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June 2021

Property Owner: Jevon Holland

Property Address: 233 Trenton Pl. Cameron, NC 28326

#### **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 is adequate to support the proposed solar panel installation. This assessment is based on recent on-site inspection by SunPro 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 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 7-10 PEDE 2018 PETE 2018 ""NEC 2017

Risk Category: II

Design Wind Speed (3-second gust): 118 MPH

Wind Exposure Category: B Ground Snow Load: 10 PSF Seismic Design Category: D

#### **Existing Structure:**

Roof Material: Shingle

Roofing Structure: 2x6 rafters @ 24" O.C.

Roof Slope: 2/12

### **Connection of Array to Structure:**

Manufacturer: UNIRAC Mount: Flashloc Comp Kit

Mounting Connection: Flashloc Comp Kit 5/16" lag screw w/min 2.5" embedment into framing

Zone 1: 2 rails 4'-0" o.c. mounts Zone 2: 2 rails 4'-0" o.c. mounts Zone 3: 2 rails 2'-0" o.c. mounts



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#### Effect of the Solar Array on Structure Loading:

#### **Gravity Loads:**

Per IBC Section 1607.12.5.1, 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 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 (C<sub>s</sub>) per Section 7.4 of ASCE 7-10 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 7-10. The existing lateral force resisting system of the structure is therefore allowed to remain unaltered.

#### **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 engineering 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.

## Uplift and Wind Downforce Calculation Summary (ASCE 7-10) Mount, Rack, & Panel Proportioning

Property Owner:	Jevon Holland	Individ	lual Panel Dime	ensions
Project Address:	233 Trenton Pl	Length (in)	Width (in)	Area (sf)
City, State:	Cameron, NC 28326	77	39	20.85

Wind Load Calculation Summary (ASCE 7-10 C&C Provisions)				
Building Characteristics, Design Input, and Adjustment Factors				
Roof Dimensions: Length (b):	59 ft.			
Width (w):	47 ft.	Least Dimension: 47 ft.		
Roof Height (h):	25 ft.	Must be less than 60 ✓		
Pitch: 2 on 12 =	9.5°	Must be less than 45° ✓		
Roof Configuration	Gable			
Roof Structure:	2x Rafters			
Roof material:	Plywood			
Ultimate Wind Speed (mph):	118	From ASCE 7-10, Fig. 26.5		
Exposure Category:	В	Para 26.7.3		
Directionality Factor, K <sub>d</sub>	0.85	Table 26.6-1		
Risk Category:	2	Table 1.5-2		
Exposure Coefficient, K <sub>z</sub>	1.09	Table 30.3-1		
Topographic Adj., K <sub>zt</sub>	1	Fig. 26.8-1		
Effective Wind Area (sf):	21	(Area per individual panel)		
Velocity Pressure (psf), q <sub>h</sub> :	33.03	psf, Eq. 30.3-1		
Internal Pressure Coeff, GC <sub>pi</sub>	0.18	Table 26.11-1		

Roof Zone Strip (a), in ft, Fig. 30.5-1, Note 5	
1 - Least Roof Horizontal Dimension (L or W) x 0.10	4.7
2 - Roof Height x 0.4	10
3 - Least Roof Horizontal Dimension (L or W) x 0.04	
4 - Lesser of (1) and (2)	4.7
5 - Greater of (3) and (4)	4.7
6 - Greater of (5) and 3 feet	

	Net Design Wind Pressures				
	(ASCE 7, Eq. 30.4.1; Load Factor for ASD = 0.6, per ASCE 7, 2.4.1)				
Uplift (-psf) Down (psf)					
	$GC_{p}$	Pressure	$GC_p$	Pressure	Description of Zone
Zone 1	-0.88	-21.0	0.40	16.0	Interior Roof Area, >(a) ft from edge
Zone 2	-1.53	-33.8	0.40	16.0	Strip of (a) ft wide at roof edge
Zone 3	-2.40	-51.0	0.39	16.0	Corner intersection of Zone 2 strips

Snow Load				
Ground Snow Load, p <sub>g</sub>	10.0	From ASCE 7 or AHJ		
Terrain Category:	С	Para 6.5.6.3		
Exposure	Fully			
Exposure FactorCe	0.9	Table 7-2		
Thermal Factor, Ct	1.0	Table 7-3		
Importance Factor, I <sub>s</sub>	1.0	Table 1.5.2		
Roof Configuration	Gable			
Roof Slope	09.5°			
Distance from Eave to Ridge	23.5			
p <sub>m</sub> , Minimum required Snow Load	10.00 psf	Para. 7.3.4		
pf, Calculated Snow Load	6.30	Eq. 7.3-1		
pf, Design Snow Load	10.00 psf			

Mount Selection and Spacing				
Manufacturer:	Unirac	Perpendicular Panel Orientation		
Mount:	Flashloc Comp Kit	Allowable Arrangement by Uplift Pressure		
Substrate:	Wood Rafters	< 37 psf : 2 rails, mounts @ 4'-0" o.c.		
Connector:	5/16" x 4" Lag Screw	37 to 75 psf: 2 rails, mounts @ 2'-0" o.c.		
		75 to 112 psf: 3 rails, mounts @ 2'-0" o.c.		
Allowable Uplift:	480 max.	112 to 150 psf: 4 rails, mounts @ 2'-0" o.c.		
Required Mount Layout		> 150 psf: Mount capacity exceeded		
Zone 1 2 rails, mounts @ 4'-0" o.c.				
Zone 2 2 rails, mounts @ 4'-0" o.c.				
Zone 3 2 rails, mounts @ 2'-0" o.c.				
	(Allowable loads are based on	individual mount failure before rail failure)		

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North Carolina Firm No. C4113 Principal Engineering, Inc.

## NEW PHOTOVOLTAIC SYSTEM 19.35 KW DC 233 TRENTON PL, CAMERON, NC 28326, USA

## **GENERAL NOTES**

### 1.1.1 PROJECT NOTES:

1.1.2 THIS PHOTOVOLTAIC (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 MICRO-INVERTER 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 APPLICATION PER 690.4. 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 IQ7PLUS-72-2-US 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
- 1.3.12 SIGNAGE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE

### PROJECT INFORMATION

#### **OWNER**

NAME: JEVON HOLLAND

PROJECT MANAGER
NAME: SHAHIN HAYNES
PHONE: 8665071461

#### **CONTRACTOR NAME**

MARC JONES CONSTRUCTION, LLC DBA SUNPRO SOLAR

PHONE: 5052180838



### SCOPE OF WORK

SYSTEM SIZE: STC:53 X 365W= 19.35 kW DC

PTC: 53 x 341.6W = 18.10 kW DC (53) LG ELECTRONICS LG365N1C-A6 (53) ENPHASE IQ7PLUS-72-2-US

METER NO: 159384638

ATTACHMENT TYPE: ROOF MOUNT

MSP UPGRADE: YES

#### **AUTHORITIES HAVING JURISDICTION**

BUILDING: HARNETT COUNTY ZONING: HARNETT COUNTY UTILITY: CENTRAL EMC

#### **DESIGN SPECIFICATION**

OCCUPANCY: I

CONSTRUCTION: SINGLE-FAMILY ZONING: RESIDENTIAL

GROUND SNOW LOAD: REFER STRUCTURAL LETTER WIND EXPOSURE: REFER STRUCTURAL LETTER WIND SPEED: REFER STRUCTURAL LETTER

#### APPLICABLE CODES & STANDARDS

BUILDING: IBC 2015, IRC 2015

ELECTRICAL: NEC 2017 FIRE: IFC 2018

## **VICINITY MAP**



## SATELLITE VIEW



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## CONTRACTOR

## **SUNPR**

22171 MCH RD MANDEVILLE, LA 70471 PHONE: 9152011490

### SYSTEM SIZE:

DC SIZE: 19.345 KW DC-(STC)

