+ RAL (Crew 2) - Theselonia Mclean - 28 LG365s

Solar Crew

Tue May 11 2021

☑ All day

* Permit not ready

Add

Calendar

x Raleigh > ELECTRICAL x Raleigh > SOLAR

Who

Where

284 Sandclay Dr, Spring Lake, NC 28390 - 1hr

Description

https://sunpro.lightning.force.com/lightning/r/Projects__c/a0i4T000001QGfeQAG/view

PROJ-35764- sch w/ Mr for 5/11 @ 8-10am - call otw @ 919-986-7280

Permit: APPROVED: Harnett County

Solar:

Shingles

UNI-004085M Flashloc

Pitch: 3/12
Generator On Site: N
Main Breaker: 150
WiFi Pass: N/A
Attic Access: Y
Attic Ladder:
Battery: N

Electrical:

No Trenching

ITE- Panel

Yes- Attic Access

No - Battery

No Trenching

x Jonathan Aguerin

One Story

Panel Upgrade Needed- ** DO AS MUCH AS YOU CAN - MR IS AWARE WE WILL COME BACK A DIFFERENT DAY **

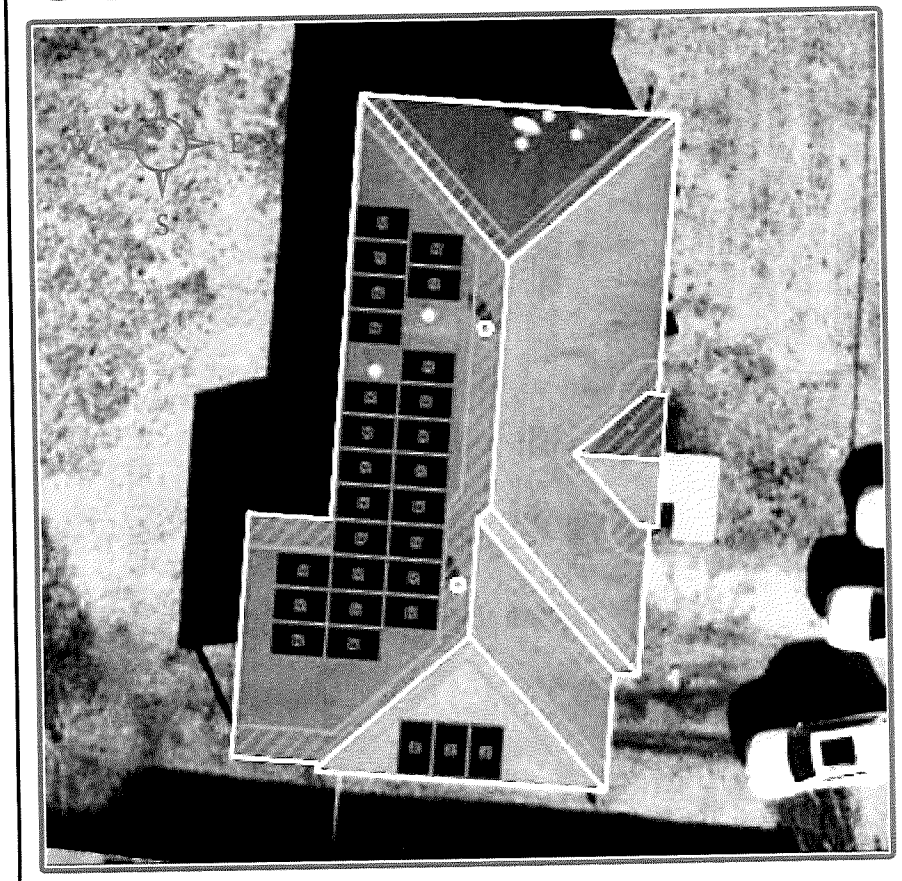
Install a new interior 225A rated 200A main panel . May need to upsize feed wire to 2/0. Land a 50A solar breaker in the new interior main panel. Use #6 wire.

Comments: 0 Add Comment

Created 5 days ago by Modify, last updated 36 minutes ago by Modify

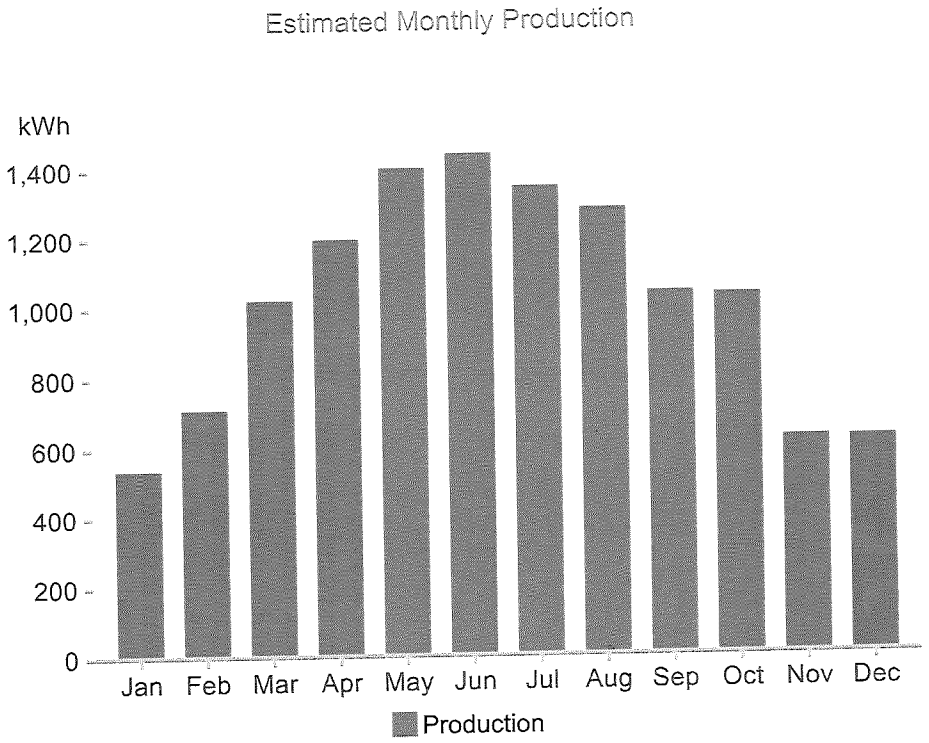
Design Approval - Theselonia Mclean

SUNPR



Estimated Energy Savings

Annual Results 12,254 kWh per Year*



NOTE: THIS DESIGN IS NOT ABSOLUTE AND MAY BE SUBJECT TO MINOR ON-SITE REDESIGN DUE TO UNFORESEEN OBSTRUCTIONS OR SIZE RESTRICTIONS TO BE APPROVED BY HOMEOWNER

Quantity: 28
Panel: LG Electronics Inc. LG365N1C-A6
Inverter: Enphase Energy Inc. IQ 7+

Install: 10.22 kW Solar Panel System	
Designer: Cash Elliot	
284 Sandclay Dr Spring Lake, NC 28390	Date: April 21st, 2021

PRINCIPAL
Engineering, Inc.

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

April 2021

Harnett County

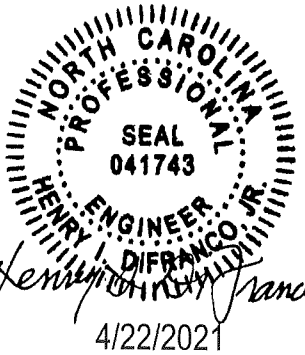
Property Owner: Theselonia Mclean

Property Address: 284 Sandclay Drive, Spring Lake, NC 28390

Re: Photovoltaic System Roof Installation

Wind loads have been calculated for a speed of 119 MPH. The roof pitch and construction have been analyzed and the photovoltaic system structure is designed to resist resulting uplift and downward forces. Based on the deck material and the size and spacing of the rafters, we find the above referenced address is in sound condition and can withhold the additional weight (~ 3 PSF) of the solar panels. The attached drawings and diagrams reflect a design that safely transmits dead and live loads to the roof. To the best of my professional knowledge and belief, the subject construction and photovoltaic system installation will be in compliance with the 2018 NCRC (2015 IRC) and 2018 IFC/2018 NCBC (2015 IBC) and 2017 NEC codes at the time of our review.

System installation must be in accordance with manufacturer recommendations and specifications and should abide by any industry-specific methods and applicable safety regulations. The contractor is responsible for ensuring that the solar panels are installed according to the approved plans and must notify Principal Engineering, Inc. of any discrepancies that may prevent proper installation of the proposed system, or defects uncovered in the existing structure, so that the design may be adjusted. Principal Engineering, Inc. does not assume any responsibility for improper installation of the proposed photovoltaic system.



4/22/2021

North Carolina Firm No. C4113
Principal Engineering, Inc.

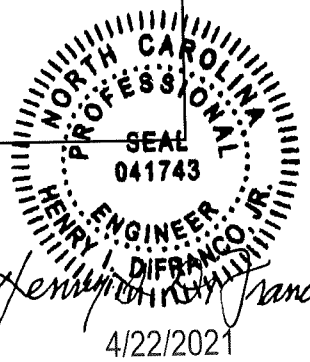
Uplift and Wind Downforce Calculation Summary (ASCE 7-10, 30.5 Part 2)

Mount, Rack, & Panel Proportioning

		Max. Individual Panel Dimensions		
Property Owner:	Theselonia Mclean	Length (in)	Width (in)	Area (sf)
Project Address:	284 Sandclay Drive	77	39	20.85
City, State:	Spring Lake, NC 28390			

Building Characteristics, Design Input, and Adjustment Factors			
3-Sec Gust Wind Speed:		119	From ASCE 7-10, Fig. 26.5-1A
Exposure Category:		C	Para 26.7.3
Risk Category:		II	
Effective Wind Area (sf):		10	(Area per individual fastener)
Roof Dimensions:	Length:	67	
	Width:	40	Least Dimension: 40
Roof Height (h):		15	Must be less than 60
Pitch: 4	on 12 =	18.4	degrees; must be less than 45
Ht. & Exposure Adjustment (λ)		1.21	Fig. 30.5-1
Importance Factor (I)		1	
Topographic Adj. (K_{zt})		1	Fig. 26.8-1

Roof Zone Strip (a), in ft, Fig. 30.5-1, Note 5	
1 - Least Roof Horizontal Dimension (L or W) x 0.10	4
2 - Roof Height x 0.4	6
3 - Least Roof Horizontal Dimension (L or W) x 0.04	1.6
4 - Least of (1) and (2)	4
5 - Greater of (3) and (4)	4
6 - Greater of (5) and 3 feet **a=**	**4**



4/22/2021

North Carolina Firm No. C4113
Principal Engineering, Inc.

Net Design Pressures, Components & Cladding Allowable Stress Design, Use 0.6W (2.4.1)					
	Uplift (-psf)		Down (psf)		
	P_{30net}	$IK_{zt}P_{30net}$	P_{30net}	$IK_{zt}P_{30net}$	
Zone 1	20.6	24.9	12.9	15.6	Interior Roof Area
Zone 2	36.1	43.7	12.9	15.6	Strip of **(a)** ft wide at roof edge
Zone 3	53.4	64.6	12.9	15.6	Corner intersection of strips

	Uplift (-psf)	Down (psf)	
	$W_{asd} = 0.6P_{30}$	$W_{asd} = 0.6P_{30}$	
Zone 1	**14.9**	**9.4**	Interior Roof Area
Zone 2	**26.2**	**9.4**	Strip of **(a)** ft wide at roof edge
Zone 3	**38.8**	**9.4**	Corner intersection of strips

UNIRAC & Rail Selection (FS=3.0) (SolarMount)		
Manufacturer:	UNIRAC	***Perpendicular*** *Panel Orientation*
Model:	SolarMount	*Allowable Scheme by Uplift Pressure*
Ultimate Uplift (lb):	1913	< 60 psf 2 rails, 4'-0" OC mounts
Parallel *: Mounts per* Individual *Panel*		60-90 psf 2 rails, 2'-0" OC mounts
# Mounts/ Panel for FS=3.0		90-150 psf 3 rails, 2'-0" OC mounts
Zone 1	0.8	150-170 psf 4 rails, 2'-0" OC mounts
Zone 2	1.4	170 psf +, panel clip capacity exceeded
Zone 3	2.1	
(From rail analysis, allowable spacing/rails controlled by individual mount pullout before rail bending)		

4/22/2021

North Carolina Firm No. C4113
Principal Engineering, Inc.

