

NEW PV SYSTEM DESIGN

61 MODULES - 27.450 kW DC, 23.180 kW AC SYSTEM SIZE
 SEPIASHVILI RESIDENCE - 1966 EAST MAIN STREET, MOHEGAN LAKE, NY 10547

DESIGN ENGINEER



76 N. MEADOWBROOK DRIVE
 ALPINE UT 84004
 swysling@wysslingconsulting.com
 (201) 874-3483
 COA #0022571

SOLAR COMPANY/CLIENT

RIVERTOWN
 SOLAR

RIVERTOWN SOLAR LLC
 23 MAIN STREET
 IRVINGTON, NY

SEPIASHVILI
 RESIDENCE
 1966 EAST MAIN STREET
 MOHEGAN LAKE, NY 10547
 COORDINATES: 41.319028, -73.857951

(914) 814-0716

COVER PAGE



Wyssling Consulting, PLLC
 76 N Meadowbrook Drive Alpine UT 84004
 New York COA # 0022571
 Signed 11/3/2025

AERIAL MAP NTS



VICINITY MAP NTS



SHEET INDEX

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SCOPE OF WORK

SYSTEM SIZE: 27.450KW DC / 23.180KW AC SYSTEM SIZE
 PV MODULE: (61) TALESUN TM7G54M 450
 INVERTER: (61) ENPHASE IQ8HC-72-M-US
 COMBINER: (1) MINIMUM 200A LOAD CENTER
 AC DISCONNECT: (1) 200A FUSED AC DISCONNECT WITH 125A FUSES
 (1) 200A UNFUSED AC DISCONNECT

ROOF STORIES: 2
 ROOF TYPE(S): COMP SHINGLE & ROLLED COMP
 MOUNTING(S) & RACKING(S): IRONRIDGE QUICKMOUNT HALO ULTRAGRIP WITH IRONRIDGE XR10 RAIL & IRONRIDGE FLAT ROOF ATTACHMENT (FIXED TILT LEGS) WITH IRONRIDGE XR10 RAIL
 FLASHING: IRONRIDGE ULTRAGRIP FLASHING
 ROOF BEING REPLACED: YES
 ROOF CONDITION: POOR
 ROOF HEIGHT: 25 FEET

INTERCONNECTION: LINE SIDE TAP
 MAIN SERVICE PANEL LOCATION: BASEMENT
 MAIN SERVICE PANEL RATING: (E) 200A
 MAIN BREAKER RATING: (E) 200A
 OCPD: 125A FUSE

CONED METER NUMBER: A71B 11033990

ARRAY	TILT	AZIMUTH
1	30°	312°
2	5°	222°
3	0°	222°
4	5°	42°

DATE	REVISION	COMMENT
10/28/2025	B	ADDED FIRE SETBACKS AND CHANGED ATTACHMENT FOR ROOF 3
		AHJ: ALDEN UTILITY: CONED
		DRAWN BY: AKM INITIAL DESIGN DATE: 08/25/2025 REV: B

GOVERNING CODES

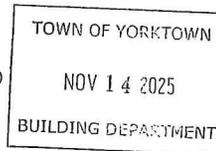
- 2017 NATIONAL ELECTRIC CODE
- 2020 RESIDENTIAL CODE OF NEW YORK STATE (2018 INTERNATIONAL RESIDENTIAL CODE)
- 2020 FIRE CODE OF NEW YORK STATE
- 2020 FUEL GAS CODE OF NEW YORK STATE
- 2020 EXISTING BUILDING CODE OF NEW YORK STATE
- 2020 ENERGY CONSERVATION CODE OF NEW YORK STATE
- 2020 MECHANICAL CODE OF NEW YORK STATE
- 2020 PLUMBING CODE OF NEW YORK STATE

AS ADOPTED BY ALDEN INCLUDING ANY AMENDMENTS OR ADDITIONAL LISTED REQUIREMENTS.
 DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF CON EDISON UTILITY.

EQUIPMENT IS COMPATIBLE WITH UL2703, UL1741, AND UL1703 AS APPLICABLE

DESIGN CRITERIA

- WIND SPEED: 115 MPH
- GROUND SNOW LOAD: 40 PSF
- ASCE: 7-16
- EXPOSURE CATEGORY: C
- BUILDING OCCUPANCY: R-3
- CONSTRUCTION TYPE: TYPE V-B
- SPRINKLERS: NO





CONED METER NUMBER: A71B 11033990

SYSTEM INFORMATION

MODULE COUNT/TYP	(61) TALESUN TM7G54M 450
INVERTER COUNT/TYP	(61) ENPHASE IQ8HC-72-M-US
MODULE WEIGHT	54.01 LBS
MODULE DIMENSIONS	67.80" x 44.65"
UNIT WEIGHT OF ARRAY	2.57 PSF

LEGEND

ROOF VENT (TYP.)	
PLUMBING VENT (TYP.)	
A/C UNIT	
SATELLITE DISH	
ELECTRICAL MAST	
CHIMNEY	
FIRECODE PATHWAY	

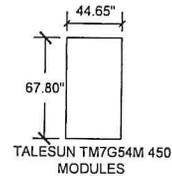
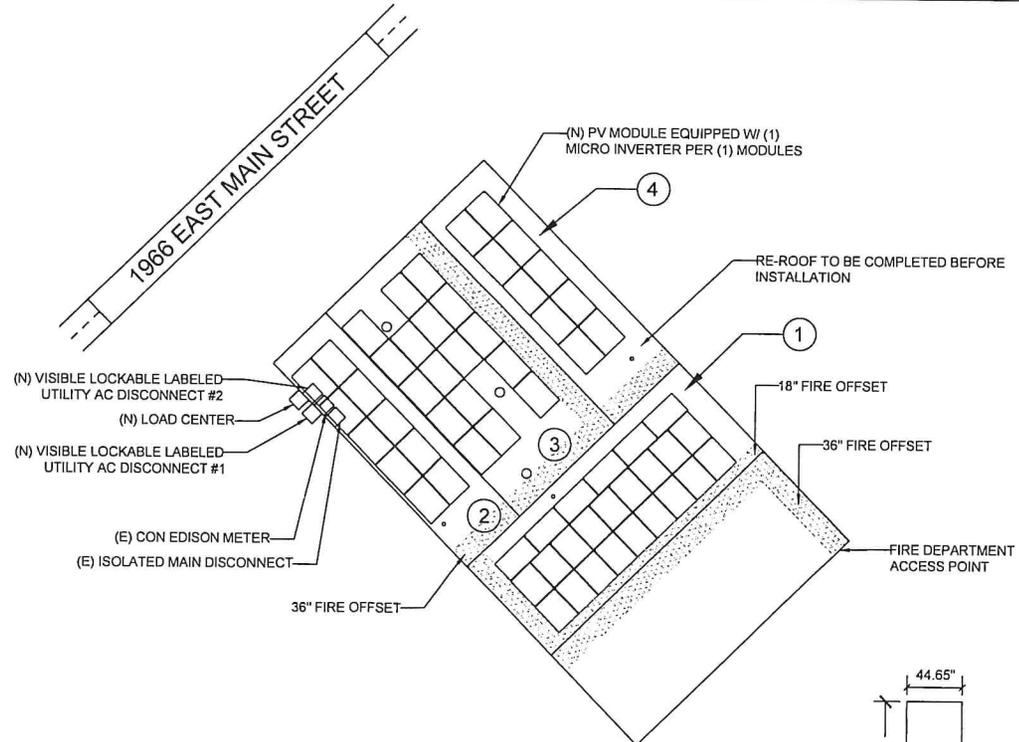
BILL OF MATERIALS

