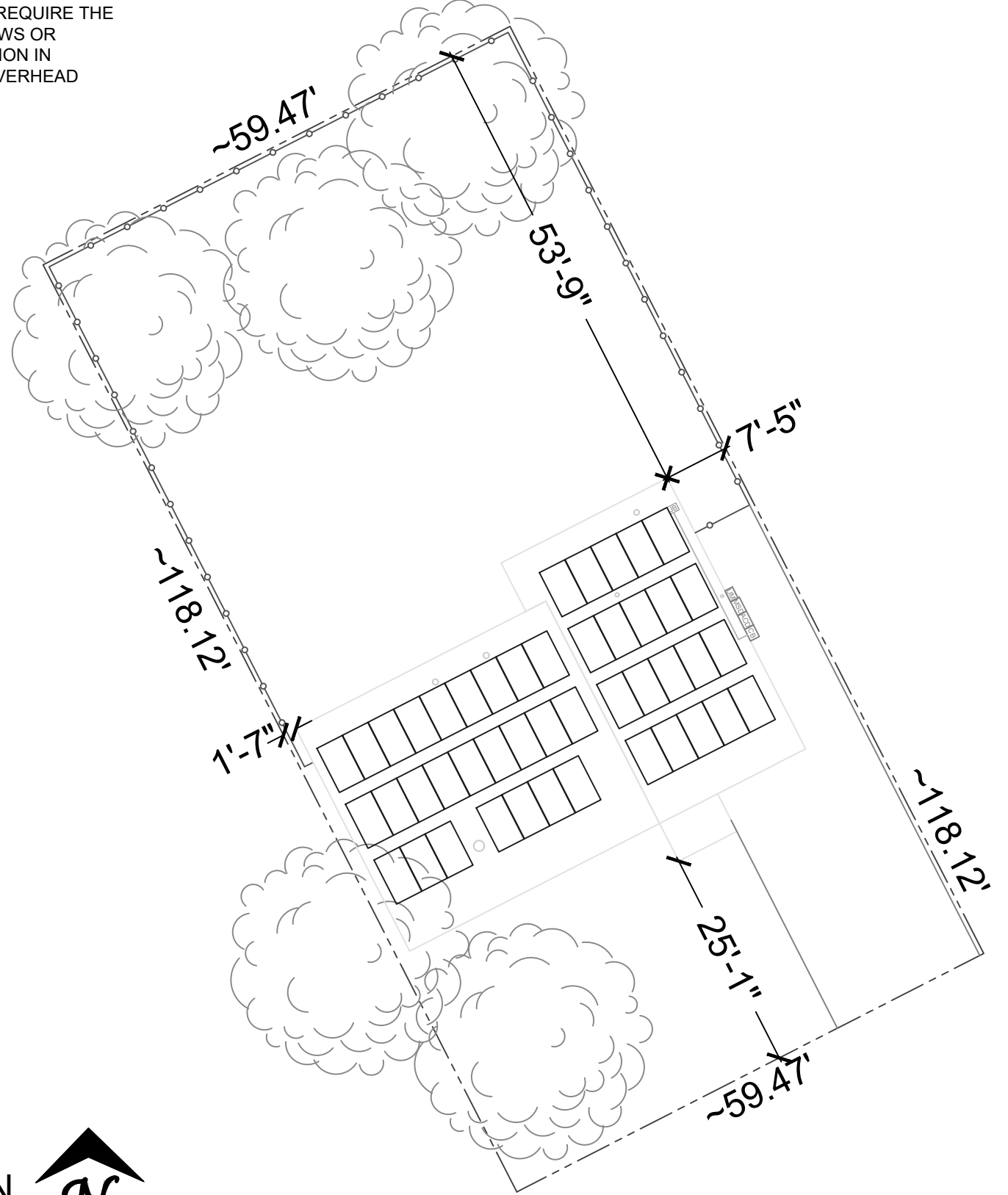


● **ROOF ACCESS POINT** SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION IN LOCATIONS WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRES OR SIGNS.



1

SITE PLAN WITH ROOF PLAN

SCALE: #####



NOTE:
 • ALL ELECTRICAL EQUIPMENT, COMBINER, DISCONNECTS, MAIN SERVICE PANELS, ETC. SHALL NOT BE INSTALLED WITHIN 3' OF THE GAS METERS' SUPPLY OR DEMAND PIPING.

Stamps	LOGO	VERSION			Customer Name Street address, City, State, Zip USA APN# xxxxxxxx UTILITY: XXXXXXXXXXXXX AHJ: XXXXXXXXXXXXX	SHEET NAME	SHEET SIZE	SHEET NUMBER
		DESCRIPTION	DATE	REV		SHEET'S NAME	ANSI B 11" X 17"	PV-1
		INITIAL RELEASE	MM/DD/YYYY	UR				

MODULE TYPE, DIMENSIONS & WEIGHT

NUMBER OF MODULES = 45 MODULES
 MODULE TYPE = HANWHA SOLAR Q.PEAK DUO-G6+ (350W) MODULES
 MODULE WEIGHT = 43.9 LBS / 20.0 KG.
 MODULE DIMENSIONS = 68.5"X 40.6" = 19.31 SF
 UNIT WEIGHT OF ARRAY = 2.27 PSF

