PLAN KEY	
PV-1	COVER PAGE
PV-1.1	ATTACHMENT DETAILS
PV-2	PANEL LAYOUT
PV-3	ELECTRICAL
PV-4	EQUIPMENT LABELS

SYSTEM INFORMATION	
MODULE	HANWHA Q.PEAK DUO BLK ML-G10+ 410
INVERTER	ENPHASE IQ8MC-72-M-US
RACKING	UNIRAC NXT HORIZON 2-RAIL SYSTEM
SYSTEM SIZE (DC)	9.43 KW
LOCATION	39.8348890, -74.9169339

*X= 2 OR M DEPENDING ON MANUFACTURER'S AVAILABILITY. SAME ELECTRICAL CHARACTERISTICS WITH DIFFERENT DC CONNECTOR. SEE SPECS FOR DETAILS.

HANWHA Q.PEAK DUO BLK ML-G10+ 410
410 WATT MODULE
74" X 41.1" X 1.26"
(SEE DATASHEET)

1. ALL WIND DESIGN CRITERIA ARE FOR LOW SLOPE ROOFS, GABLE AND HIP ROOFS CONSIDERED FROM AN ANGLE OF MIN. 9.5 ° ($\frac{2}{12}$) TO MAX. 45° ($\frac{12}{12}$) NOT TO EXCEED 30' MEAN ROOF HEIGHT ATTACHED WITH FASTENERS AS SPECIFIED BY THE MANUFACTURER.
2. SPAN TABLES ARE DERIVED FROM MECHANICAL LOAD TESTS PERFORMED BY THE MANUFACTURERS INDEPENDENT TESTING AGENCIES ON BEHALF OF THE MANUFACTURER.
3. ROOF SEALANTS SHALL CONFORM TO ASTMC920 AND ASTM 6511
4. ALL ATTACHMENTS SHALL BE INSTALLED IN STRICT COMPLIANCE WITH MANUFACTURERS PRINTED INSTRUCTIONS.

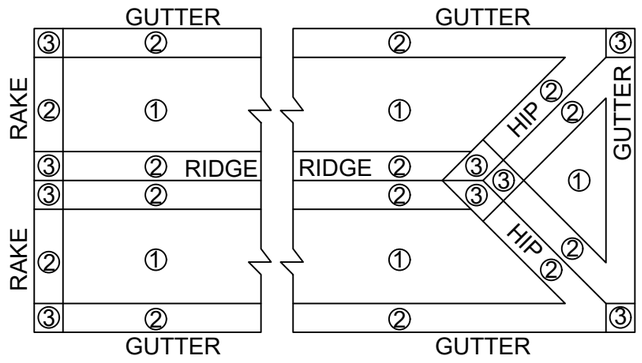
GENERAL NOTES:

THIS PV SYSTEM HAS BEEN DESIGNED TO MEET THE MINIMUM DESIGN STANDARDS FOR BUILDING AND OTHER STRUCTURES OF THE 2021 NEW JERSEY STATE UNIFORM CODE, ALL ASPECTS OF THE INSTALLATION SHALL COMPLY WITH THE 2021 INTERNATIONAL RESIDENTIAL CODE (2021IRC). WITH ALL NEW JERSEY AMENDMENTS, ASCE 7-16 , NEC 2020 (NFPA 70), ALL LOCAL GOVERNING COUNTY AND MUNICIPAL ORDINANCES ADOPTED BY REFERENCE OR ENACTED BY LAW, ALL INSTALLATION INSTRUCTIONS PREPARED BY THE MANUFACTURER.

FASTENER:

REFER TO STRUCTURAL CERTIFICATION LETTER FOR ALL STRUCTURAL INFORMATION OF EXISTING BUILDING STRUCTURE.

