

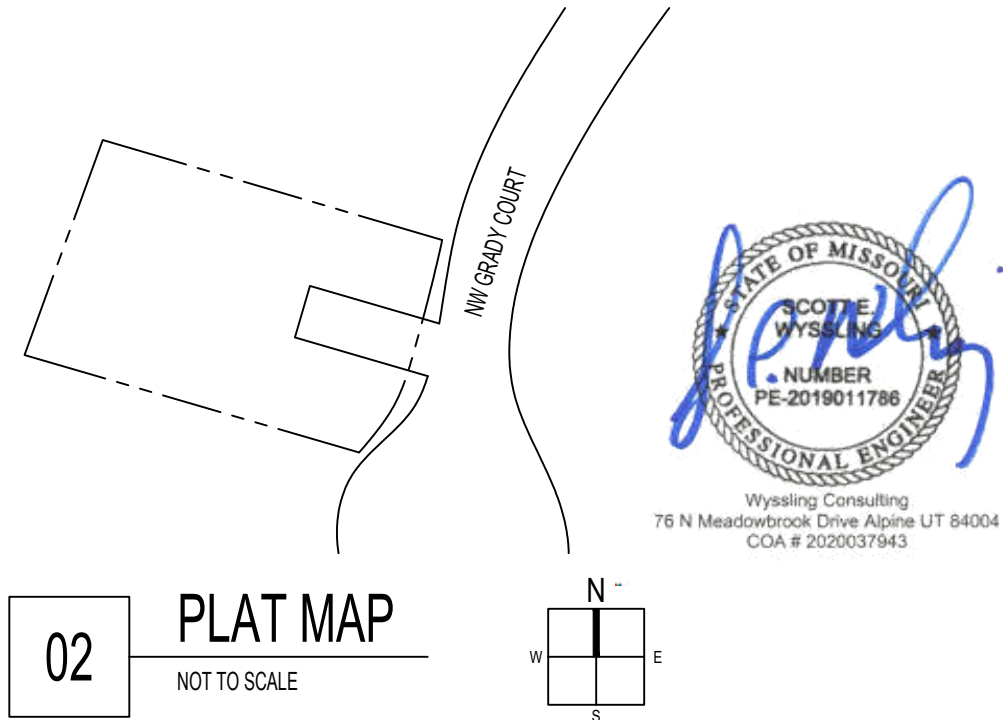
NEW PV SYSTEM: 7.040 kWp

MILLION RESIDENCE

106 NW GRADY COURT  
LEE'S SUMMIT, MO 64081  
ASSESSOR'S #: \_\_\_\_\_



01 AERIAL PHOTO  
NOT TO SCALE



SHEET LIST TABLE

SHEET NUMBER	SHEET TITLE
T-001	COVER PAGE
G-001	NOTES
A-101	SITE PLAN
A-102	ELECTRICAL PLAN
A-103	SOLAR ATTACHMENT PLAN
E-601	LINE DIAGRAM
E-602	DESIGN TABLES
E-603	PLACARDS
S-501	ASSEMBLY DETAILS
R-001	RESOURCE DOCUMENT
R-002	RESOURCE DOCUMENT
R-003	RESOURCE DOCUMENT
R-004	RESOURCE DOCUMENT
R-005	RESOURCE DOCUMENT

PROJECT INFORMATION

OWNER

NAME: LOGAN MILLION

PROJECT MANAGER

NAME: KEATON D  
PHONE: 8163517803

CONTRACTOR

NAME: ECOVOLE  
PHONE: 8163517803

AUTHORITIES HAVING JURISDICTION

BUILDING: LEE'S SUMMIT MO  
ZONING: LEE'S SUMMIT MO  
UTILITY: EVERY MO

DESIGN SPECIFICATIONS

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

APPLICABLE CODES & STANDARDS

2018 INTERNATIONAL BUILDING CODE,  
2018 INTERNATIONAL MECHANICAL CODE,  
2018 INTERNATIONAL PLUMBING CODE,  
2018 INTERNATIONAL FUEL GAS CODE,  
2018 INTERNATIONAL FIRE CODE,  
2017 NATIONAL ELECTRIC CODE  
ICC/ANSI A117.1-2009

RELEASE FOR  
CONSTRUCTION  
AS NOTED ON PLANS REVIEW  
DEVELOPMENT SERVICES  
LEE'S SUMMIT, MISSOURI



CONTRACTOR

ECOVOLE

PHONE: 8163517803  
ADDRESS: 2300 MAIN ST  
KANSAS CITY, MO 64108

LIC. NO.: 206086  
HIC. NO.:  
ELE. NO.:

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RESIDENCE

106 NW GRADY COURT  
LEE'S SUMMIT, MO 64081  
APN: \_\_\_\_\_

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

COVER PAGE

DATE: 07.12.2021

DESIGN BY: E.N.

CHECKED BY: M.M.

REVISIONS

T-001.00  
(SHEET 1)

GENERAL NOTES

- 1.1.1 **PROJECT NOTES:**
- 1.1.2 THIS PHOTOVOLTAIC (PV) SYSTEM SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE (NEC) ARTICLE 690, ALL MANUFACTURERS'S LISTING AND INSTALLATION INSTRUCTIONS, AND THE RELEVANT CODES AS SPECIFIED BY THE AUTHORITY HAVING JURISDICTION'S (AHJ) APPLICABLE CODES.
- 1.1.3 THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND PV SYSTEM INSPECTED PRIOR TO PARALLEL OPERATION
- 1.1.4 ALL PV SYSTEM COMPONENTS; MODULES, UTILITY-INTERACTIVE INVERTERS, AND SOURCE CIRCUIT COMBINER BOXES ARE IDENTIFIED AND LISTED FOR USE IN PHOTOVOLTAIC SYSTEMS AS REQUIRED BY NEC 690.4: **PV MODULES:** UL1703, IEC61730, AND IEC61215, AND NFPA 70 CLASS C FIRE **INVERTERS:** UL 1741 CERTIFIED, IEEE 1547, 929, 519 **COMBINER BOX(ES):** UL 1703 OR UL 1741 ACCESSORY
- 1.1.5 MAX DC VOLTAGE CALCULATED USING MANUFACTURER PROVIDED TEMP COEFFICIENT FOR VOC. IF UNAVAILABLE, MAX DC VOLTAGE CALCULATED ACCORDING TO NEC 690.7.
- 1.1.6 ALL INVERTERS, PHOTOVOLTAIC MODULES, PHOTOVOLTAIC PANELS, AND SOURCE CIRCUIT COMBINERS INTENDED FOR USE IN A PHOTOVOLTAIC POWER SYSTEM WILL BE IDENTIFIED AND LISTED FOR THE APPLICATION PER 690.4 (D). SHALL BE INSTALLED ACCORDING TO ANY INSTRUCTIONS FROM LISTING OR LABELING [NEC 110.3].
- 1.1.7 ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS REQUIRED BY THE NEC AND AHJ.

- 1.2.1 **SCOPE OF WORK:**
- 1.2.2 PRIME CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND SPECIFICATIONS OF THE GRID-TIED PHOTOVOLTAIC SYSTEM RETROFIT. PRIME CONTRACTOR WILL BE RESPONSIBLE FOR COLLECTING EXISTING ONSITE REQUIREMENTS TO DESIGN, SPECIFY, AND INSTALL THE EXTERIOR ROOF-MOUNTED PORTION OF THE PHOTOVOLTAIC SYSTEMS DETAILED IN THIS DOCUMENT.

- 1.3.1 **WORK INCLUDES:**
- 1.3.2 PV ROOF ATTACHMENTS - ROOF TECH RT-MINI
- 1.3.3 PV RACKING SYSTEM INSTALLATION - UNIRAC LIGHT
- 1.3.4 PV MODULE AND INVERTER INSTALLATION - SILFAB SLA320M [BLK]/ SOLAR EDGE SE6000H-US (240V)
- 1.3.5 PV EQUIPMENT GROUNDING
- 1.3.6 PV SYSTEM WIRING TO A ROOF-MOUNTED JUNCTION BOX
- 1.3.7 PV LOAD CENTERS (IF INCLUDED)
- 1.3.8 PV METERING/MONITORING (IF INCLUDED)
- 1.3.9 PV DISCONNECTS
- 1.3.10 PV FINAL COMMISSIONING
- 1.3.11 (E) ELECTRICAL EQUIPMENT RETROFIT FOR PV
- 1.3.12 SIGNAGE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE

SCOPE OF WORK

SYSTEM SIZE: STC: 22 X 320W = 7.040KW  
PTC: 22 X 290.4W = 6.389KW  
(22) SILFAB SLA320M [BLK]  
(1) SOLAR EDGE SE6000H-US (240V)

