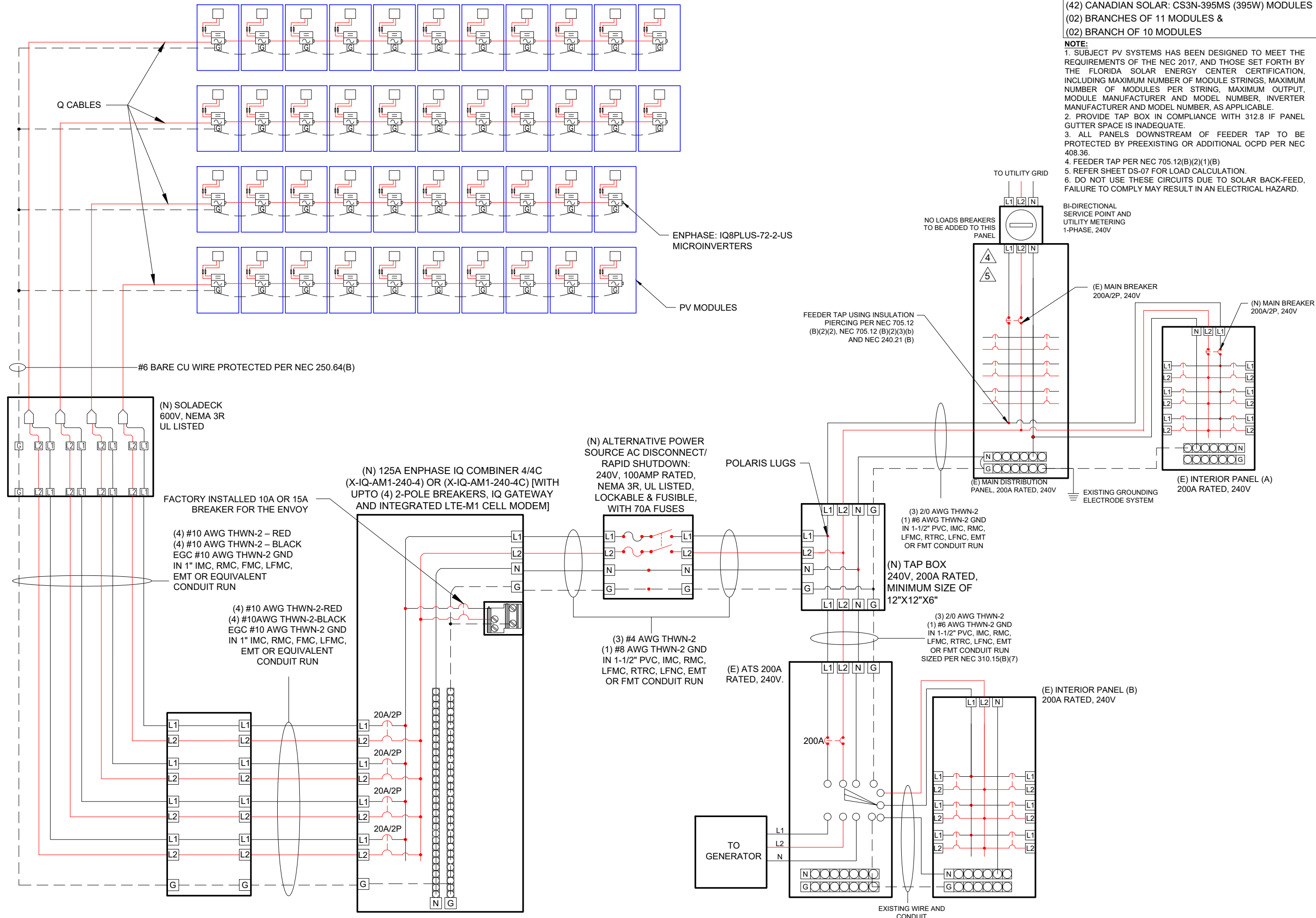
STRUCTURE
CALCULATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

S-02.1



SOLAR ARRAY (16.590 kW DC STC - 12.180 kW AC)
(42) CANADIAN SOLAR: CS3N-395MS (395W) MODULES
(02) BRANCHES OF 11 MODULES &
(02) BRANCH OF 10 MODULES

- NOTE:**
1. SUBJECT PV SYSTEMS HAS BEEN DESIGNED TO MEET THE REQUIREMENTS OF THE NEC 2017, AND THOSE SET FORTH BY THE FLORIDA SOLAR ENERGY CENTER CERTIFICATION, INCLUDING MAXIMUM NUMBER OF MODULE STRINGS, MAXIMUM NUMBER OF MODULES PER STRING, MAXIMUM OUTPUT, MODULE MANUFACTURER AND MODEL NUMBER, INVERTER MANUFACTURER AND MODEL NUMBER, AS APPLICABLE.
 2. PROVIDE TAP BOX IN COMPLIANCE WITH 312.8 IF PANEL GUTTER SPACE IS INADEQUATE.
 3. ALL PANELS DOWNSTREAM OF FEEDER TAP TO BE PROTECTED BY PREEXISTING OR ADDITIONAL OCPD PER NEC 408.36.
 4. FEEDER TAP PER NEC 705.12(B)(2)(1)(B)
 5. REFER SHEET DS-07 FOR LOAD CALCULATION.
 6. DO NOT USE THESE CIRCUITS DUE TO SOLAR BACK-FEED, FAILURE TO COMPLY MAY RESULT IN AN ELECTRICAL HAZARD.

BI-DIRECTIONAL
SERVICE POINT AND
UTILITY METERING
1-PHASE, 240V

Castillo Engineering
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PROJECT NAME

ENDSLEY RESIDENCE

**262 SW BLOOMINGTON TERRACE,
LAKE CITY, FL 32025**

SHEET NAME

**ELECTRICAL
LINE DIAGRAM**

SHEET SIZE

**ANSI B
11" X 17"**

SHEET NUMBER

E-01

ELECTRICAL CALCULATION

Module Manufacturer	CANADIAN SOLAR
Module Model	CS3N-395MS
Inverter Manufacturer	ENPHASE
Inverter Model	ENPHASE IQ 8 PLUS
Modules/Branch Circuit 1	11
Modules/Branch Circuit 2	11
Modules/Branch Circuit 3	10
Modules/Branch Circuit 4	10
TOTAL ARRAY POWER (KW)	16.590
SYSTEM AC VOLTAGE	240V 1-PHASE

DESIGN TEMPERATURE	
MIN. AMBIENT TEMP. °F	32
MAX. AMBIENT TEMP. °F	117
CALCULATED MAX. VDC	48
CALCULATED MIN VMP	29
CONDUIT FILL	
NUMBER OF CONDUITS	1

AMPACITY CALCULTIONS										
Circuit	MAX AMPS	1.25 x MAX AMPS	AWG	90 °C AMPACITY	AMBIENT TEMP °F	TEMP DERATE	CONDUIT FILL	FILL DERATE	DERATED AMPACITY	MAXIMUM CIRCUIT BREAKER
CIRCUIT 1	13.3	16.6	#10	40	130	0.76	8	0.7	21.28	20 A
CIRCUIT 2	13.3	16.6	#10	40	130	0.76	8	0.7	21.28	20 A
CIRCUIT 3	12.1	15.1	#10	40	130	0.76	8	0.7	21.28	20 A
CIRCUIT 4	12.1	15.1	#10	40	130	0.76	8	0.7	21.28	20 A
AC COMBINER PANEL OUTPUT	50.75	63.4	#4	95	95	0.96	3	1	91.2	70 A

MAXIMUM CIRCUIT VOLTAGE DROP	2%
------------------------------	----

VOLTAGE DROP CALCULATIONS					
Circuit	AWG	CIRCULAR MILLS	I	V	MAX LENGTH
CIRCUIT 1	#10	10380	13.3	240	145 FEET
CIRCUIT 2	#10	10380	13.3	240	145 FEET
CIRCUIT 3	#10	10380	12.1	240	160 FEET
CIRCUIT 4	#10	10380	12.1	240	160 FEET
COMBINER PANEL OUTPUT	#4	41740	50.8	240	153 FEET

