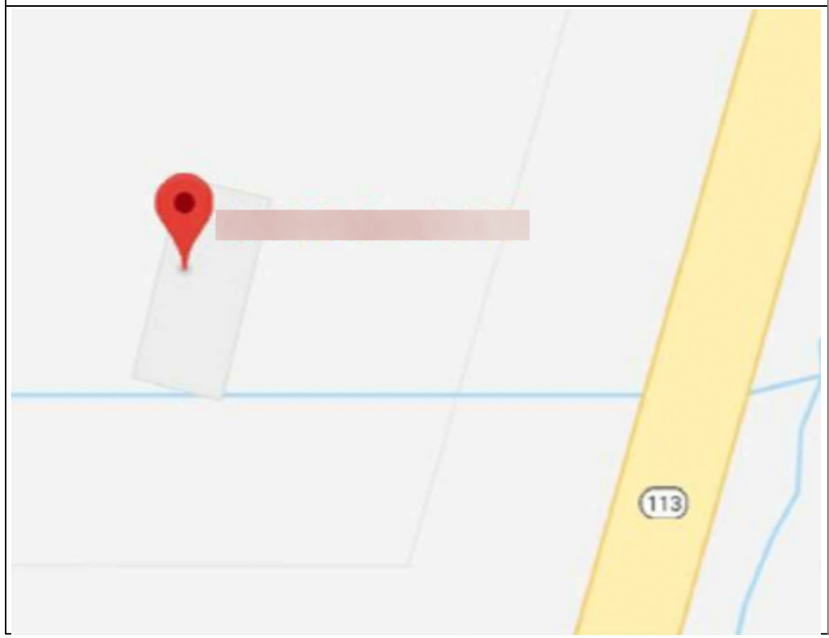
# SCOPE OF WORK

**SYSTEM SIZE: 7260W DC, 7600W AC**
**MODULES: (22) PANASONIC VBHN330SA17**
**INVERTER(S): (22) SolarEdge SE7600H-US**
**RACKING: NUANCE ENERGY OSPREY POWER PLATFORM**
**ATTACHMENT: NUANCE ENERGY OSPREY POWER PLATFORM W/ EARTH ANCHORS**
**WIND EXPOSURE: C**
**WIND SPEED: 110mph**
**GROUND SNOW LOAD: 0psf**
**OCCUPANCY: PRIMARY RESIDENTIAL**
**CONSTRUCTION TYPE: RESIDENCE**

- CEC 2016, CBC 2016, 2016 CFC, 2016 CRC

This approval is for compliance to the current adopted building codes for the proposed Solar System only. It is the owner's/applicant's responsibility to ensure that the proposed installation of solar systems and associated equipment is on legally permitted structures. If determined by inspection staff the proposed solar system is installed on non-permitted structures, any required modifications needed for code compliance will be at the owner's/applicant's expense

# VICINITY MAP




# GENERAL NOTES

- **LOCAL UTILITY PROVIDER SHALL BE NOTIFIED PRIOR TO USE AND ACTIVATION OF ANY SOLAR PHOTOVOLTAIC INSTALLATION**
- **THIS PROJECT SHALL COMPLY WITH LOCAL ORDINANCES**
- **PROPER ACCESS AND WORKING CLEARANCE WILL BE PROVIDED**
- **ALL ELECTRICAL WORK SHOWN ON THESE PLANS WILL BE COMPLETED BY THE UNDERSIGNED**
- **ALL APPLICABLE PV EQUIPMENT LISTED AND COMPLIANT WITH UL2703, UL1741 AND UL1703**
- **THE SYSTEM WILL NOT BE INTERCONNECTED UNTIL APPROVAL FROM THE LOCAL JURISDICTION AND THE UTILITY IS OBTAINED**
- **IF THE EXISTING MAIN PANEL DOES NOT HAVE VERIFIABLE GROUNDING ELECTRODE, IT IS THE NECESSARY TO INSTALL A SUPPLEMENTAL GROUNDING ELECTRODE**
- **EACH MODULE WILL BE GROUNDED AS PER UL 2703 OR UL 1703 APPROVED METHODS USING THE SUPPLIED CONNECTION POINTS IDENTIFIED ON THE MODULE AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS**
- **ALL WORK SHALL COMPLY WITH 2016 CEC, 2016 CRC, 2016 CBC MUNICIPAL CODE, AND ALL MANUFACTURERS' LISTINGS AND INSTALLATION INSTRUCTION.**
- **PHOTOVOLTAIC SYSTEM WILL COMPLY WITH 2016 CEC.**
- **PHOTOVOLTAIC SYSTEM INVERTER IS UNGROUNDED. NO CONDUCTORS ARE SOLIDLY GROUNDED IN THE INVERTER, AND SYSTEM COMPLIES WITH 690.35.**
- **MODULES CONFORM TO AND ARE LISTED UNDER UL 1703.**
- **INVERTER CONFORMS TO AND IS LISTED UNDER UL 1741.**
- **ELECTRICAL EQUIPMENT AND MATERIAL TO BE LISTED, LABELED, AND INSTALLED PER THE NEC, THE INSTALLATION STANDARDS/MANUFACTURER'S RECOMMENDATIONS AND IF REQUIRED A RECOGNIZED ELECTRICAL TESTING LABORATORY.**
- **CONDUIT RUNS THROUGH TRENCH (18" MIN. BELOW GROUND).**