ATTACHMENT TYPE: ROOF TECH RT-MINI

MSP UPGRADE: NO

A			B			C			D			E			F			G			H			
1	2.1.1	<b>SITE NOTES:</b>							2.4.9	THE GROUNDING ELECTRODE SYSTEM COMPLIES WITH NEC 690.47 AND NEC 250.50 THROUGH 250.106. IF EXISTING SYSTEM IS INACCESSIBLE, OR INADEQUATE, A GROUNDING ELECTRODE SYSTEM PROVIDED ACCORDING TO NEC 250, NEC 690.47 AND AHJ.							2.7.5	PV WIRE BLACK WIRE MAY BE FIELD-MARKED WHITE [NEC 200.6 (A)(6)].						
	2.1.2	A LADDER WILL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.															2.7.6	MODULE WIRING SHALL BE LOCATED AND SECURED UNDER THE ARRAY.						
	2.1.3	THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS A UTILITY INTERACTIVE SYSTEM WITH NO STORAGE BATTERIES.							2.4.10	DC PV ARRAYS SHALL BE PROVIDED WITH DC GROUND-FAULT PROTECTION MEETING THE REQUIREMENTS OF 690.41(B)(1) AND (2) TO REDUCE FIRE HAZARDS							2.7.7	ACCORDING TO NEC 200.7, UNGROUNDED SYSTEMS DC CONDUCTORS COLORED OR MARKED AS FOLLOWS:						
	2.1.4	THE SOLAR PV INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.																DC POSITIVE- RED, OR OTHER COLOR EXCLUDING WHITE, GREY AND GREEN						
2	2.1.5	PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION NEC 110.26.							2.5.1	<b>INTERCONNECTION NOTES:</b>								DC NEGATIVE- BLACK, OR OTHER COLOR EXCLUDING WHITE, GREY AND GREEN						
	2.1.6	ROOF COVERINGS SHALL BE DESIGNED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THIS CODE AND THE APPROVED MANUFACTURER'S INSTRUCTIONS SUCH THAT THE ROOF COVERING SERVES TO PROTECT THE BUILDING OR STRUCTURE.							2.5.2	LOAD-SIDE INTERCONNECTION SHALL BE IN ACCORDANCE WITH [NEC 705.12 (B)]							2.7.8	AC CONDUCTORS COLORED OR MARKED AS FOLLOWS:						
									2.5.3	THE SUM OF THE UTILITY OCPD AND INVERTER CONTINUOUS OUTPUT MAY NOT EXCEED 120% OF BUSBAR RATING [NEC 705.12(B)(2)(3)].								PHASE A OR L1- BLACK						
									2.5.4	THE SUM OF 125 PERCENT OF THE POWER SOURCE(S) OUTPUT CIRCUIT CURRENT AND THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR SHALL NOT EXCEED 120 PERCENT OF THE AMPACITY OF THE BUSBAR, PV DEDICATED BACKFEED BREAKERS MUST BE LOCATED OPPOSITE END OF THE BUS FROM THE UTILITY SOURCE OCPD [NEC 705.12(B)(2)(3)].								PHASE B OR L2- RED, OR OTHER CONVENTION IF THREE PHASE						
3	2.2.1	<b>EQUIPMENT LOCATIONS</b>							2.5.5	AT MULTIPLE ELECTRIC POWER SOURCES OUTPUT COMBINER PANEL, TOTAL RATING OF ALL OVERCURRENT DEVICES SHALL NOT EXCEED AMPACITY OF BUSBAR. HOWEVER, THE COMBINED OVERCURRENT DEVICE MAY BE EXCLUDED ACCORDING TO NEC 705.12 (B)(2)(3)(C).								PHASE C OR L3- BLUE, YELLOW, ORANGE*, OR OTHER CONVENTION						
	2.2.2	ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY NEC 110.26.																NEUTRAL- WHITE OR GREY						
	2.2.3	WIRING SYSTEMS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY NEC 690.31 (A),(C) AND NEC TABLES 310.15 (B)(2)(A) AND 310.15 (B)(3)(C).							2.5.6	FEEDER TAP INTERCONNECTION (LOAD SIDE) ACCORDING TO NEC 705.12 (B)(2)(1)								* IN 4-WIRE DELTA CONNECTED SYSTEMS THE PHASE WITH HIGHER VOLTAGE TO BE MARKED ORANGE [NEC 110.15].						
	2.2.4	ADDITIONAL AC DISCONNECT(S) SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT.							2.5.7	SUPPLY SIDE TAP INTERCONNECTION ACCORDING TO NEC 705.12 (A) WITH SERVICE ENTRANCE CONDUCTORS IN ACCORDANCE WITH NEC 230.42														
4	2.2.5	ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL ACCORDING TO NEC APPLICABLE CODES.							2.5.8	BACKFEEDING BREAKER FOR ELECTRIC POWER SOURCES OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING [NEC 705.12 (B)(5)].														
	2.2.6	ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE.																						
	2.3.1	<b>STRUCTURAL NOTES:</b>							2.6.1	<b>DISCONNECTION AND OVER-CURRENT PROTECTION NOTES:</b>														
	2.3.2	RACKING SYSTEM & PV ARRAY WILL BE INSTALLED ACCORDING TO CODE-COMPLIANT INSTALLATION MANUAL. TOP CLAMPS REQUIRE A DESIGNATED SPACE BETWEEN MODULES, AND RAILS MUST ALSO EXTEND A MINIMUM DISTANCE BEYOND EITHER EDGE OF THE ARRAY/SUBARRAY, ACCORDING TO RAIL MANUFACTURER'S INSTRUCTIONS.							2.6.2	DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING ENERGIZED ARE CONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY THE UPPER TERMINALS). DISCONNECTS TO BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH.														
5	2.3.3	JUNCTION BOX WILL BE INSTALLED PER MANUFACTURERS' SPECIFICATIONS. IF ROOF-PENETRATING TYPE, IT SHALL BE FLASHED & SEALED PER LOCAL REQUIREMENTS.							2.6.3	BOTH POSITIVE AND NEGATIVE PV CONDUCTORS ARE UNGROUNDED. THEREFORE BOTH MUST OPEN WHERE A DISCONNECT IS REQUIRED, ACCORDING TO NEC 690.13.														
	2.3.4	ROOFTOP PENETRATIONS FOR PV RACEWAY WILL BE COMPLETED AND SEALED W/ APPROVED CHEMICAL SEALANT PER CODE BY A LICENSED CONTRACTOR.							2.6.4	ISOLATING DEVICES OR EQUIPMENT DISCONNECTING MEANS SHALL BE INSTALLED IN CIRCUITS CONNECTED TO EQUIPMENT AT A LOCATION WITHIN THE EQUIPMENT, OR WITHIN SIGHT AND WITHIN 10 FT OF THE EQUIPMENT. AN EQUIPMENT DISCONNECTING MEANS SHALL BE PERMITTED TO BE REMOTE FROM THE EQUIPMENT WHERE THE EQUIPMENT DISCONNECTING MEANS CAN BE REMOTELY OPERATED FROM WITHIN 10 FT OF THE EQUIPMENT, ACCORDING TO NEC 690.15 (A).														
	2.3.5	ALL PV RELATED ROOF ATTACHMENTS TO BE SPACED NO GREATER THAN THE SPAN DISTANCE SPECIFIED BY THE RACKING MANUFACTURER.							2.6.5	PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION TO REDUCE SHOCK HAZARD FOR EMERGENCY RESPONDERS IN ACCORDANCE WITH 690.12(A) THROUGH (D)														
	2.3.6	WHEN POSSIBLE, ALL PV RELATED RACKING ATTACHMENTS WILL BE STAGGERED AMONGST THE ROOF FRAMING MEMBERS.							2.6.6	ALL OCPD RATINGS AND TYPES SPECIFIED ACCORDING TO NEC 690.8, 690.9, AND 240.														
6	2.4.1	<b>GROUNDING NOTES:</b>							2.6.7	BOTH POSITIVE AND NEGATIVE PV CONDUCTORS ARE UNGROUNDED, THEREFORE BOTH REQUIRE OVER-CURRENT PROTECTION, ACCORDING TO NEC 240.21. (SEE EXCEPTION IN NEC 690.9)														
	2.4.2	GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, AND GROUNDING DEVICES EXPOSED TO THE ELEMENTS SHALL BE RATED FOR SUCH USE.							2.6.8	IF REQUIRED BY AHJ, SYSTEM WILL INCLUDE ARC-FAULT CIRCUIT PROTECTION ACCORDING TO NEC 690.11 AND UL1699B.														
	2.4.3	PV SYSTEMS REQUIRE AN EQUIPMENT GROUNDING CONDUCTOR. ALL METAL ELECTRICAL EQUIPMENT AND STRUCTURAL COMPONENTS BONDED TO GROUND, IN ACCORDANCE WITH 250.134 OR 250.136(A). ONLY THE DC CONDUCTORS ARE UNGROUNDED.							2.7.1	<b>WIRING &amp; CONDUIT NOTES:</b>														
	2.4.4	PV EQUIPMENT SHALL BE GROUNDED ACCORDING TO NEC 690.43 AND MINIMUM NEC TABLE 250.122.							2.7.2	ALL CONDUIT AND WIRE WILL BE LISTED AND APPROVED FOR THEIR PURPOSE. CONDUIT AND WIRE SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING.														
7	2.4.5	METAL PARTS OF MODULE FRAMES, MODULE RACKING, AND ENCLOSURE CONSIDERED GROUNDED IN ACCORD WITH 250.134 AND 250.136(A).							2.7.3	ALL CONDUCTORS SIZED ACCORDING TO NEC 690.8, NEC 690.7.														
	2.4.6	EACH MODULE WILL BE GROUNDED USING WEEB GROUNDING CLIPS AS SHOWN IN MANUFACTURER DOCUMENTATION AND APPROVED BY THE AHJ. IF WEEBS ARE NOT USED, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE SPECIFIED GROUNDING LUG HOLES PER THE MANUFACTURERS' INSTALLATION REQUIREMENTS.							2.7.4	EXPOSED PV SOURCE CIRCUITS AND OUTPUT CIRCUITS SHALL USE WIRE LISTED AND IDENTIFIED AS PHOTOVOLTAIC (PV) WIRE [690.31 (C)]. PV MODULES WIRE LEADS SHALL BE LISTED FOR USE ON PV ARRAYS, ACCORDING TO NEC 690.31 (A).														
	2.4.7	THE GROUNDING CONNECTION TO A MODULE SHALL BE ARRANGED SUCH THAT THE REMOVAL OF A MODULE DOES NOT INTERRUPT A GROUNDING CONDUCTOR TO ANOTHER MODULE.																						
	2.4.8	GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLORED GREEN OR MARKED GREEN IF #4 AWG OR LARGER [NEC 250.119]																						

RELEASE FOR CONSTRUCTION AS NOTED ON PLANS REVIEW DEVELOPMENT SERVICES LEE'S SUMMIT, MISSOURI

07/29/2021

ECOVOLTE

CONTRACTOR

ECOVOLTE

PHONE: 8163517803 ADDRESS: 2300 MAIN ST KANSAS CITY, MO 64108

LIC. NO.: 206086 HIC. NO.: ELE. NO.:

UNAUTHORIZED USE OF THIS DRAWING SET WITHOUT WRITTEN PERMISSION FROM CONTRACTOR IS IN VIOLATION OF U.S. COPYRIGHT LAWS AND WILL BE SUBJECT TO CIVIL DAMAGES AND PROSECUTIONS.