NOTES	
TEMP DERATE BASED ON NEC TABLE 310.15(B)(2)(A)	
CONDUIT FILL DERATE BASED ON NEC TABLE 310.15(B)(3)(A)	
MAXIMUM VDC CALCULATED USING MODULE MANUFACTURE TEMPERATURE COEFFICIENTS PER NEC 690.7(A)	
UNLESS OTHERWISE SPECIFIED, ALL WIRING MUST BE THHN OR THWN-2 COPPER	
ALL WIRE SIZES LISTED ARE THE MINIMUM ALLOWABLE	
	IN ANY CELL INDICATES THAT THE SYSTEM IS SAFE AND COMPLIES WITH NEC REQUIREMENTS
	IN ANY CELL INDICATES A POTENTIALLY UNSAFE CONDITION
	INFORMATION INPUT BY SYSTEM DESIGNER
	INFORMATON OBTAINED FROM MANUFACTURER DATASHEETS

ELECTRICAL NOTES

1. ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.
2. ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 V AND 90 DEGREE C WET ENVIRONMENT. THE TERMINALS ARE RATED FOR 75 DEGREE C.
3. THE WIRES ARE SIZED ACCORDING TO NEC 110.14.
4. WIRING, CONDUIT, AND RACEWAYS MOUNTED ON ROOFTOPS SHALL BE ROUTED DIRECTLY TO, AND LOCATED AS CLOSE AS POSSIBLE TO THE NEAREST RIDGE, HIP, OR VALLEY.
5. WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.
6. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
7. WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
8. ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
9. MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION.
10. MODULE SUPPORT RAIL TO BE BONDED TO CONTINUOUS COPPER G.E.C. VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN LUG.
11. THE POLARITY OF THE GROUNDED CONDUCTORS IS NEGATIVE .
12. UTILITY HAS 24-HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC SYSTEM COMPONENTS LOCATED AT THE SERVICE ENTRANCE.
13. MODULES CONFORM TO AND ARE LISTED UNDER UL 1703.
14. RACKING CONFORMS TO AND IS LISTED UNDER UL 2703.
15. CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER NEC ARTICLE 300.6 (C) (1) AND ARTICLE 310.10 (D).
16. CONDUCTORS EXPOSED TO WET LOCATIONS SHALL BE SUITABLE FOR USE IN WET LOCATIONS PER NEC ARTICLE 310.10 (C).
17. THIS SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN OF PV CONDUCTORS IN COMPLIANCE WITH NEC 690.12.
18. LABELING IN COMPLIANCE WITH NEC 690.12 AND 690.56(C) IS SHOWN ON SHEET E-03.
19. ALL CONDUITS TO BE INSTALLED A MIN OF 7/8" ABOVE THE ROOF SURFACE.

I ERMOCRATES CASTILLO PE# 52590 AN ENGINEER LICENSED PURSUANT TO CHAPTER 471, CERTIFY THAT THE PV ELECTRICAL SYSTEM AND ELECTRICAL COMPONENTS ARE DESIGNED AND APPROVED USING THE STANDARDS CONTAINED IN THE MOST RECENT VERSION OF THE FLORIDA BUILDING CODE. FBC 107, THE NEC 2017, AND THOSE SET FORTH BY THE FLORIDA SOLAR ENERGY CENTER CERTIFICATION.

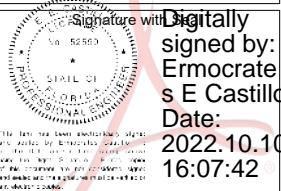


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PROJECT NAME

ENDSLEY RESIDENCE

262 SW BLOOMINGTON TERRACE,
LAKE CITY, FL 32025

SHEET NAME

WIRING CALCULATIONS

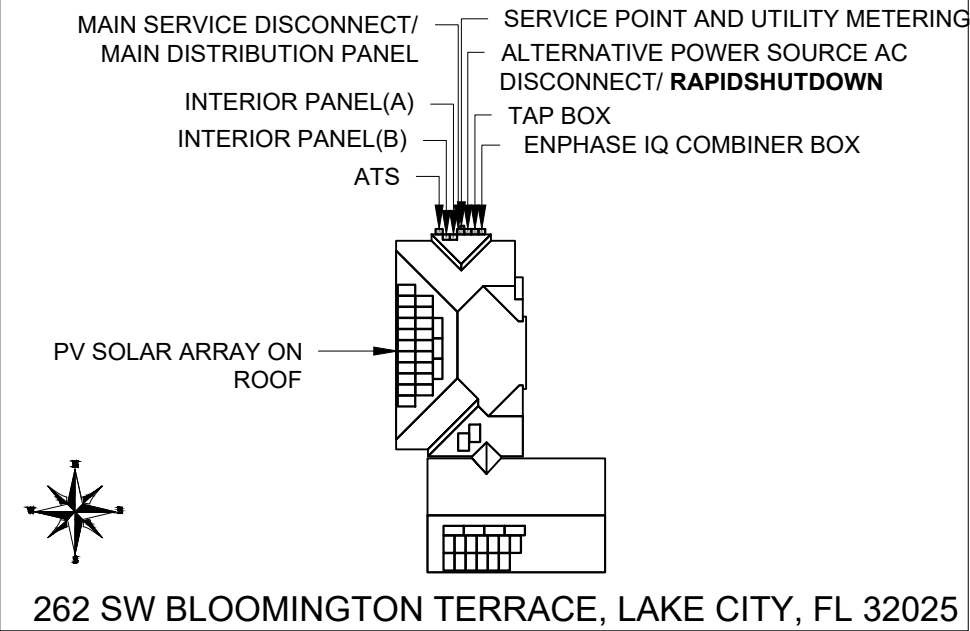
SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

E-02

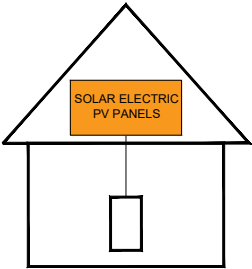
CAUTION!
POWER TO THIS BUILDING
SUPPLIED FROM MULTIPLE SOURCES



LABEL LOCATION:
MAIN SERVICE DISCONNECT / MAIN DISTRIBUTION PANEL, PV DISCONNECT
LOCATED NO MORE THAN 3FT (1M) FROM THE SERVICE DISCONNECT
(TEXT HEIGHT SHOULD BE A MINIMUM OF 3/8")
PER CODE NEC 705.10

**SOLAR PV SYSTEM EQUIPPED
WITH RAPID SHUTDOWN**

TURN RAPID SHUTDOWN
SWITCH TO THE
"OFF" POSITION TO
SHUT DOWN PV SYSTEM
AND REDUCE
SHOCK HAZARD
IN THE ARRAY



LABEL LOCATION:
AC DISCONNECT, POINT OF INTERCONNECTION
(PER CODE: NEC 690.56(C)(1)(a), IFC 1204.5.1)



WARNING
ELECTRIC SHOCK HAZARD
TERMINALS ON BOTH LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

LABEL LOCATION:
AC DISCONNECT, POINT OF INTERCONNECTION
(PER CODE: NEC 690.13(B))



WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION:
POINT OF INTERCONNECTION
(PER CODE: NEC 705.12(B)(2)(3)(b))

PHOTOVOLTAIC SYSTEM AC DISCONNECT
RATED AC OPERATING CURRENT 50.75 AMPS
AC NOMINAL OPERATING VOLTAGE 240 VOLTS

LABEL LOCATION:
AC DISCONNECT, POINT OF INTERCONNECTION
(PER CODE: NEC 690.54)

WARNING:
POWER SOURCE OUTPUT CONNECTION DO
NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL LOCATION:
POINT OF INTERCONNECTION
(PER CODE: NEC 705.12(B)(2)(3)(b))

DATA PER PANEL

NOMINAL OPERATING AC VOLTAGE -	240	V
NOMINAL OPERATING AC FREQUENCY-	60	Hz
MAXIMUM AC POWER-	290	VA
MAXIMUM AC CURRENT-	1.21	A
MAXIMUM OVERCURRENT DEVICE RATING FOR AC MODULE PROTECTION PER CIRCUIT-	20	A