NEW PHOTOVOLTAIC SYSTEM 10.22 KW DC
284 SANDCLAY DR, SPRING LAKE, NC 28390, USA

GENERAL NOTES

1.1.1 PROJECT NOTES:
1.1.2 THISPHOTOVOLTAIC (PV) SYSTEM SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (NEC) ARTICLE 690, ALL MANUFACTURERS'S LISTING AND INSTALLATION INSTRUCTIONS, AND THE RELEVANT CODES AS SPECIFIED BY THE AUTHORITY HAVING JURISDICTION'S (AHJ) APPLICABLE CODES.
1.1.3 THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION
1.1.4 GROUND FAULT DETECTION AND INTERRUPTION (GFDI) DEVICE IS INTEGRATED WITH THE MICROINVERTER IN ACCORDANCE WITH NEC 690.41(B)
1.1.5 ALL PV SYSTEM COMPONENTS; MODULES, UTILITY-INTERACTIVE INVERTERS, AND SOURCE CIRCUIT COMBINER BOXES ARE IDENTIFIED AND LISTED FOR USE IN PHOTOVOLTAIC SYSTEMS AS REQUIRED BY NEC 690.4: PV MODULES: UL1703, IEC61730, AND IEC61215, AND NFPA 70 CLASS C FIRE INVERTERS: UL 1741 CERTIFIED, IEEE 1547, 929, 519 COMBINER BOX(ES): UL 1703 OR UL 1741 ACCESSORY
1.1.6 MAX DC VOLTAGE CALCULATED USING MANUFACTURER PROVIDED TEMP COEFFICIENT FOR VOC. IF UNAVAILABLE, MAX DC VOLTAGE CALCULATED ACCORDING TO NEC 690.7.
1.1.7 ALL INVERTERS, PHOTOVOLTAIC MODULES,PHOTOVOLTAIC PANELS, AND SOURCE CIRCUIT COMBINERS INTENDED FOR USE IN A PHOTOVOLTAIC POWER SYSTEM WILL BE IDENTIFIED AND LISTED FOR THE APPLICATIONPER 690.4 (D). SHALL BE INSTALLED ACCORDING TO ANY INSTRUCTIONS FROM LISTING OR LABELING [NEC 110.3].
1.1.8 ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH 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.

1.2.1 SCOPE OF WORK:
1.2.2 PRIME CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND SPECIFICATIONS OF THE GRID-TIED PHOTOVOLTAIC SYSTEM RETROFIT. PRIME CONTRACTOR WILL BE RESPONSIBLE FOR COLLECTING EXISTING ONSITE REQUIREMENTS TO DESIGN, SPECIFY, AND INSTALL THE EXTERIOR ROOF-MOUNTED PORTION OF THE PHOTOVOLTAIC SYSTEMS DETAILED IN THIS DOCUMENT

1.3.1 WORK INCLUDES:
1.3.2 PV RACKING SYSTEM INSTALLATION - UNIRAC SOLAR
1.3.3 PV MODULE AND INVERTER INSTALLATION - LG ELECTRONICS LG365N1C-A6 / ENPHASE INVERTER/
1.3.4 PV EQUIPMENT ROOF MOUNT
1.3.5 PV SYSTEM WIRING TO A ROOF-MOUNTED JUNCTION BOX
1.3.6 PV LOAD CENTERS (IF INCLUDED)
1.3.7 PV METERING/MONITORING (IF INCLUDED)
1.3.8 PV DISCONNECTS
1.3.9 PV GROUNDING ELECTRODE & BONDING TO (E) GEC
1.3.10 PV FINAL COMMISSIONING
1.3.11 (E) ELECTRICAL EQUIPMENT RETROFIT FOR PV 1.3.13 SIGNAGE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE

PROJECT INFORMATION

OWNER
NAME: THESELONIA MCLEAN

PROJECT MANAGER
NAME: SHAHIN HAYNES
PHONE: 8665071461

CONTRACTOR NAME
MARC JONES CONSTRUCTION,
LLC DBA SUNPRO SOLAR
PHONE: 5052180838

SCOPE OF WORK
SYSTEM SIZE: STC:28 X 365W= 10.22 kW DC
PTC: 28 x 342.4W = 9.59 kW DC
(28) LG ELECTRONICS LG365N1C-A6
(28) ENPHASE IQ7PLUS-72-2-US

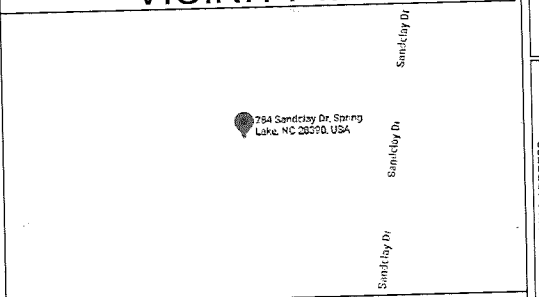
ATTACHMENT TYPE: ROOF MOUNT
MSP UPGRADE: YES

AUTHORITIES HAVING JURISDICTION
BUILDING: HARNETT COUNTY
ZONING: HARNETT COUNTY
UTILITY: SOUTH RIVER

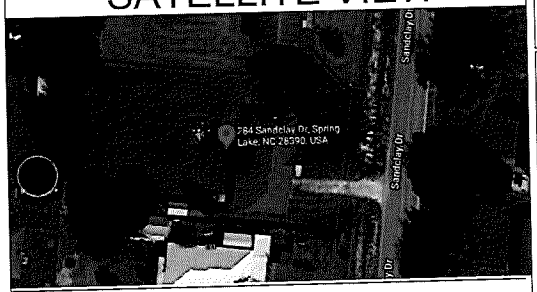
DESIGN SPECIFICATION
OCCUPANCY: II
CONSTRUCTION: SINGLE-FAMILY
ZONING: RESIDENTIAL
GROUND SNOW LOAD: 10 psf
WIND EXPOSURE: B
WIND SPEED: 119 mph

APPLICABLE CODES & STANDARDS
BUILDING: IBC 2015, IRC 2015
ELECTRICAL: NEC 2017
FIRE: IFC 2018

VICINITY MAP



SATELLITE VIEW



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R-004	RESOURCE DOCUMENT
R-005	RESOURCE DOCUMENT
R-006	RESOURCE DOCUMENT
R-007	RESOURCE DOCUMENT
R-008	RESOURCE DOCUMENT

SUNPR
22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

PROJECT NAME & ADDRESS
THESELONIA MCLEAN
284 SANDCLAY DR,
SPRING LAKE, NC
28390, USA

Signature with Seal

REVISIONS

REV	DESCRIPTION	DATE

SHEET TITLE
COVER PAGE

DRAWN DATE	04/23/2021
DRAWN BY	VVP
REVIEWED BY	-

SHEET NUMBER
T-001

2.1.1 SITE NOTES:

2.1.2 A LADDER WILL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.
2.1.3 THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS A UTILITY INTERACTIVE SYSTEM WITH NO STORAGE BATTERIES.
2.1.4 THE SOLAR PV INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
2.1.5 PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION NEC 110.26.
2.1.6 ROOF COVERINGS SHALL BE DESIGNED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THIS CODE AND THE APPROVED MANUFACTURER'S INSTRUCTIONS SUCH THAT THE ROOF COVERING SERVES TO PROTECT THE BUILDING OR STRUCTURE.

2.2.1 EQUIPMENT LOCATIONS:

2.2.2 ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY NEC 110.26.
2.2.3 WIRING SYSTEMS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY NEC 690.31 (A),(C) AND NEC TABLES 310.15 (B)(2)(A) AND 310.15 (B)(3)(C).
2.2.4 JUNCTION AND PULL BOXES PERMITTED INSTALLED UNDER PV MODULES ACCORDING TO NEC 690.34.
2.2.5 ADDITIONAL AC DISCONNECT(S) SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT.
2.2.6 ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL ACCORDING TO NEC APPLICABLE CODES.
2.2.7 ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE.

2.3.1 STRUCTURAL NOTES:

2.3.2 RACKING SYSTEM & PV ARRAY WILL BE INSTALLED ACCORDING TO CODE-COMPLIANT INSTALLATION MANUAL. TOP CLAMPS REQUIRE A DESIGNATED SPACE BETWEEN MODULES, AND RAILS MUSTALSO EXTEND A MINIMUM DISTANCE BEYOND EITHER EDGE OF THE ARRAY/SUBARRAY, ACCORDING TO RAI MANUFACTURER'S INSTRUCTIONS.
2.3.3 JUNCTION BOX WILL BE INSTALLED PER MANUFACTURERS' SPECIFICATIONS. IF ROOF-PENETRATING TYPE, IT SHALL BE FLASHED & SEALED PER LOCAL REQUIREMENTS.
2.3.4 ROOFTOP PENETRATIONS FOR PV RACEWAY WILLBE COMPLETED AND SEALED W/ APPROVED CHEMICAL SEALANT PER CODE BY A LICENSED CONTRACTOR.
2.3.5 ALL PV RELATED ROOF ATTACHMENTS TO BE SPACED NO GREATER THAN THE SPAN DISTANCE SPECIFIED BY THE RACKING MANUFACTURER.
2.3.6 WHEN POSSIBLE, ALL PV RELATED RACKING ATTACHMENTS WILL BE STAGGERED AMONGST THE ROOF FRAMING MEMBERS.

2.4.1 WIRING & CONDUIT NOTES:

2.4.2 ALL CONDUIT AND WIRE WILL BE LISTED AND APPROVED FOR THEIR PURPOSE. CONDUIT AND WIRE SPECIFICATIONS AREBASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING.
2.4.3 CONDUCTORS SIZED ACCORDING TO NEC 690.8, NEC 690.7.
2.4.4 VOLTAGE DROP LIMITED TO 1.5%.
2.4.5 DC WIRING LIMITED TO MODULE FOOTPRINT. MICROINVERTER WIRING SYSTEMS SHALL BE LOCATED AND SECURED UNDER THE ARRAY W/ SUITABLE WIRING CLIPS.
2.4.6 AC CONDUCTORS COLORED OR MARKED AS FOLLOWS: PHASE A OR L1- BLACK PHASE B OR L2- RED, OR OTHER CONVENTION IF THREE PHASE PHASE C OR L3- BLUE, YELLOW, ORANGE**, OR OTHER CONVENTION NEUTRAL- WHITE OR GREY IN 4-WIRE DELTA CONNECTED SYSTEMS THE PHASE WITH HIGHER VOLTAGE TO BE MARKED ORANGE [NEC 110.15].

