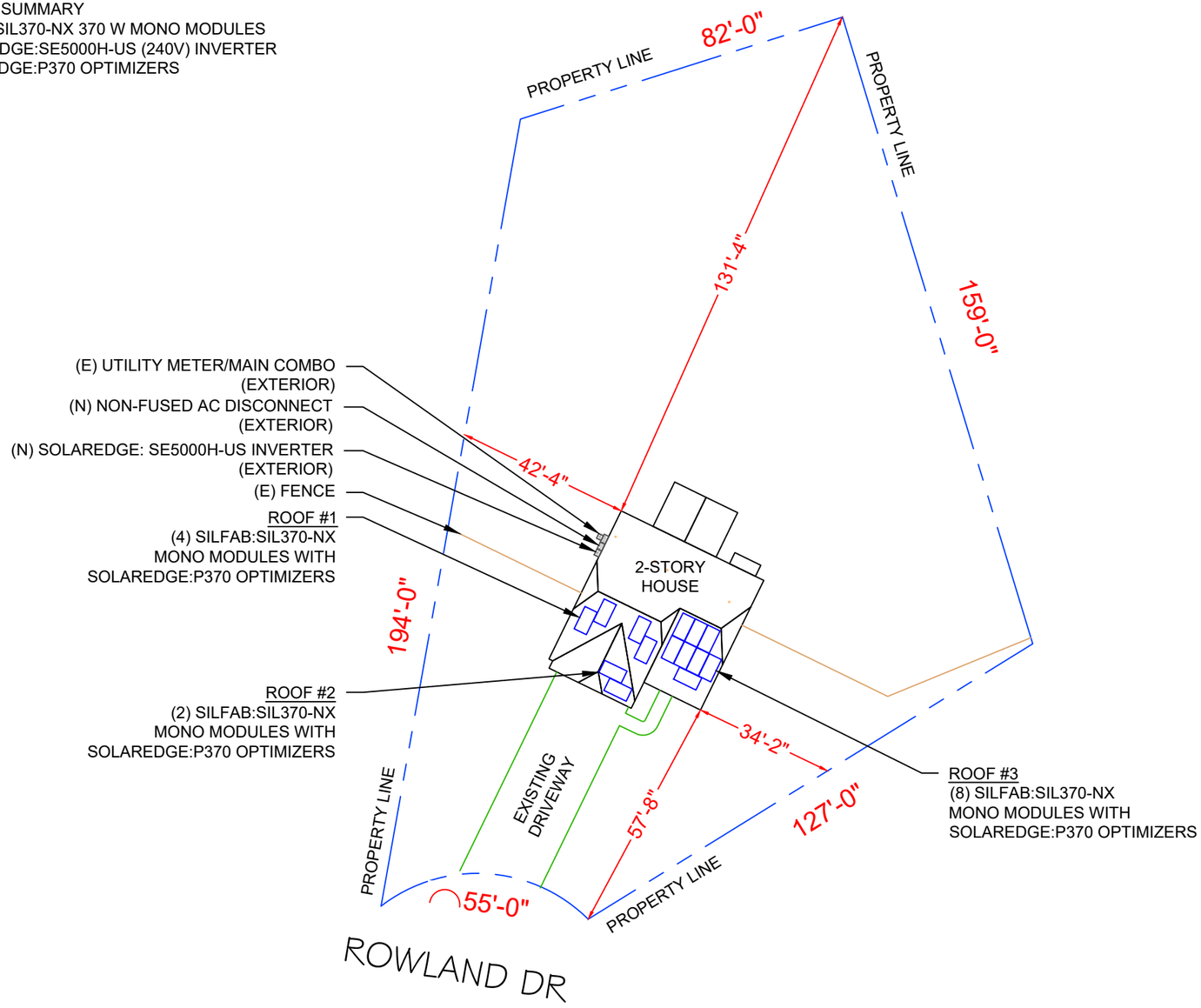
PROJECT DESCRIPTION:

14 x SILFAB:SIL370-NX MONO MODULES
ROOF MOUNTED SOLAR PHOTOVOLTAIC MODULES
DC SYSTEM SIZE: 5.180kW DC
AC SYSTEM SIZE: 5.000kW AC

EQUIPMENT SUMMARY
14 - SILFAB:SIL370-NX 370 W MONO MODULES
01 - SOLAREDGE:SE5000H-US (240V) INVERTER
14 - SOLAREDGE:P370 OPTIMIZERS

B
01/17/2022

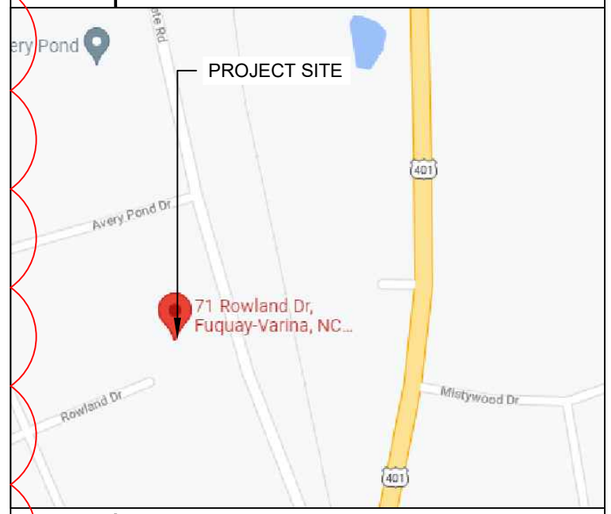


APPLICABLE CODES & STANDARDS
2018 INTERNATIONAL BUILDING CODE WITH NC AMENDMENTS.
2018 INTERNATIONAL FIRE CODE WITH NC AMENDMENTS.
2018 INTERNATIONAL RESIDENTIAL CODE WITH NC AMENDMENTS.
2017 NEC NO NC AMENDMENTS

DESIGN SPECIFICATION
OCCUPANCY: II
CONSTRUCTION: DOUBLE-FAMILY
ZONING: RESIDENTIAL
GROUND SNOW LOAD: 15 PSF
WIND EXPOSURE: B
WIND SPEED: 117 MPH

1 PLOT PLAN WITH ROOF PLAN
PV-1 SCALE: 1/32" = 1'-0"

2 HOUSE PHOTO
PV-1 SCALE: NTS



3 VICINITY MAP
PV-1 SCALE: NTS

SHEET INDEX

REVISIONS

DESCRIPTION	DATE	REV
INITIAL	09/22/2021	

TITAN SOLAR POWER
ADDRESS: 525W, BASELINE RD MESA AZ,85210

DATE:1/17/2022

PROJECT INFORMATION
AHJ: NC-HARNETT COUNTY
UTILITY: DUKE ENERGY

SCHMIDT, STEVEN RESIDENCE
71 ROWLAND DR, FUQUAY-VARINA, NC 27526
35.4996349, -78.8156589

DRAWN BY
ILLUMINEi Because quality matters

SHEET NAME
PLOT PLAN WITH ROOF PLAN

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-1

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

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 7/8" ABOVE THE ROOF SURFACE (INCLUDING CABLES UNDERNEATH MODULES AND RACKING).
7.THE PV INSTALLATION SHALL NOT OBSTRUCT ANY PLUMBING, MECHANICAL OR BUILDING ROOF VENTS.

ROOF ACCESS PATHWAYS AND SETBACKS:

1204.2.1 SOLAR PHOTOVOLTAIC SYSTEMS FOR GROUP R-3BUILDINGS.SOLAR PHOTOVOLTAIC SYSTEMS FOR GROUP R-3 BUILDINGS SHALL COMPLY WITH SECTIONS 1204.2.1.1 THROUGH 1204.2.1.3.

EXCEPTIONS:

1.THESE REQUIREMENTS SHALL NOT APPLY TO STRUCTURES DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE INTERNATIONAL RESIDENTIAL CODE.
2.THESE REQUIREMENTS SHALL NOT APPLY TO ROOFS WITH SLOPES OF 2 UNITS VERTICAL IN 12 UNITS HORIZONTAL OR LESS.

1204.2.1.1 PATHWAYS TO RIDGE. NOT FEWER THAN TWO 36-INCH-WIDE (914 MM) PATHWAYS ON SEPARATE ROOF PLANES,FROM LOWEST ROOF EDGE TO RIDGE, SHALL BE PROVIDED ON ALL BUILDINGS. NOT FEWER THAN ONE PATHWAY SHALL BE PROVIDED ON THE STREET OR DRIVEWAY SIDE OF THE ROOF. FOR EACH ROOF PLANE WITH A PHOTOVOLTAIC ARRAY, NOT FEWER THAN ONE 36-INCH-WIDE (914 MM) PATHWAY FROM LOWEST ROOF EDGE TO RIDGE SHALL BE PROVIDED ON THE SAME ROOF PLANE AS THE PHOTOVOLTAIC ARRAY, ON AN ADJACENT ROOF PLANE OR STRADDLING THE SAME AND ADJACENT ROOF PLANES

1204.2.1.2 SETBACKS AT RIDGE.FOR PHOTOVOLTAIC ARRAYS OCCUPYING 33 PERCENT OR LESS OF THE PLAN VIEW TOTAL ROOF AREA,
A SETBACK OF NOT LESS THAN 18 INCHES (457 MM)WIDE IS REQUIRED ON BOTH SIDES OF A HORIZONTAL RIDGE. FOR PHOTOVOLTAIC ARRAYS OCCUPYING MORE THAN 33 PERCENT OF THE PLAN VIEW TOTAL ROOF AREA, A SETBACK OF NOT LESS THAN 36 INCHES (457 MM) WIDE IS REQUIRED ON BOTH SIDES OF A HORIZONTAL RIDGE.

