| SHEET DESCRIPTION | SHEET |
|------------------------------------|--------|
| Project Notes | COVER |
| Site Plans and layouts | PV-1 |
| Roof Mounting layouts | PV-2 |
| Roof Mounting details | PV-2.1 |
| Fire Labels & Equipment | PV-3 |
| Plate equipment location | PV-3.1 |
| Conduit Run & Grounding Details | PV-4 |
| Single Line Diagram & Calculations | PV-5 |
| Manufacture Spec. Sheets | PV-6 |
| | |

GENERAL BUILDING NOTES

- STRUCTURAL MEMBER LOCATIONS ARE ESTIMATED AND SHOULD BE LOCATED AND VERIFIED AS NECESSARY FOR LAG BOLT OR ANY OTHER TYPE OF PENETRATIONS BY CONTRACTOR.
- 2. SEAL CONNECTION POINTS WITH ROOF GRADE PENETRATIONS ARE SEALED WITH FLASHING ROOF & FLASHING SEALANT, OR ANY OTHER MEAN APPROVED BY THE ATTACHMENT MANUFACTURER.
- PV ARRAY COMBINER/JUNCTION BOX PROVIDES TRANSITION FROM ARRAY WIRING TO CONDUIT WIRING. 3.

GENERAL ELECTRICAL NOTES

- ALL ELECTRICAL WORK SHALL BE IN COMPLIANCE WITH 2012 STANDARD BUILDING CODE AND NFPA 70, 2017 EDITION, NATIONAL ELECTRICAL CODE (NEC). UTILITY HAS 24-HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC SYSTEM COMPONENTS LOCATED AT THE SERVICE ENTRANCE. 2. WORKING CLEARANCES AROUND THE EXISTING AND NEW ELECTRICAL EQUIPMENT WILL BE MAINTAINED IN ACCORDANCE WITH NEC ARTICLE 110.26. 3 ALL EQUIPMENT INSTALLED SHALL BE LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) PER NEC ARTICLE 110.3. PV POWER CIRCUIT LABELS SHALL APPEAR ON EVERY SECTION OF THE WIRING SYSTEM THAT IS SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS. 5. ALL WARNING SIGN(S) OR LABEL(S) SHALL COMPLY WITH NEC ARTICLE 110.21 (B). LABEL WARNINGS SHALL ADEQUATELY WARN OF THE HAZARD, LABELS SHALL BE PERMANENTLY 6. AFFIXED TO THE EQUIPMENT, AND LABELS REQUIRED SHALL BE SUITABLE FOR THE ENVIRONMENT. CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER NEC ARTICLE 300.6 (C) (1) AND ARTICLE 310.8 (D). CONDUCTORS EXPOSED TO WET LOCATIONS SHALL BE SUITABLE FOR USE IN WET LOCATIONS PER NEC ARTICLE 310.8 (C). 8. EXACT CONDUIT RUN LOCATIONS SUBJECT TO CHANGE. 9 PROVIDE GROUND ELECTRODE SYSTEM FROM INVERTER TO EXISTING MAIN SERVICE GROUND ELECTRODE. 10. GROUND ELECTRODE CONDUCTOR FROM INVERTER TO GROUND ELECTRODE TO BE MINIMUM PROTECTION OF BARE ARMOR SHEATED CABLE FOR ALL CONDUCTOR SIZES. 11. ALL GROUND CONNECTED TO MAIN SERVICE GROUND IN MAIN SERVICE PANEL 12. 13. INVERTER IS LISTED TO UL-1741 "UTILITY INTERACTIVE" ALL CONDUCTORS SHALL BE 600V, 90°C STANDARD COPPER. 14. ALL CONDUCTORS IN CONDUIT SHALL BE THWN-2. 15. MAXIMUM DC/AC VOLTAGE DROP SHALL BE NO MORE THAN 2% 16.
- 17. ALL CONDUCTORS SHALL BE IN CONDUIT UNLESS OTHERWISE NOTED.

DESIGN DATA

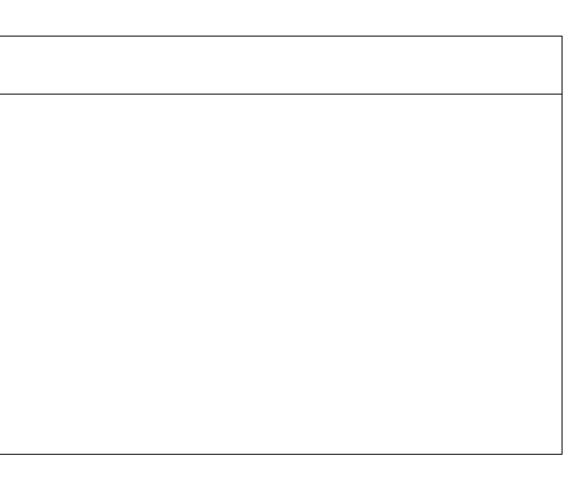
WIND LOADS

- 1. BASIC WIND SPEED 108 MPH. (@ 3 SEC. GUST.)
- 2. RISK CATEGORY
- 3. WIND EXPOSURE CATEGORYC
- 4- "EXPOSURE C" SHALL BE ASSUMED UNLESS THE SITE MEETS
- THE DEFINITION OF ANOTHER TYPE EXPOSURE.