AC SIZE: 15.370 KW AC

**CUSTOMER NAME & ADDRESS** 

JEVON HOLLAND 233 TRENTON PL,CAMERON, NC 28326,USA

## REVISIONS

REV

DRAWN DATE	6/25/2021
DRAWN BY	RM
REVIEWED BY	-

Signature with Seal

## **COVER PAGE**

SHEET NUMBER

G-001

#### 2.1.1 SITE NOTES:

- 2.1.2 A LADDER WILL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH CONVENTION IF THREE PHASE C OR L3- BLUE, 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 PROPERACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PERSECTION 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 2.5.5 EQUIPMENT GROUNDING CONDUCTORS SHALLBE SIZED NEC 110.26.
- 2.2.3 WIRING SYSTEMS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED MANUFACTORERS' INSTRUCTIONS. FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY NEC 690.31 2.5.6 EACH MODULE WILL BE GROUNDED USING WEEB (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 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).

ACCORDING TO NEC 690.45 AND MICROINVERTER

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

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)]. 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)].

## **CONTRACTOR**

22171 MCH RD MANDEVILLE, LA 70471 PHONE: 9152011490

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AC SIZE: 15.370 KW AC

**CUSTOMER NAME & ADDRESS** 

JEVON HOLLAND 233 TRENTON PL, CAMERON, NC 28326,USA

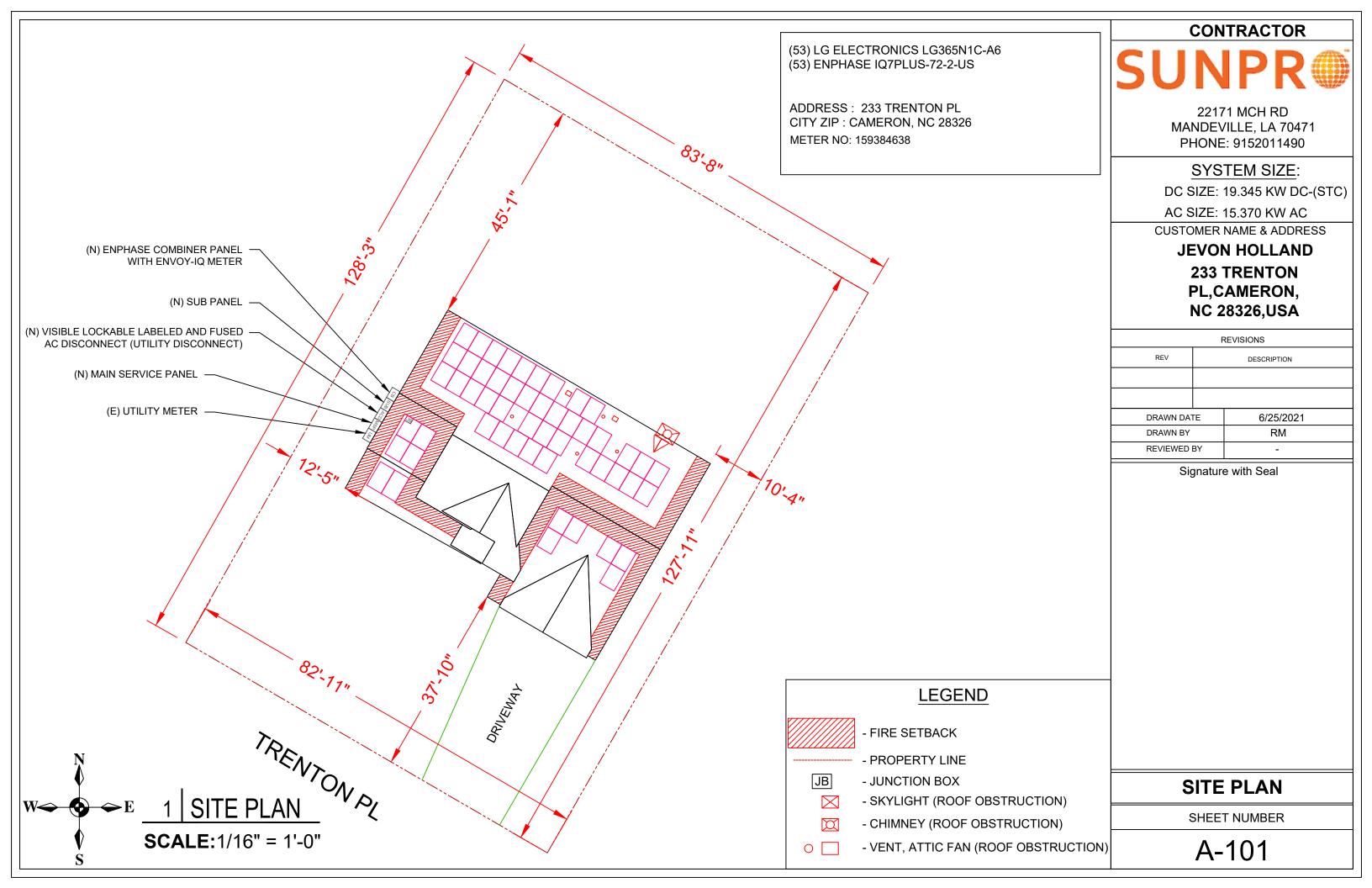
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REVIEWED BY		-

