

PROJECT DESCRIPTION:

32 x SILFAB SOLAR SILFAB SIL-300 ML 300W MONO MODULES
 GROUND MOUNTED SOLAR PHOTOVOLTAIC MODULES
 SYSTEM SIZE: 9.60 kW DC STC
 ARRAY AREA #1:- 585.60 SQ FT.

EQUIPMENT SUMMARY

32 SILFAB SOLAR SILFAB SIL-300 ML 300W MODULES
 32 SOLAREEDGE POWER OPTIMIZER P320
 01 SOLAREEDGE SE10000H-US INVERTER

APPLICABLE CODES & STANDARDS

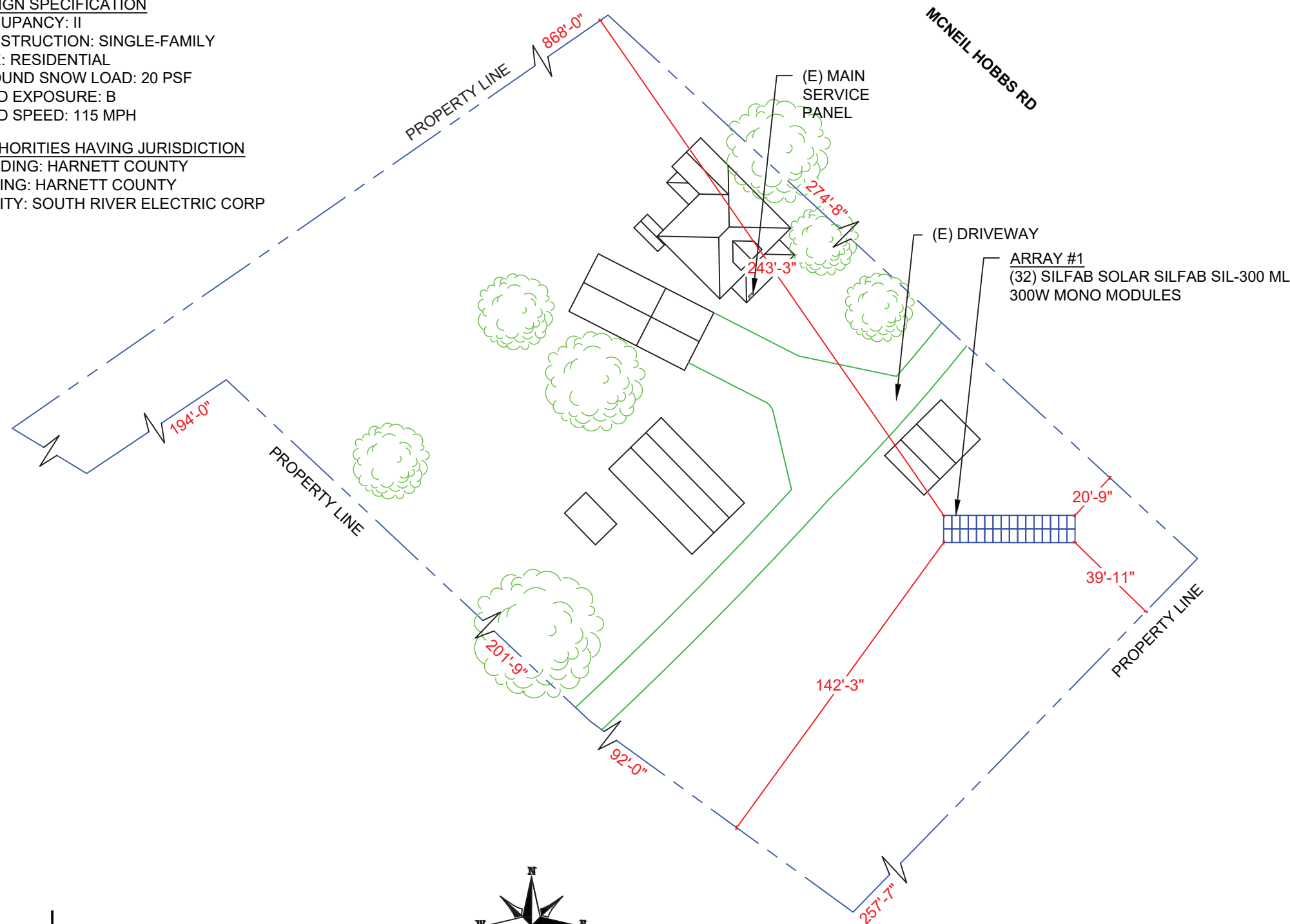
BUILDING: NCBC 2018
 ELECTRICAL: NEC 2017

DESIGN SPECIFICATION

OCCUPANCY: II
 CONSTRUCTION: SINGLE-FAMILY
 FIRE: RESIDENTIAL
 GROUND SNOW LOAD: 20 PSF
 WIND EXPOSURE: B
 WIND SPEED: 115 MPH

AUTHORITIES HAVING JURISDICTION

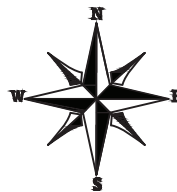
BUILDING: HARNETT COUNTY
 ZONING: HARNETT COUNTY
 UTILITY: SOUTH RIVER ELECTRIC CORP



1 PLOT PLAN WITH ROOF PLAN

PV-1

SCALE: 1"=50'-0"



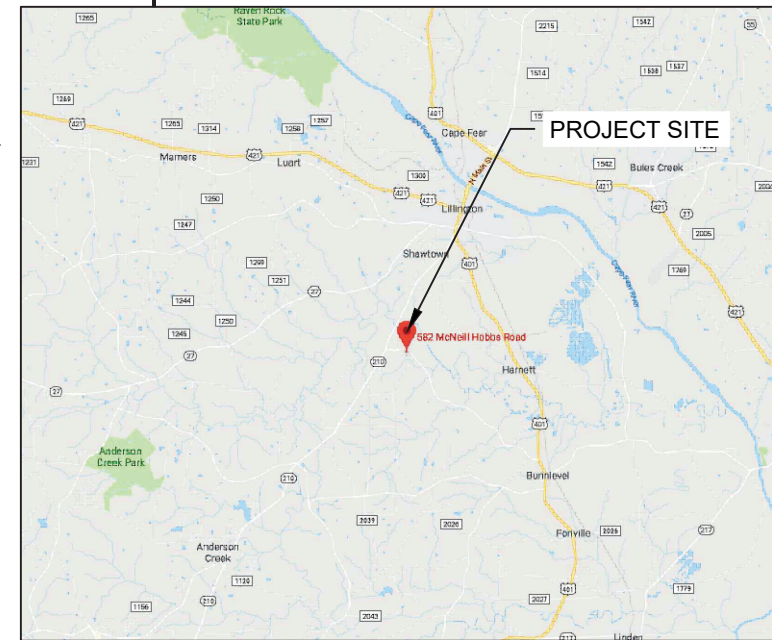
NOTE: GROUND MOUNT
 LOCATION TBD ON-SITE



2 HOUSE PHOTO

PV-1

SCALE: NTS



3 VICINITY MAP

PV-1

SCALE: NTS

SHEET INDEX

- PV-1 PLOT PLAN & VICINITY MAP
- PV-2 ROOF PLAN & MODULES
- PV-2A STRING LAYOUT
- PV-3 GROUNDING DETAILS
- PV-3A GROUNDING DETAILS
- PV-4 ELECTRICAL LINE DIAGRAM
- PV-5 WIRING CALCULATIONS
- PV-6 SOLAREEDGE OPTIMIZER CHART
- PV-7 to 10 EQUIPMENT SPECIFICATIONS