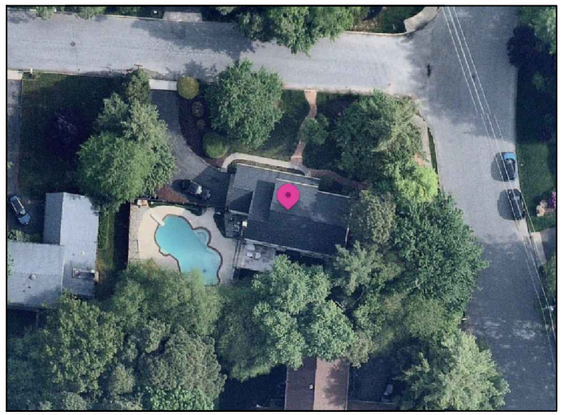
ATTACHMENT SPACING NOT EXCEED MANUFACTURERS SPECIFICATIONS FOR WIND LOADS AS PER ASCE 07-16. RISK CATEGORY II TOPOGRAPHIC EFFECTS B,C, & D AND ROOF WIND ZONES 1,2,& 3. ROOF ZONES 2 & 3 ARE WITHIN 48" OF ANY OUTER EDGE, HIP, RIDGE, OR GUTTER LINE FOR STRUCTURES 30'- 0" OR LESS MEAN ROOF HEIGHT.



ROOF WIND ZONES AS PER IRC R301.2(7)

ROOF ZONES 2 & 3 ARE 48" FROM OUTTER ROOF EDGES, RIDGES, HIPS, RAKES, AND GUTTER EDGES FOR STRUCTURES BELOW 30'-0" MEAN ROOF HT.

VICINITY MAP



BILL OF MATERIALS			
NON SH MODULES	23	SH MODULES	0
INVERTERS	23	TRUNK CABLE	28
-FOOT ATTACHMENT W/ UNIRAC NX	49	WIRE CLIP	23
ENPHASE COMBINER	1	INVERTER CLIP	23
40A OCPD	1	171" RAIL	10
SOLAR AC DISCO	1		
125A LINE TAPS	2		

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3096 HAMILTON BLVD, SOUTH PLAINFIELD, NJ 07080
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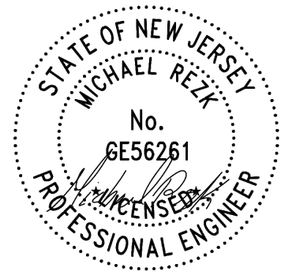
PROFESSIONAL ENGINEERING

MICHAEL REZK
LICENSE # GE56261

ENGINEERING LETTER ATTACHED HAS SPECIFICATIONS FOR WIND AND LOAD CALCULATIONS FOR SOLAR INSTALLATION SPANS & ATTACHMENTS TO MEET LOCAL AND STATE BUILDING CODE COMPLIANCE. WARNING THAT IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT, TO ALTER AN ITEM IN ANY WAY.



CUSTOMER INFORMATION

AARODIS REYES
2 DURHAM CT
VOORHEES, NJ 08043
(757) 462-0604

PV SYSTEM INFORMATION

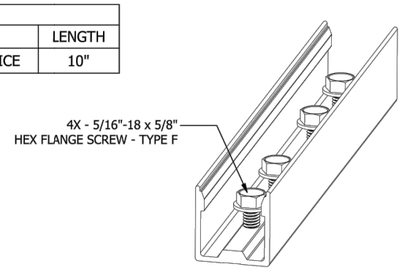
SYSTEM SIZE (DC): 9.43 KW
SYSTEM DESIGN CAPACITY (AC): 7.36 KVA
23 MODULES: HANWHA Q.PEAK DUO BLK ML-G10+ 410
23 INVERTERS: ENPHASE IQ8MC-72-M-US

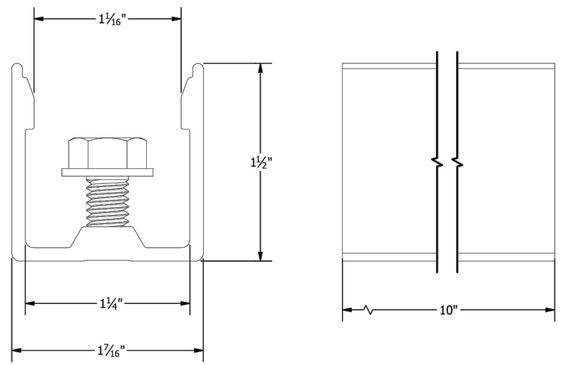
PROJECT INFORMATION - MS153255		
INITIAL	DATE: 6/25/2024	DESIGNER: SEQ
REV:	DATE:	DESIGNER:
REV:	DATE:	DESIGNER:

COVER PAGE

PV-1

PART # TABLE		
P/N	DESCRIPTION	LENGTH
RLSPLCM1	NXT HORIZON RAIL SPLICE	10"





UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

PRODUCT LINE:	NXT HORIZON
DRAWING TYPE:	PART DETAIL
DESCRIPTION:	RAIL SPLICE
REVISION DATE:	9/22/2021

DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL

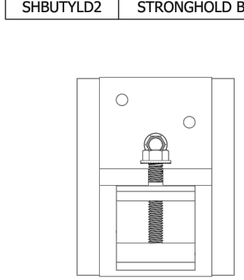
PRODUCT PROTECTED BY ONE OR MORE US PATENTS

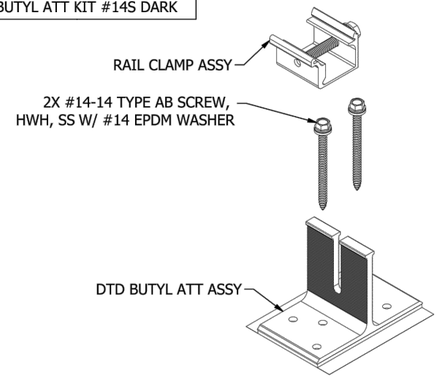
LEGAL NOTICE

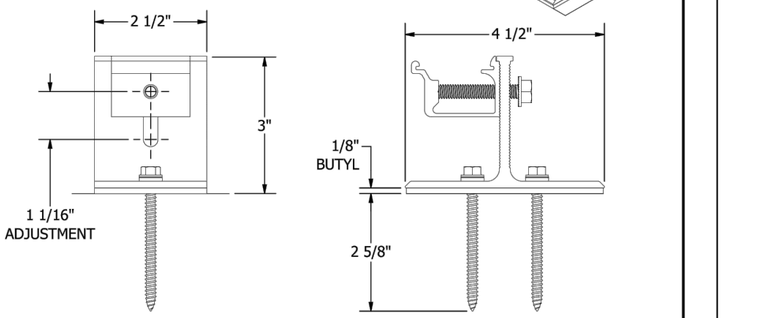
NH-P02

SHEET

PART # TABLE	
P/N	DESCRIPTION
SHBUTYLM2	STRONGHOLD BUTYL ATT KIT #14S MILL
SHBUTYLD2	STRONGHOLD BUTYL ATT KIT #14S DARK







UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

PRODUCT LINE:	NXT UMOUNT
DRAWING TYPE:	PARTS
DESCRIPTION:	SH BUTYL ATTACHMENT
REVISION DATE:	7/14/2023

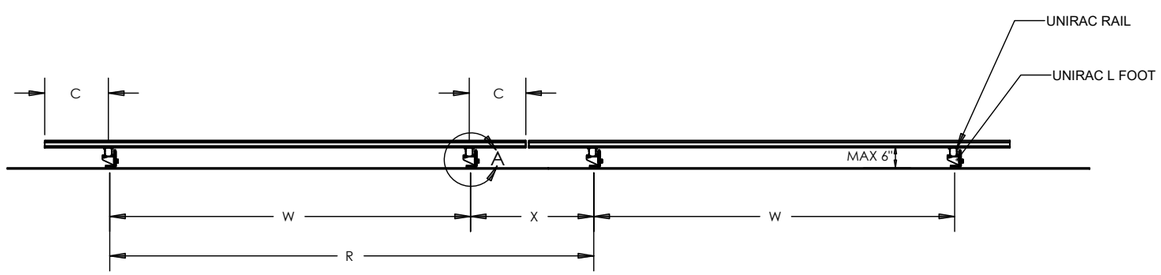
DRAWING NOT TO SCALE ALL DIMENSIONS ARE NOMINAL

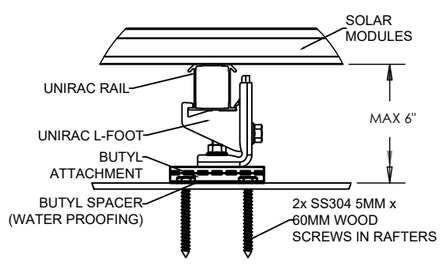
PRODUCT PROTECTED BY ONE OR MORE US PATENTS

LEGAL NOTICE

NU-A10-1

SHEET





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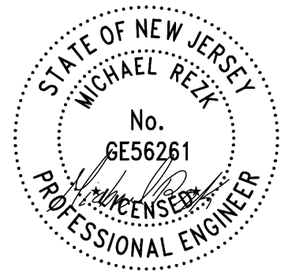

CUSTOMER INFORMATION

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VOORHEES, NJ 08043
(757) 462-0604