APPLICABLE CODES

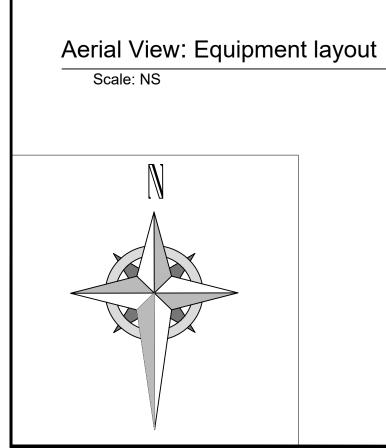
-STANDARD BUILDING CODE 2020 -ELECTRICAL CODE, NFPA 70 / NEC 2017



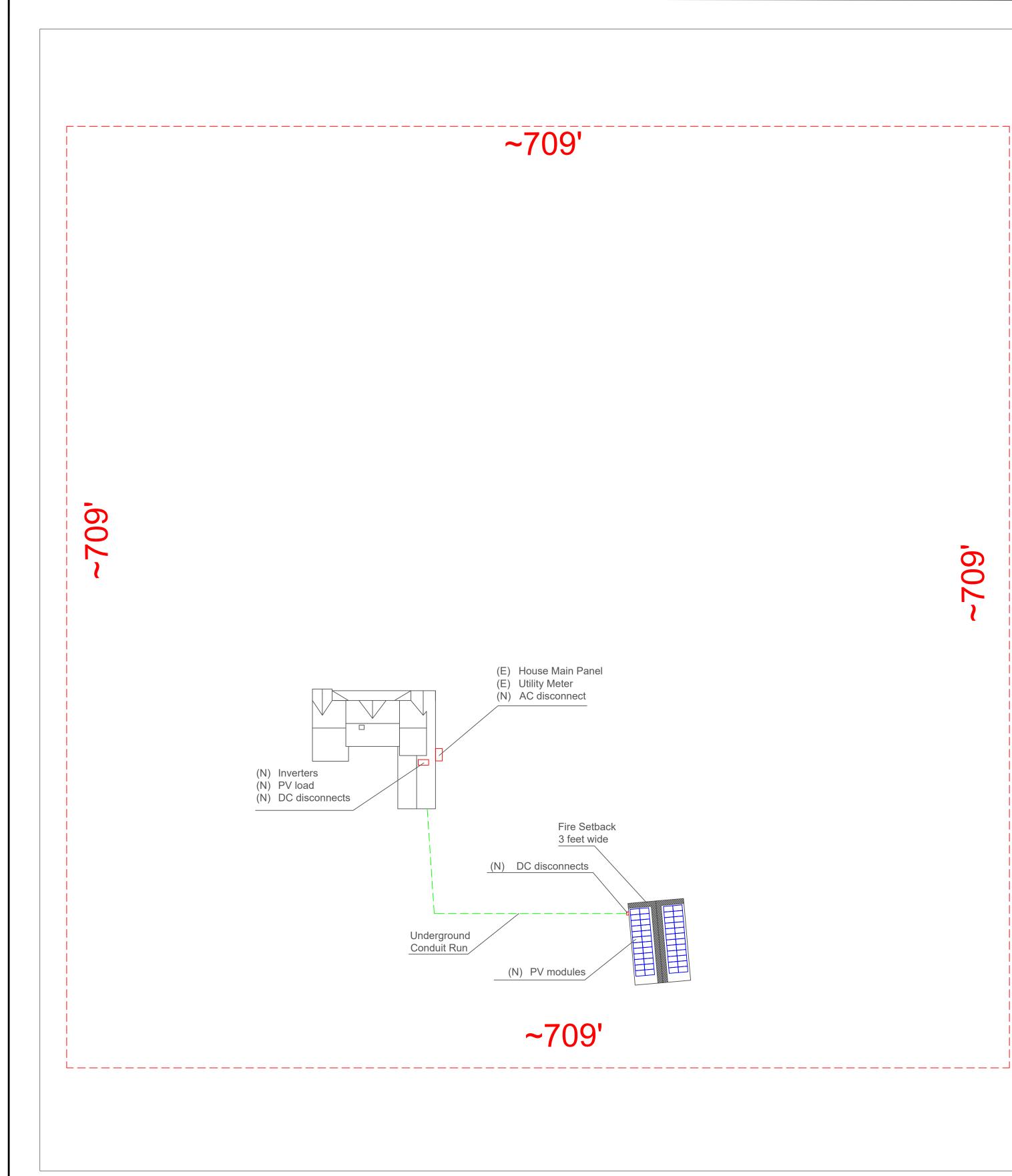


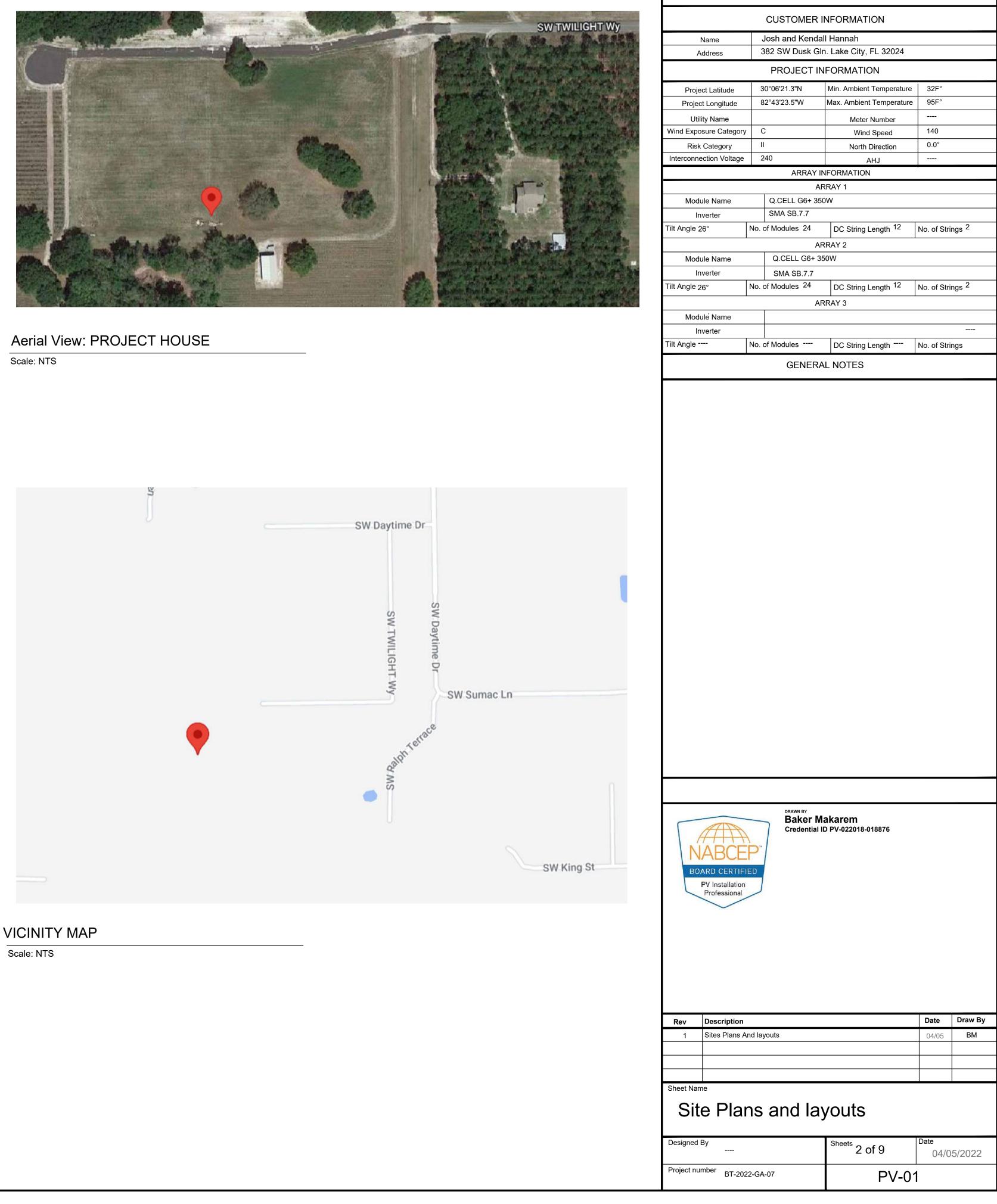
| | 651 W. GALENA PARK BLVD, STE, 101 PHONE (BD 1) 990-17 |
|---|--|
| Jacob Digitally signed by Jacob S Proctor Date: 2022.04.21 r 09:37:18 -06'00' | DRAPER, UTAH 84020 WWW.VECTORSE.C. No. 74277 No. 747 |
| Vector Structural Engineering has reviewed the existing structure with loading from the solar array and clamps capacity to the metal roofing. The design of the racking system, racking connections, and all other structural is by others. Mechanical, architectural, and all other nonstructural aspects of the design are by others. Electrical is by others, unless stamped by Dean Levorsen. | 04/21/2022 VSE Project Number: U3996.0007.221 This item has been digitally signed and sealed by Jacob S. Proctor on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies. |
| | See detail in structural letter for additional metal roof connection requirements. |
| | County Building Plans Reviewed for Code |

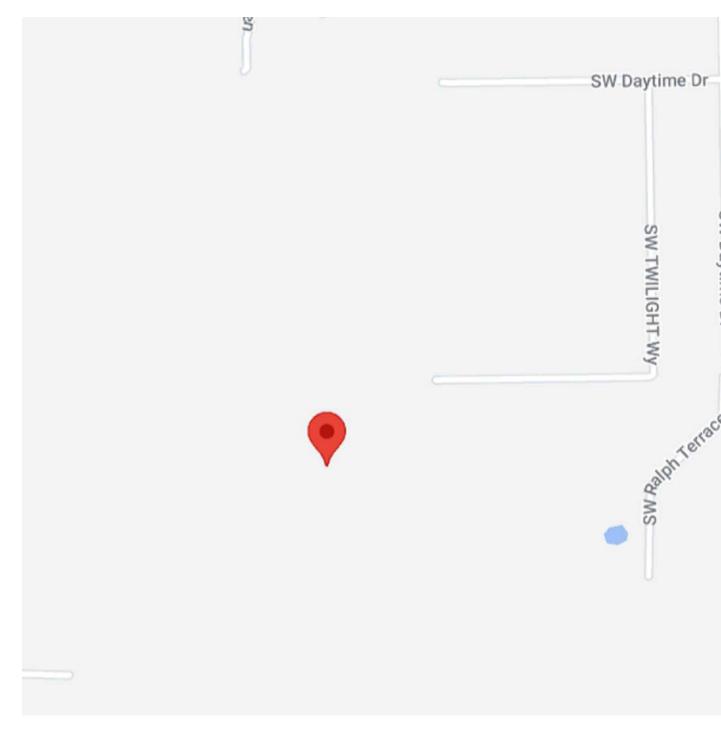
| | CUSTOMER I | NFORMATION | | |
|---|-------------------|-------------------------------------|-------------------|------------------|
| Name Address | Josh and Kendall | Hannah Lake City, FL 32024 | | |
| Address | | FORMATION | | |
| Project Latitude | 30°06'21.3"N | Min. Ambient Temperature | 32F° | |
| Project Longitude | 82°43'23.5"W | Max. Ambient Temperature | 95F° | |
| Utility Name | С | Meter Number | | |
| Wind Exposure Category Risk Category | II | Wind Speed North Direction | 140 0.0° | |
| Interconnection Voltage | 240 | AHJ | | |
| | | IFORMATION | | |
| Module Name | Q.CELL G6+ 35 | | | |
| | SMA SB.7.7 | | | |
| Tilt Angle 26° | No. of Modules 24 | DC String Length 12 | No. of Stri | ngs 2 |
| Module Name | Q.CELL G6+ 35 | | | |
| Inverter | SMA SB.7.7 | 10 | | 0 |
| Tilt Angle 26° | No. of Modules 24 | | No. of Stri | ngs ² |
| Module Name | AR | RAY 3 | | |
| Inverter | | 1 | | |
| Tilt Angle | No. of Modules | DC String Length | No. of Stri | ngs |
| | GENERA | L NOTES | | |
| | | | | |
| NABCE BOARD CERTIFIE PV Installation Professional | | akarem D PV-022018-018876 | | |
| | | | _ | - |
| Rev Description 1 Project Notes a | and information | | Date 04/05 | Draw By BM |
| | | | | |
| Sheet Name Project N | lotes | | | |
| Designed By | | Sheets 1 of 9 | Date | 5/0000 |
| Project number BT-2022 | 2-GA-07 | | | 5/2022 |
| | | COVE | -K | |



