

## SCOPE OF WORK

- SYSTEM SIZE: 8840W DC, 7680W AC
- MODULES: (26) JA SOLAR: JAM60S10-340/MR
- INVERTERS: (1) DELTA ELECTRONICS: E4-TL-US, (1) DELTA ELECTRONICS: E4-TL-US
- RACKING: SNAPRACK RLU; RL UNIVERSAL, SPEEDSEAL TRACK ON COMP, SEE DETAIL SNR-DC-00436
- RAPID SHUTDOWN: (26) APSMART RSD-S-PLC ROOFTOP MODULE LEVEL RAPID SHUTDOWN DEVICE

## GENERAL NOTES

- ALL WORK SHALL COMPLY WITH 2020 2020 NYS CODE BOOKS WITH 2018 IRC/IBC/IEBC, MUNICIPAL CODE, AND ALL MANUFACTURERS' LISTINGS AND INSTALLATION INSTRUCTIONS.
- PHOTOVOLTAIC SYSTEM WILL COMPLY WITH NEC 2017.
- ELECTRICAL SYSTEM GROUNDING WILL COMPLY WITH NEC 2017.
- PHOTOVOLTAIC SYSTEM IS UNGROUNDED. NO CONDUCTORS ARE SOLIDLY GROUNDED IN THE INVERTER. SYSTEM COMPLIES WITH 690.35.
- MODULES CONFORM TO AND ARE LISTED UNDER UL 1703.
- INVERTER CONFORMS TO AND IS LISTED UNDER UL 1741.
- RACKING CONFORMS TO AND IS LISTED UNDER UL 2703.
- SNAPRACK RACKING SYSTEMS, IN COMBINATION WITH TYPE I, OR TYPE II MODULES, ARE CLASS A FIRE RATED.
- RAPID SHUTDOWN REQUIREMENTS MET WHEN INVERTERS AND ALL CONDUCTORS ARE WITHIN ARRAY BOUNDARIES PER NEC 690.12(1).
- CONSTRUCTION FOREMAN TO PLACE CONDUIT RUN PER 690.31(G).
- ARRAY DC CONDUCTORS ARE SIZED FOR DERATED CURRENT.
- 10.46 AMPS MODULE SHORT CIRCUIT CURRENT.
- 16.34 AMPS DERATED SHORT CIRCUIT CURRENT [690.8 (a) & 690.8 (b)].

WIND SPEED: 114 MPH 3-SEC GUST.



## LEGEND AND ABBREVIATIONS

SERVICE ENTRANCE	
MAIN PANEL	
SUB-PANEL	
PV LOAD CENTER	CHIMNEY
SUNRUN METER	ATTIC VENT
DEDICATED PV METER	FLUSH ATTIC VENT
INVERTER(S)	PVC PIPE VENT
AC DISCONNECT(S)	METAL PIPE VENT
DC DISCONNECT(S)	T-VENT
IQ COMBINER BOX	SATELLITE DISH
INTERIOR EQUIPMENT SHOWN AS DASHED	FIRE SETBACKS
	HARDSCAPE
	— PL — PROPERTY LINE

SCALE: NTS

A	AMPERE
AC	ALTERNATING CURRENT
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AZIM	AZIMUTH
COMP	COMPOSITION
DC	DIRECT CURRENT
(E)	EXISTING
ESS	ENERGY STORAGE SYSTEM
EXT	EXTERIOR
INT	INTERIOR
MAG	MAGNETIC
MSP	MAIN SERVICE PANEL
(N)	NEW
NTS	NOT TO SCALE
OC	ON CENTER
PRE-FAB	PRE-FABRICATED
PSF	POUNDS PER SQUARE FOOT
PV	PHOTOVOLTAIC
RSD	RAPID SHUTDOWN DEVICE
TL	TRANSFORMERLESS
TYP	TYPICAL
V	VOLTS
W	WATTS