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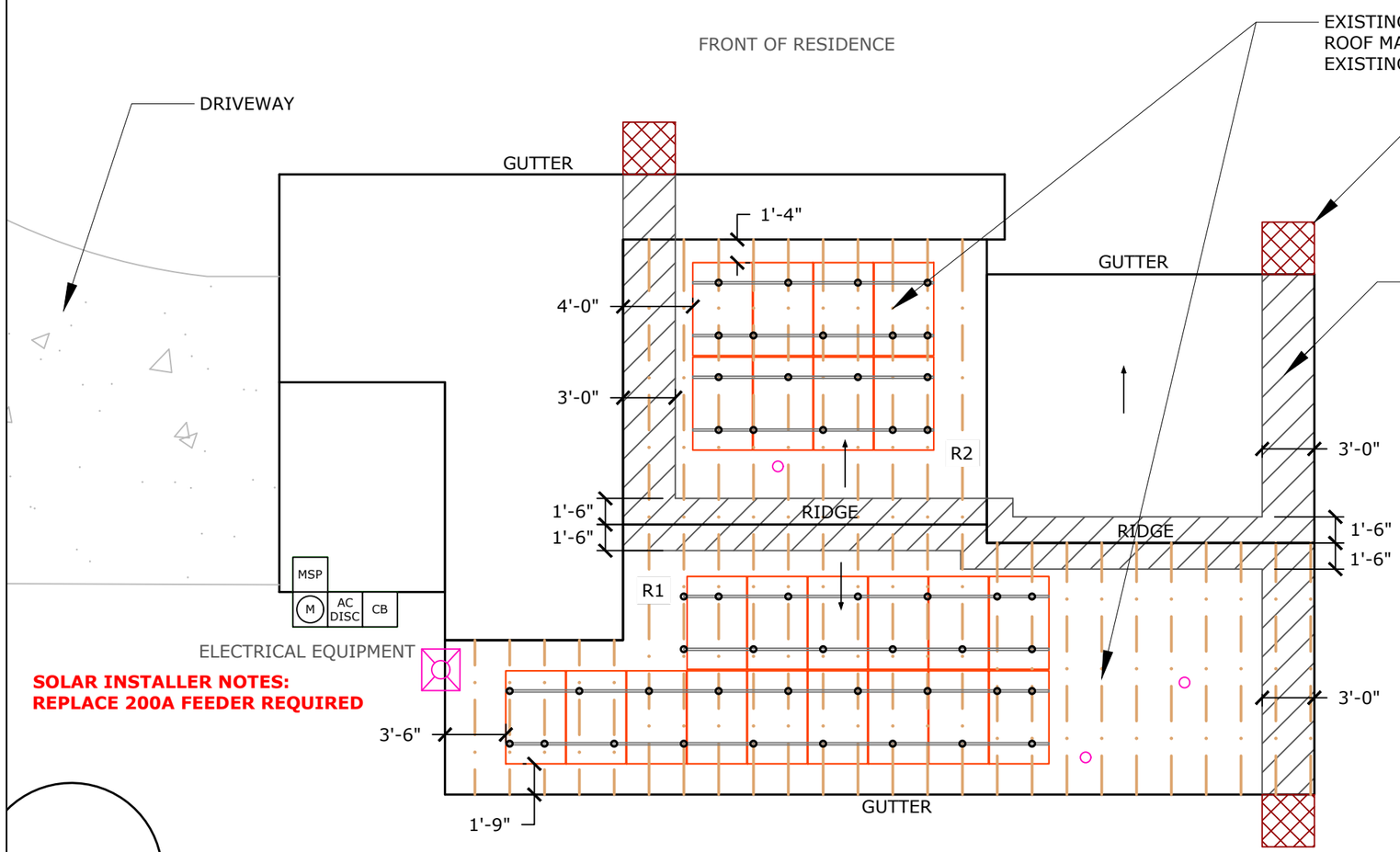
ATTACHMENT DETAILS

PV-1.1

DURHAM CT

ROOF	MODULE COUNT	AZIMUTH	TILT	SHADING	LANDSCAPE ATTACHMENT MAX SPAN (ROOF AREA 1/2/3)	PORTRAIT ATTACHMENT MAX SPAN (ROOF AREA 1/2/3)
R1	15	191°	30°	49%	80/72/72	80/72/72
R2	8	11°	30°	87%	80/72/72	80/72/72