TABLE OF CONTENTS



CONTRACTOR INSTALLED


CONTRACTOR NAME
CONTACT NAME
STREET ADDRESS
CITY, ST, ZIP
LIC #: 1
PHONE: (555) 555-12121
EMAIL ADDRESS


**HOMEOWNER**
STREET ADDRESS
CITY, STATE, ZIP

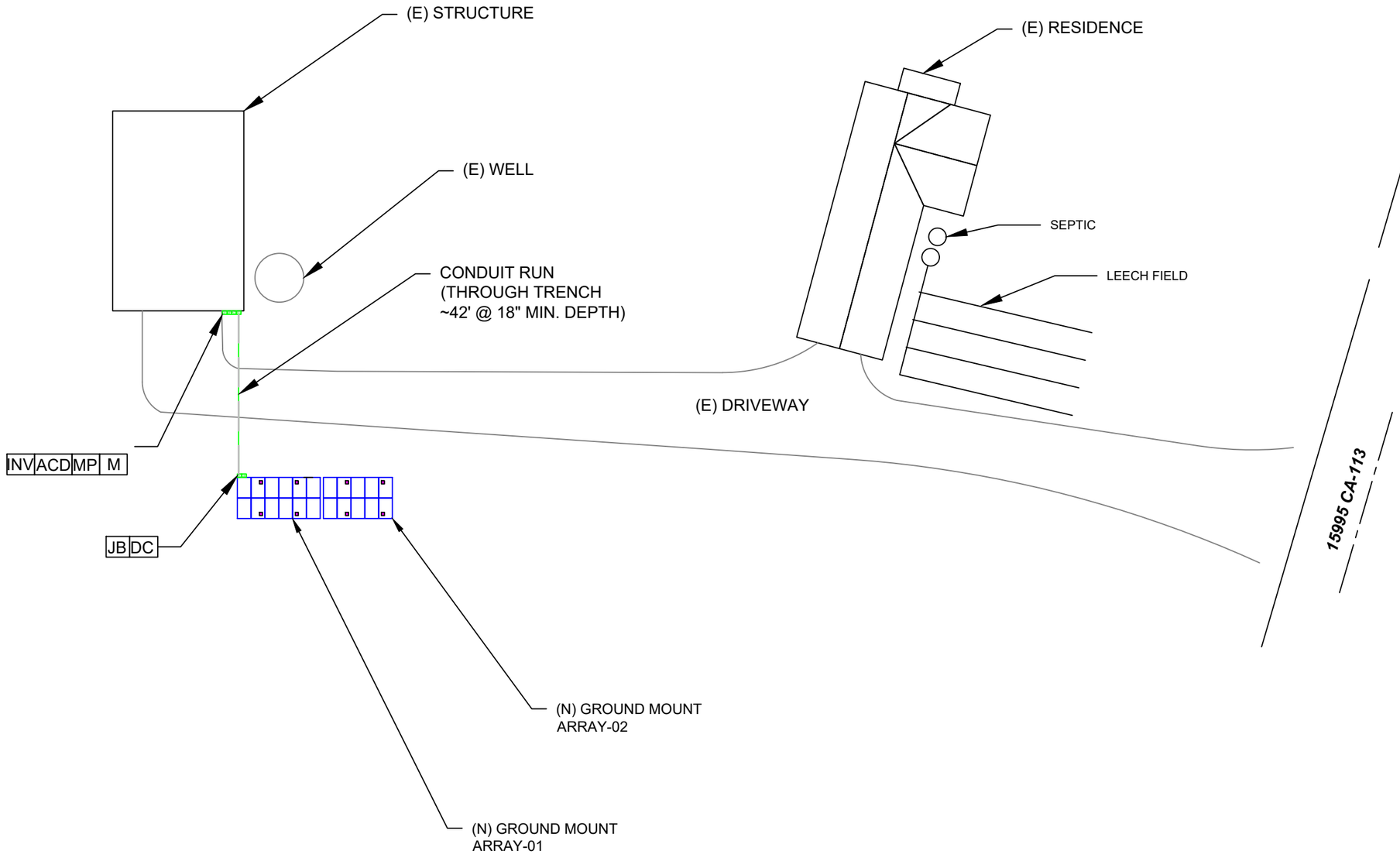
Rev A
DATE:6/11/2019

COVER SHEET

PV 1.0

SITE PLAN: SCALE:- 1" = 30'

| | PITCH | AZIMUTH | SOLAR AREA (SQFT) | SOLAR WEIGHT (LBS) | MODULE # |
|---|---|---|---|---|---|
| AR-01 | 25° | 180° | 216.48 | 489.72 | 12 |
| AR-02 | 25° | 180° | 180.4 | 408.1 | 10 |




LEGEND

| | |
|---|---|
| M | METER |
| MP | MAIN SERVICE PEDESTRAL |
| DC | DC DISCONNECT |
| ACD | AC DISCONNECT |
| JB | JUNCTION BOX |
| INV | INVERTER |

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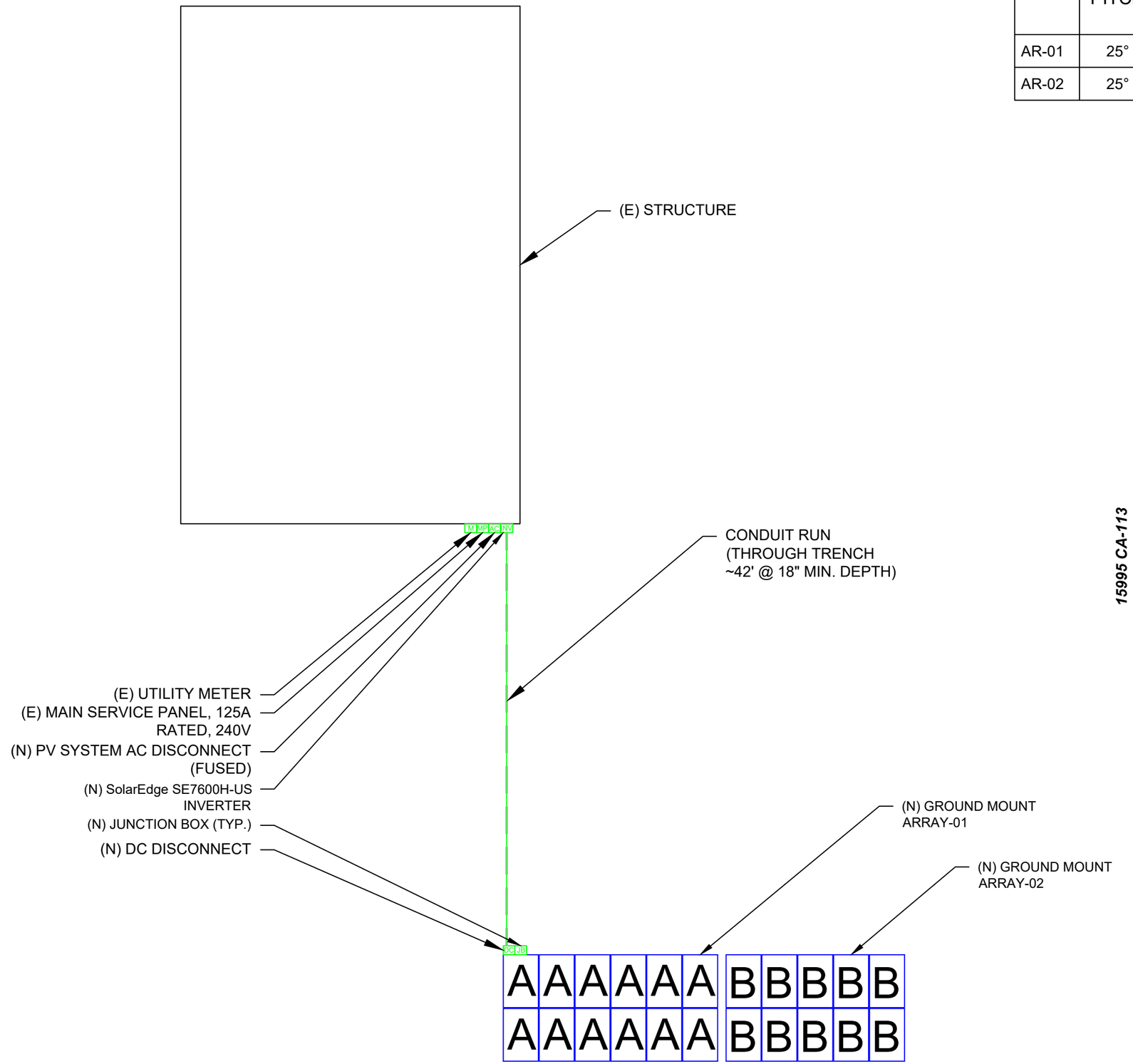
SITE PLAN

PV 2.0

SITE PLAN DETAIL: SCALE:- 1"=10'


| | PITCH | AZIMUTH | SOLAR AREA (SQFT) | SOLAR WEIGHT (LBS) | MODULE # |
|---|---|---|---|---|---|
| AR-01 | 25° | 180° | 216.48 | 489.72 | 12 |
| AR-02 | 25° | 180° | 180.4 | 408.1 | 10 |




LEGEND

| | |
|---|---|
| M | METER |
| MP | MAIN SERVICE PEDESTRAL |
| DC | DC DISCONNECT |
| ACD | AC DISCONNECT |
| JB | JUNCTION BOX |
| INV | INVERTER |

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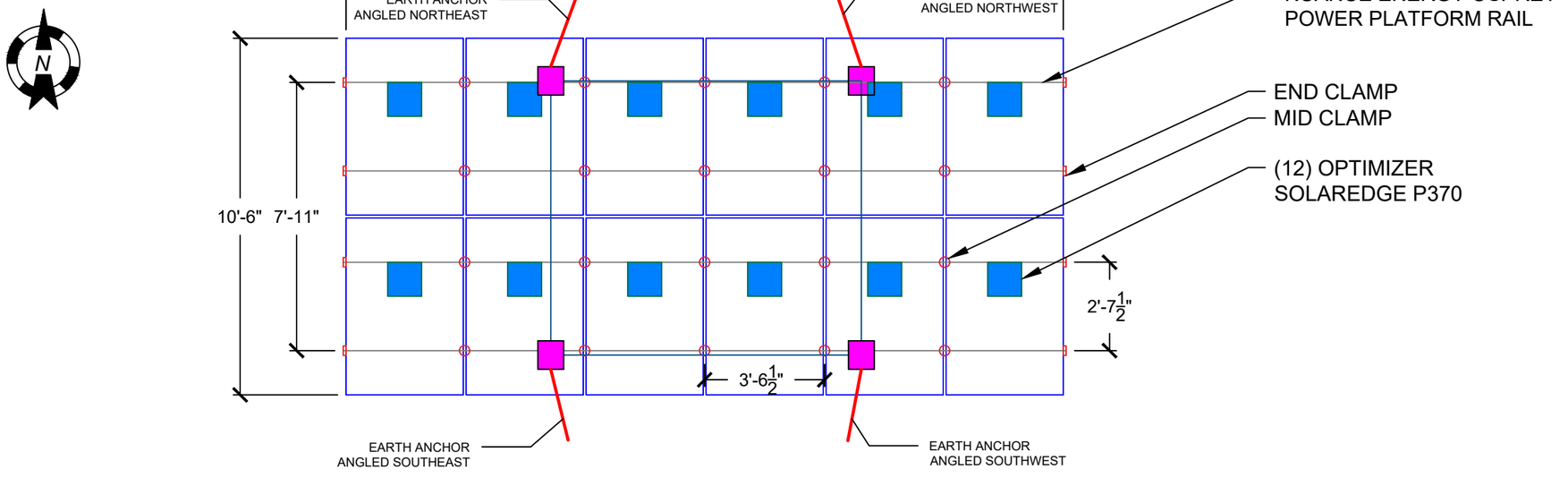
SITE PLAN DETAIL