LABEL LOCATION:
COMBINER BOX
(PER CODE: NEC 690.52)

**PHOTOVOLTAIC
SYSTEM
MICROINVERTERS
LOCATED UNDER EACH
PV MODULE IN
ROOF TOP ARRAY**

LABEL LOCATION:
INVERTER
(PER CODE: NEC 690.52)

AC COMBINER BOX

LABEL LOCATION:
COMBINER BOX
(PER CODE: NEC 690.52)

AC DISCONNECT

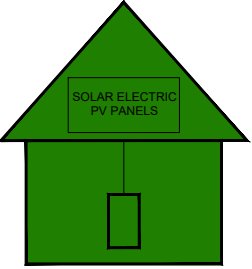
LABEL LOCATION:
AC DISCONNECT, POINT OF INTERCONNECTION
(PER CODE: NEC 690.54)

**SOLAR CONNECTION
LINE SIDE TAP**

LABEL LOCATION:
POINT OF INTERCONNECTION
(PER CODE: NEC 705.12(A))

**EMERGENCY RESPONDER
THIS SOLAR PV SYSTEM IS EQUIPPED
WITH RAPID SHUTDOWN.**

TURN RAPID
SHUTDOWN SWITCH
TO THE "OFF" POSITION
TO SHUT DOWN ENTIRE
PV SYSTEM



- SECTIONS OF THE PV SYSTEM THAT
ARE SHUT DOWN WHEN THE RAPID
SHUTDOWN SWITCH IS OPERATED.
- SECTIONS OF THE PV SYSTEM THAT
ARE NOT SHUT DOWN WHEN THE RAPID
SHUTDOWN SWITCH IS OPERATED.

LABEL LOCATION:
AC DISCONNECT
(TEXT HEIGHT SHOULD BE A MINIMUM OF 3/8")
(PER CODE: NFPA 1,11.12.2.1.1)

ADT SOLAR
EMERGENCY CONTACT:
PH. NO. : (866) 450-1012

LABEL LOCATION:
MAIN DISCONNECT
(PER CODE: NFPA - 1, 11.12.2.1.5)

**RAPID SHUTDOWN
SWITCH FOR
SOLAR PV SYSTEM**

LABEL LOCATION:
AC DISCONNECT
(PER CODE: NEC 690.56(C)(3))

16.590 KW SOLAR
DISCONNECT LOCATED

LABEL LOCATION:
AC DISCONNECT, POINT OF INTERCONNECTION
(PER CODE: NEC 690.54)

WARNING:
NO LOADS BREAKERS TO
BE ADDED TO THIS PANEL

LABEL LOCATION:
MAIN DISTRIBUTION PANEL

WARNING:
DO NOT USE THESE CIRCUITS
DUE TO SOLAR BACK-FEED,
FAILURE TO COMPLY MAY
RESULT IN AN ELECTRICAL
HAZARD

LABEL LOCATION:
MAIN DISTRIBUTION PANEL

- ADHESIVE FASTENED SIGNS:
- THE LABEL SHALL BE VISIBLE, REFLECTIVE AND SUITABLE FOR THE ENVIRONMENT WHERE IT IS INSTALLED [NFPA 1, 11.12.2.1]
 - WHERE REQUIRED ELSEWHERE IN THIS CODE, ALL FIELD APPLIED LABELS, WARNINGS, AND MARKINGS SHOULD COMPLY WITH ANSI Z535.4 [NEC 110.21(B) FIELD MARKING].
 - ADHESIVE FASTENED SIGNS MAY BE ACCEPTABLE IF PROPERLY ADHERED. VINYL SIGNS SHALL BE WEATHER RESISTANT [IFC 605.11.1.3]

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Date:
2022.10.10
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PROJECT NAME

ENDSLEY RESIDENCE

262 SW BLOOMINGTON TERRACE,
LAKE CITY, FL 32025

SHEET NAME
SYSTEM LABELING

SHEET SIZE
**ANSI B
11" X 17"**

SHEET NUMBER
E-03



HiKuBlack Mono PERC
BLACK FRAME ON BLACK BACKSHEET
F23 Frame
380 W ~ 405 W
CS3N-380 | 385 | 390 | 395 | 400 | 405MS

MORE POWER

- 405 W Module power up to 405 W
Module efficiency up to 19.9 %
- \$ Lower LCOE & BOS cost
- Comprehensive LID / LeTID mitigation technology, up to 50% lower degradation
- Better shading tolerance

MORE RELIABLE

- Minimizes micro-crack impacts
- Heavy snow load up to 8100 Pa, enhanced wind load up to 6000 Pa*

25 Years Industry Leading Product Warranty on Materials and Workmanship*

25 Years Linear Power Performance Warranty*

1st year power degradation no more than 2%
Subsequent annual power degradation no more than 0.55%

*Subject to the terms and conditions contained in the applicable Canadian Solar Limited Warranty Statement. Also this 25-year limited product warranty is available only for products installed and operating on residential rooftops in certain regions.

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001: 2015 / Quality management system
ISO 14001: 2015 / Standards for environmental management system
ISO 45001: 2018 / International standards for occupational health & safety

PRODUCT CERTIFICATES*

IEC 61215 / IEC 61730 / CE
FSEC (US Florida) / UL 61730 / IEC 61701 / IEC 62716



* The specific certificates applicable to different module types and markets will vary, and therefore not all of the certifications listed herein will simultaneously apply to the products you order or use. Please contact your local Canadian Solar sales representative to confirm the specific certificates available for your Product and applicable in the regions in which the products will be used.

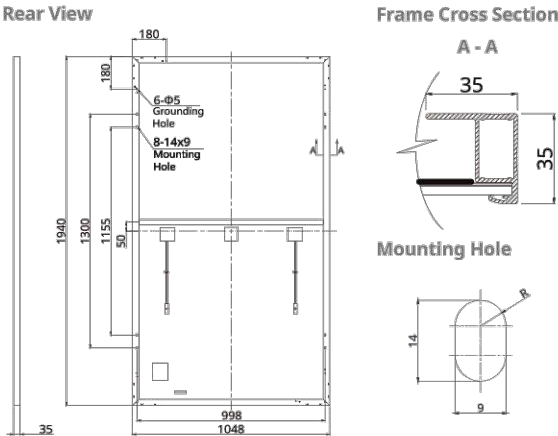
CSI SOLAR (USA) CO., LTD. is committed to providing high quality solar photovoltaic modules, solar energy and battery storage solutions to customers. The company was recognized as the No. 1 module supplier for quality and performance/price ratio in the IHS Module Customer Insight Survey. Over the past 20 years, it has successfully delivered over 63 GW of premium-quality solar modules across the world.

* For detailed information, please refer to Installation Manual.

CSI SOLAR (USA) CO., LTD.

1350 Treat Blvd. Suite 500, Walnut Creek, CA 94598, USA | www.csisolar.com/na | service.ca@csisolar.com

ENGINEERING DRAWING (mm)



ELECTRICAL DATA | STC*

CS3N	380MS	385MS	390MS	395MS	400MS	405MS
Nominal Max. Power (Pmax)	380 W	385 W	390 W	395 W	400 W	405 W
Opt. Operating Voltage (Vmp)	36.4 V	36.6 V	36.8 V	37.0 V	37.2 V	37.4 V
Opt. Operating Current (Imp)	10.44 A	10.52 A	10.60 A	10.68 A	10.76 A	10.83 A
Open Circuit Voltage (Voc)	43.7 V	43.9 V	44.1 V	44.3 V	44.5 V	44.7 V
Short Circuit Current (Isc)	11.26 A	11.32 A	11.38 A	11.44 A	11.50 A	11.56 A
Module Efficiency	18.7%	18.9%	19.2%	19.4%	19.7%	19.9%
Operating Temperature	-40°C ~ +85°C					
Max. System Voltage	1000V (UL)					
Module Fire Performance	TYPE 2 (UL 61730 1000V)					
Max. Series Fuse Rating	20 A					
Application Classification	Class A					
Power Tolerance	0 ~ + 10 W					

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C.