SOLAR INSTALLER NOTES:
REPLACE 200A FEEDER REQUIRED

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

TOTAL SQUARE FOOTAGE OF ROOF: 2188.64990234375 SQFT
SQUARE FOOTAGE OF SOLAR ARRAY:485.78 SQFT
PERCENTAGE OF SOLAR ROOF COVERAGE: 22.2%
18" RIDGE SETBACK SHALL BE REQUIRED

SYMBOL LEGEND

MSP	MAIN SERVICE PANEL		CHIMNEY
SP	SUB-PANEL		SKYLIGHT
M	UTILITY METER		VENT
AC DISC	AC DISCONNECT		PIPE VENT
UDC	UTILITY DISCONNECT		FAN
LC	LOAD CENTER		SATELLITE DISH
N3R	NEMA 3R BOX W/ ENVOY-S		FIRE SETBACKS
CB	COMBINER BOX		GROUND ACCESS
PF	PERFORMANCE METER		PITCH DIRECTION
	MODULE		

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STATE OF NEW JERSEY
MICHAEL REZK
No. GE56261
LICENSED PROFESSIONAL ENGINEER

CUSTOMER INFORMATION

ARODIS REYES
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VOORHEES, NJ 08043
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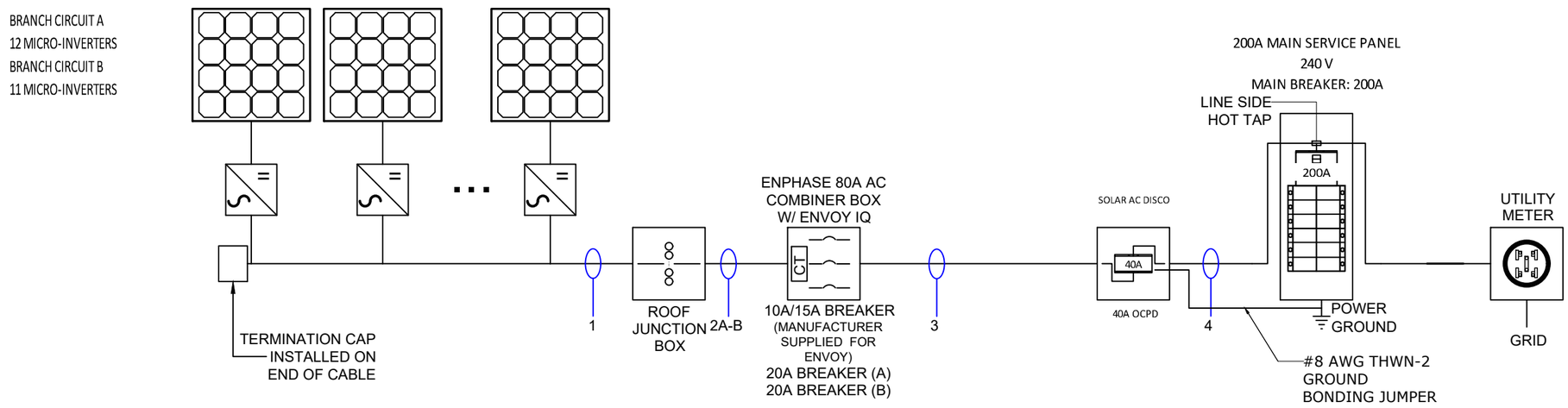
PANEL LAYOUT

PV-2

23 HANWHA Q.PEAK DUO BLK ML-G10+ 410 410W MODULES PAIRED WITH

23 ENPHASE IQ8MC-72-M-US MICRO-INVERTERS



ELECTRICAL NOTES:

