	SYSTEM INFORMATION					
MODULE HANWHA Q.PEAK DUO BLK-G10+ 360						
INVERTER	ENPHASE IQ7-60-2-US					
RACKING	ECOFASTEN CLICKFIT 2-RAIL SYSTEM & ROOFTECH RT-MINI II					
SYSTEM SIZE (DC)	8.64 KW					
LOCATION 30.1720715,-82.6548799						

$\bigg)$	CLIMATIC & GEOGRAPHIC DESIGN CRITERIA TABLE R301.2(1)					
	SPEED (MPH)	120				
	TOPOGRAPHIC EFFECTS	В				
)	SPECIAL WIND REGION	NO				
/ \	WIND BORNE DEBRIS ZONE	2				
)	SEISMIC DESIGN CATEGORY	С				
	CLIMATE ZONE	2A				
	WIND EXPOSURE CATETORY	В				

PLAN KEY				
PV-1	COVER PAGE			
PV-1.1	ATTACHMENT DETAIL			
PV-2	ROOF LAYOUT			
PV-3	ELECTRICAL			
PV-3.1	ELECTRICAL CONT.			
PV-3.2	EQUIPMENT LABELS			



GENERAL NOTES:

THIS PV SYSTEM HAS BEEN DESIGNED TO MEET THE MINIMUM DESIGN STANDARDS FOR BUILDING AND OTHER STRUCTURES OF THE ASCE 7-16, 7TH EDITION 2020 FLORIDA RESIDENTIAL CODE, 7TH EDITION 2020 FLORIDA BUILDING CODE, 7TH EDITION 2020 FLORIDA FIRE PREVENTION CODE, NEC 2017 AND ALL LOCAL CODES & ORDINANCES.

ROOF SHALL HAVE NO MORE THAN TWO LAYERS OF COVERING IN ADDITION TO THE SOLAR EQUIPMENT.

INSTALLATION OF SOLAR EQUIPMENT SHALL BE FLUSH MOUNTED, PARALLEL TO AND NO MORE THAN 6-INCHES ABOVE THE SURFACE OF THE ROOF.

ANY PLUMBING VENTS ARE NOT TO BE CUT OR COVERED FOR SOLAR EQUIPMENT INSTALLATION. ANY RELOCATION OR MODIFICATION OF THE VENT REQUIRES A PLUMBING PERMIT AND INSPECTION.

ALL DESIGN, CALCULATIONS ARE PERFORMED BY DANIEL DUNZIK REGISTERED ARCHITECT. FLORIDA STATE STATUTE 471.003(3) PROVIDES THAT LICENSED ARCHITECTS ARE EXEMPTED FROM THE PROVISIONS OF CHAPTER 471 ENGINEERING AND NOT PRECLUDED FROM PERFORMING ENGINEERING SERVICES FOR INTEGRATED SYSTEMS AND SERVICES THAT ARE INCIDENTAL TO BUILDINGS AND STRUCTURES.

INVERTER PLACEMENT:

SYSTEM UTILIZES "ENPHASE" MICRO-INVERTERS WITH RAPID SHUTDOWN CONTROL LOCATED ON THE BACK SIDE OF EACH MODULE.

STRUCTURAL STATEMENT:

THE EXISTING STRUCTURE IS ADEQUATE TO SUPPORT THE NEW LOADS IMPOSED BY THE PHOTOVOLTAIC MODULE SYSTEM INCLUDING UPLIFT & SHEAR.EXISTING RAFTER SIZES & DIMENSIONS CONFORM TO 7TH EDITION 2020 FLORIDA RESIDENTIAL CODE

MOUNTING BRACKETS AND HARDWARE MEET OR EXCEED FLORIDA CODE REQUIREMENTS FOR THE DESIGN CRITERIA OF THE TOWN.

FSEC CERTIFICATION STATEMENT:

PER FL. STATUE 377.705, I, MINA A. MAKAR PE# 86753, CERTIFICATE OF AUTHORIZATION #33404, AN ENGINEER LICENSED PURSUANT TO CHAPTER 471, CERTIFY THAT THE PV ELECTRICAL SYSTEM AND ELECTRICAL COMPONENTS ARE DESIGNED AND APPROVED USING THE STANDARDS CONTAINED IN THE MOST RECENT VERSION OF THE FLORIDA BUILDING CODE. FBC 2020

	FBC,	RESI	DEN	IIAL	2020
--	------	------	-----	------	------

TABLE R301.2.1.3											
WIND SPEED CONVERSIONS ^a											
V _{ult}	110	115	120	130	140	150	160	170	180	190	200
V _{asd}	85	89	93	101	108	116	124	132	139	147	155

For SI: 1 mile per hour = 0.447 m/s.

a. Linear interpolation is permitted.