ELECTRICAL DATA | NMOT*

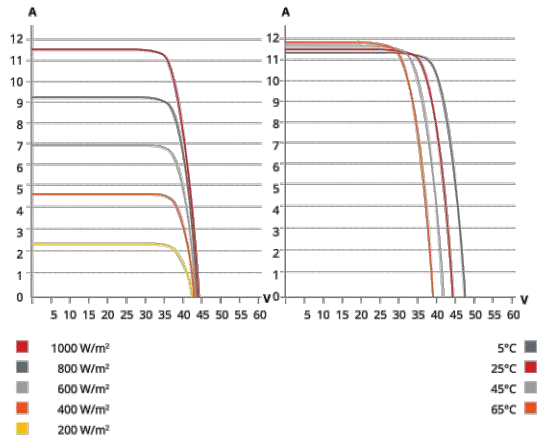
CS3N	380MS	385MS	390MS	395MS	400MS	405MS
Nominal Max. Power (Pmax)	284 W	288 W	291 W	295 W	299 W	303 W
Opt. Operating Voltage (Vmp)	34.0 V	34.2 V	34.4 V	34.6 V	34.7 V	34.9 V
Opt. Operating Current (Imp)	8.35 A	8.42 A	8.48 A	8.54 A	8.60 A	8.66 A
Open Circuit Voltage (Voc)	41.2 V	41.4 V	41.6 V	41.8 V	41.9 V	42.1 V
Short Circuit Current (Isc)	9.08 A	9.13 A	9.18 A	9.23 A	9.28 A	9.33 A

* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m²-spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

* The specifications and key features contained in this datasheet may deviate slightly from our actual products due to the on-going innovation and product enhancement. CSI Solar Co., Ltd. reserves the right to make necessary adjustment to the information described herein at any time without further notice. Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

CSI SOLAR (USA) CO., LTD.

CS3N-400MS / I-V CURVES



MECHANICAL DATA

Specification	Data
Cell Type	Mono-crystalline
Cell Arrangement	132 [2 X (11 X 6)]
Dimensions	1940 X 1048 X 35 mm (76.4 X 41.3 X 1.38 in)
Weight	23.4 kg (51.6 lbs)
Front Cover	3.2 mm tempered glass
Frame	Anodized aluminium alloy
J-Box	IP68, 3 bypass diodes
Cable	12 AWG (UL)
Cable Length (Including Connector)	Portrait: 400 mm (15.7 in) (+) / 280 mm (11.0 in) (-) (supply additional cable jumper: 2 lines/pallet); landscape: 1250 mm (49.2 in)*
Connector	T4 or MC4 series
Per Pallet	30 pieces
Per Container (40' HQ)	720 pieces

* For detailed information, please contact your local Canadian Solar sales and technical representatives.

TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.34 % / °C
Temperature Coefficient (Voc)	-0.26 % / °C
Temperature Coefficient (Isc)	0.05 % / °C
Nominal Module Operating Temperature	42 ± 3°C

PARTNER SECTION



Jan. 2022 | All rights reserved | PV Module Product Datasheet v2.9C25_F23_J3_NA



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Date: 2022.10.10 16:07:42

PROJECT NAME

ENDSLEY RESIDENCE
262 SW BLOOMINGTON TERRACE,
LAKE CITY, FL 32025

SHEET NAME

DATA SHEET

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

DS-01



DATA SHEET



IQ8 and IQ8+ Microinverters

Our newest IQ8 Microinverters are the industry’s first microgrid-forming, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application-specific integrated circuit (ASIC) which enables the microinverter to operate in grid-tied or off-grid modes. This chip is built in advanced 55nm technology with high speed digital logic and has super-fast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.



Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the Enphase IQ Battery, Enphase IQ Gateway, and the Enphase App monitoring and analysis software.



Connect PV modules quickly and easily to IQ8 Series Microinverters using the included Q-DCC-2 adapter cable with plug-n-play MC4 connectors.



IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.



IQ8 Series Microinverters are UL Listed as PV Rapid Shut Down Equipment and conform with various regulations, when installed according to manufacturer’s instructions.

Easy to install

- Lightweight and compact with plug-n-play connectors
- Power Line Communication (PLC) between components
- Faster installation with simple two-wire cabling

High productivity and reliability

- Produce power even when the grid is down
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

Microgrid-forming

- Complies with the latest advanced grid support
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) requirements

IQ8 and IQ8+ Microinverters

INPUT DATA (DC)		IQ8-60-2-US	IQ8PLUS-72-2-US
Commonly used module pairings ¹	W	235 – 350	235 – 440
Module compatibility		60-cell/120 half-cell	60-cell/120 half-cell and 72-cell/144 half-cell
MPPT voltage range	V	27 – 37	29 – 45
Operating range	V	25 – 48	25 – 58
Min/max start voltage	V	30 / 48	30 / 58
Max input DC voltage	V	50	60
Max DC current ² [module Isc]	A	15	
Overtoltage class DC port		II	
DC port backfeed current	mA	0	
PV array configuration		1x1 Ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit	
OUTPUT DATA (AC)		IQ8-60-2-US	IQ8PLUS-72-2-US
Peak output power	VA	245	300
Max continuous output power	VA	240	290
Nominal (L-L) voltage/range ³	V	240 / 211 – 264	
Max continuous output current	A	1.0	1.21
Nominal frequency	Hz	60	
Extended frequency range	Hz	50 – 68	
Max units per 20 A (L-L) branch circuit ⁴		16	13
Total harmonic distortion		<5%	
Overtoltage class AC port		III	
AC port backfeed current	mA	30	
Power factor setting		1.0	
Grid-tied power factor (adjustable)		0.85 leading – 0.85 lagging	
Peak efficiency	%	97.5	97.6
CEC weighted efficiency	%	97	97
Night-time power consumption	mW	60	
MECHANICAL DATA			
Ambient temperature range		-40°C to +60°C (-40°F to +140°F)	
Relative humidity range		4% to 100% (condensing)	
DC Connector type		MC4	
Dimensions (HxWxD)		212 mm (8.3") x 175 mm (6.9") x 30.2 mm (1.2")	
Weight		1.08 kg (2.38 lbs)	
Cooling		Natural convection – no fans	
Approved for wet locations		Yes	
Acoustic noise at 1 m		<60 dBA	
Pollution degree		PD3	
Enclosure		Class II double-insulated, corrosion resistant polymeric enclosure	
Environ. category / UV exposure rating		NEMA Type 6 / outdoor	
COMPLIANCE			
Certifications		CA Rule 21 (UL 1741-SA), UL 62109-1, UL1741/IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01 This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C22.1-2018 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according to manufacturer's instructions.	

(1) No enforced DC/AC ratio. See the compatibility calculator at <https://link.enphase.com/module-compatibility> (2) Maximum continuous input DC current is 10.6A (3) Nominal voltage range can be extended beyond nominal if required by the utility. (4) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

IQ8SP-DS-0002-01-EN-US-2021-10-19



CASTILLO ENGINEERING SERVICES, LLC
COA # 28345
620 N. WYMORE ROAD, SUITE 250,
MAITLAND, FL 32751
TEL: (407) 289-2575
ERMOCRATES E. CASTILLO - FL PE 52590

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REVISIONS

DESCRIPTION	DATE	REV

PROJECT INSTALLER



Digitally signed by: Ermocrates E Castillo
Date: 2022.10.10 16:07:43

PROJECT NAME

ENDSLEY RESIDENCE

262 SW BLOOMINGTON TERRACE,
LAKE CITY, FL 32025

SHEET NAME

DATA SHEET

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

DS-02

Enphase IQ Combiner 4/4C

X-IQ-AM1-240-4
X-IQ-AM1-240-4C



To learn more about Enphase offerings, visit enphase.com

The **Enphase IQ Combiner 4/4C** with Enphase IQ Gateway and integrated LTE-M1 cell modem (included only with IQ Combiner 4C) consolidates interconnection equipment into a single enclosure and streamlines IQ microinverters and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly.

