

NEW PHOTOVOLTAIC SYSTEM 11.01 KW DC 574 PONDEROSA TRAIL, CAMERON, NC 28326, USA

NOTICE TO CONTRACTOR
All construction must comply with current NC Building Codes and is subject to field inspection and verification.

APPROVED

Limited building only review
Permit holder responsible for full compliance with the code

03/02/2021

SUNPRO

22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

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 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 APPLICATION PER 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
1.2.3 BATTERY: (01) TESLA POWERWALL 2 AC, 5KW, 13.5WH NEMA 3R

1.3.1 WORK INCLUDES:
1.3.2 PV RACKING SYSTEM INSTALLATION - UNIRAC SOLAR
1.3.3 PV MODULE AND INVERTER INSTALLATION - LG ELECTRONICS LG355N1C-N5 / ENPHASE INVERTER / TESLA POWERWALL 2 AC
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: ANDREW RIMBACH

PROJECT MANAGER
NAME: SHAHIN HAYNES
PHONE: 8665071461

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

SCOPE OF WORK

SYSTEM SIZE: STC: 31 X 355W = 11.01 kW DC
 PTC: 31 x 332.8W = 10.32 kW DC
 (31) LG ELECTRONICS LG355N1C-N5
 (31) ENPHASE IQ7PLUS-72-2-US
 (01) TESLA POWERWALL 2 AC

ATTACHMENT TYPE: ROOF MOUNT
 MSP UPGRADE: YES

AUTHORITIES HAVING JURISDICTION

BUILDING: HARNETT
 ZONING: HARNETT
 UTILITY: CENTRAL ELECTRIC

DESIGN SPECIFICATION

OCCUPANCY: II
 CONSTRUCTION: SINGLE-FAMILY
 ZONING: RESIDENTIAL
 GROUND SNOW LOAD: 10 psf
 WIND EXPOSURE: B
 WIND SPEED: 116 mph

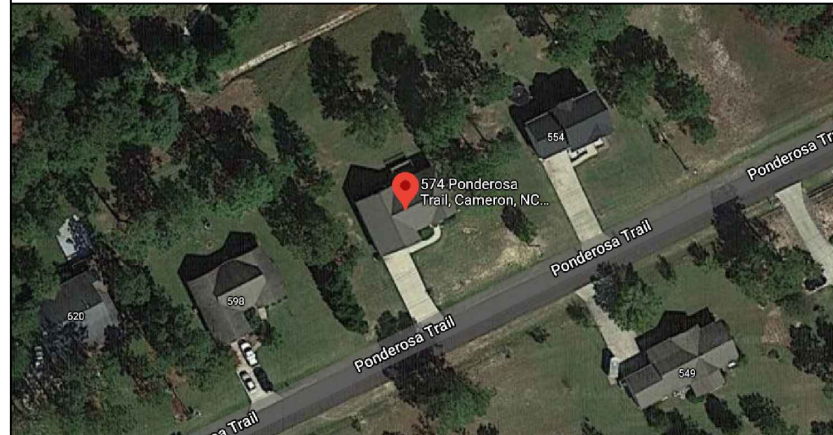
APPLICABLE CODES & STANDARDS

BUILDING: IBC 2015 IRC 2015
 ELECTRICAL: NEC 2017
 FIRE: IFC 2018

VICINITY MAP



SATELLITE VIEW



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PROJECT NAME & ADDRESS

ANDREW RIMBACH
574 PONDEROSA TRAIL,
CAMERON, NC 28326,
USA

Signature with Seal

| REVISIONS | DESCRIPTION | DATE |
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SHEET TITLE
COVER PAGE

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| DRAWN DATE | 02/23/2021 |
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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 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 MUST ALSO 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 WILL BE 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 ARE BASED 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 DEVICES 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 SHALL BE SIZED ACCORDING TO NEC 690.45 AND MICROINVERTER MANUFACTURERS' INSTRUCTIONS.
2.5.6 EACH MODULE WILL BE GROUNDED USING WEEB GROUNDING CLIPS AS SHOWN IN MANUFACTURER DOCUMENTATION 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 OF A 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 WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING ENERGIZED ARE RECONNECTED 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 UL 1699B.

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(D)(2)(3)].
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 INTERCONNECTION (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
2.7.8 BACKFEEDING BREAKER FOR ELECTRIC POWER SOURCES OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING [NEC 705.12 (B)(5)].



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SHEET TITLE
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SHEET NUMBER
G-001

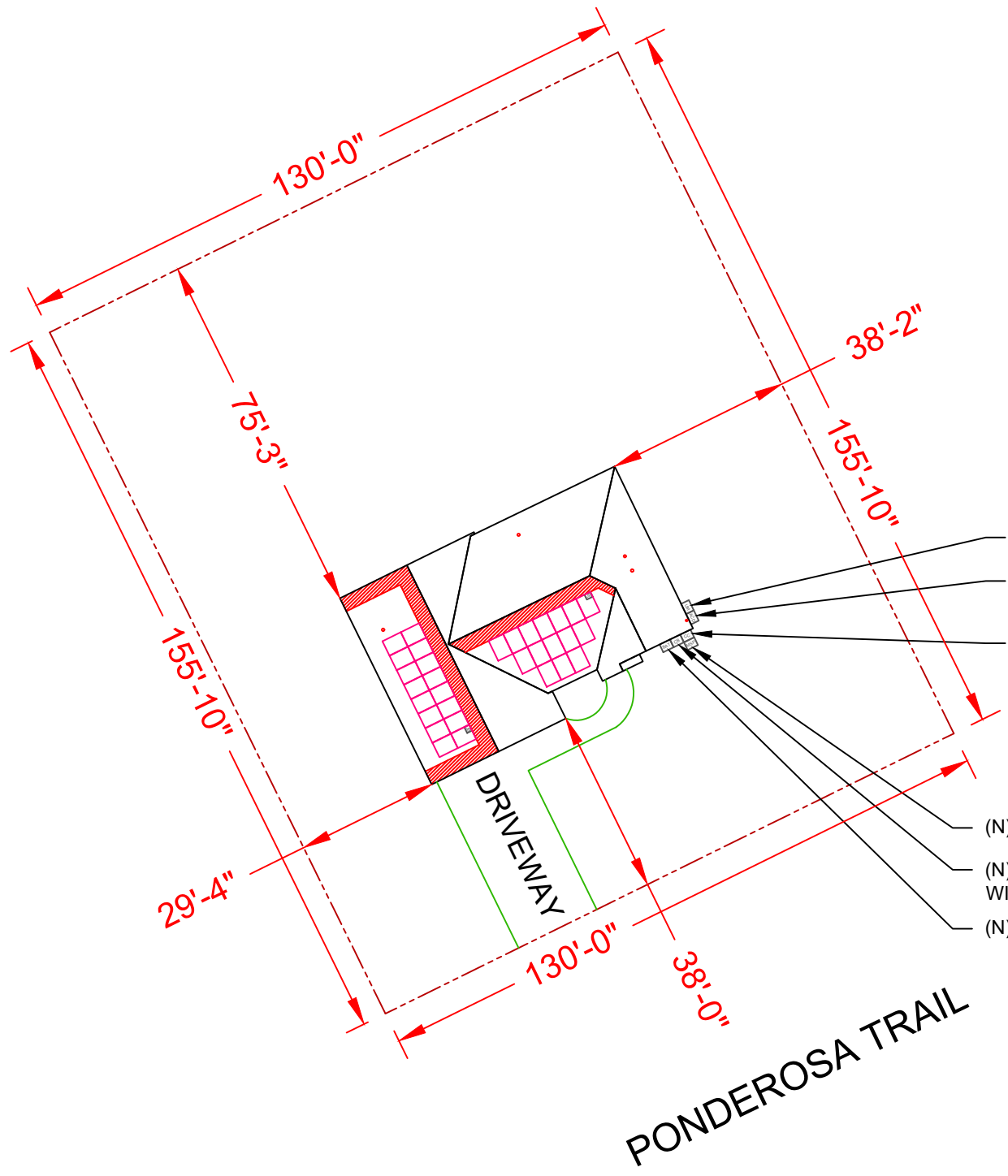
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SHEET TITLE
SITE PLAN

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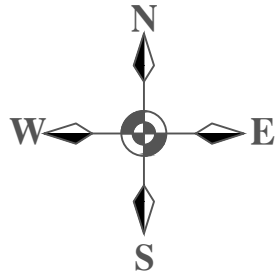
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- (N) UTILITY METER
- (N) VISIBLE LOCKABLE LABELED AND FUSIBLE AC DISCONNECT (UTILITY DISCONNECT)
- (N) TESLA BACKUP GATEWAY 2
- (N) MAIN SERVICE PANEL
- (N) ENPHASE COMBINER PANEL WITH ENVOY-IQ METER
- (N) TESLA BATTERY POWERWALL 2 AC

LEGEND

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



1 | SITE PLAN
SCALE: 1/32" = 1'-0"

- ① - MODULE STRING
- ② - MODULE STRING
- ③ - MODULE STRING

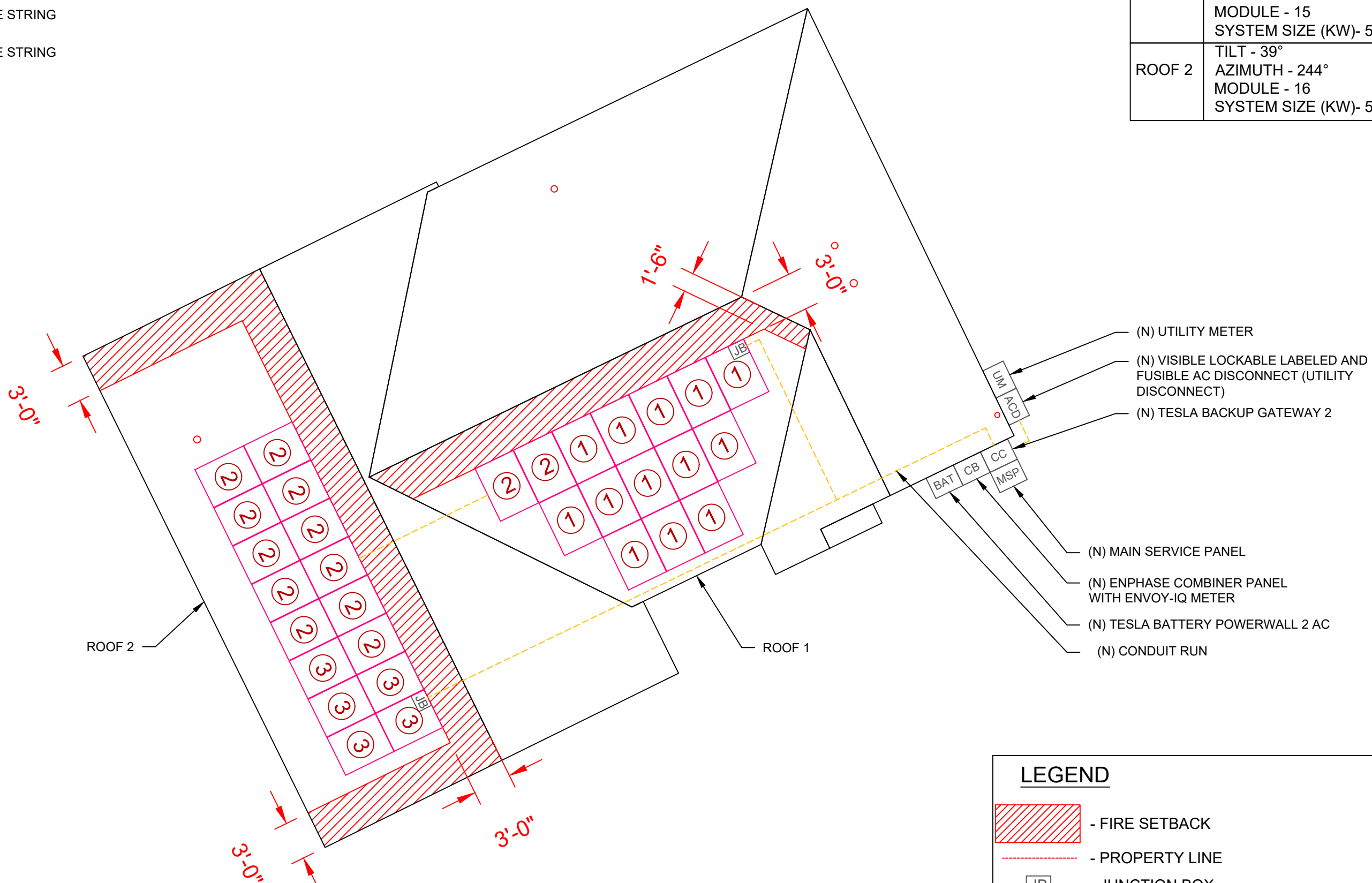
| ROOF SECTION(S) | |
|-----------------|---|
| ROOF 1 | TILT - 32° AZIMUTH - 154° MODULE - 15 SYSTEM SIZE (KW)- 5.33 |
| ROOF 2 | TILT - 39° AZIMUTH - 244° MODULE - 16 SYSTEM SIZE (KW)- 5.68 |