PROJECT DESCRIPTION: 48x Q.PEAK DUO G6+ (350W) 2X SMA SB7.7 SYSTEM SIZE: 16.8 KWp DC STC Array Area: ~903 SQ FT

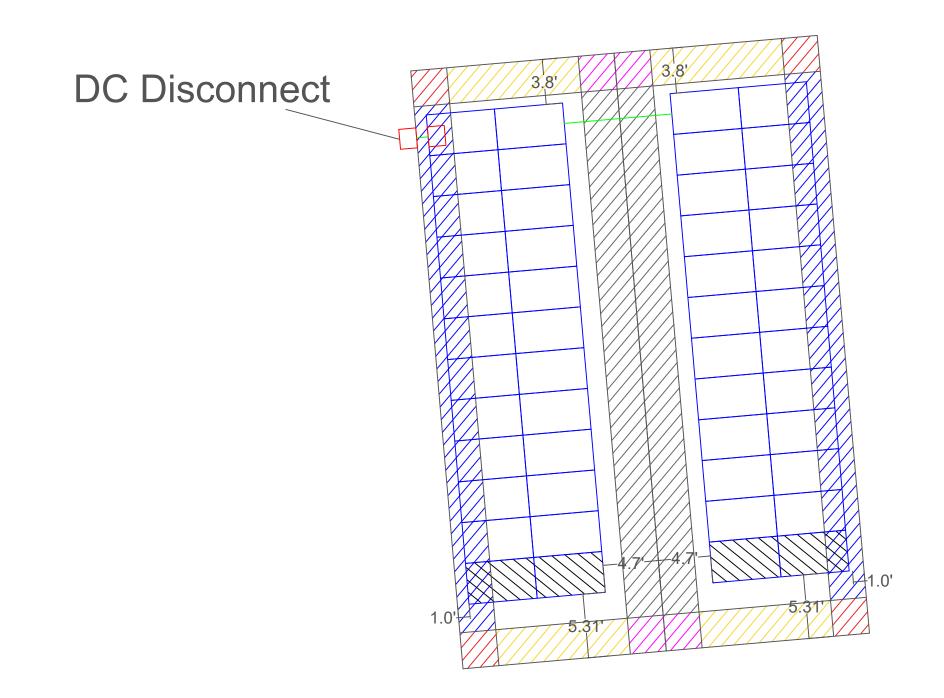




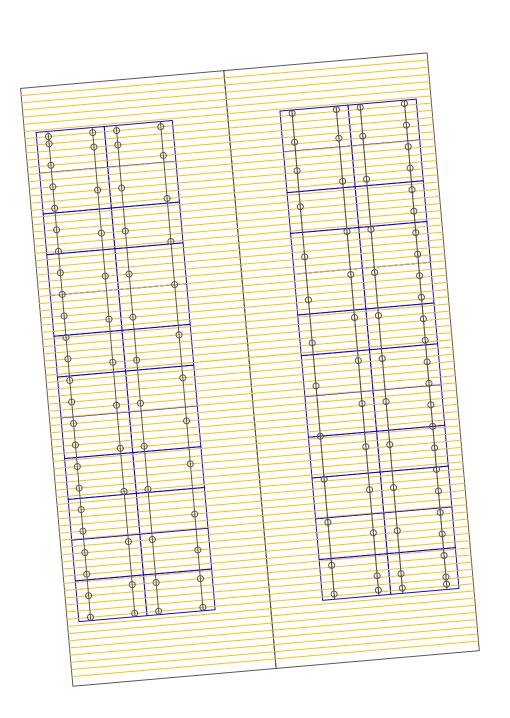


VICINITY MAP

709'

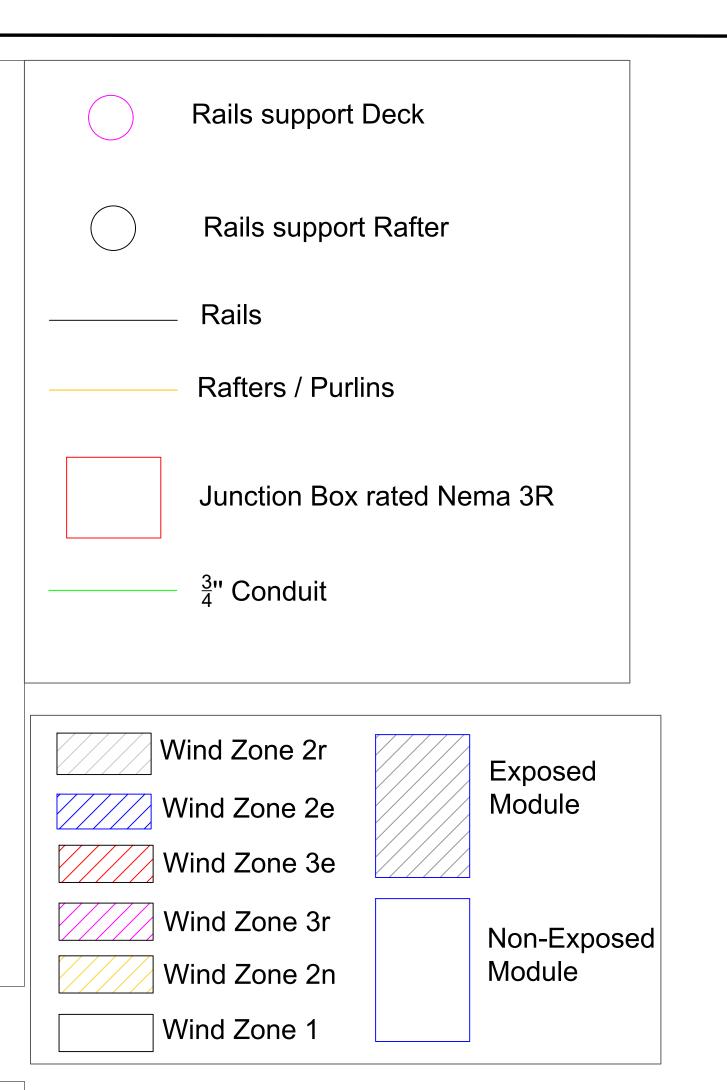


Aerial View: SYSTEM RAIL AND MOUNTING LAYOUT Scale: 1-1/2'=1'-0"



Aerial View: SYSTEM RAIL AND MOUNTING LAYOUT

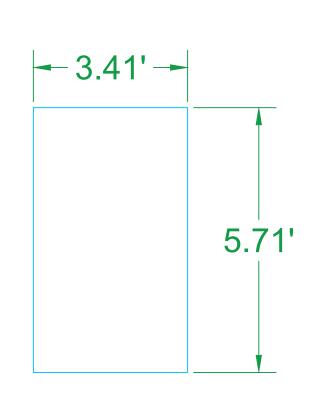
Scale: 1-1/2'=1'-0"



| ROOF | MAX VALUES | WIND ZONE 1 | WIND ZONE 2e | WIND ZONE 2n |
|---------|---------------------------------|-------------|--------------|--------------|
| Exposed | Max spam between Attachments | 3 Ft | 2 Ft | N/A |
| | Max Cantilever | 1 Ft | 1 Ft | N/A |
| Non | Max spam between Attachments | 3 Ft | 4 Ft | N/A |
| Exposed | Max Cantilever | 1 Ft | 1 Ft | N/A |

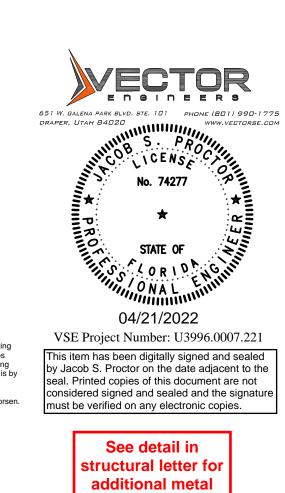
General Notes;

- Existing Residential building is a Metal roof, 7.2"structural box rib.
- Rafters/trusses/ribs At Roof 1 and 2 located each 7.2" inches.
- Equipments must be install as per manufacturer specifications.
- Measurements may vary from drawings. Contractor must verify on site for proper installation.
- Railing System will be SnapNRack ultraRail and S5! Protea Bracket