Smart

- Includes IQ Gateway for communication and control
- Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), included only with IQ Combiner 4C
- Includes solar shield to match Enphase IQ Battery aesthetics and deflect heat
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and consumption monitoring

Simple

- Centered mounting brackets support single stud mounting
- Supports bottom, back and side conduit entry
- Up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80A total PV or storage branch circuits

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year limited warranty
- Two years labor reimbursement program coverage included for both the IQ Combiner SKU's
- UL listed



Enphase IQ Combiner 4/4C

MODEL NUMBER	
IQ Combiner 4 (X-IQ-AM1-240-4)	IQ Combiner 4 with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes a silver solar shield to match the IQ Battery system and IQ System Controller 2 and to deflect heat.
IQ Combiner 4C (X-IQ-AM1-240-4C)	IQ Combiner 4C with Enphase IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), a plug-and-play industrial-grade cell modem for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.) Includes a silver solar shield to match the IQ Battery and IQ System Controller and to deflect heat.
ACCESSORIES AND REPLACEMENT PARTS (not included, order separately)	
Ensemble Communications Kit COMMS-CELLMODEM-M1-06 CELLMODEM-M1-06-SP-05 CELLMODEM-M1-06-AT-05	- Includes COMMS-KIT-01 and CELLMODEM-M1-06-SP-05 with 5-year Sprint data plan for Ensemble sites - 4G based LTE-M1 cellular modem with 5-year Sprint data plan - 4G based LTE-M1 cellular modem with 5-year AT&T data plan
Circuit Breakers BRK-10A-2-240V BRK-15A-2-240V BRK-20A-2P-240V BRK-15A-2P-240V-B BRK-20A-2P-240V-B	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers. Circuit breaker, 2 pole, 10A, Eaton BR210 Circuit breaker, 2 pole, 15A, Eaton BR215 Circuit breaker, 2 pole, 20A, Eaton BR220 Circuit breaker, 2 pole, 15A, Eaton BR215B with hold down kit support Circuit breaker, 2 pole, 20A, Eaton BR220B with hold down kit support
EPLC-01	Power line carrier (communication bridge pair), quantity - one pair
XA-SOLARSHIELD-ES	Replacement solar shield for IQ Combiner 4/4C
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 4/4C (required for EPLC-01)
XA-ENV-PCBA-3	Replacement IQ Gateway printed circuit board (PCB) for Combiner 4/4C
X-IQ-NA-HD-125A	Hold down kit for Eaton circuit breaker with screws.
ELECTRICAL SPECIFICATIONS	
Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max. continuous current rating	65 A
Max. continuous current rating (input from PV/storage)	64 A
Max. fuse/circuit rating (output)	90 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included)
Max. total branch circuit breaker rating (input)	80A of distributed generation / 95A with IQ Gateway breaker included
Production metering CT	200 A solid core pre-installed and wired to IQ Gateway
Consumption monitoring CT (CT-200-SPLIT)	A pair of 200 A split core current transformers
MECHANICAL DATA	
Dimensions (WxHxD)	37.5 x 49.5 x 16.8 cm (14.75" x 19.5" x 6.63"). Height is 21.06" (53.5 cm) with mounting brackets.
Weight	7.5 kg (16.5 lbs)
Ambient temperature range	-40° C to +46° C (-40° to 115° F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction
Wire sizes	• 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors • 60 A breaker branch input: 4 to 1/0 AWG copper conductors • Main lug combined output: 10 to 2/0 AWG copper conductors • Neutral and ground: 14 to 1/0 copper conductors Always follow local code requirements for conductor sizing.
Altitude	To 2000 meters (6,560 feet)
INTERNET CONNECTION OPTIONS	
Integrated Wi-Fi	802.11b/g/n
Cellular	CELLMODEM-M1-06-SP-05, CELLMODEM-M1-06-AT-05 (4G based LTE-M1 cellular modem). Note that an Enphase Mobile Connect cellular modem is required for all Ensemble installations.
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included)
COMPLIANCE	
Compliance, IQ Combiner	UL 1741, CAN/CSA C22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003 Production metering: ANSI C12.20 accuracy class 0.5 (PV production) Consumption metering: accuracy class 2.5
Compliance, IQ Gateway	UL 60601-1/CANCSA 22.2 No. 61010-1

To learn more about Enphase offerings, visit enphase.com

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DESCRIPTION	DATE	REV

PROJECT INSTALLER



Signature with
No. 52550
STATE OF
FLORIDA
Professional Seal
The State has been electronically signed
and sealed by Ermocrates E. Castillo
on 10/21/2021 at 16:07:43.
Date: 2022.10.10
16:07:43

PROJECT NAME

ENDSLEY RESIDENCE

262 SW BLOOMINGTON TERRACE,
LAKE CITY, FL 32025

SHEET NAME

DATA SHEET

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

DS-03

SOLARMOUNT



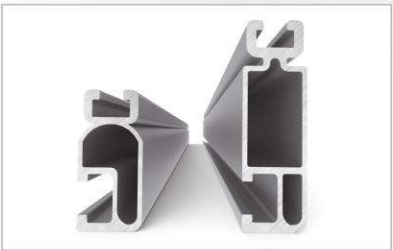
SOLARMOUNT defined the standard in solar racking. Features are designed to get installers off the roof faster. Our grounding & bonding process eliminates copper wire and grounding straps to reduce costs. Systems can be configured with standard or light rail to meet your design requirements at the lowest cost possible. The superior aesthetics package provides a streamlined clean edge for enhanced curb appeal, with no special brackets required for installation.



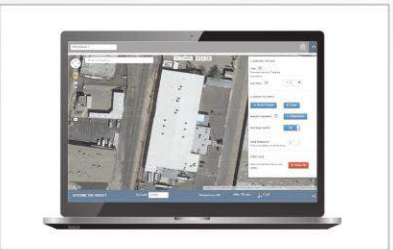
Now Featuring:
THE NEW FACE OF SOLAR RACKING
Superior Aesthetics Package



LOSE ALL OF THE COPPER & LUGS
System grounding through Enphase microinverters and trunk cables



SMALL IS THE NEXT NEW BIG THING
Light Rail is Fully Compatible with all SM Components



ENHANCED DESIGN & LAYOUT TOOLS
Featuring Google Map Capabilities within U-Builder

FAST INSTALLATION. SUPERIOR AESTHETICS
OPTIMIZED COMPONENTS • VERSATILITY • DESIGN TOOLS • QUALITY PROVIDER

SOLARMOUNT



OPTIMIZED COMPONENTS

INTEGRATED BONDING & PRE-ASSEMBLED PARTS

Components are pre-assembled and optimized to reduce installation steps and save labor time. Our new grounding & bonding process eliminates copper wire and grounding straps or bonding jumpers to reduce costs. Utilize the microinverter mount with a wire management clip for an easier installation.

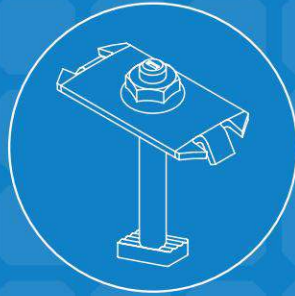
VERSATILITY

ONE PRODUCT - MANY APPLICATIONS

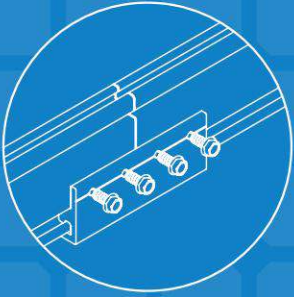
Quickly set modules flush to the roof or at a desired tilt angle. Change module orientation to portrait or landscape while securing a large variety of framed modules on flat, low slope or steep pitched roofs. Available in mill, clear and dark anodized finishes to outperform your projects financial and aesthetic aspirations.

AUTOMATED DESIGN TOOL DESIGN PLATFORM AT YOUR SERVICE

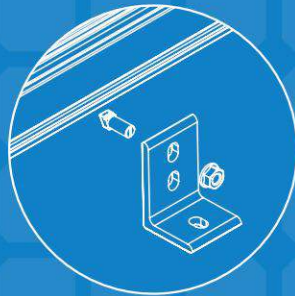
Creating a bill of materials is just a few clicks away with U-Builder, a powerful online tool that streamlines the process of designing a code compliant solar mounting system. Save time by creating a user profile, and recall preferences and projects automatically when you log in. You will enjoy the ability to share projects with customers: there's no need to print results and send to a distributor, just click and share.