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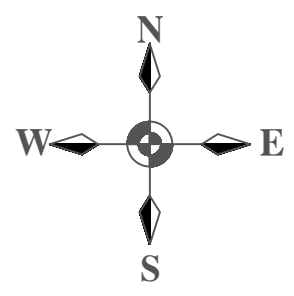
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- (N) UTILITY METER
- (N) VISIBLE LOCKABLE LABELED AND FUSIBLE AC DISCONNECT (UTILITY DISCONNECT)
- (N) TESLA BACKUP GATEWAY 2
- (N) MAIN SERVICE PANEL
- (N) ENPHASE COMBINER PANEL WITH ENVOY-IQ METER
- (N) TESLA BATTERY POWERWALL 2 AC
- (N) CONDUIT RUN

LEGEND

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



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

Signature with Seal





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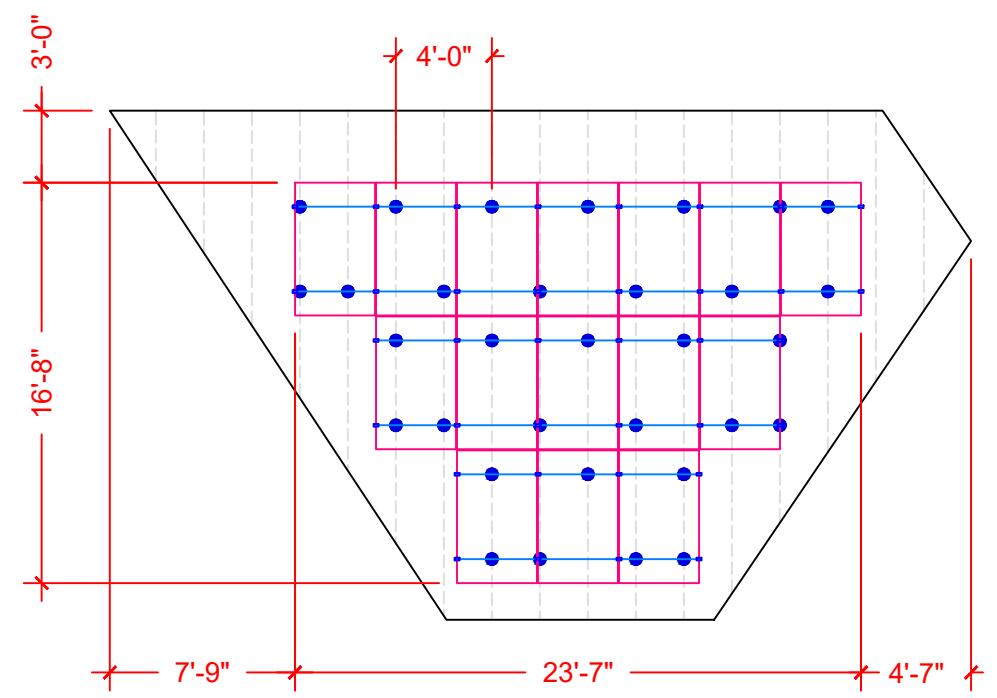
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DRAWN DATE: 02/23/2021
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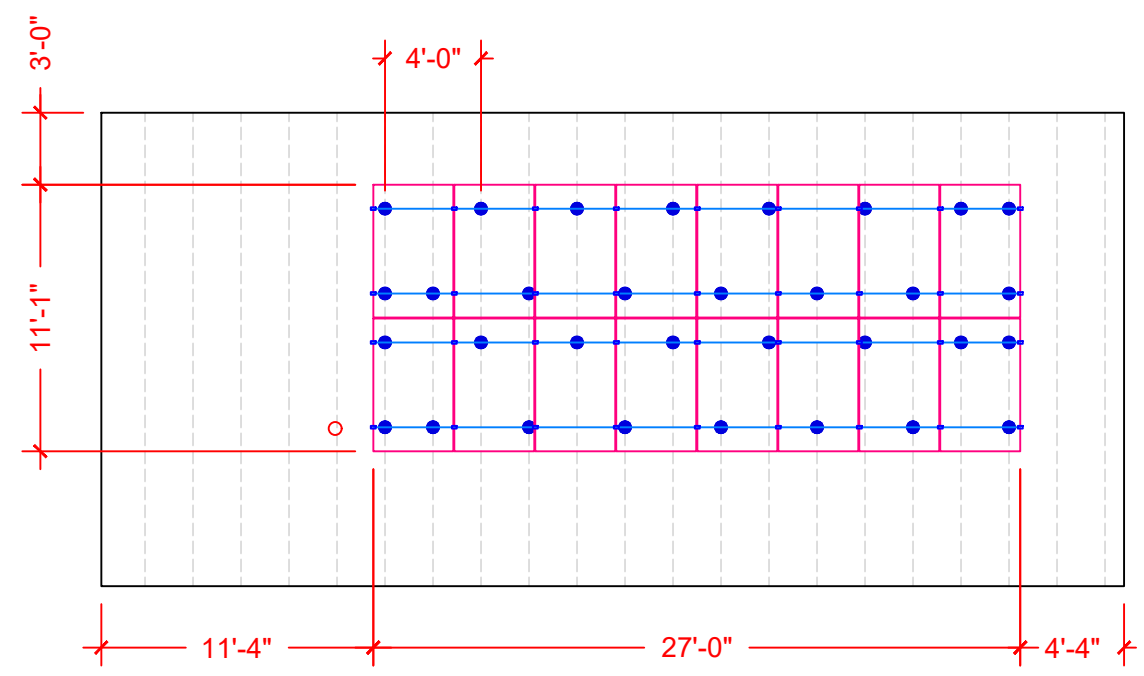
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A-102

TOTAL MOUNT COUNT - 64

-  - CLAMP
-  - UNIRAC FLASHLOC
-  - RAIL
-  - RAFTER



ARRAY 1
TILT- 32 DEG
AZIMUTH - 154 DEG



ARRAY 2
TILT- 39 DEG
AZIMUTH - 244 DEG

1 | ATTACHMENT PLAN
SCALE: 1/8" = 1'-0"

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ATTACHMENT PLAN

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A-103

ROOF SECTION(S)

| | |
|--------|--|
| ROOF 1 | ROOF MATERIAL - COMPOSITE SHINGLE TRUSS SIZE - 2"X4" O.C. SPACING - 24" |
| ROOF 2 | ROOF MATERIAL - COMPOSITE SHINGLE TRUSS SIZE - 2"X4" O.C. SPACING - 24" |