EQUIPMENT	QUANTITY	DESCRIPTION	SKU	DOMESTIC
SOLAR PV MODULE	61	TALESUN MODULE	TM7G54M 450	NO
MICRO INVERTERS	61	ENPHASE IQ8HC-72-M-US	IQ8HC72-M-US	NO
COMMONER	1	MINIMUM 200A LOAD CENTER	N/A	NO
AC DISCONNECT	1	200A FUSED AC DISCONNECT	QF224W1	NO
FUSES	2	125A FUSES	N/A	NO
TAPS	2	TAP CONNECTORS	N/A	NO
COMMONER BREAKER	7	20A/2P BREAKER	N/A	NO
WIRE	48	ENPHASE IQ CABLE SINGLE DROP (LANDSCAPE, 72 CELLS)	0-12-25-200	NO
WIRE	20	ENPHASE IQ CABLE SINGLE DROP (PORTRAIT)	0-12-10-240	NO
ENPHASE ACCESSORIES	9	ENPHASE TERMINATOR CAP	0-TERM-10	NO
ENPHASE ACCESSORIES	12	ENPHASE IQ FEMALE CONNECTORS	0-CONN-10F	NO
ENPHASE ACCESSORIES	12	ENPHASE IQ MALE CONNECTORS	0-CONN-10M	NO
ENPHASE ACCESSORIES	9	ENPHASE IQ CABLE SEALS	0-SEAL-10	NO
ATTACHMENT	184	HALO ULTRA GRIP, BLACK	GM-HUG-D1-B1	NO
RAIL	46	XR10, RAIL 165" (14) BLACK	XR-10-1653	NO
SPUCE	40	BONDED SPUCE, XR10	XR10-S055-D1-M1	NO
MO CLAMP	100	UNIVERSAL MODULE CLAMP, BLACK	UFO-CL-D1-B1	NO
END CLAMP	44	END FASTENING OBJECT (END CLAMP, 10-4000), MILL	UFO-END-D1-A1	NO
T-BOLT	184	T-BOLT, BONDING HARDWARE	8HW-TB-D3-A1	NO
MLPE & GROUNDING	11	GROUNDING LUG, LOW PROFILE	XR-LUG-D3-A1	NO
WIRE MANAGEMENT	122	XR WIRE CLIP	XR-WC-D1-B1	NO
END CAP (PAIR)	22	END CAP, XR10 (L, R PAIR)	XR-10-CAP-D1-B1	NO
MLPE MOUNT	61	MICROINVERTER/MLPE BONDING HARDWARE, T-BOLT	8HW-M-D1-A1	NO

SITE PLAN NOTES

- ALL OBSTRUCTIONS MUST BE VERIFIED BEFORE WORK COMMENCES
- CONDUIT TO BE RUN IN ATTIC IF POSSIBLE
- VISIBLE LOCKABLE LABELED UTILITY AC DISCONNECT WILL BE INSTALLED WITHIN 10' OF CON EDISON METER.
- AC DISCONNECT SHALL BE READILY ACCESSIBLE 24/7
- REQUIRED ELECTRICAL CLEARANCE TO BE MAINTAINED
- MAIN SERVICE PANEL LOCATION: BASEMENT
- METER LOCATION: BASEMENT
- EQUIPMENT LOCATIONS ARE DEFINED BUT MAY BE APPROXIMATE DUE TO EXISTING CONDITIONS

ROOF DESCRIPTION							
ROOF #	ROOF TYPE	TILT	PITCH	AZIMUTH	ROOF FRAMING	MODULE COUNT	ARRAY SQ. FT.
1	COMP SHINGLE	30°	7:12	312°	2X6@24" O.C. RAFTERS	24	504.48
2	ROLLED COMP	5°	1.5:12	222°	2X6@24" O.C. RAFTERS	10	210.20
3	ROLLED COMP	0°	0:12	222°	2X6@24" O.C. RAFTERS	17	357.34
4	ROLLED COMP	5°	1.5:12	42°	2X6@24" O.C. RAFTERS	10	210.20
TOTAL ROOF AREA SQ. FT.		2851		TOTAL ARRAY SQ. FT.		1282.22	ROOF COVER % 44.97



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SITE PLAN



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DC SYSTEM SIZE: 27.450kW
AC SYSTEM SIZE: 23.180kW

AHJ: ALDEN
UTILITY: CONED

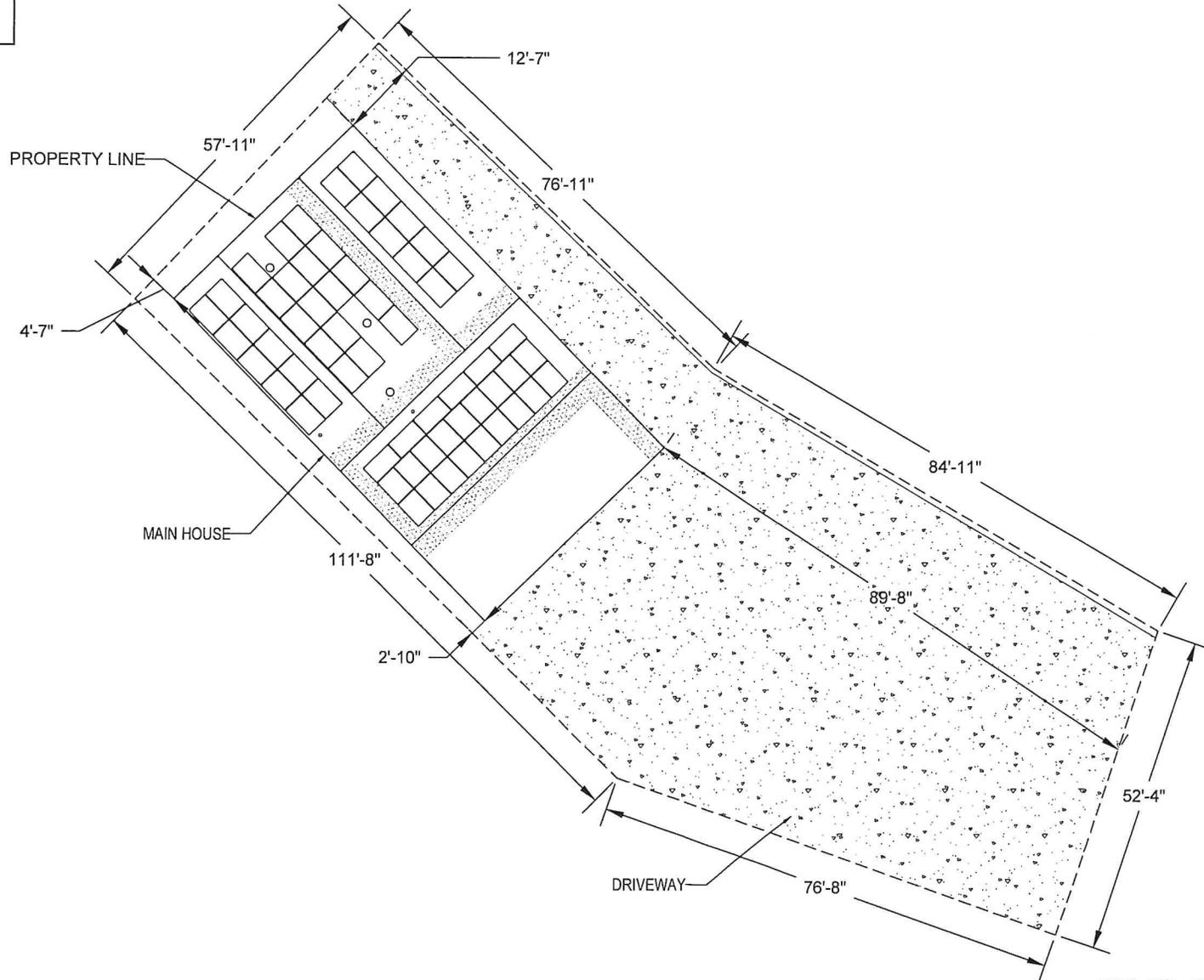
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PV-2