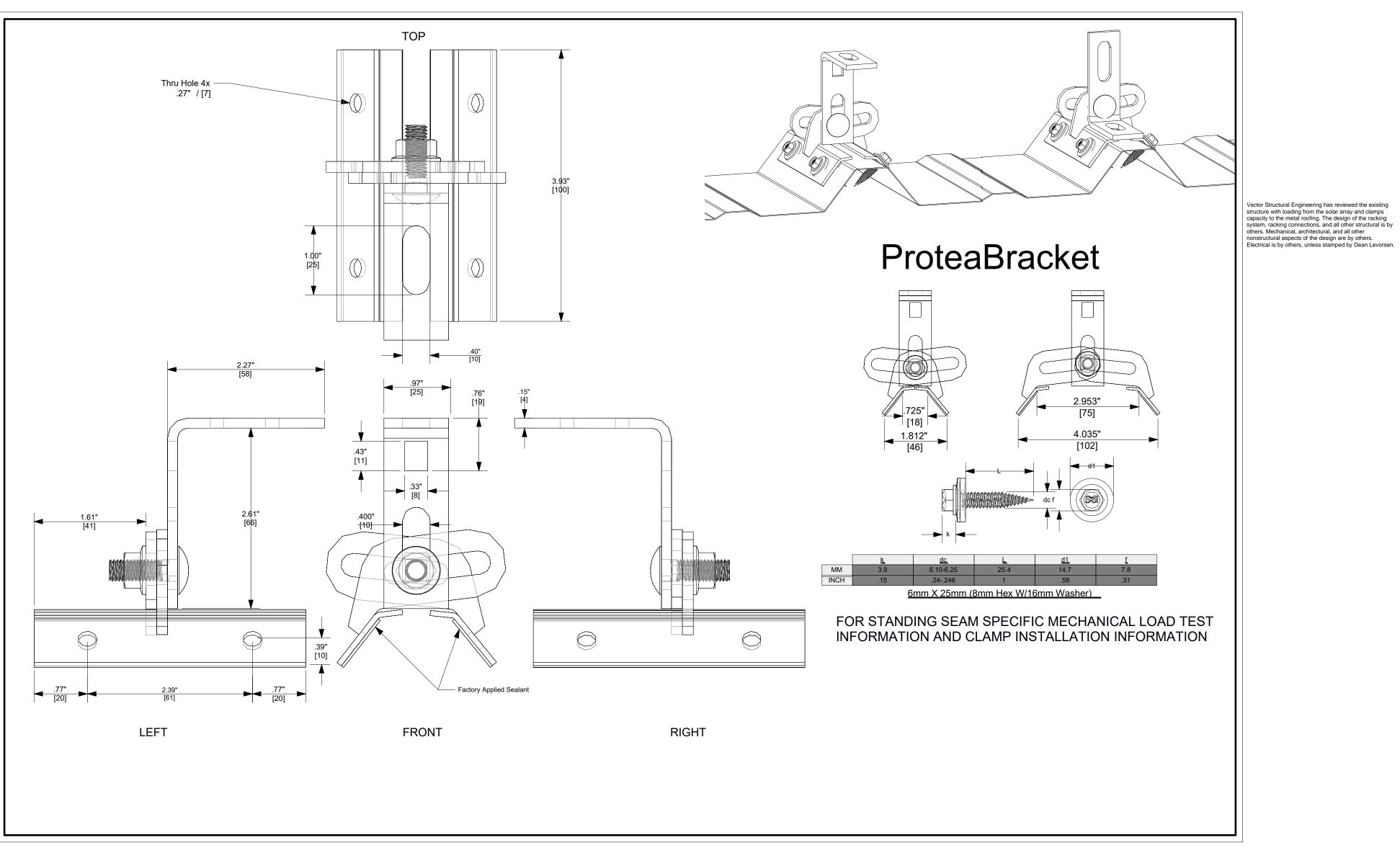


MANUFACTURE:Q.CELL G6+350 (350W) MODULES

| Name Address Project Latitude Project Longitude Utility Name nd Exposure Category Risk Category terconnection Voltage Module Name Inverter Angle 26° | Josh and Kenda 382 SW Dusk G PROJECT II 30°06'21.3"N 82°43'23.5"W / C II 240 ARRAY Q.CELL G6+ 35 | In. Lake City, FL 32024 NFORMATION Min. Ambient Temperature Max. Ambient Temperature Meter Number | |
|--|--|---|--|
| Address Project Latitude Project Longitude Utility Name Ind Exposure Category Risk Category terconnection Voltage Module Name Inverter | 382 SW Dusk G PROJECT II 30°06'21.3"N 82°43'23.5"W C II 240 ARRAY Q.CELL G6+ 35 | In. Lake City, FL 32024 NFORMATION Min. Ambient Temperature Max. Ambient Temperature Meter Number | |
| Project Longitude Utility Name nd Exposure Category Risk Category terconnection Voltage Module Name Inverter | 30°06'21.3"N 82°43'23.5"W C II 240 ARRAY A Q.CELL G6+ 35 | Min. Ambient Temperature Max. Ambient Temperature Meter Number | |
| Project Longitude Utility Name nd Exposure Category Risk Category terconnection Voltage Module Name Inverter | 82°43'23.5"W C II 240 ARRAY A Q.CELL G6+ 35 | Max. Ambient Temperature Meter Number | |
| Utility Name nd Exposure Category Risk Category terconnection Voltage Module Name Inverter | C II 240 ARRAY A Q.CELL G6+ 35 | Meter Number | 32F° |
| nd Exposure Category Risk Category terconnection Voltage Module Name Inverter | II 240 ARRAY A Q.CELL G6+ 35 | | 95F° |
| terconnection Voltage Module Name Inverter | 240 ARRAY A Q.CELL G6+ 35 | Wind Speed | 140 |
| Module Name Inverter | ARRAY A Q.CELL G6+ 35 | North Direction | 0.0° |
| Inverter | A Q.CELL G6+ 35 | | |
| Inverter | | RRAY 1 | |
| | SMA SB.7.7 | 50W | |
| | No. of Modules 24 | DC String Length ¹² | No. of Strings ² |
| | | RRAY 2 | |
| Module Name Inverter | Q.CELL G6+ 3 SMA SB.7.7 | 50W | |
| Angle 26° | No. of Modules ²⁴ | DC String Length ¹² | No. of Strings ² |
| | A | RRAY 3 | |
| Module Name | | | |
| Angle | No. of Modules | DC String Length | No. of Strings |
| | | AL NOTES | - |
| | | | |
| | | | |
| NABCE BOARD CERTIF PV Installation Professional | Credential P IED | //akarem ID PV-022018-018876 | |
| PV Installation | Baker M Credential | | Date Dra |
| PV Installation Professional | Baker M Credential | ID PV-022018-018876 | Date Dra 04/05 E |
| PV Installation Professional | ED Baker M Credential | ID PV-022018-018876 | |
| PV Installation Professional Rev Description 1 Roof mountin | ED Baker M Credential | ID PV-022018-018876 | |
| PV Installation Professional Rev Description 1 Roof mountin 1 Roof mountin | ED Baker M Credential | ID PV-022018-018876 | |
| PV Installation Professional Rev Description 1 Roof mountin 1 Roof mountin | ng and accesories layou | ID PV-022018-018876 | |
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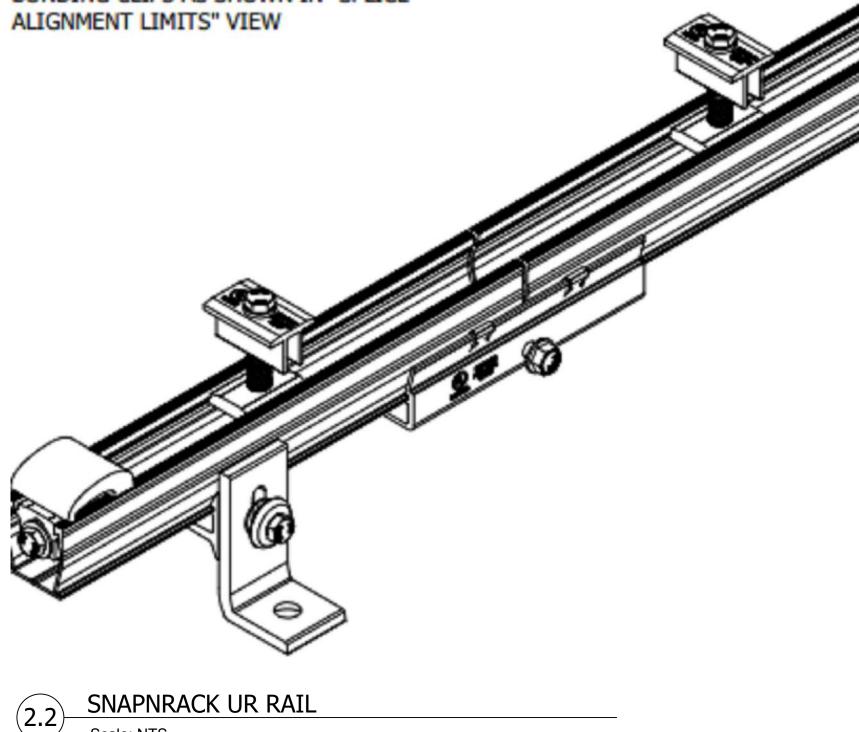


roof connection requirements.





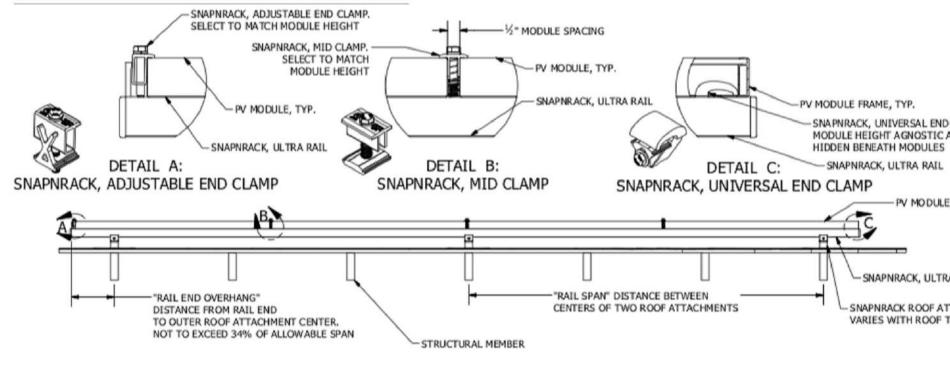
CENTER SPLICE BETWEEN THE TWO BONDING CLIPS AS SHOWN IN "SPLICE





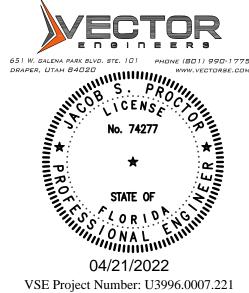
Scale: NTS







SNAPNRACK ACCESORIES DETAIL Scale: NTS



This item has been digitally signed and sealed by Jacob S. Proctor on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

See detail in structural letter for additional metal roof connection requirements.

| | CUSTOME | R INFORMA | ΓΙΟΝ | | |
|--|------------------------------|----------------------------|----------------------------------|----------------------|------------------|
| Name | Josh and Ken | | | | |
| Address | 382 SW Dusk | | | | |
| | | | _ | . <u></u> | |
| Project Latitude Project Longitude | 30°06'21.3"N 82°43'23.5"W | | nt Temperature nt Temperature | | |
| Utility Name | | Mete | er Number | | |
| Wind Exposure Category Risk Category | C II | | nd Speed | 140 0.0° | |
| Interconnection Voltage | 240 | | AHJ | | |
| | | Y INFORMATIO | N | | |
| Module Name | Q.CELL G6+ | ARRAY 1 350W | | | |
| Inverter | SMA SB.7.7 | | | | |
| Filt Angle 26° | No. of Modules 24 | | Length ¹² | No. of Stri | ngs ² |
| Module Name | Q.CELL G6+ 3 | ARRAY 2 | | | |
| Inverter | SMA SB.7.7 | | | | |
| Filt Angle 26° | No. of Modules 24 | DC String | Length ¹² | No. of Stri | ngs ² |
| Module Name | | ARRAY 3 | | | |
| Inverter | | | | | |
| | No. of Modules | DC String | Length | No. of Stri | ngs |
| | GENE | RAL NOTES | | | |
| | | | | | |
| NABCE BOARD CERTIFIE PV Installation Professional | Credentia | Makarem al ID PV-022018 | -018876 | | |
| | | | | | |
| | | | | | |
| Rev Description | 1 details transidas | | | Date | Draw By |
| | g details, Ironridge | | | Date 04/05 | Draw By BM |
| |) details, Ironridge | | | | |
| 1 Roof mounting | g details, Ironridge | nting | details | 04/05 | |
| 1 Roof mounting | | | details | 04/05 | |
| 1 Roof mounting | | Sheets | details | 04/05 | |

— SNAPNRACK, UNIVERSAL END CLAMP. MODULE HEIGHT AGNOSTIC AND HIDDEN BENEATH MODULES

- PV MODULE, TYP.