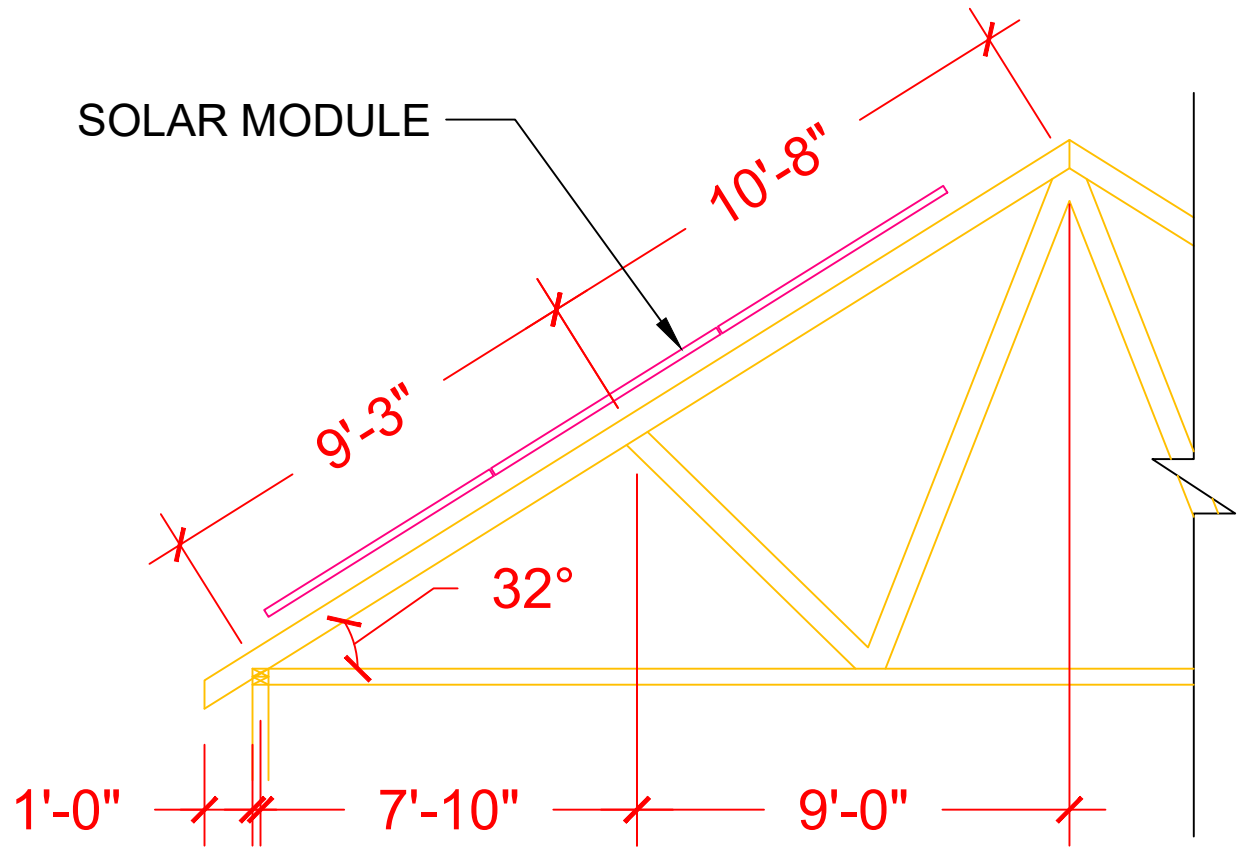
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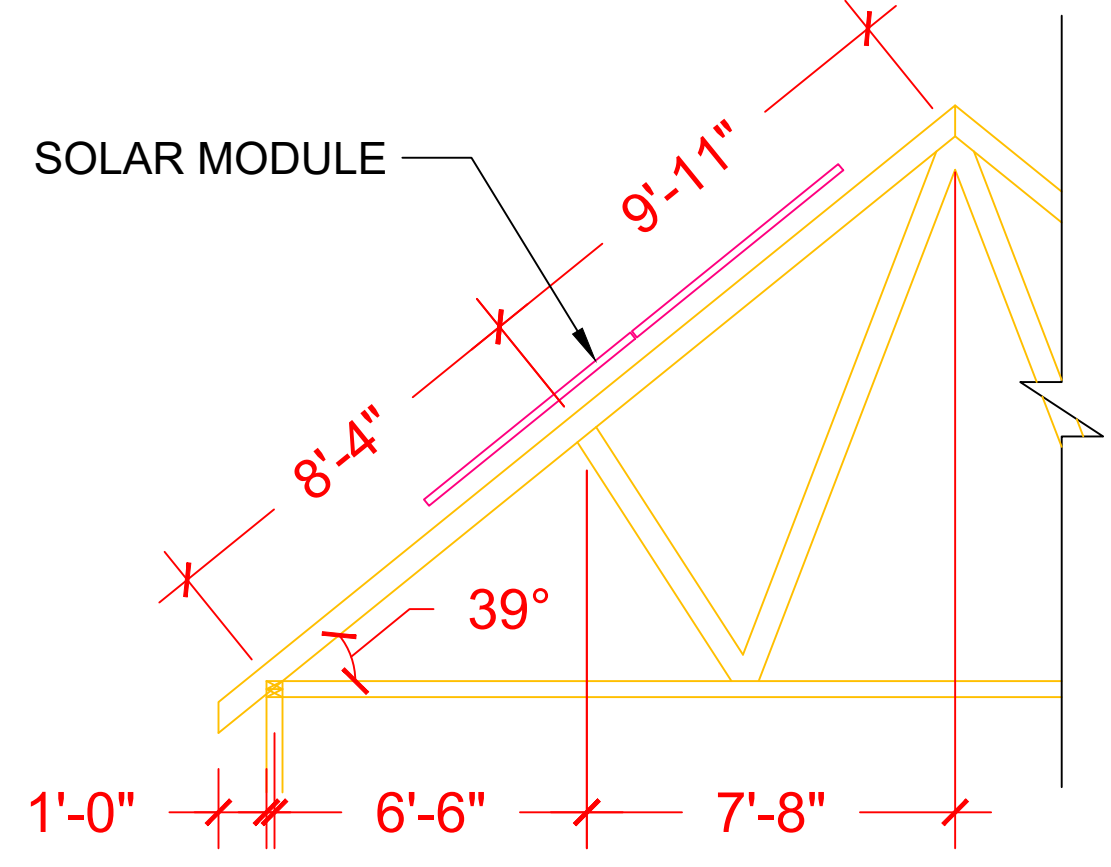
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| SHEET TITLE STRUCTURAL PLAN | |
| DRAWN DATE | 02/23/2021 |
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ROOF 1



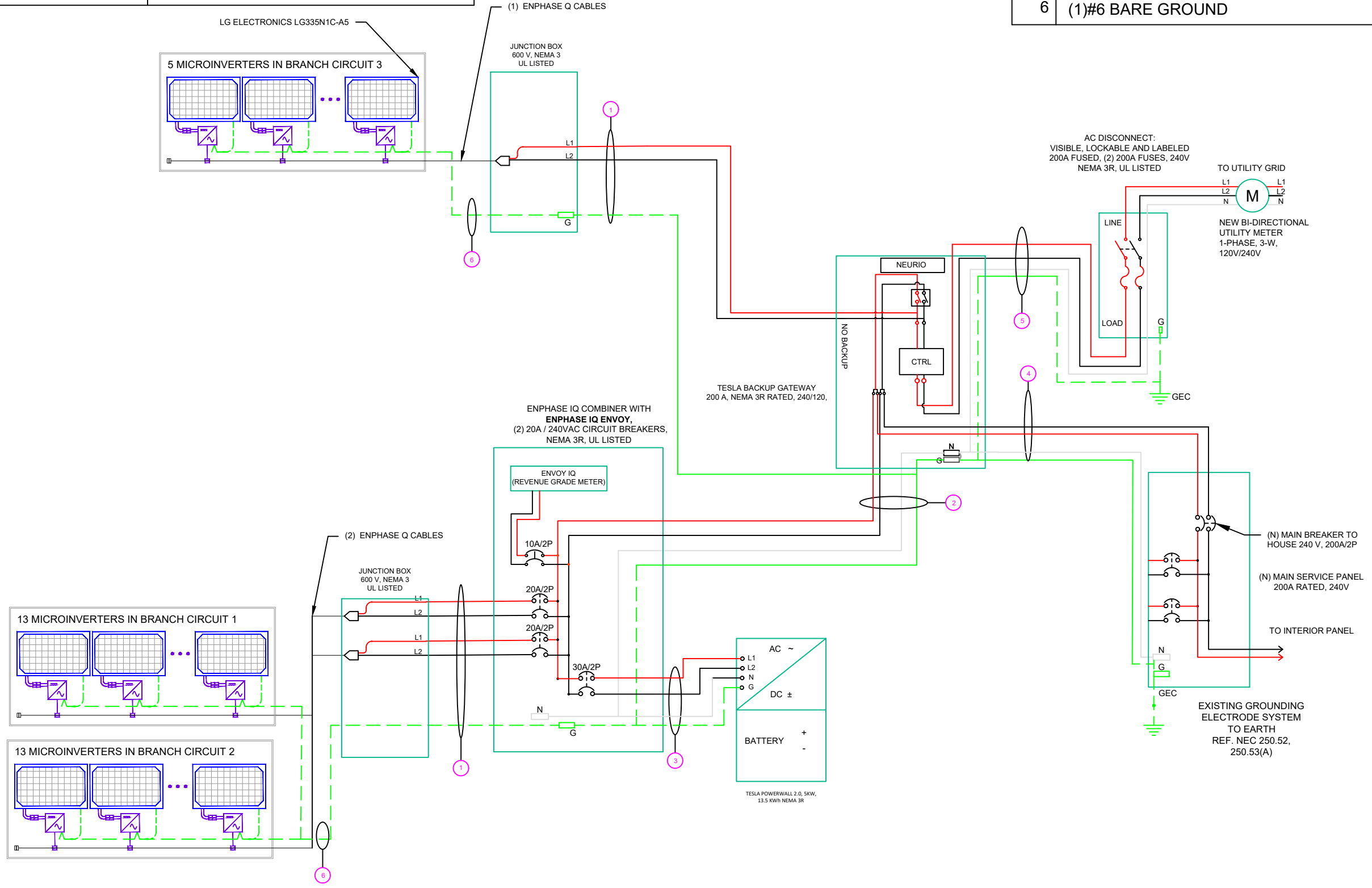
ROOF 2

1 | STRUCTURAL PLAN
SCALE: 1/4" = 1'-0"

| SOLAR MODULE SPECIFICATIONS | |
|-----------------------------|----------------------------------|
| MANUFACTURER / MODEL # | LG ELECTRONICS LG335N1C-N5 |
| VMP | 34.7V |
| IMP | 10.25A |
| VOC | 41.5V |
| ISC | 10.80A |
| TEMP. COEFF. VOC | -0.26%/°C |
| MODULE DIMENSION | 66.9"L x 40"W x 1.57"D (In Inch) |

| 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 THWN-2 & (1)#6 THWN-2 GROUND / 1" PVC CONDUIT |
| 2 | #4 THWN-2 & (1)#6 THWN-2 GROUND /1" PVC CONDUIT |
| 3 | #10 THWN-2 & (1)#6 THWN-2 GROUND /1" PVC CONDUIT |
| 4 | #2/0 THWN-2 & (1)#6 THWN-2 GROUND /1 1/2 " PVC CONDUIT |
| 5 | #2/0 THWN-2 & (1)#6 THWN-2 GROUND /1 1/2" PVC CONDUIT |
| 6 | (1)#6 BARE GROUND |



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SHEET TITLE
LINE DIAGRAM

DRAWN DATE **02/23/2021**
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SHEET NUMBER
E-601

| AMBIENT TEMPERATURE SPECS | |
|---------------------------------------|------------|
| RECORD LOW TEMP | -10° |
| AMBIENT TEMP (HIGH TEMP 2%) | 36° |
| 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 - (36)°C ...NEC 310.15(B)(3)(c)
 TEMPERATURE DERATE FACTOR - 0.91 ...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)
 = [(13 x 1.21) x 1.25] / [0.91 x 0.8]
 = 27.01A

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) x 1.25+BATTERY O/P CURRENT / (0.91 x 1)
 ...NEC 690.8(B)
 = [(26 x 1.21) x 1.25]+30 / [0.91 x 1]
 = 72.29 A

SELECTED CONDUCTOR - #6 THWN-2 ...NEC 310.15(B)(16)

(C) AFTER TESLA GATEWAY PANEL
 TEMPERATURE DERATE FACTOR - 0.91
 GROUPING FACTOR - 1

CONDUCTOR AMPACITY

= (TOTAL INV O/P CURRENT) x 1.25 + BATTERY
 O/P CURRENT / (0.91 x 1) ...NEC 690.8(B)
 = [(31 x 1.21) x 1.25] + 30 / [0.91 x 1]
 = 79.85 A

SELECTED CONDUCTOR - #2/0 THWN-2 ...NEC 310.15(B)(16)

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

= TOTAL INVERTER O/P CURRENT x 1.25
 = (31 x 1.21) x 1.25 = 46.89 A

3. TOTAL O/P CURRENT

= (TOTAL SYSTEM O/P CURRENT + BATTERY
 O/P CURRENT)
 = 46.89 + 30 = 77 A



22171 MCH RD
 MANDEVILLE, LA 70471
 PHONE: 9152011490

PROJECT NAME & ADDRESS

ANDREW RIMBACH
 574 PONDEROSA TRAIL,
 CAMERON, NC 28326,
 USA

Signature with Seal

REVISIONS

| REV | DESCRIPTION | DATE |
|-----|-------------|------|
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SHEET TITLE
 ELECTRICAL
 CALCULATIONS