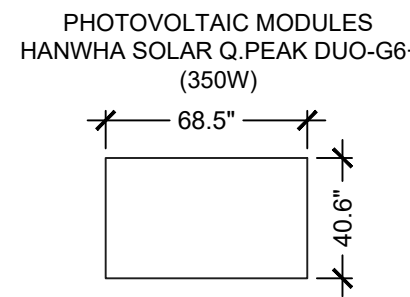
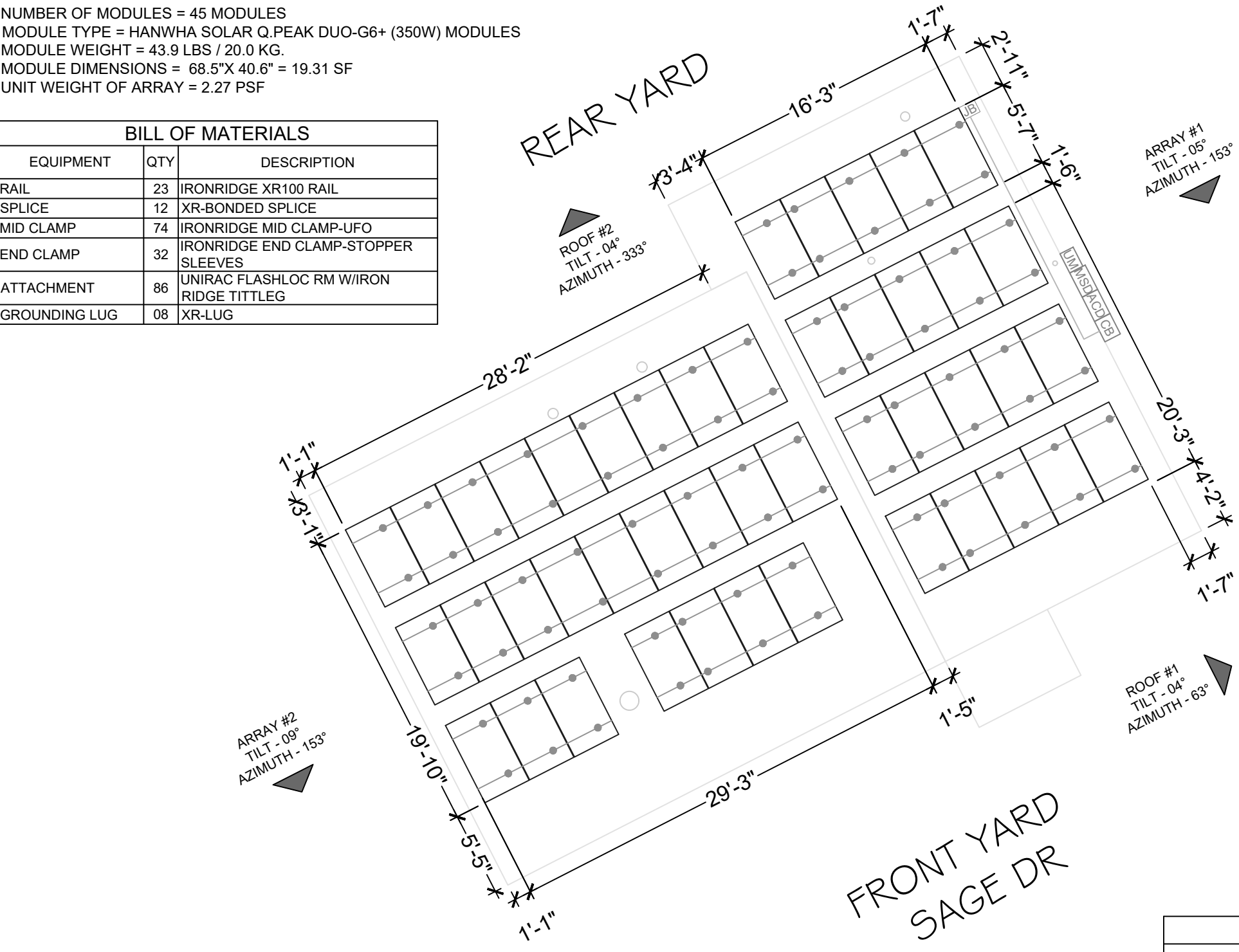
• PLUMBING VENTS, SKYLIGHTS AND MECHANICAL VENTS SHALL NOT BE COVERED, MOVED, RE-ROUTED OR RE-LOCATED.

NOTE: ACTUAL ROOF CONDITIONS AND RAFTER (OR SEAM) LOCATIONS MAY VARY. INSTALL PER MANUFACTURER(S) INSTALLATION GUIDELINES AND ENGINEERED SPANS FOR ATTACHMENTS

ARRAY AREA & ROOF AREA CALC'S				
ROOF	# OF MODULES	ARRAY AREA (Sq. Ft.)	ROOF AREA (Sq. Ft.)	ROOF AREA COVERED BY ARRAY (%)
#1	20	386.26	551.85	69.99
#2	25	482.83	660.45	73.11

NOTE FOR RF#1 -
 THE MODULES ARE TILTED TO 5° @ 18" INTER-ROW SPACING WITH REFERENCE TO ROOF & HORIZON
NOTE FOR RF#2 -
 THE MODULES ARE TILTED TO 09° @ 18" INTER-ROW SPACING WITH REFERENCE TO ROOF ATTAINING 5° TILT WITH REFERENCE TO HORIZON

BILL OF MATERIALS		
EQUIPMENT	QTY	DESCRIPTION
RAIL	23	IRONRIDGE XR100 RAIL
SPLICE	12	XR-BONDED SPLICE
MID CLAMP	74	IRONRIDGE MID CLAMP-UFO
END CLAMP	32	IRONRIDGE END CLAMP-STOPPER SLEEVES
ATTACHMENT	86	UNIRAC FLASHLOC RM W/IRON RIDGE TITTLLEG
GROUNDING LUG	08	XR-LUG



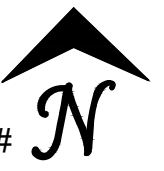
LEGEND

- UM - UTILITY METER
- MSP - MAIN SERVICE PANEL
- ACD - AC DISCONNECT
- INV - INVERTER
- JB - JUNCTION BOX
- CHIMNEY - CHIMNEY
- VENT, ATTIC FAN (ROOF OBSTRUCTION)
- ROOF ATTACHMENT
- RAFTER
- CONDUIT
- FIRE PATHWAY

ROOF DESCRIPTION							
ROOF	ROOF TYPE			ROLLED COMP. ROOF		ARRAY DESCRIPTION	
	ROOF SLOPE	RACKING TILT TO ROOF	ROOF AZIMUTH	RAFTER SIZE	RAFTER SPACING	ARRAY TILT TO HORIZON	ARRAY AZIMUTH
#1	04°	05°	63°	2"x8"	16" O.C.	05°	153°
#2	04°	09°	333°	2"x8"	16" O.C.	05°	153°

