PRINCIPAL Engineering

1011 N Causeway Blvd, Suite 19 ◆Mandeville, Louisiana 70471◆ Phone: 985.624.5001◆ Fax: 985.624.5303

Friday, February 17, 2023

Property Owner: Joclene Rivera

Property Address: 1025 NW Eadie St, Lake City, FL 32055

RE: Photovoltaic System Roof Installations

I have reviewed the existing structure referenced above to determine the adequacy of the existing structure support the proposed installation of an array of solar panels on the roof.

Based on my review, the existing structure meets or exceeds applicable codes listed below to support the proposed solar panel installation. This assessment is based on recent on-site inspection by solar inspectors and photographs of the existing structure. The photovoltaic system is designed to withstand uplift and downward forces; our assessment is regarding the structure's support of the array. Stresses induced by the introduction of individual mount loads on the rafters or truss top chord are within acceptable limits as shown on the attached calculations. The structural considerations used in our review and assessment include the following:

Evaluation Criteria:

Applied Codes: ASCE 7-16 FBC 2020 NEC 2017
Risk Category: II
Design Wind Speed (3-second gust): 118 mph
Wind Exposure Category: B
Ground Snow Load: 0 PSF
Seismic Design Category: D

Existing Structure:

Roof Material: Metal
Roof Structure: 2x4 Truss Top Chord
Roof Slope: 3/12

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FLORIDA FIRM NO. 30649

Effect of the Solar Array on Structure Loading:

Gravity Load:

Per IBC Section 1607, the areas of the roof where solar panels are located are considered inaccessible, and therefore not subject to roof live loading. Live load in these areas is replaced by the dead load of the solar array, 3 psf. The total gravity load on the structure is therefore reduced and the structure may remain unaltered. Connections of the mounts to the underlying structure are to be installed in a staggered pattern, except at the array ends, to distribute the loading evenly to the roof structure. The stresses within the rafters or truss top chord due to the introduction of discrete mount loads are within acceptable limits, as shown on the attached calculations.

Wind Load:

The solar panel array will be flush mounted (no more than 6" above the surrounding roof surface, and parallel to the roof surface. Any additional wind loading on the structure due to the presence of the array is negligible. The array structure is designed by the manufacturer to withstand uplift and downward forces resulting from wind and snow loads. The attached calculations verify the capacity of the connection of the solar array to the roof to resist uplift due to wind loads, the governing load case.

Snow Load:

The reduced friction of the glass surface of the solar panels allows for the lower slope factor (Cs) per Section 7.4 of ASCE 7.16 resulting in a reduced design snow load for the structure. This analysis conservatively considered the snow load to be unchanged.

Seismic Load:

Analysis shows that additional seismic loads due to the array installation will be small. Even conservatively neglecting the wall materials, the solar panel installation represents an increase in the total weight of the roof and corresponding seismic load of less than 10%. This magnitude of additional forces meets the requirements of the exception in Section 11B.4 of ASCE 7-16. The existing lateral force resisting system of the structure is therefore allowed to remain unaltered.

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Conclusion:

To the best of my professional knowledge and belief, the subject construction and photovoltaic system installation will be in compliance with all state and local building codes and guidelines in effect at the time of our review.

Limitations:

Engineer's assessment of the existing structure is based on recent field reports and current photographs of the elements of the structure that were readily accessible at the time of inspection. The design of the solar panel racking (mounts, rails, connectors, etc.), connections between the racking and panels, and electrical construction related to the installation are the responsibility of others. The photovoltaic system installation must be by competent personnel in accordance with manufacturer recommendations and specifications and should meet or exceed industry standards for quality. The contractor is responsible for ensuring that the solar array is installed according to the approved plans and must notify the engineer of any undocumented damage or deterioration of the structure, or of discrepancies between the conditions depicted in the approved plans and those discovered on site so that the project may be reevaluated and altered as required. Engineer does not assume any responsibility for improper installation of the proposed photovoltaic system.

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Uplift and Wind Downforce Calculation Summary (ASCE 7-16)
Mount, Rack, & Panel Proportioning
Point Load Check and Rafter Stress Analysis

Property Owner:	Joclene Rivera	Max. Individual Panel Dimensions		
Project Address:	1025 NW Eadie St	Length (in)	Width (in)	Area (sf)
City, State:	Lake City, FL 32055	57.6	41.1	16.44

Building Characteristics, Design Input, and Adjustment Factors				
Roof Dimensions:	Length:	63	Greater Dimension	63
	Width:	52	Least Dimension:	52
Roof Height (h):		15	Fig 30.4-1, valid under 60'	✓
Pitch: 3 on 12 =		14.0°	Must be less than 45°	✓
Roof Configuration		Gable		
Roof Structure		2x4 Truss Top Chord		
Roof Material		Plywood		
Risk Category:		II		
Basic Wind Speed:		118	From 26.5-1	
Exposure Category:		B	Fig. 26.7	
Topographic Factor (K_{zt})		0.82	Fig. 26.8-1	
Wind Pressure @ h=30, p_{net30}		See Table Below	Fig. 30.4-1	
Ht. & Exposure Adjustment (λ)		0.82	Fig. 30.4-1	
Adjusted Wind Pressures, p_{net}		See Table Below	Eq. 30.4-1	
Effective Wind Area (sf):		8.22	(Area per individual mount)	

Roof Zone Strip (a), in ft, Fig. 30.4-1, Note 5		
1 - Least Roof Horizontal Dimension (L or W) x 0.10		5.2
2 - Roof Height x 0.4		6
3 - Least Roof Horizontal Dimension (L or W) x 0.04		2.08
4 - Least of (1) and (2)		5.2
5 - Greater of (3) and (4)		5.2
6 - Greater of (5) and 3 feet	**a=**	5.2

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Net Design Pressures, p_{net} (Fig 30.4-1), Components & Cladding					
	Uplift (-psf)			Factored Pressure (0.6W, ASCE 7-16)	θ
		P_{30net}	$\|K_{zt}P_{30net}$		
gable /hip /flat					
Gable	Zone 1 & 2e	44.7	30.0	18.0	$7° < \theta \leq 20°$
	Zone 2n,2r,3e	65.2	43.8	26.3	
	Zone 3r	77.5	52.1	31.3	
Hip					

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Snow Load		
Ground Snow Load, p_g	0.0	From ASCE 7 or AHJ
Terrain Category:	B	Para 6.5.6.3
Exposure	Partial	
Exposure FactorCe	1.0	Table 7-2
Thermal Factor, Ct	1.2	Table 7-3
Importance Factor, I_s	1.0	Table 1.5.2
Roof Configuration	Gable	
Roof Slope	14.0°	
Distance from Eave to Ridge	26.0	
p_m, Minimum required Snow Load	0.00 psf	Para. 7.3.4
pf, Calculated Snow Load	0.00	Eq. 7.3-1
pf, Design Snow Load	0.00 psf	

Rail & Mount Selection		
Manufacturer:	S5!	Allowable Mount Spacing by Uplift Pressure
Model:	Solar Foot	< 39 psf : 2 rails, mounts @ 4 ft. o.c.
Substrate	Corrugated Panel	39 to 58 psf : 2 rails, mounts @ 2 ft. o.c.
Connector:	(4) 1/4-14 SD Screws 3/8" HWH	58 to 78 psf : 3 rails, mounts @ 4 ft. o.c.
		78 to 116 psf : 3 rails, mounts @ 2 ft. o.c.
Allowable Uplift:	372 lb., max.	116 to 155 psf : 4 rails, mounts @ 2 ft. o.c.
		> 155 psf : Mount capacity exceeded

Rail & Mount Layout by Zone			
Zone 1:	2 rails, mounts @ 4 ft. o.c.	Zone 2r:	2 rails, mounts @ 4 ft. o.c.
Zone 1':	N/A	Zone 3:	N/A
Zone 2:	N/A	Zone 3e:	2 rails, mounts @ 4 ft. o.c.
Zone 2e:	2 rails, mounts @ 4 ft. o.c.	Zone 3r:	2 rails, mounts @ 4 ft. o.c.
Zone 2n:	2 rails, mounts @ 4 ft. o.c.		

(From rail analysis, allowable spacing and number of rails are controlled by individual mount pullout before rail bending)

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PHOTOVOLTAIC ROOF MOUNT SYSTEM

21 MODULES-ROOF MOUNTED - 8.295 KW DC STC, 7.751 KW DC PTC, 6.090 KW AC

1025 NW EADIE ST, LAKE CITY, FL 32055

PROJECT DATA

PROJECT ADDRESS	1025 NW EADIE ST, LAKE CITY, FL 32055
OWNER:	JOCLENE RIVERA
CONTRACTOR:	ADT SOLAR LLC PHONE: (985) 238-0864
DESIGNER:	ESR
SCOPE:	8.295 KW DC ROOF MOUNT SOLAR PV SYSTEM WITH 21 CANADIAN SOLAR CS3N-395MS 395W PV MODULES WITH 21 ENPHASE IQ8PLUS-72-2-US MICROINVERTERS

AUTHORITIES HAVING JURISDICTION:
BUILDING: LAKE CITY, CITY OF (FL)
ZONING: LAKE CITY, CITY OF (FL)
UTILITY: FLORIDA POWER & LIGHT CO. - FPL (FL)

SHEET INDEX

GENERAL NOTES

1. ALL COMPONENTS ARE UL LISTED AND CEC CERTIFIED, WHERE WARRANTED.
2. THE SOLAR PV SYSTEM WILL BE INSTALLED IN ACCORDANCE WITH ARTICLE 690 OF THE NEC 2017.
3. THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION.
4. ALL CONDUCTORS OF A CIRCUIT, INCLUDING THE EGC, MUST BE INSTALLED IN THE SAME RACEWAY, OR CABLE, OR OTHERWISE RUN WITH THE PV ARRAY CIRCUIT CONDUCTORS WHEN THEY LEAVE THE VICINITY OF THE PV ARRAY.
5. WHERE METALLIC CONDUIT CONTAINING DC CONDUCTORS IS USED INSIDE THE BUILDING, IT SHALL BE IDENTIFIED AS "CAUTION: SOLAR CIRCUIT" EVERY 10FT.
6. HEIGHT OF THE AC DISCONNECT SHALL NOT EXCEED 6'-7" PER NEC CODE 240.24.
7. A GROUNDING ELECTRODE SYSTEM IN ACCORDANCE WITH CEC 690.47 AND 250.50 THROUGH 60 AND 250-166 SHALL BE PROVIDED. PER NEC GROUNDING ELECTRODE SYSTEM OF EXISTING BUILDING MAY BE USED AND BONDED TO THE SERVICE ENTRANCE. IF EXISTING SYSTEM IS INACCESSIBLE OR INADEQUATE A SUPPLEMENTAL GROUNDING ELECTRODE WILL BE USED AT THE INVERTER LOCATION CONSISTING OF A UL LISTED 8 FT. GROUND ROD WITH ACORN CLAMP. GROUNDING ELECTRODE CONDUCTORS SHALL BE NO LESS THAN #8 AWG AND NO LARGER THAN #6 AWG COPPER AND BONDED TO THE EXISTING GROUNDING ELECTRODE TO PROVIDE FOR A COMPLETE SYSTEM.
8. PHOTOVOLTAIC MODULES ARE TO BE CONSIDERED NON-COMBUSTIBLE.
9. PHOTOVOLTAIC INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
10. ALL WIRING MUST BE PROPERLY SUPPORTED BY DEVICES OR MECHANICAL MEANS DESIGNED AND LISTED FOR SUCH USE. WIRING MUST BE PERMANENTLY AND COMPLETELY HELD OFF THE ROOF SURFACE.
11. ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH THE LOCAL BUILDING CODE. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS REQUIRED BY THE NEC AND AHJ.
12. INVERTER(S) USED IN UNGROUNDED SYSTEM SHALL BE UL 1741 LISTED.
13. THE INSTALLATION OF EQUIPMENT AND ALL ASSOCIATED WIRING AND INTERCONNECTION SHALL BE PERFORMED ONLY BY QUALIFIED PERSONS [NEC 690.4(C)]
14. ALL OUTDOOR EQUIPMENT SHALL BE NEMA 3R RATED (OR BETTER), INCLUDING ALL ROOF MOUNTED TRANSITION BOXES AND SWITCHES.
15. ALL EQUIPMENT SHALL BE PROPERLY GROUNDED AND BONDED IN ACCORDANCE WITH NEC ARTICLE 250.
16. SYSTEM GROUNDING SHALL BE IN ACCORDANCE WITH NEC 690.41.
17. PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION IN ACCORDANCE WITH NEC 690.12
18. DISCONNECTING MEANS SHALL BE LOCATED IN A VISIBLE, READILY ACCESSIBLE LOCATION WITHIN THE PV SYSTEM EQUIPMENT OR A MAXIMUM OF 10 FEET AWAY FROM THE SYSTEM [NEC 690.13(A)]
19. ALL WIRING METHODS SHALL BE IN ACCORDANCE WITH NEC 690.31
20. WORK CLEARANCES AROUND ELECTRICAL EQUIPMENT WILL BE MAINTAINED PER NEC 110.26(A)(1), 110.26(A)(2) AND 110.26(A)(3).
21. ROOFTOP MOUNTED PHOTOVOLTAIC PANELS AND MODULES SHALL BE TESTED, LISTED & IDENTIFIED IN ACCORDANCE WITH UL1703
22. ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT EXPANSION JOINTS AND ANCHOR CONDUIT RUNS AS REQUIRED PER NEC.