1

HANWHA Q.PEAK DUO BLK-G10+ 360 360 WATT MODULE 67.6" X 41.1" X 1.26' (SEE DATASHEET)

/ = \	
BILL OF MATERIALS	
MODULES	24
INVERTERS	24
L-FOOT ATTACHMENT W/ RT-MINI	35
168" RAILS	10
SKIRTS	10
ENPHASE COMBINER BOX	1
EATON 60A FUSIBLE AC DISCONNECT	1
30A FUSES	2
30A BACKFEED BREAKER	1

momentum SOLAR

PRO CUSTOM SOLAR LLC D.B.A. MOMENTUM SOLAR 325 HIGH STREET, METUCHEN, NJ 08840 (732) 902-6224 MOMENTUMSOLAR.COM

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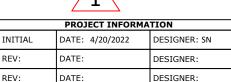
CUSTOMER INFORMATION

DIMAS ROMANA - MS91663 1158 SW JAMESTOWN GLEN LAKE CITY, FL 32025 3863448361

PV SYSTEM INFORMATION

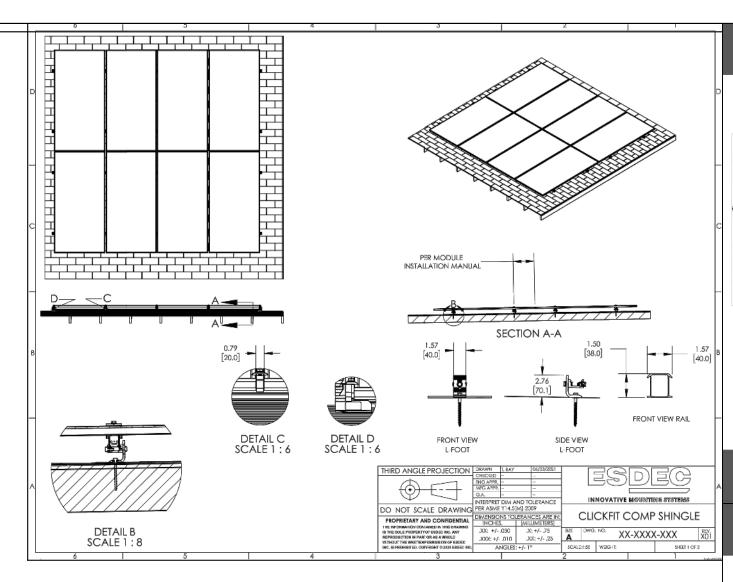
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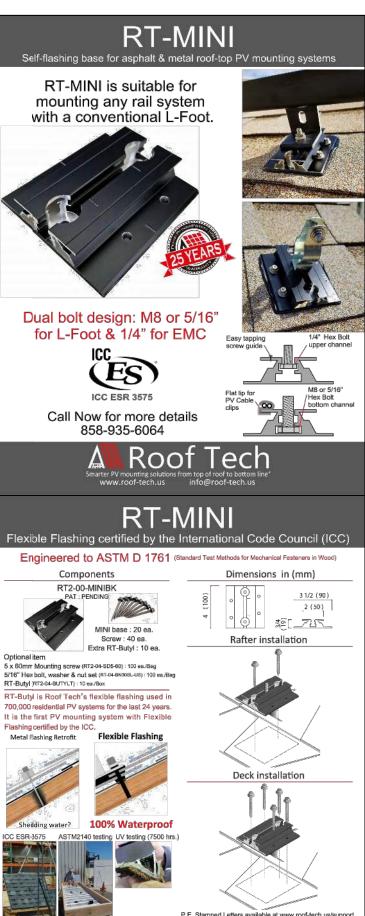
24 INVERTERS: ENPHASE IQ7-60-2-US