1. ALL CALCULATIONS FOR VOC, VMAX, IMP AND ISC HAVE BEEN CALCULATED USING THE MANUFACTURED STRING CALCULATOR BASED ON ASHRAE 2% HIGH AND EXTREME MINIMUM TEMPERATURE COEFICIENTS.
2. THE ENTIRE ARRAY IS BONDED ACCORDING TO (NEC 690.46 - 250.120 PARAGRAPH C).
3. THIS SYSTEM COMPLIES WITH NEC 2020
4. BRANCH CIRCUIT CALCULATION FOR WIRE TAG 1 DISPLAYS THE LARGEST BRANCH CIRCUIT IN SYSTEM. OTHER BRANCH CIRCUITS WILL HAVE LOWER DESIGN CURRENT THAN THE ONE SHOWN.
5. ALL CONDUCTORS ARE SIZED BASED ON NEC 2020 ARTICLE 310
6. ALL EQUIPMENT INSTALLED IS RATED AT 75°C UNLESS NOTED
7. INVERTER NOC (NOMINAL OPEN CURRENT) OBTAINED FROM EQUIPMENT DATA SHEET
8. SYSTEM IS CONSIDERED AN AC MODULE SYSTEM. NO DC CONDUCTORS ARE PRESENT IN CONDUIT, COMBINER, JUNCTION BOX, DISCONNECT. AND COMPILES WITH 690.6- NO DC. DISCONNECT AND ASSOCIATED DC CABLING ARE REQUIRED.
9. CONDUCTORS IN CONDUIT ARE AC CONDUCTORS - BRANCH CIRCUITS AND NOT PV SOURCE CIRCUITS 690.6.
10. SYSTEM COMPLIES WITH 690.12 RAPID SHUTDOWN AND ASSOCIATED LABELING AS PER 690.56(C). AC VOLTAGE AND SYSTEM OPERATING CURRENT SHALL BE PROVIDED AS PER 690.52.
11. ALL GROUNDING SHALL COMPLY WITH 690.47(A) IN THAT THE AC MODULES SHALL COMPLY WITH 250.64.
12. NO TERMINALS WILL BE ENERGIZED IN THE OPEN POSITION IN THIS AC MODULE SYSTEM 690.6, 690.15.
13. WHERE APPLICABLE, INTERCONNECTION SHALL COMPLY WITH 705.12(B)(2)(3)(b), 705.12(A) AS PERMITTED BY 230.86(6)
14. WHERE APPLICABLE, SOLAR OVERCURRENT PROTECTION FOR SUPPLY SIDE CONNECTION SHALL BE LOCATED WITHIN 10FT OF THE INTERCONNECTION POINT.

PERMANENT LABEL & LOCATION
CUSTOMER OWNED PARALLEL GENERATION
LABELS ARE WEATHER UV RATED RED PLASTIC WITH WHITE LETTERS

(A) LOAD CENTER: WARNING DUAL POWER SOURCE.
SECOND SOURCE IS PV SYSTEM.
(B) WARNING INVERTER OUTPUT CONNECTION.
DO NOT RELOCATE THIS OVERCURRENT BACKFED DEVICE

SOLAR INSTALLER NOTES:
REPLACE 200A FEEDER REQUIRED

(C) AC DISCONNECT: PV AC DISCONNECT 690.15
(D) WARNING ELECTRIC SHOCK HAZARD.
DO NOT TOUCH TERMINALS. TERMINALS ON BOTH LINE & LOADSIDES MAY BE ENERGIZED IN THE OPEN POSITION.
(E) INVERTER: WARNING ELECTRICAL SHOCK HAZARD.
IF A GROUND FAULT IS INDICATED, NORMALLY GROUNDED CONDUCTORS MAY BE UN-GROUNDED AND ENERGIZED.

(F) JUNCTION BOX: WARNING ELECTRICAL SHOCK HAZARD.
THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED
(G) CONDUIT/CABLE EVERY 10 FEET:
CAUTION: SOLAR CIRCUIT

Wire Tag	Conduit	Wire Qty	Wire Gauge	Wire Type	Temp. Rating	Wire Ampacity (A)	Temp. Derate	Conduit Fill Derate	Derated Ampacity (A)	Inverter Qty	NOC (A)	NEC Correction	Design Current (A)	Ground Size	Ground Wire Type
1	OPEN AIR	2	12 AWG	Trunk Cable	90°C	30	0.96	1	28.80	12	1.33	1.25	19.95	08 AWG	THWN-2
2A	3/4" PVC	2	10 AWG	THWN-2	90°C	40	0.96	0.8	30.72	12	1.33	1.25	19.95	08 AWG	THWN-2
2B	3/4" PVC	2	10 AWG	THWN-2	90°C	40	0.96	0.8	30.72	11	1.33	1.25	18.29	08 AWG	THWN-2
3	3/4" PVC	3 + G	08 AWG	THWN-2	75°C	50	0.96	1	48.00	23	1.33	1.25	38.24	08 AWG	THWN-2
4	3/4" PVC	3	06 AWG	THWN-2	75°C	65	0.96	1	62.40	23	1.33	1.25	38.24		THWN-2