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REVISIONS

DESCRIPTION	DATE	REV

Signature with Seal

DATE: 10/03/2019

PROJECT NAME & ADDRESS

**HAROLD LLOYD BRUNSON
 RESIDENCE**
 582 MCNEIL HOBBS RD.,
 BUNNLEVEL, NC 28323

SHEET NAME

**PLOT PLAN &
 VICINITY MAP**

SHEET SIZE

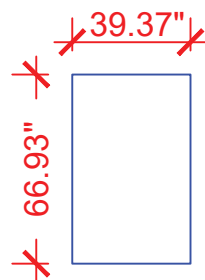
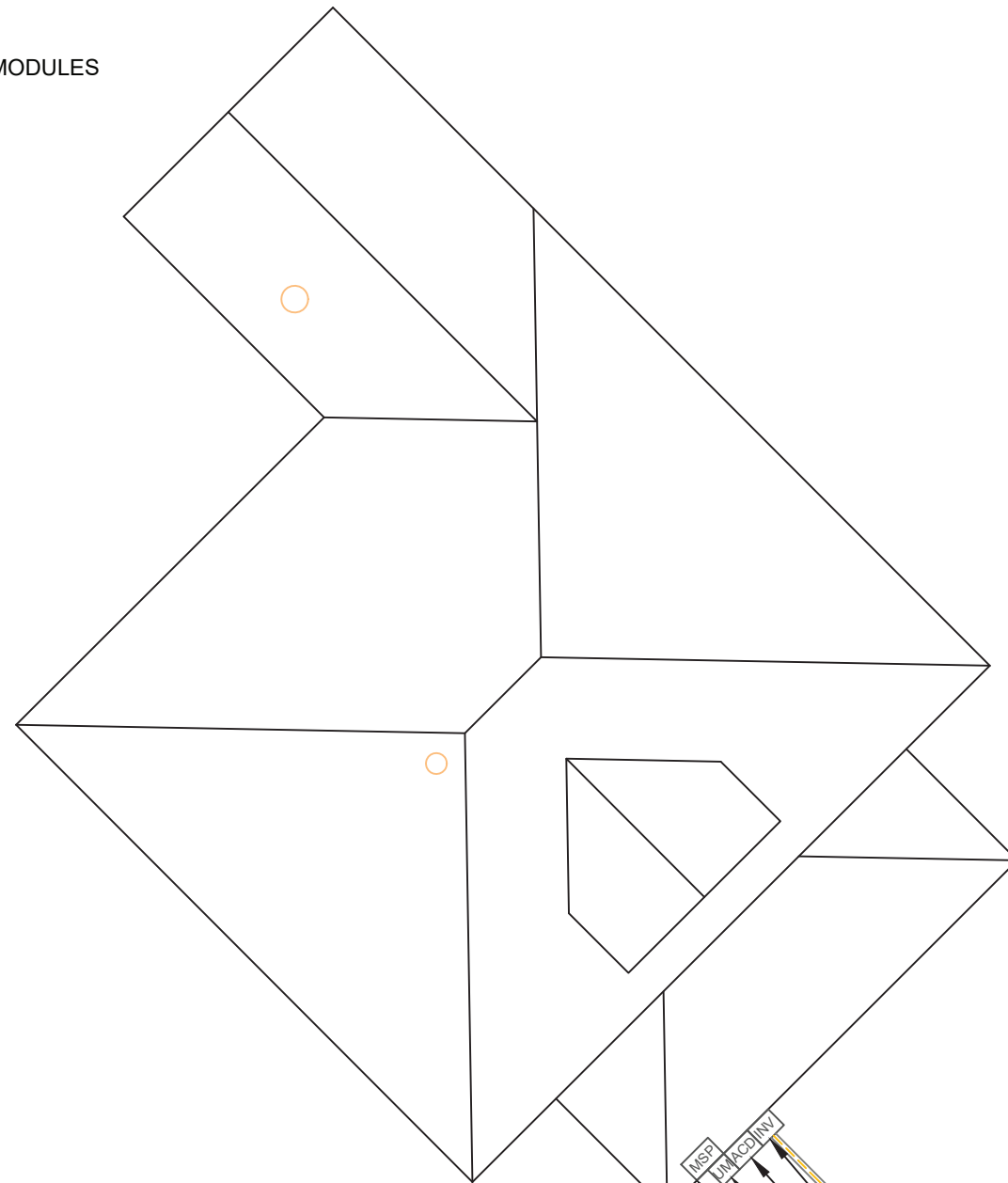
**ANSI B
 11" X 17"**

SHEET NUMBER

PV-1

MODULE TYPE, DIMENSIONS & WEIGHT

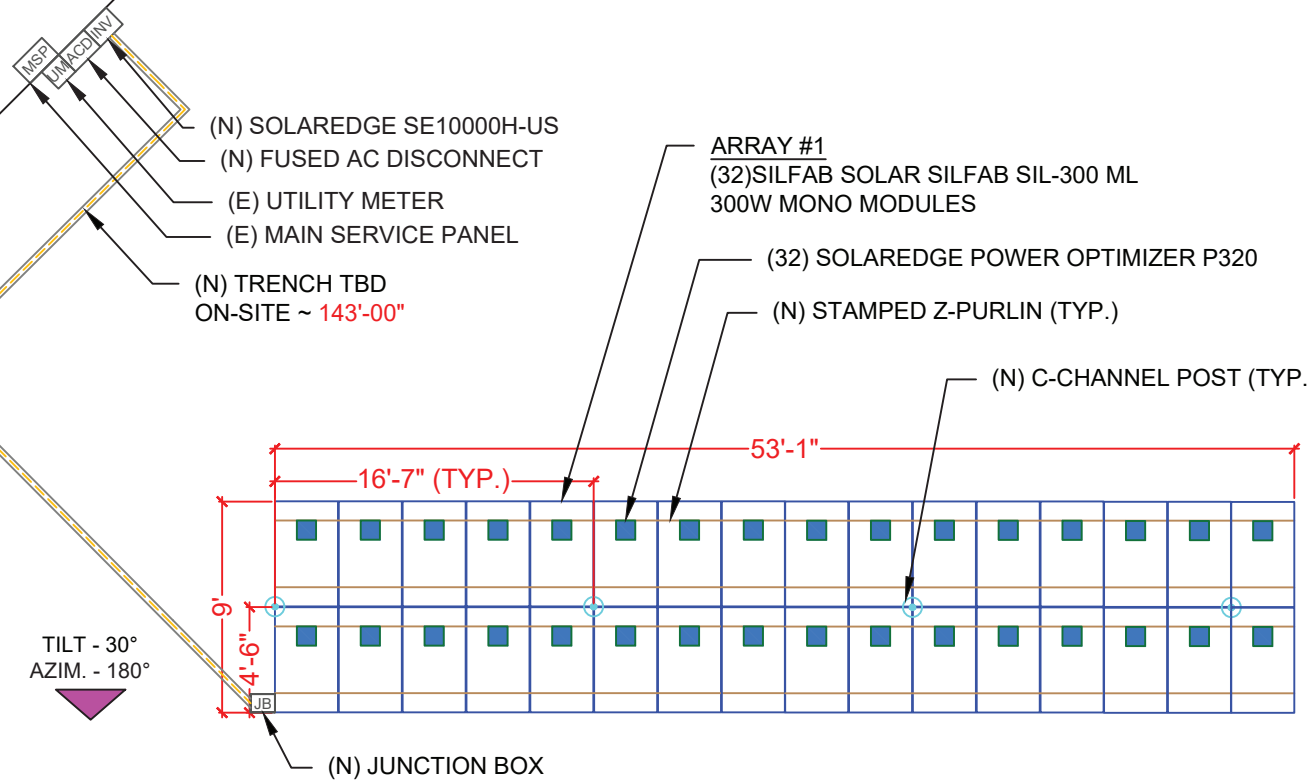
NUMBER OF MODULES = 32 MODULES
 MODULE TYPE = SILFAB SOLAR SILFAB SIL-300 ML 300W MONO MODULES
 MODULE WEIGHT = 41.89 LBS / 19 KG.
 MODULE DIMENSIONS = 66.93"x 39.37" = 18.30 SF