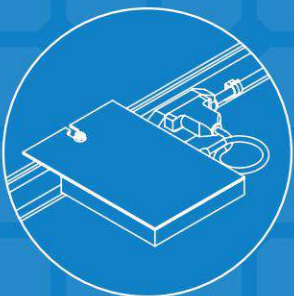
INTEGRATED BONDING
MIDCLAMP



INTEGRATED BONDING
SPLICE BAR



INTEGRATED BONDING
L-FOOT w/ T-BOLT



INTEGRATED BONDING
MICROINVERTER MOUNT w/
WIRE MANAGEMENT



UNIRAC CUSTOMER SERVICE MEANS THE HIGHEST LEVEL OF PRODUCT SUPPORT



UNMATCHED
EXPERIENCE



CERTIFIED
QUALITY



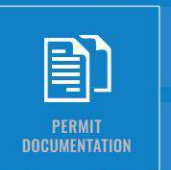
ENGINEERING
EXCELLENCE



BANKABLE
WARRANTY



DESIGN
TOOLS



PERMIT
DOCUMENTATION

TECHNICAL SUPPORT

Unirac's technical support team is dedicated to answering questions & addressing issues in real time. An online library of documents including engineering reports, stamped letters and technical data sheets greatly simplifies your permitting and project planning process.

CERTIFIED QUALITY PROVIDER

Unirac is the only PV mounting vendor with ISO certifications for 9001:2015, 14001:2015 and OHSAS 18001:2007, which means we deliver the highest standards for fit, form, and function. These certifications demonstrate our excellence and commitment to first class business practices.

BANKABLE WARRANTY

Don't leave your project to chance. Unirac has the financial strength to back our products and reduce your risk. Have peace of mind knowing you are receiving products of exceptional quality. SOLARMOUNT is covered by a twenty five (25) year limited product warranty and a five (5) year limited finish warranty.

PROTECT YOUR REPUTATION WITH QUALITY RACKING SOLUTIONS BACKED BY ENGINEERING EXCELLENCE AND A SUPERIOR SUPPLY CHAIN

PUB2017FEB28 - PRINTED



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COA # 28345
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ERMOCRATES E. CASTILLO - FL PE 52590

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REVISIONS		
DESCRIPTION	DATE	REV

PROJECT INSTALLER



Signature with
Digitally signed by:
Ermocrates E Castillo
Date:
2022.10.10
16:07:43

PROJECT NAME

ENDSLEY RESIDENCE
262 SW BLOOMINGTON TERRACE,
LAKE CITY, FL 32025

SHEET NAME

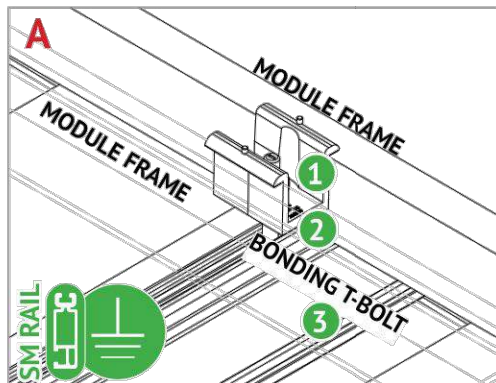
DATA SHEET

SHEET SIZE

ANSI B
11" X 17"

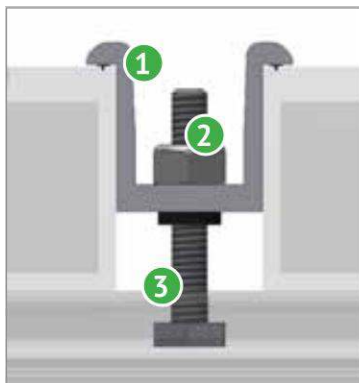
SHEET NUMBER

DS-04

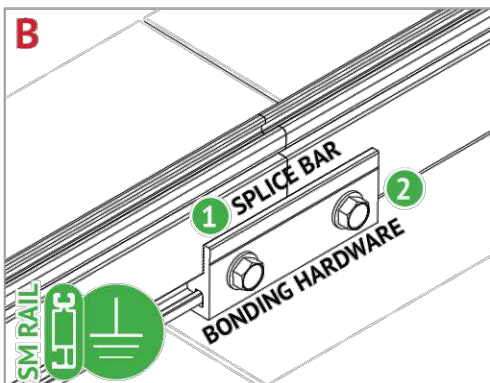


BONDING MIDCLAMP ASSEMBLY

- 1 Aluminum mid clamp with stainless steel bonding pins that pierce module frame anodization to bond module to module through clamp
- 2 Stainless steel nut bonds aluminum clamp to stainless steel T-bolt
- 3 Serrated T-bolt head penetrates rail anodization to bond T-bolt, nut, clamp, and modules to SM rail



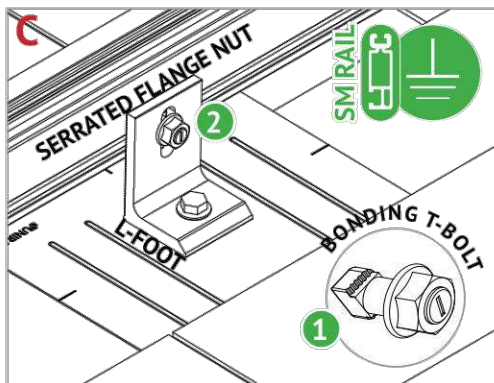
BONDING MIDCLAMP ASSEMBLY



BONDING RAIL SPLICE BAR

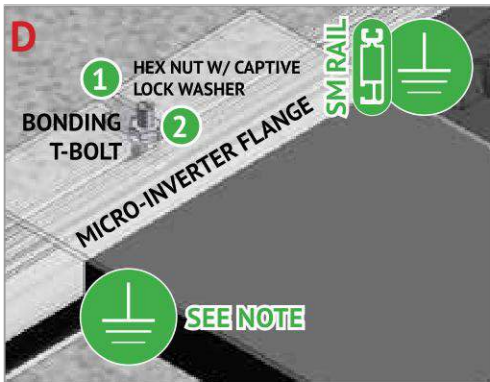
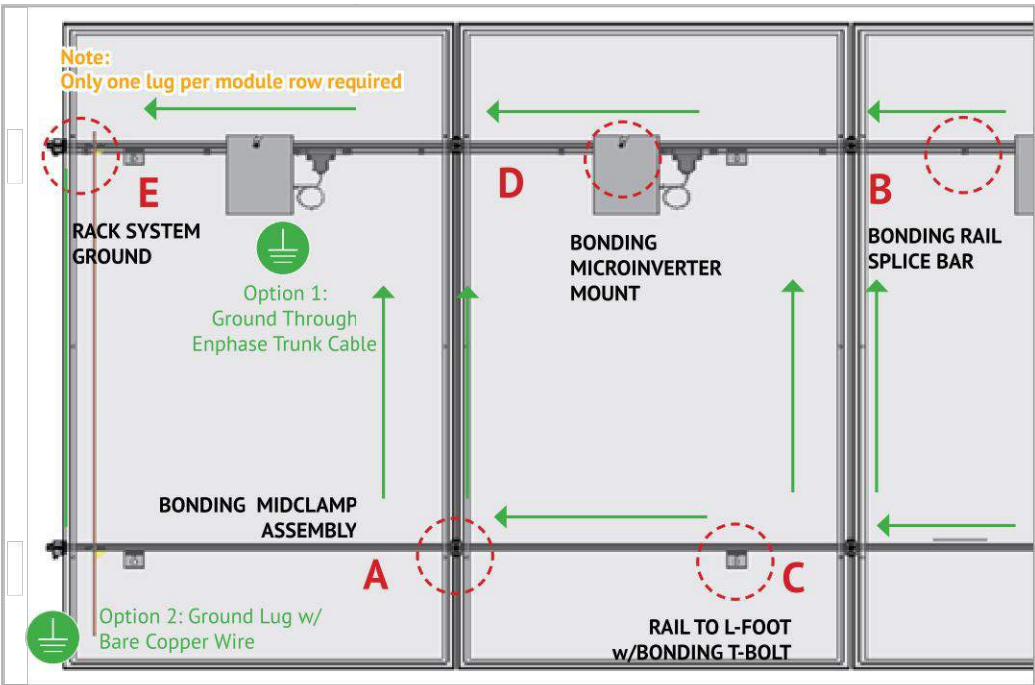
- 1 Bonding Hardware creates bond between splice bar and each rail section
- 2 Aluminum splice bar spans across rail gap to create rail to rail bond. Rail on at least one side of splice will be grounded.