1204.2.2 EMERGENCY ESCAPE AND RESCUE OPENINGS. PANELS AND MODULES INSTALLED ON GROUP R-3 BUILDINGS SHALL NOT BE PLACED ON THE PORTION OF A ROOF THAT IS BELOW AN EMERGENCY ESCAPE AND RESCUE OPENING. A PATHWAY OF NOT LESS THAN 36 INCHES (914 MM) WIDE SHALL BE PROVIDED TO THE EMERGENCY ESCAPE AND RESCUE OPENING

1204.2.1.3 ALTERNATIVE SETBACKS AT RIDGE. WHERE AN AUTOMATIC SPRINKLER SYSTEM IS INSTALLED WITHIN THE DWELLING IN ACCORDANCE WITH SECTION 903.3.1.3, SETBACKS AT THE RIDGE SHALL CONFORM TO ONE OF THE FOLLOWING:
1.FOR PHOTOVOLTAIC ARRAYS OCCUPYING 66 PERCENT OR LESS OF THE PLAN VIEW TOTAL ROOF AREA, A SETBACK OF NOT LESS THAN 18 INCHES (457 MM) WIDE IS REQUIRED ON BOTH SIDES OF A HORIZONTAL RIDGE.
2.FOR PHOTOVOLTAIC ARRAYS OCCUPYING MORE THAN 66 PERCENT OF THE PLAN VIEW TOTAL ROOF AREA, A SETBACK OF NOT LESS THAN 36 INCHES (914 MM) WIDE IS REQUIRED ON BOTH SIDES OF A HORIZONTAL RIDGE

ELECTRICAL NOTES

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(A).
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).

REVISIONS

DESCRIPTION	DATE	REV
INITIAL	09/22/2021	

TITAN SOLAR POWER
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DATE:1/17/2022

PROJECT INFORMATION

AHJ: NC-HARNETT COUNTY
UTILITY: DUKE ENERGY

SCHMIDT, STEVEN RESIDENCE
71 ROWLAND DR,
FUQUAY-VARINA, NC 27526
35.4996349, -78.8156589

DRAWN BY

ILLUMINEi Because quality matters

SHEET NAME

NOTES

SHEET SIZE

ANSI B
11" X 17"

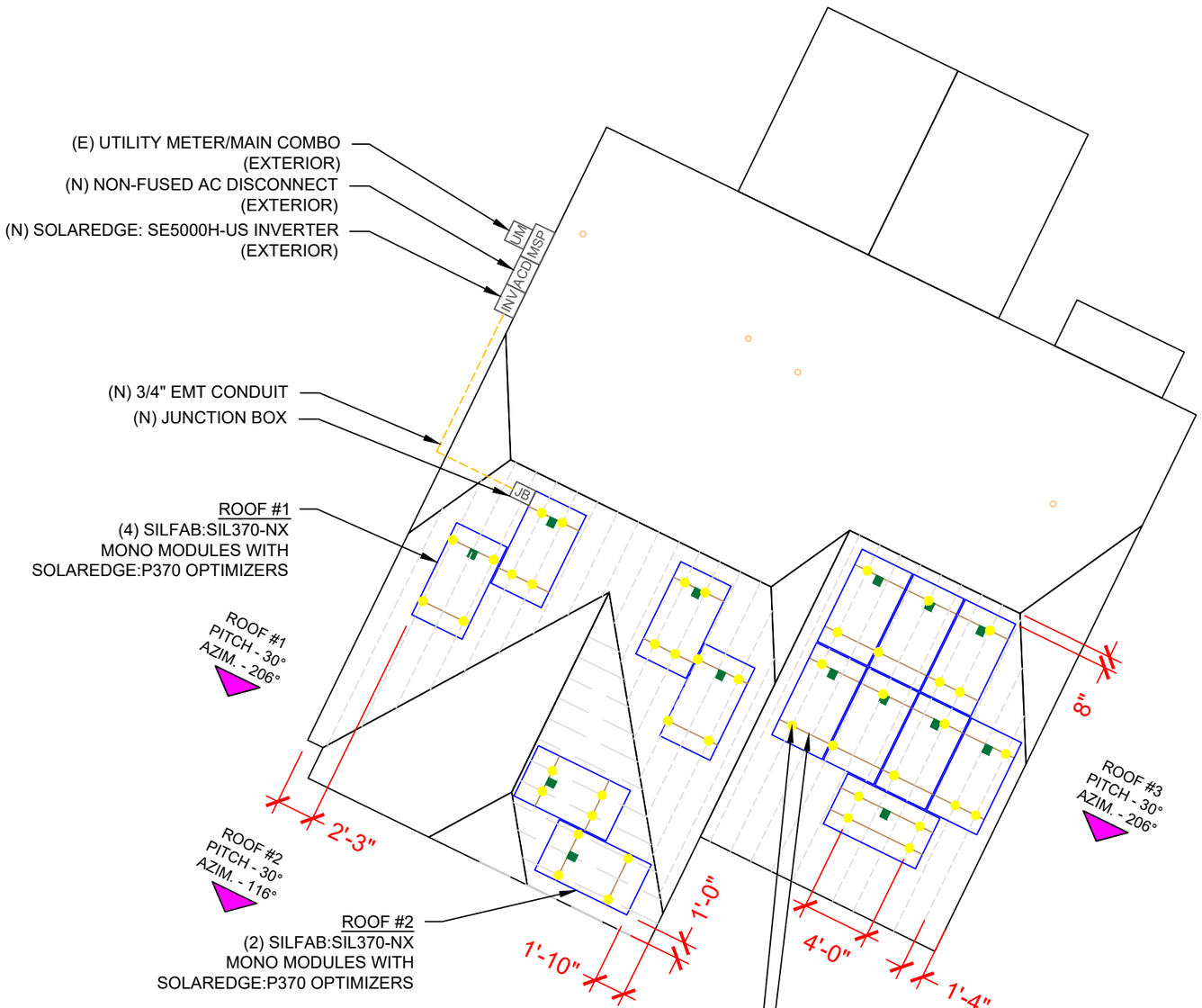
SHEET NUMBER

PV-1.1

MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 14 MODULES
MODULE TYPE = SILFAB:SIL370-NX MONO MODULES
MODULE WEIGHT = 44 LBS / 20.0KG.
MODULE DIMENSIONS = 72.13"x 39.4" = 19.74 SF

B
01/17/2022

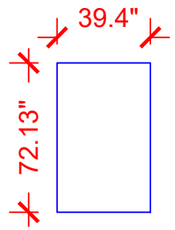


ROOF DESCRIPTION

ROOF TYPE			COMPOSITE SHINGLE	
ROOF LAYER			1 LAYERS	
ROOF	ROOF PITCH	AZIMUTH	TRUSS SIZE	TRUSS SPACING
#1	30°	206°	2X4	16"
#2	30°	116°	2X4	16"
#3	30°	206°	2X4	16"

ARRAY AREA & ROOF AREA CALC'S

ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)	ROOF AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)
#1	4	78.96	273.00	29
#2	2	39.48	289.00	14
#3	8	157.92	163.93	96



SILFAB:SIL370-NX MODULES

NOTE: PENETRATIONS ARE STAGGERED

LEGEND

- ACD - AC DISCONNECT
- SLD - SOLAR LOAD CENTER
- UM - UTILITY METER
- MSP - MAIN SERVICE PANEL
- INV - INVERTER
- JB - JUNCTION BOX
- VENT, ATTIC FAN (ROOF OBSTRUCTION)
- ROOF ATTACHMENT
- TRUSSS
- CONDUIT

1 ROOF PLAN & MODULES
PV-2 SCALE: 1/8" = 1'-0"

REVISIONS

DESCRIPTION	DATE	REV
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ADDRESS: 525W, BASELINE RD MESA AZ,85210

DATE:1/17/2022

PROJECT INFORMATION
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UTILITY: DUKE ENERGY