PV 2.1

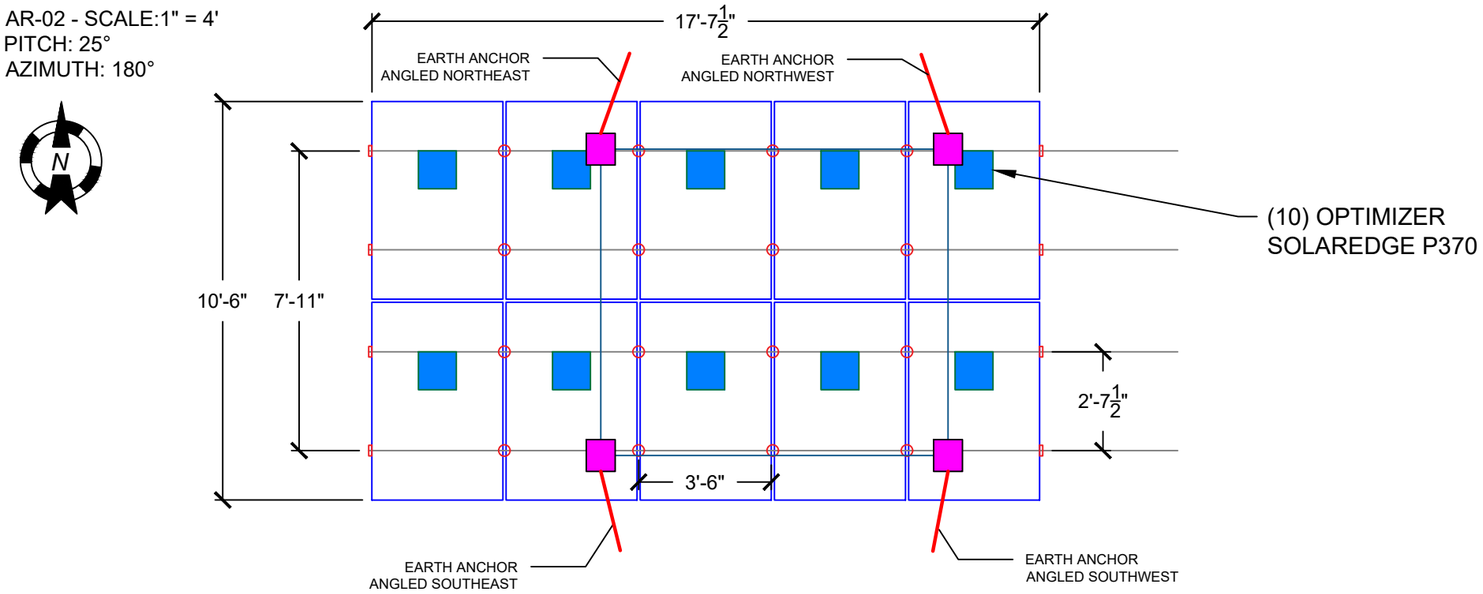
| TYPE | | | | |
|---|---|---|---|---|
| GROUND MOUNT | GROUND SLOPE | ARRAY TILT UP | AZIMUTH | ATTACHMENT |
| #1 | 0° | 25° | 180° | Nuance Energy Osprey Power Platform |
| #2 | 0° | 25° | 180° | Nuance Energy Osprey Power Platform |

Back Legs: (1) Anchor @ 1800 lbs. (2x6) /// (1) Anchor @ 1900 lbs. (2x5)
Front Legs: (1) Anchor @ 700 lbs. (2x6) /// (1) Anchor @ 700 lbs. (2x5)

AR-01 - SCALE:1" = 4'
PITCH: 25°
AZIMUTH: 180°




AR-02 - SCALE:1" = 4'
PITCH: 25°
AZIMUTH: 180°

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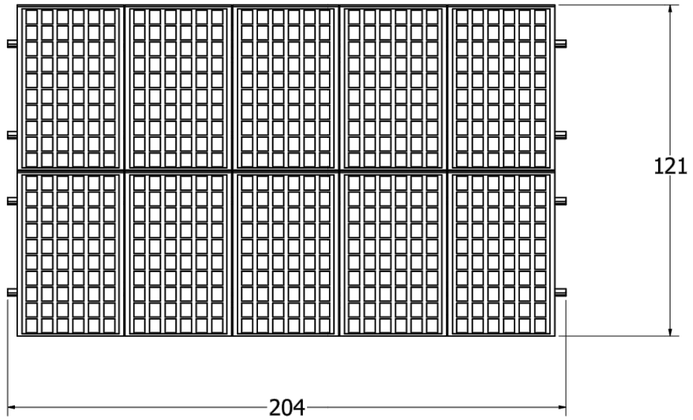
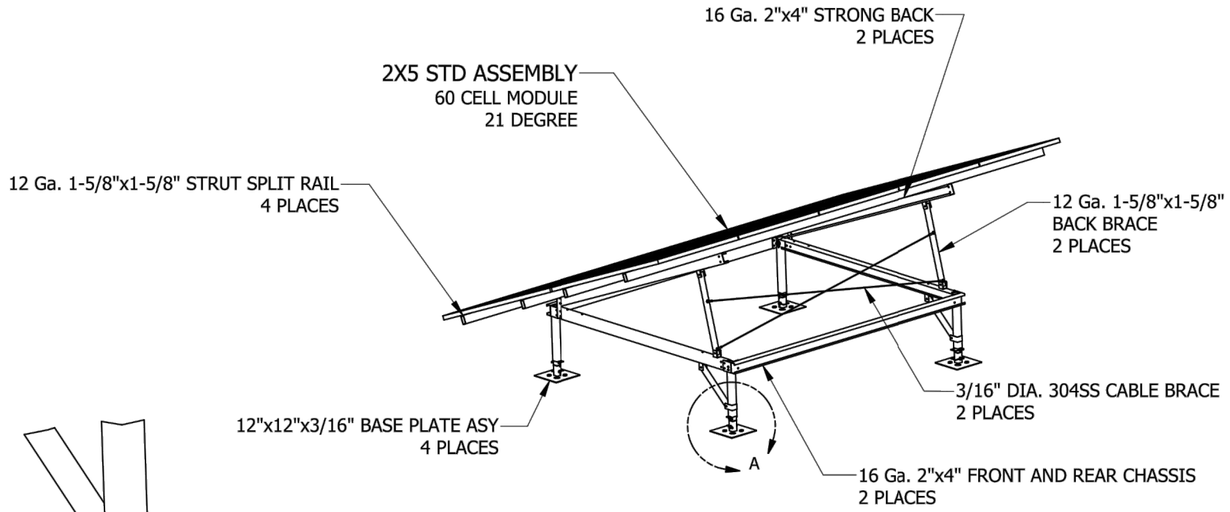
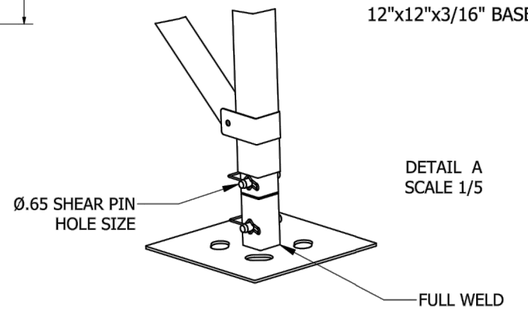
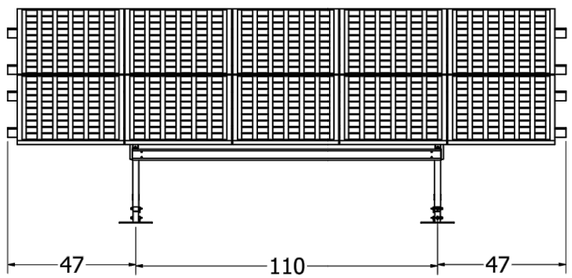
DETAIL LAYOUT