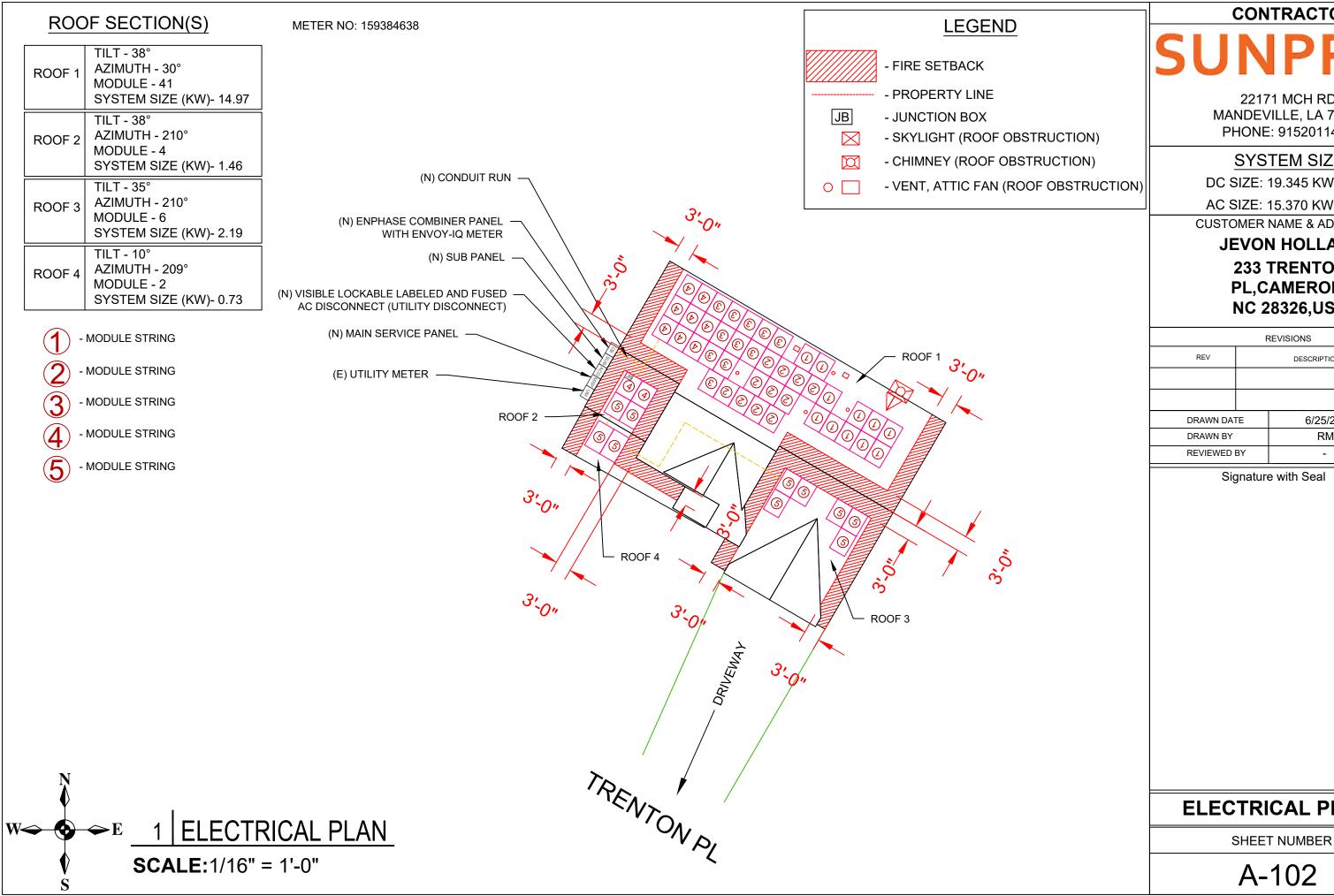
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## **NOTES**

SHEET NUMBER

G-002





**CONTRACTOR** 

22171 MCH RD MANDEVILLE, LA 70471 PHONE: 9152011490

## SYSTEM SIZE:

DC SIZE: 19.345 KW DC-(STC)