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



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PROPERTY PLAN



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PV-3

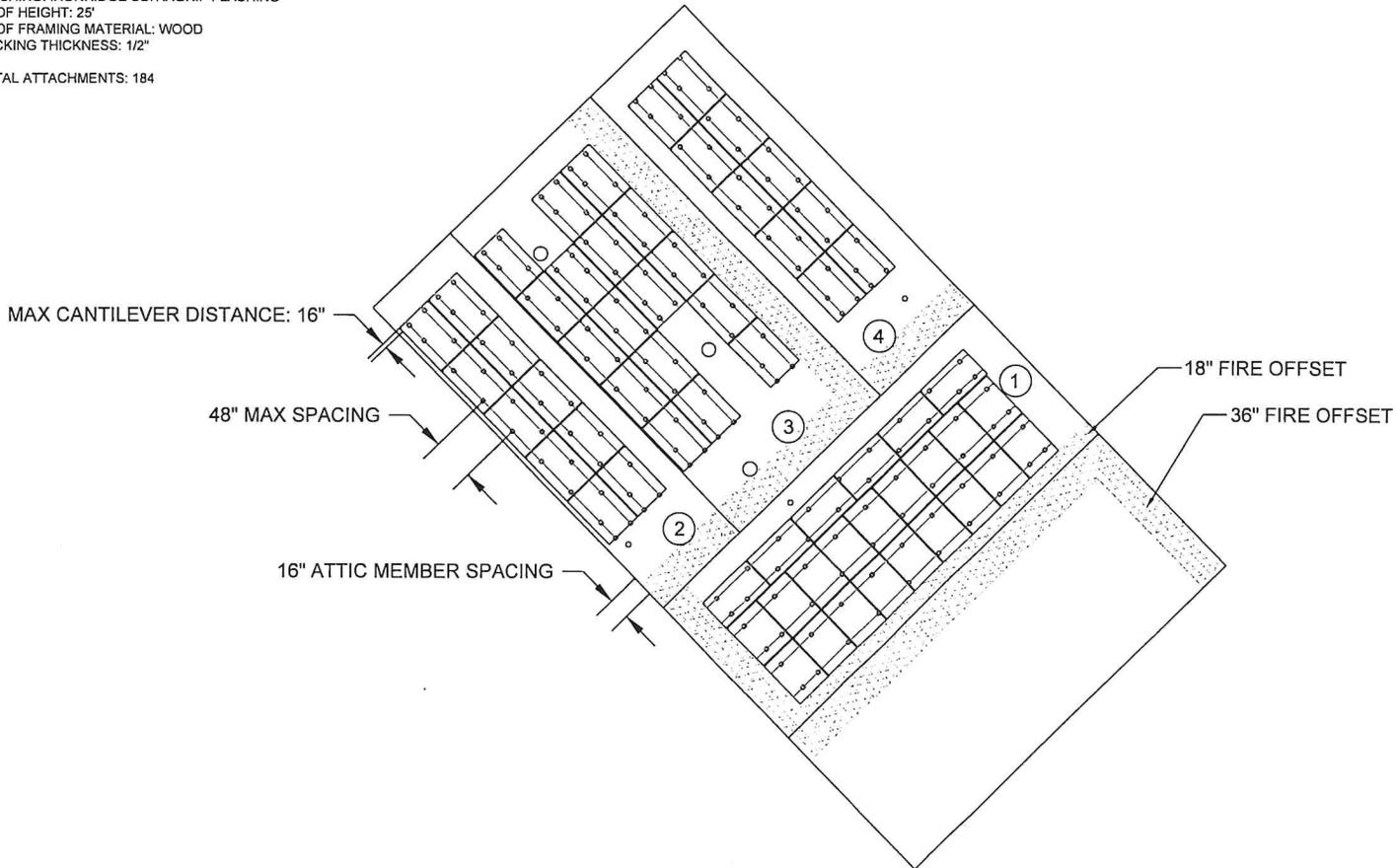


CONED METER NUMBER: A71B 11033990

PV MODULES: (61) TALESUN TM7G54M 450
 ROOF TYPE(S): COMP SHINGLE & ROLLED COMP
 ROOF CONDITION: UNSUITABLE
 MOUNTING TYPE(S): IRONRIDGE QUICKMOUNT HALO ULTRAGRIP WITH IRONRIDGE XR10 RAIL & IRONRIDGE FLAT ROOF ATTACHMENT (FIXED TILT LEGS) WITH IRONRIDGE XR10 RAIL
 FLASHING: IRONRIDGE ULTRAGRIP FLASHING
 ROOF HEIGHT: 25'
 ROOF FRAMING MATERIAL: WOOD
 DECKING THICKNESS: 1/2"

TOTAL ATTACHMENTS: 184

ROOF #	ROOF TYPE	TILT	ATTACHMENT DESCRIPTION			TOTAL POINTS	MAX SPACING	MAX CANTILEVER	ATTACHMENT	MIN EMBEDMENT
			ARRAY TILT	AZIMUTH	ROOF FRAMING					
1	COMP SHINGLE	30°	30°	312°	2X6@24" O.C. RAFTERS	57	48"	16"	(2) #14 SCREW	2"
2	ROLLED COMP	5°	5°	222°	2X6@24" O.C. RAFTERS	34	48"	16"	(2) #14 SCREW	2"
3	ROLLED COMP	0°	0°	222°	2X6@24" O.C. RAFTERS	59	48"	16"	(2) #14 SCREW	2.5"
4	ROLLED COMP	5°	5°	42°	2X6@24" O.C. RAFTERS	34	48"	16"	(2) #14 SCREW	2"



EXACT LOCATION OF ROOF FRAMING MAY VARY; INSTALLER TO FOLLOW ENGINEER (WHERE APPLICABLE) AND MANUFACTURER INSTRUCTIONS/GUIDELINES WHEN INSTALLING.

SCALE: 3/32" = 1'-0"

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ATTACHMENT PLAN



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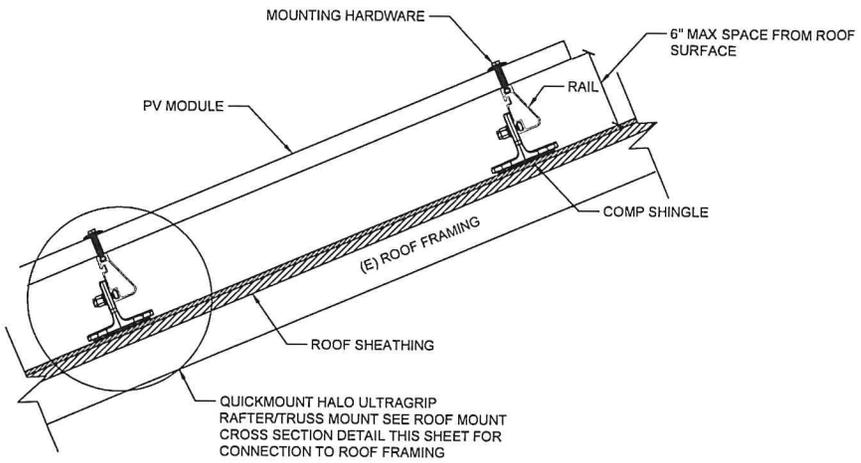
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PV-4