NEW PV SYSTEM: 7.040 kW

MILLION RESIDENCE

106 NW GRADY COURT LEE'S SUMMIT, MO 64081 APN:

ENGINEER OF RECORD

NOTES

DATE: 07.12.2021

DESIGN BY: E.N.

CHECKED BY: M.M.

REVISIONS

G-001.00

(SHEET 2)

STATE OF MISSOURI

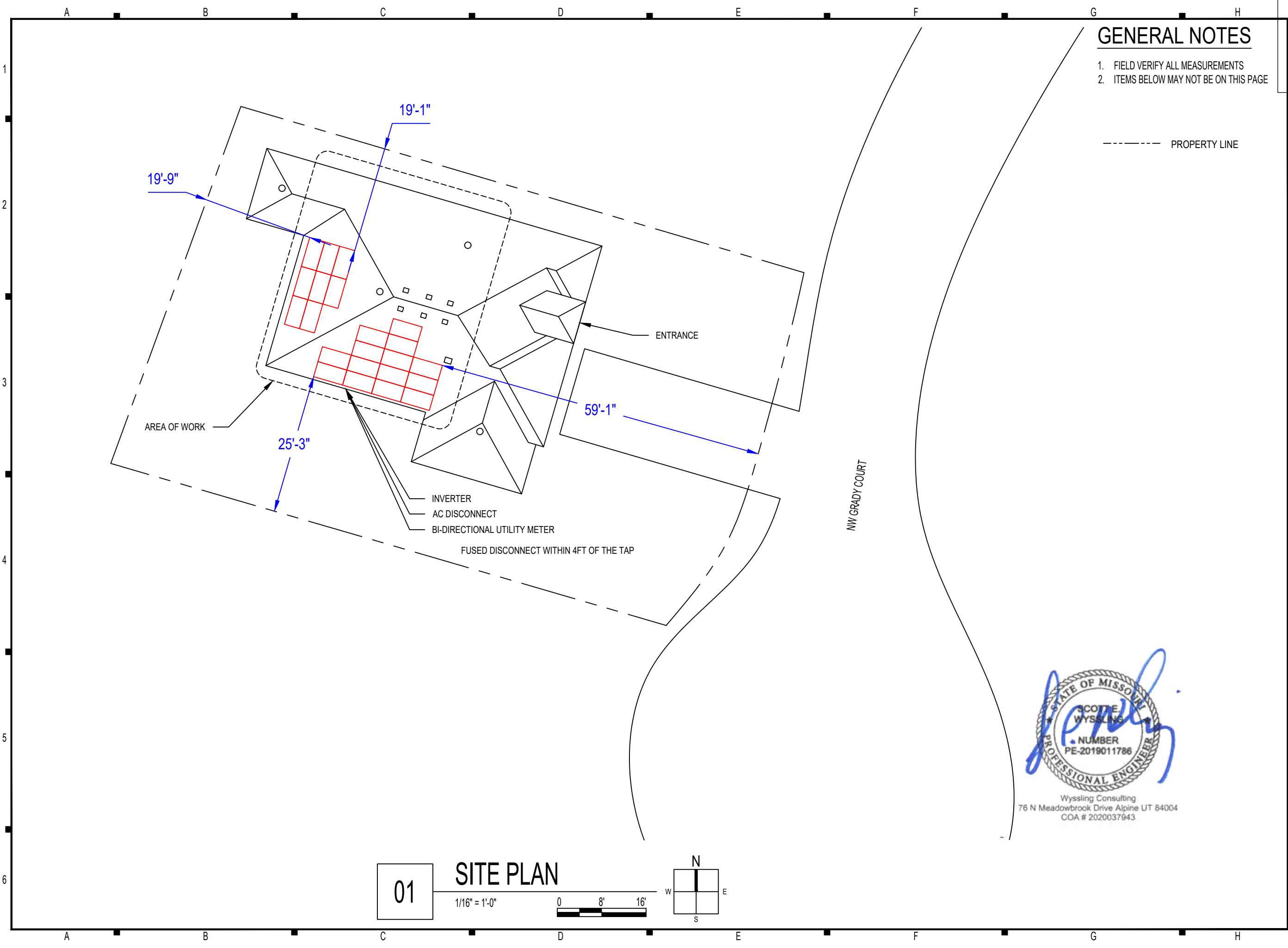
SCOTTE WYSSLING

NUMBER PE-2019011786

PROFESSIONAL ENGINEER

Wyssling Consulting  
76 N Meadowbrook Drive Alpine UT 84004  
COA # 2020037943





GENERAL NOTES

- 1. FIELD VERIFY ALL MEASUREMENTS
- 2. ITEMS BELOW MAY NOT BE ON THIS PAGE

----- PROPERTY LINE

RELEASE FOR  
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LEE'S SUMMIT, MISSOURI

07/29/2021

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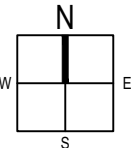


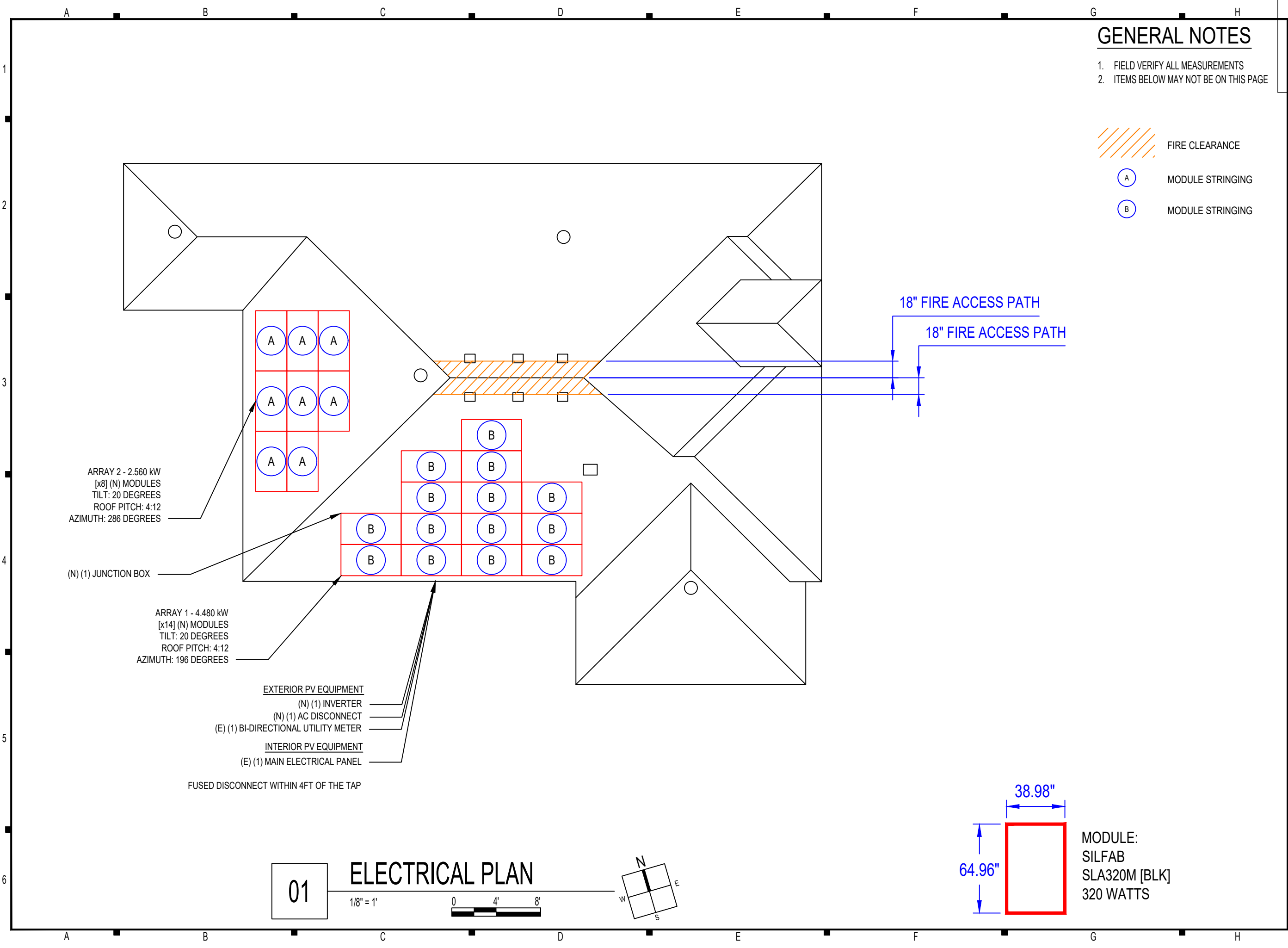
Wyssling Consulting  
76 N Meadowbrook Drive Alpine UT 84004  
COA # 2020037943

01

SITE PLAN

1/16" = 1'-0"