VICINITY MAP

HOUSE PHOTO

CODE REFERENCES

PROJECT TO COMPLY WITH THE FOLLOWING:

FLORIDA RESIDENTIAL CODE, 7TH EDITION 2020 (FRC)
FLORIDA PLUMBING CODE, 7TH EDITION 2020 (FPC)
FLORIDA BUILDING CODE, 7TH EDITION 2020 EDITION (FBC)
FLORIDA MECHANICAL CODE, 7TH EDITION 2020 (FMC)
FLORIDA FIRE PREVENTION CODE, 7TH EDITION 2020 (FFPC)
2017 NATIONAL ELECTRICAL CODE

ADT Solar
22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	02/17/2023	

HENRY I. DIFRANCO, JR. LICENSE No. 71950 STATE OF FLORIDA PROFESSIONAL ENGINEER

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FLORIDA FIRM NO. 30649

PROJECT NAME & ADDRESS

JOCLENE RIVERA RESIDENCE

1025 NW EADIE ST, LAKE CITY, FL 32055

SHEET NAME
COVER SHEET

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-1

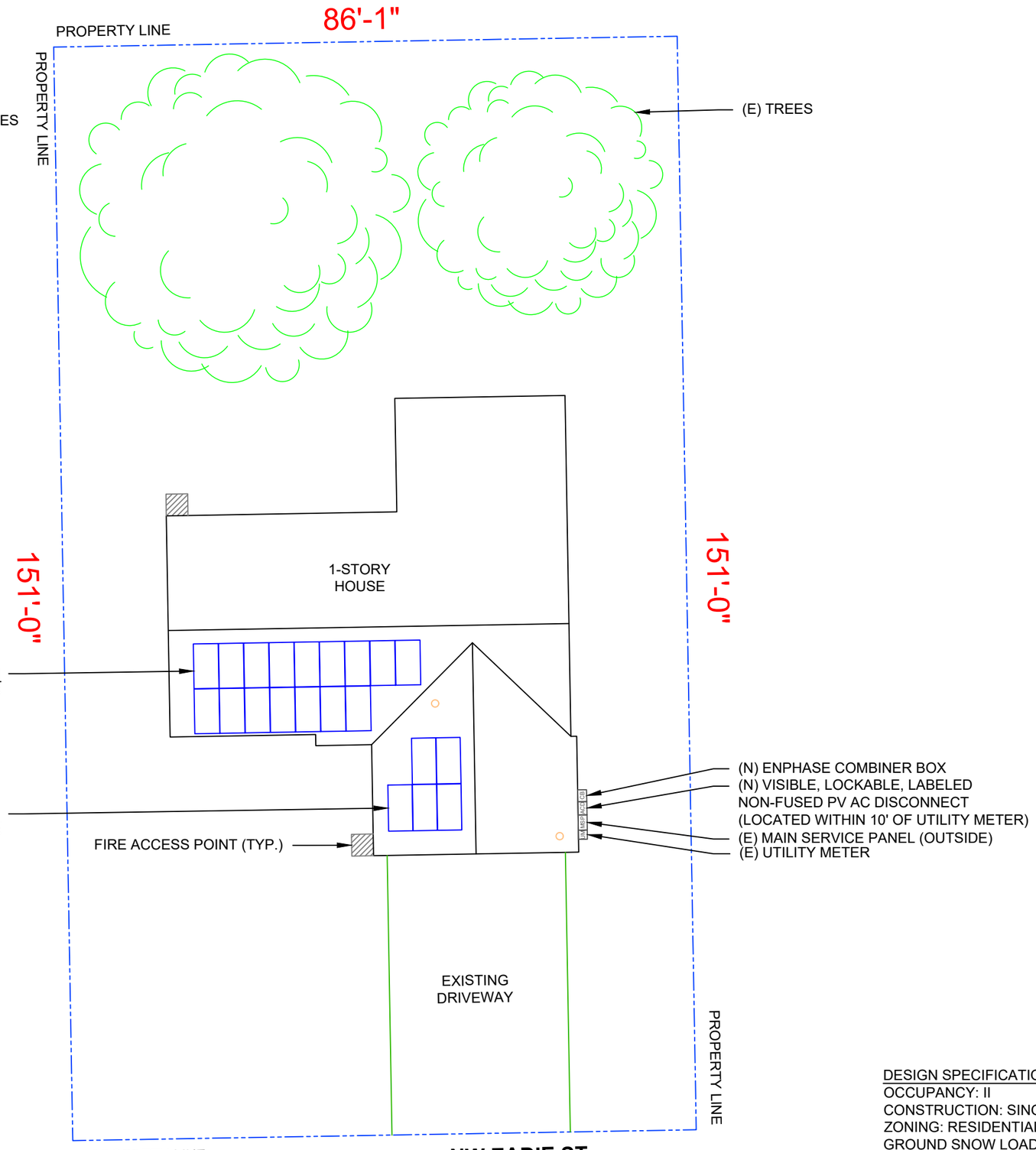
PROJECT DESCRIPTION:

21 X CANADIAN SOLAR CS3N-395MS 395W PV MODULES
ROOF MOUNTED SOLAR PHOTOVOLTAIC MODULES
DC SYSTEM SIZE: 21 x 395 = 8.295KW DC
AC SYSTEM SIZE: 21 x 290 = 6.090KW AC

EQUIPMENT SUMMARY
21 CANADIAN SOLAR CS3N-395MS 395W MONO MODULES
21 ENPHASE IQ8PLUS-72-2-US MICROINVERTERS

ROOF ARRAY AREA #1:- 350.56 SQ FT.
ROOF ARRAY AREA #2:- 109.55 SQ FT.

NOTE: VISIBLE, LOCKABLE, LABELED AC DISCONNECT LOCATED WITHIN 10' OF UTILITY METER



1 SITE PLAN
PV-2 SCALE: 1/16" = 1'-0"

DESIGN SPECIFICATION
OCCUPANCY: II
CONSTRUCTION: SINGLE-FAMILY
ZONING: RESIDENTIAL
GROUND SNOW LOAD: REFER STRUCTURAL LETTER
WIND EXPOSURE: REFER STRUCTURAL LETTER
WIND SPEED: REFER STRUCTURAL LETTER

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PROJECT NAME & ADDRESS
JOCLENE RIVERA RESIDENCE
1025 NW EADIE ST, LAKE CITY, FL 32055

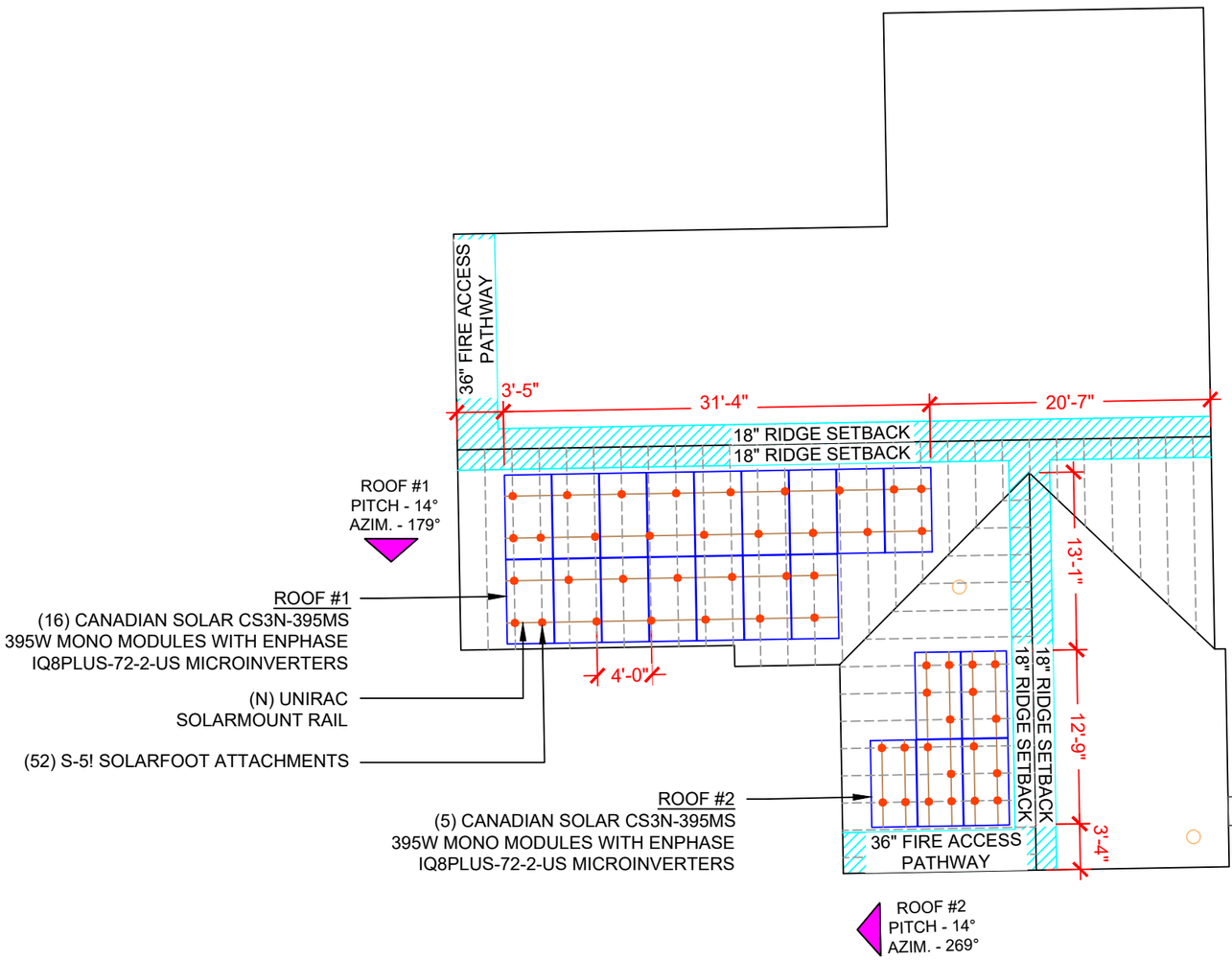
SHEET NAME
SITE PLAN

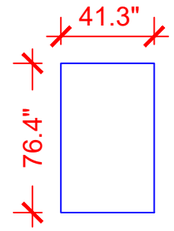
SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-2

MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 21 MODULES
MODULE TYPE = CANADIAN SOLAR CS3N-395MS 395W MONO MODULES
MODULE WEIGHT = 51.6 LBS / 23.4KG.
MODULE DIMENSIONS = 76.4" x 41.3" = 21.91 SF





CANADIAN SOLAR
CS3N-395MS 395W
MODULES

ROOF DESCRIPTION				
ROOF TYPE			METAL ROOF	
ROOF	ROOF PITCH	AZIMUTH	TRUSS SIZE	TRUSS SPACING
#1	14°	179°	2X4	24"
#2	14°	269°	2X4	24"

ARRAY AREA & ROOF AREA CALC'S			
TOTAL # OF MODULES	TOTAL ARRAY AREA (Sq. Ft.)	TOTAL ROOF AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)
21	460.11	2547.45	18

LEGEND

- JB - JUNCTION BOX
- SD - SOLADECK
- INV - INVERTER
- CB - COMBINER BOX
- ACD - AC DISCONNECT
- UM - UTILITY METER
- MSP - MAIN SERVICE PANEL
- VENT, ATTIC FAN (ROOF OBSTRUCTION)
- ROOF ATTACHMENT
- TRUSS
- CONDUIT