- SNAPNRACK, ULTRA RAIL

SNAPNRACK ROOF ATTACHMENT, VARIES WITH ROOF TYPE

INVERTER 1 & 2



ELECTRIC SHOCK HAZARD

THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED

ELECTRIC SHOCK HAZARD IF GROUND FAULT IS INDICATED ALL NORMALLY GROUNDED CONDUCTORS MAY BE

MAXIMUM VOLTAGE 450 MAXIMUM CIRCUIT CURRENT 10 MAX. RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC CONVERTER (IF INSTALLED) JUCTION BOX

WARNING DC JUNCTION BOX

WARNING: PHOTOVOLTAIC POWER SOURCE

Conduit From PV to Inverter

WARNING: PHOTOVOLTAIC POWER SOURCE

PV LOAD

WARNING DUAL POWER SUPPLY SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM



AC DISCONNECT

PHOTOVOLTAIC SYSTEM AC DISCONNECT 🥼





RATED AC OUTPUT CURRENT 64 A NOMINAL OPERATING AC VOLTAGE 240 V

WARNING

ELECTRIC SHOCK HAZARD

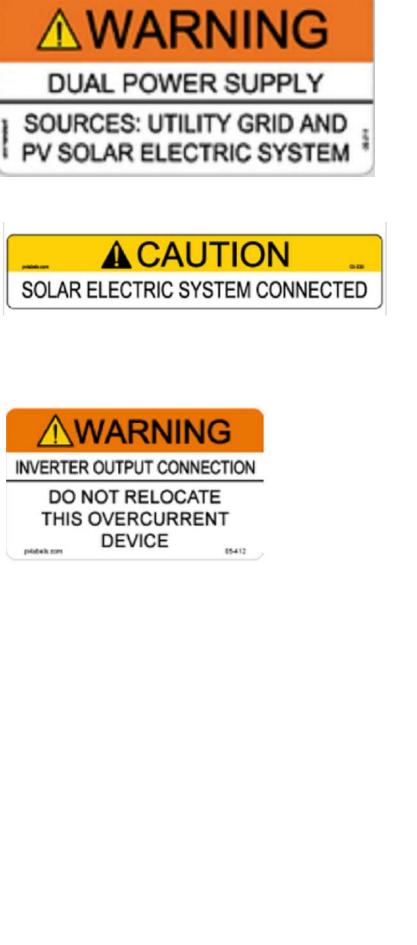
TERMINALS ON THE LINE AND

LOAD SIDES MAY BE ENERGIZED

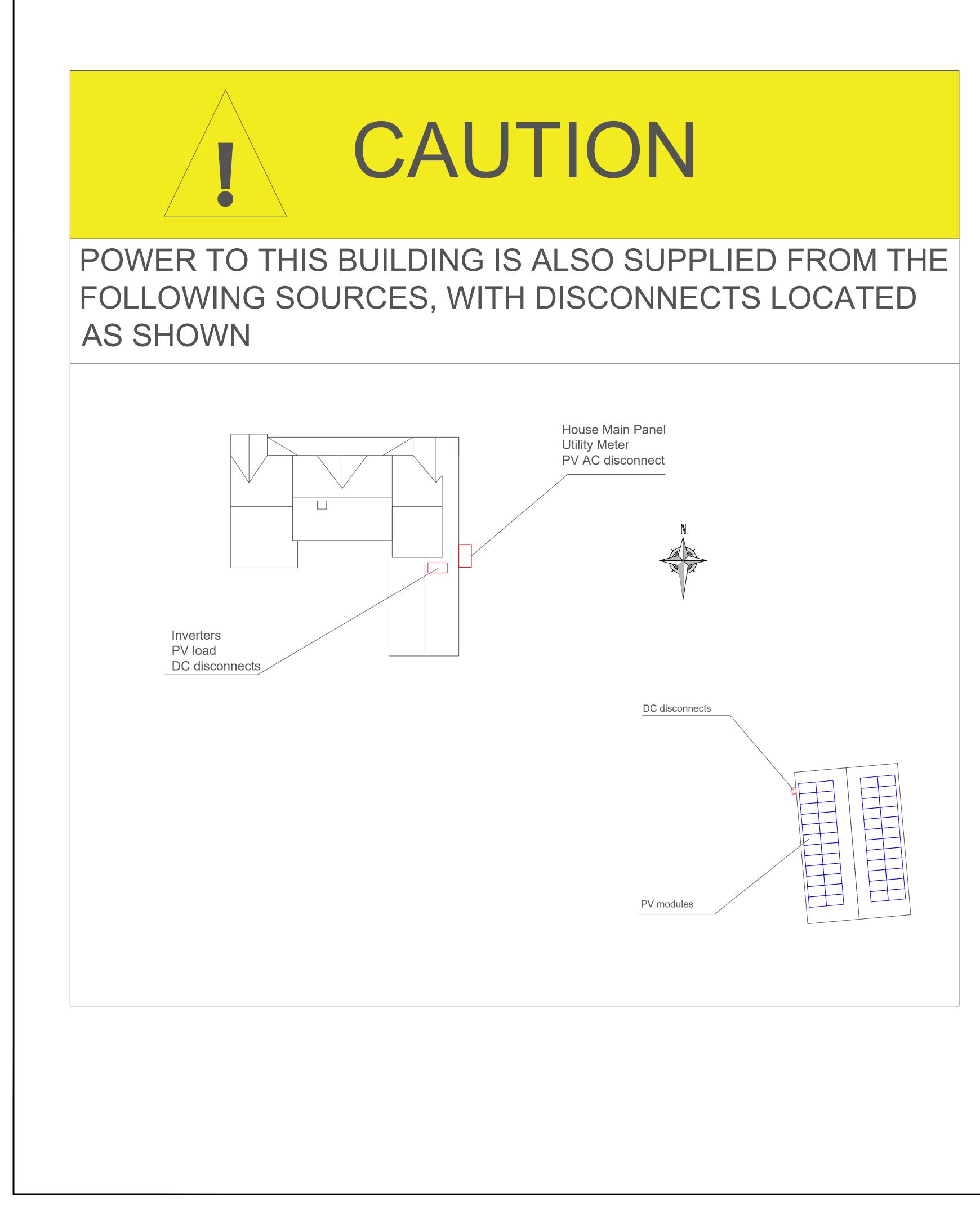
IN THE OPEN POSITION



POINT OF INTERCONNECTION



| | CUSTOMER II | NFORMATION | | |
|---|---------------------------------|--|-------------------|---------|
| Name | Josh and Kendal | | | |
| Address | | . Lake City, FL 32024 | | |
| | PROJECT IN | | | |
| Project Latitude Project Longitude | 30°06'21.3"N 82°43'23.5"W | Min. Ambient Temperature Max. Ambient Temperature | 32F° 95F° | |
| Utility Name | | Meter Number | | |
| Wind Exposure Category Risk Category | C | Wind Speed | 140 0.0° | |
| Interconnection Voltage | 240 | AHJ | | |
| | | IFORMATION RAY 1 | | |
| Module Name | Q.CELL G6+ 350 | | | |
| Inverter Tilt Angle 26° I | SMA SB.7.7 No. of Modules 24 | DC String Length ¹² | No. of Stri | nas 2 |
| | | RAY 2 | | iigo |
| Module Name | Q.CELL G6+ 350 | W | | |
| Inverter Tilt Angle 26° | SMA SB.7.7 No. of Modules 24 | DC String Length ¹² | No. of Stri | ngs 2 |
| | AR | RAY 3 | | |
| Module Name Inverter | | | | |
| | No. of Modules | DC String Length | No. of Stri | ngs |
| | CONTRACTOR | INFORMATION | | |
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| Rev Description | | and conduite | Date 04/05 | Draw By |
| 1 Fire labels and | location in equipments | anu conduits. | 001+100 | BM |
| | | | | |
| Sheet Name | | | | |
| Fire Labe | els & Equ | lipment | | |
| Designed By | | Sheets 5 of 0 | Date | |
| Project number | | 5 of 9 | |)5/2022 |
| Project number BT-2022 | 2-GA-07 | PV-03 | 3 | |

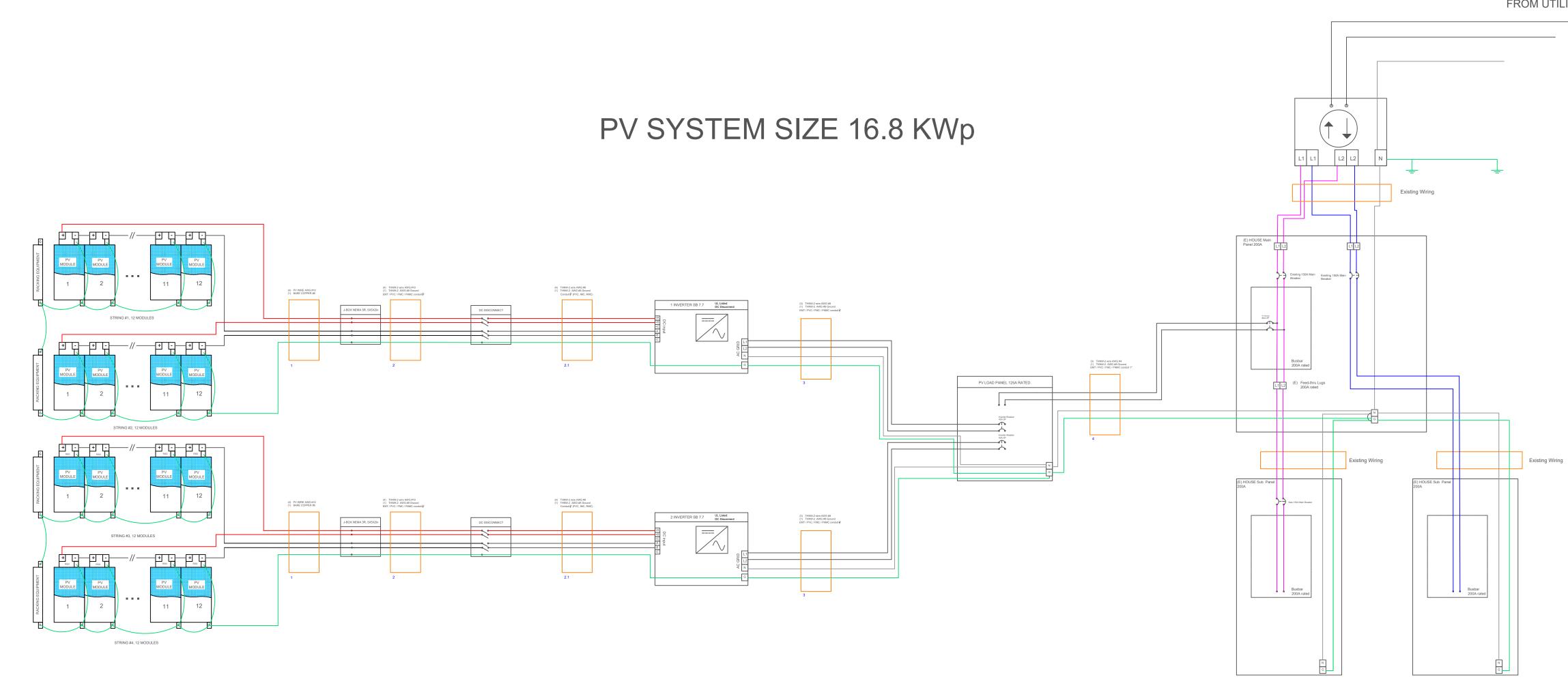


GENERAL CONSIDERATIONS

1.THE PLAQUE SHALL BE METAL OR PLASTIC, WITH ENGRAVED OR MACHINE PRINTED LETTERS, IN CONTRASTING COLOR TO THE PLAQUE. THIS PLAQUE WILL BE ATTACHED BY POP/RIVETS, SCREWS OR OTHER APPROVED FASTENERS.