SCHMIDT, STEVEN RESIDENCE
71 ROWLAND DR, FUQUAY-VARINA, NC 27526
35.4996349, -78.8156589

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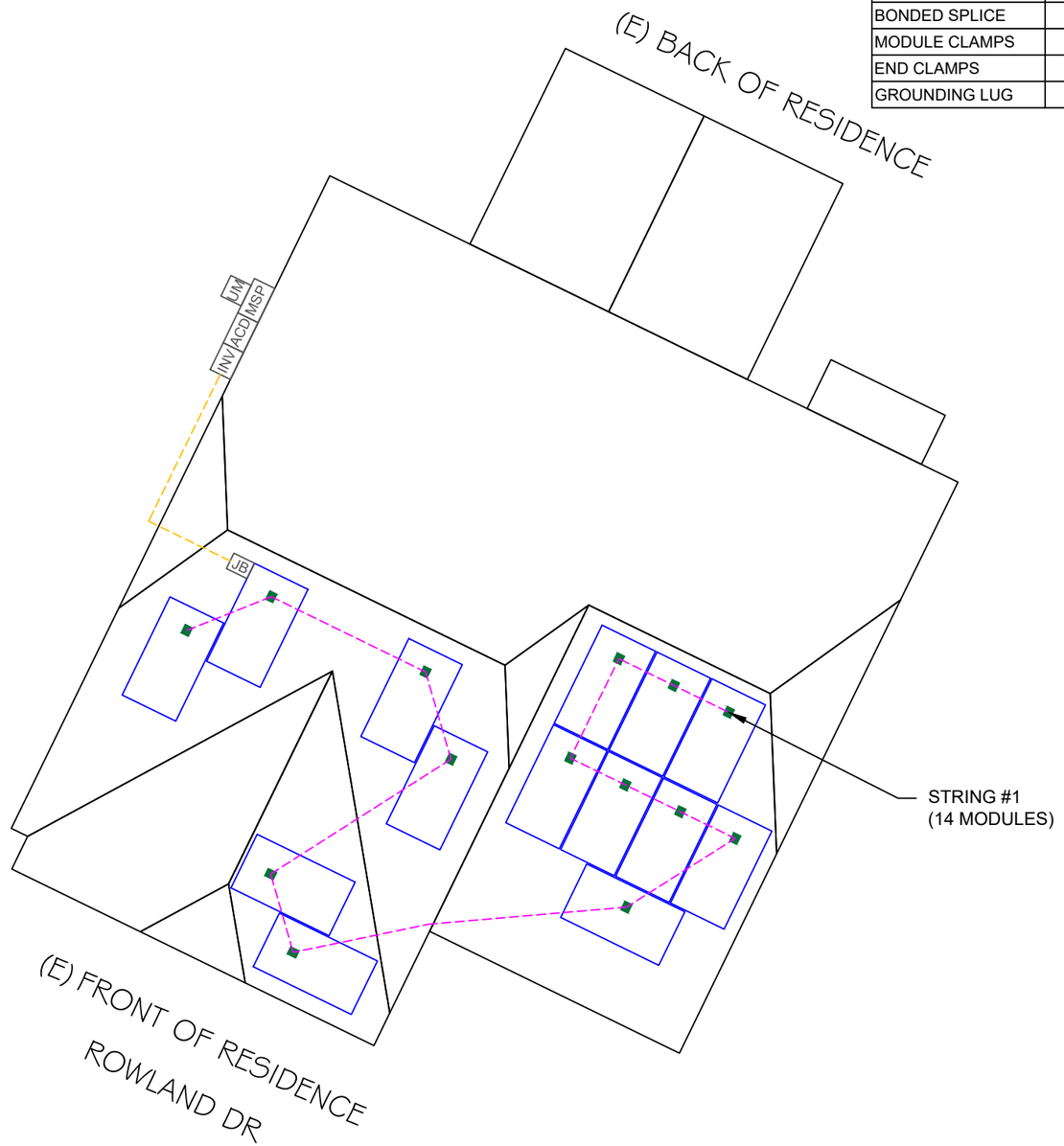
SHEET NAME
ROOF PLAN & MODULES

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-2

B
01/17/2022

BILL OF MATERIALS		
EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULES	14	SILFAB:SIL370-NX
INVERTER	1	SOLAREDGE: SE5000H-US
OPTIMIZER	14	SOLAREDGE: P370 OPTIMIZERS
AC DISCONNECT	1	30A NON-FUSES, 240V NEMA 3R, UL LISTED,
JB	1	JUNCTION 600V,NEMA 3UL LISTED
ATTACHMENT	44	SPLICE FOOT X
RAILS	8	K2 CROSSRAIL 48-X 168"
BONDED SPLICE	0	SPLICE KIT
MODULE CLAMPS	14	UNIVERSAL MODULE CLAMPS
END CLAMPS	28	END CLAMPS / STOPPER SLEEVE
GROUNDING LUG	7	



1 ROOF PLAN WITH CIRCUIT LAYOUT
PV-2A SCALE: 1/8" = 1'-0"

REVISIONS		
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TITAN SOLAR POWER

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DATE:1/17/2022

PROJECT INFORMATION

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UTILITY: DUKE ENERGY

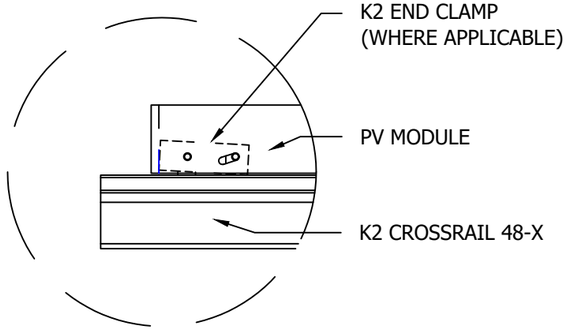
SCHMIDT, STEVEN RESIDENCE
71 ROWLAND DR,
FUQUAY-VARINA, NC 27526
35.4996349, -78.8156589

DRAWN BY
ILLUMINEi
Because quality matters

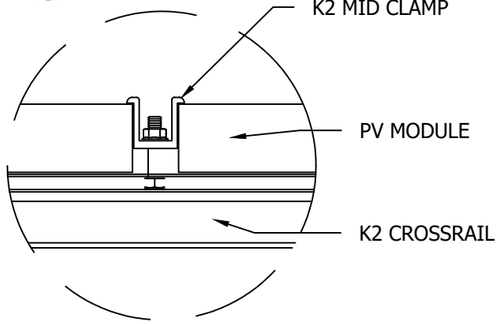
SHEET NAME
STRING LAYOUT

SHEET SIZE
ANSI B
11" X 17"