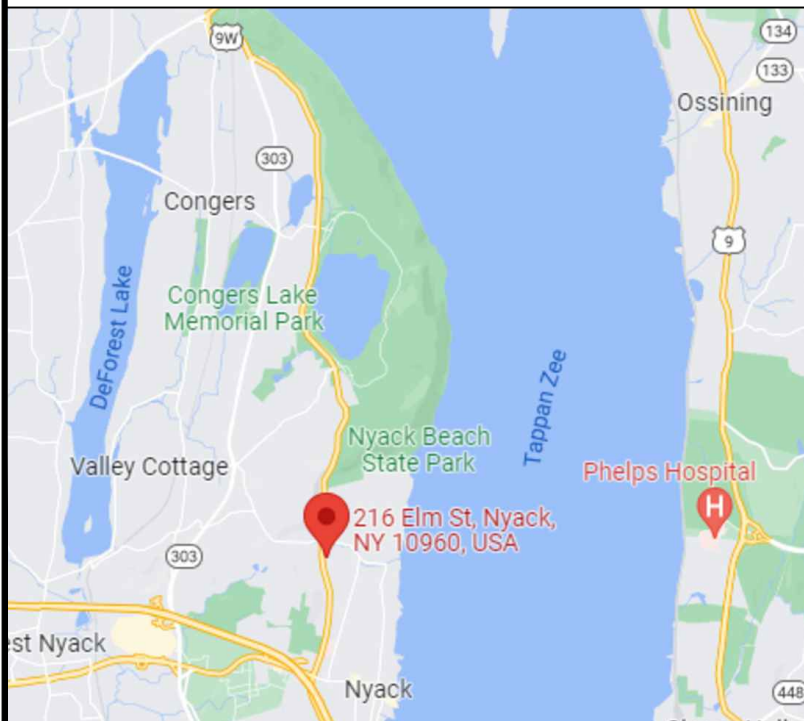
REV	NAME	DATE	COMMENTS

## TABLE OF CONTENTS

PAGE #	DESCRIPTION
PV-1.0	COVER SHEET
PV-2.0	SITE PLAN
PV-2.1	ELEVATION DRAWING
PV-3.0	LAYOUT
PV-4.0	ELECTRICAL
PV-5.0	SIGNAGE



## VICINITY MAP



# SUNRUN

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APN:  
392001-060-013-0001-055-000-0000