DRAWN DATE 02/23/2021
 DRAWN BY NV
 REVIEWED BY -

SHEET NUMBER
 E-602

**WARNING:
PHOTOVOLTAIC
POWER SOURCE**

LABEL 1
ON ALL CONDUITS SPACED AT MAX 10FT

! 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

! CAUTION !
SOLAR POINT OF
INTERCONNECTION

LABEL 9
AT UTILITY METER

! CAUTION !
SOLAR ELECTRIC
SYSTEM CONNECTED
AND ENERGIZED

LABEL 2
AT INVERTER

**PHOTOVOLTAIC
AC DISCONNECT**

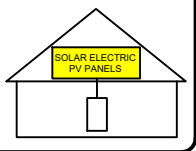
LABEL 6
AT EACH AC DISCONNECT

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

LABEL 10
AT UTILITY METER

**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

! WARNING !
DUAL POWER SOURCES
SECOND SOURCE IS PV SYSTEM

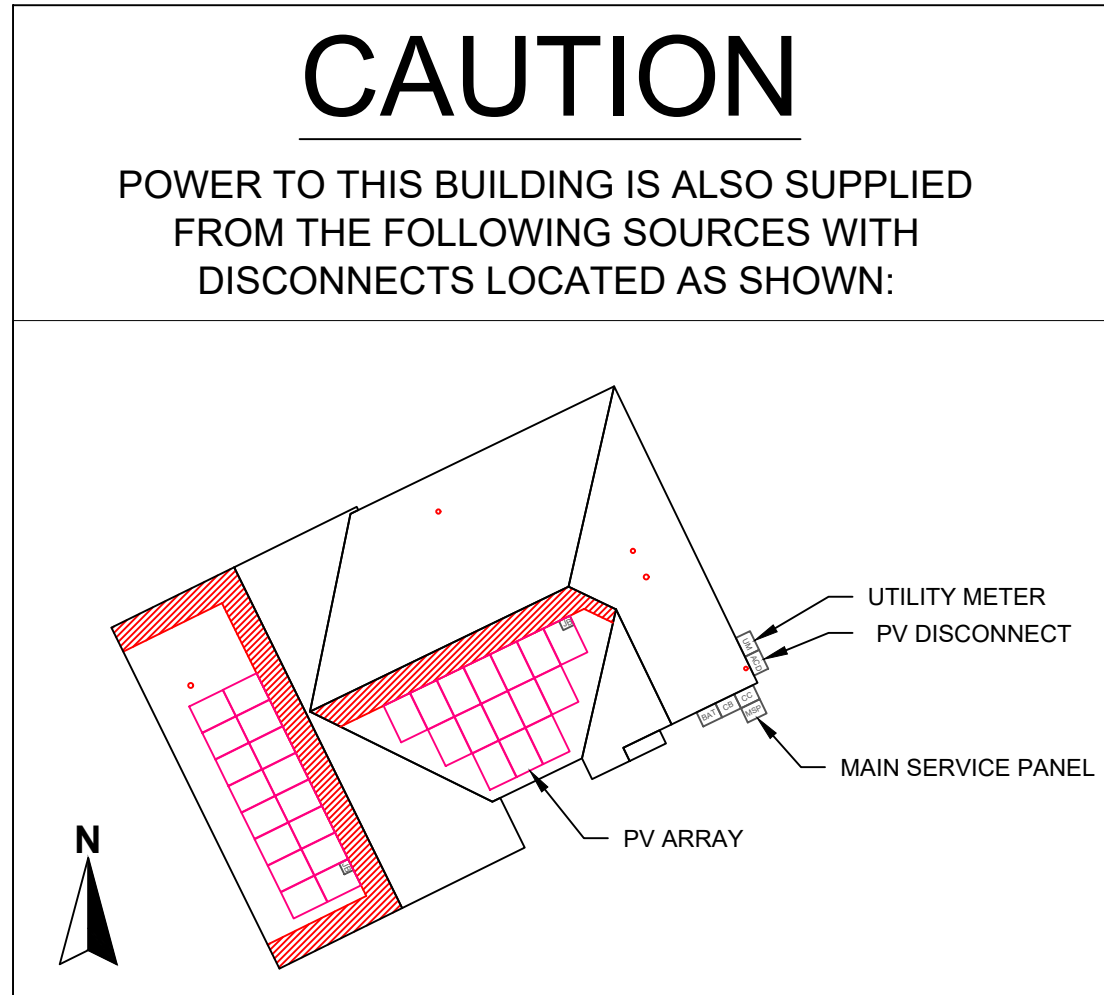
LABEL 7
AT MEP

**PHOTOVOLTAIC
DC DISCONNECT**

LABEL 4
AT DC DISCONNECT

! WARNING !
SOLAR SYSTEM CONNECTED
AND ENERGIZED

LABEL 8
AT MEP



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**SHEET TITLE
PLACARDS**

| | |
|-------------|------------|
| DRAWN DATE | 02/23/2021 |
| DRAWN BY | NV |
| REVIEWED BY | - |

SHEET NUMBER
E-603

LG NeON[®]2

LG355N1C-N5

355W

The LG NeON[®] 2 is LG's best-selling solar module and one of the most powerful and versatile modules on the market today. Featuring LG's Cello Technology™, the LG NeON[®] 2 N5 provides 3% more power output than our V5 models. The cells are designed to appear all-black at a distance, and the performance warranty guarantees 90.1% of labeled power output at 25 years.



Features



Performance Warranty

LG NeON[®] 2 has a module performance warranty. At 25 years, the NeON[®] 2 is guaranteed to produce at least 90.1% of its labeled power output.



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 vast experience in the semi-conductor, LCD, chemistry and materials industries. In 2010, LG Solar successfully released its first MonoX[®] series to the market, which is now available in 32 countries. The NeON[®] (previous 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

LG355N1C-N5

General Data

| | |
|----------------------------------|---|
| Cell Properties (Material/Type) | Monocrystalline/N-type |
| Cell Maker | LG |
| Cell Configuration | 60 Cells (6 x 10) |
| Number of Busbars | 12EA |
| Module Dimensions (L x W x H) | 1,700mm x 1,016mm x 40 mm |
| Weight | 18.0 kg |
| Glass (Material) | 2.8mm/Tempered Glass with High Transmission Anti-Reflective Coating |
| Backsheet (Color) | White |
| Frame (Material) | Anodized Aluminium |
| Junction Box (Protection Degree) | IP 68 with 3 Bypass Diodes |
| Cables (Length) | 1,000mm x 2EA |
| Connector (Type/Maker) | MC 4/MC |

Certifications and Warranty

| | |
|-------------------------------|--|
| Certifications | IEC 61215-1/-1-1/2:2016, IEC 61730-1/2:2016 ISO 9001, ISO 14001, ISO 50001 OHSAS 18001 |
| Salt Mist Corrosion Test | IEC 61701:2012 Severity 6 |
| Ammonia Corrosion Test | IEC 62716:2013 |
| Hail Test | 25mm (1") diameter at 23 m/s (52 mph) |
| Module Fire Performance | Type 1 (UL1703) |
| Fire Rating | Class C (UL 790, ULC/ORD C 1703) |
| Solar Module Product Warranty | 25 Year Limited |
| Solar Module Output Warranty | Linear Warranty* |

*Improved: 1st year 98%, from 2-24th year: 0.33%/year down, 90.1% at year 25

Temperature Characteristics

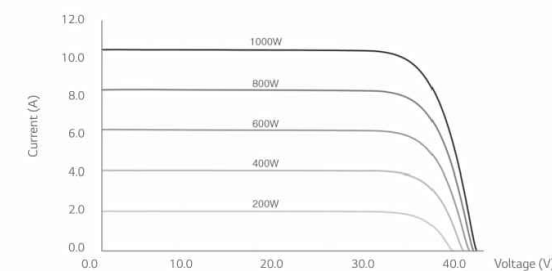
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| NMOT* | [°C] | 42 ± 3 |
| Pmax | [%/°C] | -0.34 |
| Voc | [%/°C] | -0.26 |
| Isc | [%/°C] | 0.03 |

*NMOT (Nominal Module Operating Temperature), Irradiance 800 W/m², Ambient temperature 20°C, Wind speed 1 m/s, Spectrum AM 1.5

Electrical Properties (NMOT)

| | | |
|-----------------------------|-------------|------|
| Model | LG355N1C-N5 | |
| Maximum Power (Pmax) | [W] | 266 |
| MPP Voltage (Vmpp) | [V] | 32.6 |
| MPP Current (Impp) | [A] | 8.17 |
| Open Circuit Voltage (Voc) | [V] | 39.1 |
| Short Circuit Current (Isc) | [A] | 8.68 |

I-V Curves



Electrical Properties (STC*)

| | | |
|-----------------------------------|-------------|--------|
| Model | LG355N1C-N5 | |
| Maximum Power (Pmax) | [W] | 355 |
| MPP Voltage (Vmpp) | [V] | 34.7 |
| MPP Current (Impp) | [A] | 10.25 |
| Open Circuit Voltage (Voc, ± 5%) | [V] | 41.5 |
| Short Circuit Current (Isc, ± 5%) | [A] | 10.80 |
| Module Efficiency | [%] | 20.6 |
| Power Tolerance | [%] | 0 ~ +3 |

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

Operating Conditions

| | | |
|-------------------------------|----------|------------|
| Operating Temperature | [°C] | -40 ~ +90 |
| Maximum System Voltage | [V] | 1000 (IEC) |
| Maximum Series Fuse Rating | [A] | 20 |
| Mechanical Test Load* (Front) | [Pa/psf] | 5,400/113 |
| Mechanical Test Load (Rear) | [Pa/psf] | 4,000/84 |

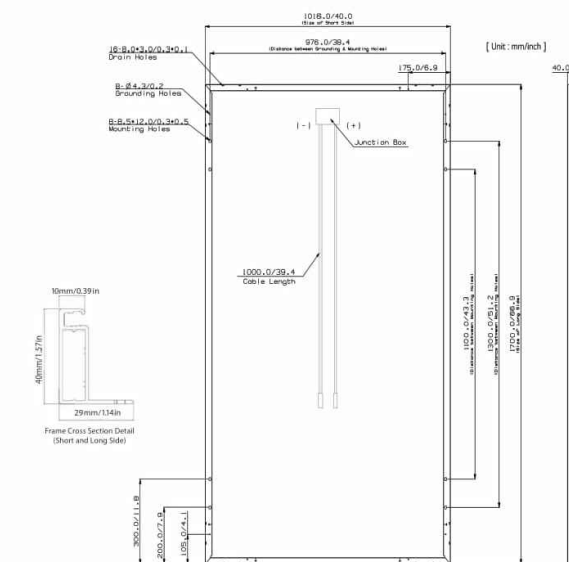
*Based on IEC 61215-2:2016 (Test Load = Design Load x Safety Factor (1.5))

**Mechanical Test Loads 6,000Pa/5,400Pa based on IEC 61215:2005

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 (L x W x H) | [mm] | 1750 x 1,120 x 1,221 |
| Packaging Box Dimensions (L x W x H) | [in] | 69 x 44.25 x 48.25 |
| Packaging Box Gross Weight | [kg] | 485 |
| Packaging Box Gross Weight | [lb] | 1,070 |

Dimensions (mm/inch)



LG Electronics USA, Inc.
Solar Business Division
2000 Millbrook Drive
Lincolnshire, IL 60069
www.lg-solar.com

Product specifications are subject to change without notice.
LG355N1C-N5.pdf
050820

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SUNPRO

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PROJECT NAME & ADDRESS

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USA

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SHEET TITLE
RESOURCE
DOCUMENT

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| DRAWN DATE | 02/23/2021 |
| DRAWN BY | NV |
| REVIEWED BY | - |

SHEET NUMBER
R-001

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.