NOTE: LETTER "G" IN WIRE QTY TAB STANDS FOR GROUNDING CONDUCTOR.

momentum SOLAR

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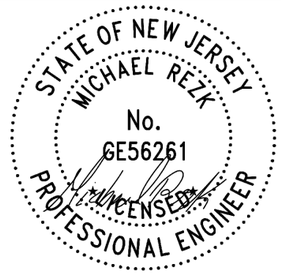
ELECTRICIAN

PRO CUSTOM SOLAR DBA MOMENTUM SOLAR
MATT FRANZ
325 HIGH STREET
METUCHEN, NJ 08440
(732) 902-6224



CUSTOMER INFORMATION

ARODIS REYES
2 DURHAM CT
VOORHEES, NJ 08043
(757) 462-0604

PV SYSTEM INFORMATION

SYSTEM SIZE (DC): 9.43 KW
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REV:	DATE:	DESIGNER:

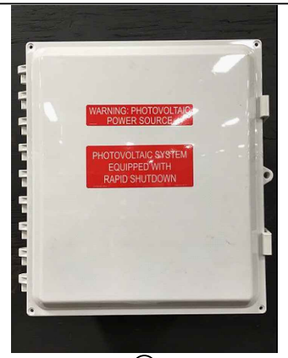
ELECTRICAL

PV-3

TAG	LABEL	QUANTITY	LOCATION	NOTE
Ⓐ	CAUTION: AC SOLAR VOLTAGE	12	AC CONDUITS	1 AT EVERY SEPARATION BY ENCLOSURES / WALLS / PARTITIONS / CEILINGS / FLOORS OR NO MORE THAN 10'
Ⓑ	! WARNING PHOTOVOLTAIC POWER SOURCE PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN	1	COMBINER BOX	1 AT ANY COMBINER BOX
Ⓒ	⚠ WARNING ELECTRICAL SHOCK HAZARD TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION	1	JUNCTION BOX	1 AT ANY JUNCTION BOX
Ⓓ	PV SYSTEM AC DISCONNECT RATED AC OUTPUT CURRENT 30.59A NOMINAL OPERATING AC VOLTAGE 240 V ⚠ CAUTION POWER TO THIS SERVICE IS ALSO SUPPLIED FROM ON-SITE SOLAR GENERATION AC SYSTEM DISCONNECT ⚠ WARNING ELECTRICAL SHOCK HAZARD TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM	1	AC DISCONNECT	1 OF EACH AT FUSED AC DISCONNECT COMPLETE VOLTAGE AND CURRENT VALUES ON DISCONNECT LABEL
Ⓔ	PV METER	1	PV METER SOCKET	1 AT PV METER SOCKET AND ONE DIRECTORY PLACARD
Ⓕ	⚠ WARNING DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM REVENUE METER	1	UTILITY METER	1 AT UTILITY METER AND ONE DIRECTORY PLACARD
Ⓖ	SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUTDOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN ARRAY ⚠ WARNING DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM	1	INTERCONNECTION POINT	1 OF EACH AT BUILDING INTERCONNECTION POINT AND ONE DIRECTORY PLACARD
	WARNING: INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE	1	BACKFEED PANEL	
Ⓗ	NOMINAL OPERATING AC VOLTAGE : 240V NOMINAL OPERATING AC FREQUENCY : 60HZ MAXIMUM AC POWER : 230VA MAXIMUM AC CURRENT : 30.59A MAXIMUM OVERCURRENT DEVICE RATING FOR AC MODULE PROTECTION : 20A	1	AC CURRENT PV MODULES	

EXAMPLES

Ⓐ



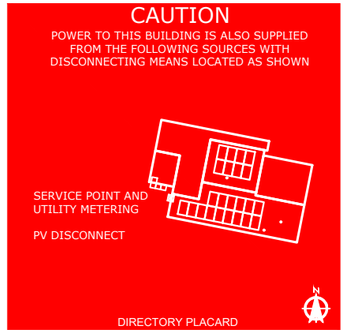
Ⓑ

Ⓒ

Ⓓ

Ⓕ

Ⓖ BACKFEED



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STATE OF NEW JERSEY · MICHAEL REZK · No. GE56261 · LICENSED PROFESSIONAL ENGINEER

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EQUIPMENT LABELS

PV-4