2.5.1 GROUNDING NOTES:

2.5.2 GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, AND GROUNDING DEVISES EXPOSED TO THE ELEMENTS SHALL BE RATED FOR SUCH USE.
2.5.3 PV EQUIPMENT SHALL BE GROUNDED ACCORDING TO NEC 690.43 AND MINIMUM NEC TABLE 250.122.
2.5.4 METAL PARTS OF MODULE FRAMES, MODULE RACKING, AND ENCLOSURES CONSIDERED GROUNDED IN ACCORD WITH 250.134 AND 250.136(A).
2.5.5 EQUIPMENT GROUNDING CONDUCTORS SHALLBE SIZED ACCORDING TO NEC 690.45 AND MICROINVERTER MANUFACTORERS' INSTRUCTIONS.
2.5.6 EACH MODULE WILL BE GROUNDED USING WEEB GROUNDING CLIPS AS SHOWN IN MANUFACTURERDOCUMENTATION AND APPROVED BY THE AHJ. IF WEEBS ARE NOT USED, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE SPECIFIED GROUNDING LUG HOLES PER THE MANUFACTURERS' INSTALLATION REQUIREMENTS.
2.5.7 THE GROUNDING CONNECTION TO A MODULE SHALL BE ARRANGED SUCH THAT THE REMOVAL OFA MODULE DOES NOT INTERRUPT A GROUNDING CONDUCTOR TO ANOTHER MODULE.
2.5.8 GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLORED GREEN OR MARKED GREEN IF #4 AWG OR LARGER [NEC 250.119]
2.5.9 THE GROUNDING ELECTRODE SYSTEM COMPLIES WITH NEC 690.47 AND NEC 250.50 THROUGH 250.106. IF EXISTING SYSTEM IS INACCESSIBLE, OR INADEQUATE, A GROUNDING ELECTRODE SYSTEM PROVIDED ACCORDING TO NEC 250, NEC 690.47 AND AHJ.
2.5.10 GROUND-FAULT DETECTION SHALL COMPLY WITH NEC 690.41(B)(1) AND (2) TO REDUCE FIRE HAZARDS

2.6.1 DISCONNECTION AND OVER-CURRENT PROTECTION NOTES:
2.6.2 DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHENTHE SWITCH IS OPENED THE CONDUCTORS REMAINING ENERGIZED ARECONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY THE UPPER TERMINALS).
2.6.3 DISCONNECTS TO BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH
2.6.4 PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION TO REDUCE SHOCK HAZARD FOR EMERGENCY RESPONDERS IN ACCORDANCE WITH 690.12(A) THROUGH (D).
2.6.5 ALL OCPD RATINGS AND TYPES SPECIFIED ACCORDING TO NEC 690.8, 690.9, AND 240.
2.6.6 MICROINVERTER BRANCHES CONNECTED TO A SINGLE BREAKER OR GROUPED FUSES IN ACCORDANCE WITH NEC 110.3(B).
2.6.7 IF REQUIRED BY AHJ, SYSTEM WILL INCLUDE ARC-FAULT CIRCUIT PROTECTION ACCORDING TO NEC 690.11 AND UL1699B.

2.7.1 INTERCONNECTION NOTES:

2.7.2 LOAD-SIDE INTERCONNECTION SHALL BE IN ACCORDANCE WITH [NEC 705.12 (B)]
2.7.3 THE SUM OF THE UTILITY OCPD AND INVERTER CONTINUOUS OUTPUT MAY NOT EXCEED 120% OF BUSBAR RATING [NEC 705.12(B)(2)(3)(b)].
2.7.4 THE SUM OF 125 PERCENT OF THE POWER SOURCE(S) OUTPUT CIRCUIT CURRENT AND THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR SHALL NOT EXCEED 120 PERCENT OF THE AMPACITY OF THE BUSBAR, PV DEDICATED BACKFEED BREAKERS MUST BE LOCATED OPPOSITE END OF THE BUS FROM THE UTILITY SOURCE OCPD [NEC 705.12(B)(2)(3)(b)].
2.7.5 AT MULTIPLE ELECTRIC POWER SOURCES OUTPUT COMBINER PANEL, TOTAL RATING OF ALL OVERCURRENT DEVICES SHALL NOT EXCEED AMPACITY OF BUSBAR. HOWEVER, THE COMBINED OVERCURRENT DEVICE MAY BE EXCLUDED ACCORDING TO NEC 705.12 (B)(2)(3)(C).
2.7.6 FEEDER TAP INTERCONECTION (LOADSIDE) ACCORDING TO NEC 705.12 (B)(2)(1)
2.7.7 SUPPLY SIDE TAP INTERCONNECTION ACCORDING TO NEC 705.12 (A) WITH SERVICE ENTRANCE CONDUCTORS IN ACCORDANCE WITH NEC 230.42 2.7.8BACKFEEDING BREAKER FOR ELECTRIC POWER SOURCES OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING [NEC 705.12 (B)(5)].

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PHONE: 9152011490

PROJECT NAME & ADDRESS
THESELONIA MCLEAN
284 SANDCLAY DR,
SPRING LAKE, NC 28390,
USA

Signature with Seal

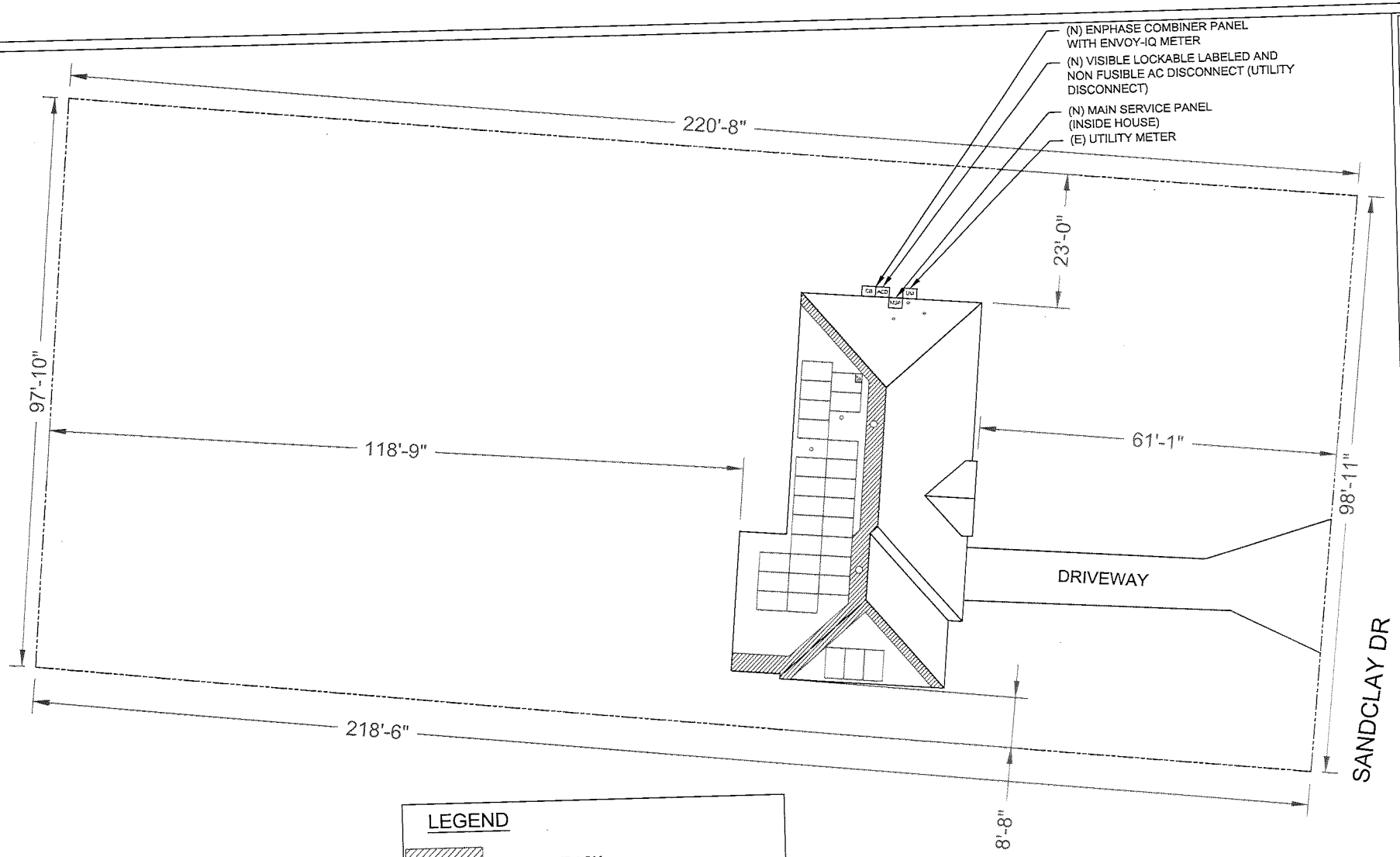
REVISIONS

REV	DESCRIPTION	DATE

SHEET TITLE
NOTES

DRAWN DATE	04/23/2021
DRAWN BY	VVP
REVIEWED BY	-

SHEET NUMBER
G-001



LEGEND

- FIRE SETBACK
- PROPERTY LINE
- JB - JUNCTION BOX
- SKYLIGHT (ROOF OBSTRUCTION)
- CHIMNEY (ROOF OBSTRUCTION)
- VENT, ATTIC FAN (ROOF OBSTRUCTION)

N W E S

1 | SITE PLAN

SCALE: 1/16" = 1'-0"

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MANDEVILLE, LA 70471
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PROJECT NAME & ADDRESS
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284 SANDCLAY DR,
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USA

Signature with Seal

REVISIONS

REV	DESCRIPTION	DATE

SHEET TITLE
SITE PLAN

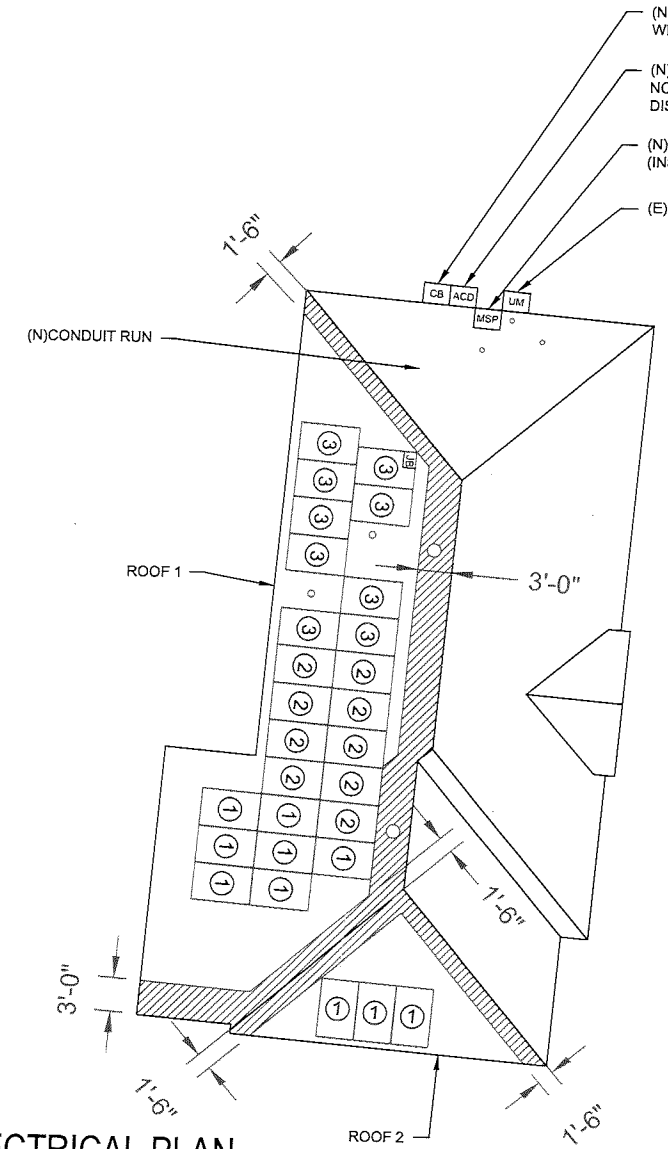
DRAWN DATE	04/23/2021
DRAWN BY	VVP
REVIEWED BY	-

SHEET NUMBER
A-101

① - MODULE STRING

② - MODULE STRING

③ - MODULE STRING



ROOF SECTION(S)

ROOF 1	TILT - 19° AZIMUTH - 275° MODULE - 25 SYSTEM SIZE (KW)- 9.13
ROOF 2	TILT - 19° AZIMUTH - 185° MODULE - 3 SYSTEM SIZE (KW)- 1.10

LEGEND

- FIRE SETBACK
- PROPERTY LINE
- JB - JUNCTION BOX
- SKYLIGHT (ROOF OBSTRUCTION)
- CHIMNEY (ROOF OBSTRUCTION)
- VENT, ATTIC FAN (ROOF OBSTRUCTION)

N W E S

1 ELECTRICAL PLAN

SCALE:3/32" = 1'-0"