SILFAB SOLAR
 SILFAB SIL-300 ML
 300W MONO
 MODULES

LEGEND

- JB - JUNCTION BOX
- INV - INVERTER
- DC - INTEGRATED DC DISCONNECT
- SLD - SOLAR LOAD CENTER
- PVM - PRODUCTION METER
- MSP - MAIN SERVICE PANEL
- CB - COMBINER BOX
- - VENT, ATTIC FAN (ROOF OBSTRUCTION)
- - ROOF ATTACHMENT
- - RAFTERS
- - CONDUIT
- ▾ - TILT - 30°
AZIM. - 180°



1 ROOF PLAN & MODULES

PV-2

SCALE: 0.008333

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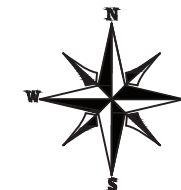
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HAROLD LLOYD BRUNSON RESIDENCE
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SHEET NAME ROOF PLAN & MODULES
SHEET SIZE ANSI B 11" X 17"
SHEET NUMBER PV-2



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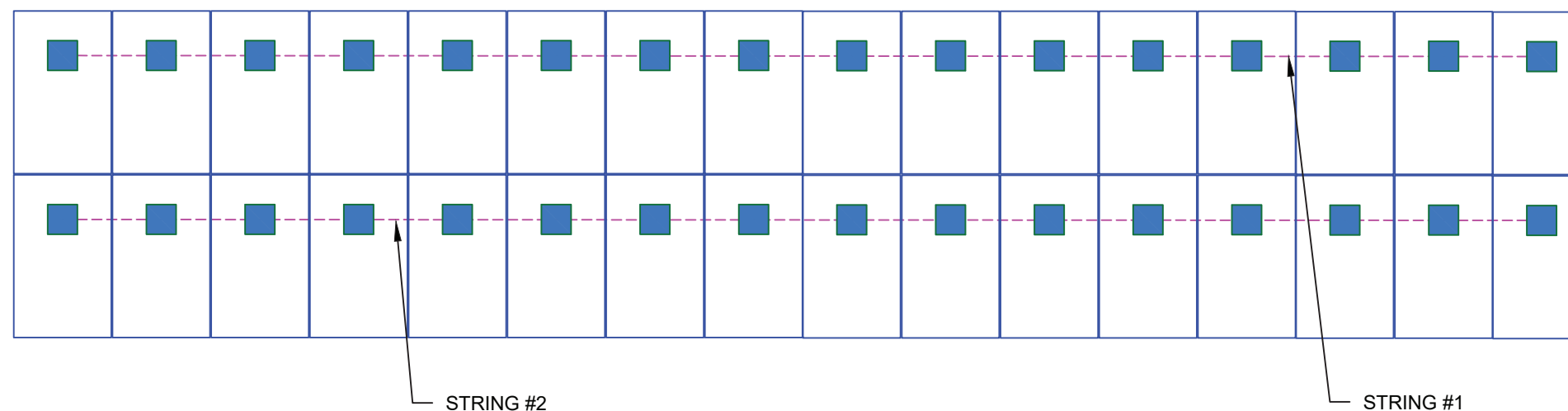
HAROLD LLOYD BRUNSON
 RESIDENCE

582 MCNEIL HOBBS RD.,
 BUNNLEVEL, NC 28323

SHEET NAME
**STRING
 LAYOUT**

SHEET SIZE
**ANSI B
 11" X 17"**

SHEET NUMBER
PV-2A



REVISIONS		
DESCRIPTION	DATE	REV

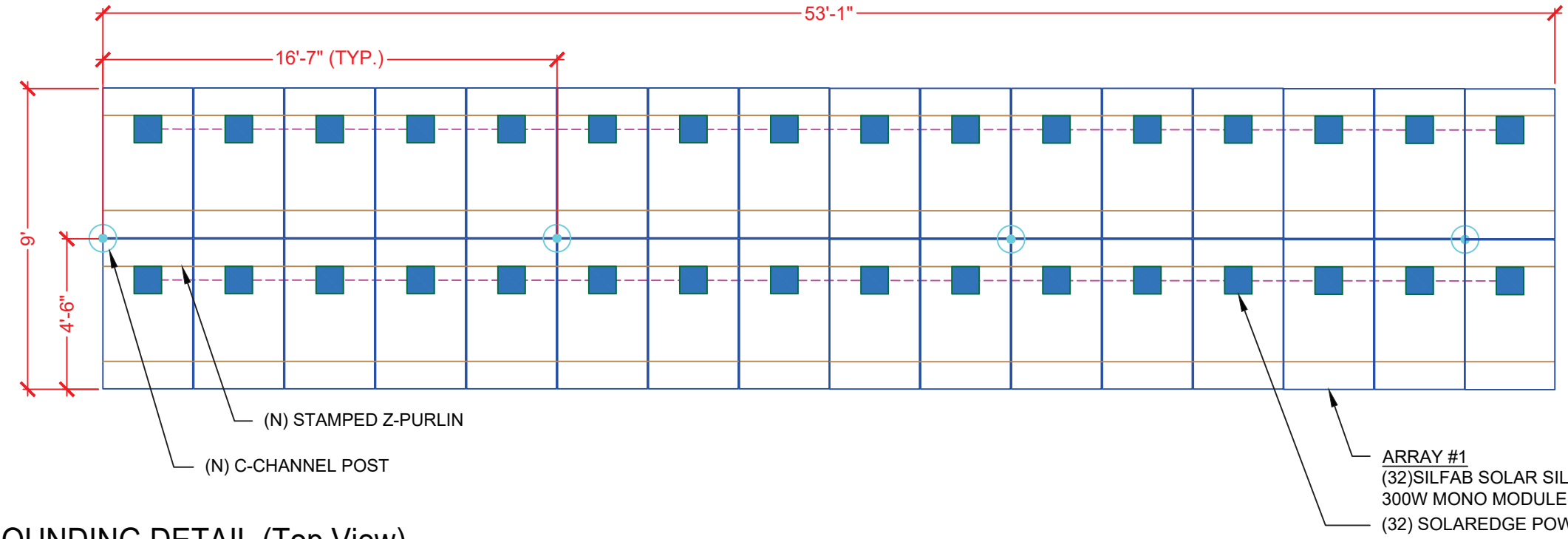
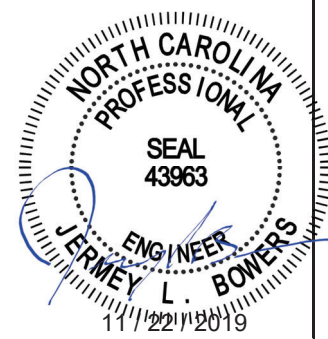
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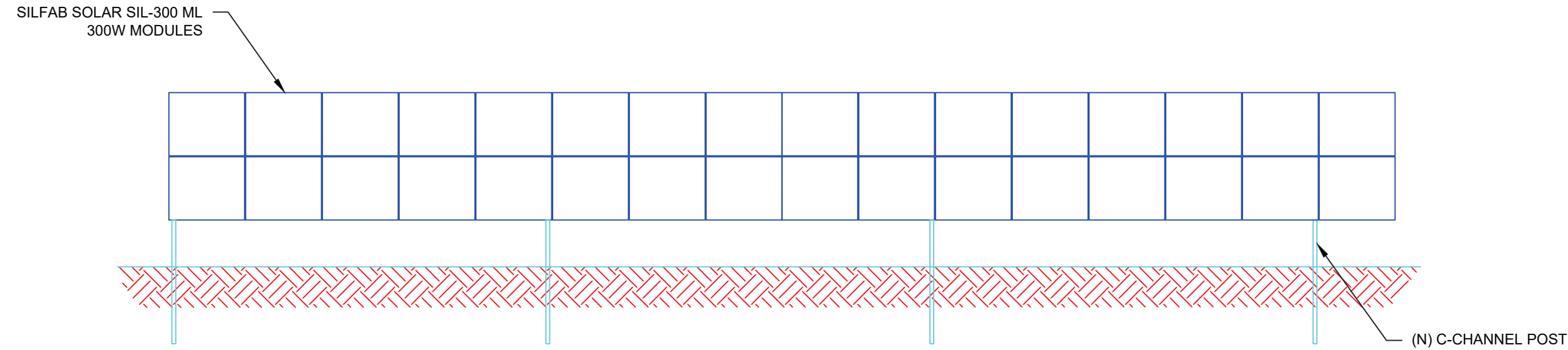
SHEET NAME
GROUNDING DETAIL