**CONTRACTOR**

ECOVOLTE

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LEE'S SUMMIT, MO 64081  
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**ENGINEER OF RECORD**

PAPER SIZE: 11" x 17" (ANSI B)

**ELECTRICAL PLAN**

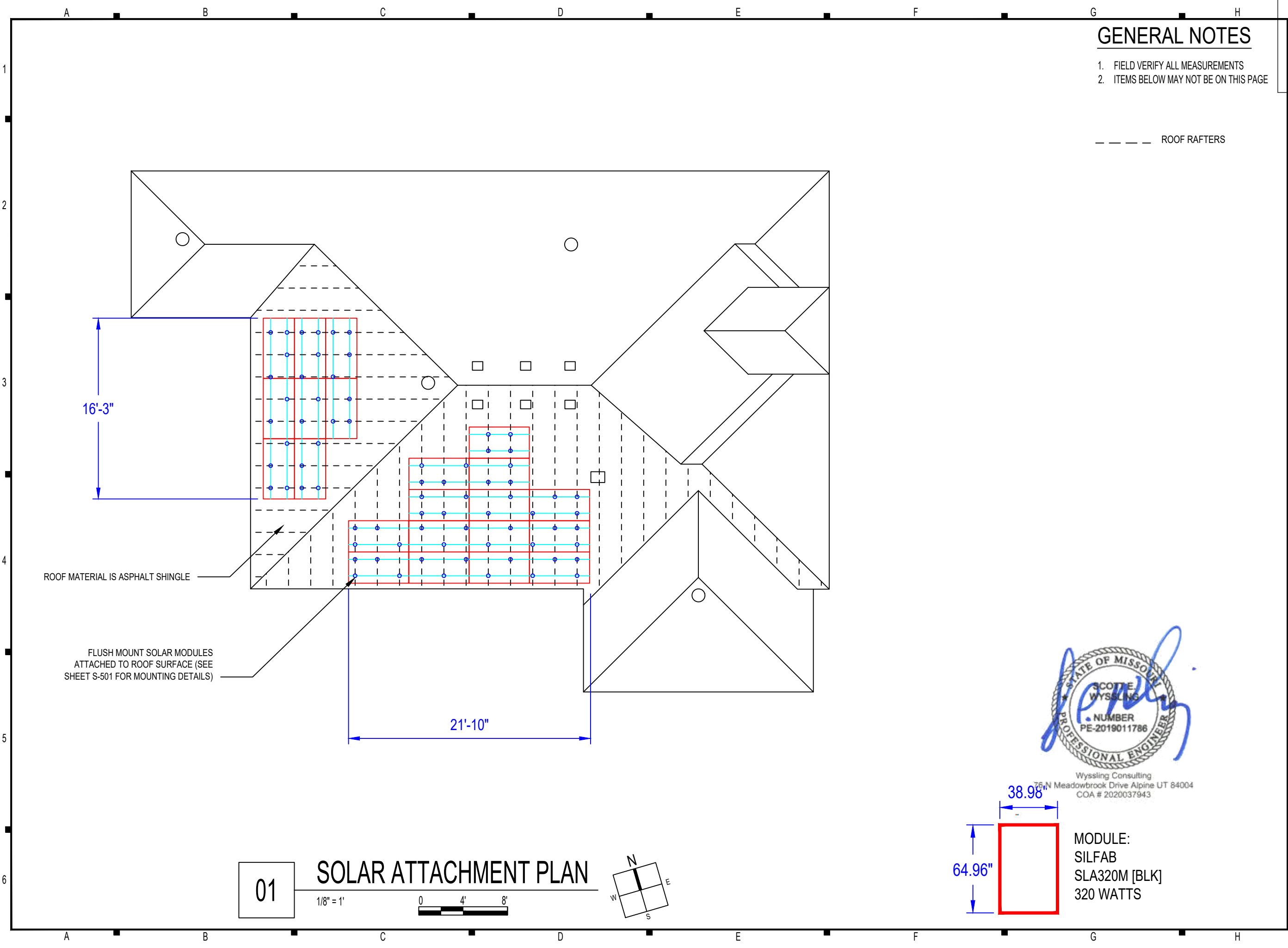
DATE: 07.12.2021

DESIGN BY: E.N.

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## GENERAL NOTES

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--- ROOF RAFTERS

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LEE'S SUMMIT, MISSOURI

07/29/2021

### CONTRACTOR

ECOVOLTE

PHONE: 8163517803  
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KANSAS CITY, MO 64108

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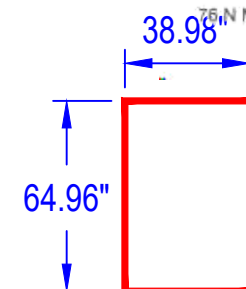
## MILLION RESIDENCE

106 NW GRADY COURT  
LEE'S SUMMIT, MO 64081  
APN: \_\_\_\_\_

### ENGINEER OF RECORD



Wyssling Consulting  
75 N Meadowbrook Drive Alpine UT 84004  
COA # 2020037943



MODULE:  
SILFAB  
SLA320M [BLK]  
320 WATTS

PAPER SIZE: 11" x 17" (ANSI B)

### SOLAR ATTACHMENT PLAN

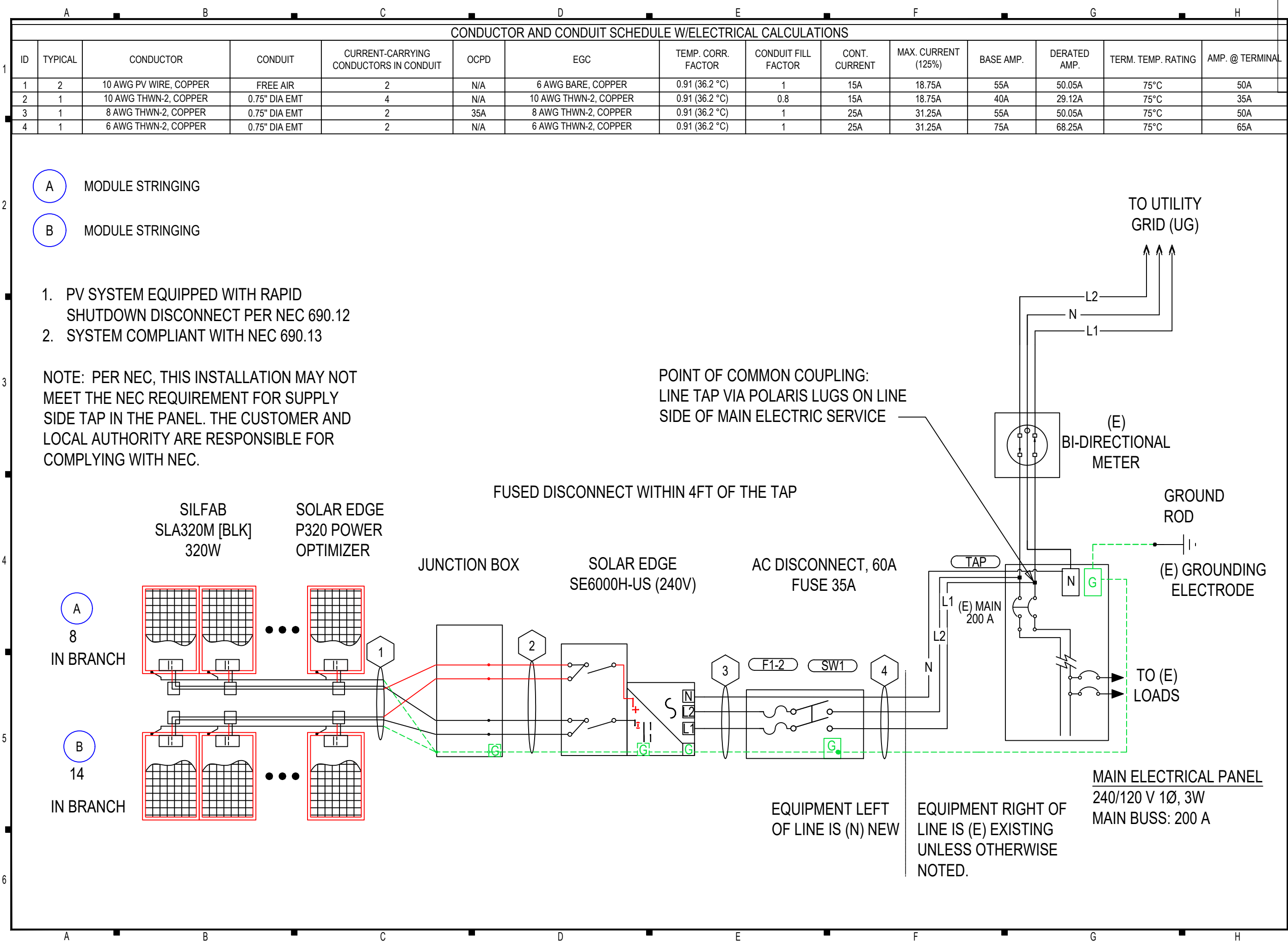
DATE: 07.12.2021

DESIGN BY: E.N.

CHECKED BY: M.M.

REVISIONS

A-103.00  
(SHEET 5)



CONTRACTOR

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PAPER SIZE: 11" x 17" (ANSI B)

LINE DIAGRAM

DATE: 07.12.2021

DESIGN BY: E.N.

CHECKED BY: M.M.