SUNPRO
22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

PROJECT NAME & ADDRESS
THESELONIA MCLEAN
284 SANDCLAY DR,
SPRING LAKE, NC 28390,
USA

Signature with Seal

REVISIONS

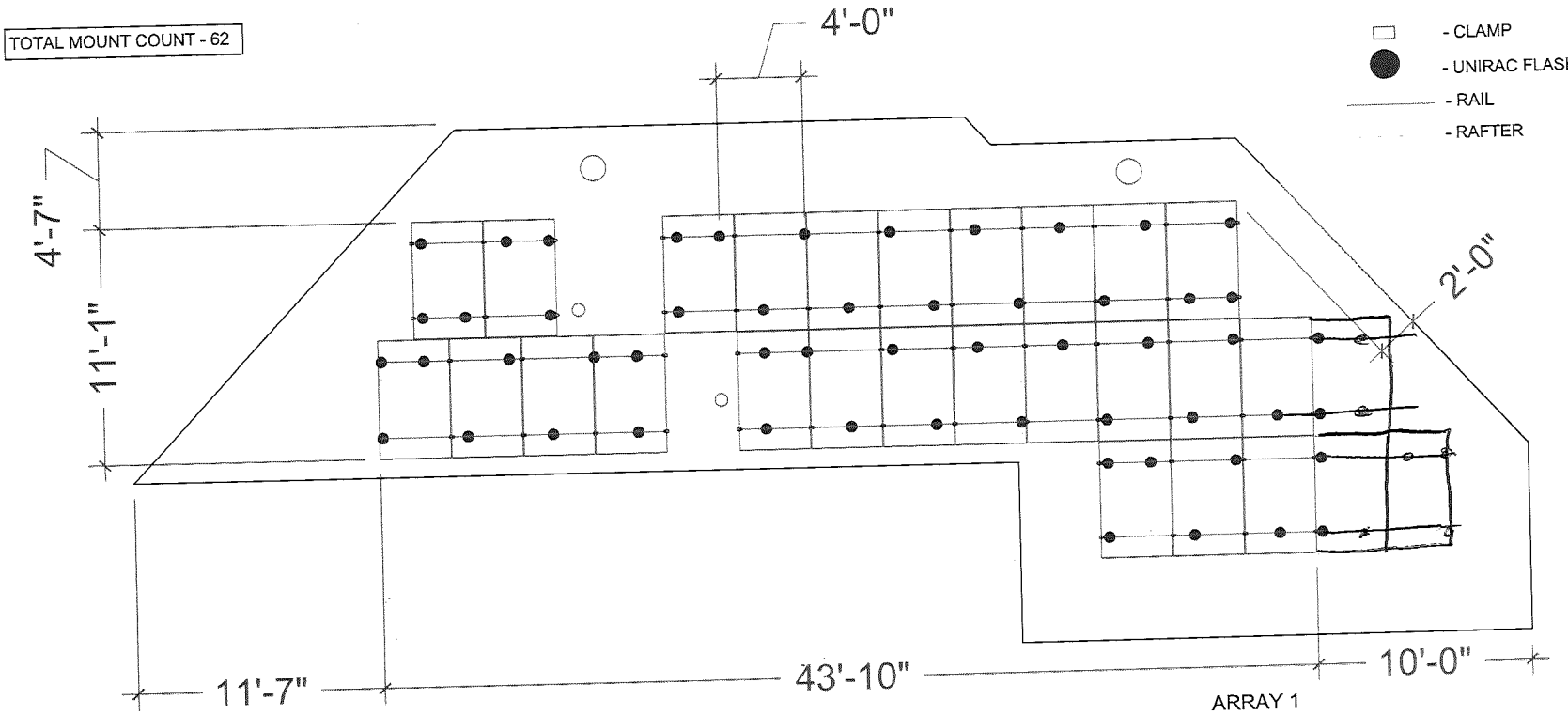
REV	DESCRIPTION	DATE

SHEET TITLE
ELECTRICAL PLAN

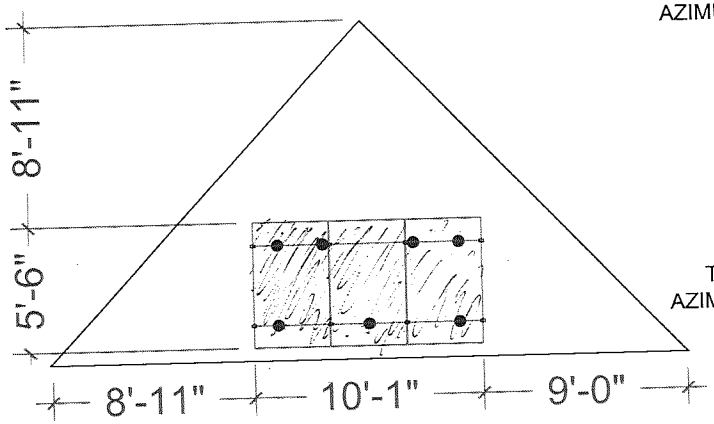
DRAWN DATE	04/23/2021
DRAWN BY	VVP
REVIEWED BY	-

SHEET NUMBER
A-102

TOTAL MOUNT COUNT - 62



ARRAY 1
TILT- 19 DEG
AZIMUTH - 275 DEG



ARRAY 2
TILT- 19 DEG
AZIMUTH - 185 DEG

1 | ATTACHMENT PLAN

SCALE:3/16" = 1'-0"

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22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

PROJECT NAME & ADDRESS
THESELONIA MCLEAN
284 SANDCLAY DR,
SPRING LAKE, NC 28390,
USA

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REVISIONS

REV	DESCRIPTION	DATE

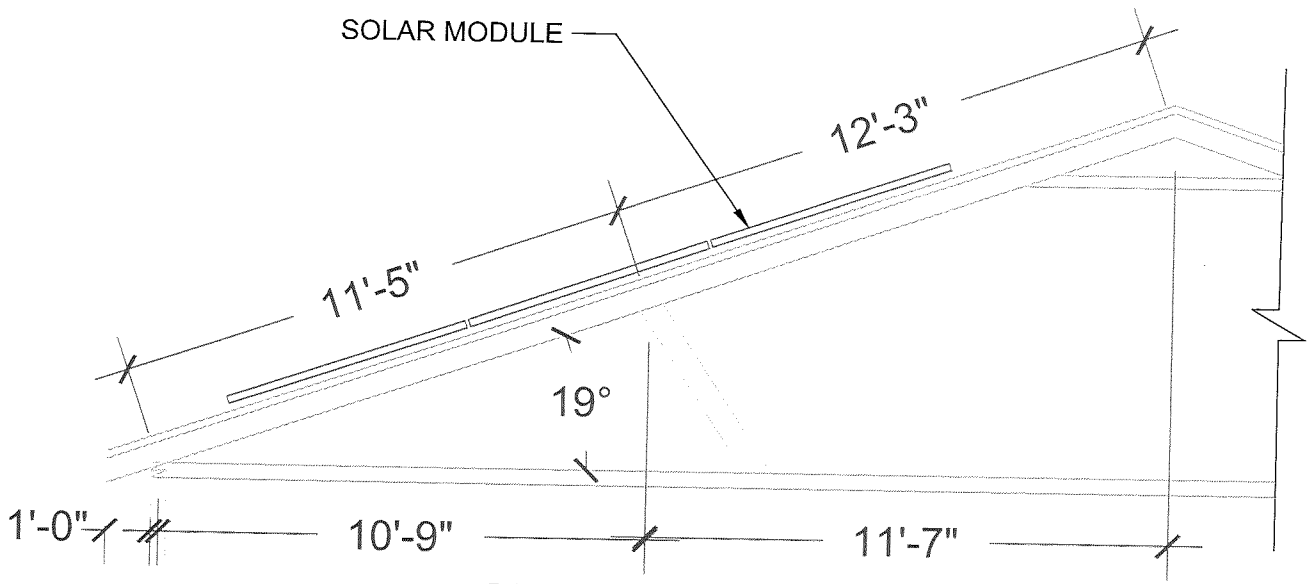
SHEET TITLE
ATTACHMENT PLAN

DRAWN DATE	04/23/2021
DRAWN BY	VVP
REVIEWED BY	-

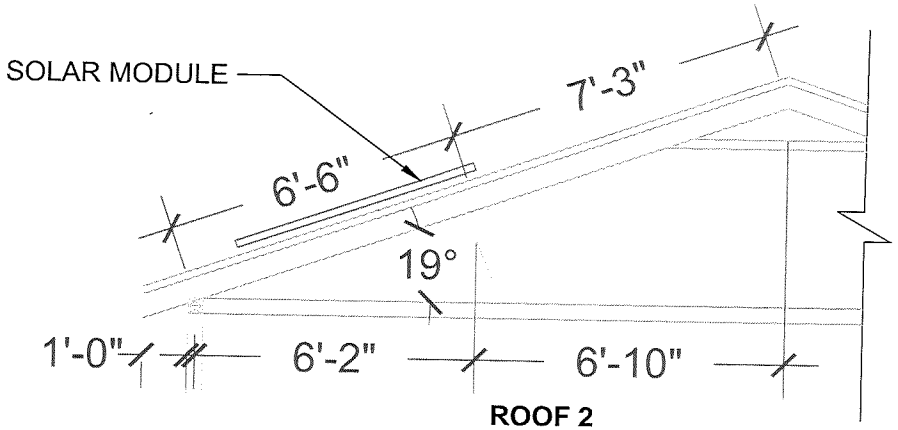
SHEET NUMBER
A-103

ROOF SECTION(S)

ROOF 1	ROOF MATERIAL - COMPOSITE SHINGLE RAFTER SIZE - 2"X6" O.C. SPACING - 24"
ROOF 2	ROOF MATERIAL - COMPOSITE SHINGLE RAFTER SIZE - 2"X6" O.C. SPACING - 24"



ROOF 1



ROOF 2

1 | STRUCTURAL PLAN

SCALE:3/8" = 1'-0"

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REVISIONS

REV	DESCRIPTION	DATE

SHEET TITLE
STRUCTURAL PLAN

DRAWN DATE	04/23/2021
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REVIEWED BY	-

SHEET NUMBER
A-104

SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL #	LG ELECTRONICS LG365N1C-A6
VMP	34.5V
IMP	10.58A
VOC	41.6V
ISC	11.27A
TEMP. COEFF. VOC	-0.26%/°C
MODULE DIMENSION	68.5"L x 41.0"W x 1.57"D (In Inch)

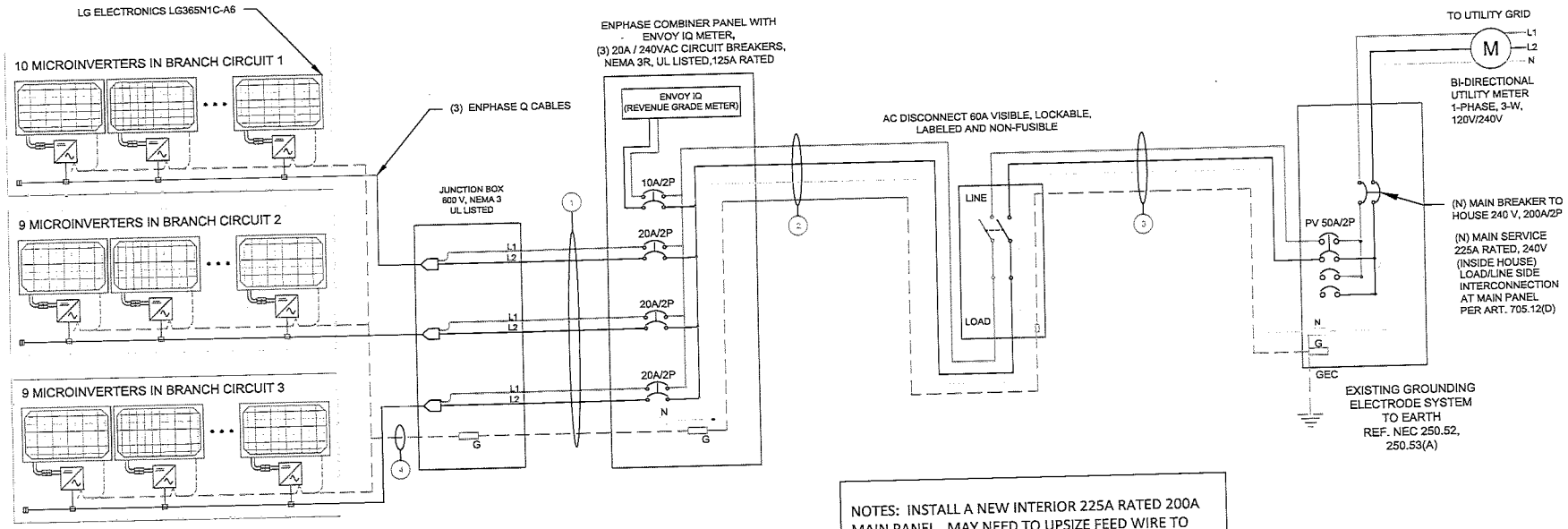
AC SYSTEM SIZE : 28 x 290 = 8.12 KW AC

DC SYSTEM SIZE : 28 x 365 = 10.22 KW DC

INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL #	ENPHASE IQ 7 PLUS MICROINVERTER
MIN/MAX DC VOLT RATING	22V MIN/ 60V MAX
MAX INPUT POWER	235W-440W
NOMINAL AC VOLTAGE RATING	240V/ 211-264V
MAX AC CURRENT	1.21A
MAX MODULES PER STRING	13 (SINGLE PHASE)
MAX OUTPUT POWER	290 VA