Note: Splice bar and bolted connection are non-structural. The splice bar function is rail alignment and bonding.



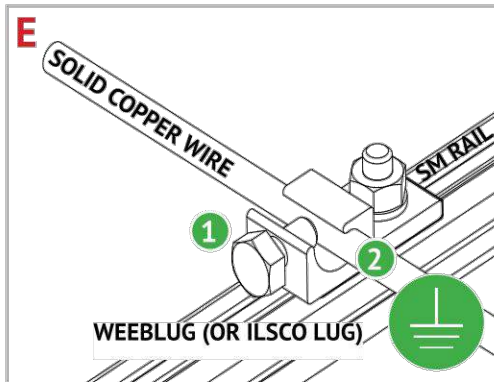
RAIL TO L-FOOT w/BONDING T-BOLT

- 1 Serrated flange nut removes L-foot anodization to bond L-Foot to stainless steel T-bolt
- 2 Serrated T-bolt head penetrates rail anodization to bond T-bolt, nut, and L-foot to grounded SM rail



BONDING MICROINVERTER MOUNT

- 1 Hex nut with captive lock washer bonds metal microinverter flange to stainless steel T-bolt
- 2 Serrated T-bolt head penetrates rail anodization to bond T-bolt, nut, and L-foot to grounded SM rail. System ground including racking and modules may be achieved through the trunk cable of approved microinverter systems. See page J for details



RACK SYSTEM GROUND

- 1 WEEB washer dimples pierce anodized rail to create bond between rail and lug
- 2 Solid copper wire connected to lug is routed to provide final system ground connection. NOTE: IlSCO lug can also be used when secured to the side of the rail. See page K for details

REVISIONS		
DESCRIPTION	DATE	REV

PROJECT INSTALLER



Digitally signed by:
Ermocrates E. Castillo
Date: 2022.10.10 16:07:44

PROJECT NAME

ENDSLEY RESIDENCE
262 SW BLOOMINGTON TERRACE,
LAKE CITY, FL 32025

SHEET NAME

DATA SHEET

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

DS-05

FLASH LOC

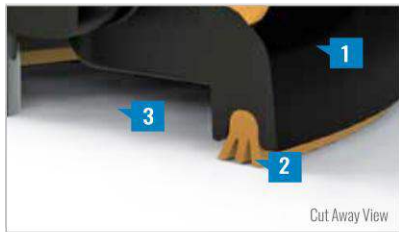


FLASHLOC is the ultimate attachment for composition shingle and rolled comp roofs. The all-in-one mount installs fast — no kneeling on hot roofs to install flashing, no prying or cutting shingles, no pulling nails. Simply drive the lag bolt and inject sealant into the base. FLASHLOC's patented TRIPLE SEAL technology preserves the roof and protects the penetration with a permanent pressure seal. Kitted with lag bolts, sealant, and hardware for maximum convenience. Don't just divert water, **LOC it out!**



PROTECT THE ROOF

Install a high-strength waterproof attachment without lifting, prying or damaging shingles.



LOC OUT WATER

With an outer shield **1** contour-conforming gasket **2** and pressurized sealant chamber **3** the Triple Seal technology delivers a 100% waterproof connection.



HIGH-SPEED INSTALL

Simply drive lag bolt and inject sealant into the port **4** to create a permanent pressure seal.

FLASH LOC
INSTALLATION GUIDE



PRE-INSTALL

Snap chalk lines for attachment rows. On shingle roofs, snap lines 1-3/4" below upslope edge of shingle course. Locate rafters and mark attachment locations.

At each location, drill a 7/32" pilot hole. Clean roof surface of dirt, debris, snow, and ice. Next, BACKFILL ALL PILOT HOLES WITH SEALANT.

NOTE: Space mounts per racking system install specifications.



STEP 1: SECURE

Place FLASHLOC over pilot hole with lag on down-slope side. Align indicator marks on sides of mount with chalk line. Pass included lag bolt and sealing washer through FLASHLOC into pilot hole. Drive lag bolt until mount is held firmly in place.

NOTE: The EPDM in the sealing washer will expand beyond the edge of the metal washer when proper torque is applied.



STEP 2: SEAL

Insert tip of UNIRAC provided sealant into port. Inject until sealant exits both vents.

Continue array installation, attaching rails to mounts with provided T-bolts.



NOTE: When FLASHLOC is installed over gap between shingle tabs or vertical joints, fill gap/joint with sealant between mount and upslope edge of shingle course.

NOTE: When installing included rail attachment hardware, torque nut to 30 ft/lbs.

USE ONLY UNIRAC APPROVED SEALANTS: Chemlink Duralink 50 (included in kit) or Chemlink M-1

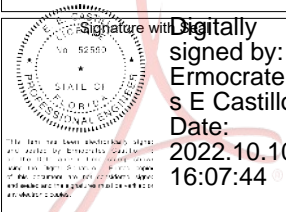


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SUITE 250,
MAITLAND, FL 32751
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REVISIONS		
DESCRIPTION	DATE	REV

PROJECT INSTALLER



PROJECT NAME

ENDSLEY RESIDENCE

262 SW BLOOMINGTON TERRACE,
LAKE CITY, FL 32025

SHEET NAME

DATA SHEET

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

DS-06

FASTER INSTALLATION. 25-YEAR WARRANTY.

FOR QUESTIONS OR CUSTOMER SERVICE VISIT UNIRAC.COM OR CALL (505) 248-2702

FASTER INSTALLATION. 25-YEAR WARRANTY.

FOR QUESTIONS OR CUSTOMER SERVICE VISIT UNIRAC.COM OR CALL (505) 248-2702

Residential Optional Calculation

25-09-1997

Ridones Richardson

by: John Sobotik

Version 2011 L

STEP 1

Article 220.82 (B) (1),(2)

sq. ft

1600

General Lighting load

4,800 VA

4

Small Appliance

6,000 VA

1

Laundry circuit

1,500 VA

Gen.Lgt, Sm App.& Laun. Load

12,300 VA

Marc Jones Construction, LLC Sunpro Solar

0

0

0

04-10-2022 15:07

STEP 2

Article 220.82 (C)

☒

A/C Condenser & Fixed Electric Space Heating

5 ton

7,130 VA

AHU 1

12.5 kW

14,100 VA

1

A/C #2

VA

AHU 2

Select

VA

Qty

A/C #3

VA

AHU 3

Select

VA

Qty

A/C #4

VA

AHU 4

Select

VA

Qty

A/C #5

VA

AHU 5

Select

VA

Qty

General lighting, Sm. Appl. & Laundry

12,300 VA

Total

1

Heating Load

9,725 VA

CU Load

8,730 VA

Electric Space Heat @ 65% <4, 40% >3, vs. A/C @ 100%

9,725 VA

Appliance Demand Load

9,566 VA

Dryer Demand Load

5,000 VA

Range Demand Load

10,000 VA

Service Demand

30,471 VA

Demand Load

127 A

Neutral Demand

80 A

Min.Service Req.

150 A

Min. Feeder size

1

Min. Neutral size

4

Eq. Grding Cond.