REVISIONS

1	SYSTEM SUMMARY			MODULES											
		INVERTER #1		REF.	QTY.	MAKE AND MODEL		PMAX	PTC	ISC	IMP	VOC	VMP	TEMP. COEFF. OF VOC	FUSE RATING
		STRING #1	STRING #2	PM1-22	22	SILFAB SLA320M [BLK]		320W	290.4W	9.96A	9.5A	40.45V	33.7V	-0.121V/°C (-0.3%/°C)	20A
	POWERBOX MAX OUTPUT CURRENT	15A	15A												
	OPTIMIZERS IN SERIES	8	14												
	NOMINAL STRING VOLTAGE	380V	380V												
	ARRAY OPERATING CURRENT	6.74A	11.79A												
	ARRAY STC POWER	7,040W													
	ARRAY PTC POWER	6,389W													
	MAX AC CURRENT	25A													
MAX AC POWER	6,000W														
DERATED (CEC) AC POWER	6,000W														
2	ASHRAE EXTREME LOW		-22.6°C (-8.7°F), SOURCE: CHARLES B WHEELER D (39.12°; -94.59°)												
	ASHRAE 2% HIGH		36.2°C (97.2°F), SOURCE: CHARLES B WHEELER D (39.12°; -94.59°)												
3	DISCONNECTS						OCPDS								
	REF.	QTY.	MAKE AND MODEL		RATED CURRENT	MAX RATED VOLTAGE	REF.	QTY.	RATED CURRENT		MAX VOLTAGE				
	SW1	1	EATON DG222NRB OR EQUIV.		60A	240VAC	F1-2	2	35A		240VAC				
4	BILL OF MATERIALS														
	CATEGORY	MAKE	MODEL NUMBER	REF	QTY	UNIT	QTY/UNIT	DESCRIPTION							
	MODULE	SILFAB	SLA320M [BLK]	PM1-22	22	PIECES	1	SILFAB SLA320M [BLK] 320W 60 CELLS, MONOCRYSTALLINE SILICON							
	INVERTER	SOLAR EDGE	SE6000H-US (240V)	I1	1	PIECE	1	SOLAR EDGE SE6000H-US (240V) 6000W INVERTER							
	MODULE OPTIMIZER	SOLAR EDGE	P320	PO1-22	22	PIECES	1	SOLAR EDGE P320 OPTIMIZER (REQUIRED PART OF INVERTER'S DISTRIBUTED DC ARCHITECTURE)							
	DISCONNECT	EATON	DG222NRB	SW1	1	PIECE	1	EATON DG222NRB, FUSED, 2-POLE, 60A, 240VAC OR EQUIVALENT							
	WIRING		GEN-10-AWG-PV-WIRE-CU	WR1	180	FEET	1	10 AWG PV WIRE, COPPER (POSITIVE AND NEGATIVE)							
	WIRING		GEN-6-AWG-BARE-CU	WR1	90	FEET	1	6 AWG BARE, COPPER (GROUND)							
	WIRING		GEN-10-AWG-THWN-2-CU-RD	WR2	40	FEET	1	10 AWG THWN-2, COPPER, RED (POSITIVE)							
	WIRING		GEN-10-AWG-THWN-2-CU-BLK	WR2	40	FEET	1	10 AWG THWN-2, COPPER, BLACK (NEGATIVE)							
	WIRING		GEN-10-AWG-THWN-2-CU-GR	WR2	20	FEET	1	10 AWG THWN-2, COPPER, GREEN (GROUND)							
	WIRING		GEN-8-AWG-THWN-2-CU-RD	WR3	10	FEET	1	8 AWG THWN-2, COPPER, RED (LINE 1)							
	WIRING		GEN-8-AWG-THWN-2-CU-BLK	WR3	10	FEET	1	8 AWG THWN-2, COPPER, BLACK (LINE 2)							
	WIRING		GEN-8-AWG-THWN-2-CU-WH	WR3	10	FEET	1	8 AWG THWN-2, COPPER, WHITE (NEUTRAL)							
	WIRING		GEN-8-AWG-THWN-2-CU-GR	WR3	10	FEET	1	8 AWG THWN-2, COPPER, GREEN (GROUND)							
	WIRING		GEN-6-AWG-THWN-2-CU-RD	WR4	10	FEET	1	6 AWG THWN-2, COPPER, RED (LINE 1)							
	WIRING		GEN-6-AWG-THWN-2-CU-BLK	WR4	10	FEET	1	6 AWG THWN-2, COPPER, BLACK (LINE 2)							
	WIRING		GEN-6-AWG-THWN-2-CU-WH	WR4	10	FEET	1	6 AWG THWN-2, COPPER, WHITE (NEUTRAL)							
	WIRING		GEN-6-AWG-THWN-2-CU-GR	WR4	10	FEET	1	6 AWG THWN-2, COPPER, GREEN (GROUND)							
	WIREWAY		GEN-EMT-0.75" DIA	WW2-4	40	FEET	1	EMT CONDUIT, 0.75" DIA							
OCPD	GENERIC MANUFACTURER	GEN-FU-35A-240VAC	F1-2	2	PIECES	1	FUSE, 35A, 240VAC								
TRANSITION BOX	GENERIC MANUFACTURER	GEN-AWB-TB-4-4X	JB1	1	PIECE	1	TRANSITION/PASS-THROUGH BOX, WITH 4 TERMINAL BLOCKS								
5	PAPER SIZE: 11" x 17" (ANSI B)														
	DESIGN TABLES														
	DATE: 07.12.2021														
	DESIGN BY: E.N.														
	CHECKED BY: M.M.														
6	REVISIONS														
	E-602.00														
	(SHEET 7)														

RELEASE FOR CONSTRUCTION

AS NOTED ON PLANS REVIEW

DEVELOPMENT SERVICES

LEE'S SUMMIT, MISSOURI

07/29/2021

ECOVOLTE

CONTRACTOR

ECOVOLTE

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KANSAS CITY, MO 64108

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HIC. NO.:

ELE. NO.:

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NEW PV SYSTEM: 7.040 kWp

MILLION RESIDENCE

106 NW GRADY COURT

LEE'S SUMMIT, MO 64081

APN:

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

DESIGN TABLES

DATE: 07.12.2021

DESIGN BY: E.N.

CHECKED BY: M.M.

REVISIONS







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APN: \_\_\_\_\_

ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

ASSEMBLY DETAILS

DATE: 07.12.2021

DESIGN BY: E.N.

CHECKED BY: M.M.

REVISIONS

S-501.00

(SHEET 9)

GENERAL NOTES

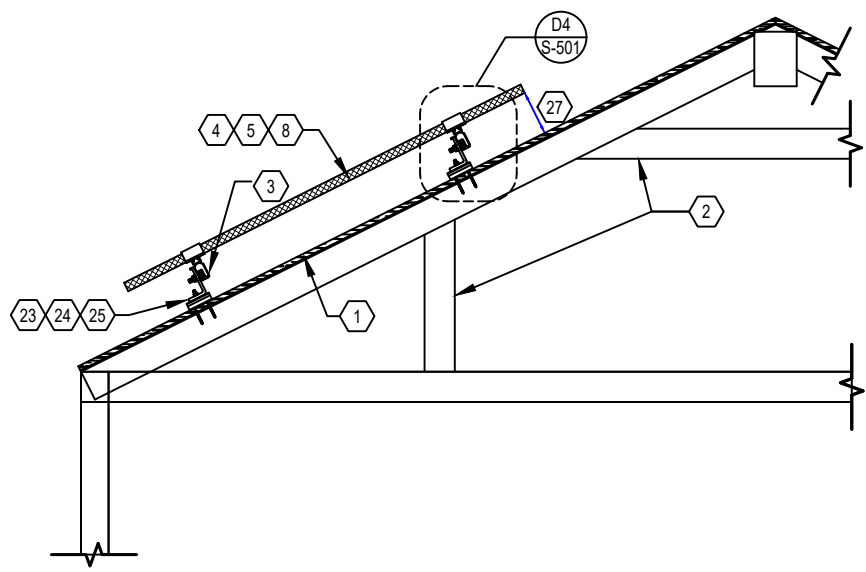
1. FIELD VERIFY ALL MEASUREMENTS

SHEET KEYNOTES

1. ROOF MATERIAL: ASPHALT SHINGLE
2. ROOF STRUCTURE: KNEE WALL WITH COLLAR TIE
3. ATTACHMENT TYPE: ROOF TECH RT-MINI
4. MODULE MANUFACTURER: SILFAB
5. MODULE MODEL: SLA320M [BLK]
6. MODULE LENGTH: 64.96"
7. MODULE WIDTH: 38.98"
8. MODULE WEIGHT: 41.89 LBS.
9. SEE SHEET A-103 FOR DIMENSION(S)
10. MIN. FIRE OFFSET: 18" FROM RIDGE/RAKE
11. RAFTERS SPACING: 24 IN. O.C.
12. RAFTERS SIZE: 2X6 NOMINAL
13. LAG BOLT DIAMETER: M8 OR 5/16"
14. LAG BOLT EMBEDMENT: 2"
15. TOTAL # OF ATTACHMENTS: 52
16. TOTAL AREA: 386.85 SQ. FT.
17. TOTAL WEIGHT: 1069.33 LBS.
18. WEIGHT PER ATTACHMENT: 14.45 LBS.
19. DISTRIBUTED LOAD: 2.76 PSF
20. MAX. HORIZONTAL STANDOFF: 48 IN.
21. MAX. VERTICAL STANDOFF:  
IN ACCORDANCE WITH MODULE MANUFACTURER'S INSTRUCTIONS
22. STANDOFF STAGGERING: YES
23. RAIL MANUFACTURER (OR EQUIV.): UNIRAC
24. RAIL MODEL (OR EQUIVALENT): LIGHT
25. RAIL WEIGHT: 0.491 PLF.
26. MAX. RAFTERS SPAN: 7 FT.
27. MODULE CLEARANCE: 3 IN. MIN., 6 IN. MAX.