1 ROOF PLAN & MODULES
PV-3 SCALE: 3/32" = 1'-0"

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PROJECT NAME & ADDRESS
JOCLENE RIVERA RESIDENCE
1025 NW EADIE ST, LAKE CITY, FL 32055

SHEET NAME
ROOF PLAN & MODULES

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-3

DC SYSTEM SIZE: 21 x 395 = 8.295KW DC
AC SYSTEM SIZE: 21 x 290 = 6.090KW AC
(21) CANADIAN SOLAR CS3N-395MS 395W MONO MODULES
WITH (21) ENPHASE IQ8PLUS-72-2-US MICROINVERTERS
LOCATED UNDER EACH PANEL (240V)

CIRCUIT LEGENDS

- CIRCUIT #1
- CIRCUIT #2

NW EADIE ST

1 ELECTRICAL PLAN
PV-4 SCALE: 1/8" = 1'-0"

BILL OF MATERIALS

EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULES	21	CANADIAN SOLAR CS3N-395MS 395W MODULES
MICRO INVERTERS	21	ENPHASE IQ8PLUS-72-2-US MICROINVERTERS
JUNCTION BOXES	2	6"X6"X4" UL LISTED, STEEL WATER TIGHT NEMA TYPE 3R, UL LISTED
RAIL	13	UNIRAC SM STANDARD RAIL, 168" SILVER
SPLICE	6	SPLICE KIT
MID MODULE CLAMPS	32	MID MODULE CLAMPS
END CLAMPS	20	END CLAMPS / STOPPER SLEEVE
ATTACHMENTS	52	S-5! SOLARFOOT ATTACHMENT
INVERTER MOUNT CLIP	21	INVERTER MOUNT CLIP
INVERTER T-BOLTS	21	INVERTER T-BOLTS
TRUNK CABLES	25	TRUNK CABLES
GROUND LUGS	2	GROUND LUGS
TP LINKS	1	TP LINKS
TERMINAL BLOCKS	10	TERMINAL BLOCKS
ZIPTIES	100	ZIPTIES
TRUNK BRANCH TERMINAL	6	TRUNK BRANCH TERMINAL
TRUNK WATER TIGHT COVER	6	TRUNK WATER TIGHT COVER

LEGEND

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- SD - SOLADECK
- INV - INVERTER
- CB - COMBINER BOX
- ACD - AC DISCONNECT
- UM - UTILITY METER
- MSP - MAIN SERVICE PANEL
- - VENT, ATTIC FAN (ROOF OBSTRUCTION)
- - ROOF ATTACHMENT
- - TRUSS
- - CONDUIT

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REVISIONS		
DESCRIPTION	DATE	REV
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NESTOR J. HOUGHTON LICENSE No. 64501 STATE OF FLORIDA PROFESSIONAL ENGINEER

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FLORIDA FIRM NO. 30649

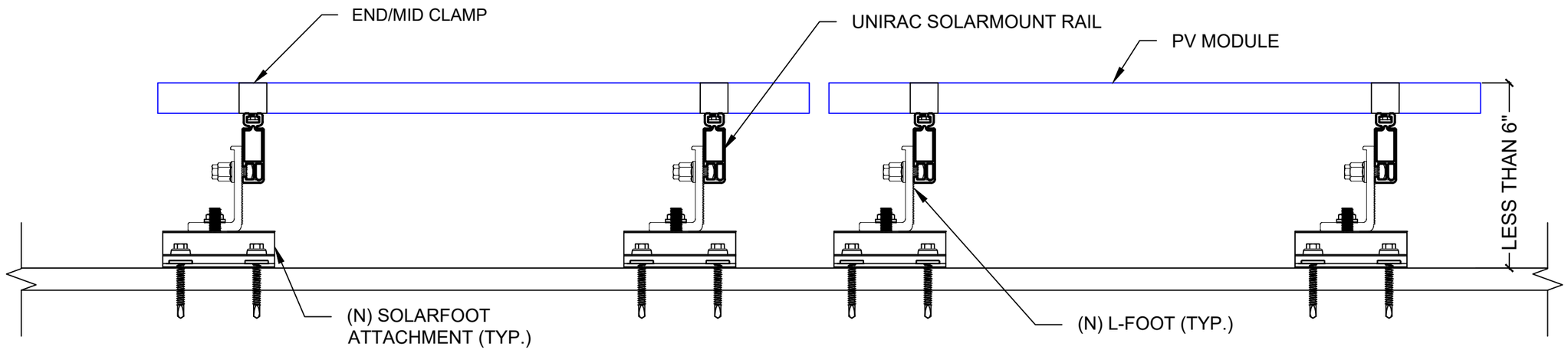
PROJECT NAME & ADDRESS

JOCLENE RIVERA RESIDENCE
1025 NW EADIE ST, LAKE CITY, FL 32055

SHEET NAME
ELECTRICAL PLAN

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-4



STRUCTURAL ATTACMENT (SIDE VIEW)

PV-5

SCALE: N.T.S

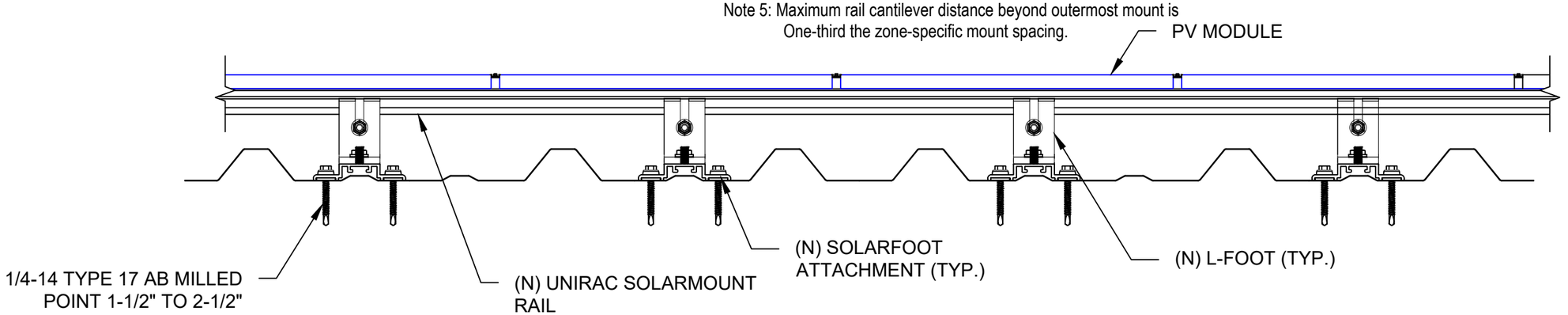
Note 1: Windspeed value is design 3-sec gust in accordance with ASCE 7-16

Note 2: a) Metal roof brackets require additional screws into purlins and deck
b) Do not install SolarFoot brackets into OSB deck without separate written instructions from Engineer
c) Installers must verify metal panels are 26 gauge or thicker before use of S-5! SolarFoot (CCD)

Note 3: These drawings were prepared under my supervison. I have researched the code and to the best of my knowledge And belief, these drawings comply with the 2020 Florida Building Code.

Note 4: Installer shall adjust mount spacing by zone to match prescribed values on engineer's calculation letter

Note 5: Maximum rail cantilever distance beyond outermost mount is One-third the zone-specific mount spacing.



ATTACHMENT DETAIL (FRONT VIEW)

PV-5

SCALE: N.T.S

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PROJECT NAME & ADDRESS

JOCLENE RIVERA RESIDENCE

1025 NW EADIE ST, LAKE CITY, FL 32055

SHEET NAME
STRUCTURAL DETAIL

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-5

DC SYSTEM SIZE: 21 x 395 = 8.295KW DC
AC SYSTEM SIZE: 21 x 290 = 6.090KW AC

(21) CANADIAN SOLAR CS3N-395MS 395W MONO MODULES
WITH (21) ENPHASE IQ8PLUS-72-2-US MICROINVERTERS
LOCATED UNDER EACH PANEL (240V)
(1) BRANCH CIRCUIT OF 11 MODULES AND
(1) BRANCH CIRCUIT OF 10 MODULES CONNECTED IN PARALLEL

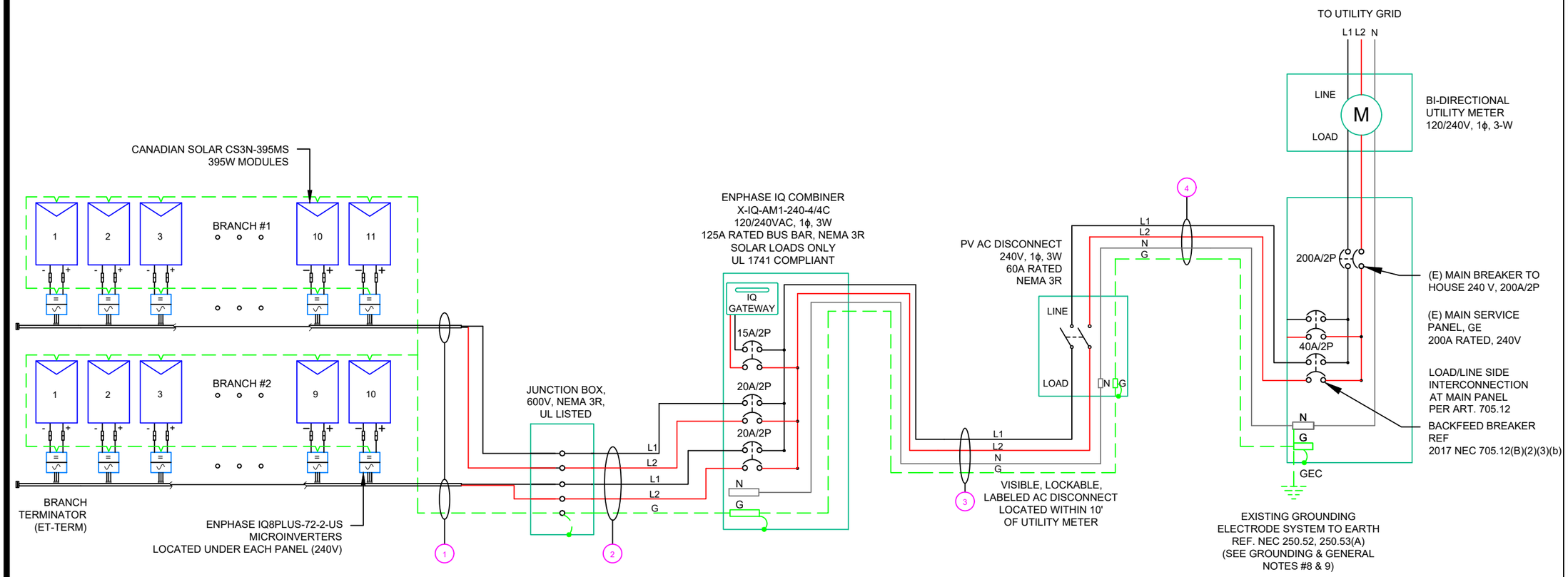
BACKFEED BREAKER CALCULATION (120% RULE):
(MAIN BUSS X 1.2 - MAIN BREAKER) >= (INVERTER CURRENT*1.25)
(200A X 1.2 - 200A) >= (31.763A)
(40A) >= (31.763A) HENCE OK

OCPD CALCULATIONS:
NEC 690.9(B)
(21 IQ8 PLUS) * 1.21A * 1.25
=31.763A

INTERCONNECTION NOTES:
1. INTERCONNECTION SIZING, LIMITATIONS AND COMPLIANCE DETERMINED IN ACCORDANCE WITH [NEC 705.12], AND [NEC 690.59].
2. GROUND FAULT PROTECTION IN ACCORDANCE WITH [NEC 215.9], [NEC 230.95].
3. ALL EQUIPMENT TO BE RATED FOR BACKFEEDING.
4. PV BREAKER TO BE POSITIONED AT THE OPPOSITE END OF THE BUSBAR RELATIVE TO THE MAIN BREAKER.

DISCONNECT NOTES:
1. DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING LIVE ARE CONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY THE UPPER TERMINALS)
2. AC DISCONNECT MUST BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH
3. DISCONNECT MEANS AND THEIR LOCATION SHALL BE IN ACCORDANCE WITH [NEC 225.31] AND [NEC 225.32].