PROJECT NUMBER:  
212R-216SHAU

DESIGNER: (415) 580-6920 ex3  
CHRISTOPHER LUKE

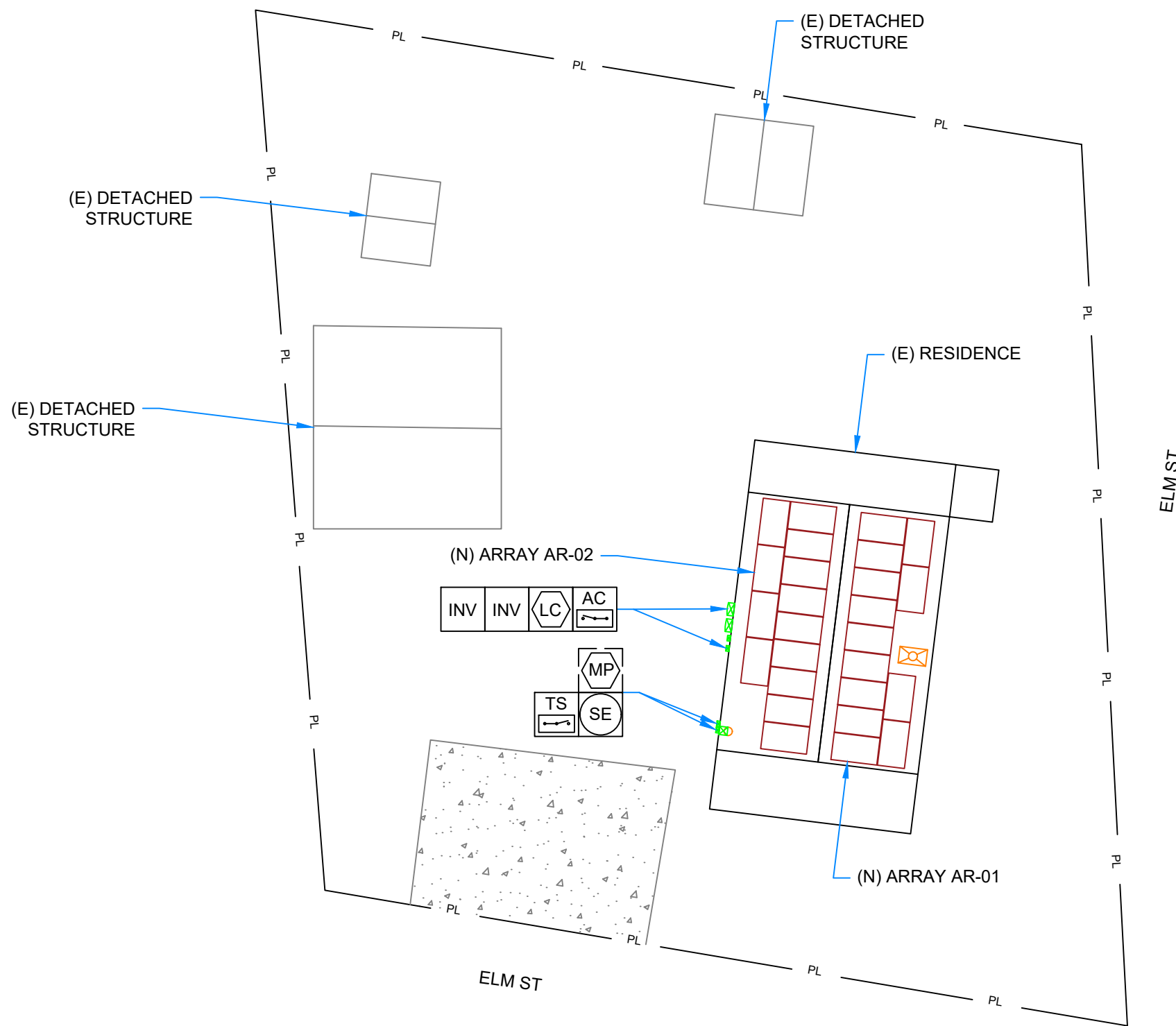
SHEET  
**COVER SHEET**

REV: B 10/4/2022

PAGE  
PV-1.0



	ARRAY PITCH	TRUE AZIM	MAG AZIM	PV AREA (SQFT)
AR-01	20°	97°	109°	235.4
AR-02	20°	277°	289°	235.4



**NOTE:** ROOFTOP MODULE LEVEL RAPID SHUTDOWN DEVICE INSTALLED ON EACH MODULE PER NEC 690.12



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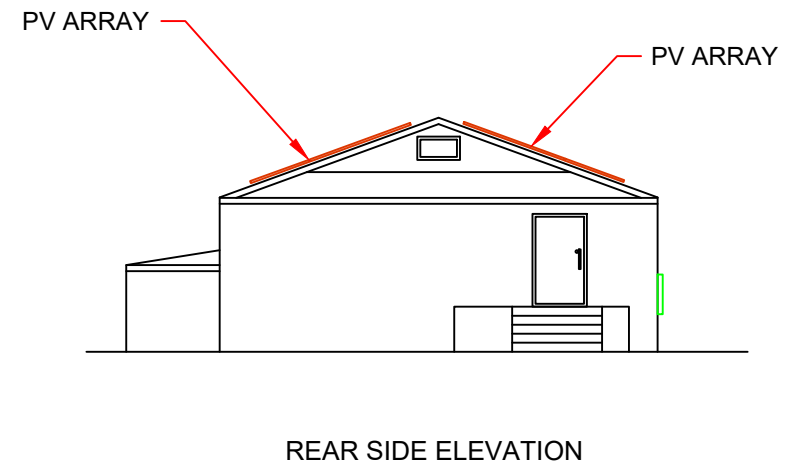
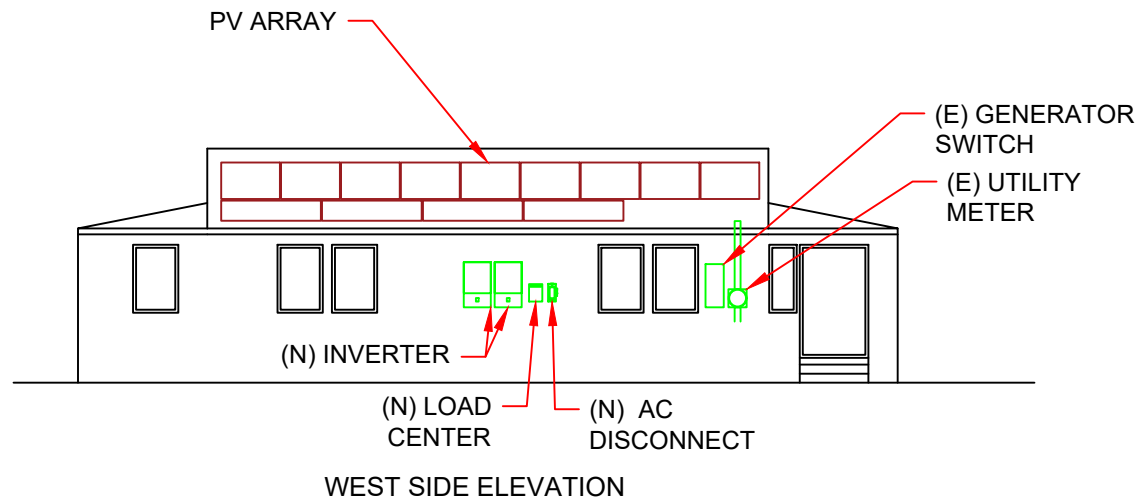
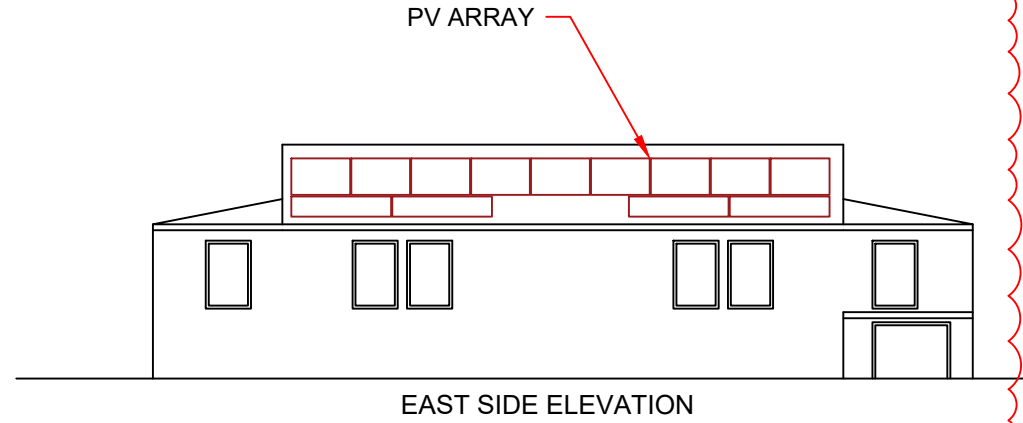
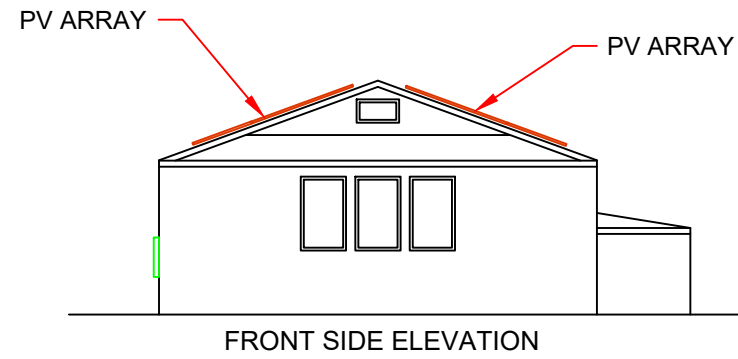
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SHEET  
**SITE PLAN**

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PAGE  
**PV-2.0**

ELEVATION DRAWING



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SHEET  
**ELEVATION DRAWING**

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PAGE  
 PV-2.1

ROOF INFO			FRAMING INFO			ATTACHMENT INFORMATION					
Name	Type	Height	Type	Max Span	OC Spacing	Detail	Max Landscape OC Spacing	Max Landscape Overhang	Max Portrait OC Spacing	Max Portrait Overhang	Configuration
AR-01	COMP SHINGLE - RLU	1-Story	2X6 RAFTERS	10' - 4"	24"	RL UNIVERSAL, SPEEDSEAL TRACK ON COMP, SEE DETAIL SNR-DC-00436	6' - 0"	2' - 4"	4' - 0"	2' - 0"	STAGGERED
AR-02	COMP SHINGLE - RLU	1-Story	2X6 RAFTERS	10' - 4"	24"	RL UNIVERSAL, SPEEDSEAL TRACK ON COMP, SEE DETAIL SNR-DC-00436	6' - 0"	2' - 4"	4' - 0"	2' - 0"	STAGGERED

