

SHEET CATALOG

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SCOPE OF WORK

GENERAL SYSTEM INFORMATION:
 SYSTEM SIZE:
 11220W DC, 10000W AC
 MODULES:
 (33)TITAN SOLAR SIL - 340 NL
 INVERTER:
 (1)SOLAREEDGE TECHNOLOGIES
 SE10000H-US(240V)
 OPTIMIZER:
 (33)SOLAREEDGE P340 POWER OPTIMIZER

APPLICABLE CODES

- ELECTRIC CODE:NEC 2017
- FIRE CODE:IFC 2018
- BUILDING CODE:IBC 2018
- RESIDENTIAL CODE:IRC 2018

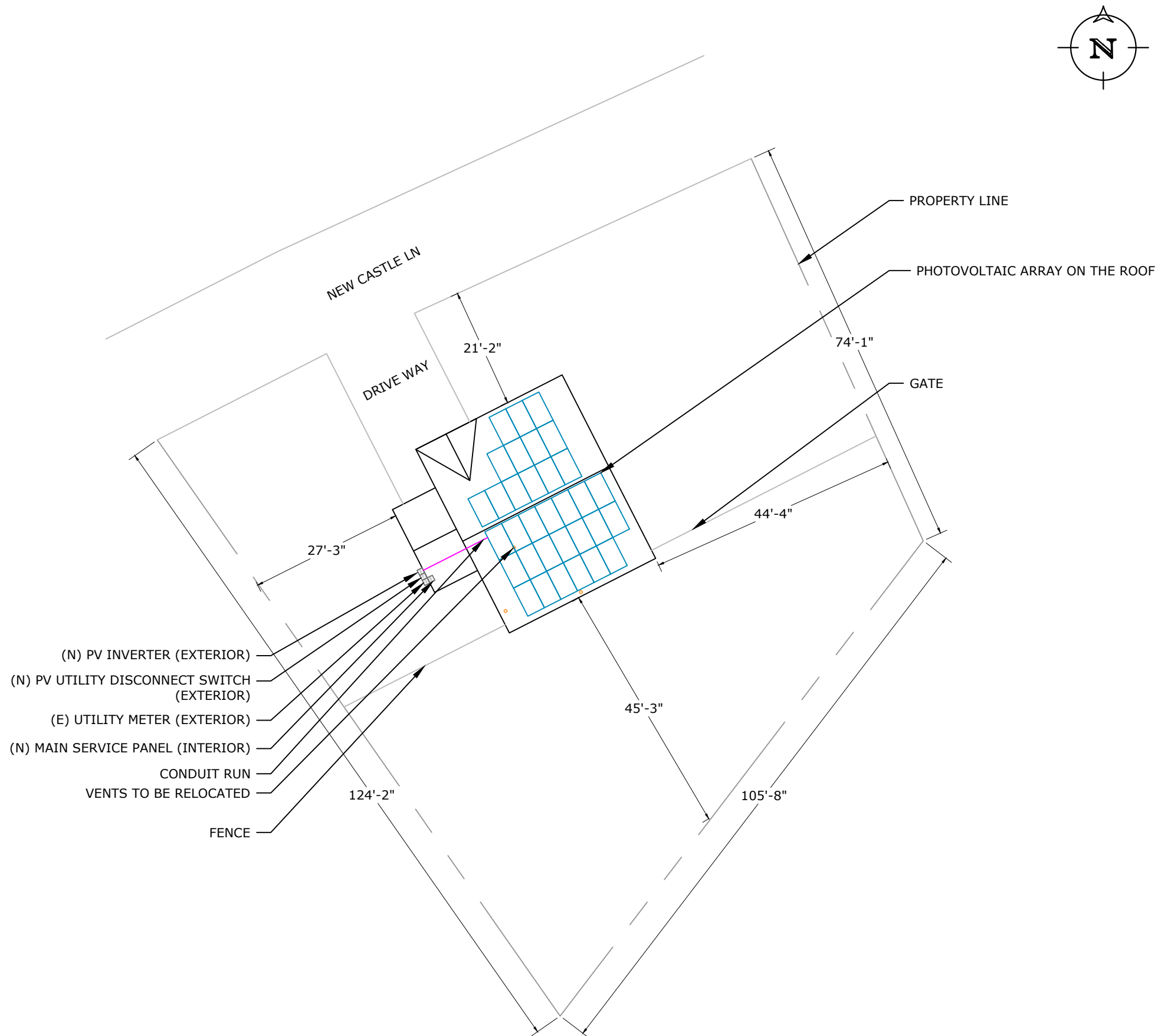
GENERAL NOTES

- 1.MODULES ARE LISTED UNDER UL 1703 AND CONFORM TO THE STANDARDS.
- 2.INVERTERS ARE LISTED UNDER UL 1741 AND CONFORM TO THE STANDARDS.
- 3.DRAWINGS ARE DIAGRAMMATIC, INDICATING GENERAL ARRANGEMENT OF THE PV SYSTEM AND THE ACTUAL SITE CONDITION MIGHT VARY.
- 4.WORKING CLEARANCES AROUND THE NEW PV ELECTRICAL EQUIPMENT WILL BE MAINTAINED IN ACCORDANCE WITH NEC 110.26.
- 5.ALL GROUND WIRING CONNECTED TO THE MAIN SERVICE GROUNDING IN MAIN SERVICE PANEL/ SERVICE EQUIPMENT.
- 6.ALL CONDUCTORS SHALL BE 600V, 75°C STANDARD COPPER UNLESS OTHERWISE NOTED.
- 7.WHEN REQUIRED, A LADDER SHALL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.
- 8.THE SYSTEM WILL NOT BE INTERCONNECTED BY THE CONTRACTOR UNTIL APPROVAL FROM THE LOCAL JURISDICTION AND/OR THE UTILITY.
- 9.ROOF ACCESS POINT SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREES, WIRES OR SIGNS.
- 10.PV ARRAY COMBINER/JUNCTION BOX PROVIDES TRANSITION FROM ARRAY WIRING TO CONDUIT WIRING

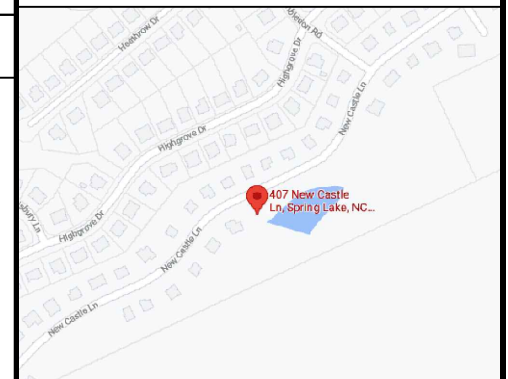
SCALE:1"=20'-0"

QUINTIN EMERSON - 11.220kW DC, 10.000kW AC

SITE PLAN LAYOUT



VICINITY MAP



ADDRESS: 525W, BASELINE RD
 MESA AZ,85210

CUSTOMER INFORMATION

NAME: QUINTIN EMERSON

ADDRESS:407 NEW CASTLE LN, SPRING LAKE, NC 28390

35.235271, -78.978352
 APN: 050-46-04-564-000

AHJ:NC-COUNTY HARNETT

UTILITY:BLUE RIDGE ENERGY

PRN NUMBER: TPS-26023



COVER PAGE

DESIGNER /CHECKED BY: AV/SN

PAPER SIZE:17"X11"