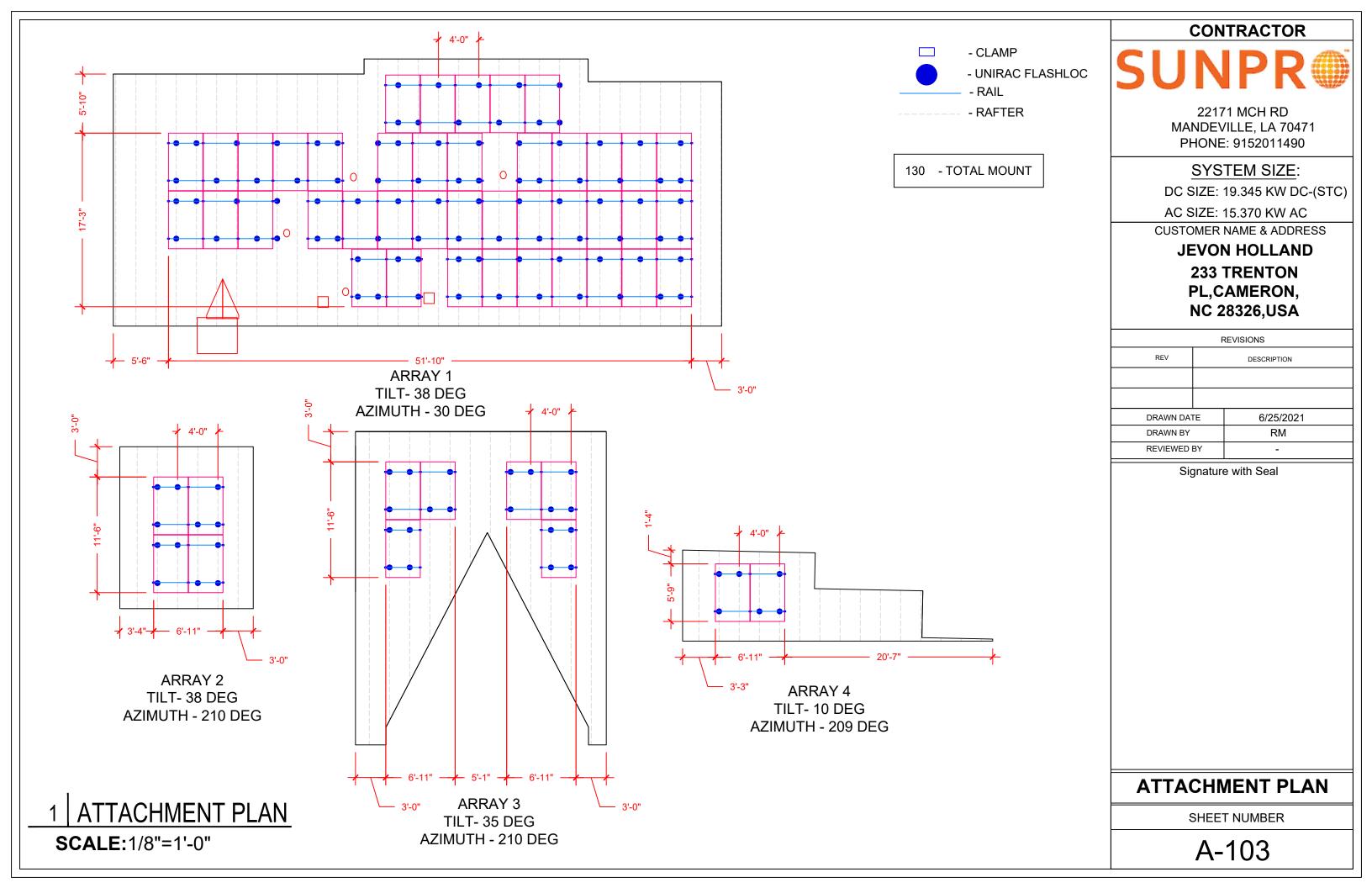
AC SIZE: 15.370 KW AC

**CUSTOMER NAME & ADDRESS** 

**JEVON HOLLAND** 233 TRENTON PL, CAMERON, NC 28326,USA

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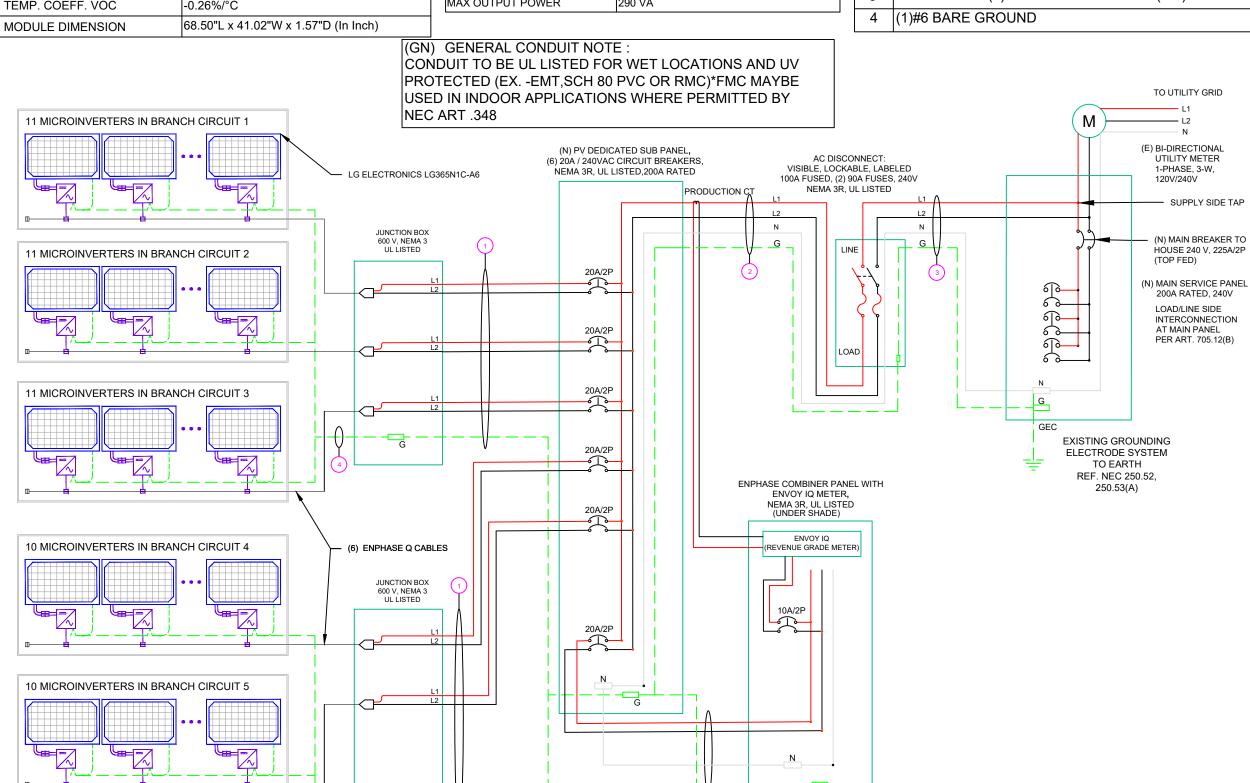
**ELECTRICAL PLAN** 



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 50"L v 41 02"W v 1 57"D (In Inch)	

INVERTE	R SPECIFICATIONS
MANUFACTURER / MODEL #	ENPHASE IQ7PLUS-72-2-US 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 / (GN)
	2	#2 THWN-2 & (1)#6 THWN-2 GROUND / (GN)
	3	#2 THWN-2 & (1)#6 THWN-2 GROUND / (GN)
_	4	(1)#6 BARE GROUND



## **CONTRACTOR**

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REVISIONS			
REV	DESCRIPTION		
DRAWN DATE		6/25/2021	
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REVIEWED	BY	-	

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## **LINE DIAGRAM**

SHEET NUMBER

E-601

AMBIENT TEMPERATURE SPECS	<u> </u>
RECORD LOW TEMP	-10°
AMBIENT TEMP (HIGH TEMP 2%)	36°
CONDUIT HEIGHT	0.5"
CONDUCTOR TEMPERATURE RATE	90°

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

## 2. PV OVER CURRENT PROTECTION

...NEC 690.9(D)

= TOTAL INVERTER O/P CURRENT x 1.25

 $= (53 \times 1.21) \times 1.25 = 80.16 \text{ A}$ 

**GROUPING FACTOR - 0.8...NEC 310.15(B)(3)(a)** 

**CONDUCTOR AMPACITY** 

 $= (INV O/P CURRENT) \times 1.25 / A.T.F / G.F ...NEC 690.8(B)$ 

AMBIENT TEMPERATURE - (36)°C ... NEC 310.15(B)(3)(c)

TEMPERATURE DERATE FACTOR - 0.91 ...NEC 310.15(B)(2)(a)

- $= [(11 \times 1.21) \times 1.25] / [0.91 \times 0.8]$
- = 22.85A

**SELECTED CONDUCTOR - #12 THWN-2 ...NEC 310.15(B)(16)** 

(B) AFTER IQ COMBINER PANEL
TEMPERATURE DERATE FACTOR - 0.91
GROUPING FACTOR - 1

**CONDUCTOR AMPACITY** 

- $= (TOTAL INV O/P CURRENT) \times 1.25 / 0.91 / 1 ... NEC 690.8(B)$
- $= [(53 \times 1.21) \times 1.25] / [0.91 \times 1]$
- = 88.09 A

**SELECTED CONDUCTOR - #2 THWN-2 ...NEC 310.15(B)(16)** 

# PL,CAMERON, NC 28326,USA REVISIONS REV DESCRIPTION

DRAWN DATE 6/25/2021

DRAWN BY RM

REVIEWED BY -

**CONTRACTOR** 

22171 MCH RD MANDEVILLE, LA 70471 PHONE: 9152011490

SYSTEM SIZE:

AC SIZE: 15.370 KW AC

**CUSTOMER NAME & ADDRESS** 

JEVON HOLLAND

233 TRENTON

DC SIZE: 19.345 KW DC-(STC)

Signature with Seal

**ELECTRICAL CALCULATIONS** 

SHEET NUMBER

E-602

**WARNING: PHOTOVOLTAIC POWER SOURCE** 

LABEL 1 ON ALL CONDUITS SPACED AT MAX 10FT

! WARNING! DO NOT TOUCH TERMINALS. TERMINALS ON BOTH LINE AND LOAD SIDES

LABEL 5 AT EACH AC DISCONNECT

! CAUTION! **SOLAR POINT OF** INTERCONNECTION

LABEL 9 AT UTILITY METER

! CAUTION! **SOLAR ELECTRIC** SYSTEM CONNECTED **AND ENERGIZED** 

LABEL 2

**PHOTOVOLTAIC AC DISCONNECT** 

LABEL 6 AT EACH AC DISCONNECT ! WARNING!

THE SERVICE METER IS ALSO SERVED BY A PHOTOVOLTAIC SYSTEM

LABEL 10 AT UTILITY METER

## AT INVERTER

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN URN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO HUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY

LABEL 3 AT INVERTER

> **PHOTOVOLTAIC DC DISCONNECT**

LABEL 4 AT DC DISCONNECT

## ! WARNING!

DUAL POWER SOURCES . **SECOND SOURCE IS PV SYSTEM** 

LABEL 7 AT MEP

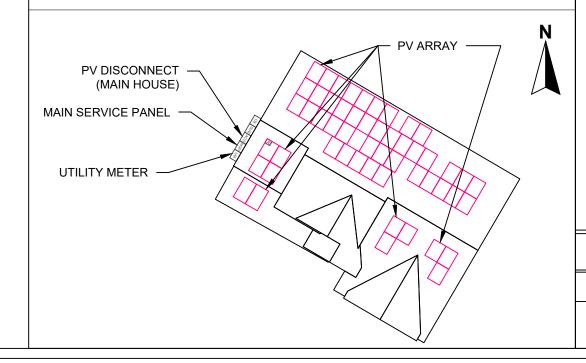
## ! WARNING!