To learn more about Enphase offerings, visit enphase.com



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 + | | 235 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 20 A per branch circuit | | 1 x 1 ungrounded array; No additional DC side protection required; AC side protection requires max 20 A 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 (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 ³ | 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 | | | | |
| 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 | 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.
3. 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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PROJECT NAME & ADDRESS

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USA

Signature with Seal

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| DRAWN DATE | 02/23/2021 |
| DRAWN BY | NV |
| REVIEWED BY | - |

SHEET NUMBER
R-002

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



To learn more about Enphase offerings, visit enphase.com



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 | <ul style="list-style-type: none"> • 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.

To learn more about Enphase offerings, visit enphase.com

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2018-09-13



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PROJECT NAME & ADDRESS

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Signature with Seal

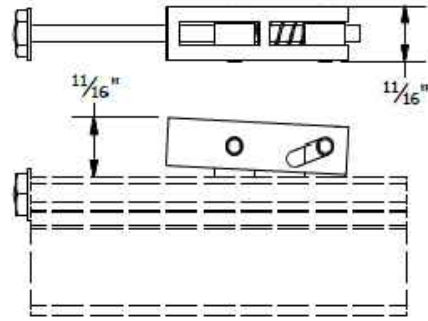
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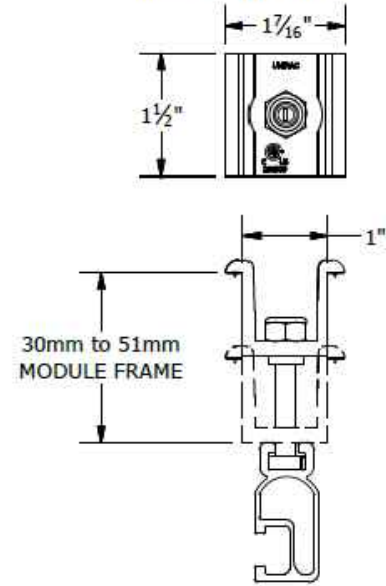
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| DRAWN BY | NV |
| REVIEWED BY | - |

SHEET NUMBER
R-003

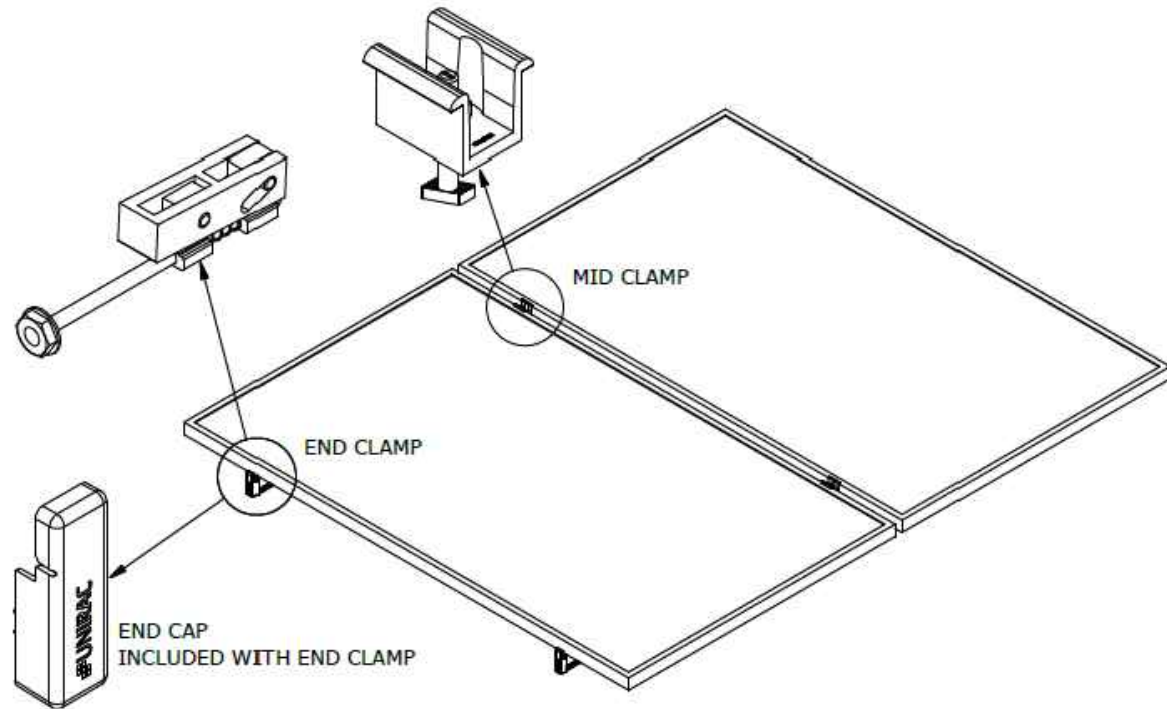
PRO SERIES END CLAMP



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

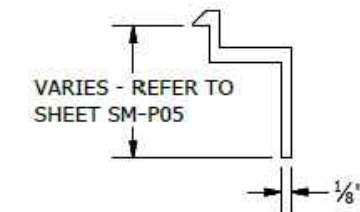
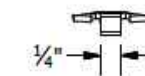
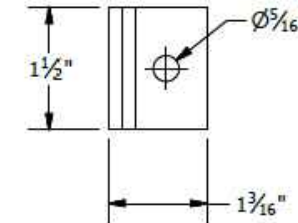
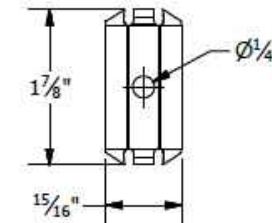
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 LEGAL NOTICE

SM-A01
 SHEET

END CLAMP

MID CLAMP

| 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

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SM-A01A
 SHEET

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PROJECT NAME & ADDRESS

ANDREW RIMBACH
 574 PONDEROSA TRAIL,
 CAMERON, NC 28326,
 USA

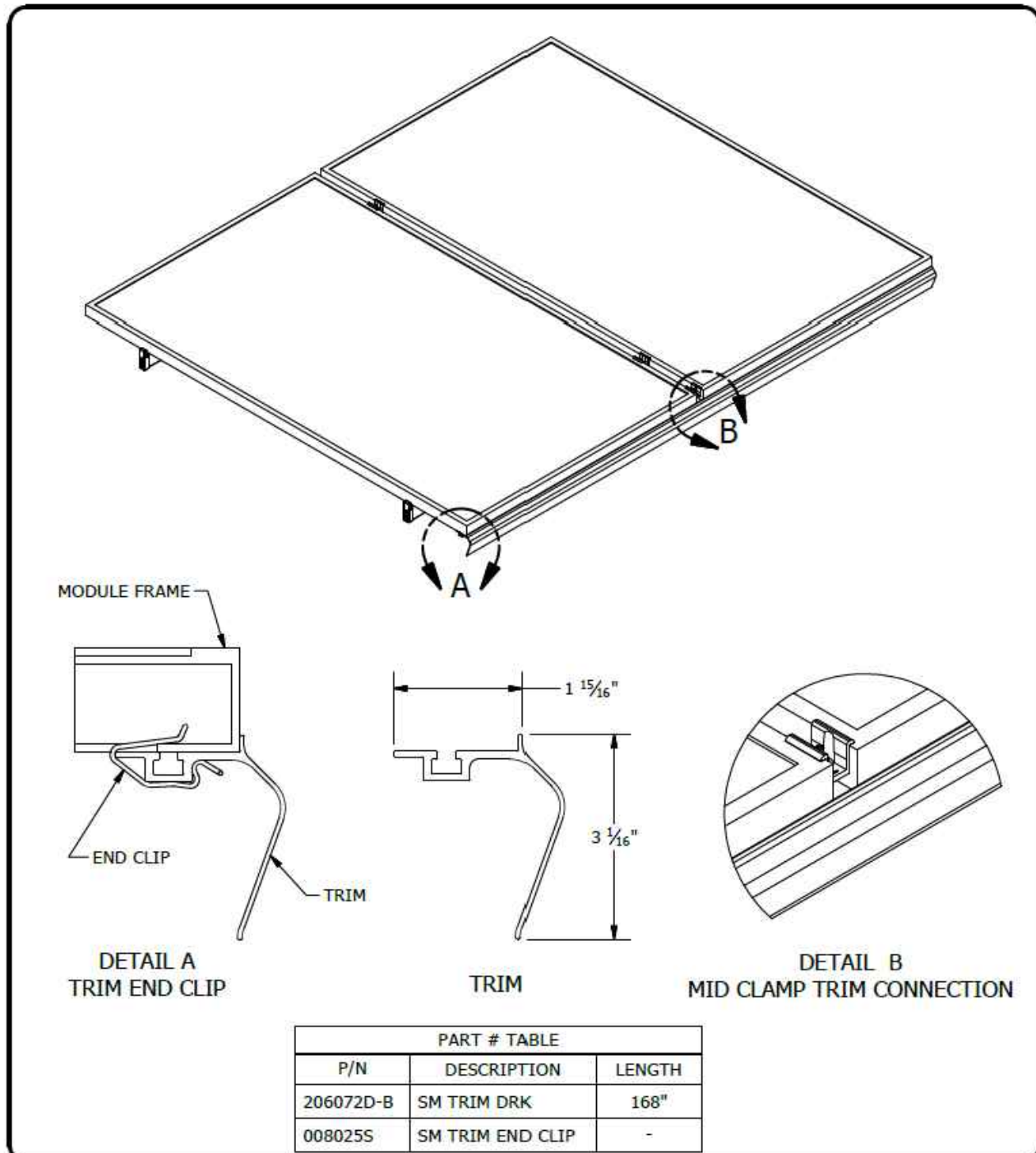
Signature with Seal

| REV | DESCRIPTION | DATE |
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SHEET TITLE
RESOURCE DOCUMENT

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| DRAWN DATE | 02/23/2021 |
| DRAWN BY | NV |
| REVIEWED BY | - |