1 ROOF PLAN WITH MODULES

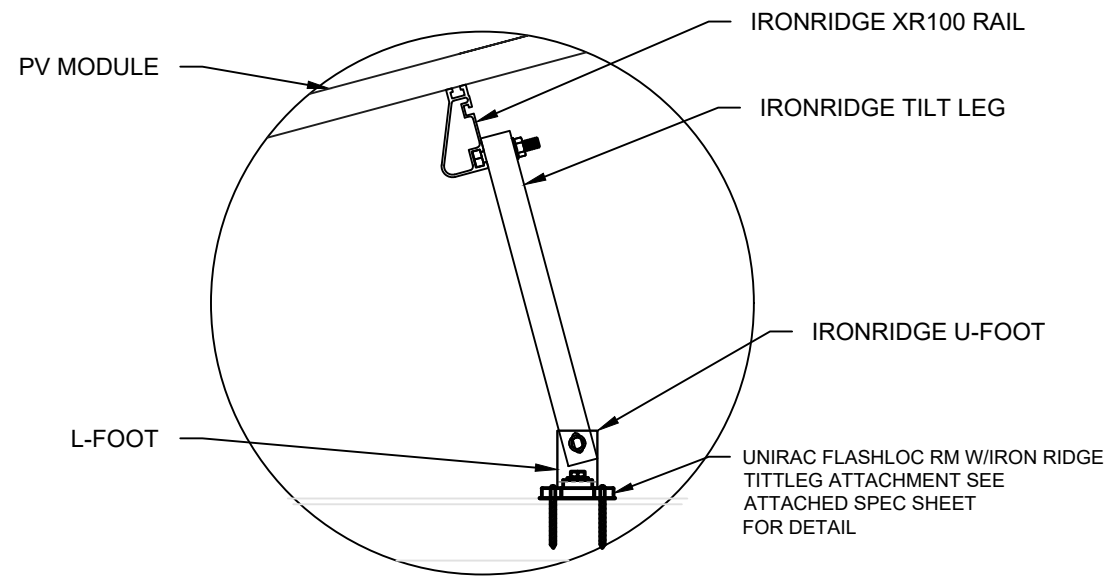
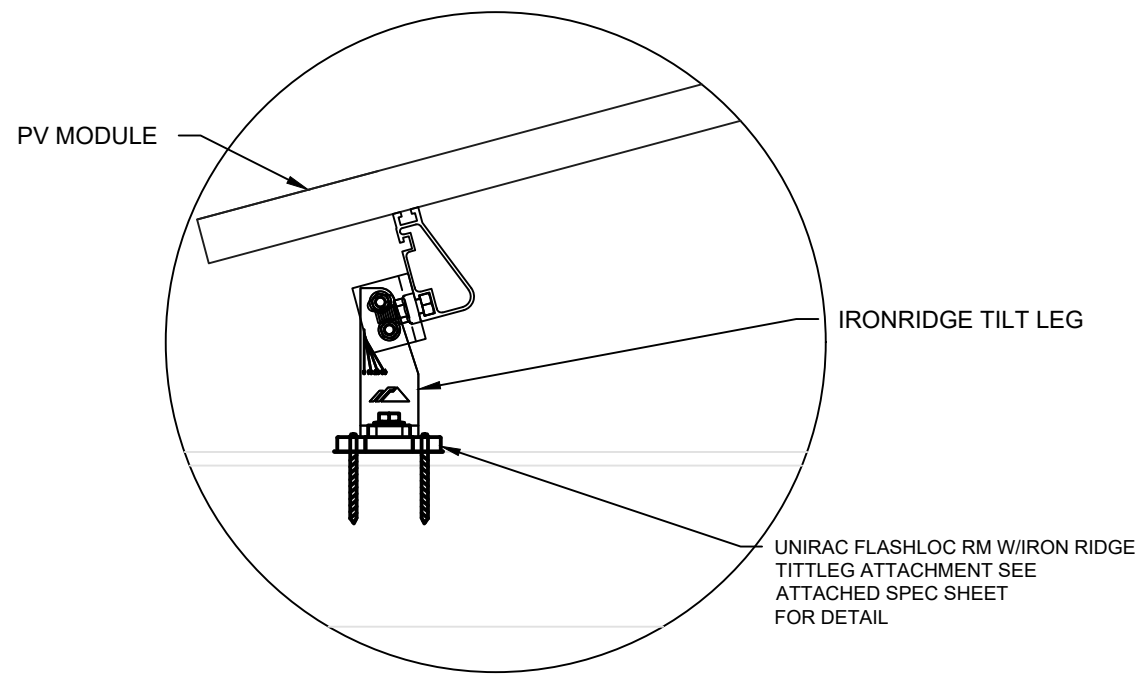
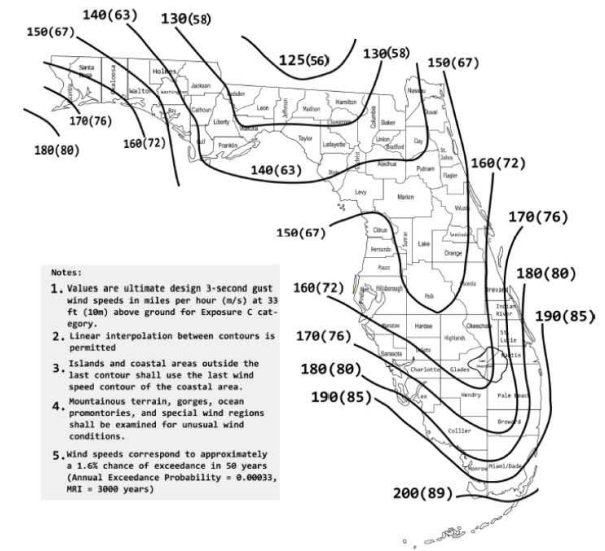
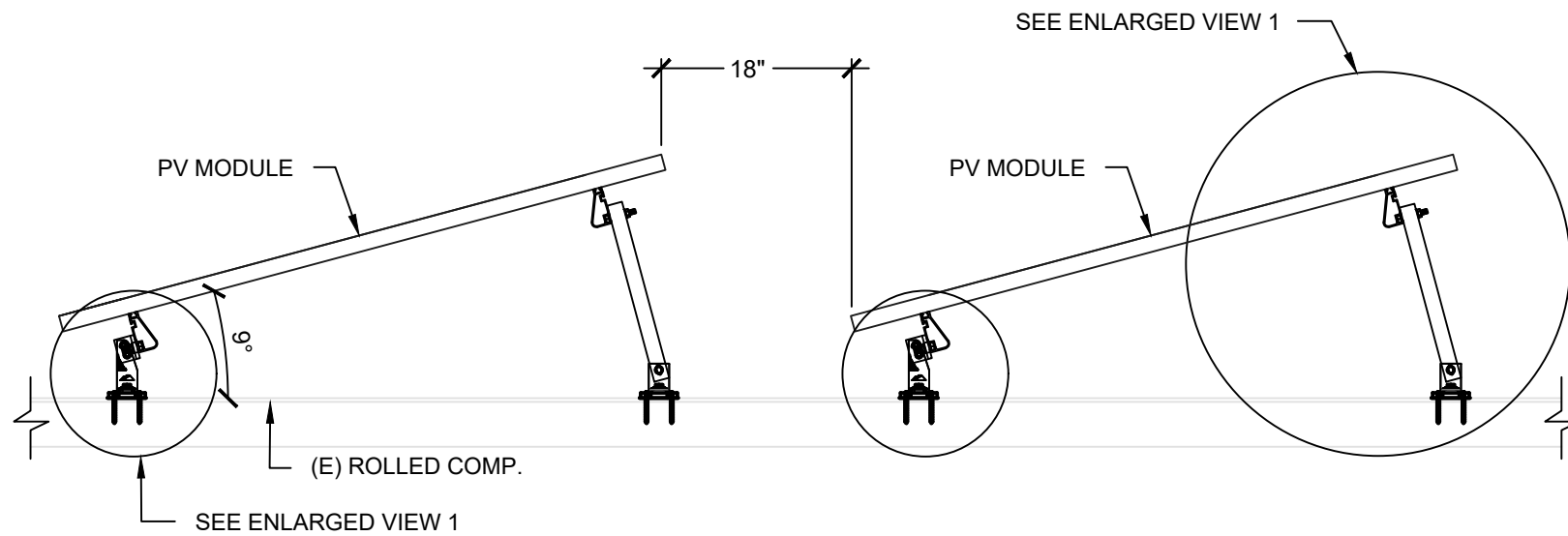
SCALE: #####