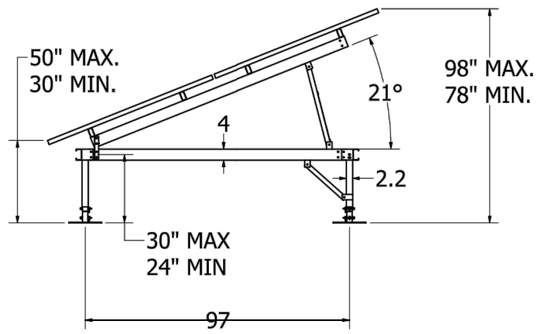
PV 3.0

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# MOUNTING LAYOUT

PV 3.1

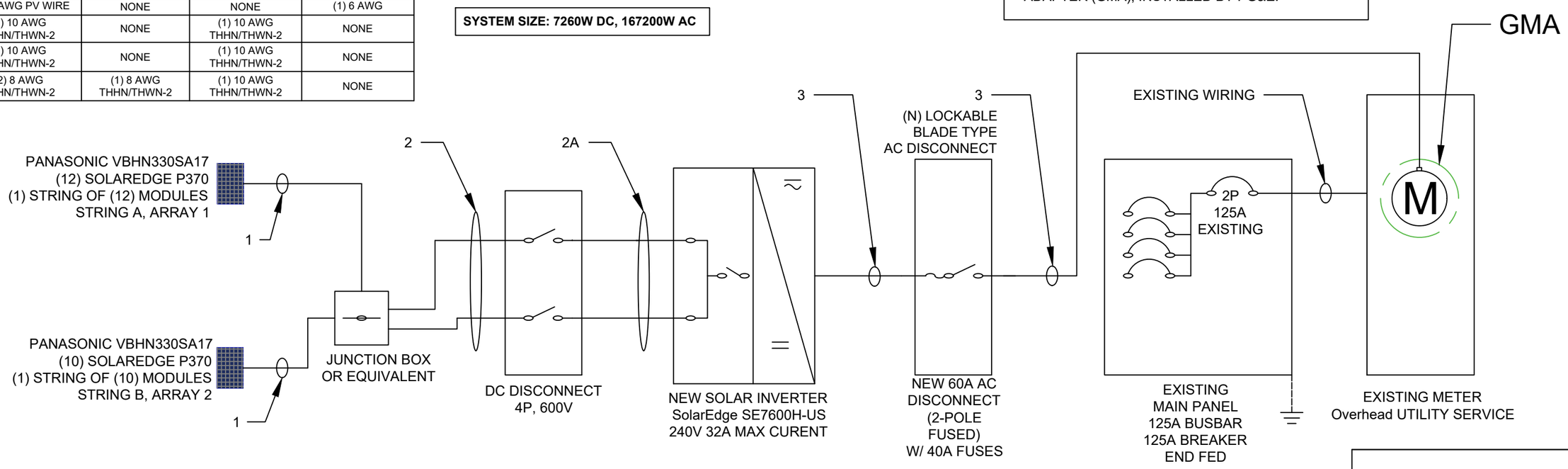
## CONDUIT SCHEDULE

| # | CONDUIT | CONDUCTOR (RED/BLACK) | NEUTRAL (WHITE) | GROUND (GREEN) | GROUND (BARE COPPER) |
|---|---|---|---|---|---|
| 1 | NONE | (2) 10 AWG PV WIRE | NONE | NONE | (1) 6 AWG |
| 2 | 3/4" EMT | (4) 10 AWG THHN/THWN-2 | NONE | (1) 10 AWG THHN/THWN-2 | NONE |
| 2A | 1" PVC (TRENCHED) | (4) 10 AWG THHN/THWN-2 | NONE | (1) 10 AWG THHN/THWN-2 | NONE |
| 3 | 3/4" EMT | (2) 8 AWG THHN/THWN-2 | (1) 8 AWG THHN/THWN-2 | (1) 10 AWG THHN/THWN-2 | NONE |

NOTE:
SOLAREDGE INVERTER IS EQUIPPED WITH RAPID SHUTDOWN FUINCTION PER NEC 690.12.

**SYSTEM SIZE: 7260W DC, 167200W AC**

NOTE:
INTERCONNECTING PV SYSTEM VIA GREEN METER ADAPTER (GMA), INSTALLED BY PG&E.




| INVERTER RATING | |
|---|---|
| MAKE | SolarEdge |
| MODEL | SE7600H-US |
| MAX INPUT CURRENT | 20A |
| MAX POWER (AC) | 7600W |
| NOM. AC VOLTAGE | 240V |
| MAX AC CURRENT | 32A |
| CEC EFFICIENCY | 99% |

| MODULE AND ARRAY RATINGS: (22) MODULES | | | | |
|---|---|---|---|---|
| SOLAR MODULE RATINGS (STC) | | | STRING A | STRING B |
| MAKE | PANASONIC | SERIES | 12 | 10 |
| MODEL | VBHN330SA17 | PARALLEL | 1 | 1 |
| Imp | 5.70A | Imp | 9.9A | 8.3A |
| Vmp | 58V | Vmp | 400V | 400V |
| Isc | 6.07A | Isc | 15A | 15A |
| Voc | 69.7V | Voc | 480V | 480V |
| Pmax | 330W | Pmax | 3960W | 3300W |
| %Voc/C | -0.16% | | | |

### CONDUCTOR SIZING CALULATIONS

| CIRCUIT DESCRIPTION | CURRENT | Imax (690.8(A)) | Icont (690.8(B)(2)(a) calc | SPECIFIED CONDUCTOR | AMPACITY @ 90c | AMBIENT TEMP c | CURRENT CARRYING COND. | COND. OF USE APPLIED (690.8(B)(2)(b) calc |
|---|---|---|---|---|---|---|---|---|
| PV SOURCE CIRCUIT STRING A | 15A | 15A | 15A Imax x 1.25=18.75A | #10 THWN-2 | 40A | 36-40 | 4-6 | 40A x 0.91 (am b. temp) x 0.8 (raceway fill) = 29.12A |
| PV SOURCE CIRCUIT STRING B | 15A | 15A | 15A Imax x 1.25=18.75A | #10 THWN-2 | 40A | 36-40 | 4-6 | 40A x 0.91 (am b. temp) x 0.8 (raceway fill) = 29.12A |
| INVERTER AC OUTPUT | 32A | 32A | 32A Imax x 1.25 = 40.00A | #8 THWN-2 | 55A | 36-40 | 1-3 | 55A x 0.91 (am b. temp.) x1 (raceway fill) = 50.05A |

### TERMINAL TEMPERATURE RATING CONSIDERATIONS

| CIRCUIT DESCRIPTION | CURRENT | Icont | TERMINAL TEMP RATING | SPECIFIED CONDUCTOR | AMPACITY @ TERMNAL TEMP. RATING |
|---|---|---|---|---|---|
| PV SOURCE CIRCUIT STRING A | 15A | 15A Imax x 1.25=18.75A | 75C | #10 | 35A |
| PV SOURCE CIRCUIT STRING B | 15A | 15A Imax x 1.25=18.75A | 75C | #10 | 35A |
| INVERTER AC OUTPUT | 32A | 32A Imax x 1.25 = 40.00A | 75C | #8 | 50A |