WIRE /CONDUIT SCHEDULE	
TAG	DESCRIPTION
1	#12/2 ROMEX IN ATTIC/ #12 THWN-2 ON EXTERIOR & (1)#6 THWN-2 GROUND / (GN)
2	#6 THWN-2 & (1)#6 THWN-2 GROUND / (GN)
3	#6 THWN-2 & (1)#6 THWN-2 GROUND / (GN)
4	(1)#6 BARE GROUND

(GN) GENERAL CONDUIT NOTE :
CONDUIT TO BE UL LISTED FOR WET LOCATIONS AND UV PROTECTED
(EX. –EMT, SCH 80 PVC OR RMC)
*FMC MAYBE USED IN INDOOR APPLICATIONS WHERE PERM ITTED BY NEC ART. 348



NOTES: INSTALL A NEW INTERIOR 225A RATED 200A MAIN PANEL . MAY NEED TO UPSIZE FEED WIRE TO 2/0. LAND A 50A SOLAR BREAKER IN THE NEW INTERIOR MAIN PANEL. USE #6 WIRE.

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REV	DESCRIPTION	DATE

SHEET TITLE
LINE DIAGRAM

DRAWN DATE	04/23/2021
DRAWN BY	VVP
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SHEET NUMBER
E-601

AMBIENT TEMPERATURE SPECS	
RECORD LOW TEMP	-9°
AMBIENT TEMP (HIGH TEMP 2%)	34°
CONDUIT HEIGHT	0.5"
CONDUCTOR TEMPERATURE RATE	90°
MODULE TEMPERATURE COEFFICIENT OF Voc	-0.26% /°C

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

CALCULATIONS:

1. CURRENT CARRYING CONDUCTOR

(A) BEFORE IQ COMBINER PANEL

AMBIENT TEMPERATURE - (34)°C ...NEC 310.15(B)(3)(c)
TEMPERATURE DERATE FACTOR - 0.96 ...NEC 310.15(B)(2)(a)
GROUPING FACTOR - 0.8..NEC 310.15(B)(3)(a)

CONDUCTOR AMPACITY
= (INV O/P CURRENT) x 1.25 / A.T.F / G.F ...NEC 690.8(B)
= [(10 x 1.21) x 1.25] / [0.96x 0.8]
= 19.69A
SELECTED CONDUCTOR - #12 THWN-2 ...NEC 310.15(B)(16)

(B) AFTER IQ COMBINER PANEL

TEMPERATURE DERATE FACTOR - 0.96
GROUPING FACTOR - 1

CONDUCTOR AMPACITY
= (TOTAL INV O/P CURRENT) x 1.25 / 0.96/ 1 ...NEC 690.8(B)
= [(28 x 1.21) x 1.25] / [0.96x 1]
= 44.11 A
SELECTED CONDUCTOR - #6 THWN-2 ...NEC 310.15(B)(16)

2. PV OVER CURRENT PROTECTION ...NEC 690.9(B)

= TOTAL INVERTER O/P CURRENT x 1.25
= (28 x 1.21) x 1.25 = 42.35 A
SELECTED OCPD = 50A ...NEC 240.6

3. 120% RULE FOR BACKFEED BREAKER

...NEC 705.12(B)(2)(3)(b)

MCB RATING + PV BREAKER RATING <= (1.2 x BUS BAR RATING)
(200 + 50) <= 1.2 x 225A
250.00 <= 270.00 HENCE OK

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REVISIONS	REV	DESCRIPTION	DATE

SHEET TITLE
ELECTRICAL CALCULATIONS

DRAWN DATE	04/23/2021
DRAWN BY	VVP
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SHEET NUMBER
E-602

WARNING:
PHOTOVOLTAIC
POWER SOURCE

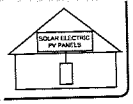
LABEL 1
ON ALL CONDUITS SPACED AT MAX 10FT

! CAUTION !
SOLAR ELECTRIC
SYSTEM CONNECTED
AND ENERGIZED

LABEL 2
AT INVERTER

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 3
AT INVERTER

PHOTOVOLTAIC
DC DISCONNECT

LABEL 4
AT DC DISCONNECT

! WARNING !
ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS.
TERMINALS ON BOTH LINE AND LOAD SIDES
MAY BE ENERGIZED IN THE OPEN POSITION

LABEL 5
AT EACH AC DISCONNECT

PHOTOVOLTAIC
AC DISCONNECT

LABEL 6
AT EACH AC DISCONNECT

! WARNING !
DUAL POWER SOURCES
SECOND SOURCE IS PV SYSTEM

LABEL 7
AT MEP

! WARNING !
SOLAR SYSTEM CONNECTED
AND ENERGIZED

LABEL 8
AT MEP

! CAUTION !
SOLAR POINT OF
INTERCONNECTION

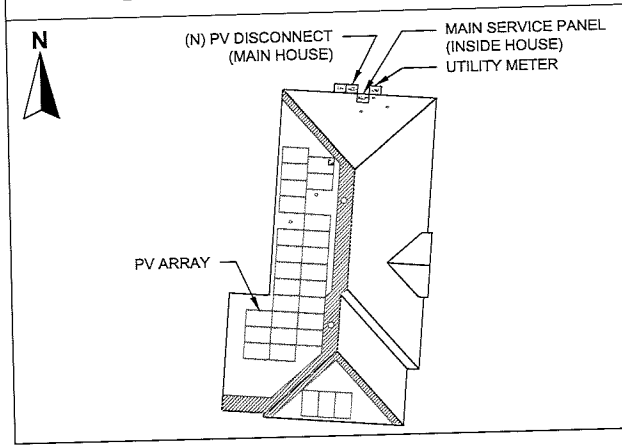
LABEL 9
AT UTILITY METER

! WARNING !
THE SERVICE METER IS ALSO SERVED
BY A PHOTOVOLTAIC SYSTEM

LABEL 10
AT UTILITY METER

CAUTION

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



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SHEET TITLE
PLACARDS

DRAWN DATE	04/23/2021
DRAWN BY	VVP
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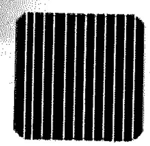
SHEET NUMBER
E-603

LG NeON®2

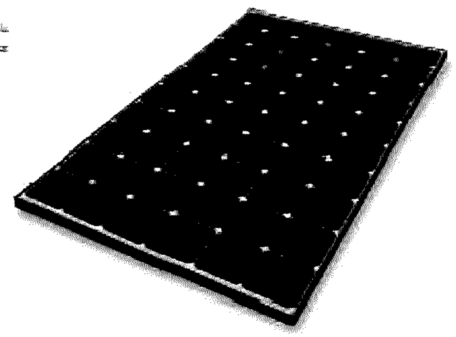
LG365N1C-A6

365W



The LG NeON® 2 is LG's best selling solar module and one of the most powerful and versatile modules on the market today. The cells are designed to appear all-black at a distance, and the performance warranty guarantees 90.6% of labeled power output at 25 years.

25 YEAR WARRANTY



Features

Enhanced Performance Warranty
LG NeON® 2 has an enhanced performance warranty. After 25 years, LG NeON® 2 is guaranteed at least 90.6% of initial performance.

25-Year Limited Product Warranty
The NeON® 2 is covered by a 25-year limited product warranty. In addition, up to $450 of labor costs will be covered in the rare case that a module needs to be repaired or replaced.

Solid Performance on Hot Days
LG NeON® 2 performs well on hot days due to its low temperature coefficient.

Roof Aesthetics
LG NeON® 2 has been designed with aesthetics in mind using thinner wires that appear all black at a distance.

When you go solar, ask for the brand you can trust: LG Solar

LG NeON®2

LG365N1C-A6

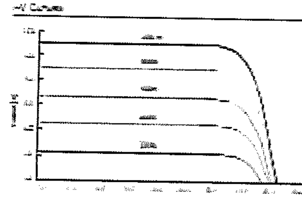
General Data

Certifications and Warranty

Temperature Characteristics

Electrical Properties (NMOT)

I-V Curves

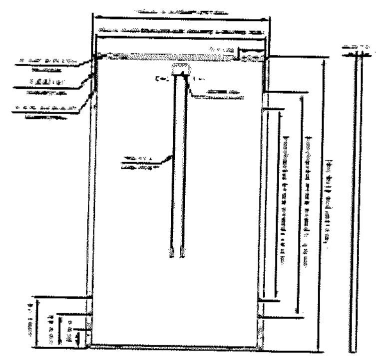


Electrical Properties (STC)

Operating Conditions

Packaging Configuration

Dimensions (mm/inch)



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R-001

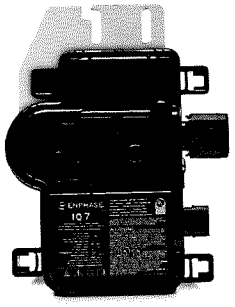
Data Sheet
Enphase Microinverters
Region: US

Enphase IQ 7 and IQ 7+ Microinverters

The high-powered smart grid-ready Enphase IQ 7 Micro™ and Enphase IQ 7+ Micro™ dramatically simplify the installation process while achieving the highest system efficiency.

Part of the Enphase IQ System, the IQ 7 and IQ 7+ Microinverters integrate seamlessly with the Enphase IQ Envoy™, Enphase Q Aggregator™, Enphase IQ Battery™, and the Enphase Enlighten™ monitoring and analysis software.

IQ Series Microinverters extend the reliability standards set forth by previous generations and undergo over a million hours of power-on testing, enabling Enphase to provide an industry-leading warranty of up to 25 years.



Easy to Install

- Lightweight and simple
- Faster installation with improved, lighter two-wire cabling
- Built-in rapid shutdown compliant (NEC 2014 & 2017)

Productive and Reliable

- Optimized for high powered 60-cell and 72-cell* modules
- More than a million hours of testing
- Class II double-insulated enclosure
- UL listed

Smart Grid Ready

- Complies with advanced grid support, voltage and frequency ride-through requirements
- Remotely updates to respond to changing grid requirements
- Configurable for varying grid profiles
- Meets CA Rule 21 (UL 1741-SA)

* The IQ 7+ Micro is required to support 72-cell modules.