GROUNDING & GENERAL NOTES:
1. PV GROUNDING ELECTRODE SYSTEM NEEDS TO BE INSTALLED IN ACCORDANCE WITH [NEC 690.43]
2. PV INVERTER IS UNGROUNDED, TRANSFORMER-LESS TYPE.
3. DC GEC AND AC EGC TO REMAIN UNSPLICED, OR SPLICED TO EXISTING ELECTRODE
4. ANY EXISTING WIRING INVOLVED WITH PV SYSTEM CONNECTION THAT IS FOUND TO BE INADEQUATE PER CODE SHALL BE CORRECTED PRIOR TO FINAL INSPECTION.
5. JUNCTION BOX QUANTITIES, AND PLACEMENT SUBJECT TO CHANGE IN THE FIELD - JUNCTION BOX DEPICTED ON ELECTRICAL DIAGRAM REPRESENT WIRE TYPE TRANSITIONS.
6. AC DISCONNECT NOTED IN EQUIPMENT SCHEDULE OPTIONAL IF OTHER AC DISCONNECTING MEANS IS LOCATED WITHIN 10' OF SERVICE DISCONNECT.
7. RACEWAYS AND CABLES EXPOSED TO SUNLIGHT ON ROOFTOPS SHOULD BE INSTALLED MORE THAN 7/8" ABOVE THE ROOF USING CONDUIT SUPPORTS.
8. VERIFY UFER/EXISTING ROD OR ADD TWO GROUNDING RODS(5/8" X 8' EMBEDMENT) SPACED 6 FEET MINIMUM APART.(RECOMMENDED MINIMUM SPACING SHALL BE THE LENGTH OF THE GROUND ROD USED.)
9. BOND COLD WATER AND GAS LINES(IF PRESENT) TO GROUNDING ELECTRODE CONDUCTOR



QTY	CONDUCTOR INFORMATION		CONDUIT TYPE	CONDUIT SIZE
(4)	#12AWG -	Q CABLE (L1 & L2 NO NEUTRAL)	N/A	N/A
(1)	#6AWG -	BARE COPPER IN FREE AIR		
(4)	#12AWG -	THWN-2 (L1,L2) (EXTERIOR) / #12/2 ROMEX IN ATTIC	EMT, LFMC OR PVC	1"
(1)	#12AWG -	THWN-2 GND		
(2)	#6AWG -	THWN-2 (L1,L2)	EMT, LFMC OR PVC	1"
(1)	#6AWG -	THWN-2 N		
(1)	#10AWG -	THWN-2 GND		
(2)	#6AWG -	THWN-2 (L1,L2)	EMT, LFMC OR PVC	1"
(1)	#6AWG -	THWN-2 N		
(1)	#10AWG -	THWN-2 GND		

(GN) GENERAL NOTES :
1. CONDUIT TO BE UL LISTED FOR WET LOCATION AND UV PROTECTED (EX. -EMT, SCH 80 PVC OR RMC).
2. FMC MAYBE USED IN INDOOR APPLICATIONS WHERE PERMITTED BY NEC ART. 348

1 ELECTRICAL LINE DIAGRAM
PV-6 SCALE: N.T.S.

ADT Solar
22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	02/17/2023	

NESTOR J. HOUGHTON LICENSE No. 64501 STATE OF FLORIDA PROFESSIONAL ENGINEER

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PRINCIPAL ENGINEERING, INC.
1011 N. CAUSEWAY BLVD. STE 19
MANDEVILLE, LA 70471
985.624.5001
INFO@PI-AEC.COM
FLORIDA FIRM NO. 30649

PROJECT NAME & ADDRESS
JOCLENE RIVERA RESIDENCE
1025 NW EADIE ST, LAKE CITY, FL 32055

SHEET NAME
ELECTRICAL LINE DIAGRAM

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-6

INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL #	ENPHASE IQ8PLUS-72-2-US MICROINVERTERS
MIN/MAX DC VOLT RATING	30V MIN/ 58V MAX
MAX INPUT POWER	235W-440W
NOMINAL AC VOLTAGE RATING	240V/ 211-264V
MAX AC CURRENT	1.21A
MAX MODULES PER CIRCUIT	13 (SINGLE PHASE)
MAX OUTPUT POWER	290 VA

SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL #	CANADIAN SOLAR CS3N-395MS 395W MODULE
VMP	37V
IMP	10.68A
VOC	44.3V
ISC	11.44A
TEMP. COEFF. VOC	-0.26%/°C
MODULE DIMENSION	76.4"L x 41.3"W x 1.38"D (In Inch)

AMBIENT TEMPERATURE SPECS	
RECORD LOW TEMP	-5°C
AMBIENT TEMP (HIGH TEMP 2%)	36°C
MODULE TEMPERATURE COEFFICIENT OF Voc	-0.26%/°C

PERCENT OF VALUES	NUMBER OF CURRENT CARRYING CONDUCTORS IN EMT
.80	4-6
.70	7-9
.50	10-20

AC CALCULATIONS

CIRCUIT ORIGIN	CIRCUIT DESTINATION	VOLTAGE (V)	FULL LOAD AMPS "FLA" (A)	FLA*1.25 (A)	OCPD SIZE (A)	NEUTRAL SIZE	GROUND SIZE	CONDUCTOR SIZE	75°C AMPACITY (A)	AMPACITY CHECK #1	AMBIENT TEMP. (°C)	TOTAL CC CONDUCTORS IN RACEWAY	90°C AMPACITY (A)	DERATION FACTOR FOR AMBIENT TEMPERATURE NEC 310.15(B)(2)(a)	DERATION FACTOR FOR CONDUCTORS PER RACEWAY NEC 310.15(B)(3)(a)	90°C AMPACITY DERATED (A)	AMPACITY CHECK #2	FEEDER LENGTH (FEET)	CONDUCTOR RESISTANCE (OHM/KFT)	VOLTAGE DROP AT FLA (%)	CONDUIT SIZE	CONDUIT FILL (%)
CIRCUIT 1	JUNCTION BOX	240	13.31	16.6375	20	N/A	BARE COPPER #6 AWG	CU #12 AWG	25	PASS	36	2	30	0.91	1	27.3	PASS			0.55	N/A	#N/A
CIRCUIT 2	JUNCTION BOX	240	12.1	15.125	20	N/A	BARE COPPER #6 AWG	CU #12 AWG	25	PASS	36	2	30	0.91	1	27.3	PASS			0.32	N/A	#N/A
JUNCTION BOX	COMBINER PANEL	240	13.31	16.6375	20	N/A	CU #12 AWG	CU #12 AWG	25	PASS	36	4	30	0.91	0.8	21.84	PASS	20	1.98	0.439	1" PVC	7.992788
COMBINER PANEL	AC DISCONNECT	240	25.41	31.7625	40	CU #8 AWG	CU #10 AWG	CU #8 AWG	65	PASS	36	2	75	0.91	1	58.25	PASS	5	0.491	0.052	1" PVC	20.81731
AC DISCONNECT	PU	240	25.41	31.7625	40	CU #6 AWG	CU #10 AWG	CU #6 AWG	65	PASS	36	2	75	0.91	1	58.25	PASS	5	0.491	0.052	1" PVC	20.81731

Circuit 1 Voltage Drop	1.093
Circuit 2 Voltage Drop	0.863

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.
3. 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.
4. WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.
5. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
6. WHERE SIZES OF SOLADECK, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
7. ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
8. MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION.
9. MODULE SUPPORT RAIL TO BE BONDED TO CONTINUOUS COPPER G.E.C. VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN LUG.
10. TEMPERATURE RATINGS OF ALL CONDUCTORS, TERMINATIONS, BREAKERS, OR OTHER DEVICES ASSOCIATED WITH THE SOLAR PV SYSTEM SHALL BE RATED FOR AT LEAST 75 DEGREE C.

ADT Solar
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MANDEVILLE, LA 70471
PHONE: 9152011490

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INFO@PI-AEC.COM
FLORIDA FIRM NO. 30649

PROJECT NAME & ADDRESS

JOCLENE RIVERA RESIDENCE

1025 NW EADIE ST, LAKE CITY, FL 32055

SHEET NAME
WIRING CALCULATIONS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-7

CAUTION:
AUTHORIZED SOLAR
PERSONNEL ONLY!

LABEL-1:
LABEL LOCATION:
AC DISCONNECT

⚠ WARNING

ELECTRICAL SHOCK HAZARD

TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL- 2:
LABEL LOCATION:
AC DISCONNECT
COMBINER
MAIN SERVICE PANEL
SUBPANEL
MAIN SERVICE DISCONNECT
CODE REF: NEC 690.13(B)

⚠WARNING **DUAL POWER SOURCE**
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL- 3:
LABEL LOCATION:
PRODUCTION METER
UTILITY METER
MAIN SERVICE PANEL
SUBPANEL
CODE REF: NEC 705.12(C) & NEC 690.59

⚠ WARNING

TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

LABEL- 4:
LABEL LOCATION:
MAIN SERVICE PANEL
SUBPANEL
MAIN SERVICE DISCONNECT
COMBINER
CODE REF: NEC 110.27(C) & OSHA 1910.145 (f) (7)

⚠ CAUTION
PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFEED

LABEL- 5:
LABEL LOCATION:
MAIN SERVICE PANEL (ONLY IF SOLAR IS BACK-FED)
SUBPANEL (ONLY IF SOLAR IS BACK-FED)
CODE REF: NEC 705.12(D) & NEC 690.59

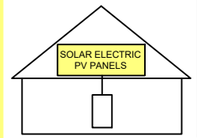
⚠ WARNING

POWER SOURCE OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL- 6:
LABEL LOCATION:
MAIN SERVICE PANEL (ONLY IF SOLAR IS BACK-FED)
SUBPANEL (ONLY IF SOLAR IS BACK-FED)
CODE REF: NEC 705.12(B)(3)(2)

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- 7:
LABEL LOCATION:
AC DISCONNECT
CODE REF: IFC 605.11.3.1(1) & NEC 690.56(C)

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL- 8:
LABEL LOCATION:
AC DISCONNECT
CODE REF: NEC 690.56(C)(2)

PHOTOVOLTAIC

AC DISCONNECT

LABEL- 9:
LABEL LOCATION:
AC DISCONNECT
CODE REF: NEC 690.13(B)

PHOTOVOLTAIC AC DISCONNECT

NOMINAL OPERATING AC VOLATGE	240 V
RATED AC OUTPUT CURRENT	25.41 A

LABEL- 10:
LABEL LOCATION:
MAIN SERVICE PANEL
SUBPANEL
AC DISCONNECT
CODE REF: NEC 690.54

MAIN PHOTOVOLTAIC SYSTEM DISCONNECT

LABEL- 11:
LABEL LOCATION:
MAIN SERVICE DISCONNECT (ONLY IF MAIN SERVICE DISCONNECT IS PRESENT)
CODE REF: NEC 690.13(B)

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FLORIDA FIRM NO. 30649

PROJECT NAME & ADDRESS

JOCLENE RIVERA RESIDENCE

1025 NW EADIE ST,
LAKE CITY, FL 32055

SHEET NAME
LABELS

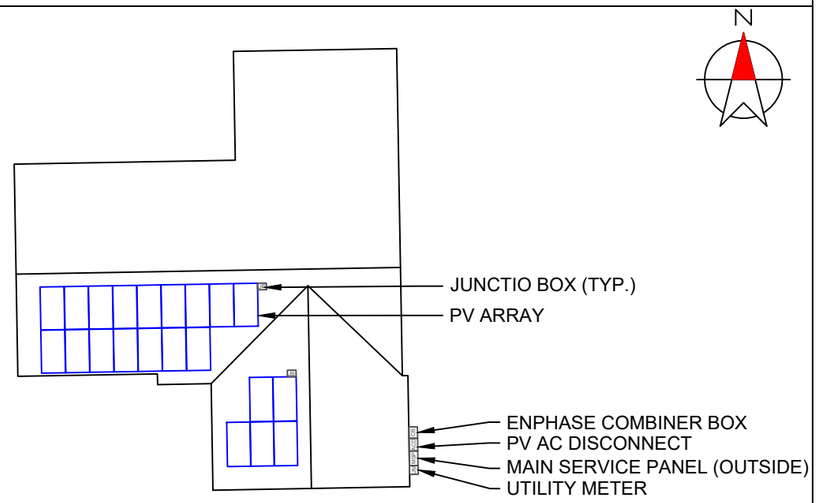
SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-8

CAUTION

MULTIPLE SOURCES OF POWER

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTING MEANS LOCATED AS SHOWN:



1025 NW EADIE ST, LAKE CITY, FL 32055

DIRECTORY

PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM.

(ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS OUTLINED WITHIN: NEC 690.56(B)&(C), [NEC 705.10])

LABELING NOTES:

1. LABELS CALLED OUT ACCORDING TO ALL COMMON CONFIGURATIONS. ELECTRICIAN TO DETERMINE EXACT REQUIREMENTS IN THE FIELD PER CURRENT NEC AND LOCAL CODES AND MAKE APPROPRIATE ADJUSTMENTS.
2. LABELING REQUIREMENTS BASED ON THE 2017 NATIONAL ELECTRIC CODE, OSHA STANDARD 19010.145, ANSI Z535.
3. MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
4. LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED [NEC 110.21]
5. LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8", WHITE ON RED BACKGROUND; REFLECTIVE, AND PERMANENTLY AFFIXED [IFC 605.11.1.1]

ADT Solar

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FLORIDA FIRM NO. 30649

PROJECT NAME & ADDRESS

JOCLENE RIVERA RESIDENCE

1025 NW EADIE ST, LAKE CITY, FL 32055

SHEET NAME
PLACARD

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-9

(H) - INSPECT ENTIRE JOBSITE FOR HAZARDS

(SV) - DRAW SUNPRO VEHICLE LOCATION ON PLANS

(HHZ) - DRAW HARD HAT ZONE AROUND HOUSE

(X) - DRAW FALL PROTECTION ANCHOR LOCATIONS

(L) - DRAW LADDER & ROOF ACCESS POINTS

(EH) - DRAW ELECTRICAL HAZARD AREAS

(W/TH) - DRAW WATER & TRIP HAZARD LOCATIONS

SKY LIGHT: YES | NO IF SO, HOW MANY:_____

SERVICE LINE ENTRANCE: OVERHEAD | UNDERGROUND
*IF OVERHEAD, DRAW POWERLINE ON PLAN SET AND PROVIDE APPROPRIATE WORK BOUNDARY

ROOF SURFACE: SHINGLE | METAL | TILE | TPO

CIRCLE WEATHER CONDITIONS:

SUNNY OVERCAST LIGHT RAIN

HEAVY RAIN FOGGY WINDY

TEMPERATURE:_____ IF WINDY, STATE WIND SPEED:_____

CHECK IF THE FOLLOWING EQUIPMENT IS READILY AVAILABLE ON ALL SUNPRO SOLAR INSTALLATION VEHICLES ON EACH JOB SITE:

____ EYE WASH BOTTLE/SOLUTION
____ DRINKING WATER
____ FIRE EXTINGUISHER
____ FIRST AID KIT
____ NECESSARY JOB SPECIFICS

ADDRESS OF NEAREST MEDICAL CARE FACILITY:

_____

LEAD INSTALLER IS TO CONDUCT A DAILY SAFETY BRIEFING AND THE INCLUDED CHECKLIST MUST BE COMPLETED WITH ALL NECESSARY LABELS PRIOR TO BEGINNING ANY ONSITE WORK.

_____ _____
LEAD INSTALLER SIGNATURE DATE

CREW SIGNATURES:

_____

_____

_____

_____

PROJECT ADDRESS:

_____

ADT Solar

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MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS		
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PROJECT NAME & ADDRESS

JOCLENE RIVERA RESIDENCE

1025 NW EADIE ST, LAKE CITY, FL 32055

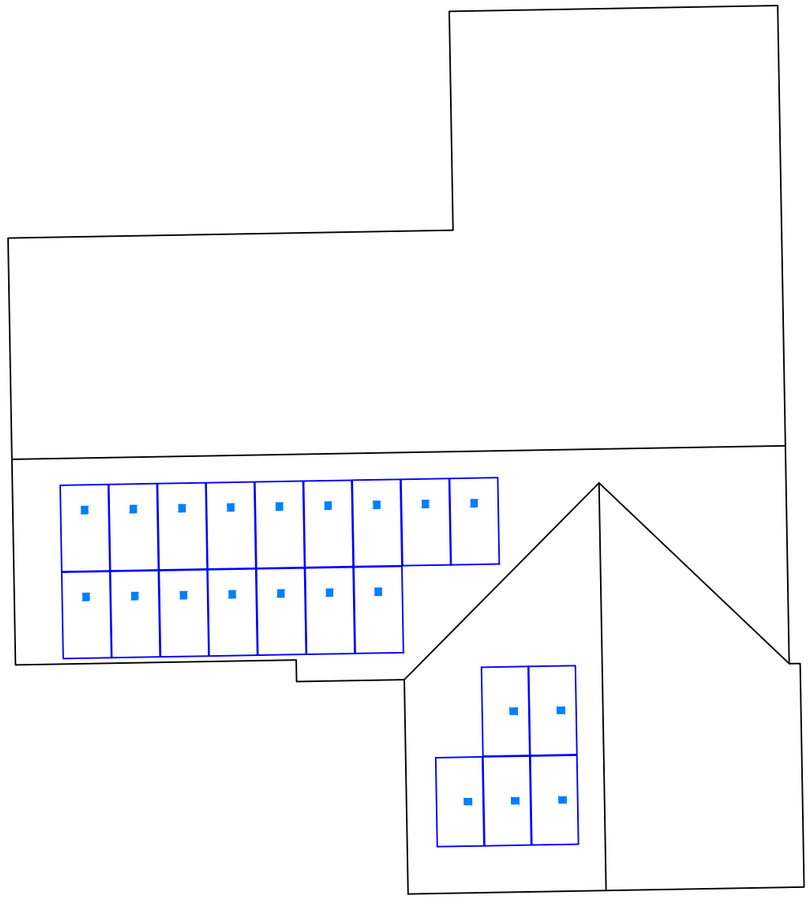
SHEET NAME
JHA FORM

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-10

MICRO INVERTER CHART

	1-10	11-20	21-30	31-40	41-50	51-60	61-70
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							



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DATE: 02/17/2023

PROJECT NAME & ADDRESS

JOCLENE RIVERA RESIDENCE

1025 NW EADIE ST,
LAKE CITY, FL 32055

SHEET NAME
MICRO INVERTER CHART

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-11

NEW

CanadianSolar

HiKuBlack Mono PERC

BLACK FRAME ON BLACK BACKSHEET

F23 Frame

380 W ~ 410 W

CS3N-380|385|390|395|400|405|410MS

MORE POWER

410 W — Module power up to 410 W
Module efficiency up to 20.2 %

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*

* For detailed information, please refer to Installation Manual.

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

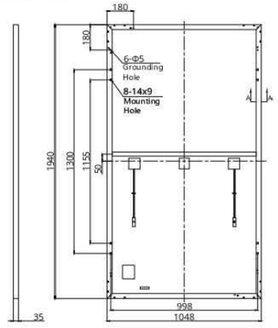
* The specific certificates applicable to different module types and markets will vary, and therefore not all of the certifications listed herein will simultaneously apply to the products you order or use. Please contact your local Canadian Solar sales representative to confirm the specific certificates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

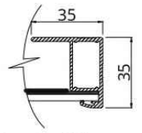
CSI SOLAR (USA) CO., LTD.
1350 Treat Blvd. Suite 500, Walnut Creek, CA 94598, USA | www.csisolar.com/na | service.ca@csisolar.com

ENGINEERING DRAWING (mm)

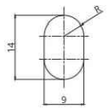
Rear View



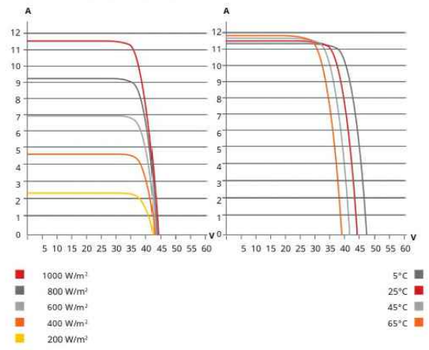
Frame Cross Section
A - A



Mounting Hole



CS3N-400MS / I-V CURVES



ELECTRICAL DATA | STC*

CS3N	380MS	385MS	390MS	395MS	400MS	405MS	410MS
Nominal Max. Power (Pmax)	380 W	385 W	390 W	395 W	400 W	405 W	410 W
Opt. Operating Voltage (Vmp)	36.4 V	36.6 V	36.8 V	37.0 V	37.2 V	37.4 V	37.6 V
Opt. Operating Current (Imp)	10.44 A	10.52 A	10.60 A	10.68 A	10.76 A	10.83 A	10.92 A
Open Circuit Voltage (Voc)	43.7 V	43.9 V	44.1 V	44.3 V	44.5 V	44.7 V	44.9 V
Short Circuit Current (Isc)	11.26 A	11.32 A	11.38 A	11.44 A	11.50 A	11.56 A	11.62 A
Module Efficiency	18.7%	18.9%	19.2%	19.4%	19.7%	19.9%	20.2%
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	410MS
Nominal Max. Power (Pmax)	284 W	288 W	291 W	295 W	299 W	303 W	306 W
Opt. Operating Voltage (Vmp)	34.0 V	34.2 V	34.4 V	34.6 V	34.7 V	34.9 V	35.1 V
Opt. Operating Current (Imp)	8.35 A	8.42 A	8.48 A	8.54 A	8.60 A	8.66 A	8.73 A
Open Circuit Voltage (Voc)	41.2 V	41.4 V	41.6 V	41.8 V	41.9 V	42.1 V	42.3 V
Short Circuit Current (Isc)	9.08 A	9.13 A	9.18 A	9.23 A	9.28 A	9.33 A	9.37 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.

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

* 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.

ADT Solar
22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	02/17/2023	

DATE: 02/17/2023

PROJECT NAME & ADDRESS

JOCLENE RIVERA RESIDENCE

1025 NW EADIE ST, LAKE CITY, FL 32055

SHEET NAME
EQUIPMENT SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-12

ENPHASE

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.

Enphase 25 year limited warranty

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.

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

UL CERTIFIED SAFETY

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

IQ8SP-DS-0002-01-EN-US-2022-03-17

* Only when installed with IQ System Controller 2, meets UL 1741.
** IQ8 and IQ8Plus supports split phase, 240V installations only.

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, 66-cell/132 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	
Overvoltage 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	
AC short circuit fault current over 3 cycles	Arms	2	
Max units per 20 A (L-L) branch circuit[4]		16	13
Total harmonic distortion		<5%	
Overvoltage 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	
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-2022-03-17

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MANDEVILLE, LA 70471
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PROJECT NAME & ADDRESS

JOCLENE RIVERA RESIDENCE

1025 NW EADIE ST,
LAKE CITY, FL 32055

SHEET NAME
EQUIPMENT SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-13

Data Sheet
Enphase Networking

Enphase IQ Combiner 4/4C

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

X-IQ-AM1-240-4C

X-IQ-AM1-240-4

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

UL LISTED

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE.

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
Envoy breaker	10A or 15A rating GE/Siemens/Eaton 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**

ENPHASE.