COVER PAGE

PV-1







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PROFESSIONAL ENGINEERING

No PE86753

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MOMENTUM SOLAR

5728 MAJOR BLVD. SUITE 307, ORLANDO FL. 32819

CUSTOMER INFORMATION

DIMAS ROMANA - MS91663 1158 SW JAMESTOWN GLEN LAKE CITY, FL 32025 3863448361

PV SYSTEM INFORMATION

SYSTEM SIZE (DC): 8.64 KW 24 MODULES: HANWHA Q.PEAK DUO BLK-G10+ 360

24 INVERTERS: ENPHASE IQ7-60-2-US



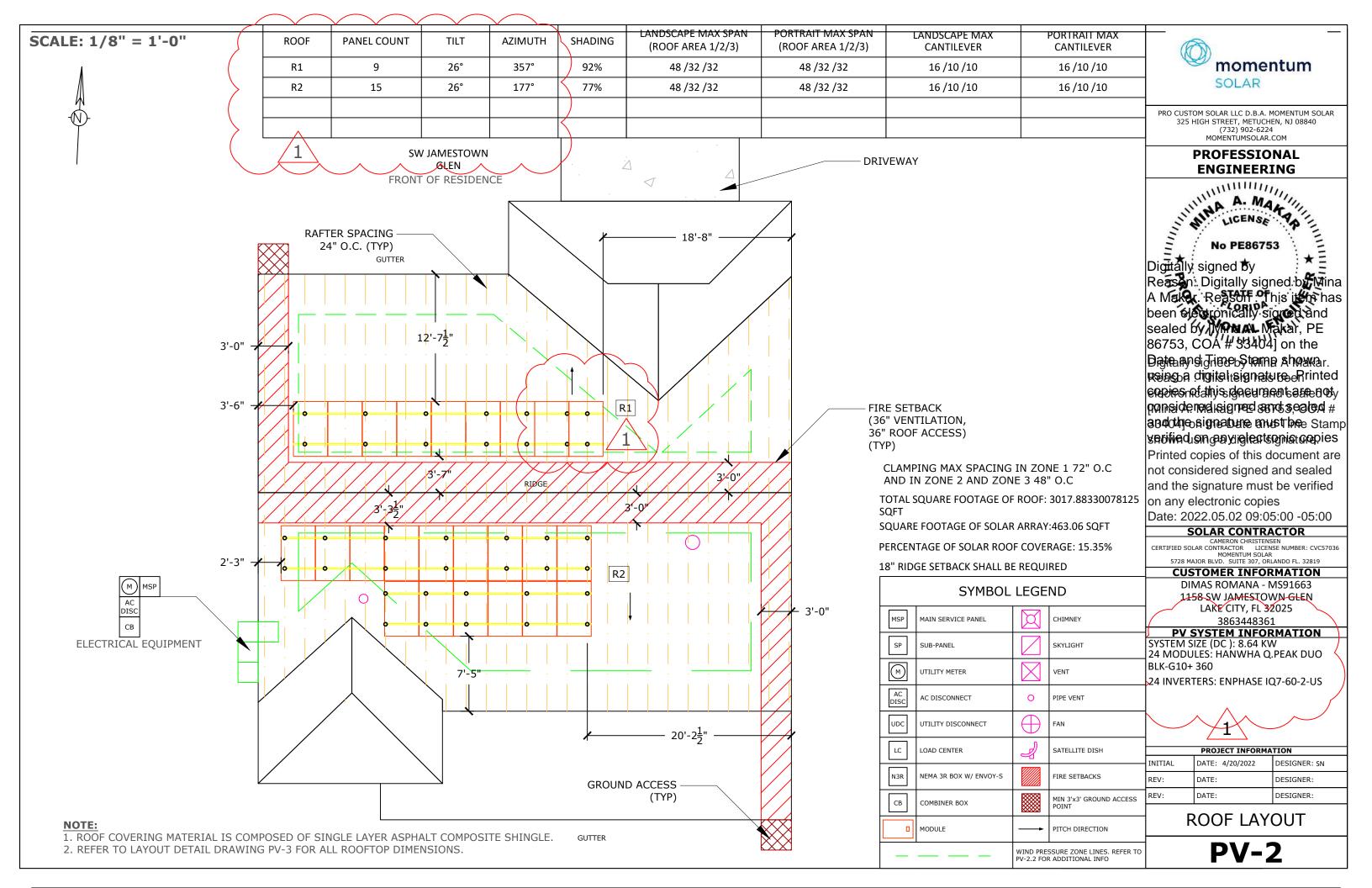
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REV:	DATE:	DESIGNER:				