2. LOCATION OF THE PLAQUES SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT, ACCORDING TO NEC 2017 690.56

| | | CUSTOMER I | NFORMATION | | |
|--|---------|-----------------------------|---------------------------------------|--|-----------------|
| Name | J | Josh and Kendal | l Hannah | | |
| Address | 3 | 82 SW Dusk Glr | n. Lake City, FL 32024 | | |
| Project Latitude | 3 | 0°06'21.3"N | FORMATION Min. Ambient Temperature | 32F° | |
| Project Longitude | | 2°43'23.5"W | Max. Ambient Temperature | 95F° | |
| Utility Name Wind Exposure Categor | y C | | Meter Number Wind Speed | 140 | |
| Risk Category | , II | | North Direction | 0.0° | |
| Interconnection Voltage | 2 | 40 ARRAY IN | AHJ | | |
| | | AR | RAY 1 | | |
| Module Name Inverter | | Q.CELL G6+ 35 SMA SB.7.7 | 50W | | |
| Tilt Angle 26° | No. c | of Modules 24 | DC String Length ¹² | No. of String | ıs ² |
| Module Name | | AR Q.CELL G6+ 350 | RAY 2 | | |
| Inverter | 1 | SMA SB.7.7 | | | |
| Tilt Angle 26° | No. c | of Modules ²⁴ | DC String Length ¹² | No. of String | s 2 |
| Module Name | | | | | |
| Inverter Tilt Angle | No. (| of Modules | DC String Length | No. of String | |
| | | | INFORMATION | | 5 |
| | | | | | |
| | | | | | |
| | | | | | |
| Rev Description 1 Fire label plate | | | | | Draw E |
| | | location of disconr | nect and power sources | Date I 04/05 I | Draw E BM |



| | | | | | Wire | e Ampacit | y Calculation | | | Voltage Dr | op Calcula | ation (%) | |
|-----|---------------------|----------------|------------------|----------------|----------------------------|---------------------------|--------------------------------------|--------------------|---------|---------------|-------------|--------------|----------------|
| TAG | DESCRIPTION | Conductor size | Ground Conductor | Output Current | Irradiance Current 125% | 80% Conductor Ampacity | (Wire Rating)x(Ambient Temp Factor)x | (# Conduct Factor) | Voltage | Length (Feet) | Ω (ohm/KFt) | Voltage Drop | expressed in % |
| 1 | PV source Circuit | PV wire #10 | Bare Copper #6 | 10.73A | 13.41A | 16.77A | 40X0.91X1=36.4A | PASS | 450V | 140 | 1.24 | 0.72 | PASS |
| 2 | PV Source Circuit | THHN wire #10 | THHN #8 | 10.73A | 13.41A | 16.77A | 40X0.91X0.8=29.1A | PASS | 450V | 30 | 1.24 | 0.08 | PASS |
| 2.1 | PV Source Circuit | THWN-2 #8 | THWN-2 #8 | 10.73A | 13.41A | 16.77A | 55X0.91X0.8=50.05A | PASS | 450V | 400 | 0.778 | 0.74 | PASS |
| 3 | Inverter AC Circuit | THHN #8 | THHN #8 | 32A | N/A | 40A | 55X0.91X1=50A | PASS | 240V | 20 | 0.778 | 0.21 | PASS |
| 4 | Inverter AC Circuit | THHN #4 | THHN #8 | 64A | N/A | 80A | 55X0.91X1=50A | PASS | 240V | 40 | 0.308 | 0.33 | PASS |

Max Vmp: 450 Vdc Max Voc: 538 Vdc

| PV MODULE ESPE | ECIFICATION |
|-----------------------------|-------------|
| Manufactured | Q.CELL |
| Model | G6+ 350W |
| Peak Power | 350W |
| Rated Voltage (Vmp) | 34.07 V |
| Rated Current (Imp) | 10.22 A |
| Short Circuit Current (Isc) | 10.73 A |
| Open Circuit Voltage (Voc) | 40.73 V |

| | | 6 |
|---------------------------|----------|-----|
| INVERTER 1 SPECIF | ICATION | |
| Manufactured | SMA | |
| Model | SB 7.7 | |
| Max Input Voltage | 600 Vdc | |
| Max Input Curret | 18 Adc | |
| Max DC Input Power | 12,320 W | |
| Nominal Output Voltage | 240 V | |
| Max Output Current | 32 A | |
| Maximun output Power | 2000 W | SPS |
| Max Output Current @120 V | 16 A | 0,0 |

FROM UTILITY GRID

| | CUSTOMER | INFORMATION | |
|---|--|---|---|
| Name | Josh and Kend | | |
| Address | | In. Lake City, FL 32024 | |
| Project Latitude | 30°06'21.3"N | Min. Ambient Temperature | 32F° |
| Project Longitude | 82°43'23.5"W | Max. Ambient Temperature | 95F° |
| Utility Name Wind Exposure Category | С | Meter Number Wind Speed | 140 |
| Risk Category | | North Direction | 0.0° |
| Interconnection Voltage | 240 ARRAY | | |
| | | RRAY 1 | |
| Module Name | Q.CELL G6+ 3 | 50W | |
| | No. of Modules 24 | DC String Length ¹² | No. of String |
| Module Name | Q.CELL G6+ 3 | | |
| Inverter Tilt Angle 26° | SMA SB.7.7 No. of Modules 24 | DC String Length ¹² | No. of String |
| , in Angle 20 ⁻ | | RRAY 3 | IND. OF String |
| Module Name | | | |
| Inverter Tilt Angle | No. of Modules | DC String Length | No. of String |
| | | AL NOTES | |
| 2ALL CONDUCTORS SH. 3WIRING, CONDUIT, AND TO, AND LOCATED AS CL 4WORKING CLEARANCE WITH NEC 110.26. 5ALL WIRE TERMINATIO 6MODULES CONFORM T 7CONDUCTORS EXPOSE NEC ARTICLE 300.6 (C) (1 8CONDUCTORS EXPOSE | ALL BE COPPER, RATE O RACEWAYS MOUNTE OSE AS POSSIBLE TO S AROUND ALL NEW A NS SHALL BE APPROP O AND ARE LISTED UN ED TO SUNLIGHT SHAI) ANDARTICLE 310.10 (| LL BE LISTED AS SUNLIGHT RE | C WET ENVIRO OUTED DIREC VALLEY. UIPMENT SHAI LY VISIBLE SISTANT PER |
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| Rev | Description | Date | Draw By |
|-----------|--|-------|---------|
| 1 | Single line Diagram, calculation and equipment performance | 04/05 | BM |
| | | | |
| | | | |
| | | | |
| Sheet Nan | ne | | |

Single Line Diagram & Calculations

| Designed By | Sheets 8 of 9 | Date 04/05/2022 |
|------------------------------|---------------|--------------------|
| Project number BT-2022-GA-07 | PV-04 | |

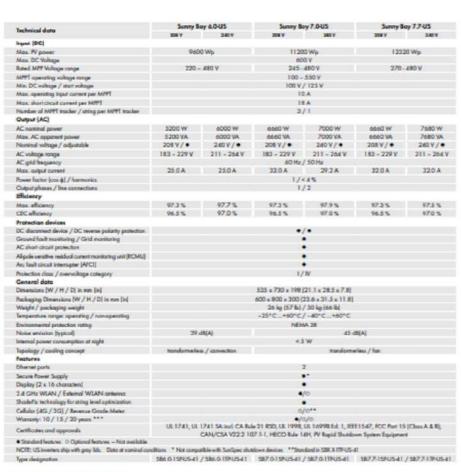






SUNNY BOY 3.0-US / 3.8-US / 5.0-US / 6.0-US / 7.0-US / 7.7-US Power with a purpose

The residential PV market is changing rapidly. Your bottom line matters more than ever-so we've designed a superior residential solution to help you decrease costs at every stage of your business operations. The Sunny Boy 3.0-US/3.8-US/5.0-US/6.0-US/7.0-US/7.7-US join the SMA lineup of field-proven solar technology backed by the world's #1 service team. This improved residential solution features ShadeFix, SMA's proprietary technology that optimizes system performance. ShadeFix also provides superior power production with a reduced component count versus competitors, which provides maximum reliability. No other optimized solution generates more power or is as easy as systems featuring. SMA ShadeFix and SunSpec certified devices. Finally, SMA Smart Connected will automatically detect errors and initiate the repair and replacement process so that installers can reduce service calls and save time and money. www.SMA.America.com



POWER+ SOLUTION

solution on the market.

The SMA Power+ Solution combines legendary SMA inverter performance and SunSpec certified shutdown devices in one cost-effective, comprehensive package. In addition, SMA ShadeFix technology optimizes power production and provides greater reliability than alternatives. This rapid shutdown solution fulfills UL 1741, NEC 2014, and

NEC 2017 requirements and is certified to the power line-based

SunSpec Rapid Shutdown communication signal over DC wires,

making it the most simple and cost-effective rapid shutdown

Visit www.SMA-America.com for more information.