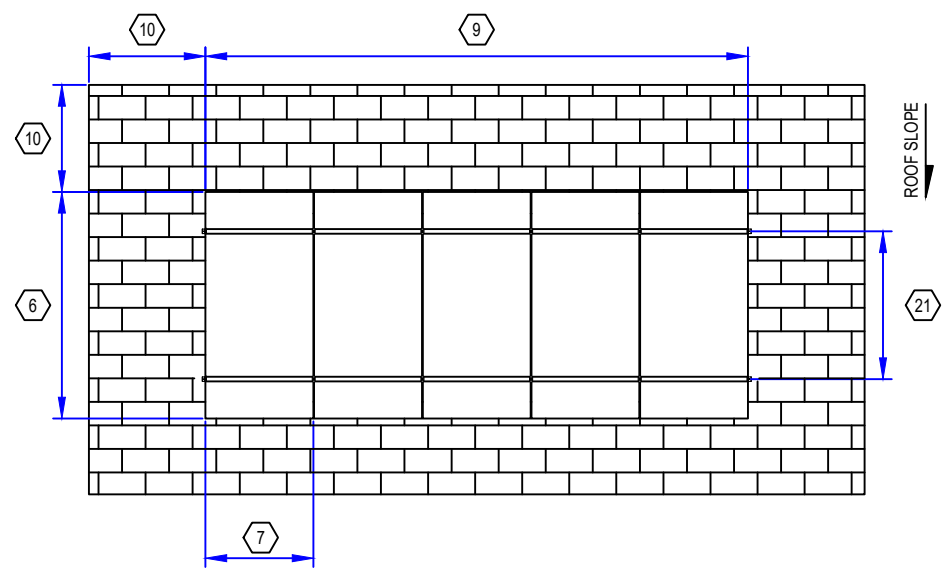


Wyssling Consulting  
76 N Meadowbrook Drive Alpine UT 84004  
COA # 2020037943



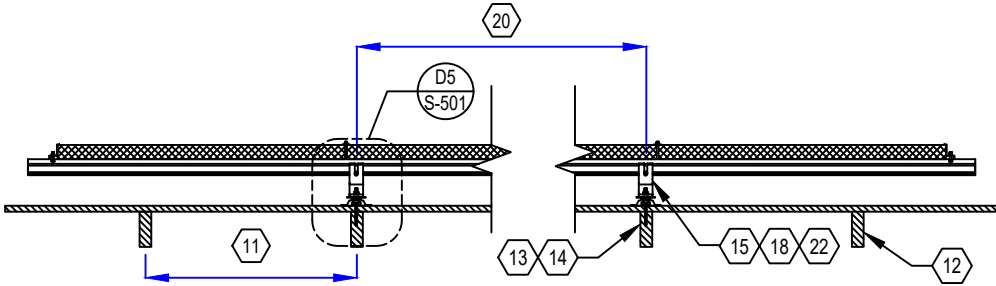
D1 RACKING DETAIL (TRANSVERSE)

NOT TO SCALE



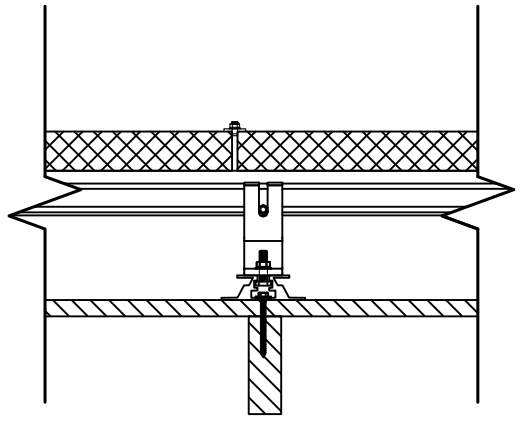
D3 RACKING DETAIL (TOP)

NOT TO SCALE



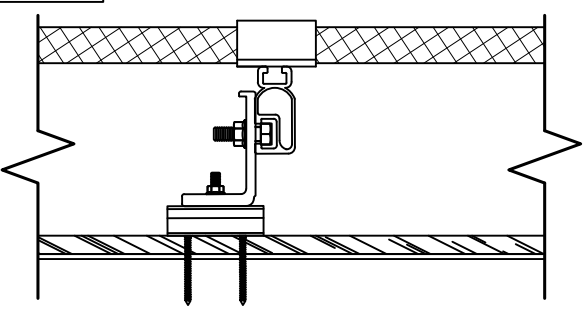
D2 RACKING DETAIL (LONGITUDINAL)

NOT TO SCALE



D5 DETAIL (LONGITUDINAL)

NOT TO SCALE



D4 DETAIL (TRANSVERSE)

NOT TO SCALE





# SLA-M Monocrystalline



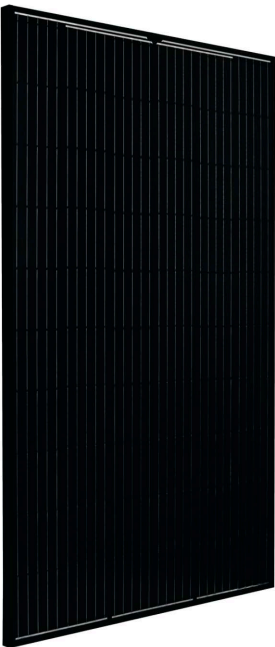
320 Wp  
60 Cell  
Monocrystalline  
PV Module  
(Available Early 2019)



**100% MAXIMUM POWER DENSITY**  
Silfab's SLA-M 320 ultra-high-efficiency modules are optimized for both Residential and Commercial projects where maximum power density is preferred.

**100% NORTH AMERICAN QUALITY MATTERS**  
Silfab's fully-automated manufacturing facility ensures precision engineering is applied at every stage. Superior reliability and performance combine to produce one of the highest quality modules with the lowest defect rate in the industry.

**NORTH AMERICAN CUSTOMIZED SERVICE**  
Silfab's 100% North American based team leverages just-in-time manufacturing to deliver unparalleled service, on-time delivery and flexible project solutions.



- ENSURES MAXIMUM EFFICIENCY**  
60 of the highest efficiency, premium quality monocrystalline cells result in a maximum power rating of 320Wp.

**ADVANCED PERFORMANCE WARRANTY**  
30-year linear power performance guarantee

**ENHANCED PRODUCT WARRANTY**  
25-year product workmanship warranty\*

**BUILT BY INDUSTRY EXPERTS**  
With over 35 years of industry experience, Silfab's technical team are pioneers in PV technology and are dedicated to an innovative approach that provides superior manufacturing processes including: infra-red cell sorting, glass washing, automated soldering and meticulous cell alignment.

**POSITIVE TOLERANCE**  
(-0/+5W) All positive module sorting ensures maximum performance
- LOWEST DEFECT RATE\***  
Total automation ensures strict quality control during each step of the process at our certified ISO manufacturing facility. \*82.56 ppm as per December 2017


**LIGHT AND DURABLE**  
Engineered to accommodate low load bearing structures, while boasting up to 5400 Pa snow load capabilities. Light-weight frame is exclusively designed with wide-ranging racking compatibility and durability in mind.

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

**AVAILABLE WITH**  
Black Frame and Backsheet

\*12 year, extendable based on registration at [www.silfabsolar.com](http://www.silfabsolar.com)

Electrical Specifications		SILFAB SLA Monocrystalline	
Test Conditions		STC	NOCT
Module Power (Pmax)	Wp	320	242
Maximum power voltage (Vpmax)	V	33.7	30.3
Maximum power current (Ipmax)	A	9.5	8.0
Open circuit voltage (Voc)	V	40.45	37.42
Short circuit current (Isc)	A	9.96	8.17
Module efficiency	%	19.6	18.5
Maximum system voltage (VDC)	V	1000	
Series fuse rating	A	20	
Power Tolerance	Wp	-0/+5	
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/+5W.			
Temperature Ratings		SILFAB SLA Monocrystalline	
Temperature Coefficient Isc	%/K	0.03	
Temperature Coefficient Voc	%/K	-0.30	
Temperature Coefficient Pmax	%/K	-0.38	
NOCT (± 2°C)	°C	45	
Operating temperature	°C	-40/+85	
Mechanical Properties and Components		SILFAB SLA Monocrystalline	
Module weight (± 1 kg)	kg	19	
Dimensions (H x L x D; ± 1mm)	mm	1650 x 990 x 38	
Maximum surface load (wind/snow)*	N/m²	5400	
Hail impact resistance		ø 25 mm at 83 km/h	
Cells		60 - Si monocrystalline - 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) IP67/IP68 Junction Box	
Cables and connectors (See installation manual)		1200 mm ø 5.7 mm (4 mm2), MC4 compatible	
Warranties		SILFAB SLA Monocrystalline	
Module product workmanship warranty		25 years*	
Linear power performance guarantee		30 years	
Certifications		SILFAB SLA Monocrystalline	
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	
		UL Fire Rating: Type 2 (Type 1 on request)	
Factory		ISO9001:2015	

 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](http://www.silfabsolar.com/downloads)

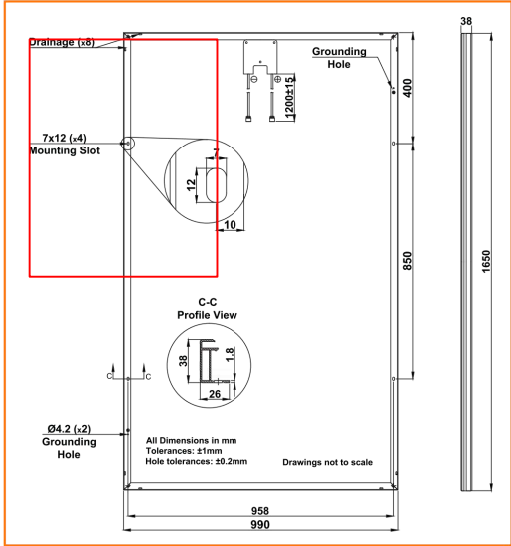


- Modules Per Pallet: 26
- Pallets Per Truck: 36
- Modules Per Truck: 936



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RESOURCE DOCUMENT

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DESIGN BY: E.N.