SHEET SIZE
**ANSI B
 11" X 17"**

SHEET NUMBER
PV-3



1 GROUNDING DETAIL (Top View)
 PV-3 SCALE: 49/256" = 1'-0"



2 GROUNDING DETAIL (Front View)
 PV-3 SCALE: 49/256" = 1'-0"

REVISIONS		
DESCRIPTION	DATE	REV

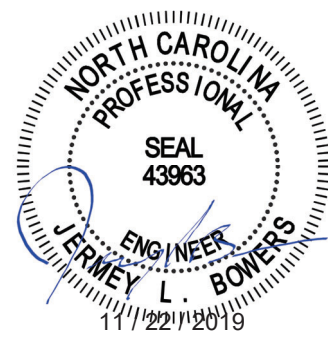
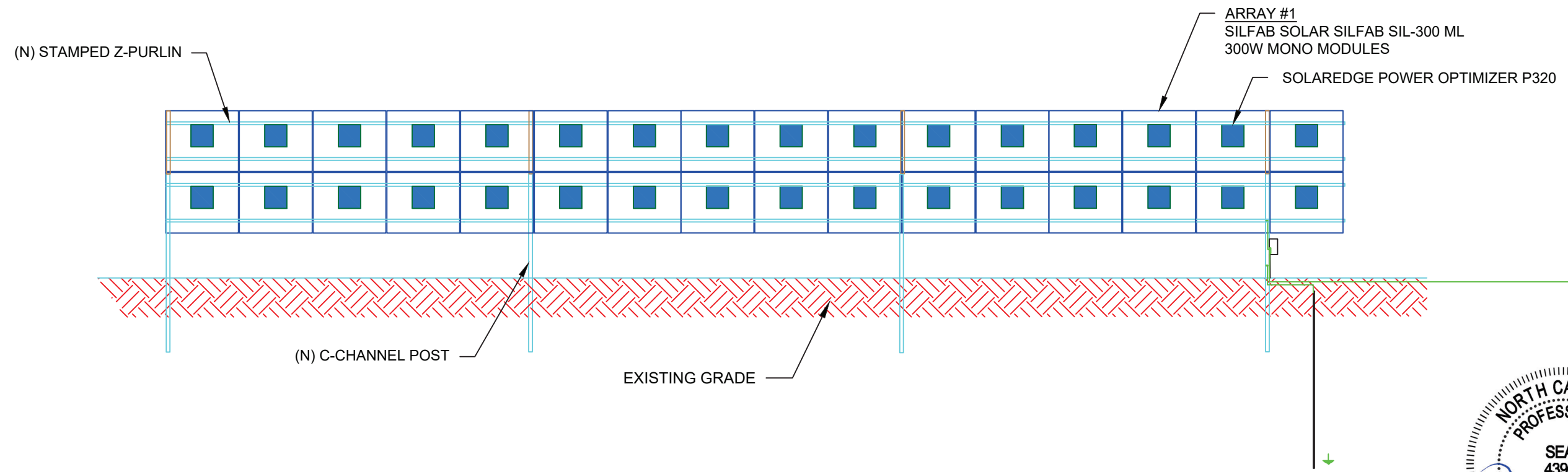
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SHEET NAME
GROUNDING DETAIL

SHEET SIZE
**ANSI B
 11" X 17"**

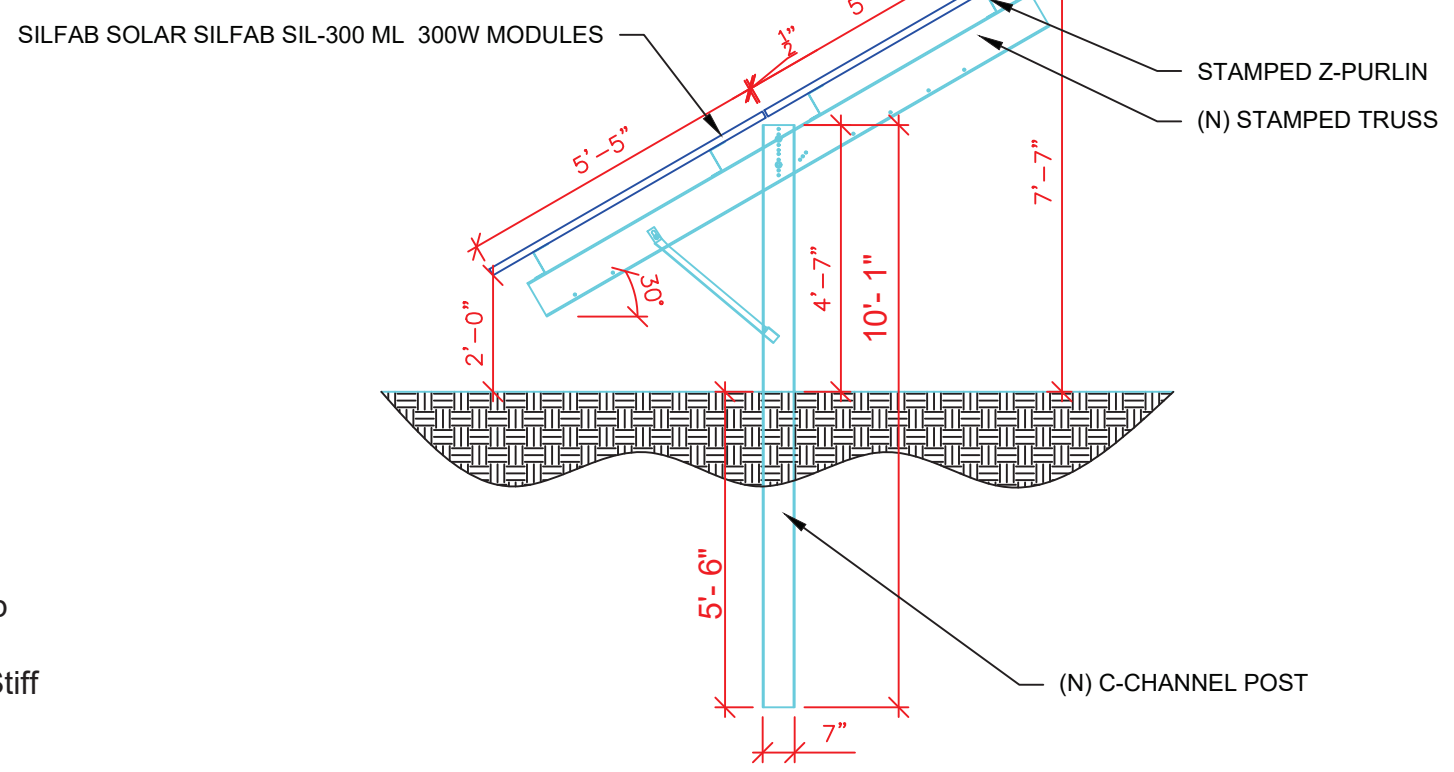
SHEET NUMBER
PV-3A



1 GROUNDING DETAIL (Rear View)

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

- IBC 2015
- 1603.1.1 Floor Live Load N/A
 - 1603.1.2 Roof Live Load 20 psf
 - 1603.1.3 Roof Snow Load
 - Pg = 10 psf
 - Pf = 6.05 psf
 - Ce = 0.9
 - IS = 0.80
 - Ct = 1.2
 - 1603.1.4 Wind Load
 - V = 105 MPH
 - Iw = 1.00
 - Exposure = C
 - 1603.1.5 Earthquake Design Data
 - SDs = 0.203
 - SD1 = 0.14
 - Site Class = D
 - Ie = 1.00
 - SDC = C
 - Base Shear V = 20.47 lb
 - Soil Assumed to be Stiff