SHEET NUMBER
R-004



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

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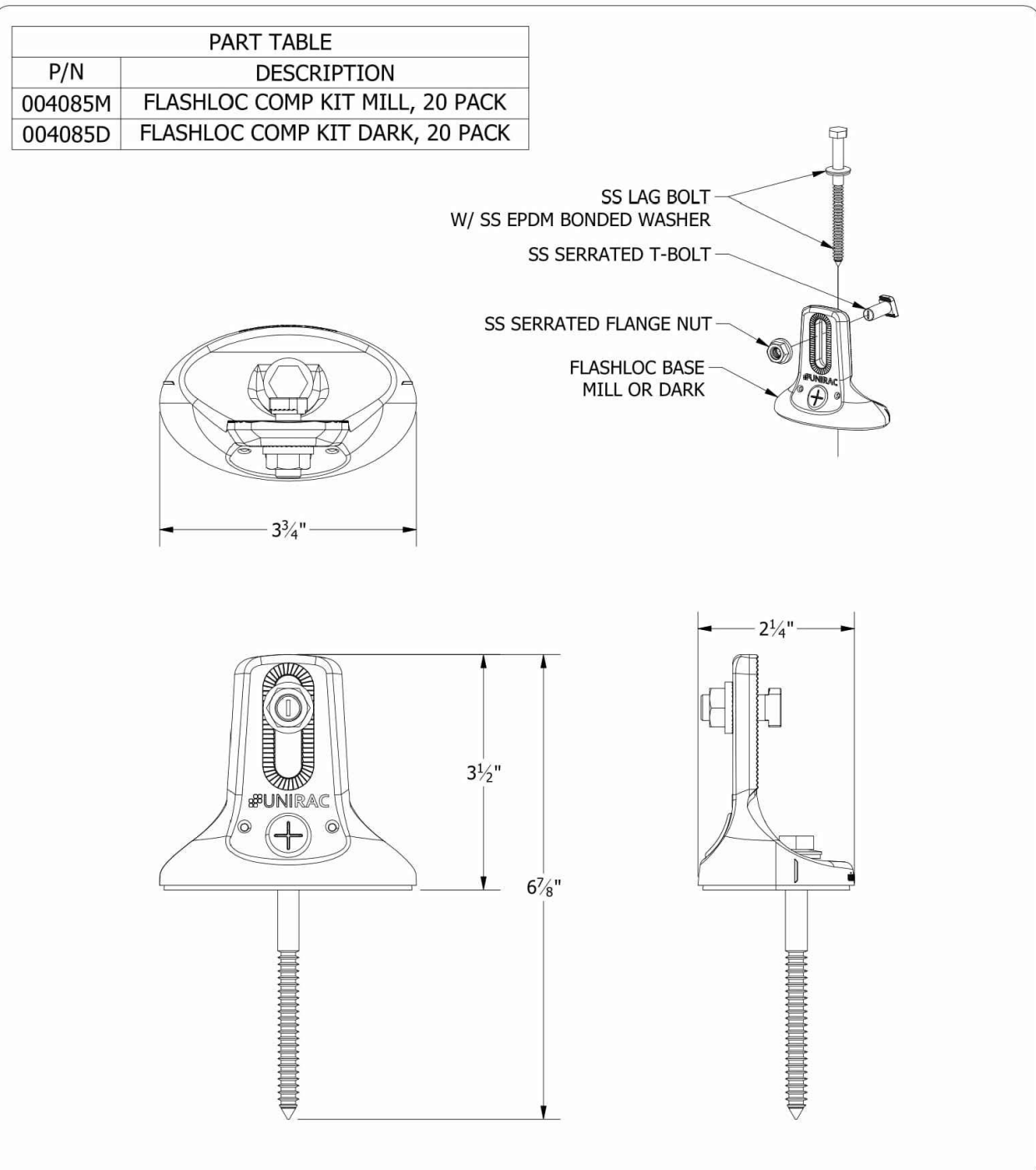
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|----------------|------------------|
| PRODUCT LINE: | SOLARMOUNT |
| DRAWING TYPE: | PART & ASSEMBLY |
| DESCRIPTION: | SM TRIM END CLIP |
| REVISION DATE: | 9/27/2017 |

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE
NOMINAL

PRODUCT PROTECTED BY
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LEGAL NOTICE

SM-A02
SHEET



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

- SS LAG BOLT
W/ SS EPDM BONDED WASHER
- SS SERRATED T-BOLT
- SS SERRATED FLANGE NUT
- FLASHLOC BASE
MILL OR DARK

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| | |
|----------------|-------------------|
| PRODUCT LINE: | SOLARMOUNT |
| DRAWING TYPE: | PART DRAWING |
| DESCRIPTION: | FLASHLOC COMP KIT |
| REVISION DATE: | 10/3/2019 |

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LEGAL NOTICE

FL-A01
SHEET

22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

PROJECT NAME & ADDRESS
ANDREW RIMBACH
574 PONDEROSA TRAIL,
CAMERON, NC 28326,
USA

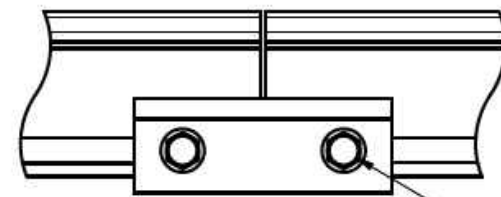
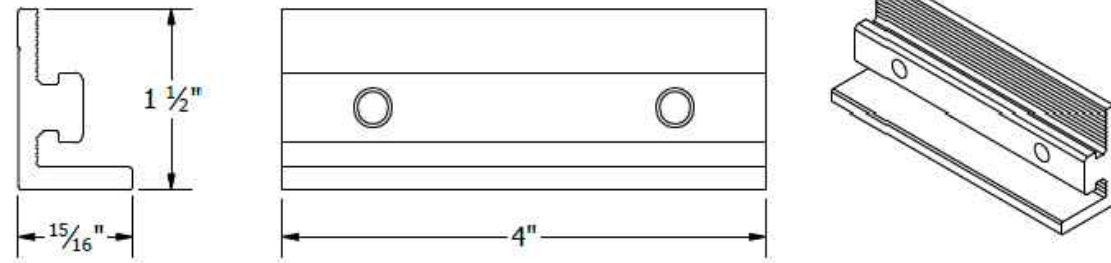
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| REVISIONS | REV | DESCRIPTION | DATE |
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| SHEET TITLE RESOURCE DOCUMENT | |
| DRAWN DATE | 02/23/2021 |
| DRAWN BY | NV |
| REVIEWED BY | - |

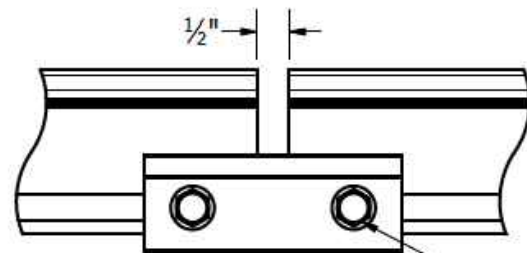
SHEET NUMBER
R-005

BONDING SPLICE BAR



TYPICAL SPLICE BAR DETAIL

5/16"-18 TYPE F THREAD CUTTING SCREWS INCLUDED



TYPICAL EXPANSION JOINT DETAIL

NOTE THAT ONLY 2 SCREWS ARE USED AT AN EXPANSION JOINT. THE SPLICE BAR DOES NOT BOND ACROSS AN EXPANSION JOINT. SEE INSTALLATION GUIDE FOR INSTRUCTION.

PART # TABLE

| P/N | DESCRIPTION |
|---------|--------------------------------|
| 303019M | BND SPLICE BAR PRO SERIES MILL |
| 303019D | BND SPLICE BAR PRO SERIES DRK |



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

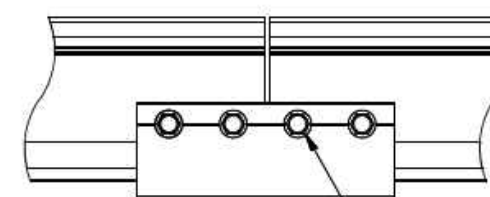
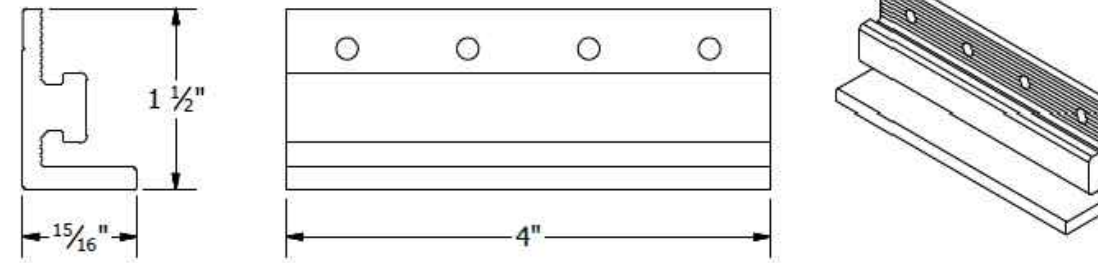
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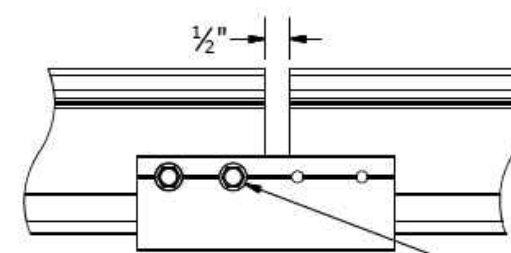
SHEET

BONDING SPLICE BAR



TYPICAL SPLICE BAR DETAIL

#12 X 3/4" SELF DRILLING SS SCREWS INCLUDED



TYPICAL EXPANSION JOINT DETAIL

NOTE THAT ONLY 2 SCREWS ARE USED AT AN EXPANSION JOINT. THE SPLICE BAR DOES NOT BOND ACROSS AN EXPANSION JOINT. SEE INSTALLATION GUIDE FOR INSTRUCTION.