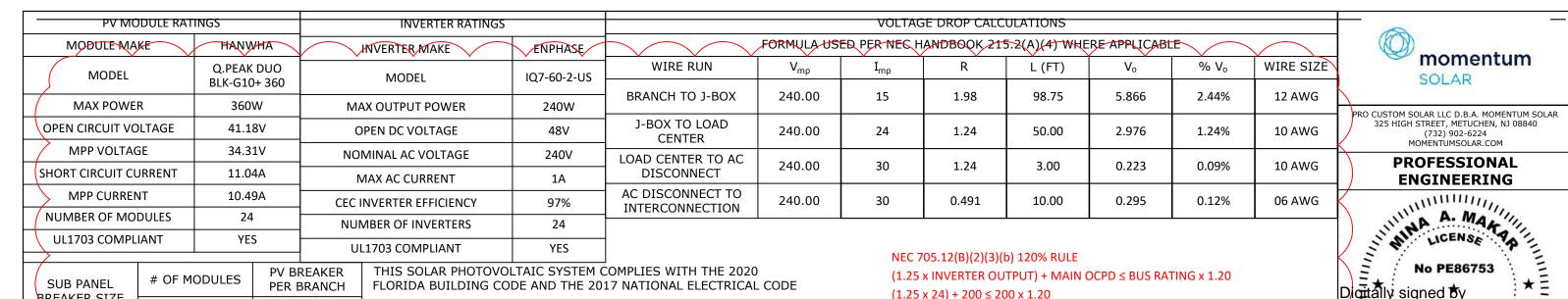
ATTACHMENT DETAIL

PV-1.1

ATTACHMENT DETAIL FOR SHINGLE ROOF

Roof Tech Inc. www.roof-tech.us info@roof-tech.us 10620 Treena Street, Suite 230, San Diego, CA 92131 858.935.6064





PV BREAKER # OF MODULES PER BRANCH

UP TO 16

SUB PANEL

BREAKER SIZE

BRANCH CIRCUIT A

BRANCH CIRCUIT B

9 MICRO-INVERTERS

15 MICRO-INVERTERS

THIS SOLAR PHOTOVOLTAIC SYSTEM COMPLIES WITH THE 2020 FLORIDA BUILDING CODE AND THE 2017 NATIONAL ELECTRICAL CODE

24 HANWHA Q.PEAK DUO BLK-G10+ 360 360W MODULES PAIRED WITH

24 ENPHASE IQ7-60-2-US MICRO-INVERTERS

NEC 705.12(B)(2)(3)(b) 120% RULE (1.25 x INVERTER OUTPUT) + MAIN OCPD ≤ BUS RATING x 1.20

 $(1.25 \times 24) + 200 \le 200 \times 1.20$

FSEC CERTIFICATION STATEMENT:

A Maker Reason Phis item has been electronically signed and sealed by MANAL Makar, PE PER FL. STATUE 377.705, I, MINA A. MAKAR PE# 86753, CERTIFICATE OF AUTHORIZATION #33404, AN ENGINEER LICENSED PURSUANT TO CHAPTER 471, CERTIFY THAT THE PV ELECTRICAL SYSTEM AND ELECTRICAL COMPONENTS ARE DESIGNED AND APPROVED USING THE STANDARDS CONTAINED 86753, COA # \$3404] on the Determidies Stame shawar IN THE MOST RECENT VERSION OF THE FLORIDA BUILDING CODE. FBC 2020 pesias⊳a digitaltsignatureeRrinted

EXISTING SIEMENS 200A MAIN SERVICE PANEL 240 V MAIN BREAKER: 200A **ENPHASE 80A AC COMBINER** SOLAR CIRCUIT DISCONNECTING MEANS BOX 200A **GRID** EATON 60A FUSIBLE AC DISCONNECT 8 30A 30A **ROOF** 10A/15A BREAKER POWER UTILITY (MANUFACTURER **JUNCTION 30A FUSES** GROUND **METER** SUPPLIED FOR BOX 2A-B TERMINATION CAP ENVOY) INSTALLED ON 20A BREAKER (A)

20A BREAKER (B)