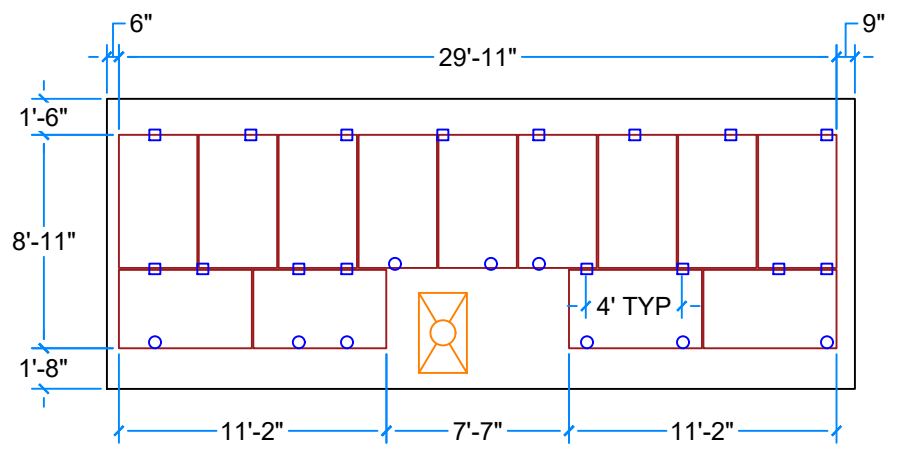
**DESIGN CRITERIA**

**MAX DISTRIBUTED LOAD:** 3 PSF  
**SNOW LOAD:** 30 PSF  
**WIND SPEED:** 114 MPH 3-SEC GUST.  
**S.S.LAG SCREWS:** 5/16": 2.5" MIN EMBEDMENT

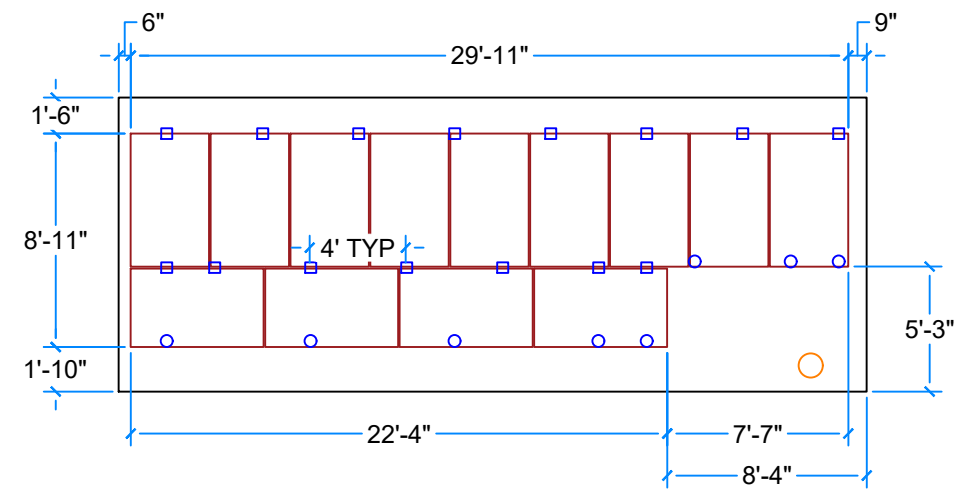
**STRUCTURAL NOTES:**

- INSTALLERS SHALL NOTIFY ENGINEER OF ANY POTENTIAL STRUCTURAL ISSUES OBSERVED PRIOR TO PROCEEDING W/ INSTALLATION.
- IF ARRAY (EXCLUDING SKIRT) IS WITHIN 12" BOUNDARY REGION OF ANY ROOF PLANE EDGES (EXCEPT VALLEYS), THEN ATTACHMENTS NEED TO BE ADDED AND OVERHANG REDUCED WITHIN THE 12" BOUNDARY REGION ONLY AS FOLLOWS:
  - ALLOWABLE ATTACHMENT SPACING INDICATED ON PLANS TO BE REDUCED BY 50%
  - ALLOWABLE OVERHANG INDICATED ON PLANS TO BE 1/5TH OF ALLOWABLE ATTACHMENT SPACING INDICATED ON PLANS