CHECKED BY: M.M.

REVISIONS

R-001.00

(SHEET 10)



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

solaredge.com

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

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

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US		
OUTPUT									
Rated AC Power Output	3000	3800 @ 240V 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 <sup>(1)</sup>				Hz	
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A	
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A	
GFDI Threshold				1				A	
Utility Monitoring, Islanding Protection, Country Configurable Thresholds				Yes					
INPUT									
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W	
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W	
Transformer-less, Ungrounded				Yes					
Maximum Input Voltage				480				Vdc	
Nominal DC Input Voltage	380			400				Vdc	
Maximum Input Current @240V <sup>(2)</sup>	8.5	10.5	13.5	16.5	20	27	30.5	Adc	
Maximum Input Current @208V <sup>(2)</sup>	-	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	
ADDITIONAL FEATURES									
Supported Communication Interfaces				FS485, Ethernet, ZigBee (optional), Cellular (optional)					
Revenue Grade Data, ANSI C12.20				Optional <sup>(3)</sup>					
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 AFCEI according to T.I.L. M-07					
Grid Connection Standards				IEEE1547, Rule 21, Rule 14 (HI)					
Emissions				FCC Part 15 Class B					
INSTALLATION SPECIFICATIONS									
AC Output Conduit Size / AWG Range				3/4" minimum / 14-6 AWG	3/4" minimum /14-4 AWG				
DC Input Conduit Size / # of Strings / AWG Range				3/4" minimum / 1-2 strings / 14-6 AWG	3/4" minimum / 1-3 strings / 14-6 AWG				
Dimensions with Safety Switch (HxWxD)				17.7 x 14.6 x 6.8 / 450 x 370 x 174	21.3 x 14.6 x 7.3 / 540 x 370 x 185			in / mm	
Weight with Safety Switch	22 / 10		25.1 / 11.4	26.2 / 11.9	38.8 / 17.6			lb / kg	
Noise				< 25	<50			dBA	
Cooling				Natural Convection					
Operating Temperature Range				-40 to +140 / -25 to +60 <sup>(4)</sup> (-40°F / -40°C option) <sup>(5)</sup>			°F / °C		
Protection Rating				NEMA 4X (Inverter with Safety Switch)					

<sup>(1)</sup> For other regional settings please contact SolarEdge support.

<sup>(2)</sup> A higher current source may be used; the inverter will limit its input current to the values stated.

<sup>(3)</sup> Revenue grade inverter P/N: SExxxxH-US000NNC2

<sup>(4)</sup> For power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>

<sup>(5)</sup> -40 version P/N: SExxxxH-US000NNU4

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APN: \_\_\_\_\_

## ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

## RESOURCE DOCUMENT

DATE: 07.12.2021

DESIGN BY: E.N.

CHECKED BY: M.M.

REVISIONS

R-002.00

(SHEET 11)

# Power Optimizer

For North America

P320 / P340 / 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
- 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](http://solaredge.com)

**solar**edge

## Power Optimizer For North America

P320 / P340 / P370 / P400 / P405 / 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 thin film modules)	P505 (for higher current modules)	
INPUT							
Rated Input DC Power <sup>(1)</sup>	320	340	370	400	405	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		60	80	125 <sup>(2)</sup>	83 <sup>(2)</sup>	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					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						
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 <sup>(3)</sup>						
Output Wire Type / Connector	Double Insulated; MC4						
Output Wire Length	0.95 / 3.0		1.2 / 3.9				m / ft
Input Wire Length	0.16 / 0.52						m / ft
Operating Temperature Range	-40 - +85 / -40 - +185						
Protection Rating	IP68 / NEMA6P						
Relative Humidity	0 - 100						%

<sup>(1)</sup> Rated STC power of the module. Module of up to +5% power tolerance allowed

<sup>(2)</sup> NEC 2017 requires max input voltage be not more than 80V

<sup>(3)</sup> For other connector types please contact SolarEdge

PV System Design Using a SolarEdge Inverter <sup>(4)(5)</sup>		Single Phase HD-Wave	Single phase	Three Phase 208V	Three Phase 480V	
Minimum String Length (Power Optimizers)	P320, P340, P370, P400	8		10	18	
	P405 / P505	6		8	14	
Maximum String Length (Power Optimizers)		25		25	50 <sup>(6)</sup>	
Maximum Power per String		5700 (6000 with SE7600-US - SE11400-US)	5250	6000 <sup>(7)</sup>	12750 <sup>(8)</sup>	W
Parallel Strings of Different Lengths or Orientations		Yes				

<sup>(4)</sup> For detailed string sizing information refer to: [http://www.solaredge.com/sites/default/files/string\\_sizing\\_na.pdf](http://www.solaredge.com/sites/default/files/string_sizing_na.pdf)

<sup>(5)</sup> It is not allowed to mix P405/P505 with P320/P340/P370/P400 in one string

<sup>(6)</sup> A string with more than 30 optimizers does not meet NEC rapid shutdown requirements: safety voltage will be above the 30V requirement

<sup>(7)</sup> For SE14.4KUS/SE43.2KUS: it is allowed to install up to 6,500W per string when 3 strings are connected to the inverter (3 strings per unit for SE43.2KUS) and when the maximum power difference between the strings is up to 1,000W

<sup>(8)</sup> For SE30KUS/SE33.3KUS/SE66.6KUS/SE100KUS: It is allowed to install up to 15,000W per string when 3 strings are connected to the inverter (3 strings per unit for SE66.6KUS/SE100KUS) and when the maximum power difference between the strings is up to 2,000W

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NEW PV SYSTEM: 7.040 kWp

## MILLION RESIDENCE

106 NW GRADY COURT  
LEE'S SUMMIT, MO 64081  
APN: \_\_\_\_\_

### ENGINEER OF RECORD

PAPER SIZE: 11" x 17" (ANSI B)

### RESOURCE DOCUMENT

DATE: 07.12.2021

DESIGN BY: E.N.

CHECKED BY: M.M.

REVISIONS

R-003.00

(SHEET 12)





**SOLARMOUNT** defined the standard in solar racking. New enhancements are designed to get installers off the roof faster than ever before. Components are pre-assembled and optimized to reduce installation steps and save labor time. Our new grounding & bonding process eliminates copper wire and grounding straps to reduce costs. Utilize the microinverter mount with a wire management clip for an easier installation.

ELIMINATE THE GROUNDWIRE FROM YOUR SOLARMOUNT ARRAY  
**LOSE THE COPPER & LUGS**  
INTEGRATED GROUNDING

**UL2703**  
LISTED

**BONDING & GROUNDING  
MECHANICAL LOADING  
SYSTEM FIRE CLASSIFICATION**  
CLASS A - TYPE 1, 2, 3 & 10 MODULES



ROOF  
MOUNT  
SYSTEMS

**GET OFF THE ROOF FASTER THAN EVER BEFORE**

OPTIMIZED COMPONENTS • VERSATILITY • AVAILABILITY • DESIGN TOOLS



## OPTIMIZED COMPONENTS

### INTEGRATED BONDING & PRE-ASSEMBLED PARTS

Components are pre-assembled and optimized to reduce installation steps and save labor time. Our new grounding & bonding process eliminates copper wire and grounding straps or bonding jumpers to reduce costs. Utilize the microinverter mount with a wire management clip for an easier installation.

## VERSATILITY

### ONE PRODUCT - MANY APPLICATIONS

Quickly set modules flush to the roof or at a desired tilt angle. Change module orientation to portrait or landscape while securing a large variety of framed modules on flat, low sloped or steep pitched roofs. Available in mill, clear and dark anodized finishes to outperform your projects financial and aesthetic aspirations.

## AVAILABILITY

### NATIONWIDE NETWORK

Unirac maintains the largest network of stocking distributors for our racking solutions. Our partners have distinguished their level of customer support, availability, and overall value, thereby providing the highest level of service to users of Unirac products. Count on our partners for fast and accurate delivery to meet your project objectives. Visit [Unirac.com](http://Unirac.com) for a list of distributors.

## AUTOMATED DESIGN TOOL

### DESIGN PLATFORM AT YOUR SERVICE

Creating a bill of materials is just a few clicks away with U-Builder, a powerful online tool that streamlines the process of designing a code compliant solar mounting system. Save time by creating a user profile, and recall preferences and projects automatically when you log in. You will enjoy the ability to share projects with customers; there's no need to print results and send to a distributor, just click and share.

## UNIRAC CUSTOMER SERVICE MEANS THE HIGHEST LEVEL OF PRODUCT SUPPORT



UNMATCHED  
EXPERIENCE



CERTIFIED  
QUALITY



ENGINEERING  
EXCELLENCE



BANKABLE  
WARRANTY



DESIGN  
TOOLS



PERMIT  
DOCUMENTATION

### TECHNICAL SUPPORT

Unirac's technical support team is dedicated to answering questions & addressing issues in real time. An online library of documents including engineering reports, stamped letters and technical data sheets greatly simplifies your permitting and project planning process.

### CERTIFIED QUALITY PROVIDER

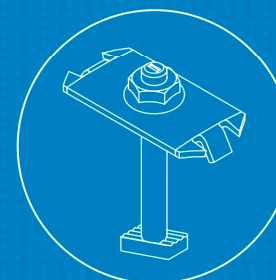
Unirac is the only PV mounting vendor with ISO certifications for 9001:2008, 14001:2004 and OHSAS 18001:2007, which means we deliver the highest standards for fit, form, and function. These certifications demonstrate our excellence and commitment to first class business practices.