Stamps	LOGO	VERSION		
		DESCRIPTION	DATE	REV
		INITIAL RELEASE	MM/DD/YYYY	UR

Customer Name
 Street address,
 City, State, Zip USA
 APN# xxxxxxxx
 UTILITY: XXXXXXXXXXXXX
 AHJ: XXXXXXXXXXXXX

SHEET NAME	SHEET SIZE	SHEET NUMBER
SHEET'S NAME	ANSI B 11" X 17"	PV-2



1 ATTACHMENT DETAIL FOR RF#1(ENLARGED VIEW)

SCALE: NTS

Stamps

LOGO

VERSION		
DESCRIPTION	DATE	REV
INITIAL RELEASE	MM/DD/YYYY	UR

Customer Name
 Street address,
 City, State, Zip USA
 APN# xxxxxxxx
 UTILITY: XXXXXXXXXXXXX
 AHJ: XXXXXXXXXXXXX

SHEET NAME

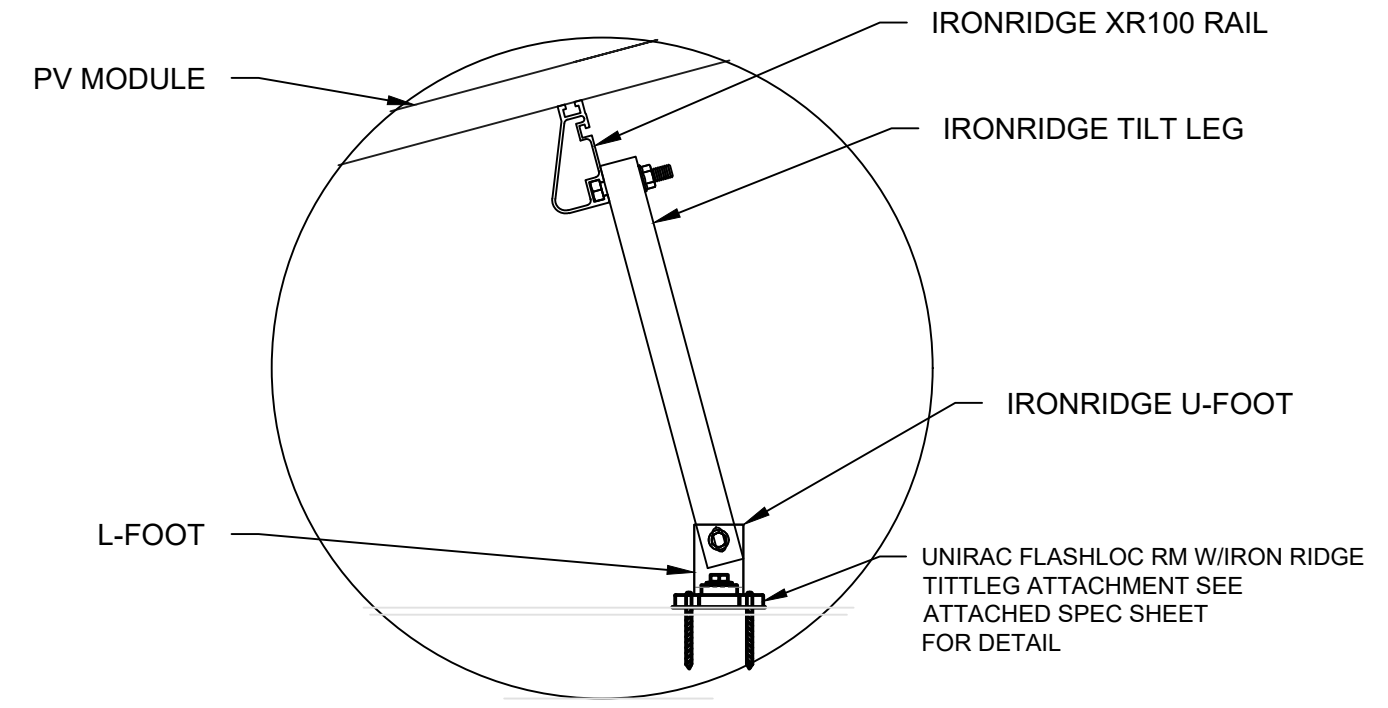
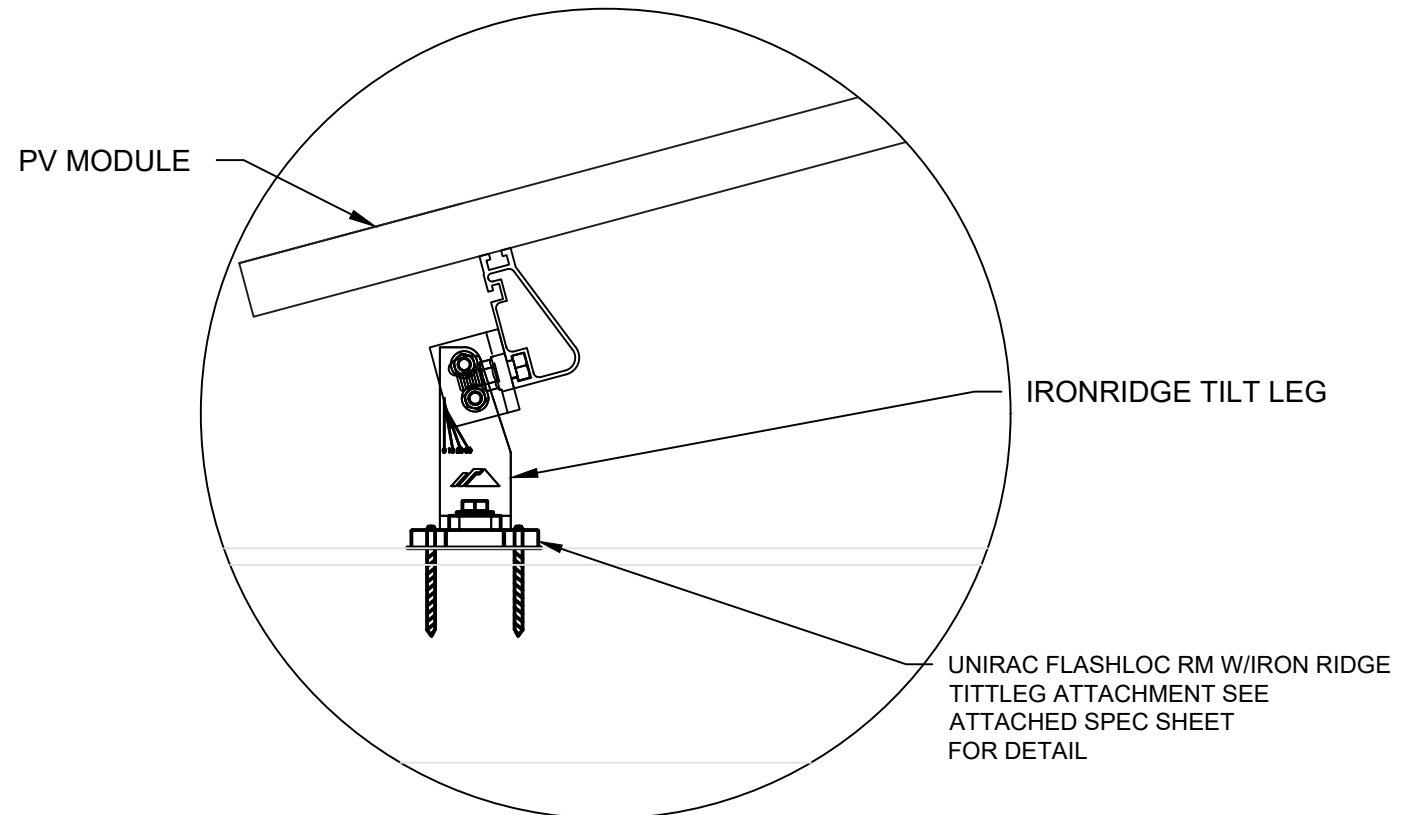
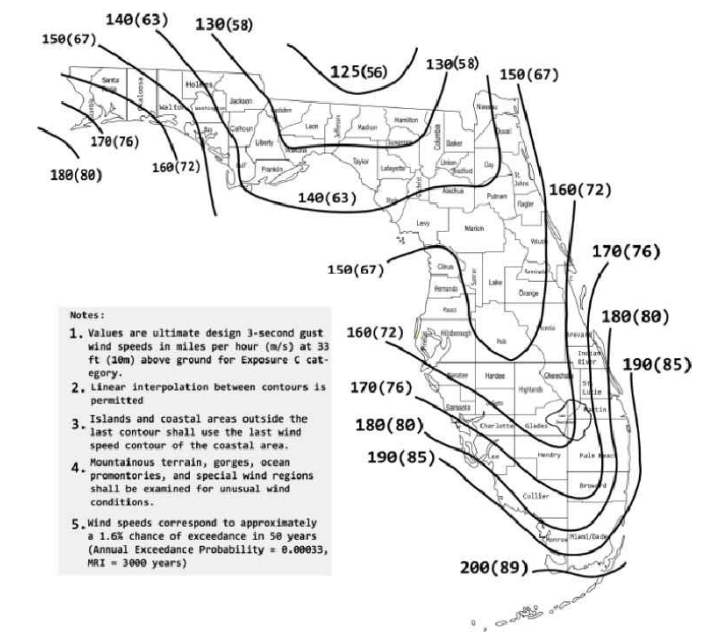
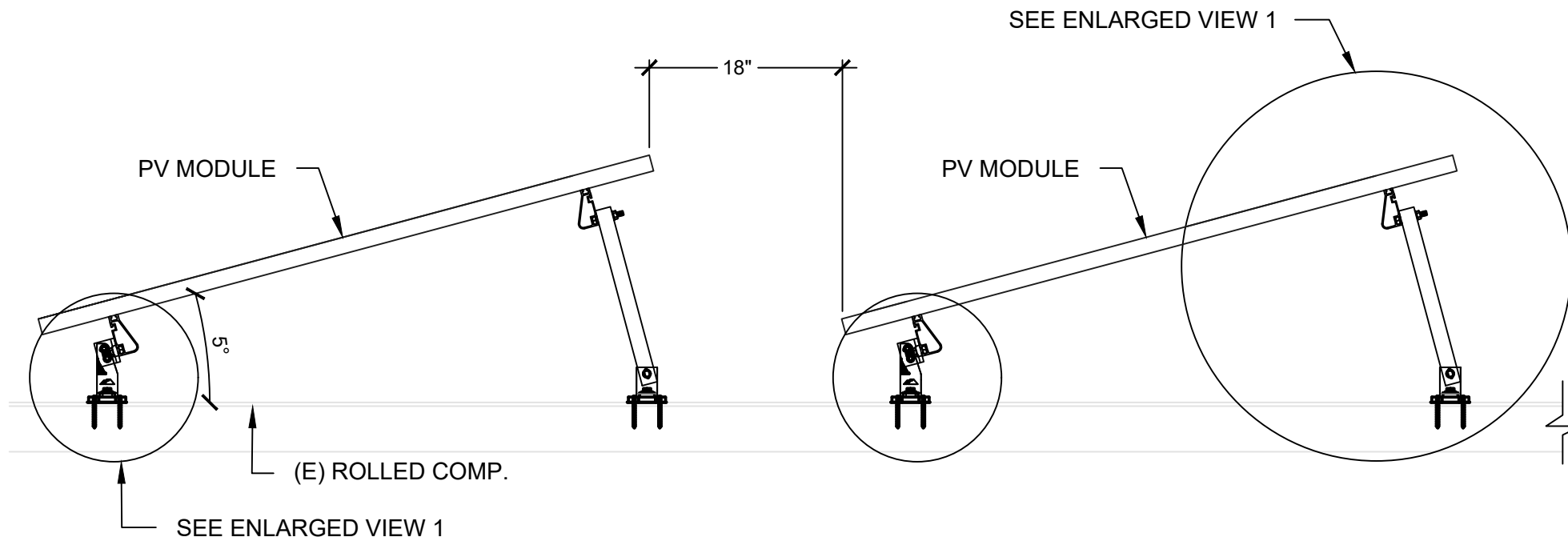
SHEET SIZE

SHEET NUMBER

SHEET'S NAME

ANSI B
 11" X 17"