**D1 - AR-01 - SCALE: 1/8" = 1'-0"**  
**AZIM: 97°**  
**PITCH: 20°**



**D2 - AR-02 - SCALE: 1/8" = 1'-0"**  
**AZIM: 277°**  
**PITCH: 20°**



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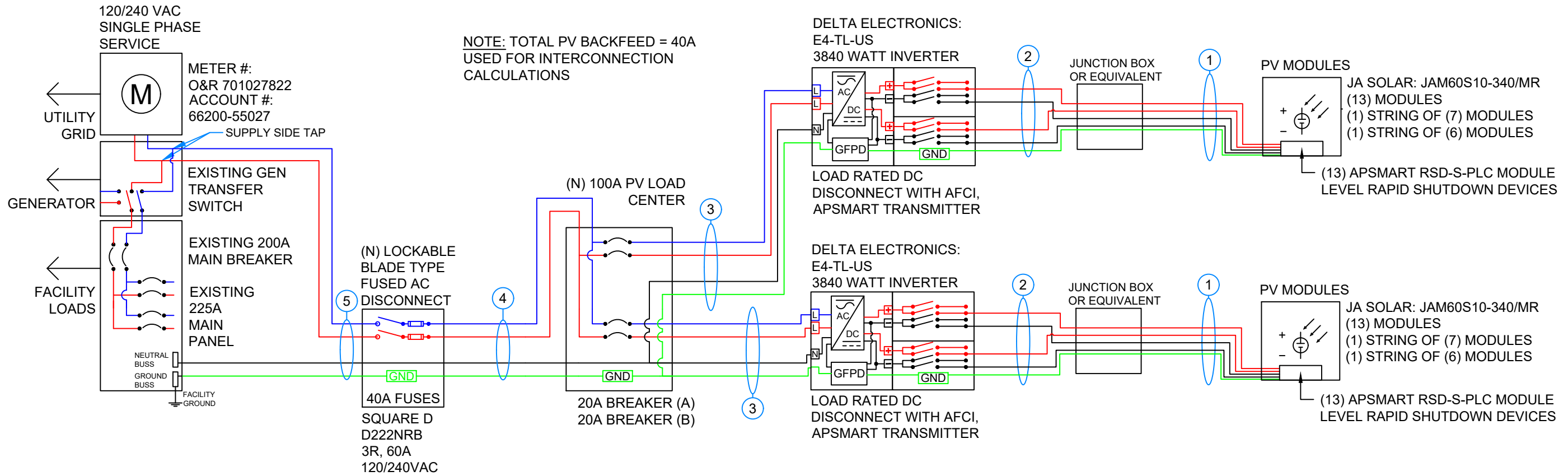
**SHEET**  
**LAYOUT**

**REV: B** 10/4/2022

**PAGE** PV-3.0



SEE SITE PLAN FOR NORTH ARROW



**CONDUIT SCHEDULE**

#	CONDUIT	CONDUCTOR	NEUTRAL	GROUND
1	NONE	(4) 10 AWG PV WIRE	NONE	(1) 6 AWG BARE COPPER
2	3/4" EMT OR EQUIV.	(4) 10 AWG THHN/THWN-2	NONE	(1) 10 AWG THHN/THWN-2
3	3/4" EMT OR EQUIV.	(2) 10 AWG THHN/THWN-2	(1) 10 AWG THHN/THWN-2	(1) 8 AWG THHN/THWN-2
4	3/4" EMT OR EQUIV.	(2) 8 AWG THHN/THWN-2	(1) 10 AWG THHN/THWN-2	(1) 8 AWG THHN/THWN-2
5	3/4" EMT OR EQUIV.	(2) 6 AWG THHN/THWN-2	(1) 8 AWG THHN/THWN-2	(1) 8 AWG THHN/THWN-2

**GENERAL NOTES:**

- 291 VDC (INV1), 291 VDC (INV2) EXPECTED OPEN CIRCUIT STRING VOLTAGE.