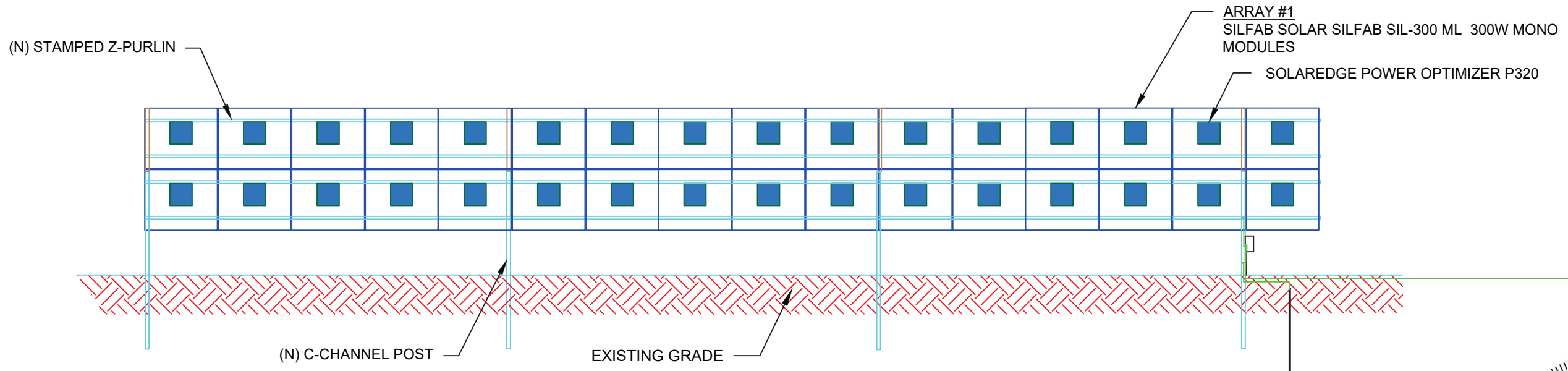
- Column - C3.9x6.9x.14
- Main - C8x3x.12
- Purlin - Z5.15x2.1

Main Beam Column Connection
 (2) Diameter 3/4 Bolts

Purlin to Main Beam Connection
 (1) Diameter 3/4 Bolts

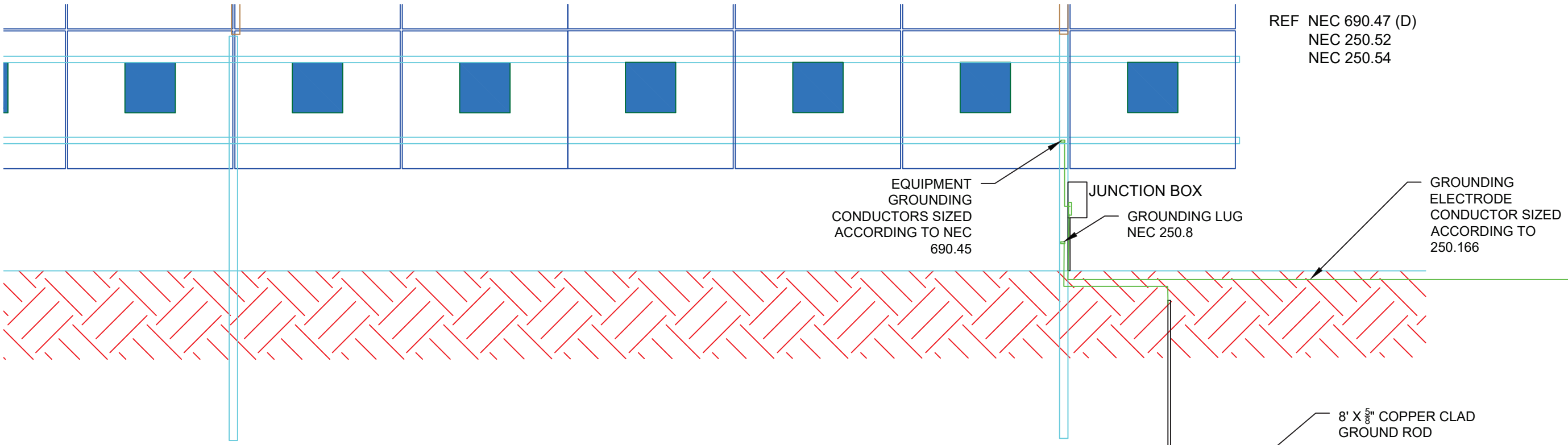
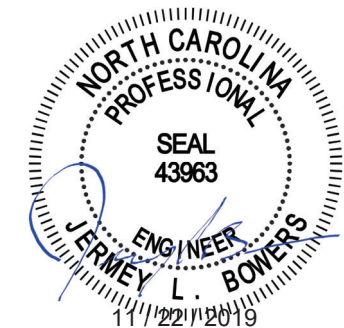
2 GROUNDING DETAIL (Side View)

PV-3A SCALE: NTS



1 GROUNDING DETAIL (Rear View)

PV-3A (2) SCALE: 3/16" = 1'-0"



2 GROUNDING DETAIL (Side View)

PV-3A (2) SCALE: NTS

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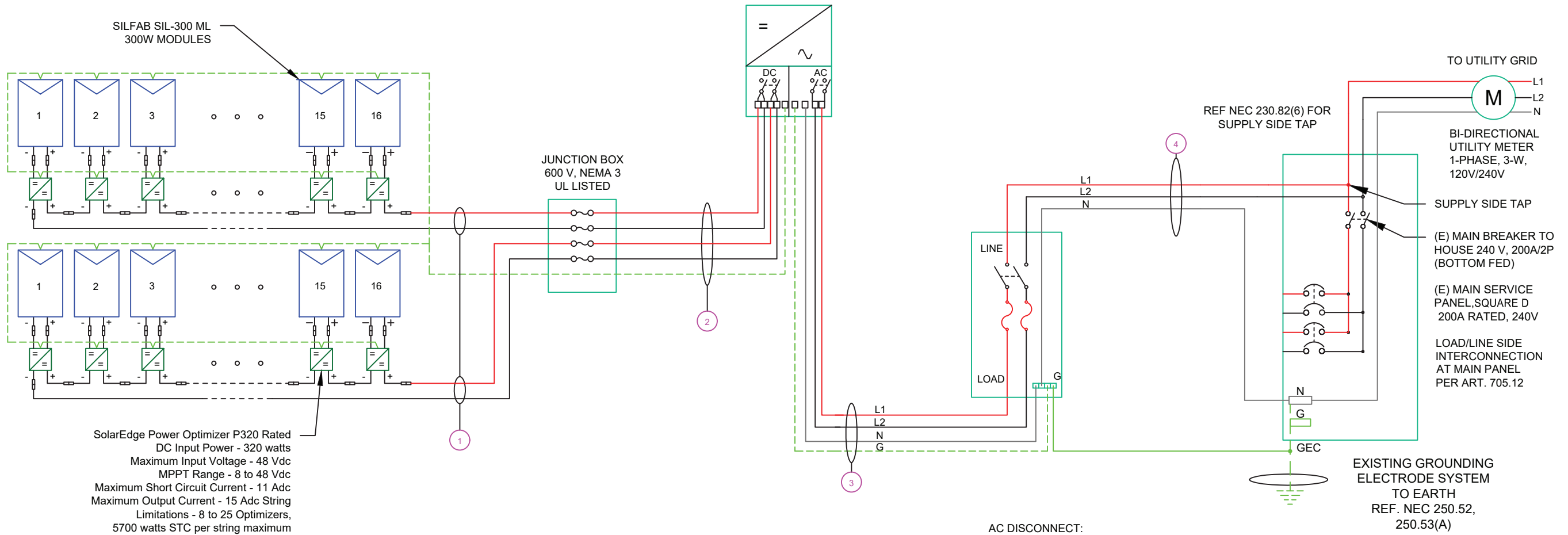
SHEET NAME
GROUNDING DETAIL