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	15	1	1.25	18.75	12 AWG	Trunk Cable
2A	- 3/4" PVC	4	10 AWG	THWN-2	75°C	35	0.96	0.8	26.88	9	1	1.25	11.25	08 010	TIIVA/NI 2
2B	3/4 PVC	4	10 AWG	THWN-2	75°C	35	0.96	0.8	26.88	15	1	1.25	18.75	08 AWG	THWN-2
3	3/4" PVC	3 + G	10 AWG	THWN-2	75°C	35	0.96	1	33.60	24	1	1.25	30.00	08 AWG	THWN-2

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

END OF CABLE



momentum

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CERTIFIED SOLAR CONTRACTOR LICENSE NUMBER: CVC57036 MOMENTUM SOLAR 5728 MAJOR BLVD. SUITE 307, ORLANDO FL. 32819

CUSTOMER INFORMATION

DIMAS ROMANA - MS91663 1158 SW JAMESTOWN GLEN LAKE CITY, FL 32025 3863448361

PV SYSTEM INFORMATION

SYSTEM SIZE (DC): 8.64 KW 24 MODULES: HANWHA Q.PEAK DUO BLK-G10+ 360

24 INVERTERS: ENPHASE IQ7-60-2-US

PROJECT INFORMATION NITIAL DATE: 4/20/2022 DESIGNER: SN DATE: DESIGNER: DATE:

THREE LINE DIAGRAM

PV-3

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 COEFFICIENTS.
- 2. THE ENTIRE ARRAY IS BONDED ACCORDING TO (NEC 690.46 250.120 PARAGRAPH C). THE GROUND IS CARRIED AWAY FROM THE GROUNDING LUG USING #6 BARE COPPER WIRE OR #8 THWN-2 COPPER WIRE.
- 3. THIS SYSTEM COMPLIES WITH NEC 2017
- BRANCH CIRCUIT CALCULATION FOR WIRE TAG 1 DISPLAYS THE LARGEST BRANCH CIRCUIT IN SYSTEM. OTHER BRANCH CIRCUITS SHALL HAVE LOWER DESIGN CURRENT THAN THE ONE SHOWN. IN ADDITION, VOLTAGE DROP CALCULATIONS FROM PANELS TO THE COMBINER BOX SHALL BE SHOWN IN A SIMILAR FASHION
- 5. ALL CONDUCTORS ARE SIZED BASED ON NEC 2017 ARTICLE 310
- 6. ALL EQUIPMENT INSTALLED IS RATED AT 75°C
- INVERTER NOC (NOMINAL OPEN CURRENT) OBTAINED FROM **EQUIPMENT DATASHEET**
- 8. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL LOCAL AND NATIONAL CODE REQUIREMENTS.
- 9. EACH MODULE MUST BE GROUNDED ACCORDING TO USER **INSTRUCTIONS**
- 10. ALL EQUIPMENT SHALL BE LISTED PER NEC 690.4(B)
- 11. PER NEC 690.13. 690.15. PROVIDE A WARNING SIGN AT ALL LOCATIONS WHERE TERMINALS OF THE DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION> SIGN SHALL READ *WARNING -ELECTRIC SHOCK HAZARD - DO NOT TOUCH TERMINALS - OR EQUIVALENT.
- 12. PER NEC 705.10, PROVIDE A PERMANENT PLAQUE OR DIRECTORY SHOWING ALL ELECTRIC POWER SOURCES ON THE PREMISES AT SERVICE ENTRANCE.
- 13. INTERCONNECTION METHOD SHALL COMPLY WITH NEC 705.12
- 14. AND OPTION FOR A SINGLE CIRCUIT BRANCH TO BE SPLIT INTO TWO SUB-CIRCUIT BRANCHES IS ACCEPTABLE
- 15. ALL CONDUCTORS MUST BE COPPER.
- 16. NEUTRAL AND EQUIPMENT GROUNDING CONDUCTOR BONDED AS PER NEC 250.24(C).
- 17. EQUIPMENT GROUNDING CONDUCTOR IS CONNECTED TO A GROUNDING ELECTRODE SYSTEM PER 250.54(D).
- 18. FUSES FOR PV DISCONNECT HAVE AIC RATINGS OF 200KA AC AND 20KA DC.
- 19. SUPPLY SIDE CONNECTION SHALL BE MADE USING ILSCO INSULATION PIERCING CONNECTORS (IPC). MAKE, MODEL, AND RATING OF INTERCONNECTION CAN BE SEEN ON TABLE 1 BELOW.
- 20. METHOD OF INTERCONNECTION CAN BE SEEN IN FIGURE 1.
- 21. UTILITY HAS 24-HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC SYSTEM COMPONENTS LOCATED AT THE SERVICE ENTRANCE.