### VOLTAGE DROP CALCULATIONS

| LENGTH | I | Ohms/kFt | V | CALC | Vdrop |
|---|---|---|---|---|---|
| 50Ft | 15A | 0.9989 | 400V | 50' x 15A x 2 x 0.9989/1000'/400V= | 0.37% |
| 50Ft | 15A | 0.9989 | 400V | 50' x 15A x 2 x 0.9989/1000'/400V= | 0.37% |
| 30Ft | 32A | 0.6282 | 240V | 30' x 32A x 2 x 0.6282/1000'/240V= | 0.50% |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ELECTRICAL

PV 4.0

**INSTALL ON THE UTILITY METER**

# WARNING

THIS SERVICE METER
IS ALSO SERVED BY A
PHOTOVOLTAIC SYSTEM

**INSTALL ON THE MAIN BREAKER PANEL**

PHOTOVOLTAIC SYSTEM
EQUIPPED WITH RAPID
SHUTDOWN

TO BE INSTALLED IN ACCORDANCE
WITH SECTION 690.56(C):

CAUTION: SOLAR ELECTRIC
SYSTEM CONNECTED

PHOTOVOLTAIC SYSTEM
AC DISCONNECT

OPERATING VOLTAGE 240 VOLTS
OPERATING CURRENT 32 AMPS

# WARNING

TURN OFF PHOTOVOLTAIC
AC DISCONNECT PRIOR TO
WORKING INSIDE PANEL

**INSTALL INSIDE THE MAIN BREAKER PANEL, NEXT TO THE SOLAR BREAKER**

**PV SOLAR BREAKER**
**DO NOT RELOCATE**
**THIS OVERCURRENT**
**DEVICE**

**INSTALL ON THE AC DISCONNECT**

PHOTOVOLTAIC SYSTEM
AC DISCONNECT

OPERATING VOLTAGE 240 VOLTS
OPERATING CURRENT 32 AMPS

PV SYSTEM DISCONNECT FOR
UTILITY OPERATION

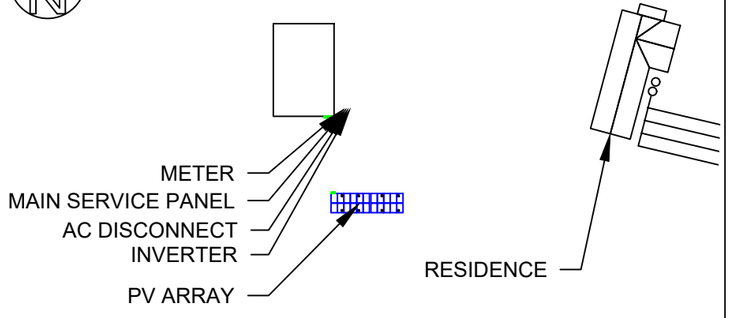
# WARNING

ELECTRIC SHOCK HAZARD

DO NOT TOUCH TERMINALS
TERMINALS ON BOTH THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

# CAUTION:

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




15995 CA-113, KNIGHTS LANDING, CA 95645

**INSTALL ON THE INVERTER**

PHOTOVOLTAIC SYSTEM
DC DISCONNECT

| | |
|---|---|
| OPERATING VOLTAGE | 400 VDC |
| OPERATING CURRENT | 18.15 AMPS |
| MAX SYSTEM VOLTAGE | 480 VDC |
| SHORT CIRCUIT CURRENT | 30 AMPS |
| CHARGE CONTROLLER MAX | N/A AMPS |

# WARNING

ELECTRIC SHOCK HAZARD

DO NOT TOUCH TERMINALS
TERMINALS ON BOTH THE LINE AND
LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

# WARNING

ELECTRIC SHOCK HAZARD

IF GROUND FAULT IS INDICATED
ALL NORMALLY GROUNDED
CONDUCTORS MAY BE UNGROUNDED
AND ENERGIZED

**INSTALL EVERY 10 FEET ON EXTERIOR CONDUIT.**

WARNING: PHOTOVOLTAIC
POWER SOURCE

CONTRACTOR INSTALLED

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Rev A
DATE:6/11/2019

WARNING LABELS

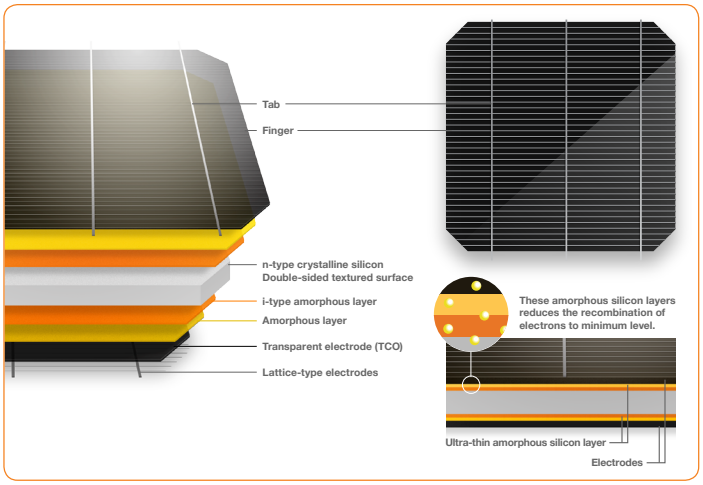
PV 5.0

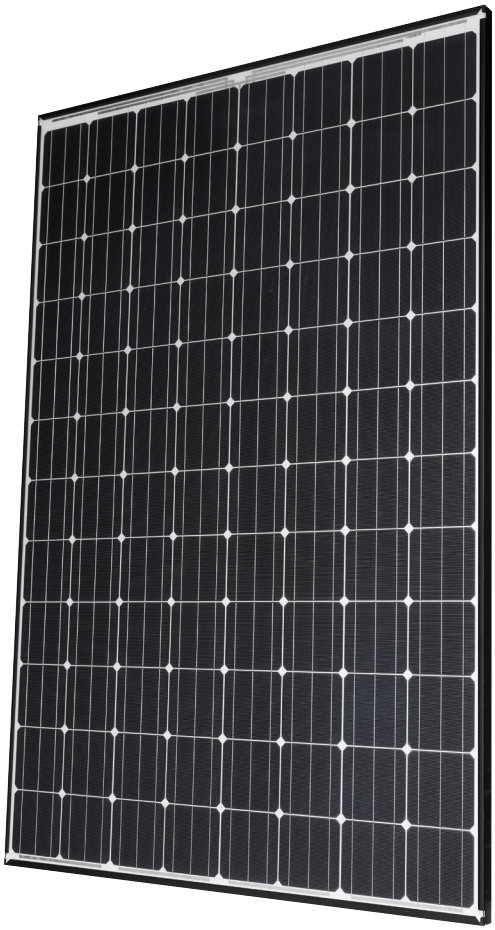
HIT®
Photovoltaic Module

Panasonic

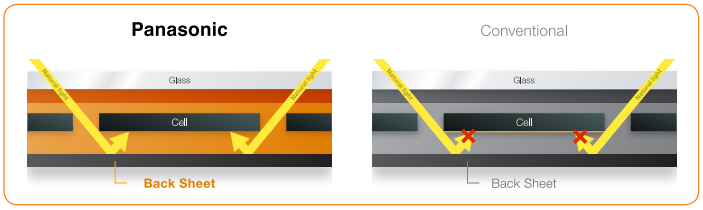
# N330/N325

Panasonic's unique heterojunction technology uses ultra-thin amorphous silicon layers. These thin dual layers reduce losses, resulting in higher energy output than conventional panels.



Advanced bifacial cell designed for increased energy output. The cell utilizes sunlight reflected back from the rear side material which captures more light and converted into energy.




## Our competitive advantages

**High Efficiency at High Temperatures**
As temperature increases, HIT® continues to perform at high levels due to the industry leading temperature coefficient of -0.258% /ºC. No other module even comes close to our temperature characteristics. That means more energy throughout the day.

**25 Year Product and Performance Warranty****
Industry leading 25 year product workmanship and performance warranty is backed by a century old company- Panasonic. Power output is guaranteed to 90.76% after 25 years, far greater than other companies.

**Quality and Reliability**
Panasonic's vertical integration, 20 years of experience manufacturing HIT® and 20 internal tests beyond those mandated by current standards provides extreme quality assurance.