SHEET SIZE
**ANSI B
 11" X 17"**

SHEET NUMBER
PV-3A (2)

(32) SILFAB SOLAR SILFAB SIL-300 ML
300W MONO MODULES
(2) STRING OF 16 MODULES CONNECTED IN SERIES

SOLAREGE SE10000H-US (240V)
OUTPUT: 240 VAC, 42A
99% CEC WEIGHTED EFFICIENCY
NEMA 3R, UL LISTED, INTERNAL GFDI
WITH INTEGRATED DC DISCONNECT



SolarEdge Power Optimizer P320 Rated
DC Input Power - 320 watts
Maximum Input Voltage - 48 Vdc
MPPT Range - 8 to 48 Vdc
Maximum Short Circuit Current - 11 Adc
Maximum Output Current - 15 Adc String
Limitations - 8 to 25 Optimizers,
5700 watts STC per string maximum

! WARNING !
PHOTOVOLTAIC
POWER SOURCE
LABEL 1
ON ALL CONDUITS SPACED AT MAX 10FT

! CAUTION !
SOLAR ELECTRIC
SYSTEM CONNECTED
AND ENERGIZED
LABEL 2
AT INVERTER
SOLAR PV SYSTEM EQUIPPED
WITH RAPID SHUTDOWN
TURN RAPID SHUTDOWN
SWITCH TO THE
"OFF" POSITION TO
SHUT DOWN PV SYSTEM
AND REDUCE
SHOCK HAZARD
IN THE ARRAY
LABEL 3
AT INVERTER
**PHOTOVOLTAIC
DC DISCONNECT**
LABEL 4
AT EACH DC DISCONNECT

! WARNING !
ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH LINE AND LOAD SIDE
MAY BE ENERGIZED IN THE OPEN POSITION
LABEL 5
AT EACH AC DISCONNECT
**PHOTOVOLTAIC
AC
DISCONNECT**
LABEL 6
AT EACH AC DISCONNECT

! WARNING !
DUAL POWER SOURCES
SECOND SOURCE IS PV SYSTEM
LABEL 8
AT MEP
! WARNING !
SOLAR SYSTEM
CONNECTED
AND ENERGIZED
LABEL 9
AT MEP

! CAUTION !
SOLAR POINT OF
INTERCONNECTION
LABEL 10
AT UTILITY METER
! WARNING !
THE SERVICE METER IS ALSO SERVED
BY A PHOTOVOLTAIC SYSTEM
LABEL 11
AT UTILITY METER

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

SERVICE INFO	
UTILITY PROVIDER:	SOUTH RIVER ELECTRIC CORP
MAIN SERVICE VOLTAGE:	240V
MAIN PANEL BRAND:	
MAIN SERVICE PANEL:	200A
MAIN CIRCUIT BREAKER RATING:	200A
MAIN SERVICE LOCATION:	SOUTHEAST
SERVICE FEED SOURCE:	UNDERGROUND

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HAROLD LLOYD BRUNSON
RESIDENCE
582 MCNEIL HOBBS RD.,
BUNNLEVEL, NC 28323

SHEET NAME ELECTRICAL LINE DIAGRAM
SHEET SIZE ANSI B 11" X 17"
SHEET NUMBER PV-4

SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL #	SILFAB SOLAR SILFAB SIL-300 ML 300W MONO
VMP	32.8V
IMP	9.16A
VOC	39.85V
ISC	9.71A
TEMP. COEFF. VOC	-0.280%/°C
MODULE DIMENSION	66.93"L x 39.37"W x 1.50"D (In Inch)

INVERTER #1 SPECIFICATIONS	
MANUFACTURER / MODEL #	SOLAREGE SE10000H-US
NOMINAL AC POWER	10.0 KW
NOMINAL OUTPUT VOLTAGE	240 VAC
NOMINAL OUTPUT CURRENT	42A

POWER OPTIMIZER (OPTIMIZER P320-2NM4ARS)	
MAXIMUM INPUT POWER	320W
MINIMUM INPUT VOLTAGE	8 VDC
MAXIMUM INPUT VOLTAGE	48VDC
MAXIMUM MODULE ISC	11 ADC
MAXIMUM OUTPUT CURRENT	15 ADC

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	-10°
AMBIENT TEMP (HIGH TEMP 2%)	35°
CONDUIT HEIGHT	0.5"
ROOF TOP TEMP	57°
CONDUCTOR TEMPERATURE RATE	90°
MODULE TEMPERATURE COEFFICIENT OF Voc	-0.29%/°K

DC CONDUCTOR AMPACITY CALCULATIONS: ARRAY TO JUNCTION BOX:

EXPECTED WIRE TEMP (In Celsius)	52°
TEMP. CORRECTION PER TABLE (310.16)	0.76
NO. OF CURRENT CARRYING CONDUCTORS	4
CONDUIT FILL CORRECTION PER NEC 310.15(B)(3)(a)	0.8
CIRCUIT CONDUCTOR SIZE	10 AWG
CIRCUIT CONDUCTOR AMPACITY	40A

REQUIRED CIRCUIT CONDUCTOR AMPACITY PER NEC 690.8(A&B)	18.75A
1.25 X Isc	
DERATED AMPACITY OF CIRCUIT CONDUCTOR PER NEC TABLE 310.16	
CONDUIT FILL CORRECTION PER NEC 310.15(B)(3)(a) X CIRCUIT CONDUCTOR AMPACITY	32A
Result should be greater than (18.75A) otherwise less the entry for circuit conductor size and ampacity	

DC CONDUCTOR AMPACITY CALCULATIONS: FROM JUNCTION BOX TO INVERTER:

AMBIENT TEMPERATURE ADJUSTMENT FOR EXPOSED CONDUIT PER NEC 310.15(B)(2)(c)	+22°
EXPECTED WIRE TEMP (In Celsius)	35°+22° = 57°
TEMP. CORRECTION PER TABLE (310.16)	0.76
NO. OF CURRENT CARRYING CONDUCTORS	4
CONDUIT FILL CORRECTION PER NEC 310.15(B)(2)(a)	0.8
CIRCUIT CONDUCTOR SIZE	10AWG
CIRCUIT CONDUCTOR AMPACITY	40A

REQUIRED CIRCUIT CONDUCTOR AMPACITY PER NEC 690.8(A&B)	18.75A
1.25 X Isc	
DERATED AMPACITY OF CIRCUIT CONDUCTOR PER NEC TABLE 310.16	
CONDUIT FILL CORRECTION PER NEC 310.15(B)(2)(a) X CIRCUIT CONDUCTOR AMPACITY	32A
Result should be greater than (18.75A) otherwise less the entry for circuit conductor size and ampacity	

AC CONDUCTOR AMPACITY CALCULATIONS:

No. OF INVERTER	1
EXPECTED WIRE TEMP (In Celsius)	30°
TEMP. CORRECTION PER TABLE (310.16)	1.0
NO. OF CURRENT CARRYING CONDUCTORS	3
CONDUIT FILL CORRECTION PER NEC 310.15(B)(2)(a)	1
CIRCUIT CONDUCTOR SIZE	6 AWG
CIRCUIT CONDUCTOR AMPACITY	75A

REQUIRED CIRCUIT CONDUCTOR AMPACITY PER NEC 690.8(B)	52.5A
1.25 X MAX INVERTER OUTPUT CURRENT	
DERATED AMPACITY OF CIRCUIT CONDUCTOR PER NEC TABLE 310.16	
TEMP. CORRECTION PER TABLE (310.16) X CONDUIT FILL CORRECTION PER NEC 310.15(B)(2)(a) X CIRCUIT CONDUCTOR AMPACITY	75A
Result should be greater than (52.5A) otherwise less the entry for circuit conductor size and ampacity	



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RESIDENCE

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SHEET NAME
WIRING
CALCULATIONS

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
PV-5

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 ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
- 6.) WHERE SIZES OF JUNCTION BOXES, 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



SIL-300 ML



60 Cell Monocrystalline PV Module



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

INDUSTRY LEADING WARRANTY

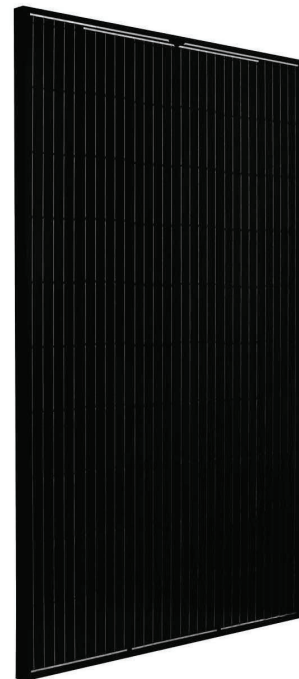
All our products include an industry leading 25-year product workmanship and 30-year performance warranty.

35+ YEARS OF SOLAR INNOVATION

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 have the latest in solar innovation.

NORTH AMERICAN QUALITY

Silfab is the largest and most automated solar 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

Silfab panels are designed and manufactured to meet Buy American Act Compliance. The US State Department, US Military and FAA have all entrusted Silfab panels in their solar installations.

LIGHT AND DURABLE

Engineered to accommodate low load bearing structures up to 5400Pa. The light-weight frame is exclusively designed for wide-ranging racking compatibility and durability.

LOWEST DEFECT RATE

Total automation ensures strict quality controls during the entire manufacturing process at our ISO certified facilities. 48.18 ppm as per December 2018.

DOMESTIC PRODUCTION

Silfab is 100% North American which means our customer service is direct, efficient and local. Your solar panels can be delivered anywhere in the Continental USA within days.

AESTHETICALLY PLEASING

All black sleek design doesn't compromise on quality.

PID RESISTANT

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

Electrical Specifications		SILFAB SIL-300 ML mono PERC	
Test Conditions		STC	NOCT
Module Power (Pmax)	Wp	300	227
Maximum power voltage (Vpmax)	V	32.8	29.5
Maximum power current (Ipmax)	A	9.16	7.69
Open circuit voltage (Voc)	V	39.85	36.9
Short circuit current (Isc)	A	9.71	7.96
Module efficiency	%	18.4	17.3
Maximum system voltage (VDC)	V		1000
Series fuse rating	A		20
Power Tolerance	Wp		-0/+10

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 -0/+10W.

Temperature Ratings		SILFAB SIL-300 ML mono PERC	
Temperature Coefficient Isc	%/°C		0.064
Temperature Coefficient Voc	%/°C		-0.28
Temperature Coefficient Pmax	%/°C		-0.36
NOCT (± 2°C)	°C		45
Operating temperature	°C		-40/+85

Mechanical Properties and Components		SILFAB SIL-300 ML mono PERC	
Module weight (± 1 kg)	kg		19
Dimensions (H x L x D; ± 1mm)	mm		1700 x 1000 x 38
Maximum surface load (wind/snow)*	N/m ²		4000 Pa rear load / 5400 Pa front load
Hail impact resistance			Ø 25 mm at 83 km/h
Cells			60 - Si monocrystalline - 4 or 5 busbar - 156.75 x 156.75 mm
Glass			3.2 mm high transmittance, tempered, antireflective coating
Backsheet			Multilayer polyester-based
Frame			Anodized Al (Black)
Bypass diodes			3 diodes, 20SQ040 (45V/20A)
Cables and connectors			1200 mm Ø 5.7 mm (4 mm ²), MC4 compatible (refer to installation manual)
Junction Box			UI 3730 Certified, IP67 rated

Warranties		SILFAB SIL-300 ML mono PERC	
Module product workmanship warranty		25 years**	30 years
Linear power performance guarantee		≥ 97% end of 1 st year	≥ 90% end of 12 th year
		≥ 82% end of 25 th year	≥ 80% end of 30 th year

Certifications		SILFAB SIL 300 ML mono PERC	
Product		ULC ORD C1703, UL 1703, IEC 61215, IEC 61730-1 and IEC 61730-2 Certified, FSEC and CEC listed, IEC 62716 Ammonia Corrosion, IEC 61701:2011 Salt Mist Corrosion Certified	
Factory		UL Fire Rating: Type 2 ISO9001:2015	

*Please refer to the Safety and Installation Manual for mounting specifications.
**12 year extendable to 25 years subject to registration and conditions outlined under "Warranty" at www.silfabsolar.com.

⚠ Warning: Read the installation and User Manual before handling, installing and operating modules.

Third-party generated pan files from Fraunhofer-Institute for Solar Energy Systems ISE are available for download at: www.silfabsolar.com/downloads

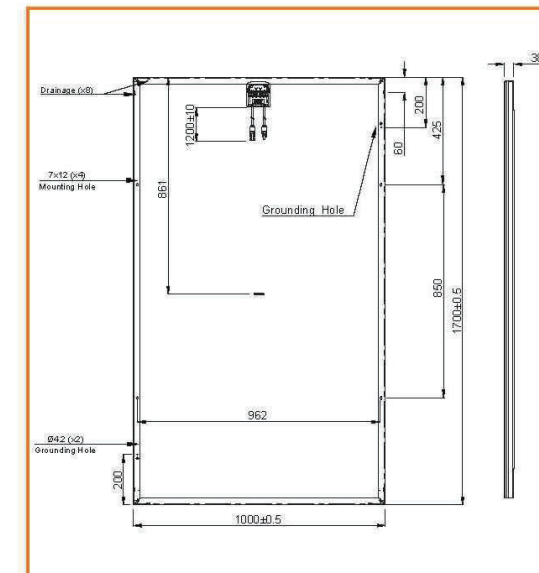


Modules Per Pallet: 26
Pallets Per Truck: 36
Modules Per Truck: 936



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Tel +1 905-255-2501 | Fax +1 905-696-0267
info@silfabsolar.com | www.silfabsolar.com

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POWERHOME SOLAR & ROOFING
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Email: info@powerhome.com
Web: www.powerhome.com

REVISIONS		
DESCRIPTION	DATE	REV

Signature with Seal

DATE: 10/03/2019

PROJECT NAME & ADDRESS

HAROLD LLOYD BRUNSON RESIDENCE

582 MCNEIL HOBBS RD.,
BUNNLEVEL, NC 28323

SHEET NAME
EQUIPMENT SPECIFICATION

SHEET SIZE
ANSI B 11" X 17"

SHEET NUMBER
PV-7

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

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking 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
- Extremely small
- Built-in module-level monitoring
- Outdoor and indoor installation
- Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)