SCALE:AS NOTED

REV:A

DATE:5/26/2021

T-1

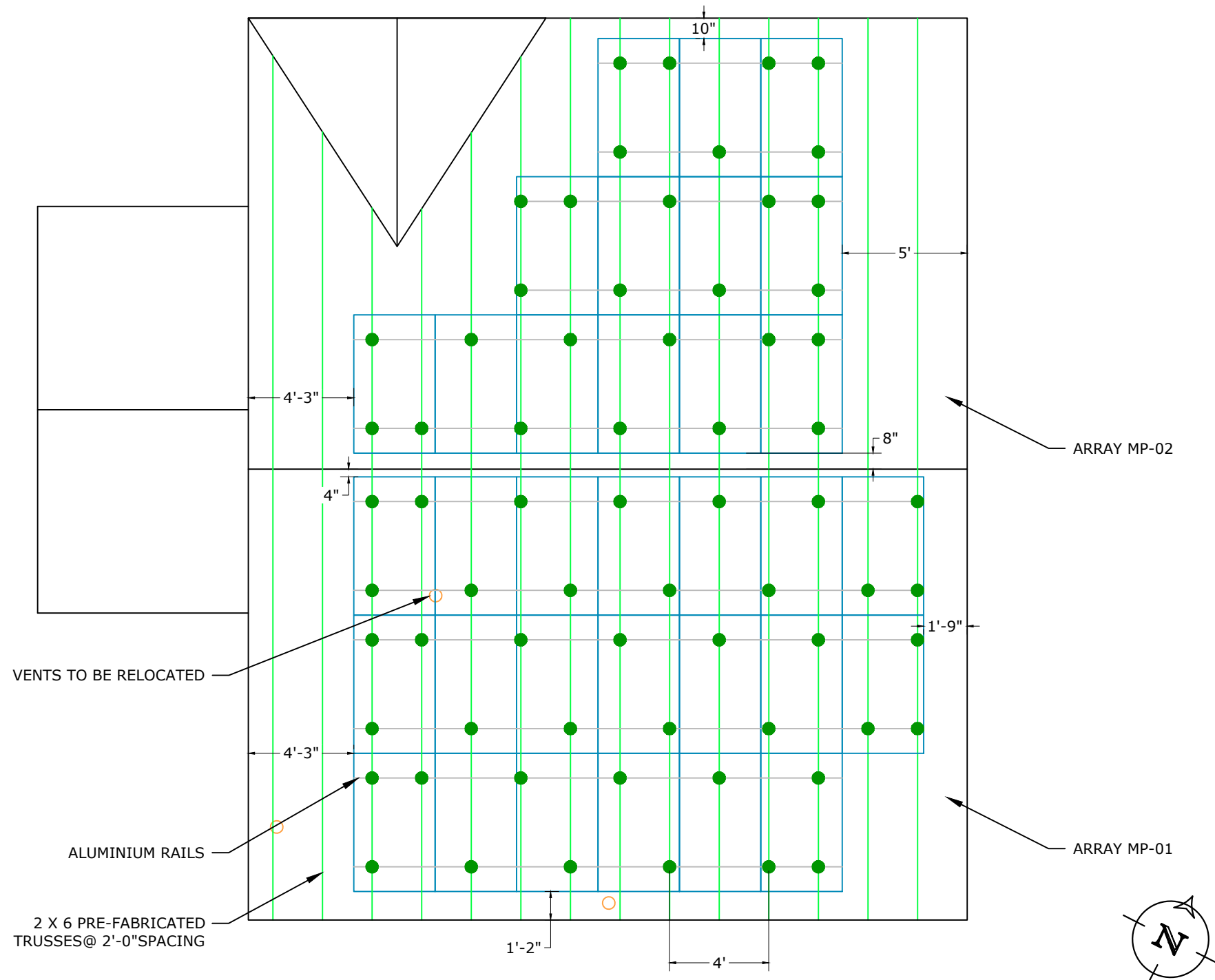
INSTALLATION NOTES

1. STRUCTURAL ROOF MEMBER LOCATIONS ARE ESTIMATED AND SHOULD BE LOCATED AND VERIFIED BY THE CONTRACTOR WHEN LAG BOLT PENETRATION OR MECHANICAL ATTACHMENT TO THE STRUCTURE IS REQUIRED.
2. ROOFTOP PENETRATIONS FOR SOLAR RACKING WILL BE COMPLETED AND SEALED WITH APPROVED SEALANT PER CODE BY A LICENSED CONTRACTOR.
3. LAGS MUST HAVE A MINIMUM 2.5" THREAD EMBEDMENT INTO THE STRUCTURAL MEMBER.
4. ALL PV RACKING ATTACHMENTS SHALL BE STAGGERED BY ROW BETWEEN THE ROOF FRAMING MEMBERS AS NECESSARY.
5. ROOF MOUNTED STANDARD RAIL REQUIRES ONE THERMAL EXPANSION GAP FOR EVERY RUN OF RAIL GREATER THAN 40'.
6. ALL CONDUCTORS AND CONDUITS ON THE ROOF SHALL BE MINIMUM 2.5" ABOVE THE ROOF SURFACE (INCLUDING CABLES UNDERNEATH MODULES AND RACKING).
7. THE PV INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL OR BUILDING ROOF VENTS.

SITE INFORMATION - WIND SPEED: 118 MPH AND SNOW LOAD: 10 PSF

SR. NO	AZIMUTH	PITCH	NO. OF MODULES	ARRAY AREA (SQ. FT.)	ROOF TYPE	ATTACHMENT	ROOF EXPOSURE	FRAME TYPE	FRAME SIZE	FRAME SPACING	MAX RAIL SPAN	OVER HANG
MP-01	153°	18°	20	366.1	COMPOSITION SHINGLE	K2 SPLICE FOOT X	ATTIC	PRE-FABRICATED TRUSSES	2 X 6	2'-0"	4'-0"	1'-6"
MP-02	333°	18°	13	238.0	COMPOSITION SHINGLE	K2 SPLICE FOOT X	ATTIC	PRE-FABRICATED TRUSSES	2 X 6	2'-0"	4'-0"	1'-6"

NOTE: PENETRATIONS ARE STAGGERED



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



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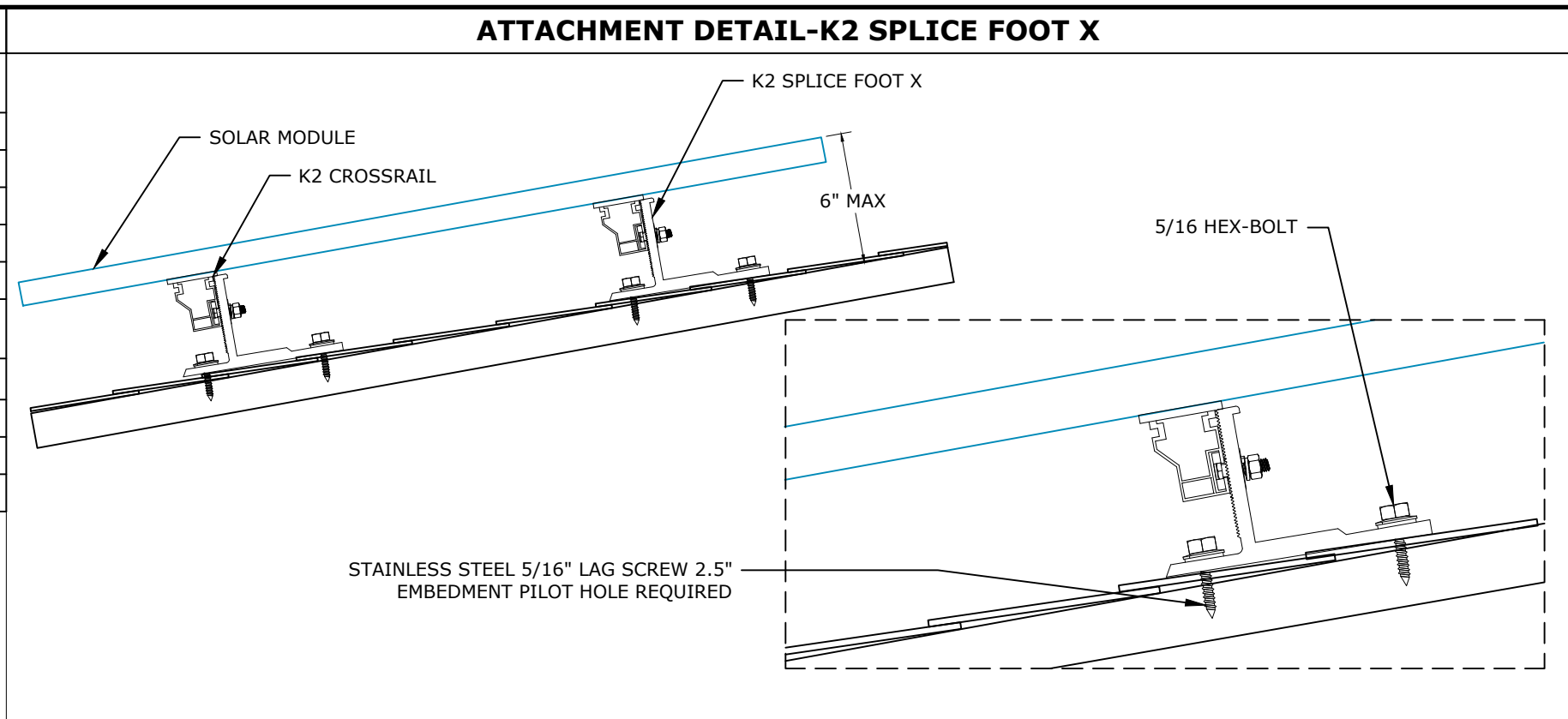
MOUNTING DETAIL

DESIGNER / CHECKED BY: AV/SN PAPER SIZE: 17"X11"

SCALE: AS NOTED REV: A

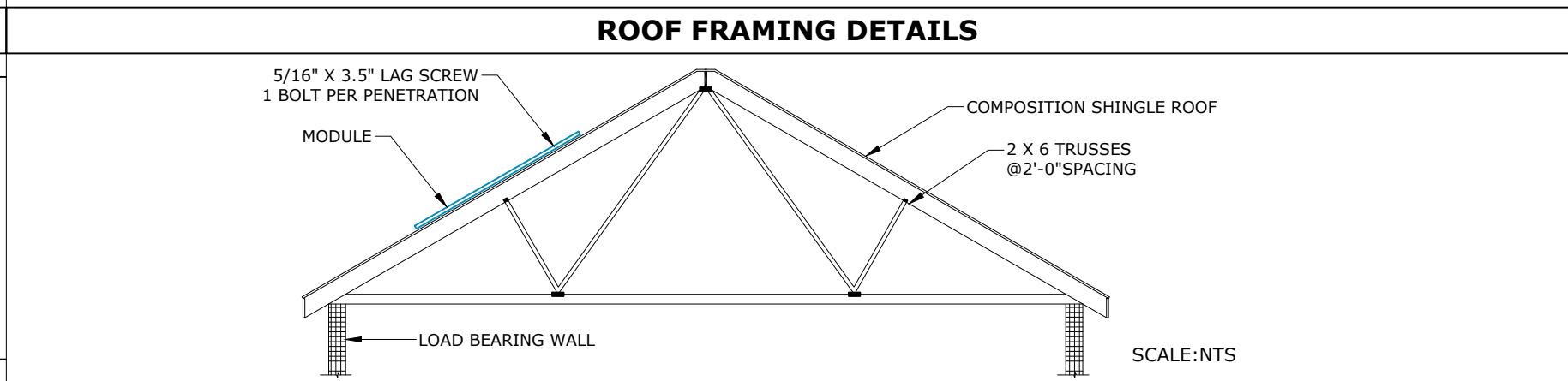
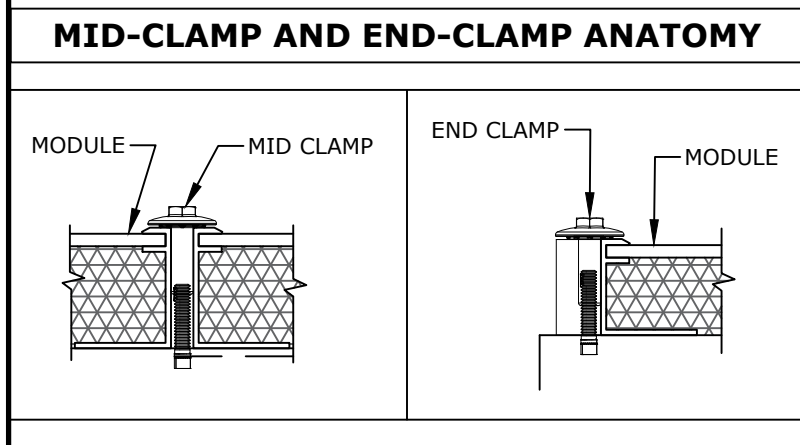
DATE: 5/26/2021 M-1