ROOF SECTIONS	R1, R2, R4	WIND SPEED: 115 MPH	GROUND SNOW LOAD: 40 PSF	ROOF TYPE: COMP SHINGLE	ROOF LAYERS (IF APPLICABLE): 1
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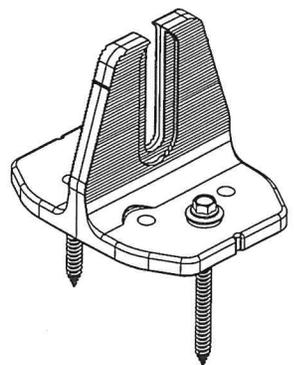
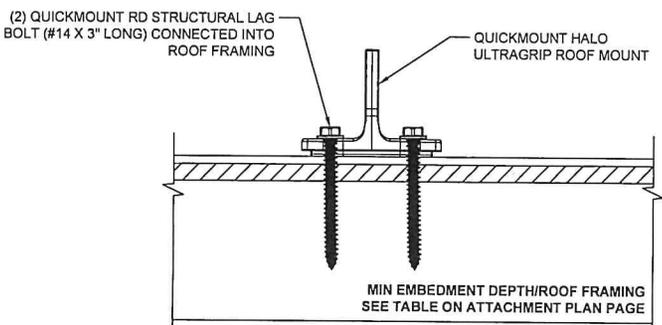
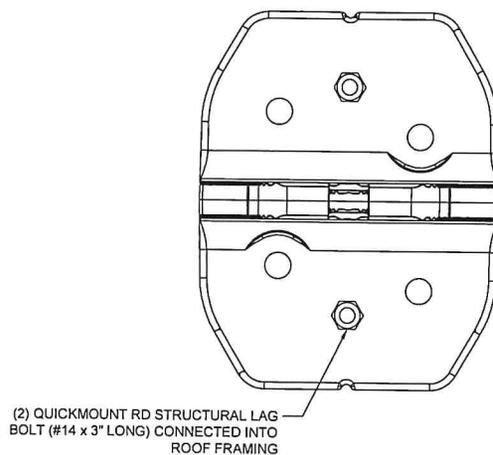
GENERAL ROOF MOUNT DETAIL

NTS



ROOF MOUNT PLAN VIEW DETAIL

NTS



ROOF MOUNT

NTS

NOTE: ALL ROOF PENETRATIONS MUST BE SEALED OR FLASHED USING APPROVED MEANS

ROOF MOUNT CROSS SECTION DETAIL

NTS

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MOUNTING DETAILS



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AC SYSTEM SIZE: 23.180kW

AHJ: ALDEN
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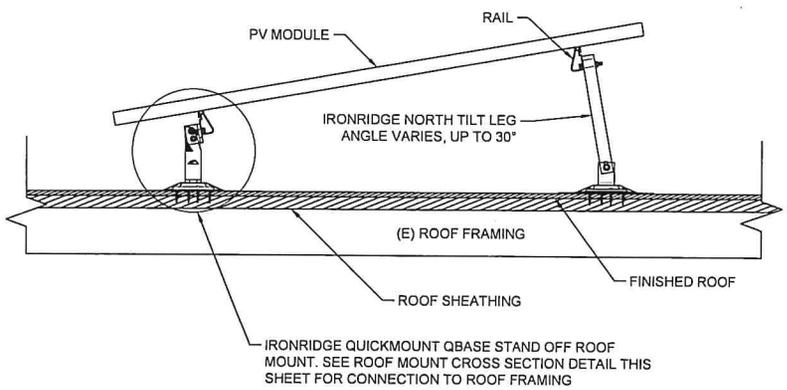
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INITIAL DESIGN DATE: 08/25/2025 REV: B

PV-5

ROOF SECTIONS	R3	WIND SPEED: 109 MPH	GROUND SNOW LOAD: 40 PSF	ROOF TYPE: COMP SHINGLE	ROOF LAYERS (IF APPLICABLE): 1
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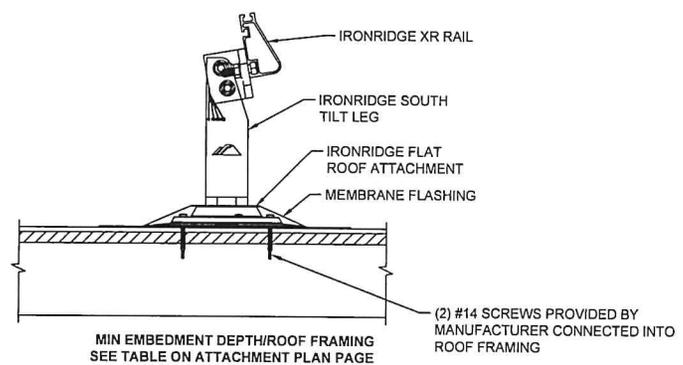
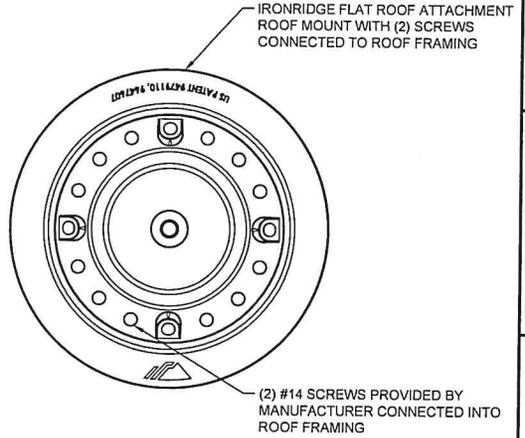
GENERAL ROOF MOUNT DETAIL