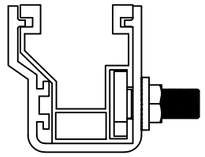
SHEET NUMBER
PV-2A



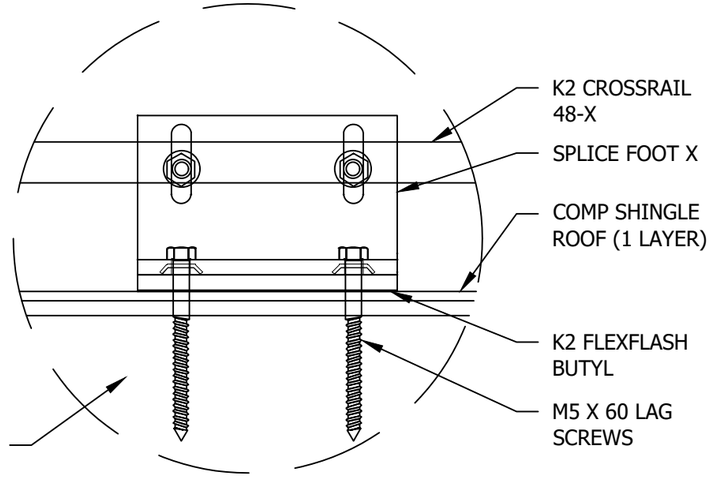
1 END CLAMP DETAILS



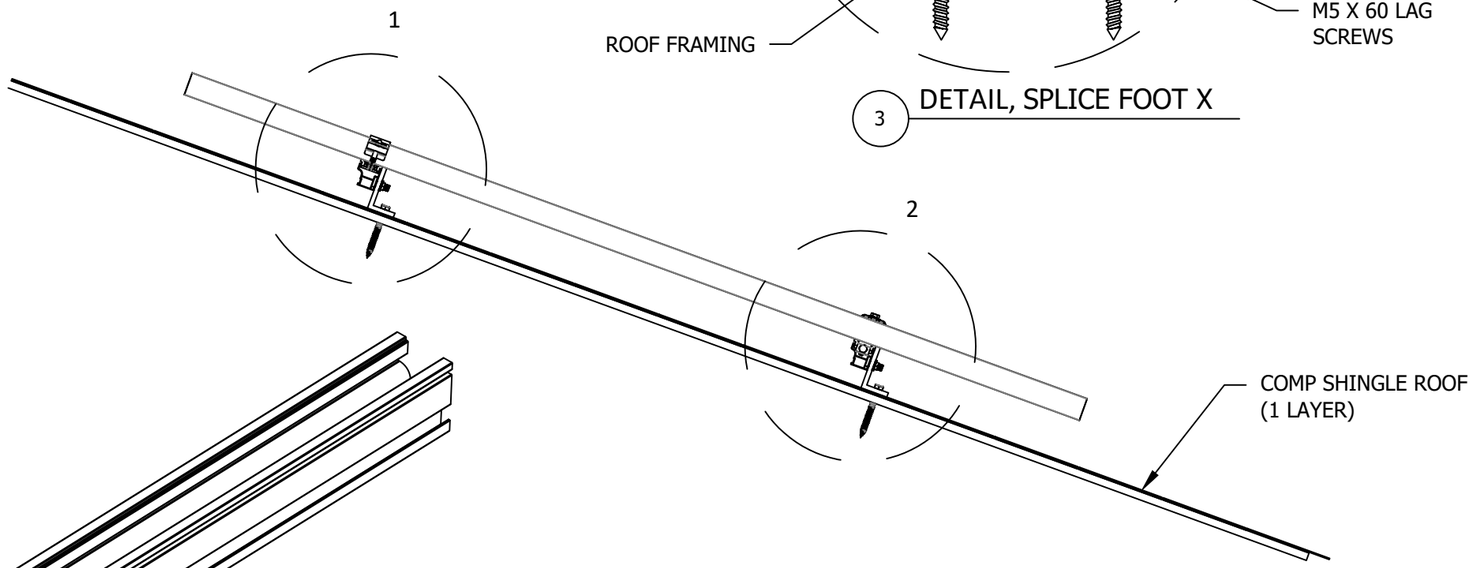
2 MID CLAMP DETAILS

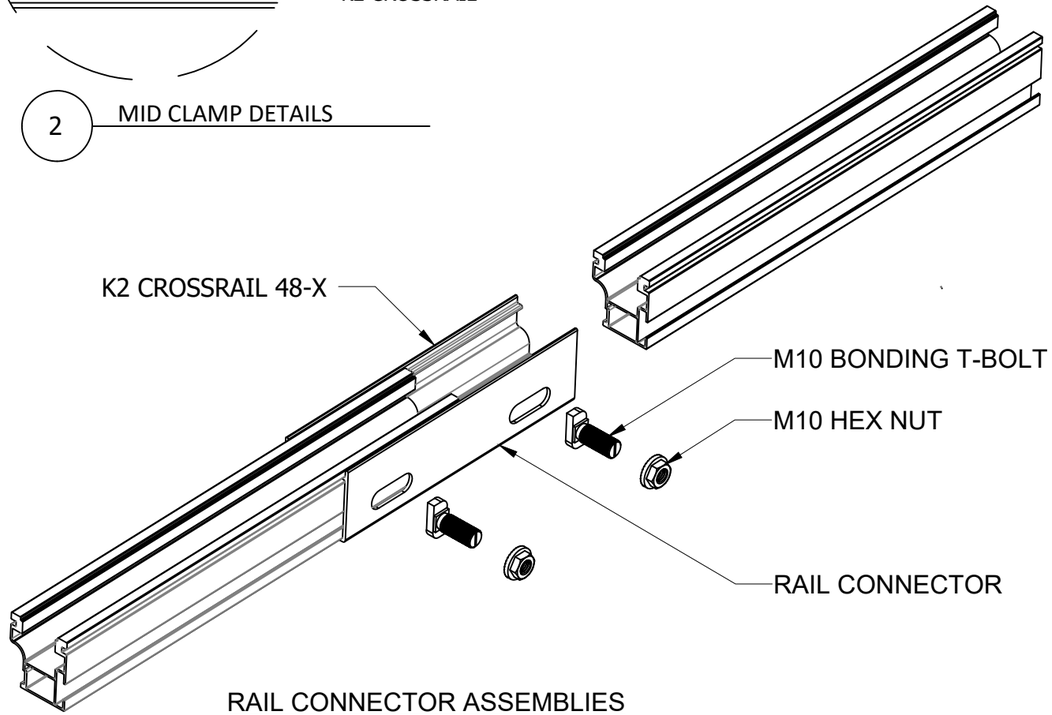


K2 CROSSRAIL 48-X

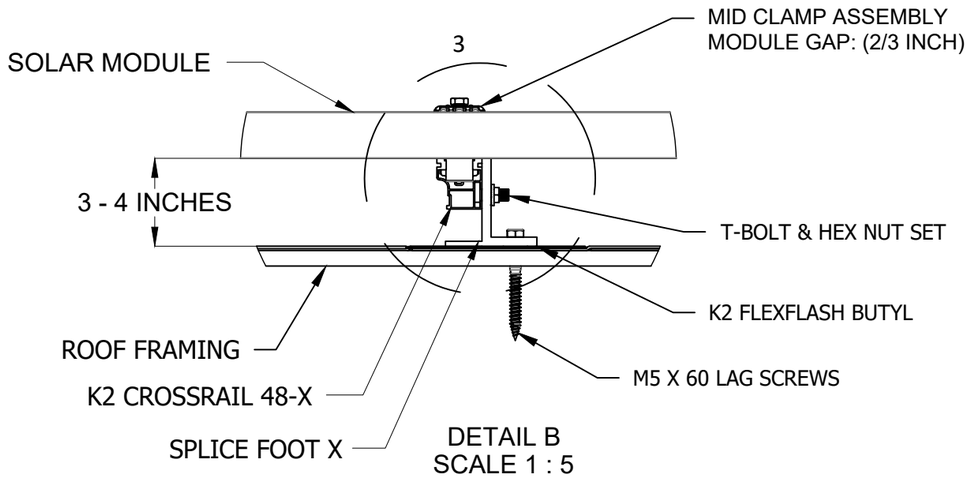


3 DETAIL, SPLICE FOOT X





RAIL CONNECTOR ASSEMBLIES



DETAIL B
SCALE 1 : 5

1 ATTACHMENT DETAIL

PV-3 SCALE: NTS

REVISIONS

DESCRIPTION	DATE	REV
INITIAL	09/22/2021	

TITAN SOLAR POWER

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MESA AZ,85210

DATE:1/17/2022

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UTILITY: DUKE ENERGY

SCHMIDT, STEVEN
RESIDENCE
71 ROWLAND DR,
FUQUAY-VARINA, NC 27526
35.4996349, -78.8156589

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Because quality matters

SHEET NAME
ATTACHMENT DETAIL

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-3

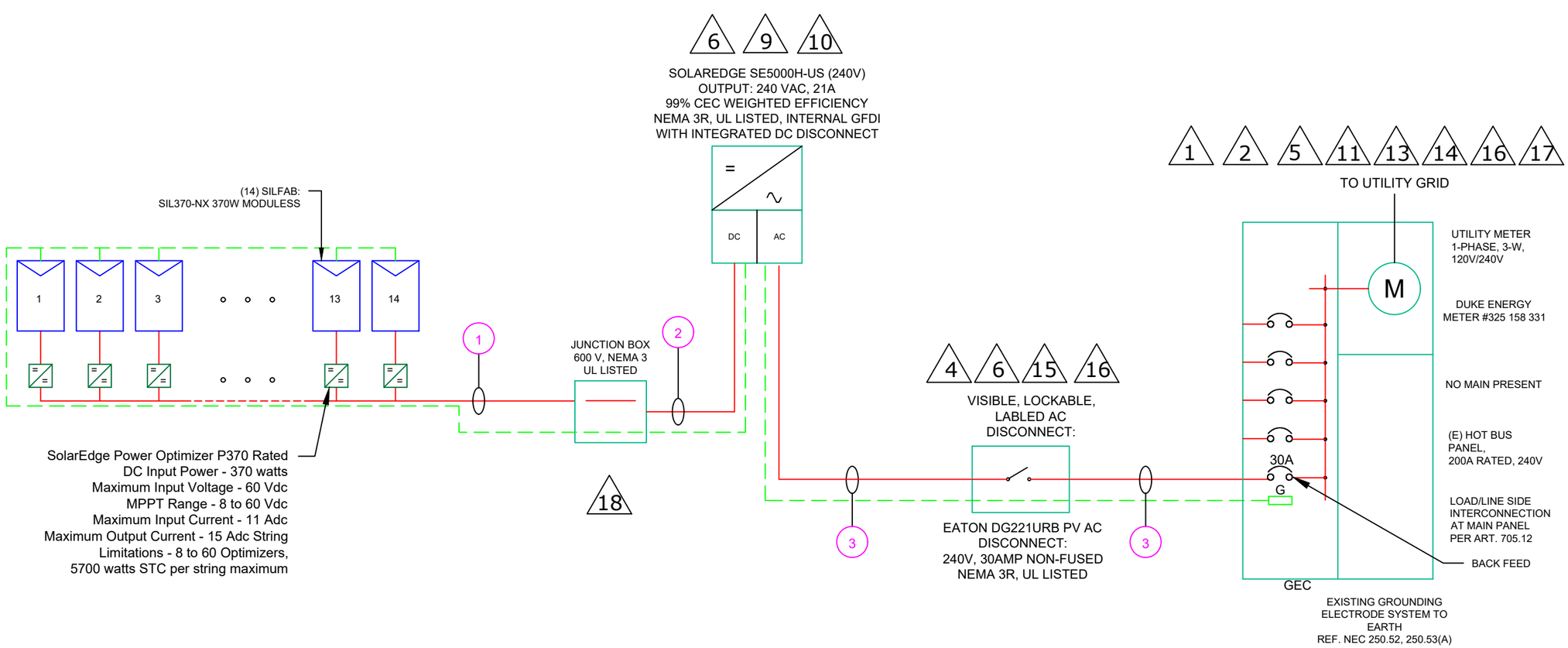
DC SYSTEM SIZE: 5.180 kW DC
AC SYSTEM SIZE: 5.000 kW AC

(14) SILFAB:SIL370-NX MONO MODULES
WITH (14) SOLAREDGE: P370 OPTIMIZERS
(1) STRING OF 14 MODULES
CONNECTED IN PARALLEL

INTERCONNECTION NOTES:
1. INTERCONNECTION SIZING, LIMITATIONS AND COMPLIANCE DETERMINED IN ACCORDANCE WITH [NEC 705.12], AND [NEC 690.64].
3. GROUND FAULT PROTECTION IN ACCORDANCE WITH [NEC 215.9], [NEC 230.95] AND [NEC 690.5]
4. ALL EQUIPMENT TO BE RATED FOR BACKFEEDING.
5. PV BREAKER TO BE POSITIONED AT THE OPPOSITE END OF THE BUSBAR RELATIVE TO THE MAIN BREAKER.