PV-3



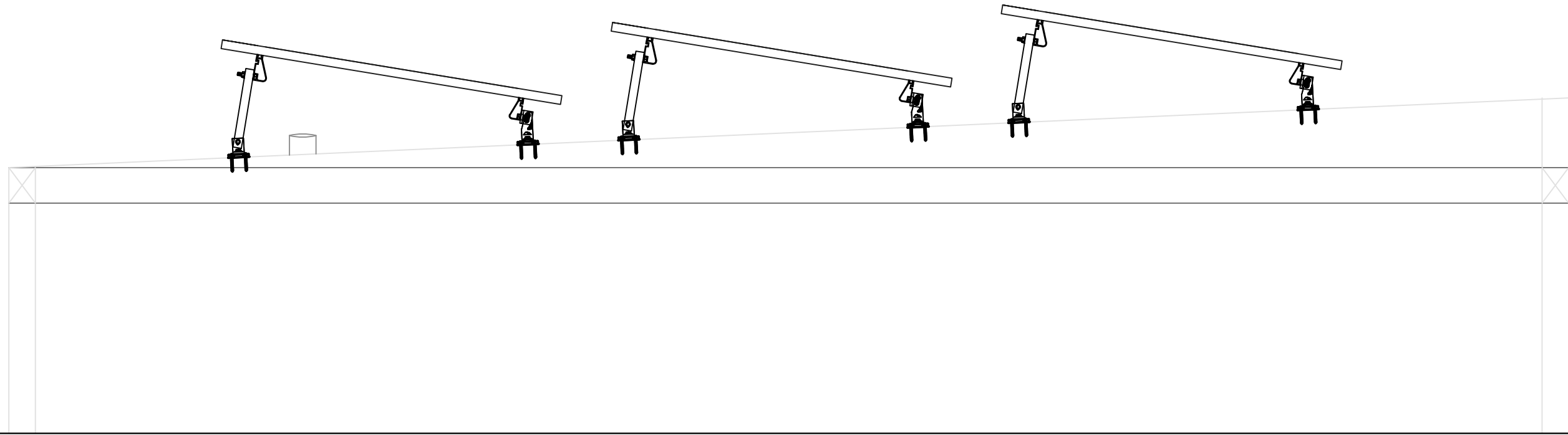
1 ATTACHMENT DETAIL FOR RF#1(ENLARGED VIEW)

SCALE: NTS

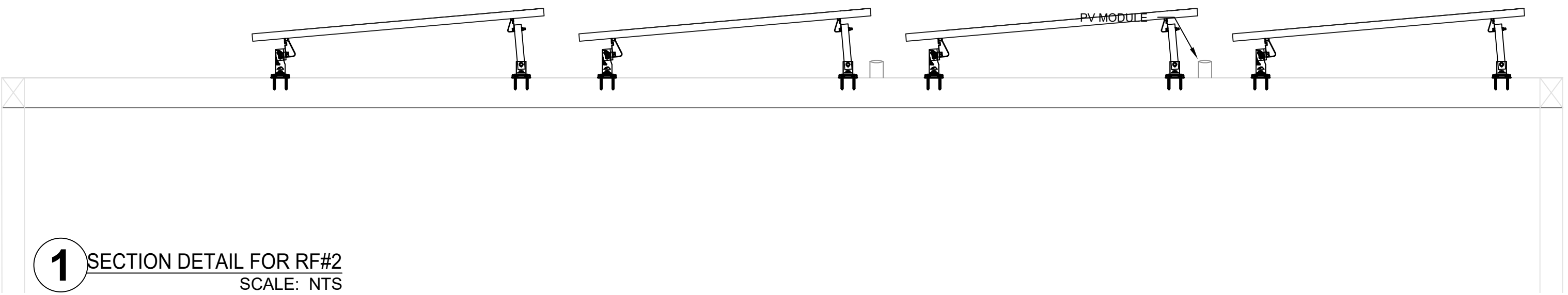
Stamps	LOGO	VERSION		
		DESCRIPTION	DATE	REV
		INITIAL RELEASE	MM/DD/YYYY	UR

Customer Name
 Street address,
 City, State, Zip USA
 APN# xxxxxxxx
 UTILITY: XXXXXXXXXXXXX
 AHJ: XXXXXXXXXXXXX