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

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Enphase IQ 7 and IQ 7+ Microinverters

INPUT DATA (DC)	IQ7-60-2-US	IQ7PLUS-72-2-US
Commonly used module pairings[1]	235 W - 350 W +	295 W - 440 W +
Module compatibility	60-cell PV modules only	60-cell and 72-cell PV modules
Maximum input DC voltage	48 V	60 V
Peak power tracking voltage	27 V - 37 V	27 V - 45 V
Operating range	16 V - 48 V	16 V - 60 V
Min/Max start voltage	22 V / 48 V	22 V / 60 V
Max DC short circuit current (module Isc)	15 A	15 A
Overvoltage class DC port	II	II
DC port backfeed current	0 A	0 A
PV array configuration	1 x 1 ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit	

OUTPUT DATA (AC)	IQ 7 Microinverter		IQ 7+ Microinverter	
Peak output power	250 VA		295 VA	
Maximum continuous output power	240 VA		290 VA	
Nominal (L-L) voltage/range[2]	240 V / 211-264 V	208 V / 183-229 V	240 V / 211-264 V	208 V / 183-229 V
Maximum continuous output current	1.0 A	1.15 A	1.21 A	1.39 A
Nominal frequency	60 Hz		60 Hz	
Extended frequency range	47 - 68 Hz		47 - 68 Hz	
AC short circuit fault current over 3 cycles	5.8 Arms		5.8 Arms	
Maximum units per 20 A (L-L) branch circuit	16 (240 VAC) 13 (208 VAC)		13 (240 VAC) 11 (208 VAC)	
Overvoltage class AC port	III		III	
AC port backfeed current	0 A		0 A	
Power factor setting	1.0		1.0	
Power factor (adjustable)	0.7 leading ... 0.7 lagging		0.7 leading ... 0.7 lagging	

EFFICIENCY	@240 V	@208 V	@240	@208 V
CEC weighted efficiency	97.0 %	97.0 %	97.0 %	96.5 %

MECHANICAL DATA	IQ 7 Microinverter	IQ 7+ Microinverter
Ambient temperature range	-40°C to +65°C	-40°C to +65°C
Relative humidity range	4% to 100% (condensing)	
Connector type	MC4 (or Amphenol H4 UTX with additional Q-DCC-5 adapter)	
Dimensions (WxHxD)	212 mm x 175 mm x 30.2 mm (without bracket)	
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	
Environmental category / UV exposure rating	NEMA Type 6 / outdoor	

FEATURES	
Communication	Power Line Communication (PLC)
Monitoring	Enlighten Manager and MyEnlighten monitoring options. Both options require installation of an Enphase IQ Envoy.
Disconnecting means	The AC and DC connectors have been evaluated and approved by UL for use as the load-break disconnect required by NEC 690.
Compliance	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 and NEC-2017 section 690.12 and C22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according manufacturer's instructions.

1. No enforced DC/AC ratio. See the compatibility calculator at https://enphase.com/en-us/support/module-compatibility.
2. Nominal voltage range can be extended beyond nominal if required by the utility.

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

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REV	DESCRIPTION	DATE

SHEET TITLE
RESOURCE DOCUMENT

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REVIEWED BY	-

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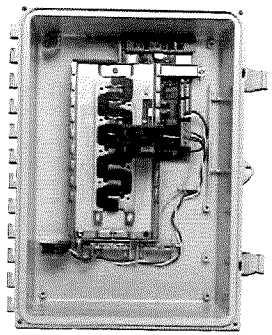
R-002

Data Sheet
Enphase Networking

Enphase IQ Combiner 3

(X-IQ-AM1-240-3)

The Enphase IQ Combiner 3™ with Enphase IQ Envoy™ consolidates interconnection equipment into a single enclosure and streamlines PV 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 Envoy for communication and control
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and optional consumption monitoring

Simple

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

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year warranty
- UL listed

LISTED

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Enphase IQ Combiner 3

MODEL NUMBER	
IQ Combiner 3 X-IQ-AM1-240-3	IQ Combiner 3 with Enphase IQ Envoy™ printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and optional* consumption monitoring (+/- 2.5%).
ACCESSORIES and REPLACEMENT PARTS (not included, order separately)	
Enphase Mobile Connect™ CELLMODEM-03 (4G / 12-year data plan) CELLMODEM-01 (3G / 5-year data plan) CELLMODEM-M1 (4G based LTE-M / 5-year data plan)	Plug and play industrial grade cellular modem with data plan 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.)
Consumption Monitoring* CT CT-200-SPLIT	Split core current transformers enable whole home consumption metering (+/- 2.5%)
Circuit Breakers BRK-10A-2-240 BRK-15A-2-240 BRK-20A-2P-240	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
EPLC-01	Power line carrier (communication bridge pair), quantity 2
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 3 (required for EPLC-01)
XA-ENV-PCBA-3	Replacement IQ Envoy printed circuit board (PCB) for Combiner 3
ELECTRICAL SPECIFICATIONS	
Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max. continuous current rating (output to grid)	65 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. continuous current rating (input from PV)	64 A
Max. total branch circuit breaker rating (input)	80A of distributed generation / 90A with IQ Envoy breaker included
Production Metering CT	200 A solid core pre-installed and wired to IQ Envoy
MECHANICAL DATA	
Dimensions (WxHxD)	49.5 x 37.5 x 16.8 cm (19.5" x 14.75" 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
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included)
Cellular	Optional, CELLMODEM-01 (3G) or CELLMODEM-03 (4G) or CELLMODEM-M1 (4G based LTE-M) (not included)
COMPLIANCE	
Compliance, 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)
Compliance, IQ Envoy	UL 60601-1/CANCSA 22.2 No. 61010-1

* Consumption monitoring is required for Enphase Storage Systems.

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2018-02-13

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REVISIONS

REV	DESCRIPTION	DATE

SHEET TITLE
RESOURCE DOCUMENT

DRAWN DATE	04/23/2021
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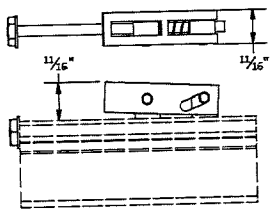
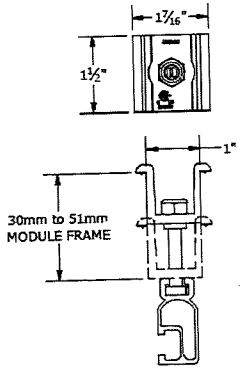
REVIEWED BY	-

SHEET NUMBER
R-003

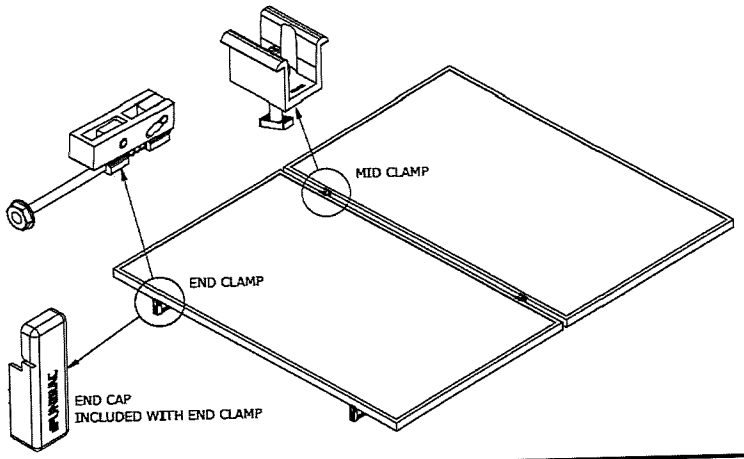
PRO SERIES END CLAMP



PRO SERIES MID CLAMP



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



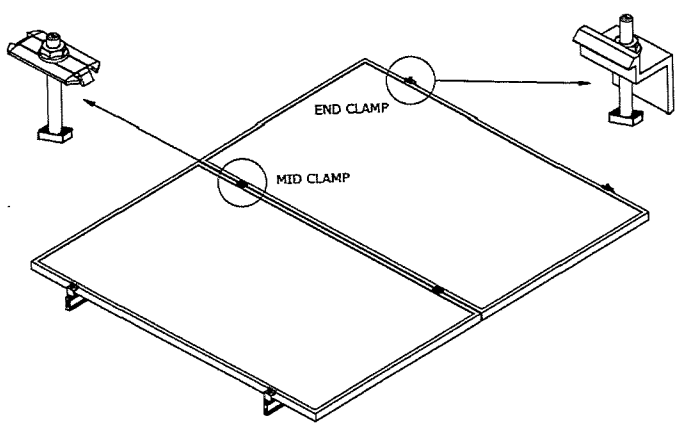
UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

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

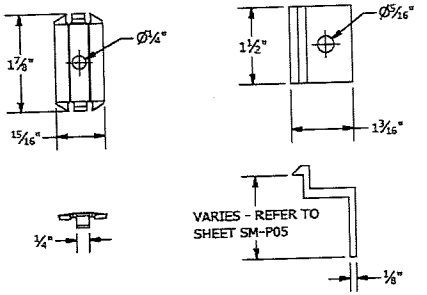
DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

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

SUNPR

22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

PROJECT NAME & ADDRESS
THESELONIA MCLEAN
284 SANDCLAY DR,
SPRING LAKE, NC 28390,
USA

Signature with Seal

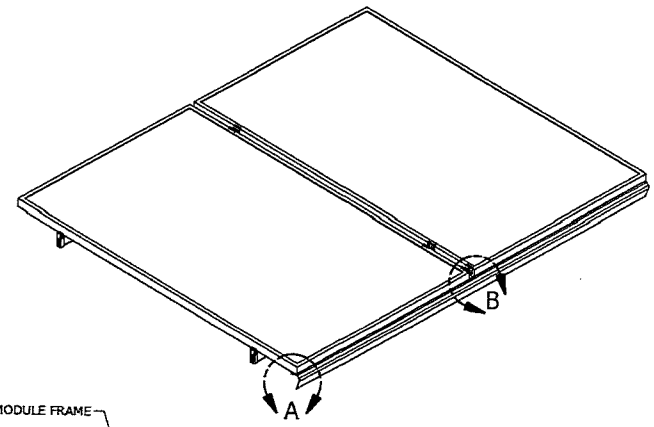
REVISIONS

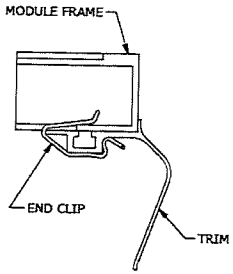
REV	DESCRIPTION	DATE

SHEET TITLE
RESOURCE DOCUMENT

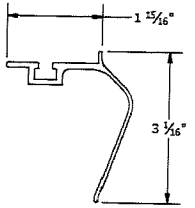
DRAWN DATE	04/23/2021
DRAWN BY	VVP
REVIEWED BY	-

SHEET NUMBER
R-004

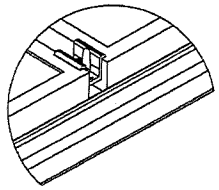




DETAIL A
TRIM END CLIP



TRIM

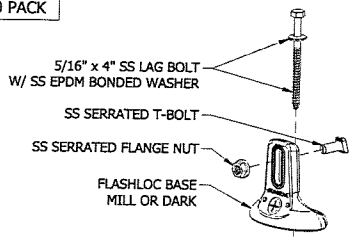


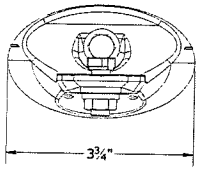
DETAIL B
MID CLAMP TRIM CONNECTION

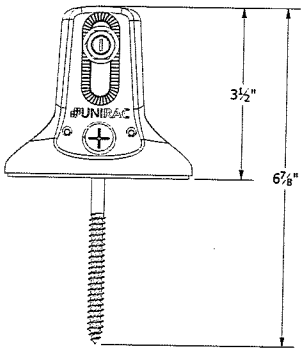
PART # TABLE		
P/N	DESCRIPTION	LENGTH
206072D-B	SM TRIM DRK	168"
008025S	SM TRIM END CLIP	-

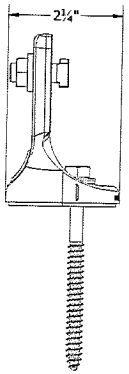
UNIRAC 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	
PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART & ASSEMBLY
DESCRIPTION:	SM TRIM END CLIP
REVISION DATE:	9/27/2017
DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL	
PRODUCT PROTECTED BY ONE OR MORE US PATENTS LEGAL NOTICE	
SM-A02 SHEET	

PART TABLE	
P/N	DESCRIPTION
004085M	FLASHLOC COMP KIT MILL, 20 PACK
004085D	FLASHLOC COMP KIT DARK, 20 PACK









UNIRAC 1411 BROADWAY BLVD. NE ALBUQUERQUE, NM 87102 USA PHONE: 505.242.6411 WWW.UNIRAC.COM	
PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART DRAWING
DESCRIPTION:	FLASHLOC COMP KIT
REVISION DATE:	4/28/2020
DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL	
PRODUCT PROTECTED BY ONE OR MORE US PATENTS LEGAL NOTICE	
FL-A01 SHEET	