**MODULE CHARACTERISTICS**

JA SOLAR: JAM60S10-340/MR: 340 W  
 OPEN CIRCUIT VOLTAGE: 41.55 V  
 MAX POWER VOLTAGE: 34.73 V  
 SHORT CIRCUIT CURRENT: 10.46 A

**SYSTEM CHARACTERISTICS - INVERTER 2**

SYSTEM SIZE: 4420 W  
 SYSTEM OPEN CIRCUIT VOLTAGE: 324 V  
 SYSTEM OPERATING VOLTAGE: 243 V  
 MAX ALLOWABLE DC VOLTAGE: 480 V  
 SYSTEM OPERATING CURRENT: 19.58 A  
 SYSTEM SHORT CIRCUIT CURRENT: 26.15 A

**SYSTEM CHARACTERISTICS - INVERTER 1**

SYSTEM SIZE: 4420 W  
 SYSTEM OPEN CIRCUIT VOLTAGE: 324 V  
 SYSTEM OPERATING VOLTAGE: 243 V  
 MAX ALLOWABLE DC VOLTAGE: 480 V  
 SYSTEM OPERATING CURRENT: 19.58 A  
 SYSTEM SHORT CIRCUIT CURRENT: 26.15 A

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SHEET  
**ELECTRICAL**

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PAGE  
 PV-4.0



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

LABEL LOCATION:  
INVERTER(S), AC/DC DISCONNECT(S), AC COMBINER PANEL (IF APPLICABLE).  
PER CODE(S): CEC 2019: 690.13(B), NEC 2017: 690.13(B)

**WARNING**  
POWER SOURCE OUTPUT CONNECTION  
DO NOT RELOCATE THIS OVERCURRENT DEVICE

LABEL LOCATION:  
ADJACENT TO PV BREAKER (IF APPLICABLE).  
PER CODE(S): CEC 2019: 705.12(B)(2)(3)(b), NEC 2017: 705.12(B)(2)(3)(b)

**WARNING**  
PHOTOVOLTAIC SYSTEM COMBINER PANEL  
DO NOT ADD LOADS

LABEL LOCATION:  
PHOTOVOLTAIC AC COMBINER (IF APPLICABLE).  
PER CODE(S): CEC 2019: 705.12(B)(2)(3)(c), NEC 2017: 705.12(B)(2)(3)(c)

**WARNING**  
DUAL POWER SUPPLY  
SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

LABEL LOCATION:  
UTILITY SERVICE METER AND MAIN SERVICE PANEL.  
PER CODE(S): CEC 2019: 705.12(B)(3), NEC 2017: 705.12(B)(3)

INVERTER 1  
**PHOTOVOLTAIC DC DISCONNECT**  
MAXIMUM SYSTEM VOLTAGE: 480 VDC  
MAXIMUM CIRCUIT CURRENT: 26.15 ADC  
MAX RATED OUTPUT CURRENT OF THE CHARGE  
CONTROLLER OR DC-TO-DC CONVERTER (IF INSTALLED): N/A ADC

LABEL LOCATION:  
INVERTER(S), DC DISCONNECT(S).  
PER CODE(S): CEC 2019: 690.53, NEC 2017: 690.53  
INVERTER 2

**PHOTOVOLTAIC DC DISCONNECT**  
MAXIMUM SYSTEM VOLTAGE: 480 VDC  
MAXIMUM CIRCUIT CURRENT: 26.15 ADC  
MAX RATED OUTPUT CURRENT OF THE CHARGE  
CONTROLLER OR DC-TO-DC CONVERTER (IF INSTALLED): N/A ADC

LABEL LOCATION:  
INVERTER(S), DC DISCONNECT(S).  
PER CODE(S): NEC 2017: 690.53, CEC 2019: 690.53

**RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM**

LABEL LOCATION:  
INSTALLED WITHIN 3' OF RAPID SHUT DOWN SWITCH PER CODE(S): CEC 2019: 690.56(C)(3), NEC 2017: 690.56(C)(3), IFC 2012: 605.11.1, IFC 2018: 1204.5.3, CFC 2019: 1204.5.3

4"  
**SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN**  
3"  
TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY.  
SOLAR ELECTRIC PV PANELS