### BANKABLE WARRANTY

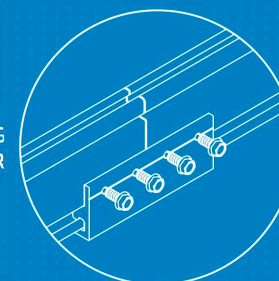
As a Hilti Group Company, Unirac has the financial strength to back our products and reduce your risk. Have peace of mind knowing you are receiving products of exceptional quality. SOLARMOUNT is covered by a 10-year limited product warranty and a 5-year limited finish warranty.

PROTECT YOUR REPUTATION WITH QUALITY RACKING SOLUTIONS BACKED BY ENGINEERING EXCELLENCE AND A SUPERIOR SUPPLY CHAIN

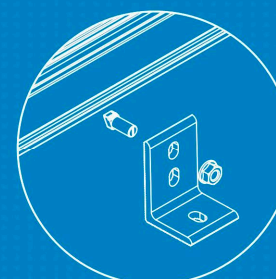
© PUB - 150101 - DIGITAL UPDATES



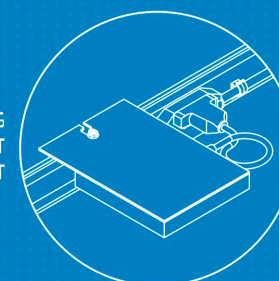
INTEGRATED BONDING  
MIDCLAMP



INTEGRATED BONDING  
SPLICE BAR



INTEGRATED BONDING  
L-FOOT w/ T-BOLT



INTEGRATED BONDING  
MICROINVERTER MOUNT  
w/ WIRE MANAGEMENT

RELEASE FOR  
CONSTRUCTION  
AS NOTED ON PLANS REVIEW  
DEVELOPMENT SERVICES  
LEE'S SUMMIT, MISSOURI



## CONTRACTOR

ECOVOLTE

PHONE: 8163517803  
ADDRESS: 2300 MAIN ST  
KANSAS CITY, MO 64108

LIC. NO.: 206086  
HIC. NO.:  
ELE. NO.:

UNAUTHORIZED USE OF THIS  
DRAWING SET WITHOUT WRITTEN  
PERMISSION FROM CONTRACTOR IS IN  
VIOLATION OF U.S. COPYRIGHT LAWS  
AND WILL BE SUBJECT TO CIVIL  
DAMAGES AND PROSECUTIONS.

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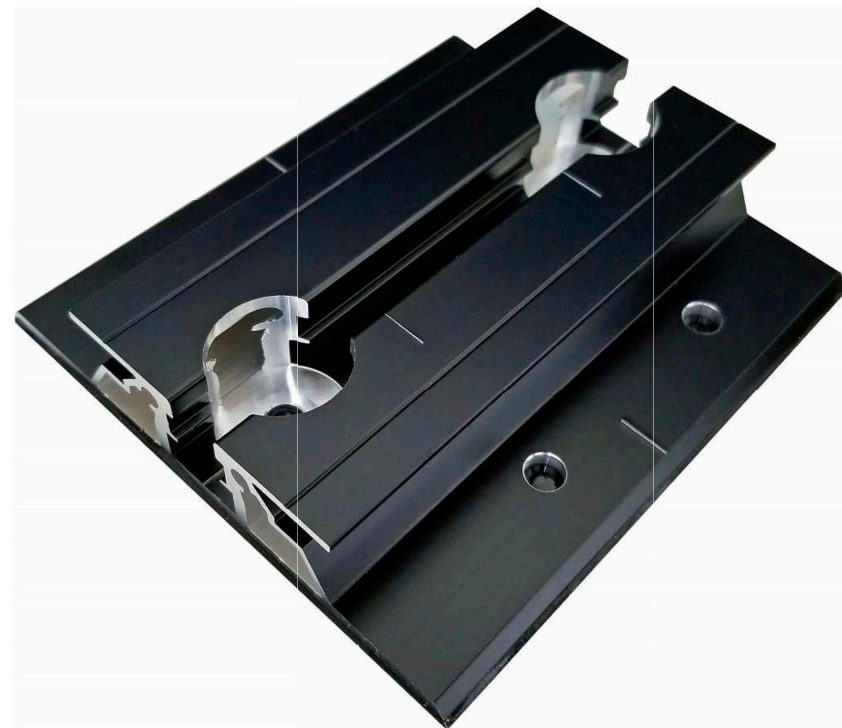
(SHEET 13)



# RT-MINI

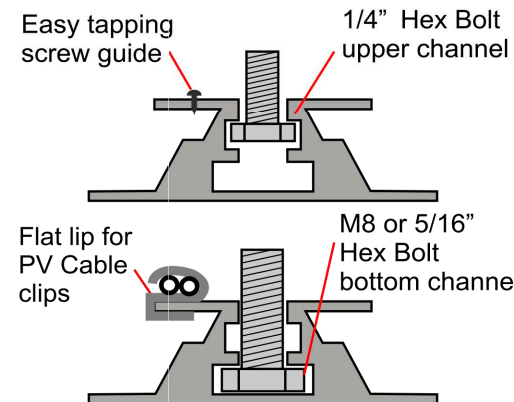
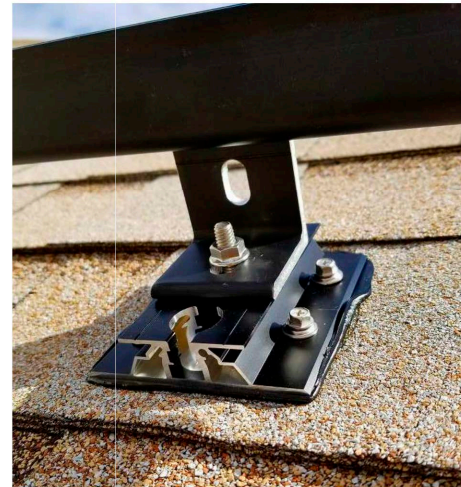
Self-flashing base for asphalt & metal roof-top PV mounting systems

RT-MINI is suitable for mounting any rail system with a conventional L-Foot.



**Dual bolt design:**  
**M8 or 5/16" for L-Foot**  
**& 1/4" for EMC**

**Call Now for more detail**  
**619-551-7029**



# RT-MINI

Flexible Flashing certified by the International Code Council (ICC)

**Engineered to ASTM D 1761** (Standard Test Methods for Mechanical Fasteners in Wood)

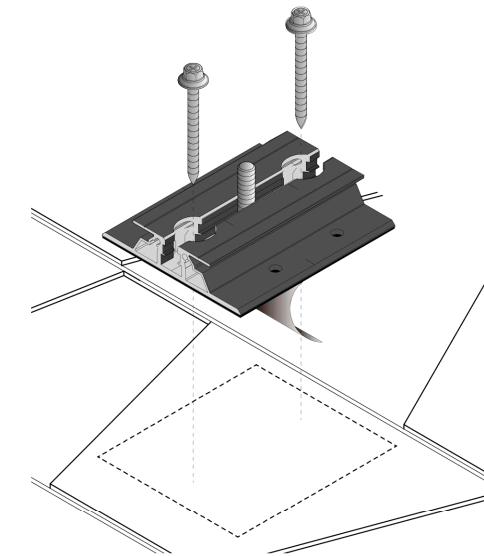
## Components

RT2-00-MINIBK  
PAT : PENDING

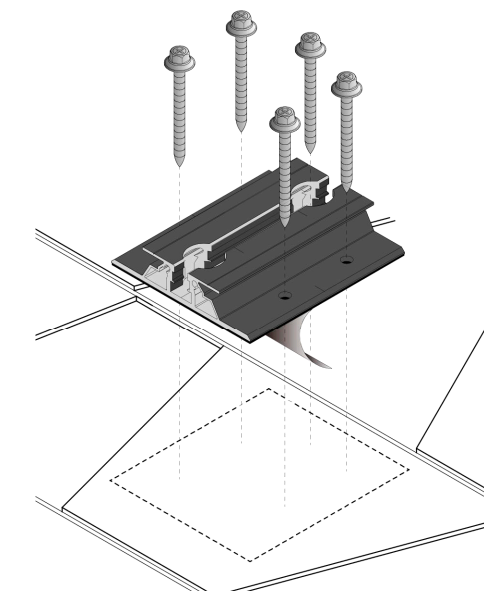


MINI base : 20 ea.  
Screw : 40 ea.  
Extra RT-Butyl : 10 ea.

## Rafter installation

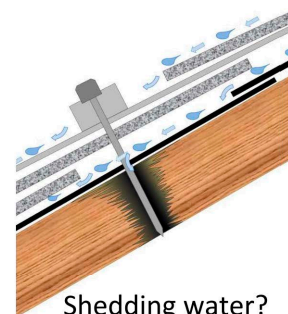


## Deck installation

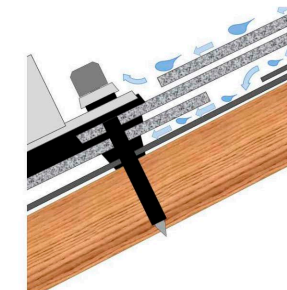


RT-Butyl is Roof Tech's flexible flashing used in 550,000 residential PV systems for the last 20 years. It is the first PV mounting system with Flexible Flashing certified by the ICC.

## Metal Flashing Retrofit



## Flexible Flashing



Shedding water?

**100% Waterproof**

ICC ESR-3575

ASTM2140 testing

UV testing (7500 hrs.)



P.E. Stamped Letters available at [www.roof-tech.us/support](http://www.roof-tech.us/support)

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