6

☐

Copper

4,500 VA

1

Water Heater

4,500 VA

1,400 VA

1

Refrigerator

1,400 VA

600 VA

1

Freezer

600 VA

1,030 VA

1

Dishwasher

1,030 VA

690 VA

Disposal

VA

400 VA

1

R / Hood

400 VA

1,630 VA

1

Microwave

1,630 VA

4,000 VA

Microwave

VA

170 VA

Mini Refrig

VA

400 VA

Wine Clr

VA

5,000 VA

Insta Hot

VA

1,500 VA

Ironing Center

VA

☐

select

Jacuzzi Tub

VA

☐

select

Sprinkler Pump

VA

☐

select

Well Pump

VA

☐

select

Fountain Pump

VA

☐

select

Elevator

VA

☐

Pool Equip. Panel

VA Apply Demand

☐

GATES

VA No Demand

☐

6

Other load

6 VA No Demand

Total Appliance Load

9,566 VA

STEP 4

Article 220.82 (B) (3)

Electric Clothes Dryers

5,000 VA

STEP 5

Article 220.82 (B) (3)

Electric Ranges

10,000 W

Col C demand

8000

or Number of appliances

☐

Check Box for Gas Range

Cooktop

Cooktop

Oven(s)

Oven(s)

Col B demand

Col B demand

Col B demand

Col B demand

Number of appliances

0

Dem. Factor

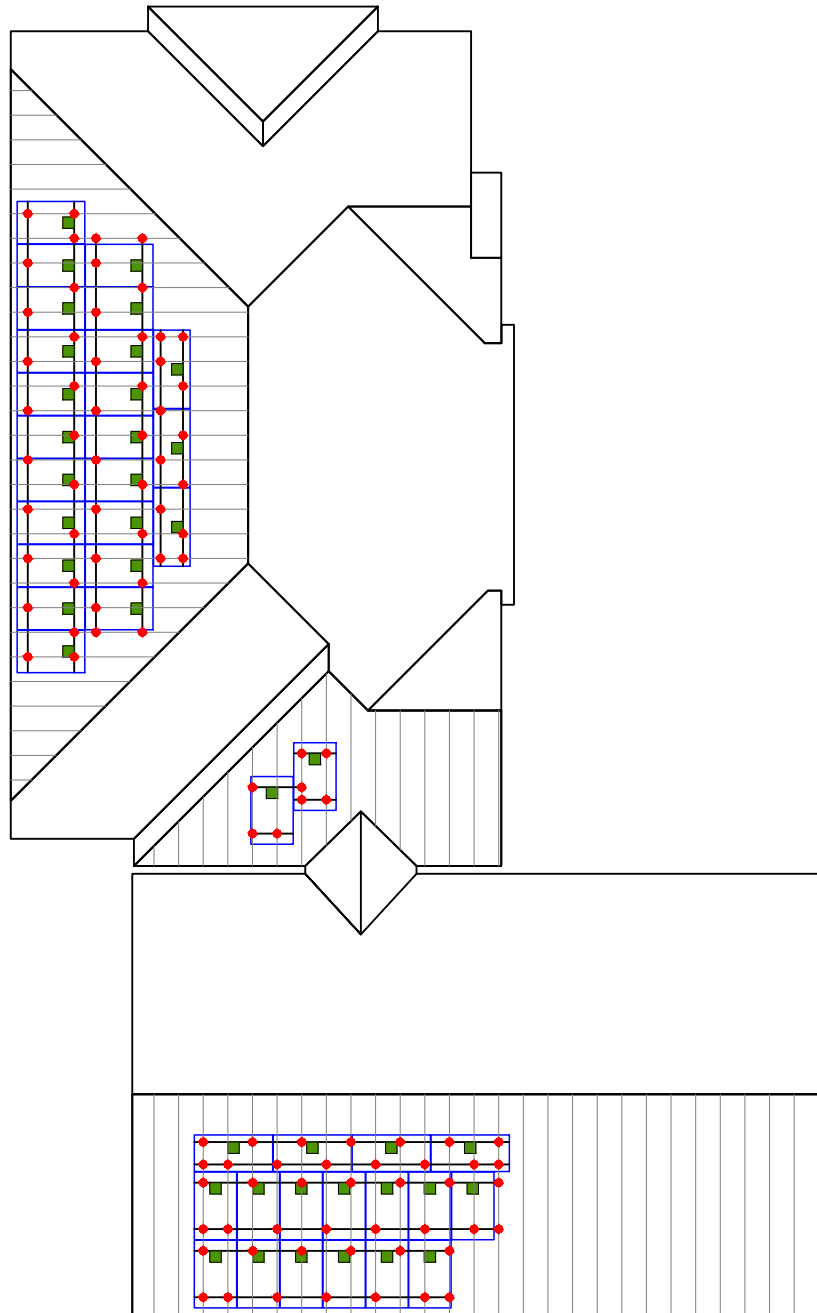
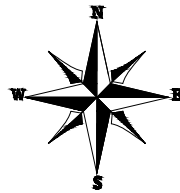
Cooktop & Oven Demand Load

jmp1jds@comcast.net

Pool Panel Feeder Calculation (See Note)		A	B	N	Continuous Motors	Non-continuous Motors
Continuous Motors	0	0	0	0	<input type="text"/> select <input type="button" value="v"/>	<input type="text"/> select <input type="button" value="v"/>
Non-continuous	0	0	0	0	<input type="text"/> select <input type="button" value="v"/>	<input type="text"/> select <input type="button" value="v"/>
Spa heater 11 kVA	<input type="text"/>	0	0		<input type="text"/> select <input type="button" value="v"/>	<input type="text"/> select <input type="button" value="v"/>
Pool heater 3.5 ton	<input type="text"/>	0	0		<input type="text"/> select <input type="button" value="v"/>	<input type="text"/> select <input type="button" value="v"/>
Pool heater 5 ton	<input type="text"/>	0	0		<input type="text"/> select <input type="button" value="v"/>	<input type="text"/> select <input type="button" value="v"/>
Pool Light	<input type="text"/> select <input type="button" value="v"/>	0	0	0	<input type="text"/> select <input type="button" value="v"/>	<input type="text"/> select <input type="button" value="v"/>
Blower	<input type="text"/> select <input type="button" value="v"/>	<input type="checkbox"/> 240v	0	0		<input type="checkbox"/> 240v
other load	<input type="text"/>	<input type="checkbox"/> 240v	0	0		<input type="checkbox"/> 240v
other load	<input type="text"/>	<input type="checkbox"/> 240v	0	0		<input type="checkbox"/> 240v
<input type="checkbox"/> Min.Copper Pool Feeder	AWG	A	A	A		
Minimum Panel Rating		Phase Amperes		Neut. load		

Motor Neutral Load

Max.Unbalanced Neutral Load



ITEM	COUNT	DESCRIPTION
PV MODULES	42	Canadian Solar CS3N-395MS
MICRO-INVERTER	42	IQ8PLUS-72-2-US
MICROINVERTER T-BOLT	42	MICROINVERTER T-BOLT
Q-CABLE CLIP	84	EN-Q-CLIP-100
Q-CABLE	10FT	Q-12-RAW-300
TRUNK CABLE	51	EN-Q-12-10-240
TRUNK BRANCH TERMINATOR	4	EN-Q-TERM-01
TRUNK WATER TIGHT COVER	20	EN-Q-SEAL-01
AC COMBINER BOX	1	EN-X-IQ-AM1-240-4
SOLADECK	3	JUNCTION BOX
RAIL	27	Unirac Light Rail
SPLICE BAR	27	UNI-303019M
ROOF ATTACHMENT	103	Unirac Flashloc
RAIL T BOLT	103	UNI-009020S
END CLAMP	32	UNI-302022D
MD CLAMP	68	UNI-302045D
WEEB LUGS	16	WEEBLUGS-6.7
TERMNAL BLOCKS	15	IMO ER10BEIGE
TERM BLOCK N CAPS	6	SP2.5-10BEIGE
NPT GLANDS	6	NPT CABLE GLAND
CONDUIT LOCKNUT	6	LOCKNUT FOR CABLE GLAND
ROOFING BOOT	3	OATEY 8" x 8"
ROOF REPAIR FABRIC	1	ROOF REPAIR FABRIC
ROOF CEMENT	2	ROOF CEMENT
SPLIT CORE TRANSFORMER	2	EN-CT-200-SPLIT
TP LINK	1	TP AV600



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REVISIONS

DESCRIPTION	DATE	REV

PROJECT INSTALLER



Digitally
signed by:
Ermocrate
s E Castillo
Date:
2022.10.10
16:07:45

PROJECT NAME

ENDSLEY RESIDENCE

262 SW BLOOMINGTON TERRACE,
LAKE CITY, FL 32025

SHEET NAME

BILL OF MATERIALS

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

BOM