DEAD LOAD CALCULATIONS			
BOM	QUANTITY	LBS/UNIT	TOTAL WEIGHT (LBS)
MODULES	33	41.4	1366.20
MID-CLAMP	54	0.300	16.20
END-CLAMP	24	0.310	7.44
RAIL LENGTH	220	0.560	123.20
SPLICE BAR	8	0.650	5.20
K2 SPLICE FOOT X	68	1.45	98.60
TOTAL WEIGHT OF THE SYSTEM (LBS)			1616.84
TOTAL ARRAY AREA ON THE ROOF (SQ. FT.)			604.05
WEIGHT PER SQ. FT.(LBS)			2.68
WEIGHT PER PENETRATION (LBS)			23.78



MODULES DATA	
TITAN SOLAR SIL - 340 NL	
MODULE DIMS	66.9"x39.4"x1.5"
LAG SCREWS	5/16"x3.5":2.5"MIN EMBEDMENT

UPLIFT CALCULATIONS		
UPLIFT	18121.5	LBS
PULL OUT STRENGTH	41820	LBS
POINT LOADING	20	LBS



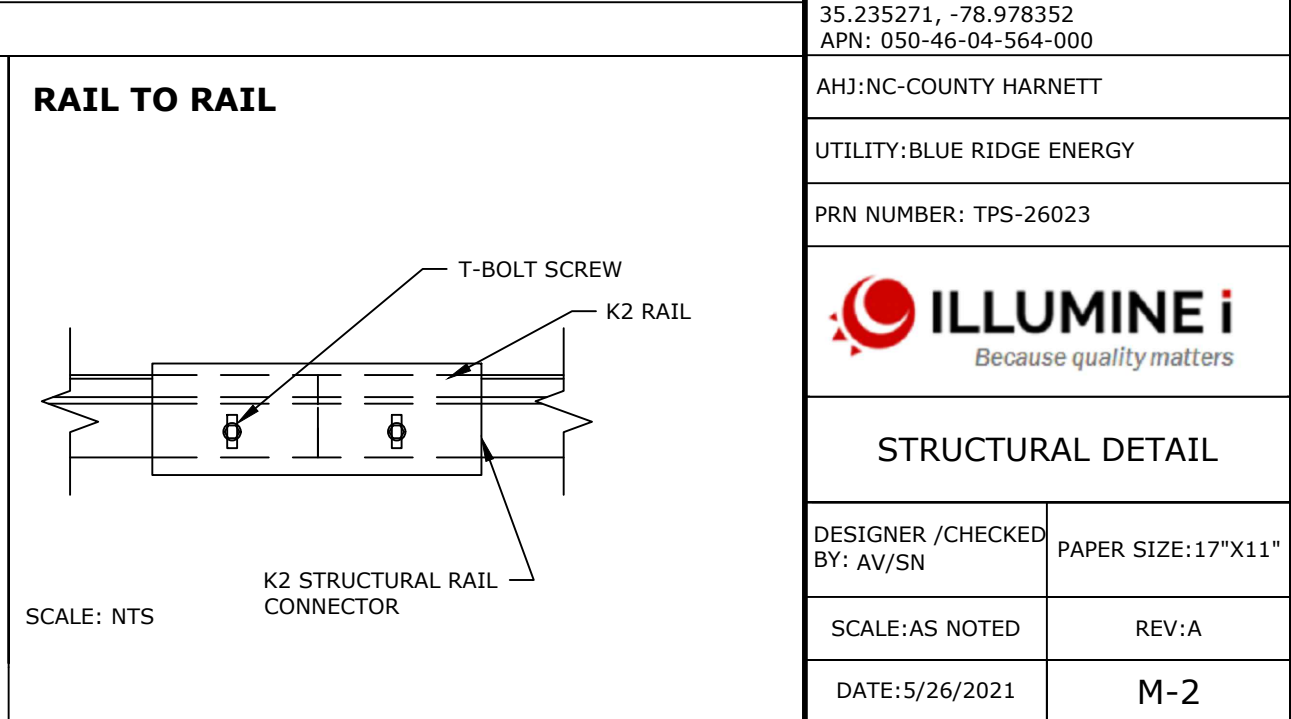
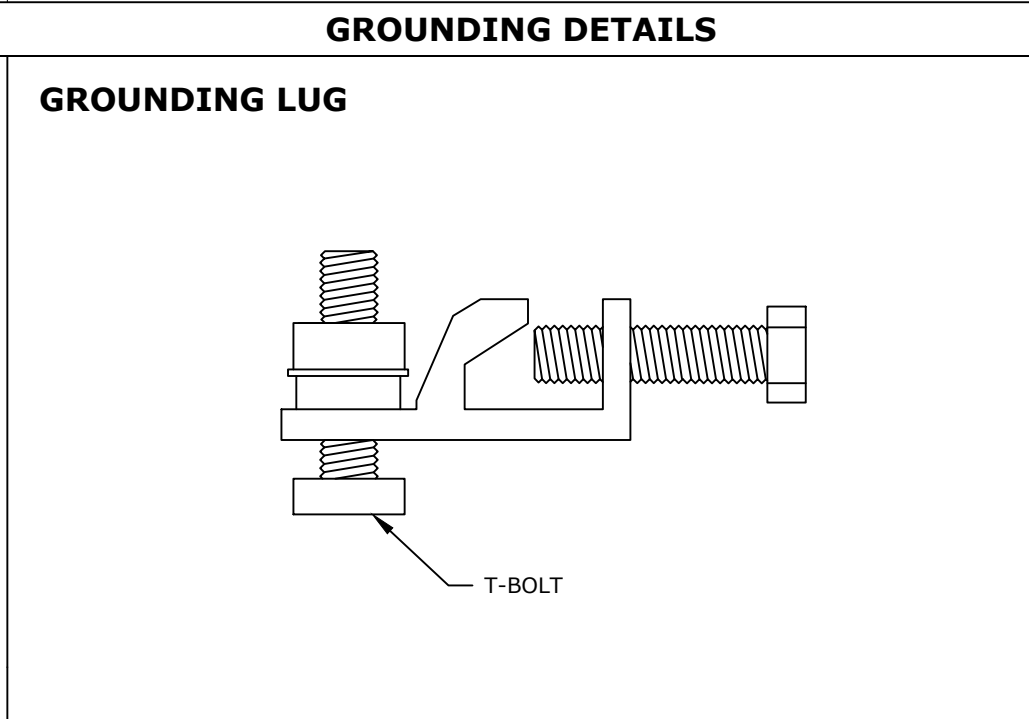
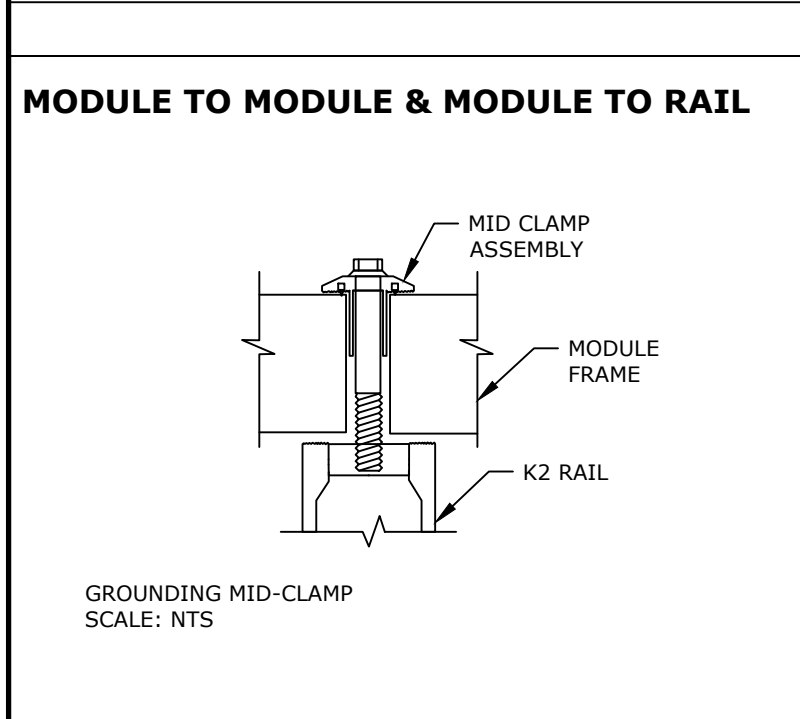
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AHJ:NC-COUNTY HARNETT

UTILITY:BLUE RIDGE ENERGY

PRN NUMBER: TPS-26023



STRUCTURAL DETAIL

DESIGNER /CHECKED BY: AV/SN	PAPER SIZE:17"X11"
SCALE:AS NOTED	REV:A
DATE:5/26/2021	M-2

SINGLE LINE DIAGRAM: DC SYSTEM SIZE - 11220W, AC SYSTEM SIZE - 10000W

ELECTRICAL NOTES

INVERTER-1 SPECIFICATIONS		MODULE SPECIFICATION		OPTIMIZER CHARACTERISTICS		SYSTEM CHARACTERISTICS	
MODEL	SOLAREEDGE TECHNOLOGIES SE10000H-US(240V)	MODEL	TITAN SOLAR SIL - 340 NL	MODEL	P340	DC SYSTEM SIZE	11220 W
POWER RATING	10000W	MODULE POWER @ STC	340W	MIN INPUT VOLTAGE	8 VDC	INVERTER STRING VOLTAGE: Vmp	400V
MAX OUTPUT CURRENT	42A	OPEN CIRCUIT VOLTAGE: Voc	40.9V	MAX INPUT VOLTAGE	48 VDC	MAX INVERTER SYSTEM VOLTAGE: Voc	480V
CEC WEIGHTED EFFICIENCY	99%	MAX POWER VOLTAGE: Vmp	33.7V	MAX INPUT CURRENT	11 ADC	MAX SHORT CIRCUIT CURRENT	15A
MAX INPUT CURRENT	27A	SHORT CIRCUIT CURRENT: Isc	10.5A	MAX OUTPUT CURRENT	15 ADC	OPERATING CURRENT	9.35A
MAX DC VOLTAGE	480V	MAX POWER CURRENT: Imp	10.1A				

- CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER NEC 310.10(D).
- CONDUCTORS EXPOSED TO WET LOCATIONS SHALL BE SUITABLE FOR USE IN WET LOCATIONS PER NEC 310.10(C).
- MAXIMUM DC/AC VOLTAGE DROP SHALL BE NO MORE THAN 2%.
- ALL CONDUCTORS SHALL BE IN CONDUIT UNLESS OTHERWISE NOTED.
- BREAKER/FUSE SIZES CONFORMS TO NEC 240.6 CODE SECTION.
- AC GROUNDING ELECTRODE CONDUCTOR SIZED PER NEC 250.66.
- AMBIENT TEMPERATURE CORRECTION FACTOR IS BASED ON NEC 690.31(C).
- AMBIENT TEMPERATURE ADJUSTMENT FACTOR IS BASED ON NEC 310.15(B)(2).
- MAX. SYSTEM VOLTAGE CORRECTION IS PER NEC 690.7.
- CONDUCTORS ARE SIZED PER WIRE AMPACITY TABLE NEC 310.15(B)(16).