ADT Solar
22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	02/17/2023	

DATE: 02/17/2023

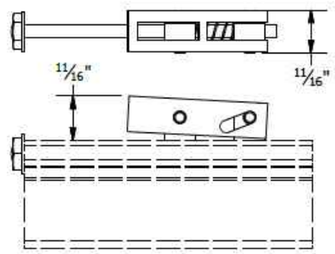
PROJECT NAME & ADDRESS
JOCLENE RIVERA RESIDENCE
1025 NW EADIE ST, LAKE CITY, FL 32055

SHEET NAME
EQUIPMENT SPECIFICATION

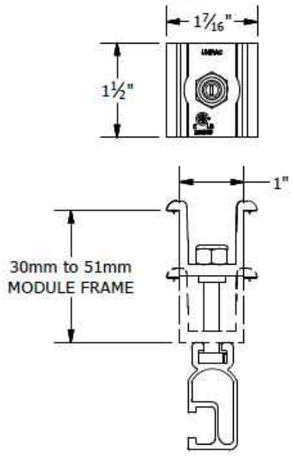
SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-14

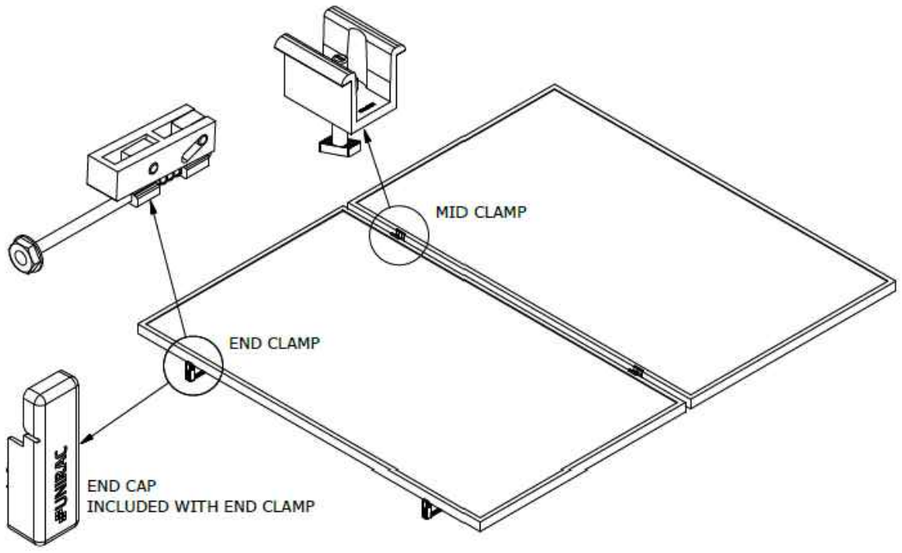
PRO SERIES END CLAMP



PRO SERIES MID CLAMP



PART # TABLE	
P/N	DESCRIPTION
302035M	ENDCLAMP PRO
302030M	MIDCLAMP PRO - MILL
302030D	MIDCLAMP PRO - DRK



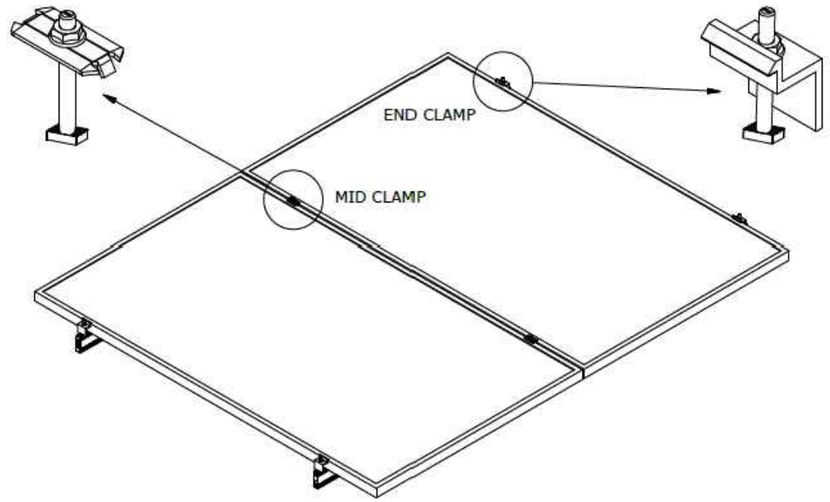
UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART & ASSEMBLY
DESCRIPTION:	PRO SERIES BONDING CLAMPS
REVISION DATE:	10/26/2017

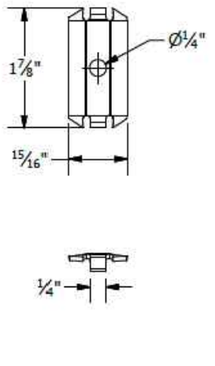
DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

PRODUCT PROTECTED BY ONE OR MORE US PATENTS
LEGAL NOTICE

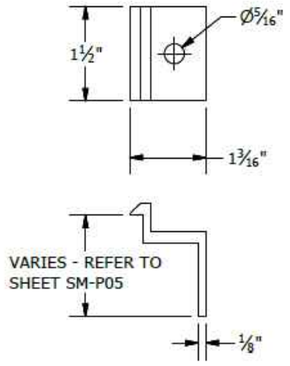
SM-A01
SHEET



PART # TABLE	
P/N	DESCRIPTION
302027C	SM BND MIDCLAMP BC SS
302027D	SM BND MIDCLAMP BC DRK SS
302028C	SM BND MIDCLAMP EF SS
302028D	SM BND MIDCLAMP EF DRK SS
302029C	SM BND MIDCLAMP DK SS
302029D	SM BND MIDCLAMP DK DRK SS
	FOR BONDING END CLAMP REFER TO SHEET SM-P05



BONDING SM MID CLAMP



BONDING SM END CLAMP

UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART & ASSEMBLY
DESCRIPTION:	BONDING TOP CLAMPS
REVISION DATE:	10/26/2017

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

PRODUCT PROTECTED BY ONE OR MORE US PATENTS
LEGAL NOTICE

SM-A01A
SHEET

ADT Solar
22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	02/17/2023	

DATE: 02/17/2023

PROJECT NAME & ADDRESS

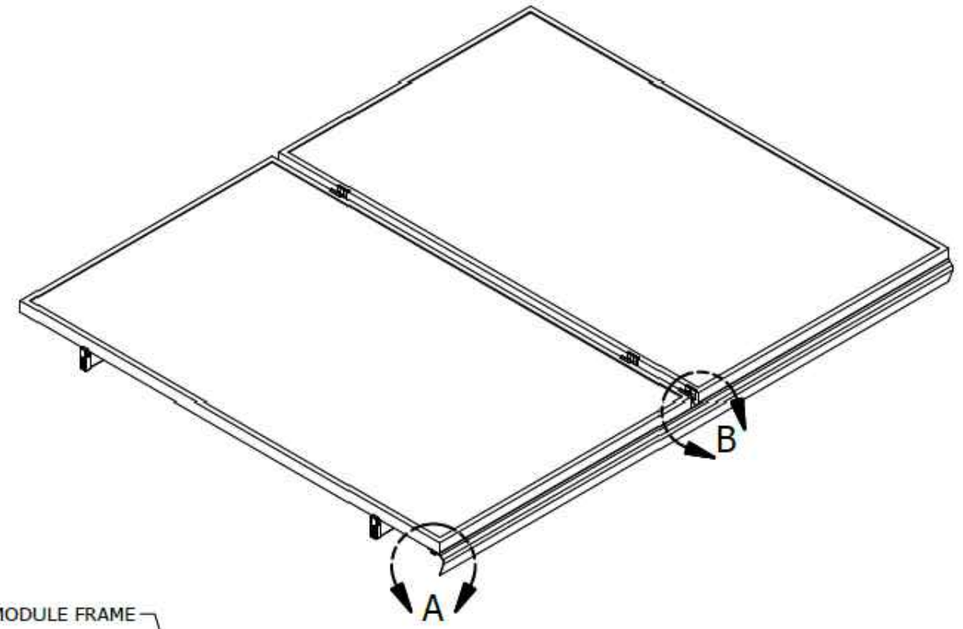
JOCLENE RIVERA RESIDENCE

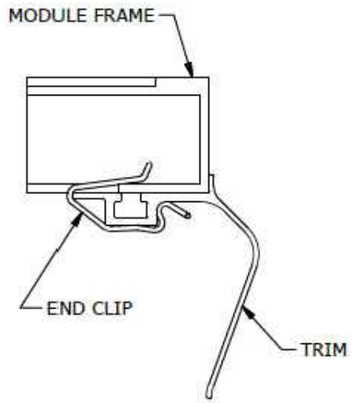
1025 NW EADIE ST,
LAKE CITY, FL 32055

SHEET NAME
EQUIPMENT SPECIFICATION

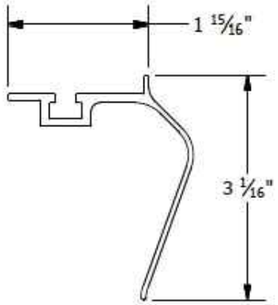
SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-15

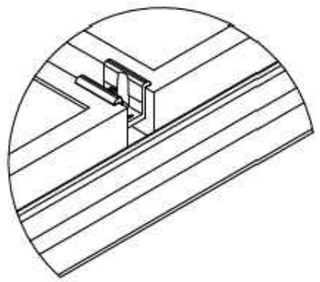




DETAIL A
TRIM END CLIP



TRIM



DETAIL B
MID CLAMP TRIM CONNECTION

PART # TABLE		
P/N	DESCRIPTION	LENGTH
206072D-B	SM TRIM DRK	168"
008025S	SM TRIM END CLIP	-

UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART & ASSEMBLY
DESCRIPTION:	SM TRIM END CLIP
REVISION DATE:	9/27/2017

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

PRODUCT PROTECTED BY ONE OR MORE US PATENTS
LEGAL NOTICE

SM-A02
SHEET

ADT Solar
22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	02/17/2023	

DATE: 02/17/2023

PROJECT NAME & ADDRESS
JOCLENE RIVERA RESIDENCE
1025 NW EADIE ST,
LAKE CITY, FL 32055

SHEET NAME
EQUIPMENT SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-16

S-5!®

The Right Way!

NEW PRODUCT
SolarFoot™

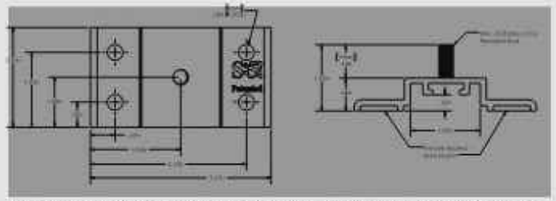
Introducing the new SolarFoot™ for exposed fastener metal roofing with the strength, testing, quality, and time-proven integrity you expect from S-5!. The SolarFoot provides an ideal mounting platform to attach the L-Foot (not included) of a rail-mounted PV system to the roof. This solution is The Right Way to secure rail-mounted solar systems to exposed fastener metal such as AG-Panel or R-Panel.

The right way to attach almost anything to metal roofs!

888-825-3432 | www.S-5.com |

SolarFoot™ Mounting for Exposed Fastener Roofing

The SolarFoot is a simple, cost-effective pedestal for L-Foot (not included) attachment of rail-mounted solar PV. The unique design is compatible with all rail producer L-Foot components. The new SolarFoot assembly ensures a durable weathertight solution for the life of the roof. Special factory applied butyl co-polymeric sealant contained in a reservoir is The Right Way, allowing a water-tested seal. Stainless integrated stud and hex flange lock-nut secure the L-Foot into position. A low center of gravity reduces the moment arm commonly associated with L-Foot attachments. Direct attachment of the SolarFoot to the structural member or deck provides unparalleled holding strength.



*Fastener sold separately. Fastener type varies with substrate. Contact S-5! on how to purchase fasteners and obtain our test results. L-Foot also sold separately.

Fastener Selection

Metal to Metal:
1/4-14 Self Drilling Screw
1-1/2" to 2-1/2"

Metal to Wood:
1/4-14 Type 17 AB Milled Point
1-1/2" to 2-1/2"

To source fasteners for your projects, contact S-5!

When other brands claim to be "just as good as S-5!", tell them to PROVE IT.

SolarFoot Advantages:

- Exposed fastener mounting platform for solar arrays attached via L-Foot and Rails
- Weatherproof attachment to exposed fastener roofing
- Butyl sealant reservoir provides long-term waterproof seal
- M8-1.25x17mm stud with M8 hex flange nut for attachment of all popular L-Foot/rail combinations
- Tool: 13 mm Hex Socket or ½" Hex Socket
- Tool Required: Electric screw gun with hex drive socket for self-tapping screws.
- Low Center of Gravity reduces moment arm commonly associated with L-Foot/Rail solar mounting scenarios
- Attaches directly to structure or deck for optimal holding strength
- S-5! Recommended substrate-specific (e.g. steel purlin, wood 2x4, OSB, etc.) fasteners provide excellent waterproofing and pull-out strength
- Fastener through-hole locations comply with NDS (National Design Specification)for Wood Construction

S-5!® Warning! Please use this product responsibly!

The independent lab test data found at www.S-5.com can be used for load critical designs and applications.