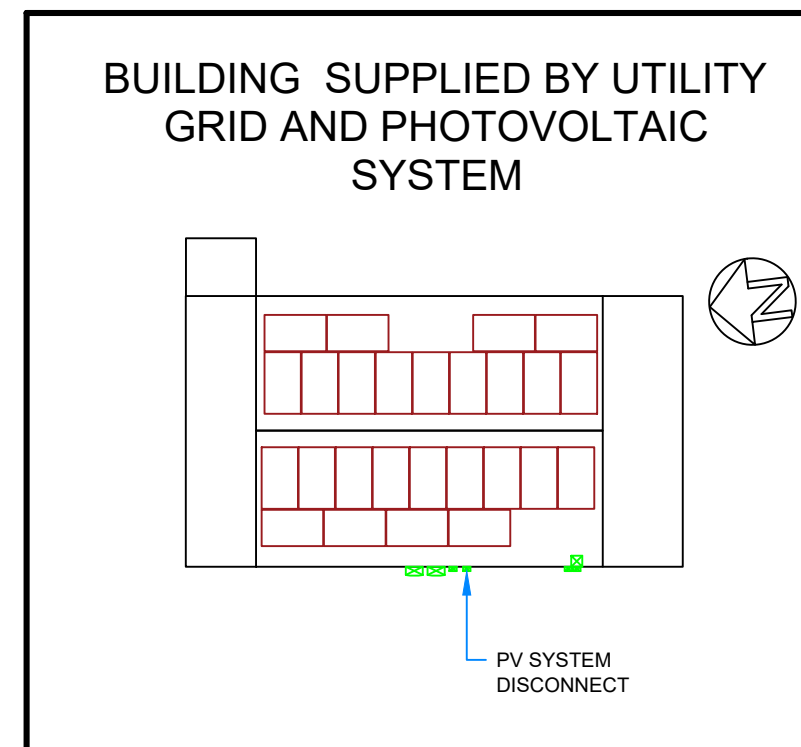
LABEL LOCATION:  
ON OR NO MORE THAT 1 M (3 FT) FROM THE SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED.  
PER CODE(S): CEC 2019: 690.56(C)(1)(a), NEC 2017: 690.56(C)(1)(a)

**WARNING: PHOTOVOLTAIC POWER SOURCE**

LABEL LOCATION:  
INTERIOR AND EXTERIOR DC CONDUIT EVERY 10 FT, AT EACH TURN, ABOVE AND BELOW PENETRATIONS, ON EVERY JB/PULL BOX CONTAINING DC CIRCUITS.  
PER CODE(S): CEC 2019: 690.31(G)(3), 690.31(G)(4), NEC 2017: 690.31(G)(3), 690.31(G)(4) IFC 2012: 605.11.1.4

**PHOTOVOLTAIC AC DISCONNECT**  
MAXIMUM AC OPERATING CURRENT: 32.00 AMPS  
NOMINAL OPERATING AC VOLTAGE: 240 VAC

LABEL LOCATION:  
AC DISCONNECT(S), PHOTOVOLTAIC SYSTEM POINT OF INTERCONNECTION.  
PER CODE(S): CEC 2019: 690.54, NEC 2017: 690.54



LABEL LOCATION:  
POINT OF INTERCONNECTION  
(PER CODE: NEC690.56(B), NEC705.10, 225.37, 230.2(E))

- NOTES AND SPECIFICATIONS:
- SIGNS AND LABELS SHALL MEET THE REQUIREMENTS OF THE NEC 2017 ARTICLE 110.21(B), UNLESS SPECIFIC INSTRUCTIONS ARE REQUIRED BY SECTION 690, OR IF REQUESTED BY THE LOCAL AHJ.
  - SIGNS AND LABELS SHALL ADEQUATELY WARN OF HAZARDS USING EFFECTIVE WORDS, COLORS AND SYMBOLS.
  - LABELS SHALL BE PERMANENTLY AFFIXED TO THE EQUIPMENT OR WIRING METHOD AND SHALL NOT BE HAND WRITTEN.
  - LABEL SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.
  - SIGNS AND LABELS SHALL COMPLY WITH ANSI Z535.4-2011, PRODUCT SAFETY SIGNS AND LABELS, UNLESS OTHERWISE SPECIFIED.
  - DO NOT COVER EXISTING MANUFACTURER LABELS.

**NOTICE**  
PV SYSTEM COMBINER PANEL  
DO NOT ADD LOADS TO THIS PANEL

LABEL LOCATION:  
LOAD CENTER  
[Only use when applicable for PV load center]

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PAGE  
PV-5.0