DISCONNECT NOTES:
1. DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING LIVE ARE CONNECTED TO THE TERMINALS MARKED “LINE SIDE” (TYPICALLY THE UPPER TERMINALS)
2. AC DISCONNECT MUST BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH

GROUNDING & GENERAL NOTES:
1. A SECOND FACILITY GROUNDING ELECTRODE IS NOT REQUIRED PER [NEC 690.47(C)(3)]
2. PV INVERTER IS UNGROUNDED, TRANSFORMER-LESS TYPE.
3. DC GEC AND AC EGC TO REMAIN UNSPLICED, OR SPLICED TO EXISTING ELECTRODE
4. ANY EXISTING WIRING INVOLVED WITH PV SYSTEM CONNECTION THAT IS FOUND TO BE INADEQUATE PER CODE SHALL BE CORRECTED PRIOR TO FINAL INSPECTION.
5. SOLADECK QUANTITIES, AND PLACEMENT SUBJECT TO CHANGE IN THE FIELD - SOLADECKES DEPICTED ON ELECTRICAL DIAGRAM REPRESENT WIRE TYPE TRANSITIONS.
6. AC DISCONNECT NOTED IN EQUIPMENT SCHEDULE OPTIONAL IF OTHER AC DISCONNECTING MEANS IS LOCATED WITHIN 10' OF SERVICE DISCONNECT
7. RACEWAYS AND CABLES EXPOSED TO SUNLIGHT ON ROOFTOPS SHOULD BE INSTALLED MORE THAN 7/8" ABOVE THE ROOF USING CONDUIT SUPPORTS.



NOTE: POINT OF INTERCONNECTION IS BACK FEED

	QTY	CONDUCTOR INFORMATION		CONDUIT TYPE	CONDUIT SIZE
1	(2)	#10AWG -	PV WIRE/USE-2	N/A	N/A
	(1)	#6AWG -	BARE COPPER IN FREE AIR		
2	(2)	#10AWG -	THWN-2 (L1,L2)	EMT OR LFMC IN ATTIC	3/4"
	(1)	#8AWG -	THWN-2 GND		
3	(3)	#8AWG -	THWN-2 (L1,L2,N)	EMT, LFNC OR LFMC	3/4"
	(1)	#8AWG -	THWN-2 GND		

1 SINGLE LINE DIAGRAM
PV-4 SCALE: NTS

REVISIONS		
DESCRIPTION	DATE	REV
INITIAL	09/22/2021	

TITAN SOLAR POWER
ADDRESS: 525W, BASELINE RD
MESA AZ,85210

DATE:1/17/2022

PROJECT INFORMATION
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UTILITY: DUKE ENERGY

SCHMIDT, STEVEN
RESIDENCE
71 ROWLAND DR,
FUQUAY-VARINA, NC 27526
35.4996349, -78.8156589

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Because quality matters

SHEET NAME
SINGLE LINE DIAGRAM

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-4

DC SYSTEM SIZE: 5.180 kW DC
AC SYSTEM SIZE: 5.000 kW AC

(14) SILFAB:SIL370-NX MONO MODULES
WITH (14) SOLAREDGE: P370 OPTIMIZERS
(1) STRING OF 14 MODULES
CONNECTED IN PARALLEL

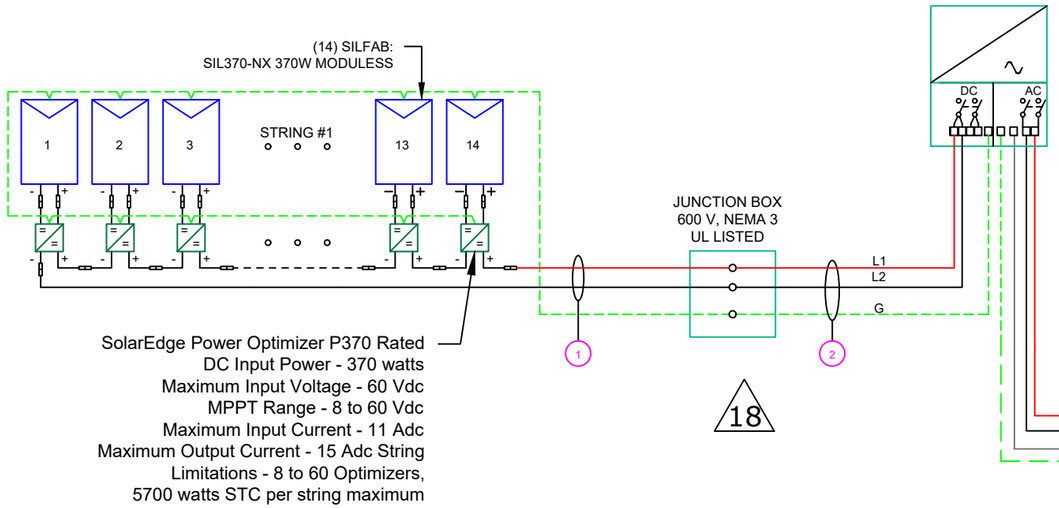
INTERCONNECTION NOTES:
1. INTERCONNECTION SIZING, LIMITATIONS AND COMPLIANCE DETERMINED IN ACCORDANCE WITH [NEC 705.12], AND [NEC 690.64].
3. GROUND FAULT PROTECTION IN ACCORDANCE WITH [NEC 215.9], [NEC 230.95] AND [NEC 690.5]
4. ALL EQUIPMENT TO BE RATED FOR BACKFEEDING.
5. PV BREAKER TO BE POSITIONED AT THE OPPOSITE END OF THE BUSBAR RELATIVE TO THE MAIN BREAKER.

DISCONNECT NOTES:
1. DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING LIVE ARE CONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY THE UPPER TERMINALS)
2. AC DISCONNECT MUST BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH

GROUNDING & GENERAL NOTES:
1. A SECOND FACILITY GROUNDING ELECTRODE IS NOT REQUIRED PER [NEC 690.47(C)(3)]
2. PV INVERTER IS UNGROUNDED, TRANSFORMER-LESS TYPE.
3. DC GEC AND AC EGC TO REMAIN UNSPLICED, OR SPLICED TO EXISTING ELECTRODE
4. ANY EXISTING WIRING INVOLVED WITH PV SYSTEM CONNECTION THAT IS FOUND TO BE INADEQUATE PER CODE SHALL BE CORRECTED PRIOR TO FINAL INSPECTION.
5. SOLADECK QUANTITIES, AND PLACEMENT SUBJECT TO CHANGE IN THE FIELD - SOLADECKES DEPICTED ON ELECTRICAL DIAGRAM REPRESENT WIRE TYPE TRANSITIONS.
6. AC DISCONNECT NOTED IN EQUIPMENT SCHEDULE OPTIONAL IF OTHER AC DISCONNECTING MEANS IS LOCATED WITHIN 10' OF SERVICE DISCONNECT
7. RACEWAYS AND CABLES EXPOSED TO SUNLIGHT ON ROOFTOPS SHOULD BE INSTALLED MORE THAN 7/8" ABOVE THE ROOF USING CONDUIT SUPPORTS.