**Higher Efficiency 19.7%**
Enables higher power output and greater energy yields. HIT® provides maximum production for your limited roof space.

**Low Degradation**
HIT "N-type" cells result in extremely Low Light Induced Degradation (LID) and zero Potential Induced Degradation (PID) which supports reliability and longevity. This technology reduces annual degradation to 0.26% compare to 0.70% in conventional panels, guaranteeing more power for the long haul.

**Unique water drainage**
The water drainage system give rain, water and snow melt a place to go, reducing water stains and soiling on the panel. Less dirt on the panel means more sunlight getting through to generate power.

HIT®
Photovoltaic Module

Panasonic

# N330/N325

## ELECTRICAL SPECIFICATIONS

| Model | VBHN330SA16 | VBHN325SA16 |
|---|---|---|
| Rated Power (Pmax)[1] | 330W | 325W |
| Maximum Power Voltage (Vpm) | 58.0V | 57.6V |
| Maximum Power Current (Ipm) | 5.70A | 5.65A |
| Open Circuit Voltage (Voc) | 69.7V | 69.6V |
| Short Circuit Current (Isc) | 6.07A | 6.03A |
| Temperature Coefficient (Pmax) | -0.258%/°C | -0.258%/°C |
| Temperature Coefficient (Voc) | -0.16V/°C | -0.16V/°C |
| Temperature Coefficient (Isc) | 3.34mA/°C | 3.32mA/°C |
| NOCT | 44.0°C | 44.0°C |
| CEC PTC Rating | 311.3W | 306.5W |
| Cell Efficiency | 22.09% | 21.76% |
| Module Efficiency | 19.7% | 19.4% |
| Watts per Ft.² | 18.3W | 18.0W |
| Maximum System Voltage | 600V | 600V |
| Series Fuse Rating | 15A | 15A |
| Warranted Tolerance (-/+) | +10%/-0%* | +10%/-0%* |

## MECHANICAL SPECIFICATIONS

| Model | VBHN330SA16, VBHN325SA16 |
|---|---|
| Internal Bypass Diodes | 4 Bypass Diodes |
| Module Area | 18.02 Ft.² (1.67m²) |
| Weight | 40.81 Lbs. (18.5kg) |
| Dimensions LxWxH | 62.6x41.5x1.4 in. (1590x1053x35 mm) |
| Cable Length +Male/-Female | 40.2/40.2 in. (1020/1020 mm) |
| Cable Size / Type | No. 12 AWG / PV Cable |
| Connector Type[2] | Multi-Contact® Type IV (MC4™) |
| Static Wind / Snow Load | 50 PSF (2400 Pa) |
| Pallet Dimensions LxWxH | 63.7x42.2x65.4 in. |
| Quantity per Pallet / Pallet Weight | 40 pcs. /1719 Lbs. (780 kg) |
| Quantity per 40' Container | 560 pcs. |
| Quantity per 20' Container | 240 pcs. |

## OPERATING CONDITIONS & SAFETY RATINGS

| Model | VBHN330SA16, VBHN325SA16 |
|---|---|
| Operating Temperature | -40°F to 185°F (-40°C to 85°C) |
| Hail Safety Impact Velocity | 1" hailstone (25mm) at 52 mph (23m/s) |
| Safety & Rating Certifications | UL 1703, cUL, CEC |
| UL 1703 Fire Classification | Type 2 |
| Limited Warranty | 25** Yrs Workmanship and Power Output (Linear)*** |

**NOTE:** Standard Test Conditions: Air mass 1.5; irradiance = 1000W/m²; cell temp. 25°C

* Maximum power at delivery. For guarantee conditions, please check our guarantee document.

** Installation need to be registered through our website **www.panasonicusahitwarranty.com** within 60 days in order to receive twenty-five (25) year Product workmanship. Otherwise, Product Workmanship will be only fifteen (15) years.

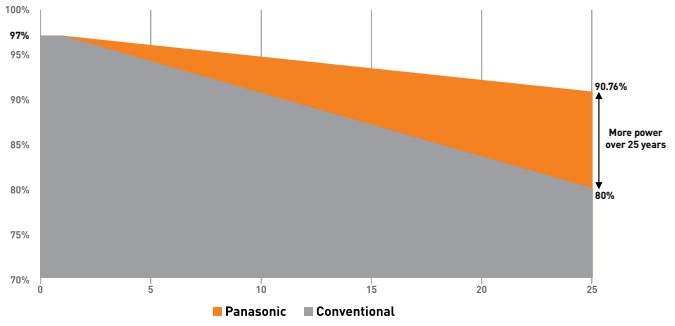
*** 1st year 97%, after 2nd year 0.26% annual degradation to year 25.

[1] STC: Cell temp. 25°C, AM1.5, 1000W/m²

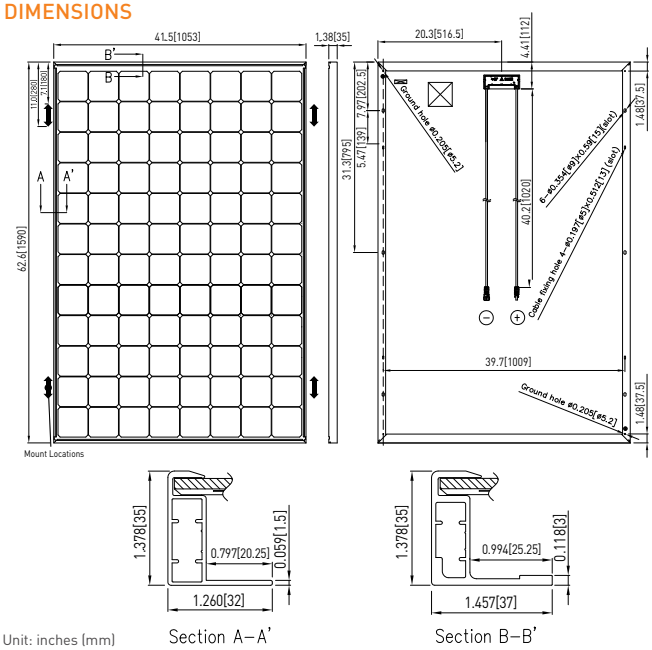
[2] Safety locking clip (PV-SSH4) is not supplied with the module.

**NOTE:** Specifications and information above may change without notice.

## PERFORMANCE WARRANTY

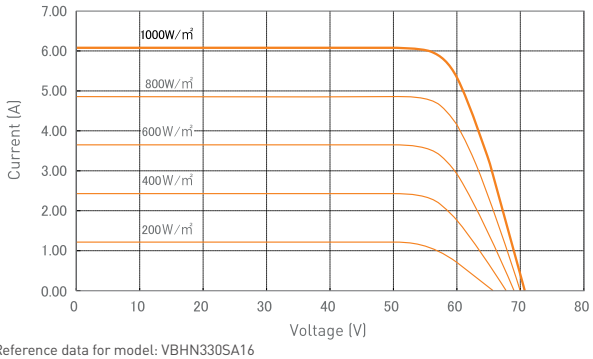



## DIMENSIONS




Unit: inches (mm)

## DEPENDENCE ON IRRADIANCE




Reference data for model: VBHN330SA16
(Cell temperature: 25°C)

⚠CAUTION! Please read the installation manual carefully before using the products.

Used electrical and electronic products must not be mixed with general household waste. For proper treatment, recovery and recycling of old products, please take them to applicable collection points in accordance with your national legislation.