SOLAR SYSTEM CONNECTED **AND ENERGIZED** 

LABEL 8 AT MEP

## **CAUTION**

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



## **CONTRACTOR**

22171 MCH RD MANDEVILLE, LA 70471 PHONE: 9152011490

## SYSTEM SIZE:

DC SIZE: 19.345 KW DC-(STC)

AC SIZE: 15.370 KW AC

**CUSTOMER NAME & ADDRESS** 

**JEVON HOLLAND** 233 TRENTON PL, CAMERON, NC 28326,USA

REVISIONS			
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DRAWN DA	ΓΕ	6/25/2021	
DRAWN BY		RM	
REVIEWED	BY	-	

Signature with Seal

## **PLACARD**

SHEET NUMBER

E-603

## LG NeON<sup>®</sup>2



## 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.







#### **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

#### About LG Electronics USA, Inc.

LG Electronics is a global leader in electronic products in the clean energy markets by offering solar PV panels and energy storage systems. The company first embarked on a solar energy source research program in 1985, supported by LG Group's wat experience in the semi-conductor, LCD, chemistry and materials industries. In 2010, LG Solar successfully released its first MonoN® series to the market, which is now available in 32 countries. The NeON® forevious MonoX® NeON), NeON®2, NeON®2 BiFacial won the "Intersolar AWARD" in 2013, 2015 and 2016, which demonstrates LG's leadership and innovation in the solar industry:



## LG NeON®2

#### LG365N1C-A6

-			-	
JE	ene	ral	Da	ta

60

Cell Properties (Material/Type)	Monocrystalline/N-type
Cell Maker	LG
Cell Configuration	60 Cells (6 x 10)
Module Dimensions (L x W x H)	1,740mm x 1,042mm x 40mm
Weight	18.6 kg
Glass (Material)	Tempered Glass with AR Coating
Backsheet (Color)	White
Frame (Material)	Anodized Aluminium
Junction Box (Protection Degree)	IP 68 with 3 Bypass Diodes
Cables (Length)	1,100mm x 2EA
Connector (Type/Maker)	MC 4/MC

#### Certifications and Warranty

	IEC 61215-1/-1-1/2 : 2016, IEC 61730-1/2 : 2016 UL 61730-1 : 2017, UL 61730-2 : 2017	
Certifications*	ISO 9001, ISO 14001, ISO 50001	
	OHSAS 1800 1	
Salt Mist Corrosion Test	IEC 61701:2011 Severity 6	
Ammonia Corrosion Test	IEC 62716: 2013	
Module Fire Performance	Type 1 (UL 61730)	
Fire Rating	Class C (UL 790)	
Solar Module Product Warranty	25 Year Limited	
Solar Module Output Warranty	Linear Warranty*	

\*Improved: 1<sup>st</sup> year 98.5%, from 2-24th year: -0.33%/year down, 90.6% at year 25

#### Temperature Characteristics

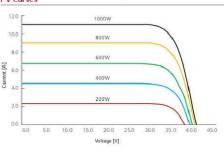
NMOT*	[°C]	42 ± 3	
Pmax	[%/°C]	-0.34	
Voc	[%/°C]	-0.26	
Isc	[%/°C]	0.03	

Wind speed 1 m/s, Spectrum AM 1.5

#### Electrical Properties (NMOT)

Model		LG365N1C-A6	
Maximum Power (Pmax)	[w]	273.4	
MPP Voltage (Vmpp)	[V]	32.4	
MPP Current (Impp)	[A]	8.44	
Open Circuit Voltage (Voc)	[V]	39.2	
Short Circuit Current (Isc)	[A]	9.06	

### I-V Curves



Model		LG365N1C-A6
Maximum Power (Pmax)	[W]	365
MPP Voltage (Vmpp)	[V]	34.5
MPP Current (Impp)	[A]	10.58
Open Circuit Voltage (Voc, ± 5%)	[V]	41.6
Short Circuit Current (Isc, ±5%)	[A]	11.27
Module Efficiency	[%]	20.1
Bifaciality Coefficient of Power	[%]	10
Power Tolerance	[%]	0-+3

\*STC (Standard Test Condition): Irradiance 1000 W/m², cell temperature 25°C, AM 1.5 Measure tolerance of Pmax ± 3%

#### Operating Conditions

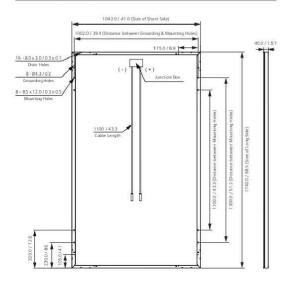
Electrical Properties (STC\*)

Operating Temperature	[°C]	-40 ~+85	
Maximum System Voltage	[V]	1,000	
Maximum Series Fuse Rating	[A]	20	
Mechanical Test Load" (Front)	[Pa/psf]	5,400	
Mechanical Test Load' (Rear)	[Pa/psf]	4,000	

#### Packaging Configuration

Number of Modules per Pallet	[EA]	25
Number of Modules per 40' Container	[EA]	650
Number of Modules per 53' Container	[EA]	850
Packaging Box Dimensions (Lx W x H)	[mm]	1,790× 1,120×1,213
Packaging Box Dimensions (L x W x H)	[in]	70.5 x 44.1 x 47.8
Packaging Box Gross Weight	[kg]	500
Packaging Box Gross Weight	[lb]	1,102

#### Dimensions (mm/inch)



## Golar Business Division LG365N1C-A6.pdf 01821 Lincohshire, IL 60069 01821

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## **CONTRACTOR**

## **SUNPR**

22171 MCH RD MANDEVILLE, LA 70471 PHONE: 9152011490

## SYSTEM SIZE:

DC SIZE: 19.345 KW DC-(STC)

AC SIZE: 15.370 KW AC

CUSTOMER NAME & ADDRESS

## JEVON HOLLAND 233 TRENTON PL,CAMERON, NC 28326,USA

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DRAWN DATE		6/25/2021		
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## **RESOURCE DOCUMENT**

SHEET NUMBER

Data Sheet Enphase Microinverters Region: AMERICAS

## 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 with the Enphase IQ Envoy™, 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.



### Enphase IQ 7 and IQ 7+ Microinverters

INPUT DATA (DC)	IQ7-60-2-US		IQ7PLUS-72-2	-US	
Commonly used module pairings1	235 W - 350 W -	235 W - 350 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	11		11		
DC port backfeed current	0 A		0 A		
PV array configuration		ed array; No additio tion requires max 20			
OUTPUT DATA (AC)	IQ 7 Microinverter		IQ 7+ Microin	verter	
Peak output power	250 VA		295 VA		
Maximum continuous output power	240 VA		290 VA		
Nominal (L-L) voltage/range <sup>2</sup>	240 V / 211-264 V	298 V / 183-229 V	240 V / 211-264 V	208 V / 183-229 V	
Maximum continuous output current	1.0 A (240 V)	1.15 A (208 V)	1.21 A (240 V)	1.39 A (208 V)	
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)	0.85 leading	0.85 lagging	0.85 leading (	0.85 lagging	
EFFICIENCY	@240 V	@208 V	@240 V	@208 V	
Peak efficiency	97.6 %	97.6 %	97.5 %	97.3 %	
CEC weighted efficiency	97.0 %	97.0 %	97.0 %	97.0 %	
MECHANICAL DATA	31770.1.11		1	57W-54150	
Ambient temperature range	-40°C to +65°C	Š.			
Relative humidity range	4% to 100% (cor	ndensina)			

MECHANICAL DATA		
Ambient temperature range	-40°C to +65°C	
Relative humidity range	4% to 100% (condensing)	
Connector type (IQ7-60-2-US & IQ7PLUS-72-2-US)	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, corrosion resistant polymeric enclosure	
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	GA 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.