6 9 10

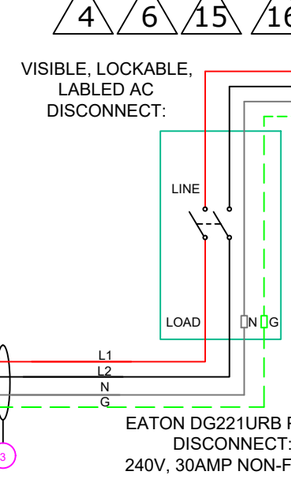
SOLAREDGE SE5000H-US (240V)
OUTPUT: 240 VAC, 21A
99% CEC WEIGHTED EFFICIENCY
NEMA 3R, UL LISTED, INTERNAL GFDI
WITH INTEGRATED DC DISCONNECT



SolarEdge Power Optimizer P370 Rated
DC Input Power - 370 watts
Maximum Input Voltage - 60 Vdc
MPPT Range - 8 to 60 Vdc
Maximum Input Current - 11 Adc
Maximum Output Current - 15 Adc String
Limitations - 8 to 60 Optimizers,
5700 watts STC per string maximum

4 6 15 16

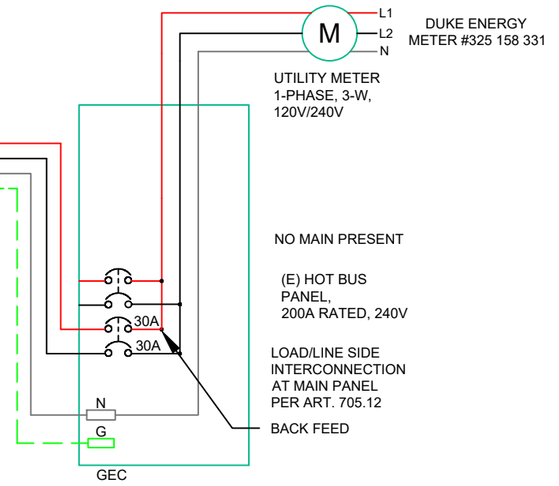
VISIBLE, LOCKABLE,
LABLED AC
DISCONNECT:



EATON DG221URB PV AC
DISCONNECT:
240V, 30AMP NON-FUSED
NEMA 3R, UL LISTED

1 2 5 11 13 14 16 17

TO UTILITY GRID



EXISTING GROUNDING
ELECTRODE SYSTEM TO
EARTH
REF. NEC 250.52, 250.53(A)

NOTE: POINT OF INTERCONNECTION IS BACK FEED

	QTY	CONDUCTOR INFORMATION		CONDUIT TYPE	CONDUIT SIZE
1	(2)	#10AWG -	PV WIRE/USE-2	N/A	N/A
	(1)	#6AWG -	BARE COPPER IN FREE AIR		
2	(2)	#10AWG -	THWN-2 (L1,L2)	EMT OR LFMC IN ATTIC	3/4"
	(1)	#8AWG -	THWN-2 GND		
3	(3)	#8AWG -	THWN-2 (L1,L2,N)	EMT, LFNC OR LFMC	3/4"
	(1)	#8AWG -	THWN-2 GND		

1 THREE LINE DIAGRAM
PV-4.1 SCALE: NTS

REVISIONS

DESCRIPTION	DATE	REV
INITIAL	09/22/2021	

TITAN SOLAR POWER
ADDRESS: 525W, BASELINE RD
MESA AZ,85210

DATE:1/17/2022

PROJECT INFORMATION
AHJ: NC-HARNETT COUNTY
UTILITY: DUKE ENERGY

SCHMIDT, STEVEN
RESIDENCE
71 ROWLAND DR,
FUQUAY-VARINA, NC 27526
35.4996349, -78.8156589

DRAWN BY
ILLUMINEi
Because quality matters

SHEET NAME
THREE LINE DIAGRAM

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-4.1

SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL #	SILFAB: SIL370-NX
VMP	37.2V
IMP	10A
VOC	44.8V
ISC	10.6A
TEMP. COEFF. VOC	-0.350%/°C
MODULE DIMENSION	72.13"L x 39.4"W x 1.57"D (In Inch)

INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL #	SOLAREDGE: SE5000H-US INVERTER
MAX AC CURRENT	21A
MAX OUTPUT POWER	240 VA

PERCENT OF VALUES	NUMBER OF CURRENT CARRYING CONDUCTORS IN EMT
.80	4-6
.70	7-9
.50	10-20

AMBIENT TEMPERATURE SPECS	
RECORD LOW TEMP	-12°
AMBIENT TEMP (HIGH TEMP 2%)	34°
CONDUIT HEIGHT	0.5"
ROOF TOP TEMP	56°
CONDUCTOR TEMPERATURE RATE	90°
MODULE TEMPERATURE COEFFICIENT OF Voc	-0.350%/°C

DC CONDUCTOR AMPACITY JUNCTION BOX TO INVERTER:

AMBIENT TEMPERATURE ADJUSTMENT FOR EXPOSED CONDUIT PER NEC 310.15(B)(2)(c)	+22°
EXPECTED WIRE TEMP (In Celsius)	34°+22° = 56°
TEMP. CORRECTION PER TABLE (310.16)	0.71
NO. OF CURRENT CARRYING CONDUCTORS	2
CONDUIT FILL CORRECTION PER NEC 310.15(B)(2)(a)	1.00
CIRCUIT CONDUCTOR SIZE	10AWG
CIRCUIT CONDUCTOR AMPACITY	40A

REQUIRED CIRCUIT CONDUCTOR AMPACITY PER NEC 690.8(A&B)	
1.25 X MAX OUTPUT CURRENT	18.75A
DERATED AMPACITY OF CIRCUIT CONDUCTOR PER NEC TABLE 310.16	28.40A
TEMP. CORRECTION PER TABLE (310.16) X CONDUIT FILL CORRECTION PER NEC 310.15(B)(2)(a) X CIRCUIT CONDUCTOR AMPACITY	
Result should be greater than (18.75A) otherwise less the entry for circuit conductor size and ampacity	

AC CONDUCTOR AMPACITY INVERTER TO AC DISCONNECT:

EXPECTED WIRE TEMP (In Celsius)	34°
TEMP. CORRECTION PER TABLE (310.16)	0.96
NO. OF CURRENT CARRYING CONDUCTORS	3
CONDUIT FILL CORRECTION PER NEC 310.15(B)(2)(a)	1
CIRCUIT CONDUCTOR SIZE	10AWG
CIRCUIT CONDUCTOR AMPACITY	40A

REQUIRED CIRCUIT CONDUCTOR AMPACITY PER NEC 690.8(A&B)	26.25A
1.25 X MAX OUTPUT CURRENT	
DERATED AMPACITY OF CIRCUIT CONDUCTOR PER NEC TABLE 310.16	38.40A
TEMP. CORRECTION PER TABLE (310.16) X CONDUIT FILL CORRECTION PER NEC 310.15(B)(2)(a) X CIRCUIT CONDUCTOR AMPACITY	
Result should be greater than (26.25A) otherwise less the entry for circuit conductor size and ampacity	

AC CONDUCTOR AMPACITY AC DISCONNECT TO POINT OF INTERCONNECTION:

No. OF INVERTER	1
EXPECTED WIRE TEMP (In Celsius)	34°
TEMP. CORRECTION PER TABLE (310.16)	0.96
NO. OF CURRENT CARRYING CONDUCTORS	3
CONDUIT FILL CORRECTION PER NEC 310.15(B)(2)(a)	1
CIRCUIT CONDUCTOR SIZE	8AWG
CIRCUIT CONDUCTOR AMPACITY	55A

REQUIRED CIRCUIT CONDUCTOR AMPACITY PER NEC 690.8(B)	26.25A
1.25 X MAX AC OUTPUT CURRENT	
DERATED AMPACITY OF CIRCUIT CONDUCTOR PER NEC TABLE 310.16	52.80A
TEMP. CORRECTION PER TABLE (310.16) X CONDUIT FILL CORRECTION PER NEC 310.15(B)(2)(a) X CIRCUIT CONDUCTOR AMPACITY	
Result should be greater than (26.25A) otherwise less the entry for circuit conductor size and ampacity	

NOTE:
MAIN PANEL RATING:200A
ALLOWABLE BACKFEED IS =200A

OCPD CALCULATIONS:
INVERTER OVERCURRENT PROTECTION= INVERTER O/P I X CONTINUOUS LOAD(1.25)
=21x1.25=26.25A=>PV BREAKER = 30A
TOTAL REQUIRED PV BREAKER SIZE =>30A PV BREAKER

ELECTRICAL NOTES

1.) ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.
2.) ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600 V AND 90 DEGREE C WET ENVIRONMENT.
3.) WIRING, CONDUIT, AND RACEWAYS MOUNTED ON ROOFTOPS SHALL BE ROUTED DIRECTLY TO, AND LOCATED AS CLOSE AS POSSIBLE TO THE NEAREST RIDGE, HIP, OR VALLEY.
4.) WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.
5.) DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
6.) WHERE SIZES OF SOLADECKES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
7.) ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
8.) MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION.
9.) MODULE SUPPORT RAIL TO BE BONDED TO CONTINUOUS COPPER G.E.C. VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN LUG.
10.) THE POLARITY OF THE GROUNDED CONDUCTORS IS NEGATIVE

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SCHMIDT, STEVEN RESIDENCE
71 ROWLAND DR,
FUQUAY-VARINA, NC 27526
35.4996349, -78.8156589

DRAWN BY
ILLUMINE i
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SHEET NAME
WIRING CALCULATIONS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-5

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 21 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

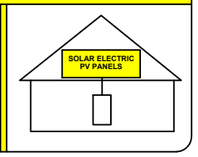
DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPOSED TO SUNLIGHT

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)]

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)]

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 UTLITY 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)]