NTS



ROOF MOUNT PLAN VIEW DETAIL

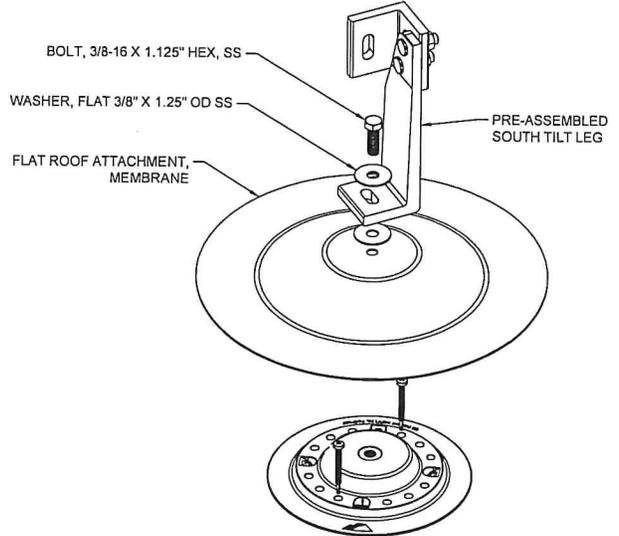
NTS



NOTE: ALL ROOF PENETRATIONS MUST BE SEALED OR FLASHED USING APPROVED MEANS

ROOF MOUNT CROSS SECTION DETAIL

NTS



ROOF MOUNT

NTS

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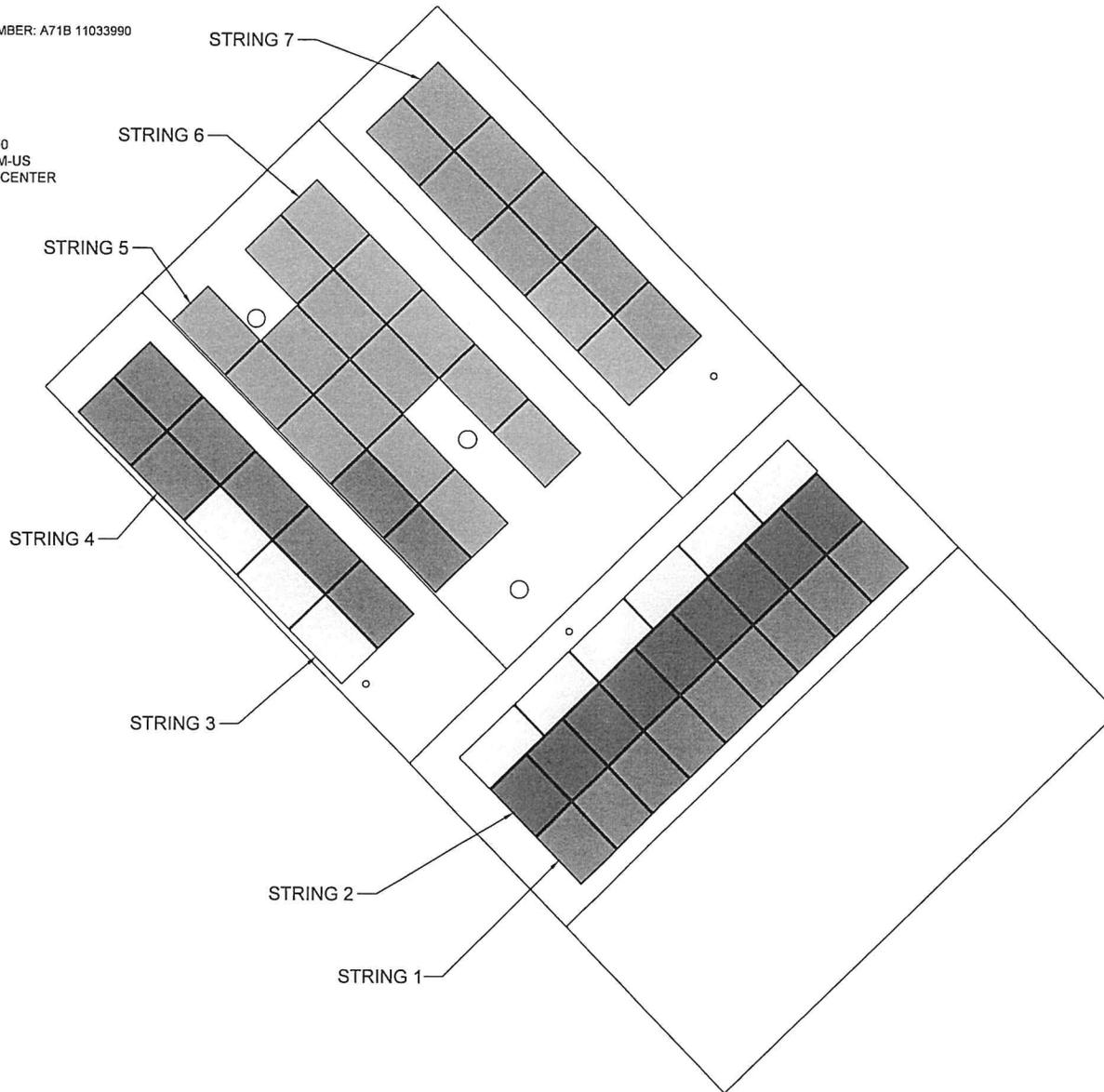
PV-5.1



CONED METER NUMBER: A71B 11033990

MODULE: (61) TALESUN TM7G54M 450
INVERTER: (61) ENPHASE IQ8HC-72-M-US
COMBINER: (1) MINIMUM 200A LOAD CENTER

- STRING 1: (9) MODULES 
- STRING 2: (9) MODULES 
- STRING 3: (9) MODULES 
- STRING 4: (9) MODULES 
- STRING 5: (9) MODULES 
- STRING 6: (8) MODULES 
- STRING 7: (8) MODULES 



SCALE: 1/8" = 1'-0"

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STRING PLAN



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AC SYSTEM SIZE: 23.180kW

AHJ: ALDEN
UTILITY: CONED

DRAWN BY: AKM
INITIAL DESIGN DATE: 08/25/2025 REV: B

EE-1

MODULE TYPE: (61) TALESUN TM7G54M 450
 INVERTER TYPE: (61) ENPHASE IQ8HC-72-M-US 240V

NOTE: ALL EQUIPMENT MUST BE UTILIZED IN ACCORDANCE WITH
 MANUFACTURER'S INTENDED USE AND DESIGN SPECIFICATIONS.

CONDUCTOR SCHEDULE										
TAG	# WIRES IN CONDUIT	MINIMUM WIRE SIZE	TYPE, MATERIAL	MINIMUM GROUND WIRE SIZE	GROUND TYPE, MATERIAL	CONDUIT	AMPS (BEFORE 125% SAFETY FACTOR)	TOTAL AMPS	WIRE AMPERAGE RATING TABLE 310.15(B)(16)	MINIMUM OCPD
A	3	#12 AWG	Q CABLE	#6 AWG	BARE CU	FREE AIR	14.22	17.78	25	20
B	3	#10 AWG	THWN-2, CU	#12 AWG	THWN-2, CU	3/4 EMT	14.22	17.78	35	20
C	4	#1 AWG	THWN-2, CU	#6 AWG	THWN-2, CU	1 1/4 EMT	96.38	120.48	130	125

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THREE LINE DIAGRAM



Wyssling Consulting, PLLC
 75 N Meadowbrook Drive Alpine UT 84004
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 AC SYSTEM SIZE: 23.180kW

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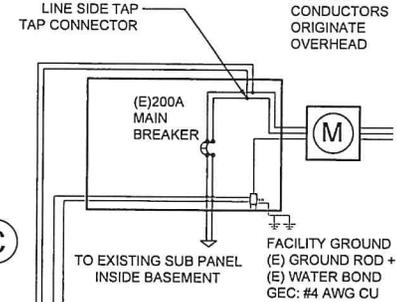
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EE-2

CONED METER NUMBER: A71B 11033990

(N)240V/MINIMUM 200A LOAD CENTER
 NEMA 3R RATED
 MINIMUM 10KIAIC
 LOCATION: SOUTH WEST WALL

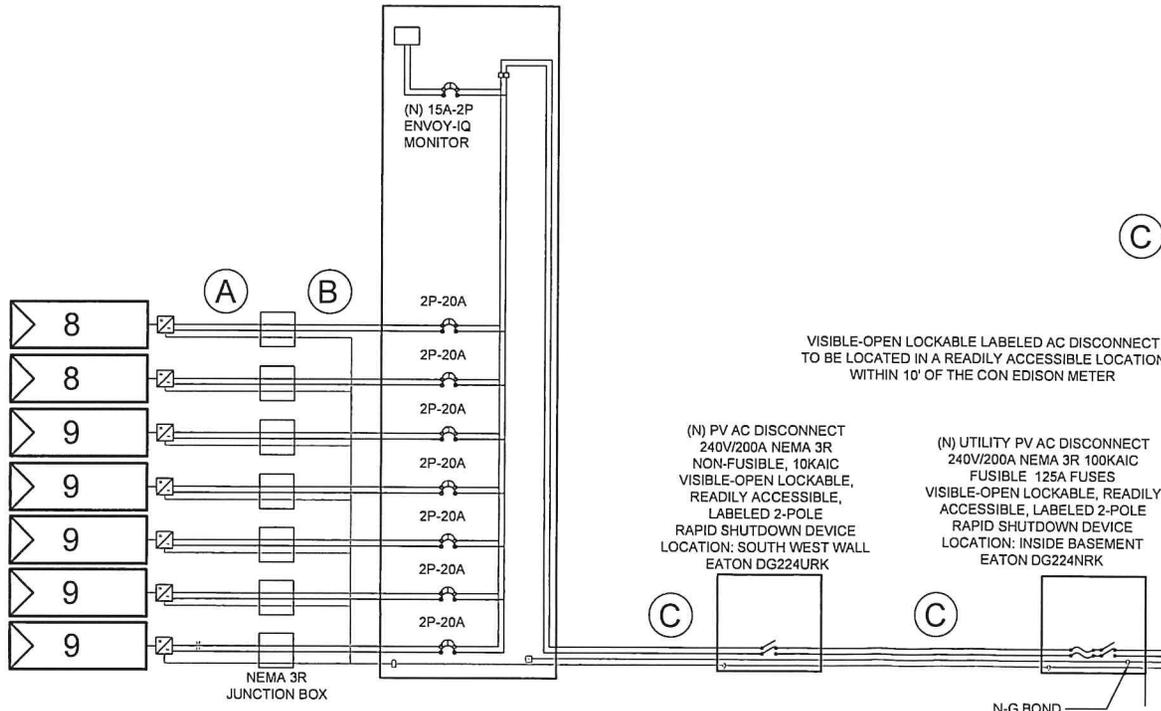
(E) 200A RATED
 ISOLATED DISCONNECT
 (E)200A MAIN BREAKER
 LOCATION: INSIDE BASEMENT
 (E) CONED METER
 120/240V SINGLE
 PHASE
 3-WIRE
 SERVICE
 CONDUCTORS
 ORIGINATE
 OVERHEAD