Panasonic

**Panasonic Eco Solutions of North America**
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INVERTERS

# Single Phase Inverter with HD-Wave Technology

## for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

12-25 YEAR WARRANTY


## Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking efficiency
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Extremely small
- Built-in module-level monitoring
- Outdoor and indoor installation
- Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)



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# Single Phase Inverter with HD-Wave Technology for North America

## SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/ SE7600H-US / SE10000H-US / SE11400H-US

| | SE3000H-US | SE3800H-US | SE5000H-US | SE6000H-US | SE7600H-US | SE10000H-US | SE11400H-US | |
|---|---|---|---|---|---|---|---|---|
| **OUTPUT** | | | | | | | | |
| Rated AC Power Output | 3000 | 3800 @ 240V<br>3300 @ 208V | 5000 | 6000 @ 240V<br>5000 @ 208V | 7600 | 10000 | 11400 @ 240V<br>10000 @ 208V | VA |
| Maximum AC Power Output | 3000 | 3800 @ 240V<br>3300 @ 208V | 5000 | 6000 @ 240V<br>5000 @ 208V | 7600 | 10000 | 11400 @ 240V<br>10000 @ 208V | VA |
| AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | Vac |
| AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229) | - | ✓ | - | ✓ | - | - | ✓ | Vac |
| AC Frequency (Nominal) | 59.3 - 60 - 60.5[1] | | | | | | | Hz |
| Maximum Continuous Output Current @240V | 12.5 | 16 | 21 | 25 | 32 | 42 | 47.5 | A |
| Maximum Continuous Output Current @208V | - | 16 | - | 24 | - | - | 48.5 | A |
| GFDI Threshold | 1 | | | | | | | A |
| Utility Monitoring, Islanding Protection, Country Configurable Thresholds | Yes | | | | | | | |
| **INPUT** | | | | | | | | |
| Maximum DC Power @240V | 4650 | 5900 | 7750 | 9300 | 11800 | 15500 | 17650 | W |
| Maximum DC Power @208V | - | 5100 | - | 7750 | - | - | 15500 | W |
| Transformer-less, Ungrounded | Yes | | | | | | | |
| Maximum Input Voltage | 480 | | | | | | | Vdc |
| Nominal DC Input Voltage | 380 | | | | 400 | | | Vdc |
| Maximum Input Current @240V[2] | 8.5 | 10.5 | 13.5 | 16.5 | 20 | 27 | 30.5 | Adc |
| Maximum Input Current @208V[2] | - | 9 | - | 13.5 | - | - | 27 | Adc |
| Max. Input Short Circuit Current | 45 | | | | | | | Adc |
| Reverse-Polarity Protection | Yes | | | | | | | |
| Ground-Fault Isolation Detection | 600kΩ Sensitivity | | | | | | | |
| Maximum Inverter Efficiency | 99 | 99.2 | | | | | | % |
| CEC Weighted Efficiency | 99 | | | | | | 99 @ 240V<br>98.5 @ 208V | % |
| Nighttime Power Consumption | < 2.5 | | | | | | | W |
| **ADDITIONAL FEATURES** | | | | | | | | |
| Supported Communication Interfaces | RS485, Ethernet, ZigBee (optional), Cellular (optional) | | | | | | | |
| Revenue Grade Data, ANSI C12.20 | Optional[3] | | | | | | | |
| Rapid Shutdown - NEC 2014 and 2017 690.12 | Automatic Rapid Shutdown upon AC Grid Disconnect | | | | | | | |
| **STANDARD COMPLIANCE** | | | | | | | | |
| Safety | UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07 | | | | | | | |
| Grid Connection Standards | IEEE1547, Rule 21, Rule 14 (HI) | | | | | | | |
| Emissions | FCC Part 15 Class B | | | | | | | |
| **INSTALLATION SPECIFICATIONS** | | | | | | | | |
| AC Output Conduit Size / AWG Range | 3/4" minimum / 14-6 AWG | | | | | 3/4" minimum /14-4 AWG | | |
| DC Input Conduit Size / # of Strings / AWG Range | 3/4" minimum / 1-2 strings / 14-6 AWG | | | | | 3/4" minimum / 1-3 strings / 14-6 AWG | | |
| Dimensions with Safety Switch (HxWxD) | 17.7 x 14.6 x 6.8 / 450 x 370 x 174 | | | | | 21.3 x 14.6 x 7.3 / 540 x 370 x 185 | | in / mm |
| Weight with Safety Switch | 22 / 10 | | 25.1 / 11.4 | 26.2 / 11.9 | | 38.8 / 17.6 | | lb / kg |
| Noise | < 25 | | | | <50 | | | dBA |
| Cooling | Natural Convection | | | | | | | |
| Operating Temperature Range | -40 to +140 / -25 to +60[4] (-40°F / -40°C option)[5] | | | | | | | °F / °C |
| Protection Rating | NEMA 4X (Inverter with Safety Switch) | | | | | | | |

[1] For other regional settings please contact SolarEdge support
[2] A higher current source may be used; the inverter will limit its input current to the values stated
[3] Revenue grade inverter P/N: SExxxxH-US000NNC2
[4] For power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf
[5] -40 version P/N: SExxxxH-US000NNU4



RoHS

# Power Optimizer

P300 / P370 / P404 / P405 / P500 / P505

POWER OPTIMIZER


## PV power optimization at the module level

- Specifically designed to work with SolarEdge inverters
- Up to 25% more energy
- Next generation maintenance with module-level monitoring
- Mitigates all types of modules mismatch-loss, from manufacturing tolerance to partial shading
- Superior efficiency (99.5%)
- Flexible system design for maximum space utilization
- Module-level voltage shutdown for installer and firefighter safety
- Fast installation with a single bolt



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# / Power Optimizer

## P300 / P370 / P404 / P405 / P500 / P505

| OPTIMIZER MODEL (typical module compatibilty) | P300 (for 60-cell modules) | P370 (for high power 60 and 72-cell modules) | P404 (for 60-cell and 72-cell, short strings) | P405 (for thin film modules) | P500 (for 96-cell modules) | P505 (for higher current modules) | UNIT |
|---|---|---|---|---|---|---|---|
| **INPUT** | | | | | | | |
| Rated Input DC Power(1) | 300 | 370 | 405 | 405 | 500 | 505 | W |
| Absolute Maximum Input Voltage (Voc at lowest temperature) | 48 | 60 | 80 | 125 | 80 | 83 | Vdc |
| MPPT Operating Range | 8 - 48 | 8 - 60 | 12.5 - 80 | 12.5 - 105 | 8 - 80 | 12.5-83 | Vdc |
| Maximum Short Circuit Current (Isc) | 11 | | 10.1 | | | 14 | Adc |
| Maximum Efficiency | 99.5 | | | | | | % |
| Weighted Efficiency | 98.8 | | | | | | % |
| Overvoltage Category | II | | | | | | |
| **OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)** | | | | | | | |
| Maximum Output Current | 15 | | | | | | Adc |
| Maximum Output Voltage | 60 | | 85 | | 60 | 85 | Vdc |
| **OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREDGE INVERTER OR SOLAREDGE INVERTER OFF)** | | | | | | | |
| Safety Output Voltage per Power Optimizer | 1 ± 0.1 | | | | | | Vdc |
| **STANDARD COMPLIANCE** | | | | | | | |
| EMC | FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3 | | | | | | |
| Safety | IEC62109-1 (class II safety), UL1741 | | | | | | |
| RoHS | Yes | | | | | | |
| Fire Safety | VDE-AR-E 2100-712:2013-05 | | | | | | |
| **INSTALLATION SPECIFICATIONS** | | | | | | | |
| Maximum Allowed System Voltage | 1000 | | | | | | Vdc |
| Dimensions (W x L x H) | 129 x 153 x 27.5 / 5.1 x 6 x 1.1 | | 129 x 153 x 42.5 / 5.1 x 6 x 1.7 | 129 x 159 x 49.5 / 5.1 x 6.3 x 1.9 | 129 x 153 x 33.5 / 5.1 x 6 x 1.3 | 129 x 162 x 59 / 5.1 x 6.4 x 2.3 | mm / in |
| Weight (including cables) | 630 / 1.4 | 655 / 1.5 | 775 / 1.7 | 845 / 1.9 | 750 / 1.7 | 1064 / 2.3 | gr / lb |
| Input Connector | MC4(2) | | | Single or Dual MC4(3) | MC4(2) | | |
| Input Wire Length | 0.16 / 0.52 | | | | | | m / ft |
| Output Connector | MC4 | | | | | | |
| Output Wire Length | 0.95 / 3.0 | 1.2 / 3.9 | | | | | m / ft |
| Operating Temperature Range | -40 - +85 / -40 - +185 | | | | | | ˚C / ˚F |
| Protection Rating | IP68 | | | | | | |
| Relative Humidity | 0 - 100 | | | | | | % |