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

REVISIONS

DESCRIPTION	DATE	REV
INITIAL	09/22/2021	

TITAN SOLAR POWER

ADDRESS: 525W, BASELINE RD
MESA AZ,85210

DATE:1/17/2022

PROJECT INFORMATION

AHJ: NC-HARNETT COUNTY
UTILITY: DUKE ENERGY

SCHMIDT, STEVEN
RESIDENCE
71 ROWLAND DR,
FUQUAY-VARINA, NC 27526
35.4996349, -78.8156589

DRAWN BY

ILLUMINEi
Because quality matters

SHEET NAME
PLACARDS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-6

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

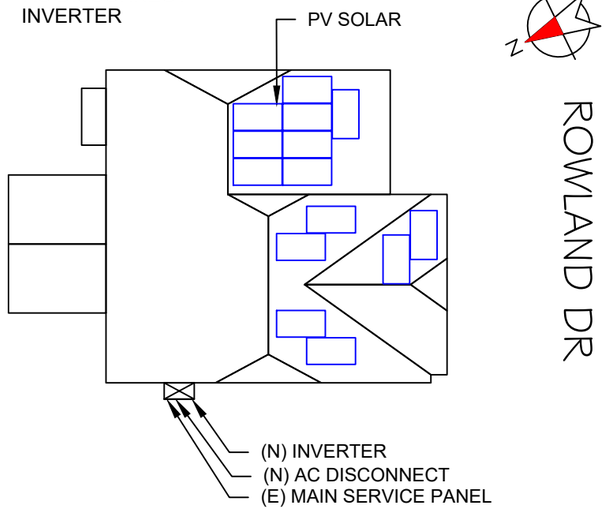
NAME:
ADDRESS:
PHONE NUMBER:

B
01/17/2022

CAUTION

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

AT: ☒ MAIN SERVICE
AC DISCONNECT
INVERTER



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DATE:1/17/2022

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UTILITY: DUKE ENERGY

SCHMIDT, STEVEN RESIDENCE
71 ROWLAND DR,
FUQUAY-VARINA, NC 27526
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SHEET NAME
SAFETY PLANS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-6.1

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:

PERSONS COVERED BY THIS JOB SAFETY PLAN

PRINT NAME	INITIAL	YES	NO

UNDERGROUND SVC REQUIRED?

YES_____ PERMIT #_____

REVISIONS		
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INITIAL	09/22/2021	

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DATE:1/17/2022

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UTILITY: DUKE ENERGY

SCHMIDT, STEVEN
RESIDENCE
71 ROWLAND DR,
FUQUAY-VARINA, NC 27526
35.4996349, -78.8156589

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SHEET NAME
SAFETY PLANS

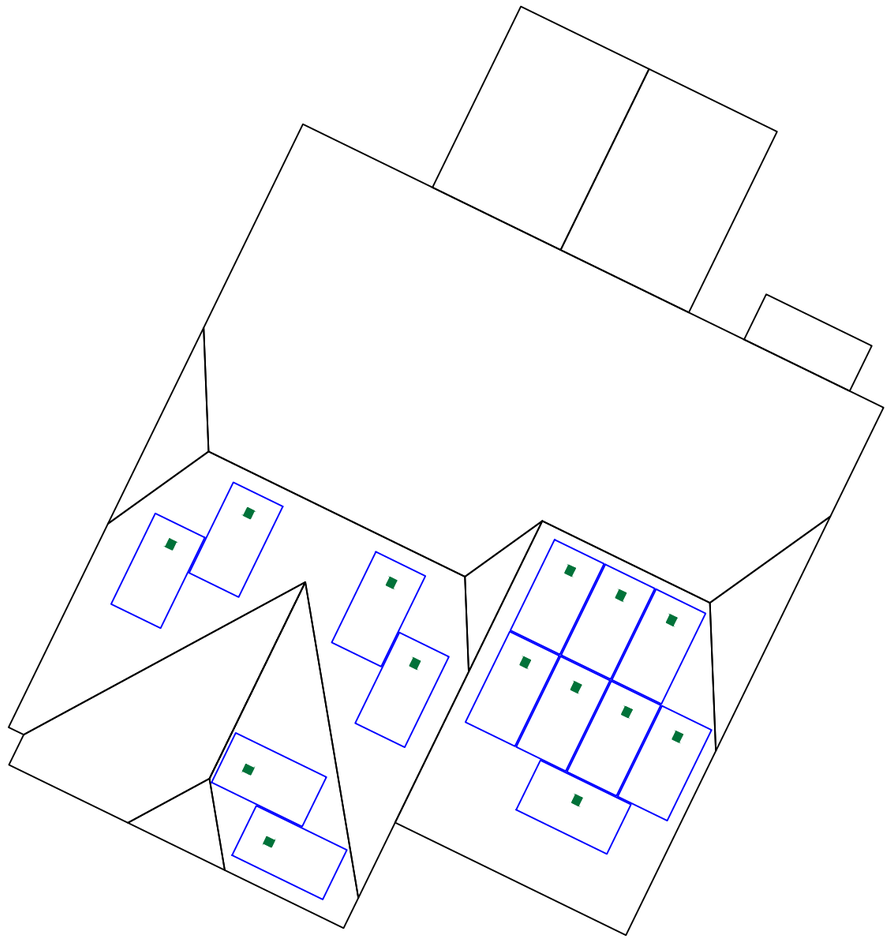
SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-6.2

	1-10	11-20	21-30	31-40	41-50	51-60	61-70
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

OPTIMIZER CHART

B
01/17/2022



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FUQUAY-VARINA, NC 27526
35.4996349, -78.8156589

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SHEET NAME
OPTIMIZERS CHART

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-7

TITAN
SOLAR PANEL

HIGH EFFICIENCY
PREMIUM
MONO-PERC
PV MODULE

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

SIL-370 NX
POWERED BY
SILFAB SOLAR

BAA ARRA · 25 YEAR PRODUCT WARRANTY · AUTOMATED MANUFACTURING · JUST-IN-TIME · PVEL DNV·GL TOP PERFORMER · TIER 1 BANKABLE $$$ · HIGH EFFICIENCY

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.

BAA / ARRA COMPLIANT
These 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 SUPPORT / SERVICES
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-370 NX mono PERC			
Test Conditions		STC		NOCT	
Module Power (Pmax)	Wp	370		266	
Maximum power voltage (Vpmax)	V	37.2		33.7	
Maximum power current (Ipmax)	A	10.0		7.9	
Open circuit voltage (Voc)	V	44.8		40.7	
Short circuit current (Isc)	A	10.6		8.3	
Module efficiency	%	20.2		18.2	
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-370 NX 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-370 NX mono PERC
Module weight	44±0.4 lbs
Dimensions (H x L x D)	72.13 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	66 - Si mono-PERC - 5 busbar, 62.25 x 62.25 in
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-370 NX mono PERC			
Module product workmanship warranty	25 years**			
Linear power performance guarantee	30 years			
	≥ 97.1% end 1st year	≥ 91.6% end 12th year	≥ 85.1% end 25th year	≥ 82.6% end 30th year

Certifications	SIL-370 NX 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 Certifed, UL Fire Rating: Type 2
Factory	ISO9001:2015

All states except California
- Modules Per Pallet: 26
- Pallets Per Truck: 34
- Modules Per Truck: 884

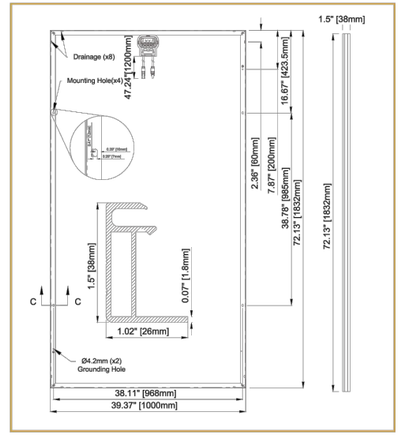
California
- Modules Per Pallet: 26
- Pallets Per Truck: 32
- Modules Per Truck: 832

*⚠ 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.silfabsolar.com.

***Certification and CEC listing in progress.

PAN files generated from 3rd party performance data are available for download at: www.silfabsolar.com/downloads.