SUNPR
22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

PROJECT NAME & ADDRESS
THESELONIA MCLEAN
284 SANDCLAY DR,
SPRING LAKE, NC 28390,
USA

Signature with Seal

REVISIONS

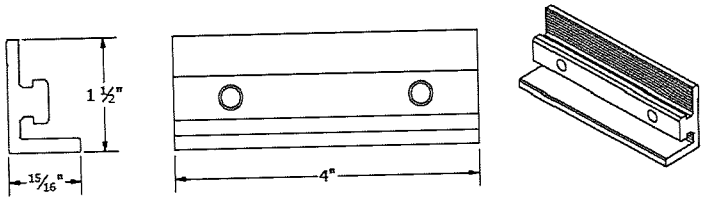
REV	DESCRIPTION	DATE

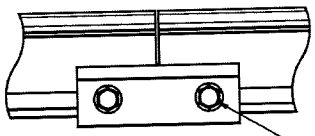
SHEET TITLE
RESOURCE DOCUMENT

DRAWN DATE	04/23/2021
DRAWN BY	VVP
REVIEWED BY	-

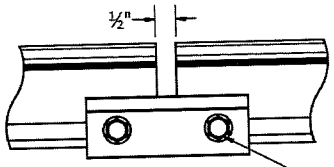
SHEET NUMBER
R-005

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

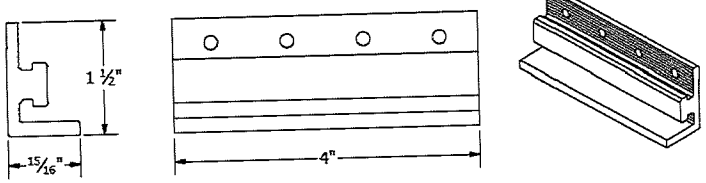
PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART & ASSEMBLY
DESCRIPTION:	BONDING SPLICE BAR PRO SERIES
REVISION DATE:	8/23/2018

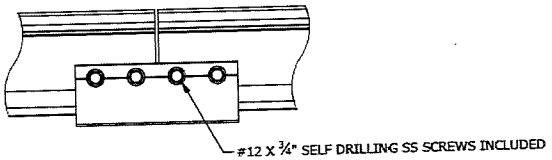
DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

PRODUCT PROTECTED BY ONE OR MORE US PATENTS
LEGAL NOTICE

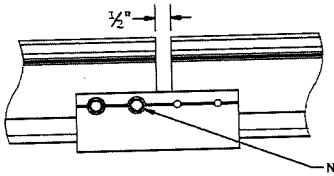
SM-A05
SHEET

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

SUNPR
22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

PROJECT NAME & ADDRESS
THESELONIA MCLEAN
284 SANDCLAY DR,
SPRING LAKE, NC 28390,
USA

Signature with Seal

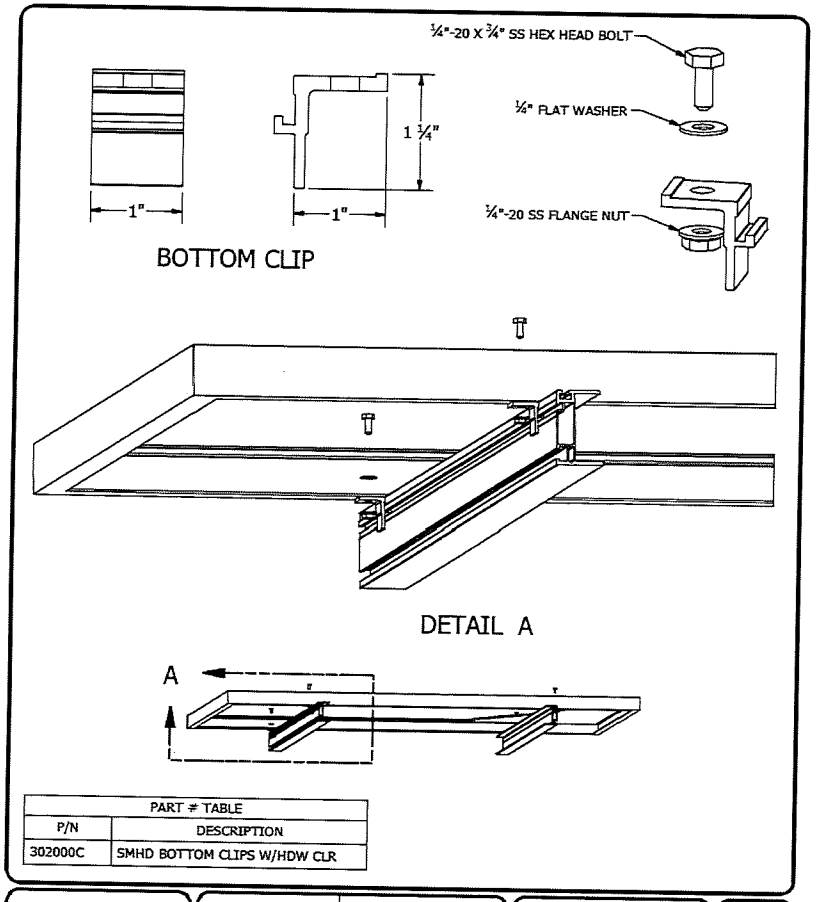
REVISIONS

REV	DESCRIPTION	DATE

SHEET TITLE
RESOURCE DOCUMENT

DRAWN DATE	04/23/2021
DRAWN BY	VVP
REVIEWED BY	-

SHEET NUMBER
R-006



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

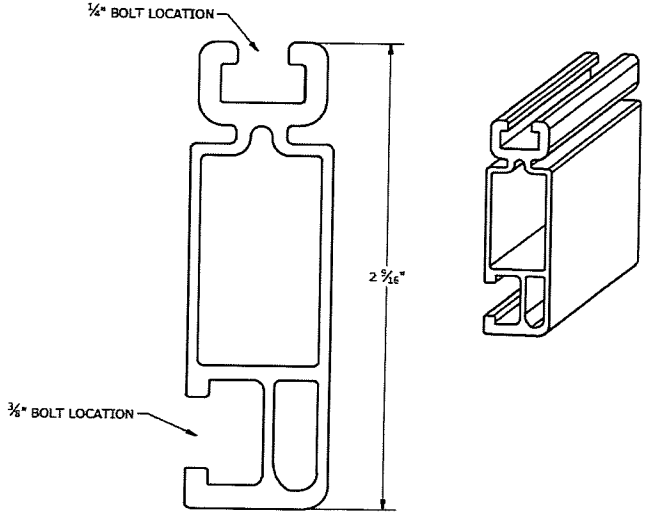
UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

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

SUNPR
22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

PROJECT NAME & ADDRESS
THESELONIA MCLEAN
284 SANDCLAY DR,
SPRING LAKE, NC 28390,
USA

Signature with Seal

REVISIONS

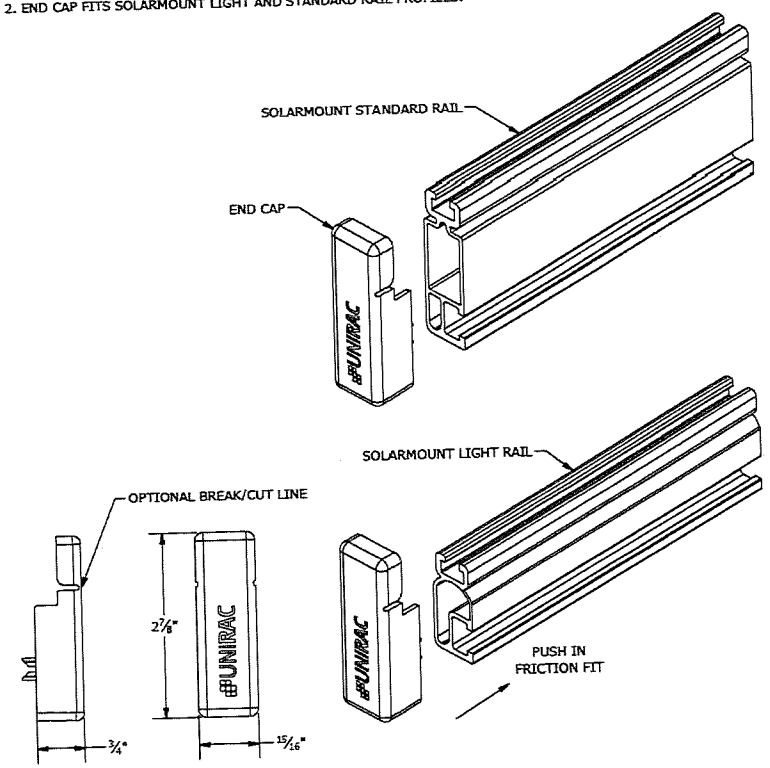
REV	DESCRIPTION	DATE

SHEET TITLE
RESOURCE DOCUMENT

DRAWN DATE	04/23/2021
DRAWN BY	VVP
REVIEWED BY	-

SHEET NUMBER
R-007

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



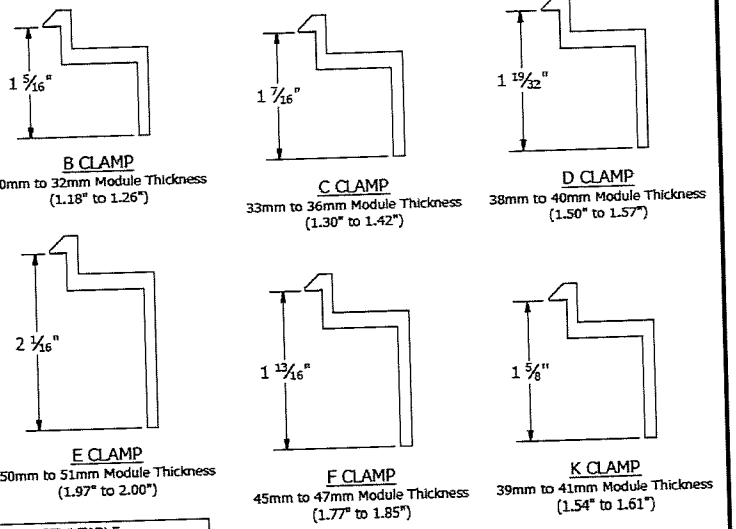
UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

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

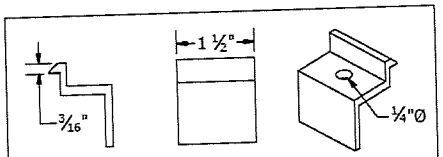
DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

PRODUCT PROTECTED BY ONE OR MORE US PATENTS
LEGAL NOTICE

SM-P04
SHEET



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

SUNPR
22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

PROJECT NAME & ADDRESS
THESELONIA MCLEAN
284 SANDCLAY DR,
SPRING LAKE, NC 28390,
USA

Signature with Seal

REVISIONS		
REV	DESCRIPTION	DATE

SHEET TITLE
RESOURCE DOCUMENT

DRAWN DATE	04/23/2021
DRAWN BY	VVP
REVIEWED BY	-

SHEET NUMBER
R-008

SUNPRO
SOLAR ENERGY SPECIALISTS

Jobsite Safety Checklist

☐ Pre-Job ☐ Daily ☐ Weekly ☐ Post-Job

Location: _____ Date: _____ Emergency: _____

Lead Installer: _____ Lead's Phone #: _____ Job #: _____

JOB INFO/CHECKLIST

General	Yes	No	N/A
-Emergency phone numbers & procedures posted:	☐	☐	☐
-First aid supplies readily available:	☐	☐	☐
-First aid supplies adequate for job manpower:	☐	☐	☐
-Required posters & signs posted:	☐	☐	☐