VISIBLE-OPEN LOCKABLE LABELED AC DISCONNECT
 TO BE LOCATED IN A READILY ACCESSIBLE LOCATION
 WITHIN 10' OF THE CON EDISON METER

(N) PV AC DISCONNECT
 240V/200A NEMA 3R
 NON-FUSIBLE, 10KAIC
 VISIBLE-OPEN LOCKABLE,
 READILY ACCESSIBLE,
 LABELED 2-POLE
 RAPID SHUTDOWN DEVICE
 LOCATION: SOUTH WEST WALL
 EATON DG224URK

(N) UTILITY PV AC DISCONNECT
 240V/200A NEMA 3R 100KAIC
 FUSIBLE 125A FUSES
 VISIBLE-OPEN LOCKABLE, READILY
 ACCESSIBLE, LABELED 2-POLE
 RAPID SHUTDOWN DEVICE
 LOCATION: INSIDE BASEMENT
 EATON DG224NRK



PV MODULE		INVERTER	
MODEL	TALESUN TM7G54M 450	MODEL	ENPHASE IQ8HC-72-M-US
P _{MAX}	450W	MAX INPUT DC VOLTAGE	60V
V _{OC}	39.6V	MAX DC CURRENT	14A
V _M	33.2V	MAX OUTPUT POWER	380W
I _M	13.56A	MAXIMUM CONT. OUTPUT CURRENT	1.58A
I _{SC}	13.87A	CEC EFFICIENCY	0.97
MAX SERIES FUSE RATING	30A	NOMINAL AC VOLTAGE	240V

INTERCONNECTION PER NEC 705.12 (B)	
BACK FEED REQUIRED	120.48A
MINIMUM FUSE RATING	125A

ELECTRICAL CALCULATIONS

TAG A
FROM MODULES TO JUNCTION BOX

LARGEST STRING: 9 MODULES
NUMBER OF INVERTERS: 9
AMPS PER INVERTER: 1.58A
 $9 * 1.58A = 14.22A * 1.25 = 17.78A$ TOTAL
AMPS

CONDUCTOR SIZE: #12 AWG
CONDUCTOR MAX: 25A, GOOD
OCPD: 20A, GOOD

TAG B
FROM JUNCTION BOX TO AC COMBINER

LARGEST STRING: 9 MODULES
NUMBER OF INVERTERS: 9
AMPS PER INVERTER: 1.58A
 $9 * 1.58A = 14.22A * 1.25 = 17.78A$ TOTAL
AMPS

CONDUCTOR SIZE: #10 AWG
CONDUCTOR MAX: 35A, GOOD
OCPD: 20A, GOOD

TAG C
FROM AC COMBINER TO INTERCONNECTION

TOTAL MODULES: 61
TOTAL INVERTERS: 61
AMPS PER INVERTER: 1.58A
 $61 * 1.58A = 96.38A * 1.25 = 120.48A$ TOTAL
AMPS

CONDUCTOR SIZE: #1 AWG
CONDUCTOR MAX: 130A, GOOD
OCPD: 125A, GOOD

TEMPERATURE CORRECTED VOC				
MODULE VOC	VOC COEFFICIENT	COLDEST TEMPERATURE	ADJUSTED VOC	INVERTER/ OPTIMIZER MAX
39.6	-0.24	-17.00	43.59	60, GOOD

CONED METER NUMBER: A71B 11033990

DESIGN ENGINEER



**76 N. MEADOWBROOK DRIVE
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(201) 874-3483
COA #0022571

SOLAR COMPANY/CLIENT

**RIVERTOWN
SOLAR**

RIVERTOWN SOLAR LLC
23 MAIN STREET
IRVINGTON, NY

SEPIASHVILI
RESIDENCE
1966 EAST MAIN STREET
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COORDINATES: 41.319028, -73.857951

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ELECTRICAL NOTES



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76 N Meadowbrook Drive Alpine UT 84004
New York COA # 0022571
Signed 11/3/2025

DC SYSTEM SIZE: 27.450kW
AC SYSTEM SIZE: 23.180kW

AHJ: ALDEN
UTILITY: CONED

DRAWN BY: AKM
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EE-3

1) **PHOTOVOLTAIC AC DISCONNECT**
 MAXIMUM AC OPERATING CURRENT: 95.38
 NOMINAL OPERATING AC VOLTAGE: 240

AT POINT OF INTERCONNECTION, MARKED AT DISCONNECTING MEANS [NEC 690.56]

2) **WARNING DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM**

AT POINT OF INTERCONNECTION [NEC 705.12(C), 690.59]

3) **MAIN PHOTOVOLTAIC SYSTEM DISCONNECT**

EACH PV SYSTEM DISCONNECTING MEANS SHALL PLAINLY INDICATE WHETHER IN THE OPEN (OFF) OR CLOSED (ON) POSITION AND BE PERMANENTLY MARKED [NEC 690.13(B)]

4) **PHOTOVOLTAIC DC DISCONNECT**

AT EACH DC DISCONNECTING MEANS [NEC 690.13(B)]

5) **PHOTOVOLTAIC AC DISCONNECT**

AT EACH AC DISCONNECTING MEANS [NEC 690.13(B)]

6) **WARNING: PHOTOVOLTAIC POWER SOURCE**

AT EXPOSED RACEWAYS, CABLE TRAYS, AND OTHER WIRING METHODS; SPACED AT MAXIMUM 10 FT SECTION OR WHERE SEPARATED BY ENCLOSURES, WALLS, PARTITIONS, CEILINGS, OR FLOORS [NEC 690.31(D)(2)]

7) **WARNING ELECTRICAL SHOCK HAZARD**
DO NOT TOUCH TERMINALS OR TERMINALS ON BOTH LINES AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

AT BUILDING OR STRUCTURE MAIN DISCONNECTING MEANS [NEC 690.12(E), NEC 690.13(B)]

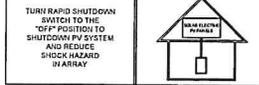
8) **WARNING PHOTOVOLTAIC SYSTEM COMBINER PANEL DO NOT ADD LOADS**

AT AC COMBINER PANEL [NEC 690.13(B)]

9) **WARNING INVERTER OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE**

A PERMANENT WARNING LABEL SHALL BE APPLIED TO THE DISTRIBUTION EQUIPMENT ADJACENT TO THE BACK-FED BREAKER FROM THE INVERTER [NEC 705.12(B)(2)] (BREAKER INTERCONNECTION ONLY)