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Bellingham WA 98225 USA
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REVISIONS

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Because quality matters

SHEET NAME
EQUIPMENTS SPECIFICATION

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-8

Single Phase Inverter with HD-Wave Technology

for North America

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

INVERTERS

12-25 YEAR WARRANTY

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

solaredge

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							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 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

REVISIONS		
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TITAN SOLAR POWER

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DATE:1/17/2022

PROJECT INFORMATION

AHJ: NC-HARNETT COUNTY
UTILITY: DUKE ENERGY

SCHMIDT, STEVEN
RESIDENCE
71 ROWLAND DR,
FUQUAY-VARINA, NC 27526
35.4996349, -78.8156589

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SHEET NAME
EQUIPMENTS SPECIFICATIONS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-9

Single Phase Inverter with HD-Wave Technology for North America

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

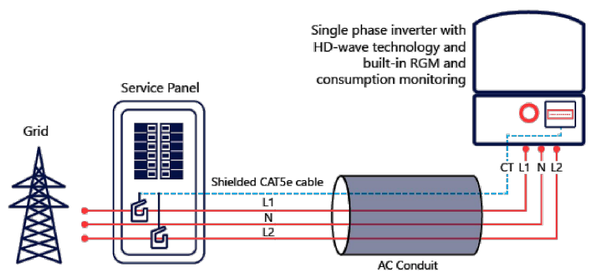
MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)							
Revenue Grade Metering, ANSI C12.20	Optional[3]							
Consumption metering								
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		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 / -40 to +60[4]							°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)							

[3] Inverter with Revenue Grade Meter P/N: SExxxxH-US000BNC4; Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxxH-US000BNI4 . For consumption metering, current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT0750-400NA-20. 20 units per box

[4] 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



RoHS

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SCHMIDT, STEVEN RESIDENCE

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35.4996349, -78.8156589

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SHEET NAME

EQUIPMENTS SPECIFICATIONS

SHEET SIZE

ANSI B 11" X 17"

SHEET NUMBER

PV-10

Power Optimizer

For North America

P370 / P400 / P401 / P485 / P505

25 YEAR WARRANTY

POWER OPTIMIZER

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

solaredge

Power Optimizer

For North America

P370 / P400 / P401 / P485 / P505

Optimizer model (typical module compatibility)	P370 (for higher-power 60 and 72-cell modules)	P400 (for 72 & 96-cell modules)	P401 (for high power 60 and 72 cell modules)	P485 (for high-voltage modules)	P505 (for higher current modules)	
INPUT						
Rated Input DC Power(1)	370	400		485	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	60	80	60	125(2)	83(2)	Vdc
MPPT Operating Range	8 - 60	8 - 80	8-60	12.5 - 105	12.5 - 83	Vdc
Maximum Short Circuit Current (Isc)	11	10.1	11.75	11	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		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						
Photovoltaic Rapid Shutdown System	NEC 2014, 2017 & 2020			NEC 2014, 2017 & 2020	NEC 2014, 2017 & 2020	
EMC	FCC Part 15 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 153 x 29.5 /5.1 x 6 x 1.16	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)	655 / 1.4	750 / 1.7	655 / 1.4	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, 0.9 / 2.95(4)	0.16 / 0.52	0.16 / 0.52, 0.9 / 2.95(4)	0.16 / 0.52	0.16 / 0.52	m / ft
Output Wire Type / Connector	Double Insulated / MC4					
Output Wire Length	1.2 / 3.9					m / ft
Operating Temperature Range(5)	-40 to +85 / -40 to +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 P485-4NMDMRM. In the case of an odd number of PV modules in one string, installing one P485 dual version power optimizer connected to one PV module. When connecting a single module seal the unused input connectors with the supplied pair of seals
(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)	P370, P400, P401	8		10	18	
	P485, P505	6		8	14	
Maximum String Length (Power Optimizers)		25		25	50	
Maximum Nominal Power per String		5700(8) (6000 with SE7600-US - SE11400-US)	5250(8)	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 P485/P505 with P370/P400/P401 in one string
(8) If the inverters rated AC power ≤ maximum nominal power per string, then the maximum power per string will be able to reach up to the inverters maximum input DC power. Refer to: https://www.solaredge.com/sites/default/files/se-power-optimizer-single-string-design-application-note.pdf
(9) For 208V grid: it is allowed to install up to 7,200W 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 15,000W per string when the maximum power difference between each string is 2,000W

Intertek RoHS

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UTILITY: DUKE ENERGY

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71 ROWLAND DR,
FUQUAY-VARINA, NC 27526
35.4996349, -78.8156589

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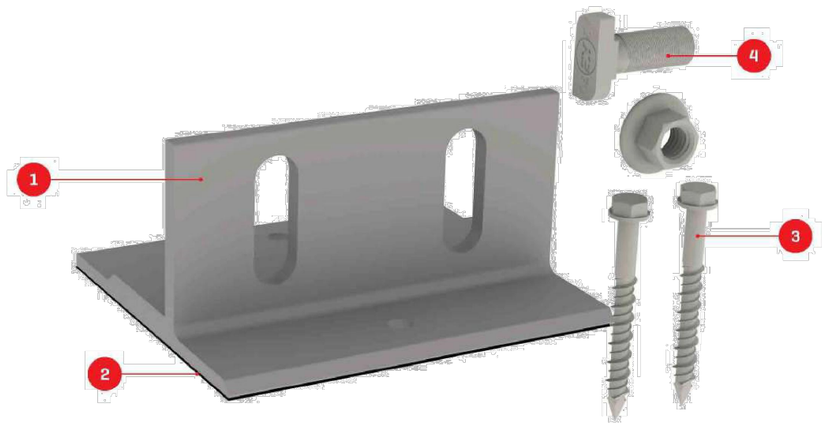
SHEET NAME
EQUIPMENTS SPECIFICATIONS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-11

We support PV systems
Formerly Everest Solar Systems



Splice Foot X

TECHNICAL SHEET

Item Number	Description	Part Number
1	Splice Foot X	4000113 | Splice Foot X Kit, Mill
2	K2 Solar Seal Butyl Pad	
3	M5 x 60 lag screws	
4	T-Bolt & Hex Nut Set	

Technical Data

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

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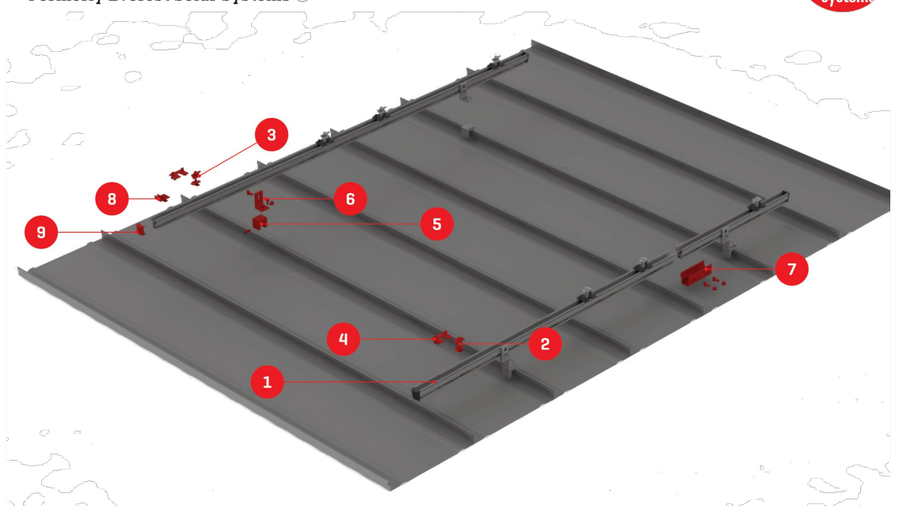
SHEET NAME
EQUIPMENTS SPECIFICATIONS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-12

We support PV systems
Formerly Everest Solar Systems



CrossRail Shared Rail System

TECHNICAL SHEET

Item Number	Description	Part Number
1	CrossRail 44-X (shown) all CR profiles applicable	4000019 (166" mill), 4000020 (166" dark) , 4000021 (180" mill), 4000022 (180" dark)
2	CrossRail Mid Clamp	4000601-H (mill), 4000602-H (dark)
3	CrossRail (Standard) End Clamp	4000429 (mill), 4000430 (dark)
4	Add-On (5mm shown)	4000632 (5mm), 4000609 (10mm)
5	Standing Seam PowerClamp (mini shown)	4000016 (mini), 4000017 (standard)
6	L-Foot Slotted Set	4000630 (mill), 4000631 (dark)
7	CrossRail 44-X Rail Connector (shown) CR 48-X, 48-XL Rail Connector available	4000051 (mill), 4000052 (dark)
8	Everest Ground Lug	4000006-H
9	CrossRail 44-X End Cap (shown) CrossRail 48-X, 48-XL and 80 available	4000067

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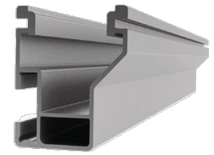
CROSSRAIL 48-X



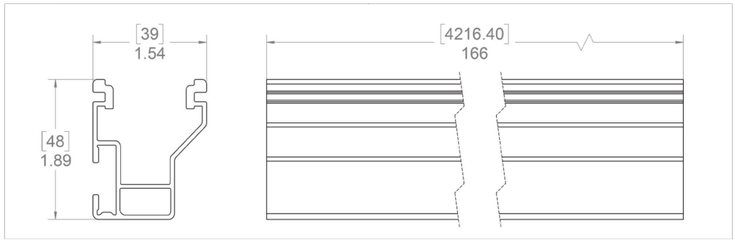
Mechanical Properties

	CrossRail 48-X
Material	6000 Series Aluminum
Ultimate Tensile Strength	37.7 ksi (260 MPa)
Yield Strength	34.8 ksi (240 MPa)
Weight	0.56 lbs/ft (0.833 kg/m)
Finish	Mill or Dark Anodized

Sectional Properties

	CrossRail 48-X
Sx	0.1980 in^3 (3.245 cm^3)
Sy	0.1510 in^3 (2.474 cm^3)
A (X-Section)	0.4650 in^2 (2.999 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

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SHEET NAME
EQUIPMENTS SPECIFICATIONS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-13