The Right Way!" ProteaBracket[™] A versatile bracket for mounting solar PV to trapezoidal roof profiles ProteaBracket[™] is now made in aluminum. Still the most versatile trapezoidal metal roof attachment solution on the market, the S-5I ProteaBracket Just got better! The bracket features an adjustable attachment base and module attachment ptions to accommodate different roof profile dimensions and mounting options. Our pre-applied EPDM gasket with peel and stick adhesive makes installation a snap, ensuring accurate and secure placement the first time. With no messy sealants, faster Installation, and a weather-proof fit, ProteaBracket Stronger L-Foot™ offers you the most versatile solar attachment solution available. ProteaBracket* can be used for

> rail mounting or "direct-attach" with S-5! PVKIT"

*When ProteeBracket is used in conjunction with the 5-5! PWNT, an additional right is required during installation.

- Load-tested for engineered application Corrosion-resistant materials
- up to 3" Peel-and-Stick prevents accidental shifting during installation
- Fully pre-assembled 25-year warranty*

*Seewww.S-5.com for details

The SnapNrack Ultra Rail is a sleek, lightweight rail solution for mounting solar modules on the roof.

Clamps

Standard

Quality. Innovative. Superior.

SnapNrack Solar Mounting Solutions are engineered to optimize material use and labor resources and improve overall installation quality and safety.

877-732-2860 www.snapnrack.com contact@snapnrack.com © 2018 by SnapNrack Solar Mounting Solutions All rights reserved

Unparalleled Wire Management

Ultra Rail, UR-40 Rail System Spans

Wind (mph)

Open rail channel provides room for running

includes Junction Boxes, Universal Wire

wires resulting in a long-lasting quality install Industry best wire management offering

Clamps, MLPE Attachment Kits, and Conduit

System is fully bonded and listed to UL 2703

The Entire System is a Snap to Install New Ultra Rail Mounts include snap-in brackets

provide a clean look to the array edge

and End Clamps customers love

Compatible with all the SnapNrack Mid Clamps

The Largest Span Capabilities of any Light Rail Solution

Universal End Clamps and snap-in End Caps

for attaching rail

This table was prepared in

ASCE 7-10

• Exposure: B

Roof Zone: 1

compliance with applicable

Chapter 30 Wind Loads &

 Module Orientation: Portrait Roof Type: Comp

Visit SnapNrack.com for detaile

span tables and certifications

6 ft Spans

System Span Key

Chapter 7 Snow Loads

Roof Slope: 7 - 27 deg
 Roof Height: 0 - 30 ft

engineering codes and standard Values are based on the follow

SnapNrack Module Attachments

| e cut flush with the mo | s-all time saver that slips inside the dules and finished with SnapNrack dule Clamps work with Ultra Rail a | End Caps to cr | eate a syst | em with a fl | |
|-----------------------------|---|----------------|-------------|--------------|---------|
| | Mid Clar | | | | |
| - | Description | SKU | MSRP | QTY* | WT |
| | Bonding Mid Clamp, 30-38mm (1.18-1.49"), Black | 242-02053 | PISKP | 20 EA | 3.0 lb |
| | Bonding Mid Clamp, 30-38mm (1.18-1.49"), Silver | 242-02050 | | 20 EA | 3.0 lb |
| | Bonding Mid Clamp, 33-45mm (1.30-1.77"), Black | 242-02054 | | 20 EA | 3.2 lb |
| Bonding Mid Clamp, Black | Bonding Mid Clamp, 33-45mm (1.30-1.77"), Silver | 242-02051 | | 20 EA | 3.2 lb |
| | Bonding Mid Clamp, 38-51mm (1.49-2.00"), Black | 242-02055 | | 20 EA | 3.3 lb: |
| | Bonding Mid Clamp, 38-51mm (1.49-2.00"), Silver | 242-02052 | | 20 EA | 3.3 lb: |
| | Bonding Mid Clamp, 49-57mm (1.93-2.24"), Black | 242-02057 | | 20 EA | 3.4 lb |
| | Bonding Mid Clamp, 49-57mm (1.93-2.24"), Silver | 242-02056 | | 20 EA | 3.4 lb |
| | End Clar | nps 🧹 | | | |
| | Description | SKU | MSRP | QTY* | WT |
| and the | Universal End Clamp | 242-02215 | | 20 EA | 6 lbs |
| | Bonding Adjustable End Clamp, 30-38mm (1.18-1.49"), Black | 242-02067 | | 20 EA | 3.6 lb |
| (II) | Bonding Adjustable End Clamp, 30-38mm (1.18-1.49"), Silver | 242-02065 | | 20 EA | 3.6 lb |
| Universal End Clamp | Bonding Adjustable End Clamp, 38-51mm (1.49-2.00"), Black | 242-02068 | | 20 EA | 3.6 lb |
| | Bonding Adjustable End Clamp, 38-51mm (1.49-2.00"), Silver | 242-02066 | | 20 EA | 3.6 lb |