Distributed by:

ADT Solar
22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	02/17/2023	

DATE: 02/17/2023

PROJECT NAME & ADDRESS

JOCLENE RIVERA RESIDENCE

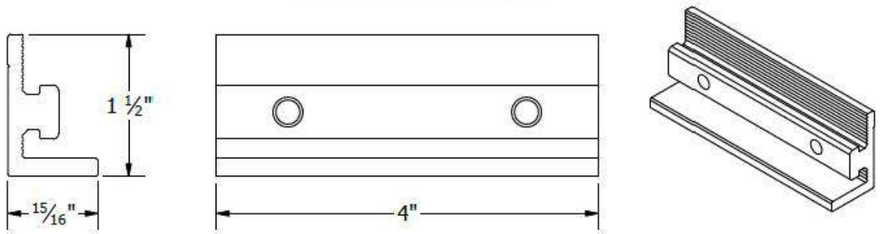
1025 NW EADIE ST,
LAKE CITY, FL 32055

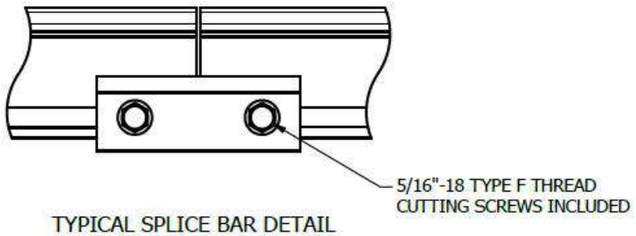
SHEET NAME
EQUIPMENT SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

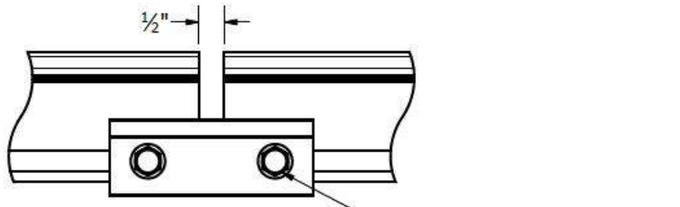
SHEET NUMBER
PV-17

BONDING SPLICE BAR





TYPICAL SPLICE BAR DETAIL



TYPICAL EXPANSION JOINT DETAIL

PART # TABLE	
P/N	DESCRIPTION
303019M	BND SPLICE BAR PRO SERIES MILL
303019D	BND SPLICE BAR PRO SERIES DRK

UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

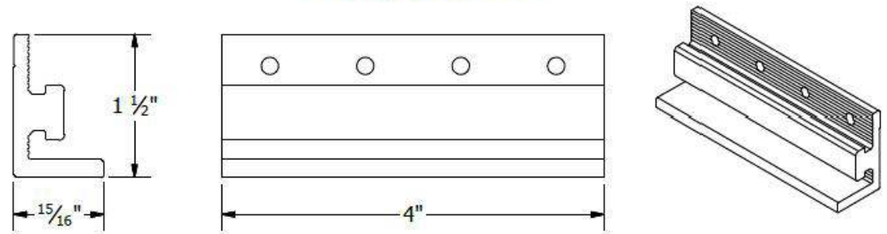
PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART & ASSEMBLY
DESCRIPTION:	BONDING SPLICE BAR PRO SERIES
REVISION DATE:	8/23/2018

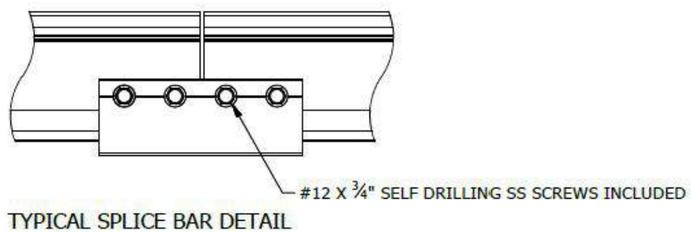
DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

PRODUCT PROTECTED BY ONE OR MORE US PATENTS
LEGAL NOTICE

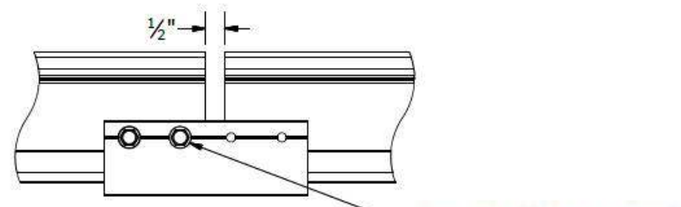
SM-A05
SHEET

BONDING SPLICE BAR





TYPICAL SPLICE BAR DETAIL



TYPICAL EXPANSION JOINT DETAIL

PART # TABLE	
P/N	DESCRIPTION
303018C	BND SPLICE BAR SERRATED CLR
303018D	BND SPLICE BAR SERRATED DRK

UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART & ASSEMBLY
DESCRIPTION:	BONDING SPLICE BAR
REVISION DATE:	9/27/2017

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

PRODUCT PROTECTED BY ONE OR MORE US PATENTS
LEGAL NOTICE

SM-A05
SHEET

ADT Solar
22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	02/17/2023	

DATE: 02/17/2023

PROJECT NAME & ADDRESS

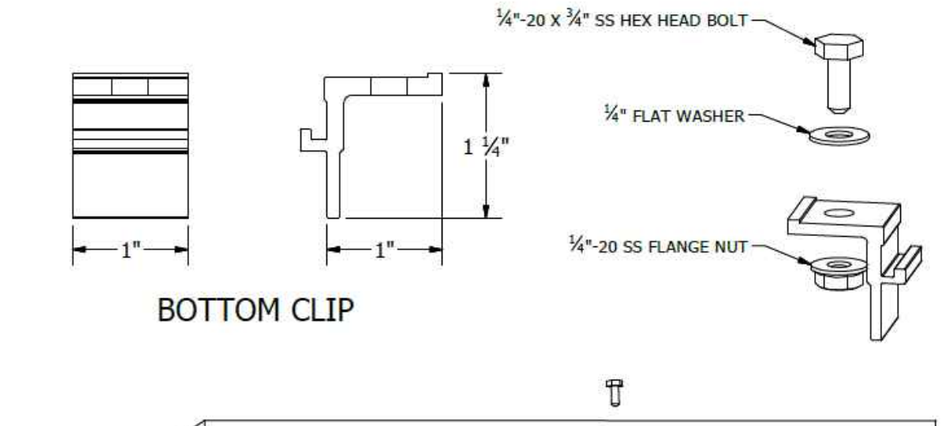
JOCLENE RIVERA RESIDENCE

1025 NW EADIE ST,
LAKE CITY, FL 32055

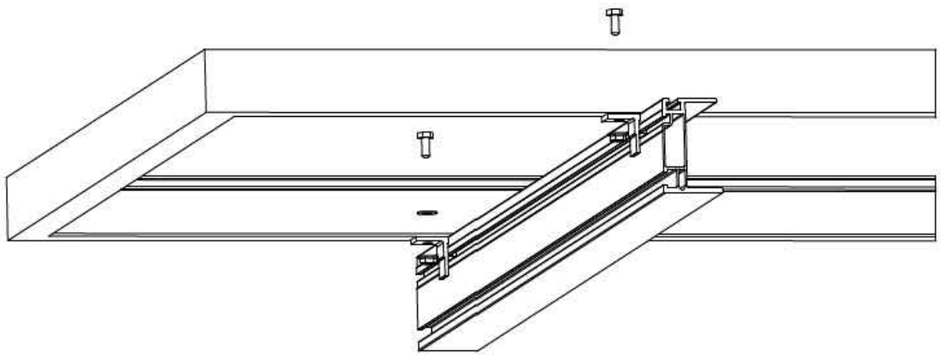
SHEET NAME
EQUIPMENT SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

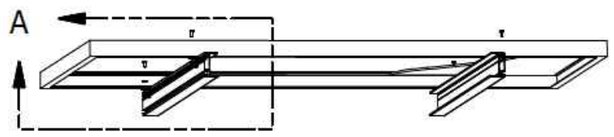
SHEET NUMBER
PV-18



BOTTOM CLIP

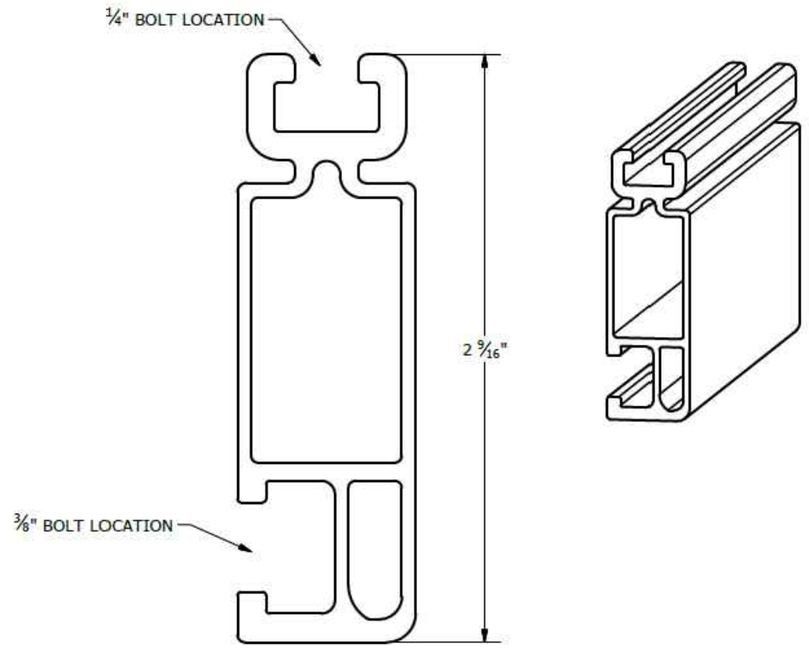


DETAIL A



PART # TABLE	
P/N	DESCRIPTION
302000C	SMHD BOTTOM CLIPS W/HDW CLR

UNIRAC 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	PRODUCT LINE: SOLARMOUNT HD DRAWING TYPE: PART & ASSEMBLY DESCRIPTION: BOTTOM CLIP REVISION DATE: 9/27/2017	DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL PRODUCT PROTECTED BY ONE OR MORE US PATENTS LEGAL NOTICE	SM-A10 SHEET



PART # TABLE		
P/N	DESCRIPTION	LENGTH
320132M	SM RAIL 132" MILL	132"
310132C	SM RAIL 132" CLR	132"
320168M	SM RAIL 168" MILL	168"
310168C	SM RAIL 168" CLR	168"
320168D	SM RAIL 168" DRK	168"
320208M	SM RAIL 208" MILL	208"
310208C	SM RAIL 208" CLR	208"
320240M	SM RAIL 240" MILL	240"
310240C	SM RAIL 240" CLR	240"
310240D	SM RAIL 240" DRK	240"

UNIRAC 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	PRODUCT LINE: SOLARMOUNT DRAWING TYPE: PART DETAIL DESCRIPTION: STANDARD RAIL REVISION DATE: 9/11/2017	DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL PRODUCT PROTECTED BY ONE OR MORE US PATENTS LEGAL NOTICE	SM-P01 SHEET

ADT Solar
22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	02/17/2023	

DATE: 02/17/2023

PROJECT NAME & ADDRESS

JOCLENE RIVERA RESIDENCE

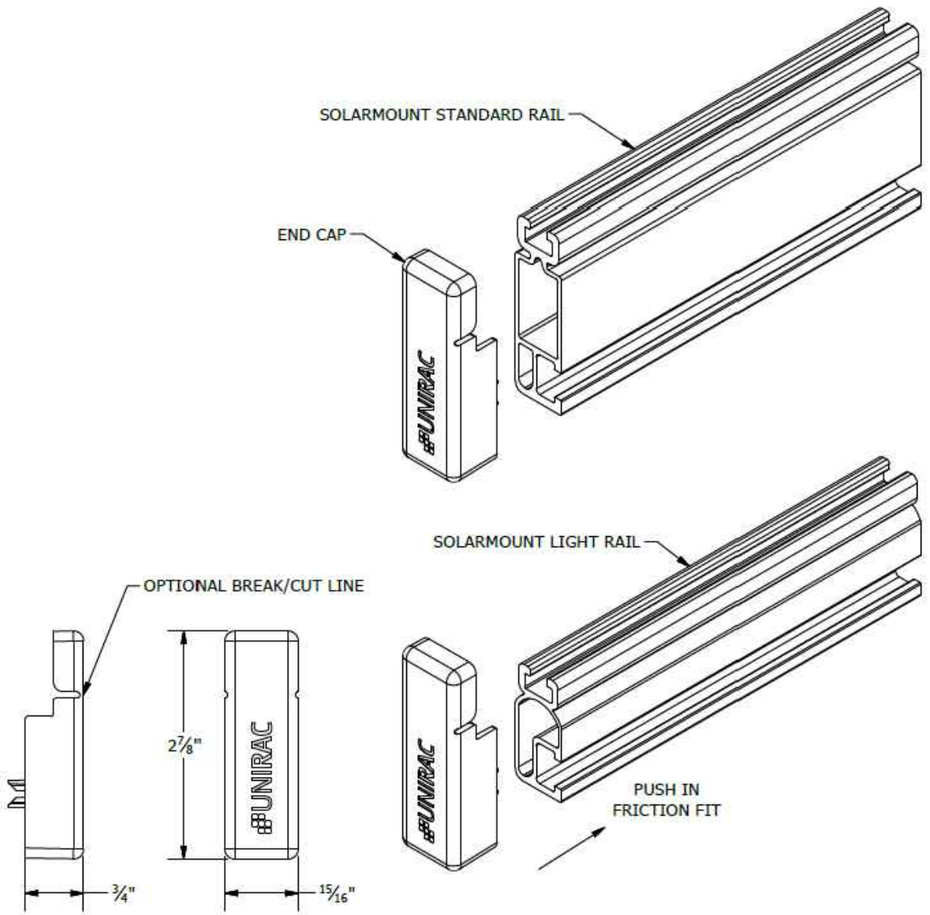
1025 NW EADIE ST,
LAKE CITY, FL 32055

SHEET NAME
EQUIPMENT SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-19

NOTES:
1. END CAP INCLUDED WITH EVERY END CLAMP.
2. END CAP FITS SOLARMOUNT LIGHT AND STANDARD RAIL PROFILES.