Trenching & Excavation	Yes	No	N/A
-Utilities located and marked:	☐	☐	☐
-Adjacent structures stabilized:	☐	☐	☐
-Other Barricades & Warnings (Pedestrians, Stop Logs, etc):	☐	☐	☐
-Material stored at least 2" from edge:	☐	☐	☐
-Competent person (assigned & performing inspections):	☐	☐	☐

PPE	Yes	No	N/A
-Hard hats:	☐	☐	☐
-Fall protection:	☐	☐	☐
-Skin protection:	☐	☐	☐
-Eye & face protection:	☐	☐	☐
-Hearing protection:	☐	☐	☐

Fire Protection:	Yes	No	N/A
-Extinguishers where required:	☐	☐	☐
-Clearly visible & readily accessible:	☐	☐	☐
-Fully charged:	☐	☐	☐

Electrical Safety	Yes	No	N/A
-Overhead power lines identified:	☐	☐	☐
-Electrical cords in good condition:	☐	☐	☐
-Electrical outlets not overloaded with multi-plug adaptors or extension cords:	☐	☐	☐
-Electrical panels are not blocked and have at least 30" of clearance:	☐	☐	☐

Ladders/Stairways	Yes	No	N/A
-Anchored/Tied off & extend 3 feet above landing:	☐	☐	☐
-Proper angle (extension ladders):	☐	☐	☐
-Proper size & type:	☐	☐	☐
-Safe, usable condition:	☐	☐	☐
-Properly used:	☐	☐	☐
-Non-slip bases:	☐	☐	☐

Chemical Safety	Yes	No	N/A
-All chemical containers are labeled & sealed when not in use:	☐	☐	☐

Barricades	Yes	No	N/A
-Located where required:	☐	☐	☐
-Adequately secured:	☐	☐	☐

House Keeping & Security	Yes	No	N/A
-Outside areas are free from tripping hazards, such as uneven pavement or holes:	☐	☐	☐
-Floors are free of tripping hazards, such as boxes, cords, etc:	☐	☐	☐
-Items are not stacked that create an overhead falling hazard:	☐	☐	☐

Other Hazards	Yes	No	N/A
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐
_____	☐	☐	☐

DISCUSSION

NAMES & SIGNATURES OF ATTENDEES

DAILY SOLAR INSTALL SHEET

INSTALL DATE: 5-10-21

PROJECT #: 35769

CUSTOMER'S NAME: Theselonia Melean

INSTALLER'S NAME: Jonathan Aguecia

Please print as clearly as possible

	MODEL	DESCRIPTION		BOM	OUT	USED	DAMAGED	RETURN TO WAREHOUSE
Panels	SOLAR PANEL	JA 300						
	SOLAR PANEL	LG 325						
	SOLAR PANEL	LG 335 **Baywa**						
	SOLAR PANEL	LG 345 **Baywa**						
	SOLAR PANEL	LG 360						
	SOLAR PANEL	LG 365						
	SOLAR PANEL	Mission 300						
	SOLAR PANEL	LG 335 **LG**						
	SOLAR PANEL	LG 345 **LG**						
	SOLAR PANEL	Longi 310						
	SOLAR PANEL OTHER	LG 365		28	29	28		
Ends	UNI-302022D	ENDS-TRINA/JA						
	UNI-302026D	ENDS-LG		24	24	24		
Mids	UNI-302029D	MIDS		44	44	44		
Inverters	IQ7-60-2-US	Enphase IQ7						
	IQ7PLUS-72-2-US	Enphase IQ7 Plus		28	28	28		

OUT Warehouse Initals:_____

IN Warehouse Initals:_____

PM Initals:_____

DAILY SOLAR INSTALL SHEET

INSTALL DATE: 5-10-21

PROJECT #: 35764

CUSTOMER'S NAME: Theselonia Mclean

INSTALLER'S NAME: Jonathan Aguerin

Please print as clearly as possible

	MODEL	DESCRIPTION		BOM	OUT	USED	DAMAGED	RETURN TO WAREHOUSE
Inverter Bolts	UNI-008013S	MICROINVERTER BOLTS 1/4" X 3/4" SS		45	45	28		
Rail	UNI-320168M	STANDARD RAIL		16	16	16		
	UNI-009020S	RAIL T BOLT 3/8 X 3/4 SS		64	64	64		
	UNI-303019M	SPLICE BARS		4	4	4		
Trunk	EN-Q-12-10-240	TRUNK CABLE PORTRAIT		58	0			
Hardware	EN-Q-CLIP-100	Q-CABLE CLIPS		90	90	64		
	EN-Q-SEAL-01	WATER TIGHT COVERS-TRUNK		4	4	4		
	EN-Q-TERM-01	ENDCAP TRUNK CABLE BRANCH TERM		6	6	6		
	WEEBLUGS-6.7	GROUND LUGS		12	12	12		
	SD-0799-5G	SOLADECK		2	2	2		
	EN-Q-CONN-10F	FEMALE TRUNK CONNECTOR						
	EN-Q-CONN-10M	MALE TRUNK CONNECTOR						
Monitoring	EN-X-IQ-AM1-240-3	AC COMBINER BOX						
	EN-CT-200-SPLIT	SPLIT CORE TRANS						
	MTC-H5-B03	EN-CELLMODEM-01						
	TP AV600	TP LINK						
	EN-XA-PLUG-120-3	AC COMBINER PLUG						

OUT Warehouse Initals:_____

IN Warehouse Initals:_____

PM Initals:_____

DAILY SOLAR INSTALL SHEET

INSTALL DATE: 5-10-21

PROJECT #: 35764

CUSTOMER'S NAME: Theselonia Melean

INSTALLER'S NAME: Jonathan Figueroa

Please print as clearly as possible

	MODEL	DESCRIPTION		BOM	OUT	USED	DAMAGED	RETURN TO WAREHOUSE
Mounts	UNI-004055M	Flashkit Pro						
	UNI-004085M	Flashloc		62	62	62		
	4" Stand Offs	4" Stand Offs(Used w/ E-curb)						
	5" E-curb	5" E-curb						
	7" Sunmodo	7" Sunmodo						
	QMCPC-B-12	CONDUIT PEN. FLASHING (COMP. ROOF)						
	QMTRS3.25-A-12	S-Tile (*BASEMOUNT)						
	QMTR-W4-A-12	W-Tile (*BASEMOUNT)						
	QMTR-BM-A-12	BASEMOUNT						
	QMCPT-A-12	CONDUIT PEN. FLASHING (TILE ROOF)						
	QMTR-F3.25-A-12	Flat Tile						
	QM-QMHLS-A-12	Tile Low Hooks						
	QM-QMHSS-A-12	Tile High Hooks						
	ZILLA - ZDSFA-AL BLK XL	Zilla						
	S-5 PROTEABRACKET	PROTEA						
	S-5-H	H-BRACKET						
	S-5-N	S-5-N						
	S-5-N 1.5	N-BRACKET (1.5")						
	S-5-S	S-BRACKET						
	S-5-U	U-BRACKET						
	S-5-VERSABRACKET-47	VERSA						
	S-5-SOLARFOOT	SOLARFOOT (*L Feet)						
	UNI-304001C	L FEET						
	OTHER MOUNT							

OUT Warehouse Initals:_____

IN Warehouse Initals:_____

PM Initals:_____

DAILY SOLAR INSTALL SHEET

INSTALL DATE: 5-10-21

PROJECT #: 35764

CUSTOMER'S NAME: Therese Ionica Mcbean

INSTALLER'S NAME: Jonathan Aguirre

Please print as clearly as possible

	MODEL	DESCRIPTION		BOM	OUT	USED	DAMAGED	RETURN TO WAREHOUSE
Ground Mount	GROUND MOUNT	Nuance Ground Mount Kit						
	403211C ULA	FRONT CAP 2"						
	403214C ULA	REAR CAP 2"						
	403215C ULA	SLIDER 2" AL						
	403213C ULA	RAIL BRACKET 2"						
	403201C ULA	BRACE 2"						
	410168M	SMHD 168"						
Ballast System	UNI-310710	Ballast						
	UNI-008114M	SFM MLPE MOUNT						
	UNI-310750	RM MODULE CLIP						
	UNI-310751	RM HEX BOLTS						
	UNI-310760	UNIRAC ROOF PAD						
Tesla	Tesla Powerwall	Tesla Powerwall						
	Tesla Gateway	Tesla Gateway						
	Tesla Bundle 1 or 2	Tesla Bundle 1 or 2						
	Tesla Stacking Kit	Tesla Stacking Kit						
	OTHER							
	OTHER							
	OTHER							

Project Manager Signature

Date

Project Manager Name

OUT Warehouse Initals:_____

IN Warehouse Initals:_____

Installation Checklist

SUNPRO SOLAR ENERGY SPECIALISTS

Address: 284 Sandclay Dr, Spring Lake, NC 28390

- ☐ Sign in the yard
- ☐ Yard and gutters cleaned
- ☐ Paint all exposed rails
- ☐ Sola deck completed
- ☐ Pictures of any damage to roof before install
- ☐ Pictures of everything on the roof before the panels go on. Q-mnts/S-5, rails, trunk, inverters.
- ☐ Pictures of inside of Sola deck (s)
- ☐ Pictures of Final array on Each roof
- ☐ Pictures taken and uploaded to customer's file

SHADE ANALYSIS

- ☐ Shade analysis completed
- ☐ Tilt & direction for each array
- ☐ Suneye pictures numbered (delete ***any*** excess pictures)
- ☐ Checked pictures, grid is straight
- ☐ Named pictures; homeowners' last name first ex: Smith, John

- ☐ **Job 100% Complete**
- ☐ **Can Final Inspection be Scheduled?**
  ☐ **Yes**
- ☐ **No**
  Reason: _____
- ☐ **Did you make a case in salesforce?**

Homeowner Signature — Date: 5-11-21

☐ Were you offered a ***free*** $25 Gift Card?

Lead Installer Signature — Date: 5-11-21

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202114052061

202114064612

202114029888

202114052635

202114064941

202110047181

202114054243

202110026249

202114054187

202110052048

202114062340

202110051838

202114063607

202110024724

202114063876

202114041853

202114054178

202114051026

202114060646

202114049996

202114062145

202114052638

202114054065

202110051802

202114053833

202110047993

202110051583

202110049207

Customer Name: Thesclonia Melem

SOLAR PICTURE CHECKLIST

- ❑ Back of 1 panel showing specs
- ❑ 1 microinverter showing specs
- ❑ D-Ring on roof showing tie-off
- ❑ Quickmounts
- ❑ Rails with inverters
- ❑ Exposed rails painted ad neatly trimmed
- ❑ Trunk cable
- ❑ Soladecks (inside and outside with stickers)
- ❑ Picture far away of panels (on ground)
- ❑ Picture each section of panels (if there are 3 sections of panels on roof, pictures of each section are needed)
- ❑ Pictures to show total number of panels installed (35 panels installed need to see all 35 in pictures – finance company needs to count them)
- ❑ Pictures showing sides/underneath of panels showing that no wires are hanging off sides or underneath panels
- ❑ Pictures must match design, or be very close to design that HO has signed off on

[GROUNDMOUNT]

- ❑ Pictures of front and back of completed array
- ❑ Pole Layout
- ❑ Footing diameter and depth

Electrical Checklist

SUNPRO
SOLAR ENERGY SPECIALISTS

Address:

- [ ] Show clients breakers in panel, combiner box, & disconnect outside
- [ ] Equipment mounted securely?
- [ ] Conduit mounted Straight and Fastened?
- [ ] All piping and Equipment water proof?
- [ ] Building Penetrations sealed?
- [ ] Safety covers put back on equipment?
- [ ] Trash picked up off of jobsite?
- [ ] Stickers on equipment?
- [ ] One-line updated if changes are made?
- [ ] System energized?
- [ ] System turned off?

- [ ] **Ready for Final Electrical Inspection?**
- [ ] **Yes**
- [ ] **No**

Reason: _____

_____

_____

_____

- [ ] **Did you make a case in salesforce?**

PICTURES OF:

- [ ] Wired Interconnection
- [ ] Wired Combiner box/Envoy
- [ ] Envoy #
- [ ] Picture of wall with Equipment Mounted
- [ ] Pictures of stickers on Equipment

_____

Electrician

_____

Date

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