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NAME: QUINTIN EMERSON

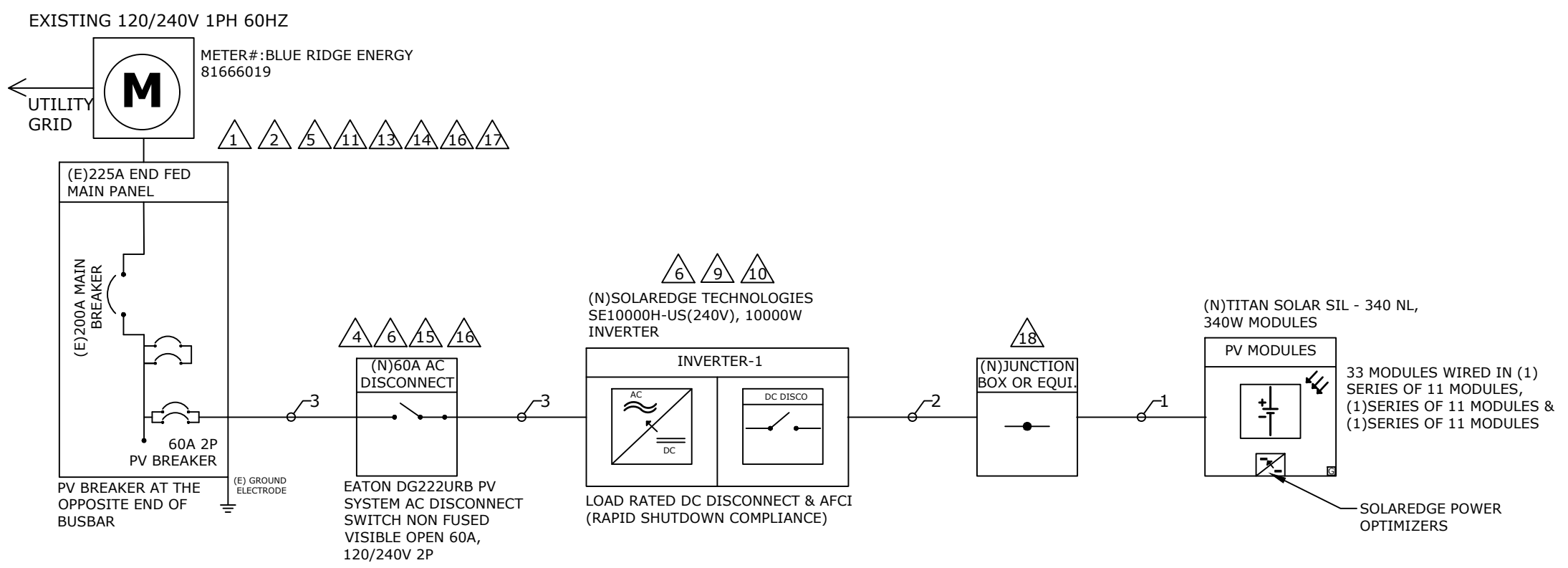
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UTILITY: BLUE RIDGE ENERGY

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CONDUIT SCHEDULE

TAG ID	CONDUIT SIZE	CONDUCTOR	NEUTRAL	GROUND
1	NONE	(4) 10AWG PV WIRE	NONE	(1) 10AWG BARE COPPER
2	3/4" EMT OR EQUIV	(4) 10AWG THHN/THWN-2	NONE	(1) 10AWG THHN/THWN-2
3	3/4" EMT OR EQUIV	(2) 6AWG THHN/THWN-2	(1) 6AWG THHN/THWN-2	(1) 10AWG THHN/THWN-2

NOTE:
MAIN PANEL RATING: 225A, MAIN BREAKER RATING: 200A
120% RULE: (225A x 1.2) - 200A = 70A => ALLOWABLE BACKFEED IS 70A

OCPD CALCULATIONS:
INVERTER OVERCURRENT PROTECTION = INVERTER O/P I X CONTINUOUS LOAD (1.25)
= 42 x 1.25 = 52.50A => PV BREAKER = 60A
ALLOWABLE BACKFEED 70A => 60A PV BREAKER
THE DESIGNED INTERCONNECTION MEETS THE 705.12(B)(2) REQUIREMENTS.

ELECTRICAL CALCULATIONS

DC WIRE SIZING CALCULATIONS BASED OF FOLLOWING EQUATIONS >>

- REQUIRED CONDUCTOR AMPACITY: 125% PER 690.8(A)(1) X I_{sc}(A) X # OF PARALLEL STRINGS = MAX CURRENT PER 690.8(A)(1) X 125% PER 690.8(B)(2)(a) = MAX CURRENT PER 690.8(B)(2)(a)
- CORRECTED AMPACITY CALCULATIONS: AMPACITY X TEMPERATURE DERATE FACTOR X CONDUIT FILL DERATE = DERATED CONDUCTOR AMPACITY
- DERATED CONDUCTOR AMPACITY CHECK: MAX CURRENT PER 690.8(B)(2)(2) < DERATED CONDUCTOR AMPACITY

AC WIRE SIZING CALCULATIONS BASED OF FOLLOWING EQUATIONS >>

- REQUIRED CONDUCTOR AMPACITY: INVERTER OUTPUT CURRENT X # OF INVERTERS X MAX CURRENT PER 690.8(A)(3) X 125% PER 690.8(B)(2)(A)
- CORRECTED AMPACITY CALCULATIONS: AMPACITY X TEMPERATURE DERATE FACTOR X CONDUIT FILL DERATE = DERATED CONDUCTOR AMPACITY
- DERATED CONDUCTOR AMPACITY CHECK: MAX CURRENT PER 690.8(B)(2)(2) < DERATED CONDUCTOR AMPACITY

DC WIRE CALCULATIONS:- MATERIAL: COPPER & TEMPERATURE RATING: 90°C																					
TAG ID	REQUIRED CONDUCTOR AMPACITY					CORRECTED AMPACITY CALCULATION					DERATED CONDUCTOR AMPACITY CHECK										
1	1	X	15	X	1	=	15	X	1.25	=	18.75A	40	X	0.71	X	0.8	=	22.72A	18.75A	<	22.72A
2	1	X	15	X	1	=	15	X	1.25	=	18.75A	40	X	0.71	X	0.8	=	22.72A	18.75A	<	22.72A

AC WIRE CALCULATIONS:- MATERIAL: COPPER & TEMPERATURE RATING: 90°C																			
TAG ID	REQUIRED CONDUCTOR AMPACITY					CORRECTED AMPACITY CALCULATION					DERATED CONDUCTOR AMPACITY CHECK								
3	42	X	1	=	42	X	1.25	=	52.50A	75	X	0.87	X	1	=	65.25A	52.50A	<	65.25A



SINGLE LINE DIAGRAM

DESIGNER /CHECKED BY: AV/SN PAPER SIZE: 17"X11"

SCALE: AS NOTED REV: A

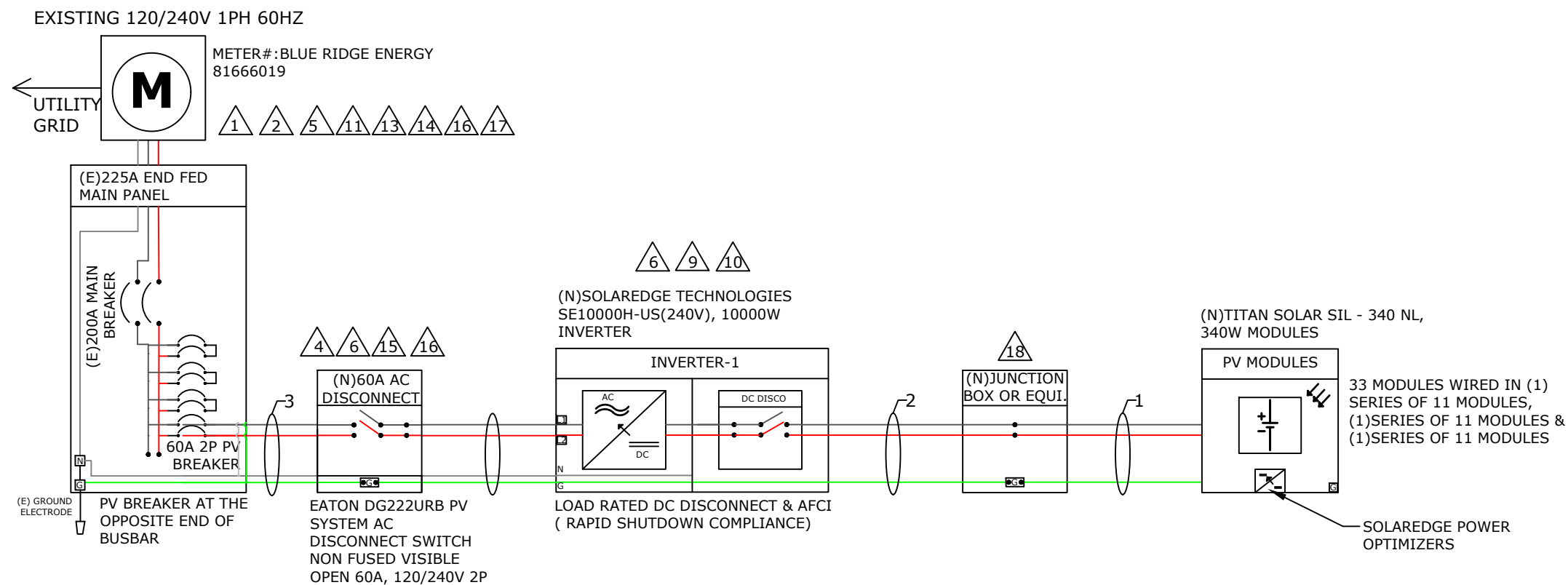
DATE: 5/26/2021 E-1

THREE LINE DIAGRAM: DC SYSTEM SIZE - 11220W, AC SYSTEM SIZE - 10000W

ELECTRICAL NOTES

INVERTER-1 SPECIFICATIONS		MODULE SPECIFICATION		OPTIMIZER CHARACTERISTICS		SYSTEM CHARACTERISTICS	
MODEL	SOLAREGE TECHNOLOGIES SE10000H-US(240V)	MODEL	TITAN SOLAR SIL - 340 NL	MODEL	P340	DC SYSTEM SIZE	11220 W
POWER RATING	10000W	MODULE POWER @ STC	340W	MIN INPUT VOLTAGE	8 VDC	INVERTER STRING VOLTAGE: Vmp	400V
MAX OUTPUT CURRENT	42A	OPEN CIRCUIT VOLTAGE: Voc	40.9V	MAX INPUT VOLTAGE	48 VDC	MAX INVERTER SYSTEM VOLTAGE: Voc	480V
CEC WEIGHTED EFFICIENCY	99%	MAX POWER VOLTAGE: Vmp	33.7V	MAX INPUT CURRENT	11 ADC	MAX SHORT CIRCUIT CURRENT	15A
MAX INPUT CURRENT	27A	SHORT CIRCUIT CURRENT: Isc	10.5A	MAX OUTPUT CURRENT	15 ADC	OPERATING CURRENT	9.35A
MAX DC VOLTAGE	480V	MAX POWER CURRENT: Imp	10.1A				