No enforced DC/AC ratio. See the compatibility calculator at <a href="https://enphase.com/en-us/support/module-compatibility">https://enphase.com/en-us/support/module-compatibility</a>.
 Nominal voltage range can be extended beyond nominal if required by the utility.
 Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

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

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## **CONTRACTOR**

22171 MCH RD MANDEVILLE, LA 70471 PHONE: 9152011490

## SYSTEM SIZE:

DC SIZE: 19.345 KW DC-(STC)

AC SIZE: 15.370 KW AC

**CUSTOMER NAME & ADDRESS** 

**JEVON HOLLAND** 233 TRENTON PL, CAMERON, NC 28326,USA

REVISIONS			
DESCRIPTION			
ΓΕ	6/25/2021		
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## RESOURCE DOCUMENT

SHEET NUMBER

R-002



To learn more about Enphase offerings, visit enphase.com

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.



To learn more about Enphase offerings, visit enphase.com

#### 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



### 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 (no	ot in cluded, 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 receptable 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	AND
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)	$49.5 \times 37.5 \times 16.8 \text{ cm} (19.5" \times 14.75" \times 6.63")$ . Height is $21.06" (53.5 \text{ cm} \text{ with mounting bracket})$
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, IO Envoy	UL 60601-1/CANCSA 22.2 No. 61010-1

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

\* Consumption monitoring is required for Enphase Storage Systems.

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## CONTRACTOR

## **SUNPR**

22171 MCH RD MANDEVILLE, LA 70471 PHONE: 9152011490

## SYSTEM SIZE:

DC SIZE: 19.345 KW DC-(STC)

AC SIZE: 15.370 KW AC

CUSTOMER NAME & ADDRESS

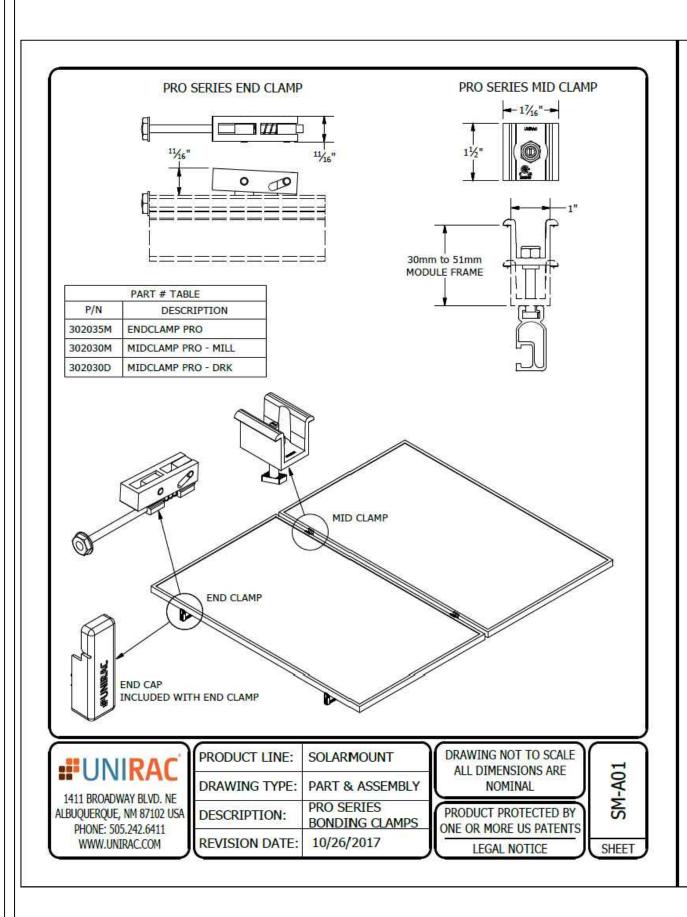
JEVON HOLLAND 233 TRENTON PL,CAMERON, NC 28326,USA

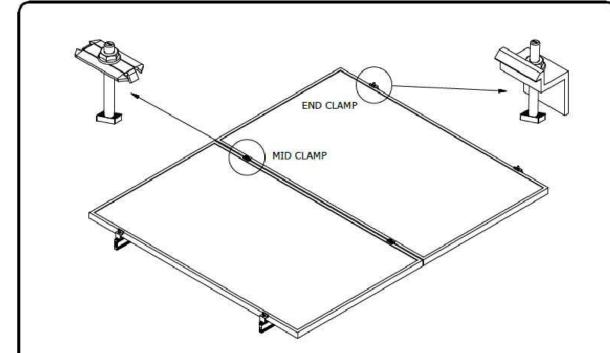
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REVIEWED BY		-	

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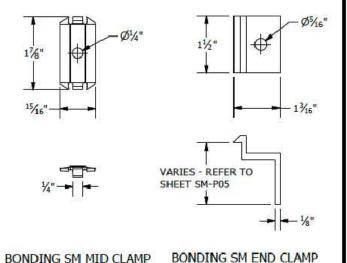
## **RESOURCE DOCUMENT**

SHEET NUMBER





	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



## **#UNIRAC**

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

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

BONDING SM MID CLAMP

DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL

PRODUCT PROTECTED BY ONE OR MORE US PATENTS LEGAL NOTICE

SM-A01A

SHEET

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22171 MCH RD MANDEVILLE, LA 70471 PHONE: 9152011490

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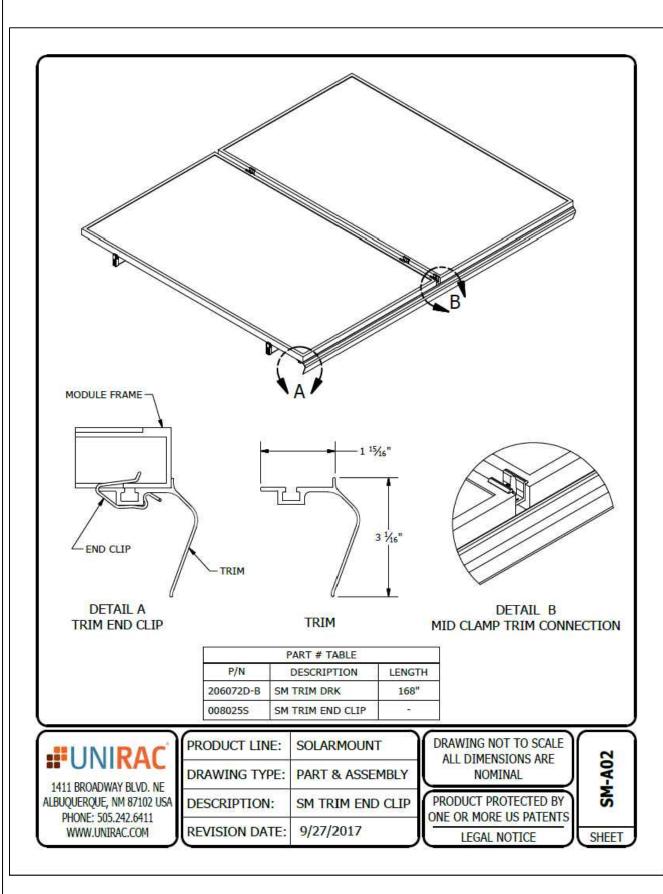
**JEVON HOLLAND** 233 TRENTON PL, CAMERON, NC 28326,USA