SHEET NAME	SHEET SIZE	SHEET NUMBER
SHEET'S NAME	ANSI B 11" X 17"	PV-3.1



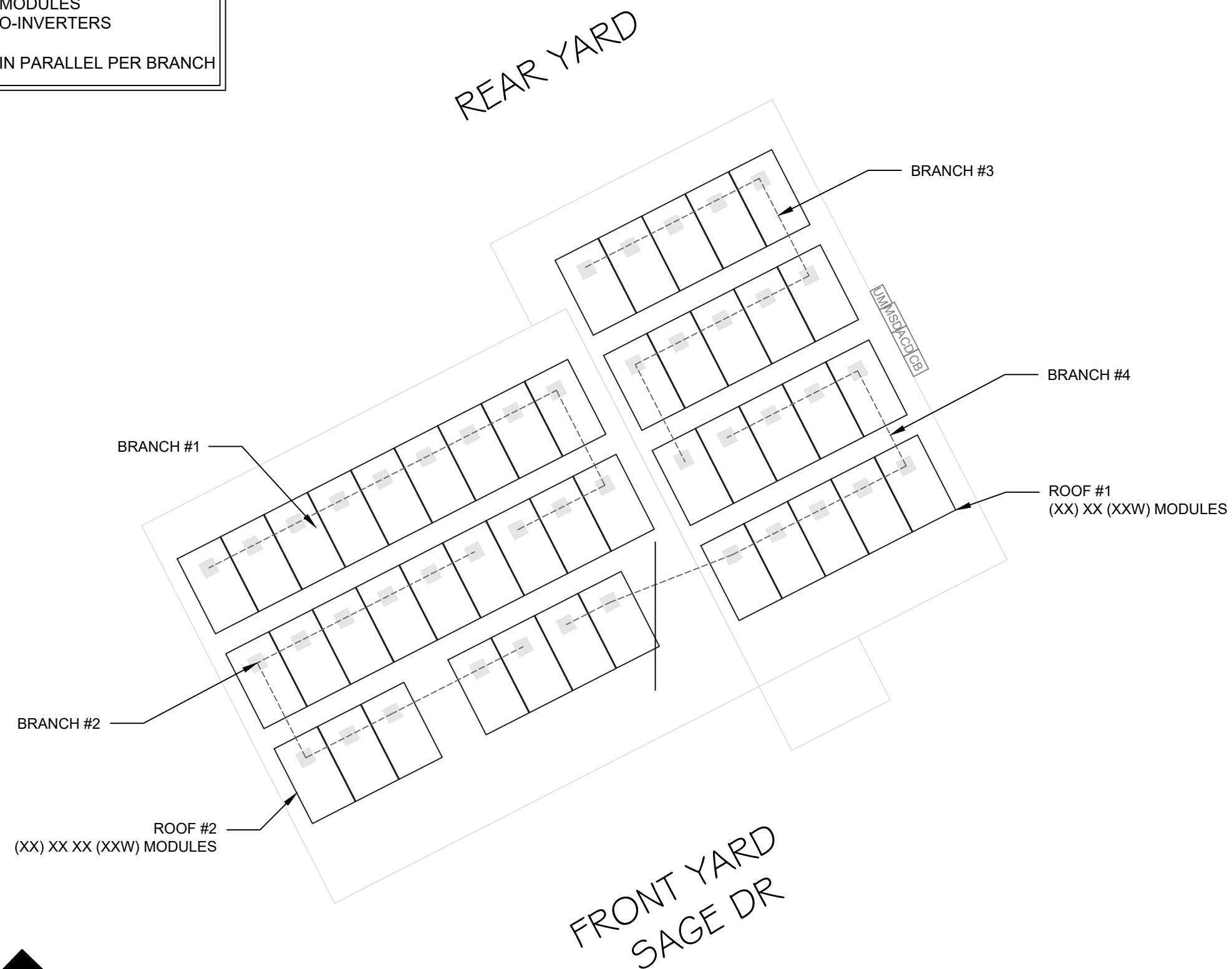
1 SECTION DETAIL FOR RF#2
SCALE: NTS



1 SECTION DETAIL FOR RF#2
SCALE: NTS

Stamps	LOGO	VERSION			Customer Name Street address, City,State,Zip USA APN# xxxxxxx UTILITY: XXXXXXXXXXXXX AHJ: XXXXXXXXXXXXX	SHEET NAME	SHEET SIZE	SHEET NUMBER
		DESCRIPTION	DATE	REV		SHEET'S NAME	ANSI B 11" X 17"	PV-3.2
		INITIAL RELEASE	MM/DD/YYYY	UR				

(XX) HANWHA SOLAR Q.PEAK DUO-G6+ (350W) MODULES
 (XX) ENPHASE ENERGY IQ8PLUS-72-2-US MICRO-INVERTERS
 (XX) BRANCH OF 12 MODULES &
 (XX) BRANCHES OF 11 MODULES CONNECTED IN PARALLEL PER BRANCH



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

VERSION		
DESCRIPTION	DATE	REV
INITIAL RELEASE	MM/DD/YYYY	UR

Stamps

LOGO

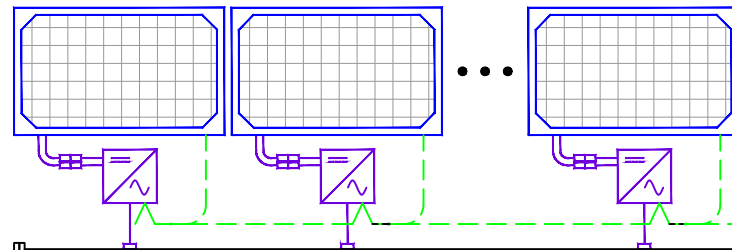
Customer Name
 Street address,
 City, State, Zip USA
 APN# xxxxxxx
 UTILITY: XXXXXXXXXXXXX
 AHJ: XXXXXXXXXXXXX

SHEET NAME
 SHEET'S NAME

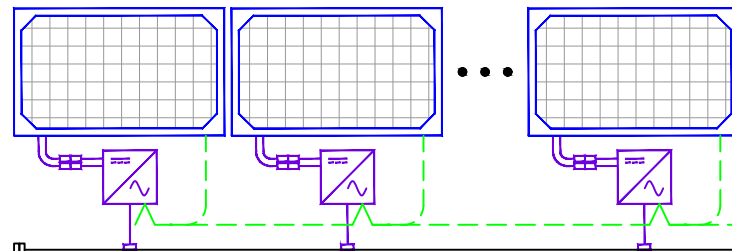
SHEET SIZE
 ANSI B
 11" X 17"

SHEET NUMBER
 PV-4

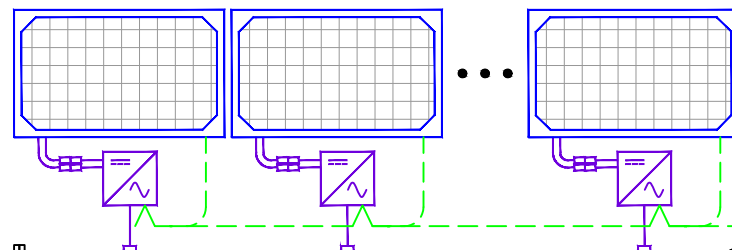
XX MICRO-INVERTERS IN BRANCH CIRCUIT #1



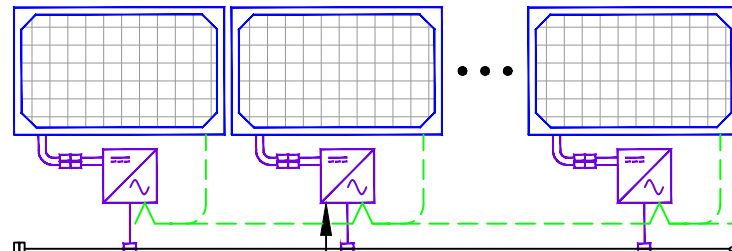
XX MICRO-INVERTERS IN BRANCH CIRCUIT #2



XX MICRO-INVERTERS IN BRANCH CIRCUIT #3



XX MICRO-INVERTERS IN BRANCH CIRCUIT #4



TERMINATOR CAP ON LAST CABLE CONNECTOR AC TRUNK CABLE (TYP)