- 1.CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER NEC 310.10(D).
- 2.CONDUCTORS EXPOSED TO WET LOCATIONS SHALL BE SUITABLE FOR USE IN WET LOCATIONS PER NEC 310.10(C).
- 3.MAXIMUM DC/AC VOLTAGE DROP SHALL BE NO MORE THAN 2%.
- 4.ALL CONDUCTORS SHALL BE IN CONDUIT UNLESS OTHERWISE NOTED.
- 5.BREAKER/FUSE SIZES CONFORMS TO NEC 240.6 CODE SECTION.
- 6.AC GROUNDING ELECTRODE CONDUCTOR SIZED PER NEC 250.66.
- 7.AMBIENT TEMPERATURE CORRECTION FACTOR IS BASED ON NEC 690.31(C).
- 8.AMBIENT TEMPERATURE ADJUSTMENT FACTOR IS BASED ON NEC 310.15(B)(2).
- 9.MAX. SYSTEM VOLTAGE CORRECTION IS PER NEC 690.7.
- 10.CONDUCTORS ARE SIZED PER WIRE AMPACITY TABLE NEC 310.15(B)(16).



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CONDUIT SCHEDULE				
TAG ID	CONDUIT SIZE	CONDUCTOR	NEUTRAL	GROUND
1	NONE	(4) 10AWG PV WIRE	NONE	(1) 10AWG BARE COPPER
2	3/4" EMT OR EQUIV	(4) 10AWG THHN/THWN-2	NONE	(1) 10AWG THHN/THWN-2
3	3/4" EMT OR EQUIV	(2) 6AWG THHN/THWN-2	(1) 6AWG THHN/THWN-2	(1) 10AWG THHN/THWN-2

NOTE:
MAIN PANEL RATING: 225A, MAIN BREAKER RATING: 200A
120% RULE: (225A x 1.2) - 200A = 70A => ALLOWABLE BACKFEED IS 70A

OCPD CALCULATIONS:
INVERTER OVERCURRENT PROTECTION = INVERTER O/P I X CONTINUOUS LOAD (1.25)
= 42 x 1.25 = 52.50A => PV BREAKER = 60A
ALLOWABLE BACKFEED 70A => 60A PV BREAKER

THE DESIGNED INTERCONNECTION MEETS THE 705.12(B)(2) REQUIREMENTS.

ELECTRICAL CALCULATIONS

DC WIRE SIZING CALCULATIONS BASED OF FOLLOWING EQUATIONS >>

- REQUIRED CONDUCTOR AMPACITY: 125% PER 690.8(A)(1) X I_{sc}(A) X # OF PARALLEL STRINGS = MAX CURRENT PER 690.8(A)(1) X 125% PER 690.8(B)(2)(a) = MAX CURRENT PER 690.8(B)(2)(a)
- CORRECTED AMPACITY CALCULATIONS: AMPACITY X TEMPERATURE DERATE FACTOR X CONDUIT FILL DERATE = DERATED CONDUCTOR AMPACITY
- DERATED CONDUCTOR AMPACITY CHECK: MAX CURRENT PER 690.8(B)(2)(2) < DERATED CONDUCTOR AMPACITY

AC WIRE SIZING CALCULATIONS BASED OF FOLLOWING EQUATIONS >>

- REQUIRED CONDUCTOR AMPACITY: INVERTER OUTPUT CURRENT X # OF INVERTERS X MAX CURRENT PER 690.8(A)(3) X 125% PER 690.8(B)(2)(A)
- CORRECTED AMPACITY CALCULATIONS: AMPACITY X TEMPERATURE DERATE FACTOR X CONDUIT FILL DERATE = DERATED CONDUCTOR AMPACITY
- DERATED CONDUCTOR AMPACITY CHECK: MAX CURRENT PER 690.8(B)(2)(2) < DERATED CONDUCTOR AMPACITY

DC WIRE CALCULATIONS:- MATERIAL: COPPER & TEMPERATURE RATING: 90°C																					
TAG ID	REQUIRED CONDUCTOR AMPACITY					CORRECTED AMPACITY CALCULATION					DERATED CONDUCTOR AMPACITY CHECK										
1	1	X	15	X	1	=	15	X	1.25	=	18.75A	40	X	0.71	X	0.8	=	22.72A	18.75A	<	22.72A
2	1	X	15	X	1	=	15	X	1.25	=	18.75A	40	X	0.71	X	0.8	=	22.72A	18.75A	<	22.72A

AC WIRE CALCULATIONS:- MATERIAL: COPPER & TEMPERATURE RATING: 90°C																			
TAG ID	REQUIRED CONDUCTOR AMPACITY					CORRECTED AMPACITY CALCULATION					DERATED CONDUCTOR AMPACITY CHECK								
3	42	X	1	=	42	X	1.25	=	52.50A	75	X	0.87	X	1	=	65.25A	52.50A	<	65.25A



THREE LINE DIAGRAM

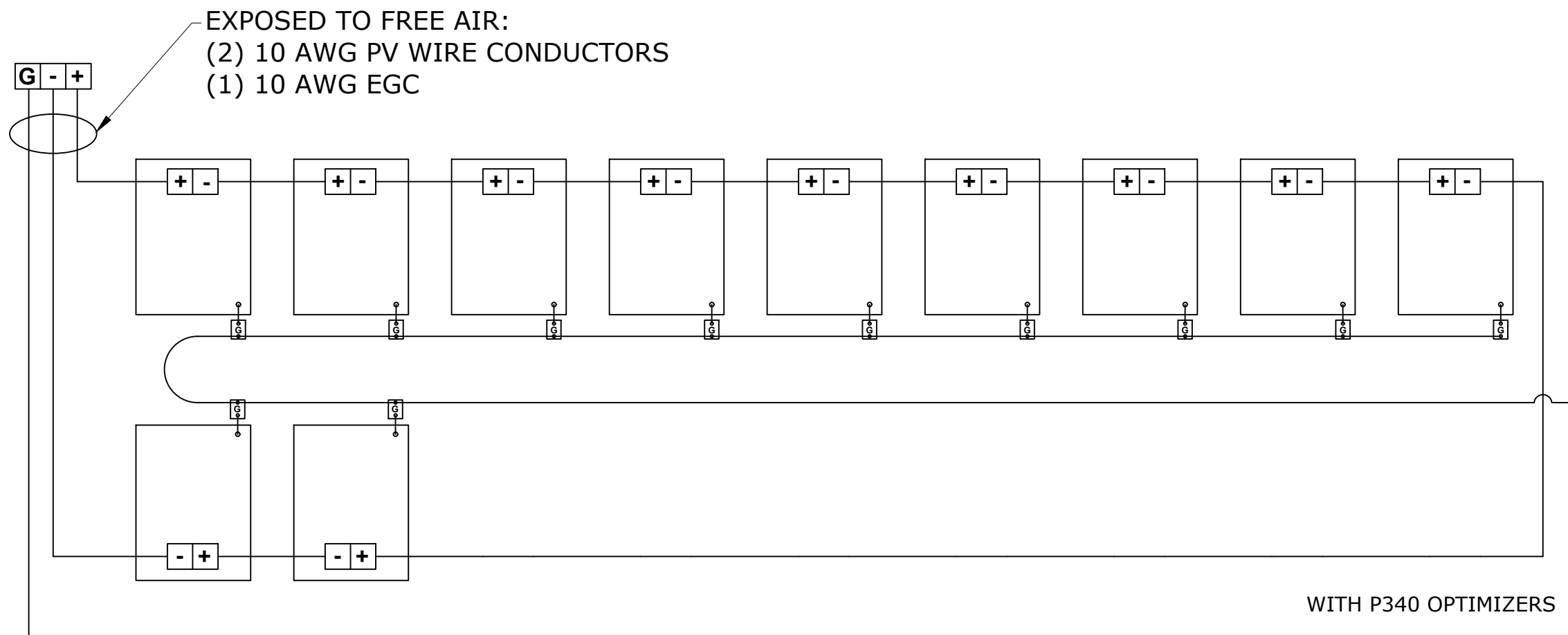
DESIGNER /CHECKED BY: AV/SN PAPER SIZE: 17"X11"

SCALE: AS NOTED REV: A

DATE: 5/26/2021 E-2

STRING WIRING DIAGRAM

3 STRINGS OF 11 MODULES



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PAPER SIZE: 17"X11"

SCALE: AS NOTED

REV: A

DATE: 5/26/2021

E-3

WARNING PLACARD

1

CAUTION
PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED

LABEL LOCATION
BACKFED BREAKER [PER CODE: NEC 705.12(4)]

2

WARNING
INVERTER OUTPUT CONNECTION:
DO NOT RELOCATE THIS
OVERCURRENT DEVICE

LABEL LOCATION: BACKFED BREAKER
[PER CODE: 2017 NEC 705.12(2)(3)(b)]