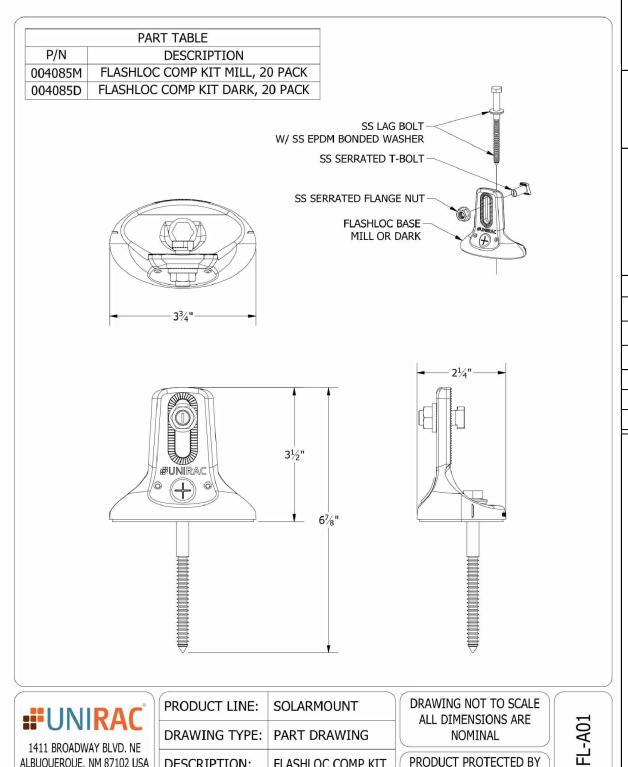
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## **RESOURCE DOCUMENT**

SHEET NUMBER





FLASHLOC COMP KIT

ALBUQUERQUE, NM 87102 USA

PHONE: 505.242.6411

WWW.UNIRAC.COM

DESCRIPTION:

REVISION DATE: 10/3/2019

PRODUCT PROTECTED BY

ONE OR MORE US PATENTS

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SHEET

## **CONTRACTOR**

22171 MCH RD MANDEVILLE, LA 70471 PHONE: 9152011490

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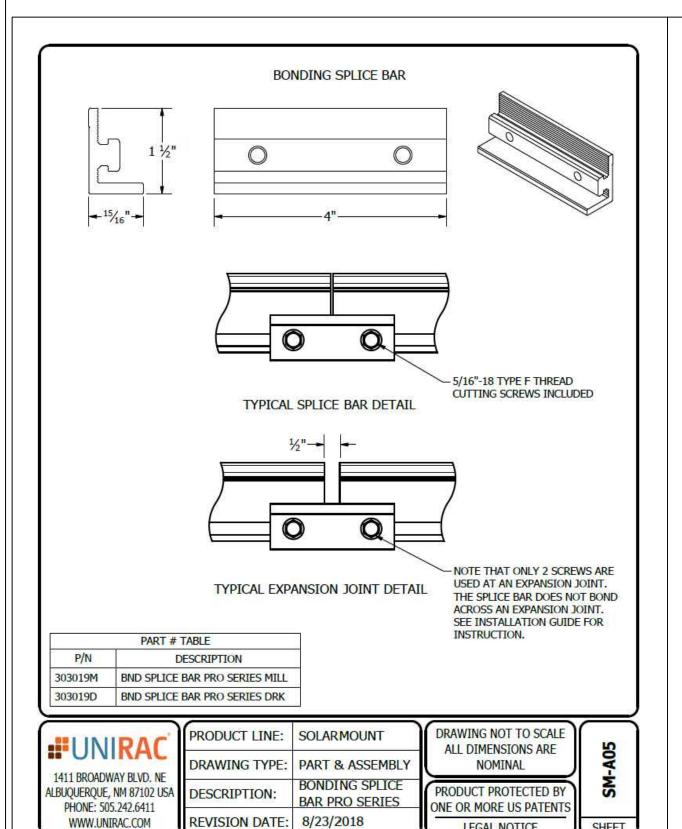
**JEVON HOLLAND** 233 TRENTON PL, CAMERON, NC 28326,USA

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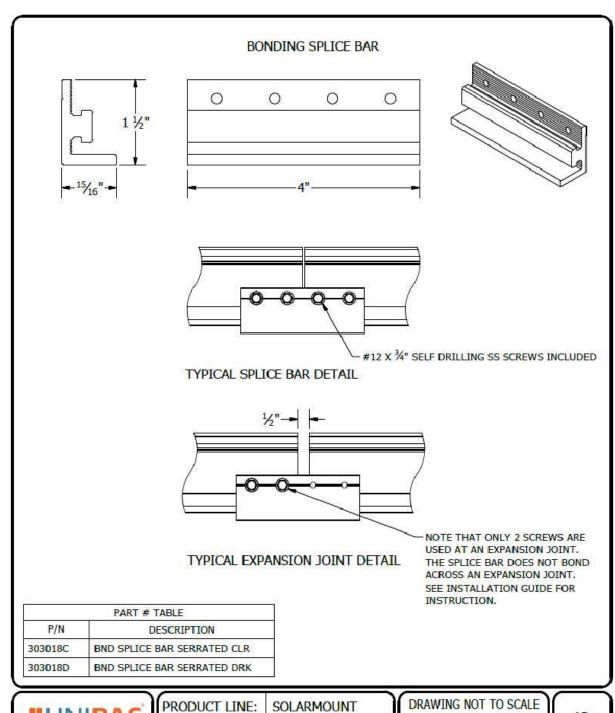
## **RESOURCE DOCUMENT**

SHEET NUMBER



LEGAL NOTICE

SHEET



# **#UNIRAC SM-A05** ALL DIMENSIONS ARE PART & ASSEMBLY DRAWING TYPE: NOMINAL 1411 BROADWAY BLVD. NE

BONDING SPLICE

BAR

9/27/2017

DESCRIPTION:

REVISION DATE:

ALBUQUERQUE, NM 87102 USA

PHONE: 505.242.6411

WWW.UNIRAC.COM

PRODUCT PROTECTED BY

ONE OR MORE US PATENTS

LEGAL NOTICE

SHEET

## **CONTRACTOR**

22171 MCH RD MANDEVILLE, LA 70471 PHONE: 9152011490

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**CUSTOMER NAME & ADDRESS** 

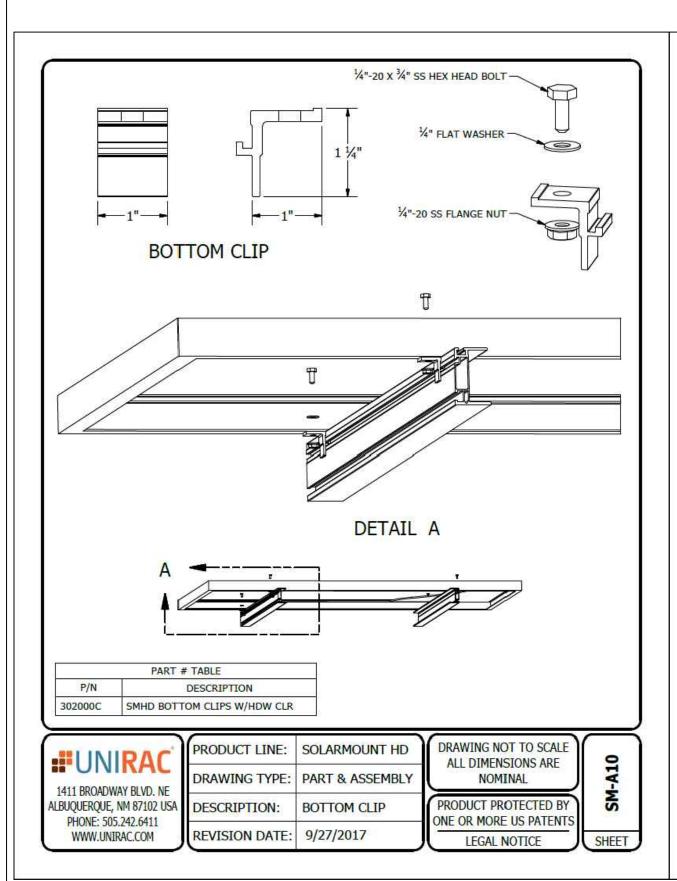
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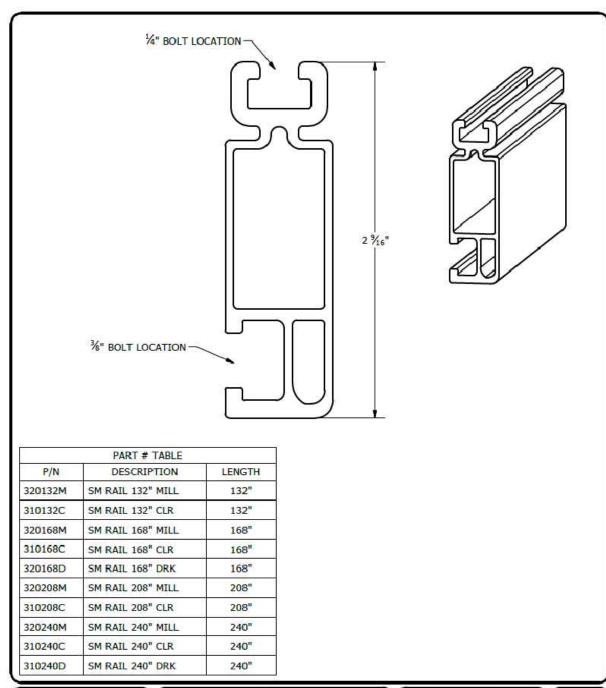
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## RESOURCE DOCUMENT

SHEET NUMBER





## **#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

SHEET

## CONTRACTOR

## **SUNPR**

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AC SIZE: 15.370 KW AC

CUSTOMER NAME & ADDRESS

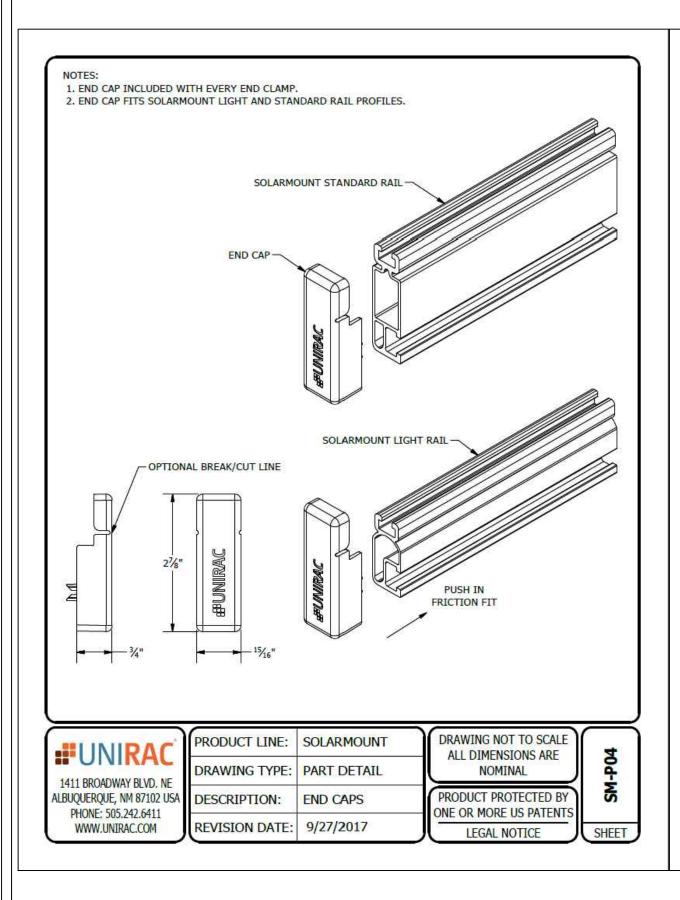
JEVON HOLLAND 233 TRENTON PL,CAMERON, NC 28326,USA

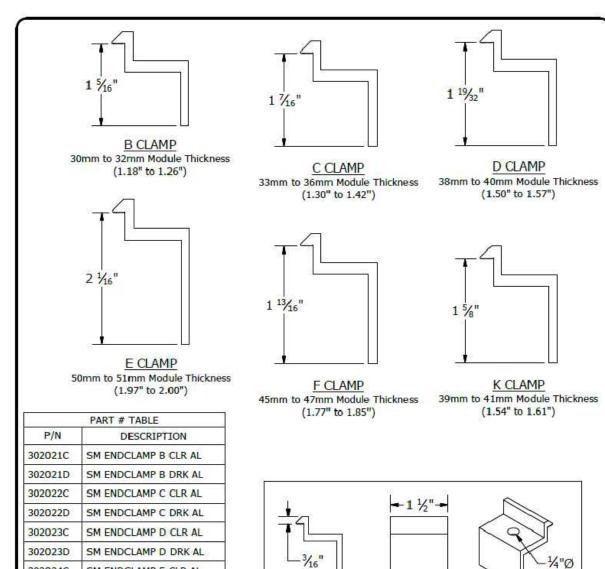
REVISIONS			
REV	DESCRIPTION		
DRAWN DATE		6/25/2021	
DRAWN BY		RM	
REVIEWED BY		-	

Signature with Seal

## **RESOURCE DOCUMENT**

SHEET NUMBER







SM ENDCLAMP E CLR AL

SM ENDCLAMP E DRK AL

SM ENDCLAMP FICER AL

SM ENDCLAMP F DRK AL

SM ENDCLAMP K CLR AL SM ENDCLAMP K DRK AL

303024C

302024D

302025C

302025D

302026C

302026D

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

TYPICAL END CLAMP DETAILS

PRODUCT PROTECTED BY
ONE OR MORE US PATENTS
LEGAL NOTICE

**SM-P05** 

SHEET

## CONTRACTOR

## **SUNPR**

22171 MCH RD MANDEVILLE, LA 70471 PHONE: 9152011490

## SYSTEM SIZE:

DC SIZE: 19.345 KW DC-(STC)

AC SIZE: 15.370 KW AC

**CUSTOMER NAME & ADDRESS** 

JEVON HOLLAND 233 TRENTON PL,CAMERON, NC 28326,USA

REVISIONS			
REV	DESCRIPTION		
DRAWN DATE		6/25/2021	
DRAWN BY		RM	
REVIEWED BY		-	

Signature with Seal

## **RESOURCE DOCUMENT**

SHEET NUMBER