- WORKING CLEARANCES AROUND THE EXISTING AND NEW ELECTRICAL EQUIPMENT WILL BE MAINTAINED IN ACCORDANCE WITH NEC ARTICLE 110.26
- CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER NEC ARTICLE 300.6 (C)(1) AND ARTICLE 310.8 (D).
- 24. CONDUCTORS EXPOSED TO WET LOCATIONS SHALL BE SUITABLE FOR USE IN WET LOCATIONS PER NEC ARTICLE 310.10 (C).
- 25. TOTAL AREA OF ALL CONDUCTORS, SPLICES, AND TAPS INSTALLED AT ANY CROSS SECTION OF THE WIRING DOES NOT EXCEED 75% OF THE CROSS SECTIONAL AREA OF THE SPACE. NEC 312.8(A)(2).
- 26. SYSTEM IS CONSIDERED AN AC MODULE SYSTEM. NO DC CONDUCTORS ARE PRESENT IN CONDUIT, COMBINER, JUNCTION BOX, DISCONNECT. AND COMPLIES WITH 690.6 - NO DC DISCONNECT AND ASSOCIATED DC LABELING ARE REQUIRED.
- 27. SYSTEM COMPLIES WITH 690.12 RAPID SHUTDOWN AND ASSOCIATED LABELING AS PER 690.56(C). AC VOLTAGE AND SYSTEM OPERATING CURRENT SHALL BE PROVIDED 690.52.
- 28. CONDUCTORS IN CONDUIT ARE AC CONDUCTORS BRANCH CIRCUITS AND NOT PV SOURCE CIRCUITS, 690.6.
- 29. ALL GROUNDING SHALL COMPLY WITH 690.47(A) IN THAT THE AC MODULES WILL COMPLY WITH 250.64.
- 30. NO TERMINALS SHALL BE ENERGIZED IN THE OPEN POSITION IN THIS AC MODULE SYSTEM 690.13, 690.15, 690.6.
- 31. WHERE APPLICABLE: INTERCONNECTION SHALL COMPLY WITH 705.12(A) OR 705.12(B)
- 32. ALL WARNING SIGN(S) OR LABEL(S) SHALL COMPLY WITH 2017 NEC ARTICLE 110.21(B). LABEL WARNINGS SHALL ADEQUATELY WARN OF THE HAZARD. LABELS SHALL BE PERMANENTLY AFFIXED TO THE EQUIPMENT, AND LABELS REQUIRED SHALL BE SUITABLE FOR THE ENVIRONMENT.
- PV POWER CIRCUIT LABELS SHALL APPEAR ON EVERY SECTION OF THE WIRING SYSTEM THAT IS SEPARATED BY ENCLOSURES. WALLS, PARTITIONS, CEILINGS, OR FLOORS.

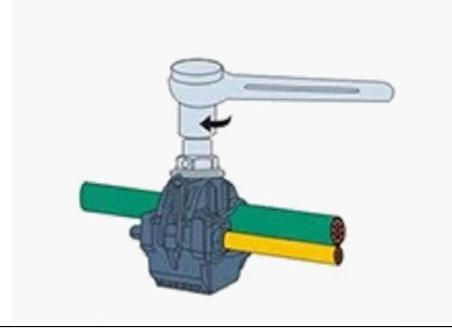
TABLE 1:

MAKE	MODEL	VOLTAGE RATING	CONDUCTOR RANGE MAIN	CONDUCTOR RANGE TAP
ILSCO	IPC 4006	600 V	4/0-4 AWG	6-14 AWG
ILSCO	IPC 4020	600 V	4/0-2 AWG	2/0-6 AWG

INSTRUCTIONS FOR LINE TAPS

FIGURE 1:

- 1. ADJUST THE CONNECTOR NUT TO SUITABLE LOCATION
- PUT THE BRANCH WIRE INTO THE CAP SHEATH FULLY
- INSERT THE MAIN WIRE, IF THERE ARE TWO LAYS OF INSULATED LAY IN THE MAIN CABLE, SHOULD STRIP A CERTAIN LENGTH OF THE FIRST INSULATED LAY FROM INSERTED END
- TURN THE NUT BY HAND, AND FIX THE CONNECTOR IN SUITABLE LOCATION.
- SCREW THE NUT WITH THE SLEEVE SPANNER.
- SCREW THE NUT CONTINUALLY UNTIL THE TOP PART IS CRACKED AND DROPPED DOWN