3

WARNING
A GENERATION SOURCE IS CONNECTED TO THE SUPPLY
(UTILITY) SIDE OF THE MAIN SERVICE DISCONNECT. FOLLOW
THE PROPER LOCK-OUT/TAG-OUT PROCEDURES TO ENSURE
THE PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH IS
OPENED PRIOR TO PERFORMING WORK ON THIS DEVICE

LABEL LOCATION: (IF APPLICABLE) SUPPLY SIDE TAP LOAD PANEL
[PER CODE: UTILITY]

4

PHOTOVOLTAIC AC DISCONNECT
RATED AC OPERATING CURRENT 42.00 A
AC NOMINAL OPERATING VOLTAGE 240 VAC

LABEL LOCATION: MAIN PANEL AC DISCONNECT(S)
[PER CODE: NEC 690.54]

5

**RAPID SHUTDOWN SWITCH
FOR SOLAR PV SYSTEM**

LABEL LOCATION: MAIN PANEL
[PER CODE: NEC 690.12,690.56(C)(3)]

6

WARNING
ELECTRIC SHOCK HAZARD
TERMINALS ON BOTH LINE AND LOAD SIDES MAY
BE ENERGIZED IN THE OPEN POSITION

LABEL LOCATION: COMBINER PANEL
AC DISCONNECT JUNCTION BOX INVERTER(S)
[PER CODE: NEC 690.13(B)]

8

WARNING
PHOTOVOLTAIC SYSTEM
COMBINER PANEL
DO NOT ADD LOADS

LABEL LOCATION: AC COMBINER PANEL
[PER CODE: NEC 690.13(B)]

9

MAXIMUM VOLTAGE: 480 VDC
MAXIMUM CIRCUIT CURRENT: 15 ADC
**MAX. RATED OUTPUT CURRENT OF THE
CHARGE CONTROLLER OR
DC-TO-DC-CONVERTER (IF
INSTALLED)** 15 ADC

LABEL LOCATION: DC DISCONNECT INVERTER
[PER CODE: NEC 690.53 UTILITY]

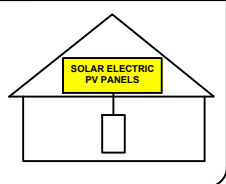
10

WARNING
ELECTRIC SHOCK HAZARD
TERMINALS ON BOTH LINE AND LOAD SIDES MAY
BE ENERGIZED IN THE OPEN POSITION
DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR
MODULES ARE EXPOSED TO SUNLIGHT

LABEL LOCATION
DC DISCONNECT INVERTER, COMBINE BOX
[PER CODE: NEC 690.13(B)]

11

**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 LOCATION: MAIN SERVICE
[PER CODE: NEC 690.12, NEC 690.56(C)(1)(a)]

13

CAUTION
DUAL POWER SOURCE
SECOND SOURCE IS
PHOTOVOLTAIC

LABEL LOCATION :SERVICE METER MAIN PANEL
[PER CODE: UTILITY]

14

WARNING
INVERTER OUTPUT CONNECTION
DO NOT RELOCATE THIS
OVER-CURRENT DEVICE

LABEL LOCATION : (IF APPLICABLE) SERVICE PANEL
[PER CODE: NEC 705.12(D)(7)]

15

**PHOTOVOLTAIC SYSTEM
UTILITY DISCONNECT SWITCH**

LABEL LOCATION :AC DISCONNECT
[PER CODE: NEC 690.13(B)UTILITY]

16

WARNING
ELECTRIC SHOCK HAZARD
IF GROUND FAULT IS INDICATED ALL NORMALLY
GROUNDED CONDUCTORS MAY BE UNGROUNDED
AND ENERGIZED

LABEL LOCATION
AC DISCONNECT COMBINER BOX SERVICE METER
[PER CODE: NEC 690.5(C)]

17

PV SOLAR BREAKER
DO NOT RELOCATE THIS
OVERCURRENT DEVICE

LABEL LOCATION
MAIN PANEL DEAD FRONT
[PER CODE: NEC 705.12(B)(2)(3)(b)]

18

WARNING PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION
DC CONDUIT JUNCTION BOX NO MORE THAN 10FT
[PER CODE: NEC 690.31(G)(3),NEC 690.31(G)(4)]



ADDRESS: 525W, BASELINE RD
MESA AZ,85210

CUSTOMER INFORMATION

NAME: QUINTIN EMERSON

ADDRESS:407 NEW CASTLE LN, SPRING
LAKE, NC 28390

35.235271, -78.978352
APN: 050-46-04-564-000

AHJ:NC-COUNTY HARNETT

UTILITY:BLUE RIDGE ENERGY

PRN NUMBER: TPS-26023



WARNING PLACARDS

DESIGNER /CHECKED
BY: AV/SN

PAPER SIZE:17"X11"

SCALE:AS NOTED

REV:A

DATE:5/26/2021

PL-1

REFLECTIVE AND WEATHER RESISTANCE LABEL REQUIRES CAPITALIZED LETTERS WITH A MINIMUM HEIGHT OF 3/8INCH, WHITE LETTERS ON RED BACKGROUND LABELS SHALL BE PLACED ON INTERIOR AND EXTERIOR DCCONDUIT, RACEWAYS, ENCLOSURE, AND CABLE ASSEMBLIES EVERY 10 FEET, WITHIN 1 FOOT OF TURNS OR BENDSAND WITHIN 1 FOOT ABOVE AND BELOW PENETRATIONS OF ROOF/ CEILING ASSEMBLIES, WALLS OR BARRIERS.

SAFETY PLANS

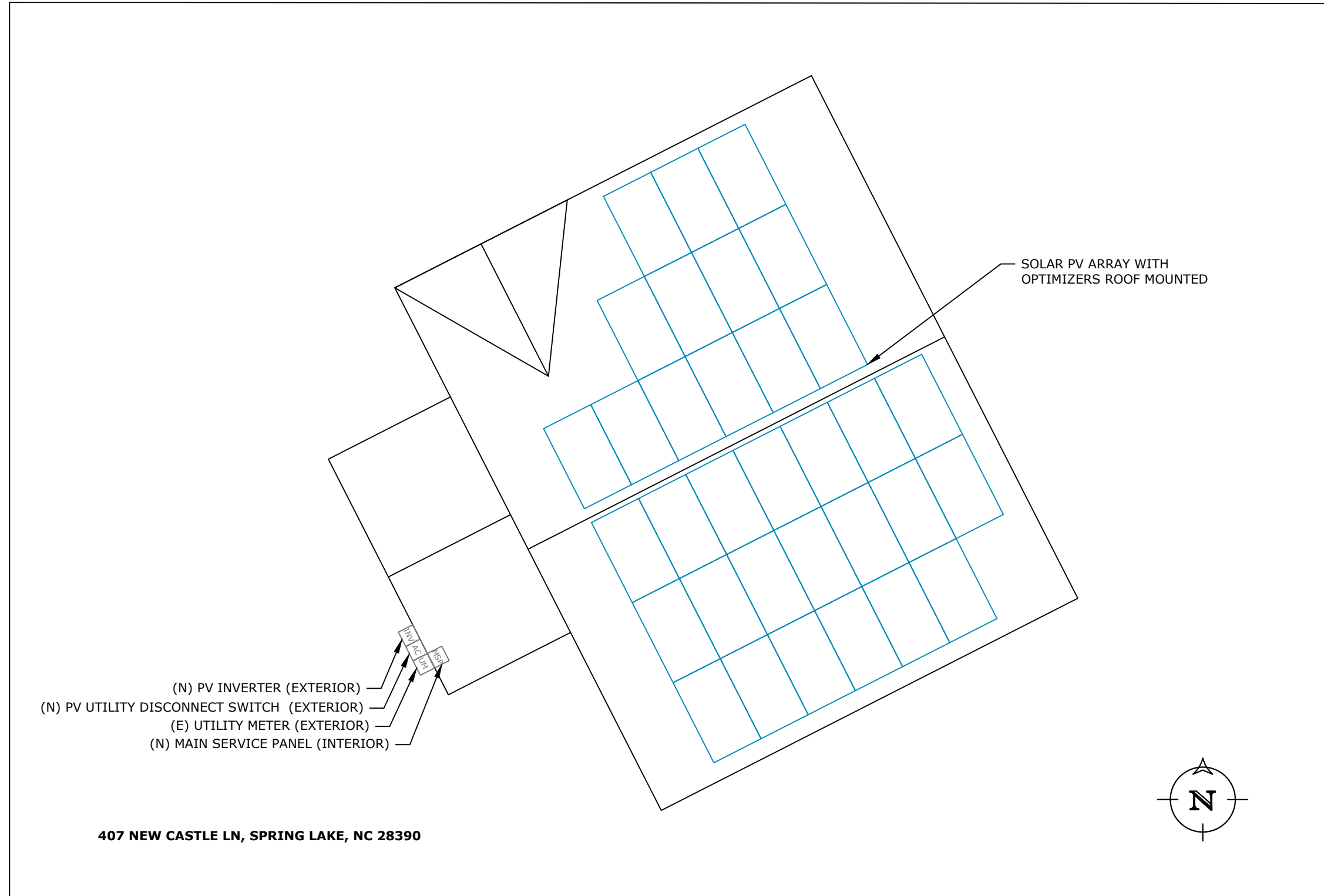
SAFETY PLANS

NOTES:

1. INSTALLERS SHALL DRAW IN DESIGNATED SAFETY AREA AROUND HOME.
2. INSTALLERS SHALL UPDATE NAME ADDRESS AND PHONE NUMBER OF NEAREST.
3. URGENT CARE FACILITY RELATIVE TO THE SITE BEFORE STARTING WORK.

LOCATION OF NEAREST URGENT CARE FACILITY

NAME:
ADDRESS:
PHONE NUMBER:



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SAFETY PLANS-1

DESIGNER /CHECKED BY: AV/SN	PAPER SIZE:17"X11"
SCALE:AS NOTED	REV:A
DATE:5/26/2021	PL-2

SAFETY PLANS

SAFETY PLANS

NOTES:

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2. INSTALLERS SHALL UPDATE NAME ADDRESS AND PHONE NUMBER OF NEAREST.
3. URGENT CARE FACILITY RELATIVE TO THE SITE BEFORE STARTING WORK.

LOCATION OF NEAREST URGENT CARE FACILITY

NAME:
ADDRESS:
PHONE NUMBER:

PERSONS COVERED BY THIS JOB SAFETY PLAN

**INJURED AT WORK TODAY?
INITIAL YES OR NO**

PRINT NAME	INITIAL	YES	NO

UNDERGROUND DIG REQUIRED?