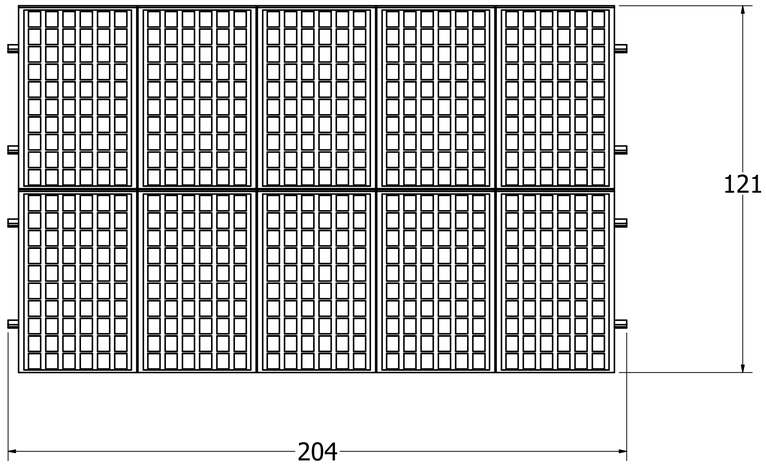
(1) Rated STC power of the module. Module of up to +5% power tolerance allowed.
(2) For other connector types please contact SolarEdge.
(3) For dual version for parallel connection of two thin film modules use the P405. In the case of an odd number of PV modules in one string, installing one P405 dual version power optimizer connected to one PV module is supported. When connecting a single module, seal the unused input connectors using the supplied pair of seals.

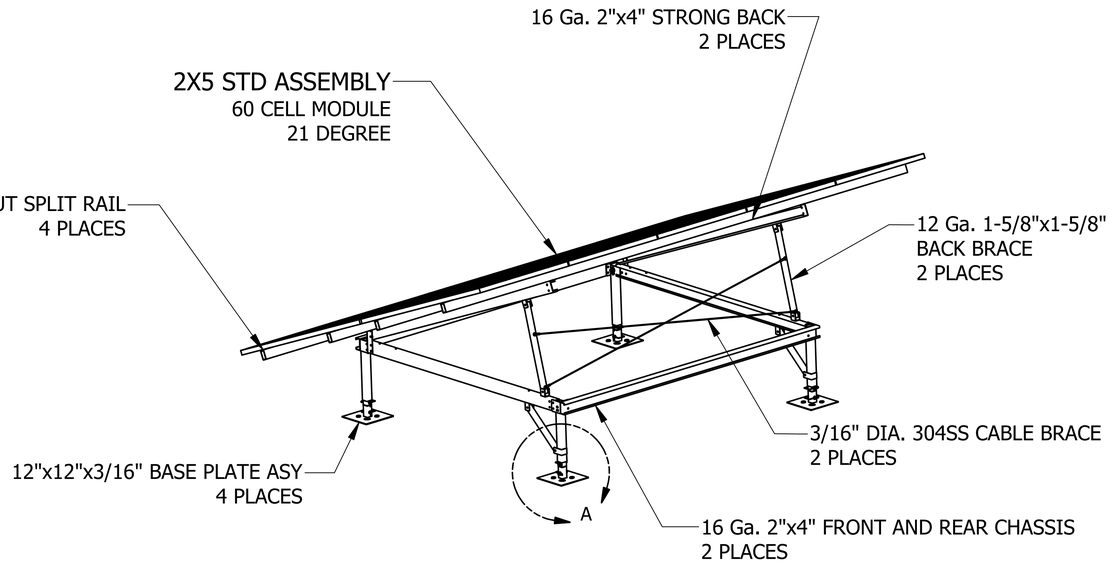
| PV SYSTEM DESIGN USING A SOLAREDGE INVERTER(4) | | SINGLE PHASE HD-WAVE | SINGLE PHASE | THREE PHASE | THREE PHASE FOR 277/480V GRID | |
|---|---|---|---|---|---|---|
| Minimum String Length (Power Optimizers) | P300, P370, P500(5) | 8 | | 16 | 18 | |
| | P404,P405,P505 | 6 | | 13 (12 with SE3K) | 14 | |
| Maximum String Length (Power Optimizers) | | 25 | | 50 | 50 | |
| Maximum Power per String | | 5700 | 5250 | 11250 | 12750 | W |
| Parallel Strings of Different Lengths or Orientations | | Yes | | | | |

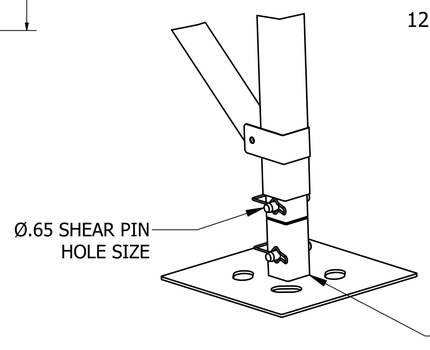
(4) It is not allowed to mix P404/P405/P505 with P300/P370/P500/P600/P650/P730/P800p/P850 in one string.
(5) The P300/P370/P500 cannot be used with the SE3K three phase inverter (available in some countries; refer to the three phase inverter SE3K-SE10K datasheet).



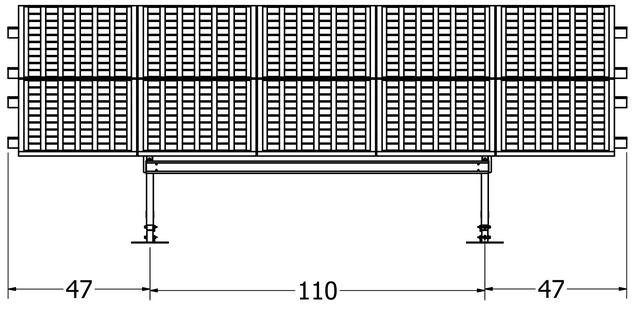
CE

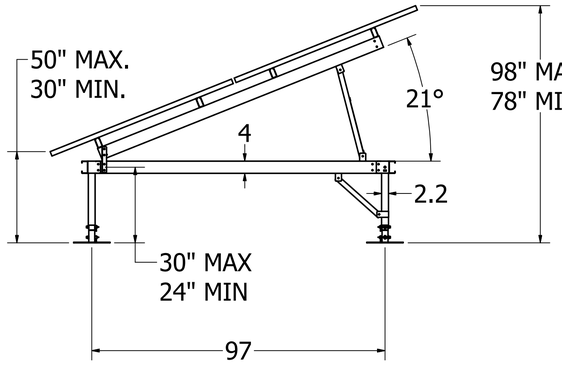



DETAIL A
SCALE 1/5




DESIGN WIND SPEED: 110 mph [ASCE 7-10]
DESIGN SNOW LOAD: 0 psf SNOW LOAD
MAX. LEG HEIGHT: 30"
EARTH ANCHOR FRONT LEG TEST LOAD (QTY=1): 700LBS
EARTH ANCHOR REAR LEG TEST LOAD (QTY=1) : 1700LBS



MACHINED FILLET RADII 0.38-1.27 [.015-.050]. BREAK ALL SHARP EDGES 0.2-0.8 [.01-.03] RADII OR 45°. SURFACE FINISH IN MICRO (P) INCHES (Ra). INTERPRET DRAWING PER ASME Y14.5, ASME Y14.36, AND AWS A2.4 STANDARDS.

| | | |
|---|---|---|
| DRAWN: JIM KRIEG | 06/05/19 | OSPREY POWER PLATFORM |
| APPROVED: JONO STEVENS | 06/05/19 | TITLE: METRIC OSP 2X5 60CELL 21DEG XHD ASSEMBLY |
| WEIGHT: N/A | | DIMENSIONS IN INCHES, EXCEPT OTHERWISE SPECIFICATION. |
| GENERAL TOLERANCES: DECIMALS: X ± .1, .X ± .06, .XX ± .03; ANGULAR: ∠ ± 1° | | MATERIAL: STEEL PLATE 67ksi Minimum Yield G90 FINISH |
| | | SIZE: D; DWG NO: OSP 2x5 60C 21D STD ASY - JERI OWENS; REV: 1 |
| | | SCALE: 1/25; SHEET 1 OF 1 |