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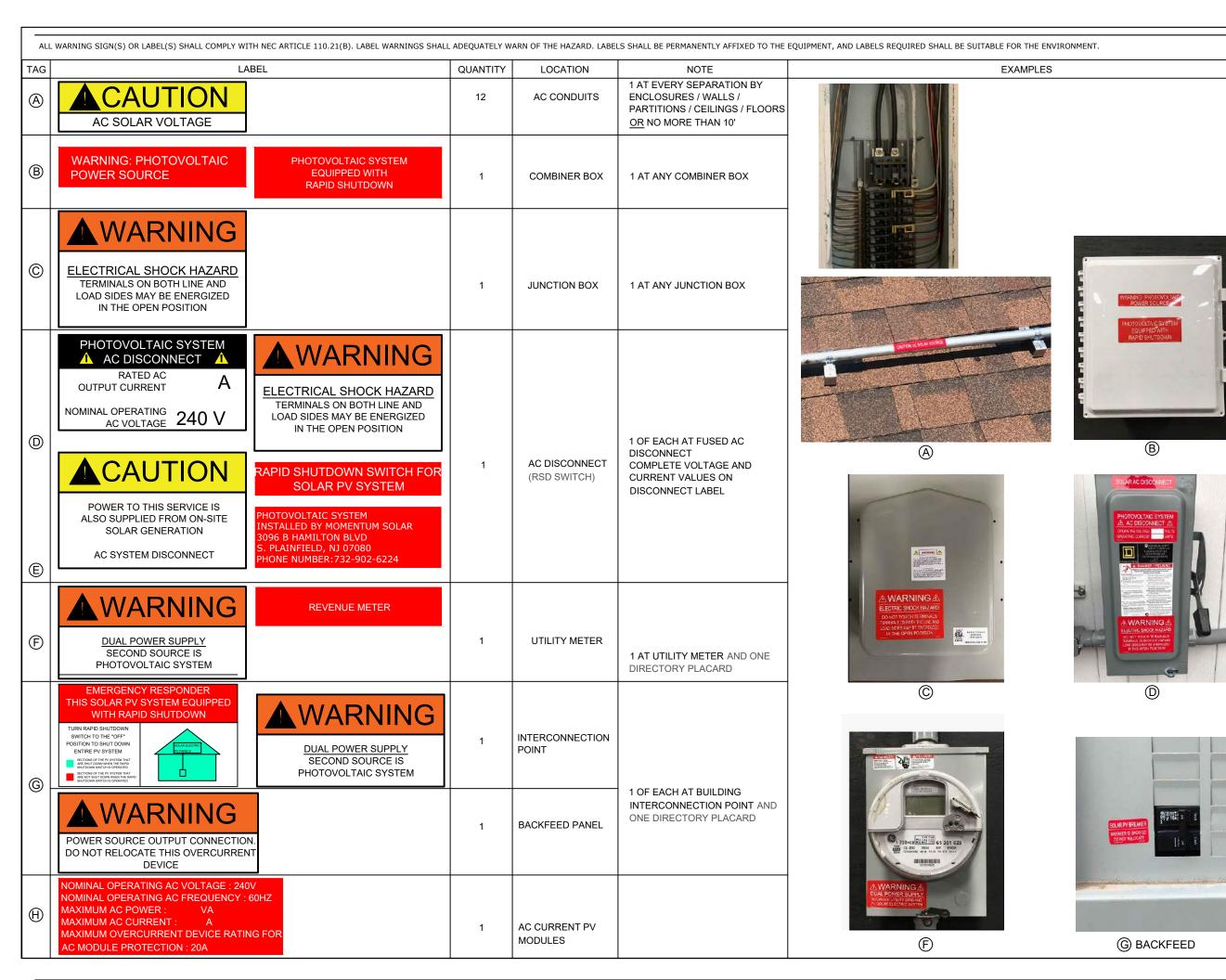
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ELECTRICAL CONT.

PV-3.1





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EV:	DATE:	DESIGNER:					
EV:	DATE:	DESIGNER:					

EQUIPMENT LABELS

PV-3.2