YES _____ PERMIT # _____



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SAFETY PLANS-2

DESIGNER /CHECKED BY: AV/SN

PAPER SIZE:17"X11"

SCALE:AS NOTED

REV:A

DATE:5/26/2021

PL-3

SPEC SHEET



TITAN

SOLAR PANEL

60 Cell
Monocrystalline
PV Module



CHUBB
* Chubb provides error and omission insurance to Silfab Solar Inc.

SIL-340 NL
POWERED BY
SILFAB SOLAR



INDUSTRY LEADING WARRANTY
The Titan Solar Panel is manufactured by Silfab Solar and includes an industry leading 25-year product workmanship and 30-year performance warranty.

MAXIMUM ENERGY OUTPUT
Leveraging over 35+ years of worldwide experience in the solar industry, Silfab is dedicated to superior manufacturing processes and innovations such as Bifacial and Back Contact technologies, to ensure our partners, such as Titan Solar have the latest in solar innovation.

NORTH AMERICAN QUALITY
Silfab is the leading automated solar module manufacturer in North America. Utilizing premium quality materials and strict quality control management to deliver the highest efficiency, premium quality PV modules 100% made in North America.



BAA / ARRA COMPLIANT
Panels are designed and manufactured to meet Buy American Act Compliance. The US State Department, US Military and FAA have all utilized Silfab panels in their solar installations.

LIGHT AND DURABLE
Engineered to accommodate high wind load conditions for test loads validated up to 4000Pa uplift. The light-weight frame is exclusively designed for wide-ranging racking compatibility and durability.

QUALITY MATTERS
Total automation ensures strict quality controls during the entire manufacturing process at ISO certified facilities.

DOMESTIC PRODUCTION
Silfab Solar manufactures PV modules in two automated locations within North America. Our 500+ North American team is ready to help Titan Solar win the hearts and minds of customers, providing customer service and product delivery that is direct, efficient and local.

AESTHETICALLY PLEASING
All black sleek design, ideal for high-profile residential or commercial applications.

PID RESISTANT
PID Resistant due to advanced cell technology and material selection. In accordance to IEC 62804-1.

Electrical Specifications		SIL-340 NL mono PERC	
Test Conditions		STC	NOCT
Module Power (Pmax)	Wp	340	241
Maximum power voltage (Vpmax)	V	33.7	30.4
Maximum power current (Ipmax)	A	10.1	7.9
Open circuit voltage (Voc)	V	40.9	37.1
Short circuit current (Isc)	A	10.5	8.3
Module efficiency	%	20.0	17.7
Maximum system voltage (VDC)	V	1000	
Series fuse rating	A	20	
Power Tolerance	Wp	+/-3%	

Measurement conditions: STC 1000 W/m² • AM 1.5 • Temperature 25 °C • NOCT 800 W/m² • AM 1.5 • Measurement uncertainty ±3%
• Sun simulator calibration reference modules from Fraunhofer Institute. Electrical characteristics may vary by ±5% and power by +/-3%.

Temperature Ratings		SIL-340 NL mono PERC	
Temperature Coefficient Isc		0.064 %/°C	
Temperature Coefficient Voc		-0.28 %/°C	
Temperature Coefficient Pmax		-0.36 %/°C	
NOCT (± 2°C)		46 °C	
Operating temperature		-40/+85 °C	

Mechanical Properties and Components		SIL-340 NL mono PERC	
Module weight		41 ±0.4 lbs	
Dimensions (H x L x D)		66.9 in x 39.4 in x 1.5 in	
Maximum surface load (wind/snow)*		83.5/112.8 lb/ft ²	
Hail impact resistance		ø 1 in at 51.6 mph	
Cells		60 - Si mono PERC - 5 busbar, 6.25 x 6.25 Inch	
Glass		0.126 in high transmittance, tempered, DSM anti-reflective coating	
Cables and connectors (refer to installation manual)		47.2 in, ø 0.22 in, MC4 from Staubli	
Backsheet		High durability, superior hydrolysis and UV resistance, multi-layer dielectric film, fluorine-free PV backsheet	
Frame		Anodized Aluminum (Black)	
Bypass diodes		3 diodes-30SQ045T (45V max DC blocking voltage, 30A max forward rectified current)	
Junction Box		UL 3730 Certified, IEC 62790 Certified, IP67 rated	

Warranties		SIL-340 NL mono PERC	
Module product workmanship warranty		25 years**	
Linear power performance guarantee		30 years	
		≥ 97.1% end 1 st year	≥ 91.6% end 12 th year
		≥ 85.1% end 25 th year	≥ 82.6% end 30 th year

Certifications		SIL-340 NL mono PERC	
Product		ULC ORD C1703, UL1703, CEC listed***, UL 61215-1/-1-1/-2, UL 61730-1/-2, IEC 61215-1/-1-1/-2***, IEC 61730-1/-2***, CSA C22.2#61730-1/-2***, IEC 62716 Ammonia Corrosion; IEC61701:2011 Salt Mist Corrosion Certified, UL Fire Rating: Type 2 ISO9001:2015	

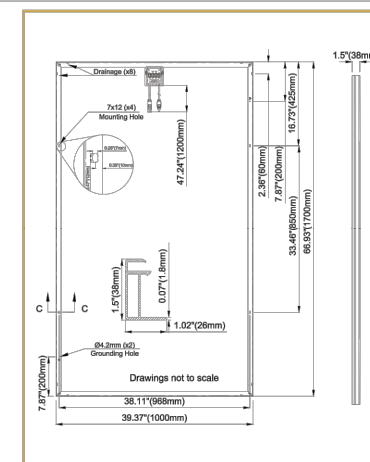
Factory
 ■ Modules Per Pallet: 26
 ■ Pallets Per Truck: 36
 ■ Modules Per Truck: 936

*▲ Warning, Read the Safety and Installation Manual for mounting specifications and before handling, installing and operating modules.
 **12 year extendable to 25 years subject to registration and conditions outlined under "Warranty" at www.silfab.com.
 ***September 2020 expected completion date.
 PAN files generated from 3rd party performance data are available for download at: www.silfab.com/downloads

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525 W Baseline Rd
Mesa, AZ 85210
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PRN NUMBER: TPS-26023



MODULE SPEC SHEET

DESIGNER /CHECKED BY: AV/SN

PAPER SIZE:17"X11"

SCALE:AS NOTED

REV:A

DATE:5/26/2021

SS-1

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

INVERTERS

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking 99% weighted efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- 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
- Small, lightweight, and easy to install both outdoors or indoors
- Built-in module-level monitoring
- Optional: Faster installations with built-in consumption metering (1% accuracy) and production revenue grade metering (0.5% accuracy, ANSI C12.20)

solaredge.com



Single Phase Inverter with HD-Wave Technology for North America

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

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXXBXX4							
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 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
Power Factor	1, Adjustable - 0.85 to 0.85							
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			400				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	600ka Sensitivity							
Maximum Inverter Efficiency	99	99.2						%
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5							W

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



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INVERTER SPEC SHEET

DESIGNER /CHECKED BY: AV/SN PAPER SIZE:17"X11"

SCALE:AS NOTED REV:A

DATE:5/26/2021 SS-2

SPEC SHEET

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

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

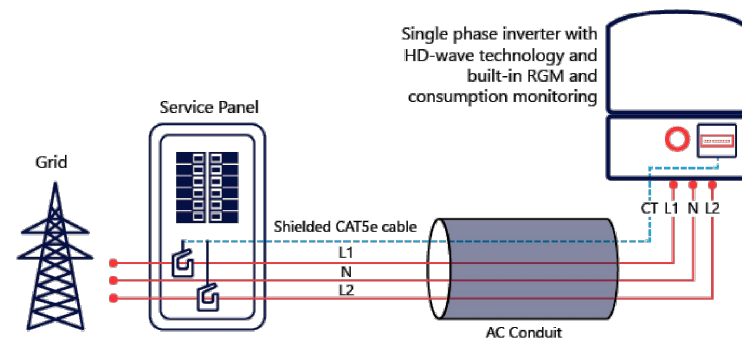
MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US
ADDITIONAL FEATURES							
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)						
Revenue Grade Metering, ANSI C12.20	Optional ¹⁾						
Consumption metering							
Inverter Commissioning	With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection						
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	1" Maximum / 14-6 AWG			1" Maximum /14-4 AWG			
DC Input Conduit Size / # of Strings / AWG Range	1" Maximum / 1-2 strings / 14-6 AWG			1" Maximum / 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			
Weight with Safety Switch	22 / 10	25.1 / 11.4	26.2 / 11.9	38.8 / 17.6			
Noise	< 25			<50			
Cooling	Natural Convection						
Operating Temperature Range	-40 to +140 / -40 to +60 ⁶⁾						
Protection Rating	NEMA 4X (Inverter with Safety Switch)						

¹⁾ Inverter with Revenue Grade Meter P/N: SExxxxH-US000BNC4; Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxxH-US000BN14. For consumption metering, current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT0750-400NA-20. 20 units per box

⁶⁾ Full power up to at least 50°C / 122°F; for power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>

How to Enable Consumption Monitoring

By simply wiring current transformers through the inverter's existing AC conduits and connecting them to the service panel, homeowners will gain full insight into their household energy usage helping them to avoid high electricity bills