PART # TABLE

| P/N | DESCRIPTION |
|---------|-----------------------------|
| 303018C | BND SPLICE BAR SERRATED CLR |
| 303018D | BND SPLICE BAR SERRATED DRK |



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

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SM-A05

SHEET



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PROJECT NAME & ADDRESS

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USA

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| REVISIONS | DESCRIPTION | REV | DATE |
|-----------|-------------|-----|------|
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SHEET TITLE
RESOURCE DOCUMENT

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| DRAWN DATE | 02/23/2021 |
| DRAWN BY | NV |
| REVIEWED BY | - |

SHEET NUMBER
R-006

PROJECT NAME & ADDRESS

ANDREW RIMBACH
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CAMERON, NC 28326,
USA

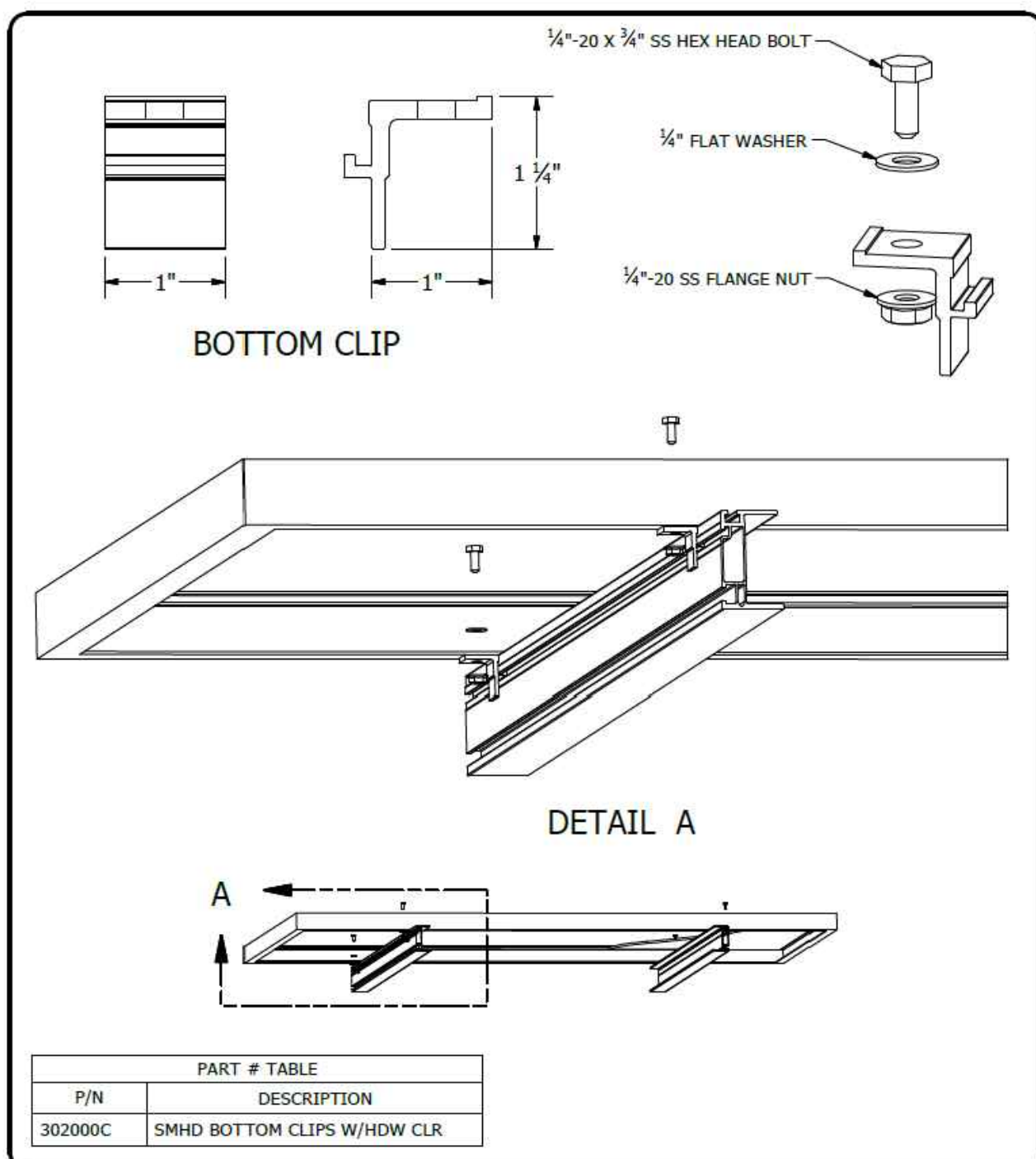
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SHEET TITLE
RESOURCE DOCUMENT

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| DRAWN DATE | 02/23/2021 |
| DRAWN BY | NV |
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SHEET NUMBER
R-007



1411 BROADWAY BLVD. NE
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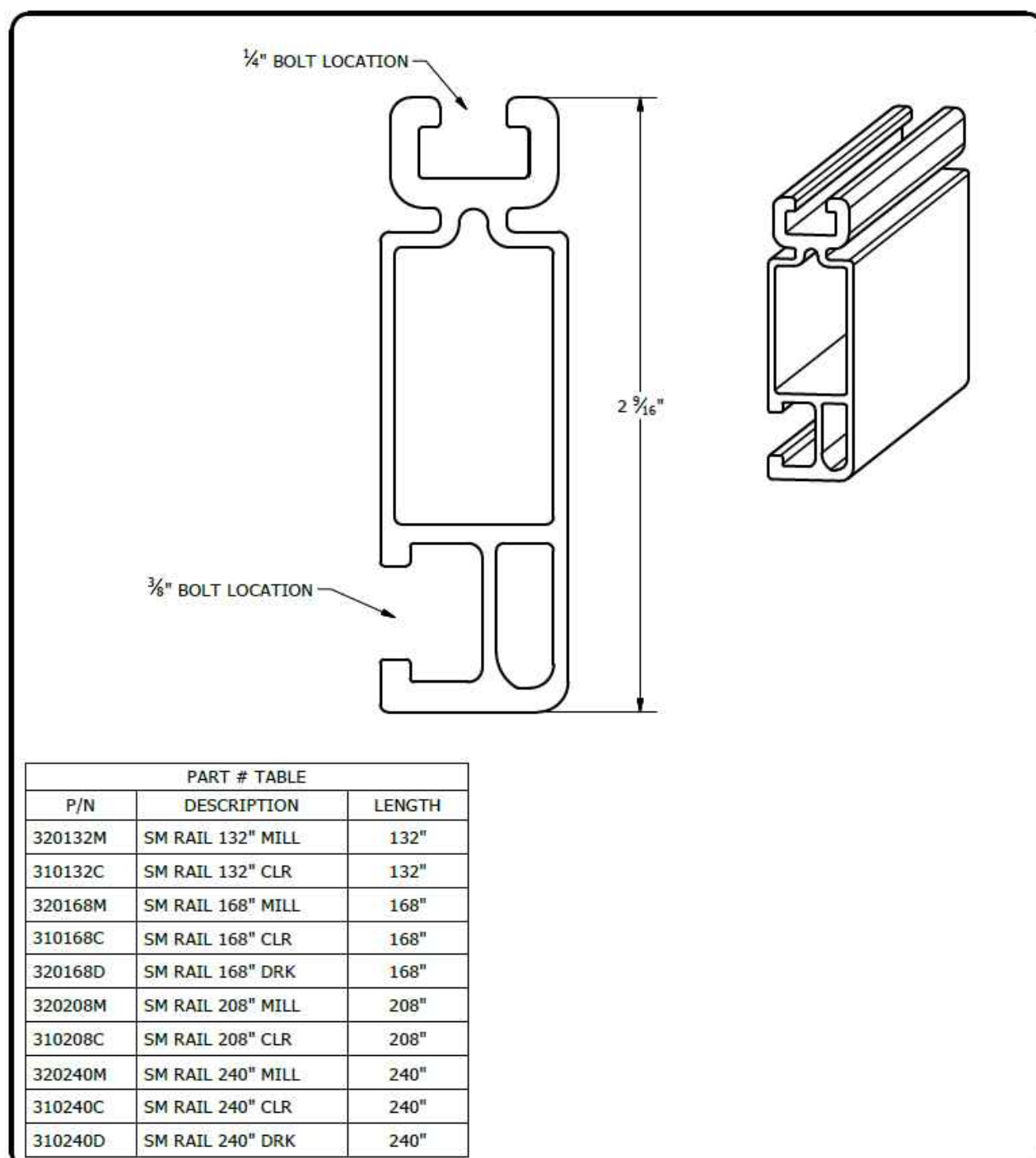
| | |
|----------------|-----------------|
| PRODUCT LINE: | SOLARMOUNT HD |
| DRAWING TYPE: | PART & ASSEMBLY |
| DESCRIPTION: | BOTTOM CLIP |
| REVISION DATE: | 9/27/2017 |

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE
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PRODUCT PROTECTED BY
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LEGAL NOTICE

SM-A10
SHEET



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| | |
|----------------|---------------|
| PRODUCT LINE: | SOLARMOUNT |
| DRAWING TYPE: | PART DETAIL |
| DESCRIPTION: | STANDARD RAIL |
| REVISION DATE: | 9/11/2017 |

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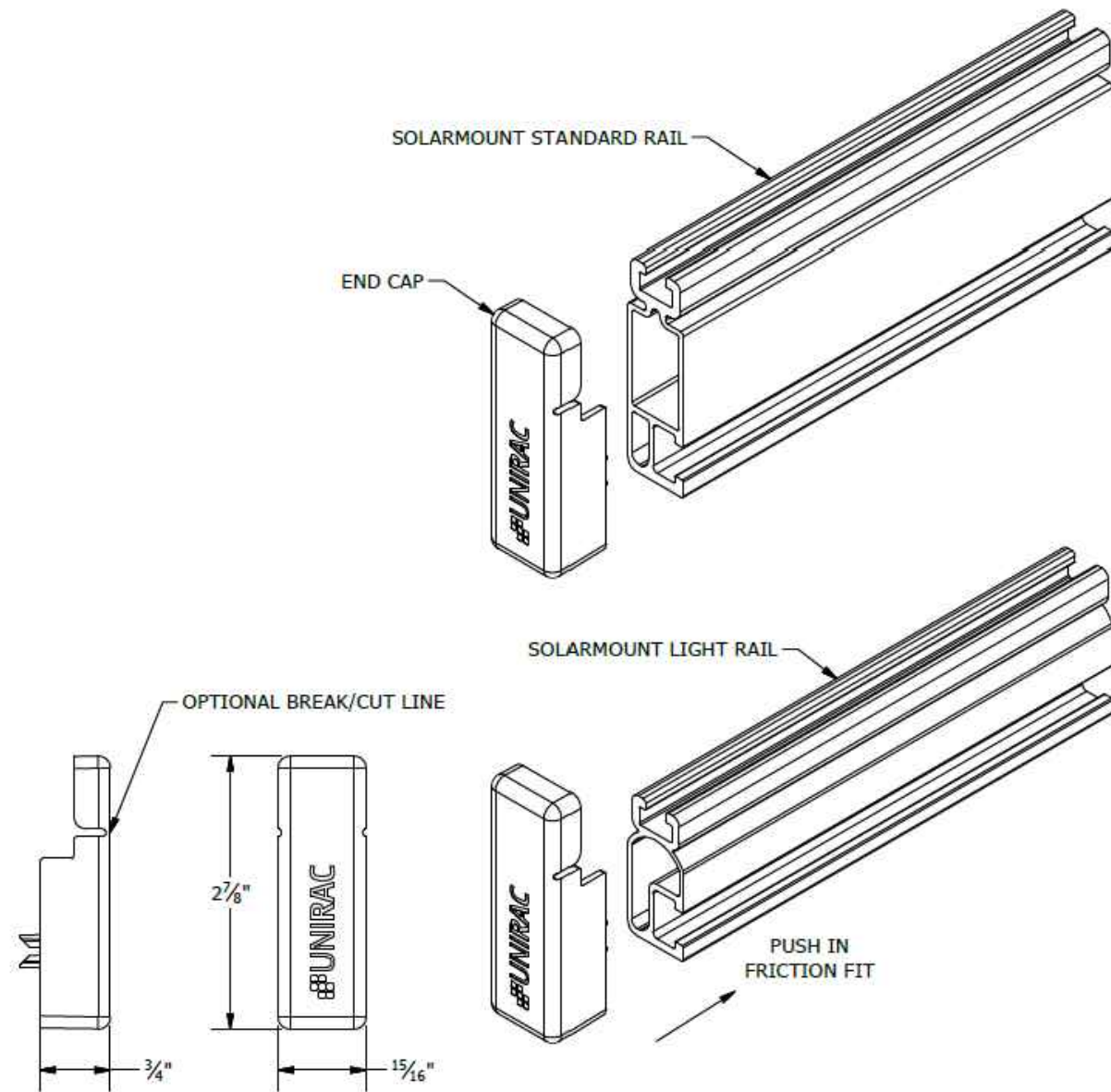
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SM-P01
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NOTES:

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



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

DRAWING NOT TO SCALE
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LEGAL NOTICE

SM-P04

SHEET



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MANDEVILLE, LA 70471
PHONE: 9152011490

PROJECT NAME & ADDRESS

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CAMERON, NC 28326,
USA

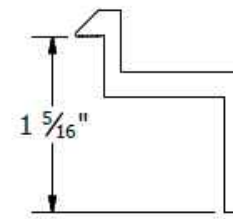
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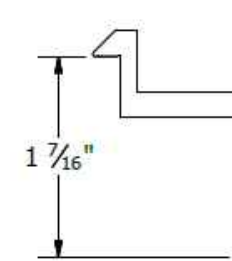
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DOCUMENT**

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| DRAWN DATE | 02/23/2021 |
| DRAWN BY | NV |
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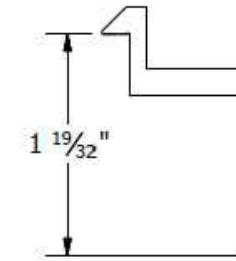
SHEET NUMBER
R-008



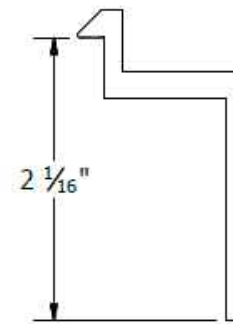
B CLAMP
30mm to 32mm Module Thickness
(1.18" to 1.26")



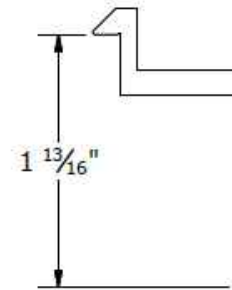
C CLAMP
33mm to 36mm Module Thickness
(1.30" to 1.42")



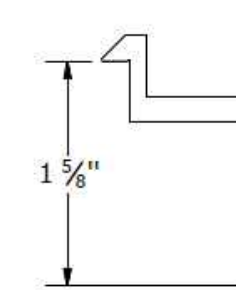
D CLAMP
38mm to 40mm Module Thickness
(1.50" to 1.57")



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

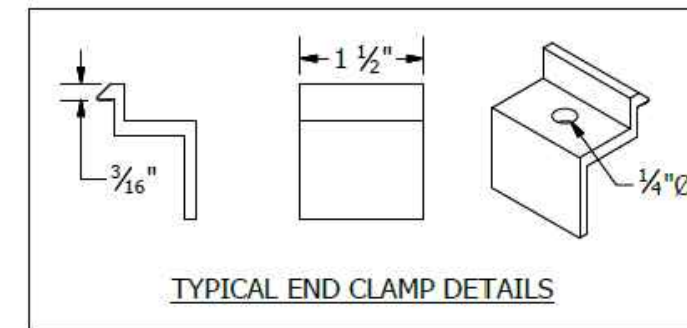


F CLAMP
45mm to 47mm Module Thickness
(1.77" to 1.85")



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

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



TYPICAL END CLAMP DETAILS



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| | |
|----------------|------------------------------|
| 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
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LEGAL NOTICE

SM-P05

SHEET

POWERWALL Backup Gateway 2

The Backup Gateway 2 for Tesla Powerwall provides energy management and monitoring for solar self-consumption, time-based control, and backup.

The Backup Gateway 2 controls connection to the grid, automatically detecting outages and providing a seamless transition to backup power. When equipped with a main circuit breaker, the Backup Gateway 2 can be installed at the service entrance. When the optional internal panelboard is installed, the Backup Gateway 2 can also function as a load center.

The Backup Gateway 2 communicates directly with Powerwall, allowing you to monitor energy use and manage backup energy reserves from any mobile device with the Tesla app.



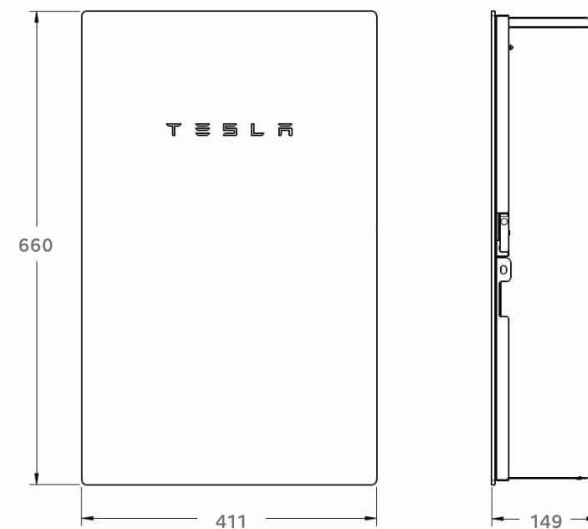
PERFORMANCE SPECIFICATIONS

| | |
|-------------------------------------|--|
| AC Voltage (Nominal) | 120/240V |
| Feed-In Type | Split Phase |
| Grid Frequency | 60 Hz |
| Current Rating | 200 A |
| Maximum Input Short Circuit Current | 10 kA ¹ |
| Overcurrent Protection Device | 100-200A; Service Entrance Rated ¹ |
| Overvoltage Category | Category IV |
| AC Meter | Revenue accurate (+/- 0.2 %) |
| Primary Connectivity | Ethernet, Wi-Fi |
| Secondary Connectivity | Cellular (3G, LTE/4G) ² |
| User Interface | Tesla App |
| Operating Modes | Support for solar self-consumption, time-based control, and backup |
| Backup Transition | Automatic disconnect for seamless backup |
| Modularity | Supports up to 10 AC-coupled Powerwalls |
| Optional Internal Panelboard | 200A 6-space / 12 circuit Eaton BR Circuit Breakers |
| Warranty | 10 years |

¹When protected by Class J fuses, Backup Gateway 2 is suitable for use in circuits capable of delivering not more than 22kA symmetrical amperes.
²The customer is expected to provide internet connectivity for Backup Gateway 2; cellular should not be used as the primary mode of connectivity. Cellular connectivity subject to network operator service coverage and signal strength.

MECHANICAL SPECIFICATIONS

| | |
|------------------|--|
| Dimensions | 660 mm x 411 mm x 149 mm (26 in x 16 in x 6 in) |
| Weight | 20.4 kg (45 lb) |
| Mounting options | Wall mount, Semi-flush mount |



COMPLIANCE INFORMATION

| | |
|----------------|--|
| Certifications | UL 67, UL 869A, UL 916, UL 1741 PCS CSA 22.2 0.19, CSA 22.2 205 |
| Emissions | FCC Part 15, ICES 003 |

ENVIRONMENTAL SPECIFICATIONS

| | |
|-------------------------|-------------------------------|
| Operating Temperature | -20°C to 50°C (-4°F to 122°F) |
| Operating Humidity (RH) | Up to 100%, condensing |
| Maximum Elevation | 3000 m (9843 ft) |
| Environment | Indoor and outdoor rated |
| Enclosure Type | NEMA 3R |

TESLA

NA 2020-05-23

TESLA.COM/ENERGY

POWERWALL 2 AC

The Tesla Powerwall is a fully-integrated AC battery system for residential or light commercial use. Its rechargeable lithium-ion battery pack provides energy storage for solar self-consumption, load shifting and backup power.

Powerwall's electrical interface provides a simple connection to any home or building. Its revolutionary compact design achieves market-leading energy density and is easy to install, enabling owners to quickly realize the benefits of reliable, clean power.



PERFORMANCE SPECIFICATIONS

| | |
|---|---|
| AC Voltage (Nominal) | 208 V, 220 V, 230 V, 277 V, 100/200 V, 120/240 V |
| Feed-In Type | Single & Split-Phase |
| Grid Frequency | 50 and 60 Hz |
| AC Energy ¹ | 13.2 kWh |
| Real Power, max continuous ² | 5 kW (charge and discharge) |
| Real Power, peak (10s) ² | 7 kW (discharge only) |
| Apparent Power, max continuous ² | 5.8 kVA (charge and discharge) |
| Apparent Power, peak (10s) ² | 7.2 kVA (discharge only) |
| Imbalance for Single-Phase Loads | 100% |
| Power Factor Output Range | +/- 1.0 adjustable |
| Power Factor (full-rated power) | +/- 0.85 |
| Depth of Discharge | 100% |
| Internal Battery DC Voltage | 50 V |
| Round Trip Efficiency ^{1,3} | 89.0% |
| Warranty | 10 years |

¹Values provided for 25°C (77°F), 3.3 kW charge/discharge power.
²Values region-dependent.
³AC to battery to AC, at beginning of life.

ENERGY GATEWAY SPECIFICATIONS

| | |
|------------------|---|
| User Interface | Tesla App |
| Connectivity | Wi-Fi, Ethernet, 3G |
| AC Meter | Revenue grade |
| Operating Modes | Support for wide range of usage scenarios |
| Backup Operation | Optional automatic disconnect switch |
| Modularity | Supports up to 9 AC-coupled Powerwalls |

ENVIRONMENTAL SPECIFICATIONS

| | |
|-------------------------|---|
| Operating Temperature | -20°C to 50°C (-4°F to 122°F) |
| Storage Temperature | -30°C to 60°C (-22°F to 140°F) |
| Operating Humidity (RH) | Up to 100%, condensing |
| Maximum Altitude | 3000 m (9843 ft) |
| Environment | Indoor and outdoor rated |
| Enclosure Type | NEMA 3R |
| Ingress Rating | IP67 (Battery & Power Electronics) IP56 (Wiring) |
| Noise Level @ 1m | <40 dBA at 30°C (86°F) |

MECHANICAL SPECIFICATIONS

| | |
|------------------|---|
| Dimensions | 1150 mm x 755 mm x 155 mm (45.3 in x 29.7 in x 6.1 in) |
| Weight | 122 kg (269 lbs) |
| Mounting options | Floor or wall mount |

COMPLIANCE INFORMATION

| | |
|----------------|--|
| Safety | UL 1642, UL 1741, UL 1973, UL 9540, UN 38.3, IEC 62109-1, IEC 62619, CSA C22.2.107.1 |
| Grid Standards | Worldwide Compatibility |
| Emissions | FCC Part 15 Class B, ICES 003, EN 61000 Class B |
| Environmental | RoHS Directive 2011/65/EU, WEEE Directive 2012/19/EU, 2006/66/EC |
| Seismic | AC156, IEEE 693-2005 (high) |

TESLA

2016-11-01

POWERWALL 2

SUNPRO

22171 MCH RD
MANDEVILLE, LA 70471
PHONE: 9152011490

PROJECT NAME & ADDRESS

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CAMERON, NC 28326,
USA

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SHEET TITLE
RESOURCE
DOCUMENT

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| DRAWN DATE | 02/23/2021 |
| DRAWN BY | NV |
| REVIEWED BY | - |

SHEET NUMBER
R-009