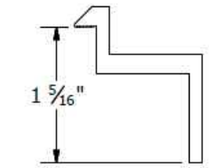
UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART DETAIL
DESCRIPTION:	END CAPS
REVISION DATE:	9/27/2017

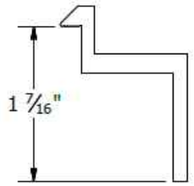
DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

PRODUCT PROTECTED BY ONE OR MORE US PATENTS
LEGAL NOTICE

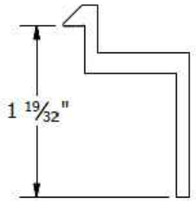
SM-P04
SHEET



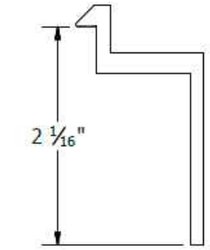
B CLAMP
30mm to 32mm Module Thickness
(1.18" to 1.26")



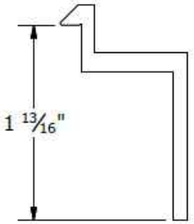
C CLAMP
33mm to 36mm Module Thickness
(1.30" to 1.42")



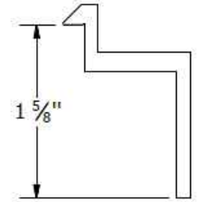
D CLAMP
38mm to 40mm Module Thickness
(1.50" to 1.57")



E CLAMP
50mm to 51mm Module Thickness
(1.97" to 2.00")

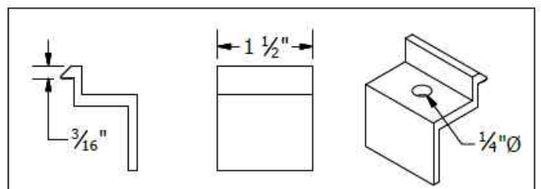


F CLAMP
45mm to 47mm Module Thickness
(1.77" to 1.85")



K CLAMP
39mm to 41mm Module Thickness
(1.54" to 1.61")

PART # TABLE	
P/N	DESCRIPTION
302021C	SM ENDCLAMP B CLR AL
302021D	SM ENDCLAMP B DRK AL
302022C	SM ENDCLAMP C CLR AL
302022D	SM ENDCLAMP C DRK AL
302023C	SM ENDCLAMP D CLR AL
302023D	SM ENDCLAMP D DRK AL
303024C	SM ENDCLAMP E CLR AL
302024D	SM ENDCLAMP E DRK AL
302025C	SM ENDCLAMP F CLR AL
302025D	SM ENDCLAMP F DRK AL
302026C	SM ENDCLAMP K CLR AL
302026D	SM ENDCLAMP K DRK AL



TYPICAL END CLAMP DETAILS

UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART DETAIL
DESCRIPTION:	END CLAMPS - TOP MOUNTING
REVISION DATE:	9/27/2017

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

PRODUCT PROTECTED BY ONE OR MORE US PATENTS
LEGAL NOTICE

SM-P05
SHEET

ADT Solar
22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	02/17/2023	

DATE: 02/17/2023

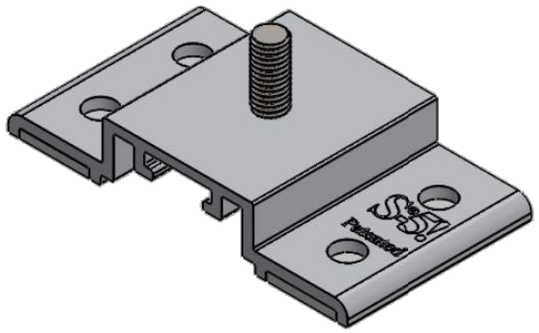
PROJECT NAME & ADDRESS
JOCLENE RIVERA RESIDENCE
1025 NW EADIE ST,
LAKE CITY, FL 32055

SHEET NAME
EQUIPMENT SPECIFICATION

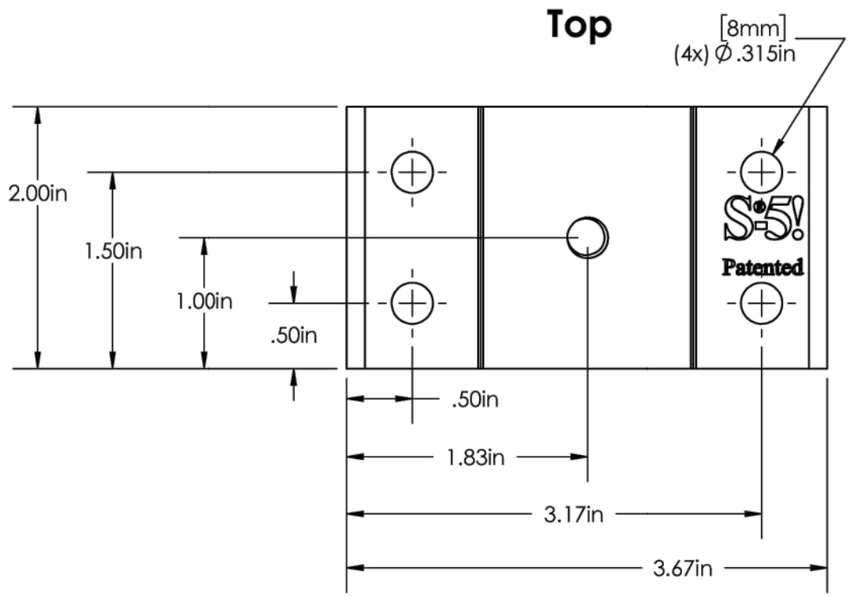
SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-20

SolarFoot

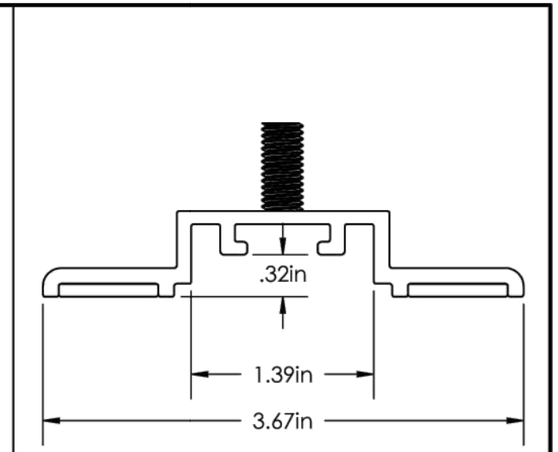


Back



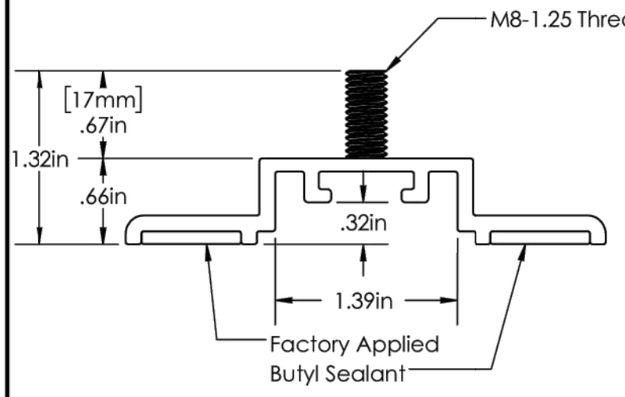
Left

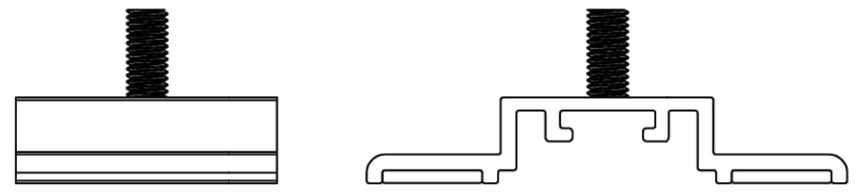
Front

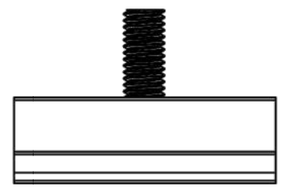


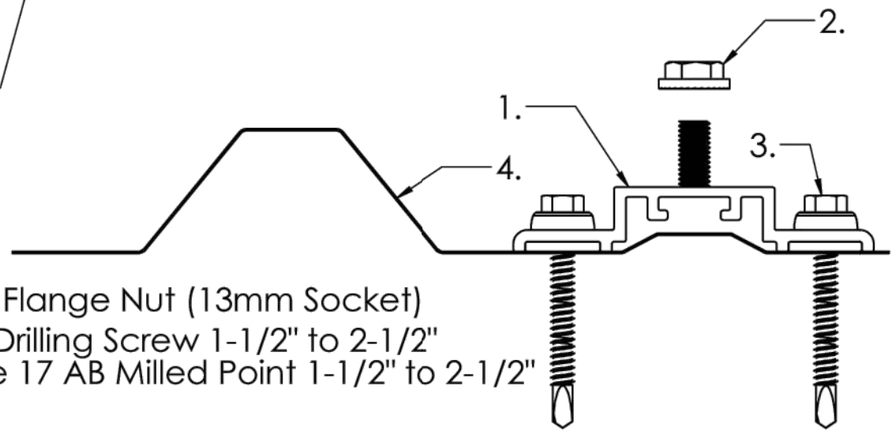
Scale 2:3

Right









General Notes:

1. SolarFoot
2. M8-1.25 Stainless Steel Hex Flange Nut (13mm Socket)
3. Metal to Metal:1/4-14 Self Drilling Screw 1-1/2" to 2-1/2"
   Metal to Wood:1/4-14 Type 17 AB Milled Point 1-1/2" to 2-1/2"
4. Example roof

FOR STANDING SEAM SPECIFIC MECHANICAL LOAD TEST INFORMATION AND CLAMP INSTALLATION INFORMATION PLEASE VISIT: WWW.S-5.COM

MATERIAL: 6005A T61 Al	S-5! The Right Way!	METAL ROOF INNOVATIONS, LTD. 8655 TABLE BUTTE RD COLORADO SPRINGS, CO 80908 719-495-0518 719-495-0045(FAX)
EST ASSEMBLY WEIGHT: 0.248 lbs		
SUPPLIED HARDWARE: M8-1.25 Hex Flange Nut	TITLE: SolarFoot [CCD]	
SCALE: 2:3	DRAWING NO.: LP66-A-0-A	DRAWN BY: Paul Leitch — DATE: 09/20/2017
EST. WEIGHT: Bracket:0.129 lbs Fastener: 0.026 lbs Nut: 0.015 lbs	S-5!® PRODUCTS ARE PROTECTED BY MULTIPLE U.S. AND FOREIGN PATENTS. VISIT OUR WEBSITE AT WWW.S-5.COM FOR COMPLETE INFORMATION ON PATENTS AND TRADEMARKS.	

ADT Solar
22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL DESIGN	02/17/2023	

DATE: 02/17/2023

PROJECT NAME & ADDRESS

JOCLENE RIVERA RESIDENCE

1025 NW EADIE ST, LAKE CITY, FL 32055

SHEET NAME
EQUIPMENT SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-21