10) **SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN**



FOR PV SYSTEMS THAT SHUT DOWN THE ARRAY AND CONDUCTORS LEAVING THE ARRAY: THE TITLE "SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN" SHALL UTILIZED CAPITALIZED CHARACTERS WITH A MINIMUM HEIGHT OF 3/8 IN. IN BLACK ON YELLOW BACKGROUND, AND THE REMAINING CHARACTERS SHALL BE CAPITALIZED WITH A MINIMUM HEIGHT OF 3/16 IN. IN BLACK ON WHITE BACKGROUND [NEC 690.12(D)]

11) **RAPID SHUTDOWN SWITCH FOR SOLAR PV**

A RAPID SHUTDOWN SWITCH SHALL HAVE A LABELED LOCATED ON OR NO MORE THAN 8 FT FROM THE SWITCH THAT INCLUDES THIS WORDING. THE LABEL SHALL BE REFLECTIVE, WITH ALL LETTERS CAPITALIZED AND HAVING A MINIMUM HEIGHT OF 3/8 IN., IN WHITE ON RED BACKGROUND [NEC 690.12(D)(2)]

LABELING NOTES:

1. LABELS CALLED OUT ACCORDING TO ALL COMMON CONFIGURATIONS. ELECTRICIAN TO DETERMINE EXACT REQUIREMENTS IN THE FIELD PER CURRENT NEC AND LOCAL CODES AND MAKE APPROPRIATE ADJUSTMENTS.
2. LABELING REQUIREMENTS BASED ON THE NATIONAL ELECTRIC CODE, OSHA STANDARD 19010.145, ANSI Z535.
3. MATERIAL BASED ON THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
4. LABELS TO BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED [NEC 110.21] THEY SHALL BE PERMANENTLY ATTACHED, WEATHER/SUNLIGHT RESISTANT, AND SHALL NOT BE HAND WRITTEN PER NEC 110.21(B)
5. APPLICABLE LABELS TO BE A MINIMUM LETTER HEIGHT OF 3/8", WHITE ON RED BACKGROUND; REFLECTIVE, AND PERMANENTLY AFFIXED [IFC 605.11.1.1]

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LABELS



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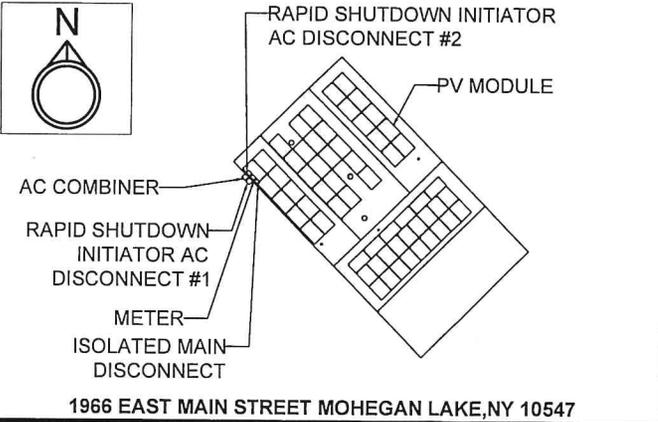
DC SYSTEM SIZE: 27.450kW
 AC SYSTEM SIZE: 23.180kW

AHJ: ALDEN
 UTILITY: CONED

DRAWN BY: AKM
 INITIAL DESIGN DATE: 08/25/2025 REV: B

EE-4

CAUTION
MULTIPLE SOURCES OF POWER
POWER IS SUPPLIED TO THIS BUILDING
FROM THE FOLLOWING SOURCES WITH
DISCONNECTS AS SHOWN.



LOCATION: MSP
 NEC 705.10

DESIGN ENGINEER



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PLACARD



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 INITIAL DESIGN DATE: 08/25/2025 REV: B

EE-5

GENERAL NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND REVIEW ALL MANUFACTURER INSTALLATION DOCUMENTS PRIOR TO INITIATING CONSTRUCTION.
2. ALL COMPONENTS SHALL BE NEW AND LISTED BY A RECOGNIZED ELECTRICAL TESTING LABORATORY AND LISTED FOR THEIR SPECIFIC APPLICATION.
3. OUTDOOR EQUIPMENT SHALL BE NEMA 3R RATED OR BETTER.
4. ACCESS TO ELECTRICAL COMPONENTS OVER 150 VOLTS TO GROUND SHALL BE RESTRICTED TO QUALIFIED PERSONNEL.
5. CONTRACTOR SHALL OBTAIN ELECTRICAL PERMITS PRIOR TO INSTALLATION AND SHALL COORDINATE ALL INSPECTIONS, TESTING COMMISSIONING, AND ACCEPTANCE WITH THE HOMEOWNER, UTILITY CO. AND CITY INSPECTORS AS NEEDED.
6. EACH MODULE TO BE GROUNDED USING THE SUPPLIED CONNECTION POINT PER THE MANUFACTURER'S REQUIREMENTS. ALL PV MODULES, EQUIPMENT, AND METALLIC COMPONENTS ARE TO BE BONDED. IF THE EXISTING GROUNDING ELECTRODE SYSTEM CANNOT BE VERIFIED OR IS ONLY METALLIC WATER PIPING, IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL A SUPPLEMENTAL GROUNDING ELECTRODE.
7. DC CONDUCTORS SHALL BE RUN IN EMT AND/OR MC (METAL CLAD CABLE) AND SHALL BE LABELED.
8. EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH APPLICABLE NEC.
9. CONFIRM LINE SIDE VOLTAGE AT THE ELECTRIC UTILITY SERVICE PRIOR TO CONNECTING INVERTER. VERIFY SERVICE VOLTAGE IS WITHIN INVERTER VOLTAGE OPERATIONAL RANGE.
10. ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT EXPANSION JOINTS AND ANCHOR CONDUIT RUNS AS REQUIRED PER CODE.
11. ALL WIRING MUST BE PROPERLY SUPPORTED BY DEVICES OR MECHANICAL MEANS DESIGNED AND LISTED FOR SUCH USE, AND FOR ROOF-MOUNTED SYSTEMS, WIRING MUST BE PERMANENTLY AND COMPLETELY HELD OFF OF THE ROOF SURFACE.
12. ALL ROOF PENETRATIONS MUST BE SEALED OR FLASHED.
13. EQUIPMENT MAY BE SUBSTITUTED FOR SIMILAR EQUIPMENT BASED ON AVAILABILITY, SUBSTITUTED EQUIPMENT SHALL COMPLY WITH DESIGN CRITERIA.
14. REMOVAL OF AN INTERACTIVE INVERTER OR OTHER EQUIPMENT SHALL NOT DISCONNECT THE BONDING CONNECTION BETWEEN THE GROUNDING ELECTRODE CONDUCTOR AND THE PHOTOVOLTAIC SOURCE AND/OR OUTPUT CIRCUIT GROUNDED CONDUCTORS.
15. WHENEVER A DISCREPANCY IN THE QUALITY OF EQUIPMENT ARISES ON THE DRAWING OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL AND SERVICES REQUIRED BY THE STRICTEST CONDITIONS NOTED ON THE DRAWINGS OR IN THE SPECIFICATIONS TO ENSURE COMPLETE COMPLIANCE AND LONGEVITY OF THE OPERABLE SYSTEM REQUIRED BY THE ENGINEERS.
16. AC DISCONNECT SHALL BE LOCATED WITHIN 10' OF CON EDISON METER. AC DISCONNECT SHALL BE LOCATED ON SAME WALL OF HOUSE WHERE POSSIBLE. IF AC DISCONNECT CANNOT BE WITHIN 10' OF METER, THEN PHOTOS SHALL BE PROVIDED OF THE OBSTRUCTION FOR REVIEW.
17. IF APPLICABLE, ENERGY STORAGE SYSTEM (ESS) CAN BE USED DURING ON-GRID OPERATION TO SHIFT GENERATION FOR TIME OF USE (TOU) AND WILL NOT OPERATE OFF GRID.