| | 68.5 × 40.6 × 1.26 h (nds | ding frame) | | 22 | | | |
|---|--|--|--|---|---|-------------------------------|---|
| No. Labo | (1/40×1030×32mm) | | | | in the second | | 3127382+++ |
| Weight Front Cover | 43.9hs(19.9kg) | tro-strong dist | | — n 🖻 | + | 10.7030-01 | + 11 1 |
| Constanting Constant | 0.13 in (3.2 mm) thermally ; with anti-reflection (echnol | koldt. N.e. streesig 8 | | | Construction of Sector | | |
| Back Cover | Composito film | | | | and the second second | | ALAT INCOM |
| Freme | Black anodiged aluminum | | | | | 3 V. | |
| Cull | 6 × 20 monocrystal ine Q. | ANTUM point h | afoals | | | | sub-Dam-++ |
| Junction Box | ca 2.09-3.98 × 1.26-3.96 × 0.69-0.71 n(63-101 × 22-80 × 16-18 mm), Protection class (FG7, with bypass diodes | | | | _ | | |
| Cable | 4 mm² Sciar cable: (+) >45 | 33in (1150mm) | .(~) >45.3 in(1150m | m) | | Ba Daireg | -m.l.l |
| Contector | Staub I MC4; IP58 | | | -1~1.0*10 | 1997 (265 mil) | Trus, and | |
| | | 1 | ELECTRICAL | CHARACTERISTIC | S | | |
| OWER CLASS | | | | 340 | 345 | 350 | 355 |
| Power atMPP | RMANICE AT STAN DARD TE | Pue | (W) | B40 | 345 | 350 | 350 |
| _ Short Choult | | l _{at} | | 10.08 | 10.73 | 10.79 | 10.84 |
| OpenCircuit | | | [A] [V] | 60.26 | 40.49 | 4073 | 40.98 |
| CurrentatMP | | V _{iac} | IAI | 10.16 | 10.22 | 10.27 | 10.33 |
| Voltage at MP | | Vue | [17] | 23.45 | 3476 | 34.07 | 34.28 |
| Efficiency | | Num 6 | [2] | >19.0 | 8.814 | >195 | >19.8 |
| | MANCE AT NORMAL OPE | | | C # Mar | 2.8.01.02 | cand | 2480 |
| Power atMPP | | Pue | IW1 | 254.5 | 258.2 | 261.9 | 2667 |
| 6 Short Olecuit | Ourrant | he | [4] | 8.60 | 8.65 | 8.09 | 874 |
| Open Circuity | | Var | [14] | 37.94 | 38.17 | 38.41 | 38.05 |
| Ourrent at MP | | المرا | [A] | 8.00 | 8.04 | 8.03 | 8.13 |
| VoltageatMP | | View | [14] | 31.81 | 3210 | 3240 | 32.60 |
| INTERNET | | All departs System All departs so, Full wat | power up to 10 years of nominal power up to his measurement toler starties is according a ty terms of the Q OFL1 | with with an | 6.06 805 805 (1894-2004) (28 | 1000 1000 | |
| 34692385 | - | adies organi dati country | ідинон обусаг неараю | 1VH | ormance under low inted | ance conditions in | |
| | | Sides Cright | igenon of your respec | 1VH | irmance under low irred conditione (25° C, 1000 | iance conditiona in Africh | |
| TEMPE RATURE CO | and the second | adivs organization of the second s | | tye Typical module per comparison to STC | | | -0.27 |
| remperature Coeff | licient of I _{ste} | a seles organ as country a [%/X | 1 +0.04 | Typical module per comparison to STC Temperature Coefficie | nt of V _{ac} | \$ [%/K] | |
| remperature Coeff | licient of I _{ste} | a (%/x) a (%/x) a (%/x) |] +0.04] -0.36 | tye Typical module per comparison to STC | nt of V _{az} iting Temperature | \$ [%/K] | -0.27 109=54 (43=3°C) |
| rem PE RATURE CO Immperatura Coeffi Immperatura Coeffi | liciant of I _{an} liciant of P _{lann} | a (%/x) a (|] +0.04] -0.36 | Typical module per compension to BTC Temperature Coefficie Nominal Module Open | nt of V _{inc} iting Temperature | \$ [%/K] | |
| rem PE RATURE CO Immparature Coeff Immparature Coeff Missimum System | liciant of I _{se} fielant of P _{lane} VottegeV _{sco} [V] | a (%/x) a (| 1 + 0.04 1 - 0.86 ROPERTIES FC | Typical module per comparison to BTC Temperature Coefficie Nominal Module Open OR SYSTEM DESIG | nt of V _{ac} ting Temperature IN | \$ [%/K] | 109=54 (43=3°C) |
| remPe Rature Co Temperature Coeff Temperature Coeff Missimum System Missimum Series P | liciant of I _m liciant of P _{lane} VottegeV _{nox} [V] Pase Rating [A.DC] | a law organic country | 1 +0.06 1 -0.38 ROPERTIES FC 10 (#C/1000(U,) | Typical module peri comparison to NC Temperistane Coefficie Nominal Module Oper OR SYSTEM DESIG P/r module classificati Fire Rating based on Al Peremitted Modula Tem | nt of Y _{ac} ting Temperature IN N N NS7 UL 61720 | \$ [%/K] NMOT [%] | 109=54 (43=3°C) Onto I TYPE 2 -40°F up to +185°F |
| IEMPE RATURE CO Imparatura Coeffi Imparatura Coeffi Maximum System Maximum Series P Max. Design Loed, | licient of I _{ere} licient of P _{Bare} VottegeV _{ACK} [V] Pues Rating [A.D.Q] I, Pash / Pull? [Dat/ft7] | a (%) a (%) | 1 + 0.04 1 -0.38 ROPERTIES FC 10 (#Cy1500 (U.) 20 | Typical module get Typical module get to emperation to BYC Temperature Coefficie Nominal Module Opera OR SYSTEM DESIC PV module classificatio Fire Rating based on Al | nt of Y _{ac} ting Temperature IN N N NS7 UL 61720 | \$ [%/K] NMOT [%] | 109=54 (43=3°C) Class I TYPE 2 |
| | liciant of I _{mi} ficiant of P _{Bare} VoltegeV _{mi} [V] Vase Retires [A DC] , Pash / Put? [Doi/11] ush / Put? [Doi/11] | a (%) a (%) |) + 0.06) -0.38 ROPERTIES FC (0 (#C)/1000(U,) 20 00Pa)/55(2667P4) | Typical module peri comparison to NC Temperistane Coefficie Nominal Module Oper OR SYSTEM DESIG P/r module classificati Fire Rating based on Al Peremitted Modula Tem | nt of Y _{ac} ting Temperature IN N N NS7 UL 61720 | \$ [%/K] NMOT [%] | 109=54 (43=3°C) Onto I TYPE 2 -40°F up to +185°F |
| remPE Rature Coeff Temperature Coeff Temperature Coeff Maximum System Maximum Sariea P Max. Design Load, Max. Tasti ced, Pe YSee Institution Mar | liciant of I _{mi} ficiant of P _{Bare} VoltegeV _{mi} [V] Vase Retires [A DC] , Pash / Put? [Doi/11] ush / Put? [Doi/11] | sides copie country q r < | i) + 0.06 ·) -0.38 ROPERTIES FC 00 (940)/1500(U) 20 00 Pa)/55 (2007 Pa) 0Pa)/54 (4000 Pa) | Typical module peri comparison to BYC Temperature Coefficie Nominar Module Oper OR SYSTEM DESIC PV module classificati Fine Rating based on AI Permitted Mod Ja Tem on Continuous Duty | nt of Y _{ac} ting Temperature IN N N NS7 UL 61720 | \$ [%;X] MOT [*] | 109=54 (43=3°C) Onto I TYPE 2 -40°F up to +185°F |
| rem PE RATURE CO Temperature Coeff Temperature Coeff Maximum Styleum Maximum Sarles P Max. Testis Didd, Pc "See Institution Man QUA 19, 100, clempres | liciant of I _{es} liciant of P _{Bow} VottegevV _{Exx} [V] Puso Ratina [A DC] , Pash / Pull pash / Pull ush / Pull sud (DL/ft ²) | sides copie country q r < | i) + 0.06 ·) -0.38 ROPERTIES FC 00 (940)/1500(U) 20 00 Pa)/55 (2007 Pa) 0Pa)/54 (4000 Pa) | Typical module peri comparison to BYC Temperature Coefficie Nominar Module Oper OR SYSTEM DESIC PV module classificati Fine Rating based on AI Permitted Mod Ja Tem on Continuous Duty | nt of V _{ac} titing Temperature IN IN ISB / UL 61730 peretara | 5 [5/76] NMOT (75] | 109=54 (43=3°C) Onto I TYPE 2 -40°F up to +185°F |
| TEMPE RATURE CO Temperature Coeff Temperature Coeff Maximum System Max. Design Load, Max. TastLoad, O "she Institution Mar QUA (1, 120; CL employ, VIC Coaty Tentor CE da 12 ag | liciant of I _{es} liciant of P _{Bow} VottegevV _{Exx} [V] Puso Ratina [A DC] , Pash / Pull pash / Pull ush / Pull sud (DL/ft ²) | sides copie country q r < | i) + 0.06 ·) -0.38 ROPERTIES FC 00 (940)/1500(U) 20 00 Pa)/55 (2007 Pa) 0Pa)/54 (4000 Pa) | Typical module peri comparison to BYC Temperature Coefficie Nominar Module Oper OR SYSTEM DESIC PV module classificati Fine Rating based on AI Permitted Mod Ja Tem on Continuous Duty | nt of V _{ac} titing Temperature IN IN ISB / UL 61730 peretara | \$ [%;X] MOT [*] | 109=54 (43=3°C) Onto I TYPE 2 -40°F up to +185°F |
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| TEMPE RATURE CO Temperature Coeff Temperature Coeff Maximum System Max. Design Load, Max. TastLoad, O "she Institution Mar QUA (1, 120; CL employ, VIC Coaty Tentor CE da 12 ag | Iclant of I _{es} Iclant of P _{lane} VottegeV _{ex} [V] VottegeV _{ex} [V] Vase Rating [A.D.Q] (A.D.Q] (A.D.Q) | sides copie country q r < | i) + 0.06 ·) -0.38 ROPERTIES FC 00 (940)/1500(U) 20 00 Pa)/55 (2007 Pa) 0Pa)/54 (4000 Pa) | Typical module gent comparison is BTC Temperature Coefficie Nominal Module Open OR SYSTEM DESIG PY module classificatio Pir motation based on Al Permittad Module a Tem on Continuous Duty F Parmittad Module a Tem on Continuous Duty Parmittad Module a Tem on Continuous Duty Parmittad Module a Tem on Continuous Duty Parmittad Module a Tem on Continuous Duty | nt of V _{AS} ting Temperature 1 IN visi/UL 61720 persture INCKAGING INI VISI/UL 61720 Destruction INCKAGING INI | | 109+54 (43+3*C) Onic 1 Type 2 -40% up to +185% 40*C up to +185*C |

Hanvite & CELLE America Inte. 400 Spectrum Center (hrva, Sette 2400, hrvas, CA 02618, USA I TEL +1 949 748 59 061 EMAIL, inquiry@us.groets.com/WEB www.groets.us







SnapNrack 775 Fiero Lane, Ste. 200 San Luis Obispo, CA 93401

TEL: (877) 732-2860

Re: Report # 2017-03227.09 - SnapNrack Ultra Rail Solar Photovoltaic Racking System with UR-40 Rail

PZSE, Inc. - Structural Engineers has provided engineering and span tables for the SnapWrack Ultra Rall Racking System w/ UR-40 Rail, as presented in P2SE Report # 2017-03227.09, "Engineering Certification and Span Tables for the SnapNrack Ultra Rail Solar Photovoltaic Racking System". All information, data, and analysis therein are based on, and comply with, the following building

| and typical speci | incations. |
|-------------------|---|
| ig Codes. | ASCE/SEI 7-10, Minimum Design Loads for Buildings and Other Structures, by American Society of Civil Engineers |
| | 2. 2012 International Building Code, by International Code Council, Inc. |
| | 2012 International Residential Code, by International Code Council, Inc. |
| | AC428, Acceptance Criteria for Modular Framing Systems Used to Support Photovoltaic (PV) Panels, November 1, 2012 by ICC-ES |
| | 5. Aluminum Design Manual 2010, by The Aluminum Association, Inc. |
| | ANSI/AWC NDS-2012, National Design Specification for Wood Construction, by the American Wood Council |
| | |

Risk Category II Seismic Design Category = A - E Basic Wind Speed (ultimate) per ASCE 7-10 = 110 mph to 190 mph Ground Snow Load = 0 to 120 (psf)

This letter certifies that the loading criteria and design basis for the SnapNrack Ultra Rail Racking System w/ UR-40 Rail Span Tables are in compliance with the above codes.

If you have any questions on the above, do not hesitate to cal

Prepared by:

DIGITALLY SIGNED ORC

8150 Sierra College Baulevard, Suite 150, Roseville, CA 95661 T 916.961.3960 F 916.961.3965 W www.pzse.com Experience | Integrity | Empowerment

| | CUSTOMER II | NFORMATION | | | | |
|--|------------------------------|--|---|--|--|--|
| Name Josh and Kendall Hannah | | | | | | |
| Address 382 SW Dusk Gln. Lake City, FL 32024 | | | | | | |
| | PROJECT IN 30°06'21.3"N | | 32F° | | | |
| Project Latitude Project Longitude | 82°43'23.5"W | Min. Ambient Temperature Max. Ambient Temperature | 95F° | | | |
| Utility Name | C | Meter Number | | | | |
| Wind Exposure Category Risk Category | С II | Wind Speed North Direction | 140 0.0° | | | |
| Interconnection Voltage | 240 | AHJ | | | | |
| | | FORMATION RAY 1 | | | | |
| Module Name | Q.CELL G6+ 350 SMA SB.7.7 | W | | | | |
| Inverter Tilt Angle 26° | No. of Modules 24 | DC String Length ¹² | No. of Strings ² | | | |
| | AR | RAY 2 | | | | |
| Module Name | Q.CELL G6+ 350 SMA SB.7.7 | W | | | | |
| | No. of Modules 24 | DC String Length ¹² | No. of Strings ² | | | |
| | AR | RAY 3 | | | | |
| Module Name Inverter | | | | | | |
| | No. of Modules | DC String Length | No. of Strings | | | |
| | GENERAL | NOTES | | | | |
| | | | | | | |
| | | | | | | |
| Rev Description 1 Data sheets | | | Date Draw By 04/05 BM | | | |
| | ufacture | Spec. Shee | | | | |
| Designed By | | 9 of 9 | Date 04/05/2022 | | | |
| Project number BT-2022 | 2-GA-07 | PV-05 | 5 | | | |