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

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXBXX4							
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	600k Ω Sensitivity							
Maximum Inverter Efficiency	99	99.2						%
CEC Weighted Efficiency	99						99 @ 240V 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⁾							
Inverter Commissioning	with the SetApp mobile application using built-in Wi-Fi station 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	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			dB(A)
Cooling	Natural Convection							
Operating Temperature Range	-40 to +140 / -40 to +60 ⁽⁴⁾							*F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)							

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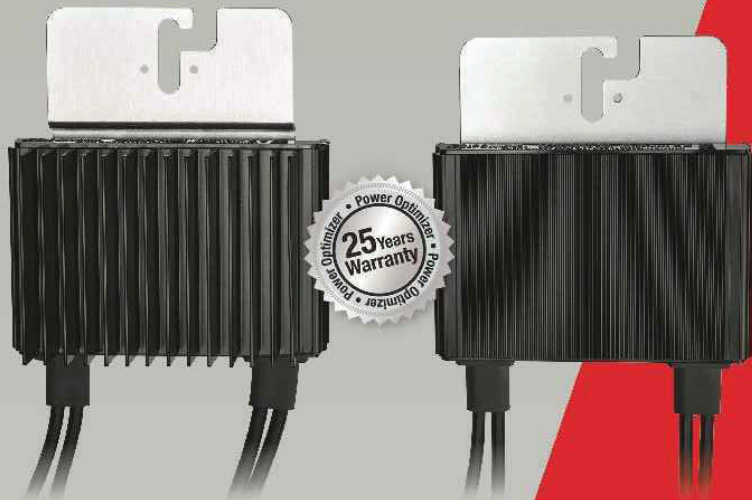
SHEET SIZE
ANSI B 11" X 17"

SHEET NUMBER
PV-8



Power Optimizer

P320 / P370 / P400 / P405 / P505



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
- Compliant with arc fault protection and rapid shutdown NEC requirements (when installed as part of the SolarEdge system)
- Module-level voltage shutdown for installer and firefighter safety

www.solaredge.us



Power Optimizer

P320 / P370 / P400 / P405 / P505

OPTIMIZER MODEL (typical module compatibility)	P320 (for high-power 60-cell modules)	P370 (for higher-power 60 and 72-cell modules)	P400 (for 72 & 96-cell modules)	P405 (for thin film modules)	P505 (for higher current modules)	
INPUT						
Rated Input DC Power ⁽¹⁾	320	370	400	405	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48	60	80	125	83	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		12.63		17.5	Adc
Maximum Efficiency	99.5					%
Weighted Efficiency	98.8					%
Overvoltage Category	II					
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREGE INVERTER)						
Maximum Output Current	15					Adc
Maximum Output Voltage	60			85		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREGE INVERTER OR SOLAREGE 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					
INSTALLATION SPECIFICATIONS						
Maximum Allowed System Voltage	1000					Vdc
Compatible inverters	All SolarEdge Single Phase and Three Phase inverters					
Dimensions (W x L x H)	128 x 152 x 28 / 5 x 5.97 x 1.1	128 x 152 x 36 / 5 x 5.97 x 1.42	128 x 152 x 50 / 5 x 5.97 x 1.96	128 x 152 x 59 / 5 x 5.97 x 2.32		mm / in
Weight (including cables)	630 / 1.4	750 / 1.7	845 / 1.9	1064 / 2.3		gr / lb
Input Connector	MC4 ⁽²⁾					
Output Wire Type / Connector	Double Insulated; 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 / NEMA6P					
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

PV SYSTEM DESIGN USING A SOLAREGE INVERTER ⁽³⁾⁽⁴⁾	SINGLE PHASE HD-WAVE	SINGLE PHASE	THREE PHASE 208V	THREE PHASE 480V	
Minimum String Length (Power Optimizers)	P320, P370, P400 P405 / P505	8	10	18	
Maximum String Length (Power Optimizers)		6	8	14	
Maximum String Length (Power Optimizers)		25	25	50 ⁽⁵⁾	
Maximum Power per String	5700 (6000 with SE7600-US - SE11400- US)	5250	6000	12750	W
Parallel Strings of Different Lengths or Orientations	Yes				

⁽³⁾ For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf.

⁽⁴⁾ It is not allowed to mix P405/P505 with P320/P370/P400/P500/P700/P800 in one string.

⁽⁵⁾ A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement



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SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-9



Sinclair Designs & Engineering

Your One-Stop-Shop for Solar Racking Solutions

Carport Systems Pole Mount Trackers Ground Mount Systems Commercial Roof Mount Systems



T - Y - L - A Carports Fixed, Single, Dual Axis Sun Trackers 5 - 45 Degree GroPost/Ballastund Mount Systems 5 - 7 - 10 Degree Roof Mounts

SDE: Project Development Support (Using Aurora PV Software & Solid-Works)

Our NABCEP certified PV designers and Engineers can support you through every phase of your project.

Preliminary Designs for Quick Proposals: 3D Modeling, PV Production, Shade Analysis, & Site Drawings

Ballast Calculations with PSF Analysis

Accurate Component Pricing & Project Bill of Materials



Need Installation Support? Our new business partners can provide geotechnical support and offer installation pricing for all of our racking systems. Together, we are on track to install over 80 Megawatts of power throughout the USA in 2019.

Sinclair Designs & Engineering

Integrated Project Development & System Manufacturing

Sky Rack 2.0 Ground Mount System



Introducing the New Sky Rack 2.0 Ground Mount
The new design increases the overall structural integrity of the assembly and provides more efficient installation techniques.

Based on your module choice and the size of the project, this system can offer a direct hardware to module solution; eliminating the need to purchase expensive panel clamp kits (10% Savings).

APPLICATION	OPEN FIELD		
Tilt Angle	5-45 Degrees	Terrain	5 Degree E/W
Module Orientation	2 High Portrait	Wire Management	Included
Wind Load	115 MPH	Warranty	25 Years
Snow Load	60 PSF	Material	11GA G90 CHEM TREAT Steel
Ground Clearance	24in Standard (Customer Req)	Manufacturing	Made in Michigan, USA

4 Main Components For Efficient Installation

- 1. 4 x 7 IN C-CHANNEL POST**
Optional Lengths = 8 - 17 Feet
- 2. SLR-STRUT-50**
Reinforcement Brace
- 3. TRUSS - 120**
5-40 Degree Angle Adjustment
- 4. Z-PURLIN-(2-5 Panel Lengths Available)**
Wire Tie Management Holes
Additional Slots for direct module tie-in

Additional Components Available to Increase Spec Requirements

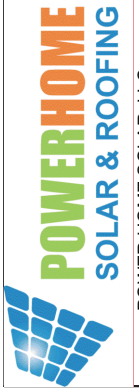
- Z-PURLIN BRACE**
For high wind/heavy snow areas
- SLR-DBLL STRUT-50**
For high wind/heavy snow areas
- SLR-STRONGBACK**
For high wind/heavy snow areas
- Z-PURLIN CANTILEVER-44**
Allows additional modules to be installed at the beginning and end of each array.

Minimal Hardware Requirements For Efficient Installation

- ALL HDW & CLAMP KITS ARE STORED IN HIGH VOLUMES**
- 2x 5/8-11 x 1 3/4 Serrated Flanged Heads
 - 7x 1/2-13 x 1 1/2 Serrated Flanged Heads
 - AK Solar UL-467 SS MID CLAMP KITS**
 - AK Solar UL-467 SS END CLAMP KITS**



PRODUCT AVAILABILITY: All racking systems are manufactured "IN HOUSE" from "Prime" 11 Gage Grade 50 USA Steel. This allows us to control 100% of the production schedule and deploy your system ahead of the installation date. We inventory 1-2 Megawatts of racking product to maintain an average lead time of 7-10 days.



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SHEET NAME
EQUIPMENT
SPECIFICATION

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-10