GENERAL ELECTRICAL NOTES

1. CONDUIT A AND B AMPS EQUAL TO LARGEST STRING ON TAG.
2. CONDUIT A SHALL BE RUN THROUGH ATTIC IF POSSIBLE.
3. ALL WIRING MUST BE PROPERLY SUPPORTED BY DEVICES OR MECHANICAL MEANS DESIGNED AND/OR LISTED FOR SUCH USE, AND FOR ROOF-MOUNTED SYSTEMS, WIRING MUST BE PERMANENTLY AND COMPLETELY HELD OFF OF THE ROOF SURFACE.
4. EQUIPMENT MAY BE SUBSTITUTED FOR SIMILAR EQUIPMENT BASED ON AVAILABILITY, SUBSTITUTED EQUIPMENT SHALL COMPLY WITH DESIGN CRITERIA. WIRE SIZES ARE BASED ON MINIMUMS AND ARE NOT MEANT TO LIMIT UPSIZING AS REQUIRED BY FIELD CONDITIONS/AVAILABILITY.
5. WIRING SHALL COMPLY WITH MAXIMUM CONTINUOUS CURRENT OUTPUT AT 25°C AND MAXIMUM VOLTAGE AT 600V; WIRE SHALL BE WET RATED AT 90°C.
6. EXPOSED PHOTOVOLTAIC SYSTEM CONDUCTORS ON THE ROOF WILL BE TYPE 2 OR PV-TYPE WIRE.
7. PHOTOVOLTAIC SYSTEM CONDUCTORS SHALL BE IDENTIFIED AND GROUPED. THE MEANS OF IDENTIFICATION SHALL BE PERMITTED BY SEPARATE COLOR-CODING, MARKING TAPE, TAGGING OR OTHER APPROVED MEANS.
8. ALL CONDUCTORS AND TERMINATIONS SHALL BE RATED FOR INSTALL LOCATION
9. ALL EXTERIOR CONDUIT, FITTINGS, AND BOXES SHALL BE RAIN-TIGHT AND APPROVED FOR USE IN WET LOCATIONS.
10. ALL METALLIC RACEWAYS AND EQUIPMENT SHALL BE BONDED AND ELECTRICALLY CONTINUOUS.
11. WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, CONTRACTOR SHALL SIZE THEM ACCORDING TO APPLICABLE CODES.
12. REMOVAL OF A UTILITY-INTERACTIVE INVERTER OR OTHER EQUIPMENT SHALL NOT DISCONNECT THE BUILDING CONNECTION BETWEEN THE GROUNDING ELECTRODE CONDUCTOR AND THE PV SOURCE AND/OR OUTPUT CIRCUIT GROUNDED CONDUCTOR.
13. FOR GROUNDED SYSTEMS, THE PHOTOVOLTAIC SOURCE AND OUTPUT CIRCUITS SHALL BE PROVIDED WITH A GROUND-FAULT PROTECTION DEVICE OR SYSTEM THAT DETECTS A GROUND FAULT, INDICATES THAT FAULT HAS OCCURRED, AND AUTOMATICALLY DISCONNECTS ALL CONDUCTORS OR CAUSES THE INVERTER TO AUTOMATICALLY CEASE SUPPLYING POWER TO OUTPUT CIRCUITS.
14. FOR UNGROUNDED SYSTEMS, THE INVERTER IS EQUIPPED WITH GROUND FAULT PROTECTION AND A GFI FUSE PORT FOR GROUND FAULT INDICATION.
15. PV MODULE FRAMES SHALL BE BONDED TO RACKING RAIL OR BARE COPPER GEG/GEC PER THE MODULE MANUFACTURER'S LISTED INSTRUCTION SHEET.
16. PV MODULE RACKING RAIL SHALL BE BONDED TO BARE COPPER GEC VIA WEEB LUG, IL SCO GBL-4DBT LAY IN LUG, OR EQUIVALENT LISTED LUG.
17. THE PHOTOVOLTAIC INVERTER WILL BE LISTED AS UL 1741 COMPLIANT.
18. RACKING AND BONDING SYSTEM TO BE UL2703 RATED.
19. ANY REQUIRED GROUNDING ELECTRODE CONDUCTOR WILL BE CONTINUOUS, EXCEPT FOR SPLICES OR JOINTS AS BUSBARS WITHIN LISTED EQUIPMENT
20. WHEN BACKFEED BREAKER IS THE METHOD OF UTILITY INTERCONNECTION, THE BREAKERS SHALL NOT READ "LINE AND LOAD."
21. WHEN APPLYING THE 120% RULE, THE SOLAR BREAKER TO BE POSITIONED AT THE OPPOSITE END OF THE BUSBAR FROM THE MAIN BREAKER.
22. THE WORKING CLEARANCE AROUND THE EXISTING ELECTRICAL EQUIPMENT AS WELL AS THE NEW ELECTRICAL EQUIPMENT WILL BE MAINTAINED.
23. LISTED CONDUIT AND CONDUCTOR SIZES ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UPSIZING AS REQUIRED BY FIELD CONDITIONS/AVAILABILITY.
24. ENPHASE IQBHC-72-M-US INVERTERS HAVE INTEGRATED GROUND AND DOUBLE INSULATION. NO GEG OR EGC IS REQUIRED. THE DC CIRCUIT IS ISOLATED AND INSULATED FROM GROUND AND MEETS THE REQUIREMENTS OF NEC.
25. CALCULATIONS ARE BASED ON A) ASHRAE #2 AVERAGE HIGH = 32°C B)NEC TABLE 310.15(B)(2)(a) 75° DERATE FACTOR = 0.96 C) NEC TABLE NEC 310.15(B)(16) 75°C.
26. SUPPLEMENTAL GROUNDING ELECTRODE TO BE INSTALLED NO CLOSER THAN 6' FROM EXISTING WHEN REQUIRED. NEC 250.53(A)(2) DOES NOT REQUIRE IT IF CONTRACTOR CAN PROVE THAT A SINGLE ROD HAS A RESISTANCE TO EARTH OF 25 OHMS OR LESS.
27. WHEN CABLE, INCLUDING PV CABLE(S), IS RUN BETWEEN ARRAYS OR TO JUNCTION BOXES IT SHALL BE ENCLOSED IN CONDUIT. [NEC 300.4, 690.31(A) AND (C)]
28. THE CABLE CONNECTORS USED ON THE OUTPUT SIDE OF THE OPTIMIZER OR MICROINVERTER TOGETHER WITH THE ARRAY CABLE USED BETWEEN THEM ARE OF THE SAME MANUFACTURER OR ARE LISTED FOR COMPATIBILITY. [NEC 690.33(C)]
29. SOME WIRE CONNECTORS SUPPLY INSTRUCTIONS FOR THE PRELIMINARY PREPARATION OF CONDUCTORS, SUCH AS USE OF CONDUCTOR TERMINATION COMPOUND (ANTIOXIDANT COMPOUND). SOME CONNECTORS ARE SHIPPED PRE-FILLED WITH CONDUCTOR TERMINATION COMPOUND (ANTIOXIDANT COMPOUND). FOR NON-PREFILLED CONNECTORS, CONDUCTOR TERMINATION COMPOUND MAY BE USED IF RECOMMENDED BY THE CONNECTOR MANUFACTURER AS PRELIMINARY PREPARATION OF THE CONDUCTOR.

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PV-6

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SITE PHOTOS

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