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INVERTER SPEC SHEET

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SS-3

Power Optimizer

For North America

P320 / P340 / P370 / P400 / P405 / P485 / P505



POWEROPTIMIZER

PV power optimization at the module-level

- Specifically designed to work with SolarEdge inverters
- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module-level monitoring
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)
- Module-level voltage shutdown for installer and firefighter safety

solaredge.com



Power Optimizer For North America

P320 / P340 / P370 / P400 / P405 / P485 / P505

Optimizer model (typical module compatibility)	P320 (for 60-cell modules)	P340 (for high-power 60-cell modules)	P370 (for higher-power 60 and 72-cell modules)	P400 (for 72 & 96-cell modules)	P405 (for high-voltage modules)	P485 (for high-voltage modules)	P505 (for higher current modules)	
INPUT								
Rated Input DC Power ¹⁾	320	340	370	400	405	485	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		60	80	125 ²⁾		83 ²⁾	Vdc
MPPT Operating Range	8 - 48		8 - 60	8 - 80	12.5 - 105		12.5 - 83	Vdc
Maximum Short Circuit Current (Isc)		11			10.1		14	Adc
Maximum DC Input Current		13.75			12.5		17.5	Adc
Maximum Efficiency				99.5				%
Weighted Efficiency			98.8				98.6	%
Overvoltage Category				II				
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER)								
Maximum Output Current				15				Adc
Maximum Output Voltage		60				85		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE 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					
Material			UL94 V-0, UV Resistant					
RoHS			Yes					
INSTALLATION SPECIFICATIONS								
Maximum Allowed System Voltage			1000					Vdc
Compatible inverters			All SolarEdge Single Phase and Three Phase inverters					
Dimensions (W x L x H)	129 x 153 x 27.5 / 5.1 x 6 x 1.1		129 x 153 x 33.5 / 5.1 x 6 x 1.3	129 x 159 x 49.5 / 5.1 x 6.3 x 1.9	129 x 162 x 59 / 5.1 x 6.4 x 2.3			mm / in
Weight (including cables)	630 / 1.4		750 / 1.7	845 / 1.9	1064 / 2.3			gr / lb
Input Connector			MC4 ³⁾		Single or dual MC4 ³⁾⁽⁴⁾	MC4 ³⁾		
Input Wire Length			0.16 / 0.52					m / ft
Output Wire Type / Connector			Double Insulated / MC4					
Output Wire Length	0.9 / 2.95		1.2 / 3.9	1.2 / 3.9	1.2 / 3.9	1.2 / 3.9		m / ft
Operating Temperature Range ⁵⁾			-40 - +85 / -40 - +185					°C / °F
Protection Rating			IP68 / NEMA6P					
Relative Humidity			0 - 100					%

¹⁾ Rated power of the module at STC will not exceed the optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed
²⁾ NEC 2017 requires max input voltage be not more than 80V
³⁾ For other connector types please contact SolarEdge
⁴⁾ For dual version for parallel connection of two modules use the P485. In the case of an odd number of PV modules in one string, installing one P485 dual version power optimizer
⁵⁾ For ambient temperature above +85°C / +185°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details.

PV System Design Using a SolarEdge Inverter ⁶⁾⁽⁷⁾	Single Phase HD-Wave	Single phase	Three Phase for 208V grid	Three Phase for 277/480V grid	
Minimum String Length (Power Optimizers)	P320, P340, P370, P400, P405, P485, P505	8	10	18	
Maximum String Length (Power Optimizers)		6	8	14	
Maximum String Length (Power Optimizers)		25	25	50 ⁸⁾	
Maximum Power per String		5700 (6000 with SE7600-US - SE11400-US)	5250	6000 ⁹⁾	12750 ¹⁰⁾ W
Parallel Strings of Different Lengths or Orientations		Yes			

⁶⁾ For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf
⁷⁾ It is not allowed to mix P405/P485/P505 with P320/P340/P370/P400 in one string
⁸⁾ A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement
⁹⁾ For 208V grid: it is allowed to install up to 6,500W per string when the maximum power difference between each string is 1,000W
¹⁰⁾ For 277/480V grid: it is allowed to install up to 17,550W per string when the maximum power difference between each string is 2,000W

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OPTIMIZER SPEC SHEET

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PAPER SIZE:17"X11"

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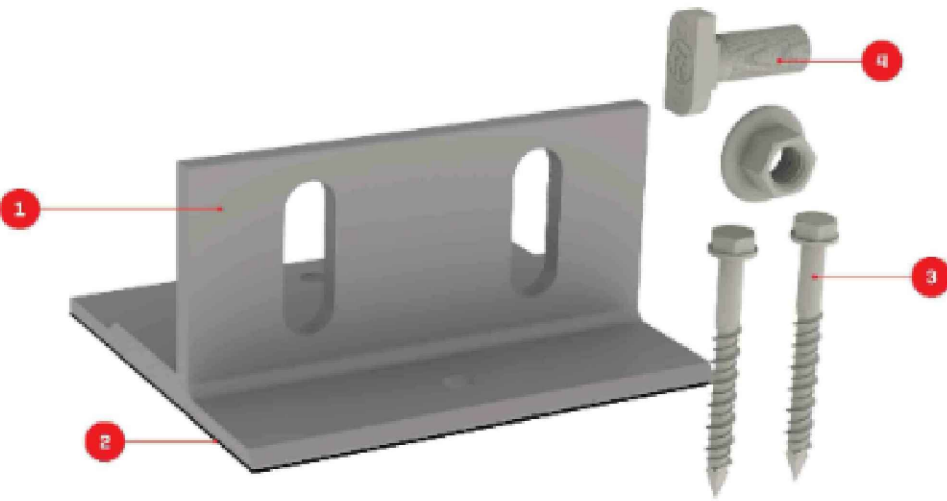
REV:A

DATE:5/26/2021

SS-4

SPEC SHEET

We support PV systems
Formerly Everest Solar Systems

Splice Foot X

TECHNICAL SHEET

Item Number	Description	Part Number
1	Splice Foot X	4000123 Splice Foot X Kit, Mil
2	K2 Solar Seal Butyl Pad	
3	M5 x 80 lag screws	
4	T-Bolt & Hex Nut Set	

Technical Data

	Splice Foot X
Roof Type	Composition shingle
Material	Aluminum with stainless steel hardware
Finish	Mil
Roof Connection	M5 x 80 lag screws
Code Compliance	LL 2703
Compatibility	Cross Tail 44-X, 48-X, 48-XL, 60

k2-systems.com



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MOUNT SPEC SHEET

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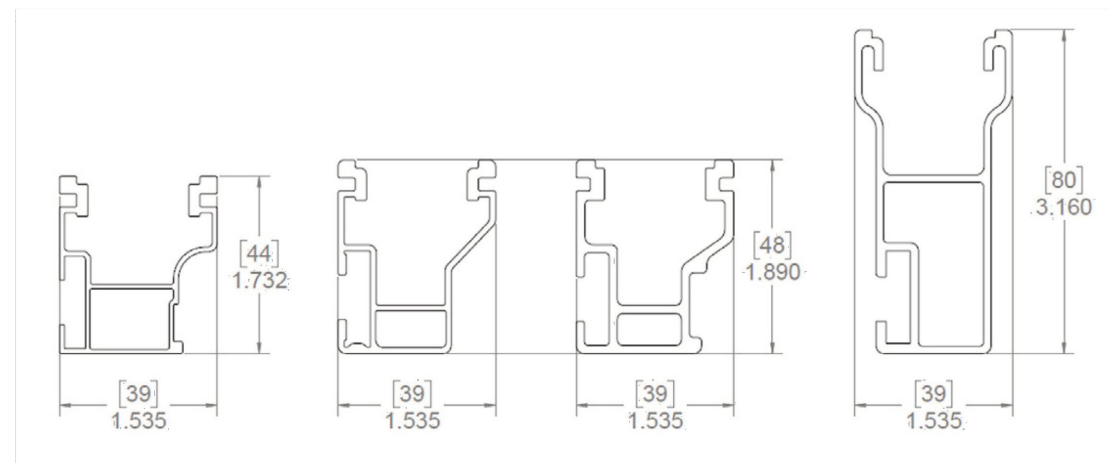
SS-5

SPEC SHEET

We support PV systems
Formerly Everest Solar Systems



Units: [mm] in



Technical Data

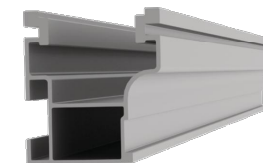
	CrossRail Shared Rail System
Roof Type	Composition shingle, standing seam
Material	High corrosion resistance stainless steel and high grade aluminum
Flexibility	Modular construction, suitable for any system size, height adjustable
PV Modules	For all common module types
Module Orientation	Portrait and landscape
Roof Connection	Drill connection into rafter
Structural Validity	IBC compliant, stamped engineering letters available for all solar states
Warranty	25 years

k2-systems.com

We support PV systems
Formerly Everest Solar Systems



CROSSRAIL 44-X



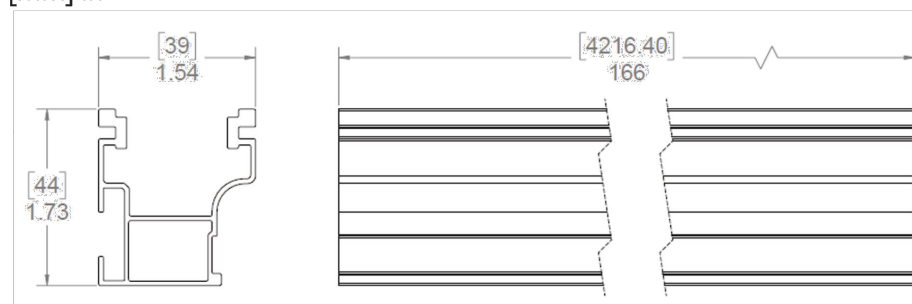
Mechanical Properties

	CrossRail 44-X
Material	6000 Series Aluminum
Ultimate Tensile Strength	37.7 ksi [260 MPa]
Yield Strength	34.8 ksi [240 MPa]
Weight	0.47 lbs/ft [0.699 kg/m]
Finish	Mill or Dark Anodized

Sectional Properties

	CrossRail 44-X
Sx	0.1490 in ³ [0.3785 cm ³]
Sy	0.1450 in ³ [0.3683 cm ³]
A [X-Section]	0.4050 in ² [1.0287 cm ²]

Units: [mm] in



Notes:

- ▶ Structural values and span charts determined in accordance with Aluminum Design Manual and ASCE 7-16
- ▶ UL2703 Listed System for Fire and Bonding

k2-systems.com



ADDRESS: 525W, BASELINE RD
MESA AZ,85210

CUSTOMER INFORMATION

NAME: QUINTIN EMERSON

ADDRESS: 407 NEW CASTLE LN, SPRING LAKE, NC 28390

35.235271, -78.978352
APN: 050-46-04-564-000

AHJ: NC-COUNTY HARNETT

UTILITY: BLUE RIDGE ENERGY

PRN NUMBER: TPS-26023



RAIL SPEC SHEET

DESIGNER /CHECKED BY: AV/SN PAPER SIZE: 17"X11"

SCALE: AS NOTED REV: A

DATE: 5/26/2021 SS-6