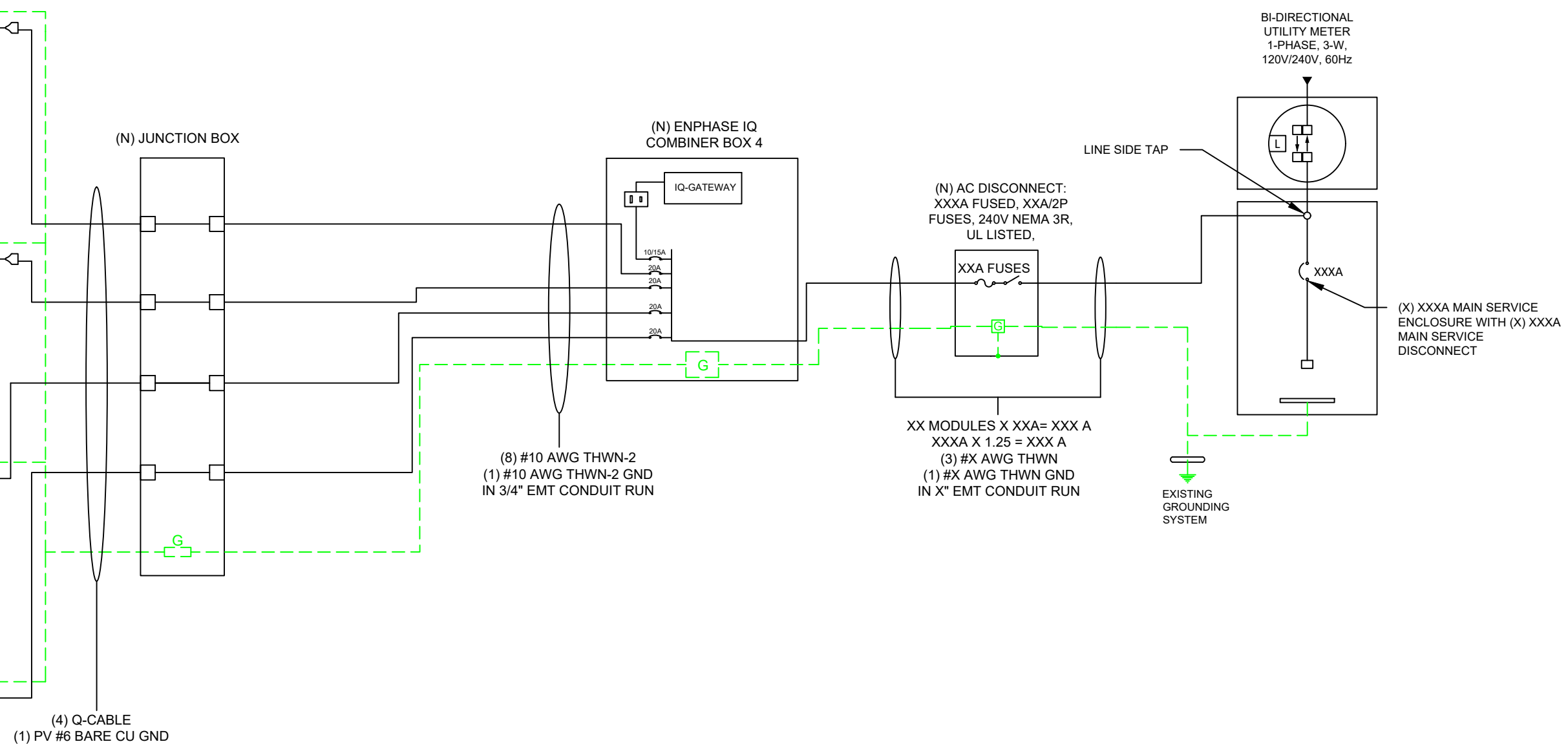
SYSTEM SIZE:- XX x XXXW = ##### kWDC
SYSTEM SIZE:- XX x XXXW = XXXX kWAC

BILL OF MATERIALS		
EQUIPMENT	QTY	DESCRIPTION
SOLAR PV MODULE	XX	HANWHA SOLAR Q.PEAK DUO-G6+ (350W) MODULES
INVERTER	XX	ENPHASE ENERGY IQ8PLUS-72-2-US MICRO-INVERTERS
JUNCTION BOX	XX	600V, 55A MAX, 4 INPUTS, MOUNTED ON ROOF FOR WIRE & CONDUIT TRANSITION
COMBINER BOX	XX	ENPHASE IQ COMBINER BOX 4
AC DISCONNECT	XX	240VAC, XXXA FUSED WITH XXXA FUSES, NEMA 3R, UL LISTED

(XX) HANWHA SOLAR Q.PEAK DUO-G6+ (350W) MODULES
(XX) ENPHASE ENERGY IQ8PLUS-72-2-US MICRO-INVERTERS
(XX) BRANCH OF 12 MODULES &
(XX) BRANCHES OF 11 MODULES CONNECTED IN PARALLEL PER BRANCH

NEW MSP INFORMATION
(N) XXXA MAIN SERVICE PANEL WITH (N) XXXA MAIN BREAKER

NEW METER SOCKET



WIRE TAG	CONDUIT	WIRE QTY	WIRE GAUGE	WIRE TYPE	TEMP. RATING	WIRE AMPACITY (A)	TEMP. DERATE	CONDUIT FILL DERATE	DERATED AMPACITY (A)	INVERTER QTY.	DESIGN CURRENT (A)	GROUND SIZE	GROUND WIRE TYPE
A	OPEN AIR	2	12 AWG	Q-CABLES	90°C	xx	0.91	N/A	#####	xx	xx	06 AWG	BARE CU GND
B	3/4" EMT	xx	10 AWG	THWN-2	90°C	xx	xx	0.8	#### #	xx	xx	10 AWG	THWN-2
C	3/4" EMT	3	10 AWG	THWN	75°C	xx	0.88	1.0	#####	xx	xx	10 AWG	THWN

SERVICE INFO.	
UTILITY PROVIDER:	DUKE ENERGY
MAIN SERVICE VOLTAGE:	240V
MAIN PANEL BRAND:	N/A
MAIN SERVICE PANEL:	(N) 225A
MAIN CIRCUIT BREAKER RATING:	(N) 200A
MAIN SERVICE LOCATION:	EAST
SERVICE FEED SOURCE:	OVERHEAD

1 ELECTRICAL LINE DIAGRAM

SCALE: NTS

Stamps	LOGO	VERSION		
		DESCRIPTION	DATE	REV
		INITIAL RELEASE	MM/DD/YYYY	UR

Customer Name
Street address,
City, State, Zip USA
APN# xxxxxxxx
UTILITY: XXXXXXXXXXXXX
AHJ: XXXXXXXXXXXXX

SHEET NAME	SHEET SIZE	SHEET NUMBER
SHEET'S NAME	ANSI B 11" X 17"	PV-5

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

LABEL LOCATION:
 AC & DC DISCONNECT AND SUB PANEL
 (PER CODE: NEC 690.13(B))

PHOTOVOLTAIC SYSTEM AC DISCONNECT
 RATED AC OPERATING CURRENT xxxx AMPS
 AC NOMINAL OPERATING VOLTAGE 240 VOLTS

LABEL LOCATION:
 AC DISCONNECT & INVERTER
 (PER CODE: NEC690.54)

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

LABEL LOCATION:
 SERVICE PANEL IF SUM OF BREAKERS EXCEEDS PANEL RATING
 (PER CODE: NEC 705.12 (B)(2)(3)(b))

WARNING:PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION:
 EMT / CONDUIT RACEWAYS
 (PER CODE: NEC 690.31(G)(3))

MAIN PHOTOVOLTAIC SYSTEM DISCONNECT

LABEL LOCATION:
 MAIN SERVICE DISCONNECT / UTILITY METER
 (PER CODE: NEC 690.13(B))

PHOTOVOLTAIC
 AC DISCONNECT

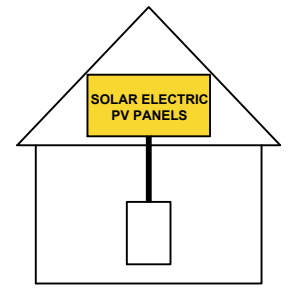
LABEL LOCATION:
 AC DISCONNECT
 NEC 690.13(B)

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL LOCATION:
 RAPID SHUTDOWN
 (PER CODE: NEC 690.56(C)(3))

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

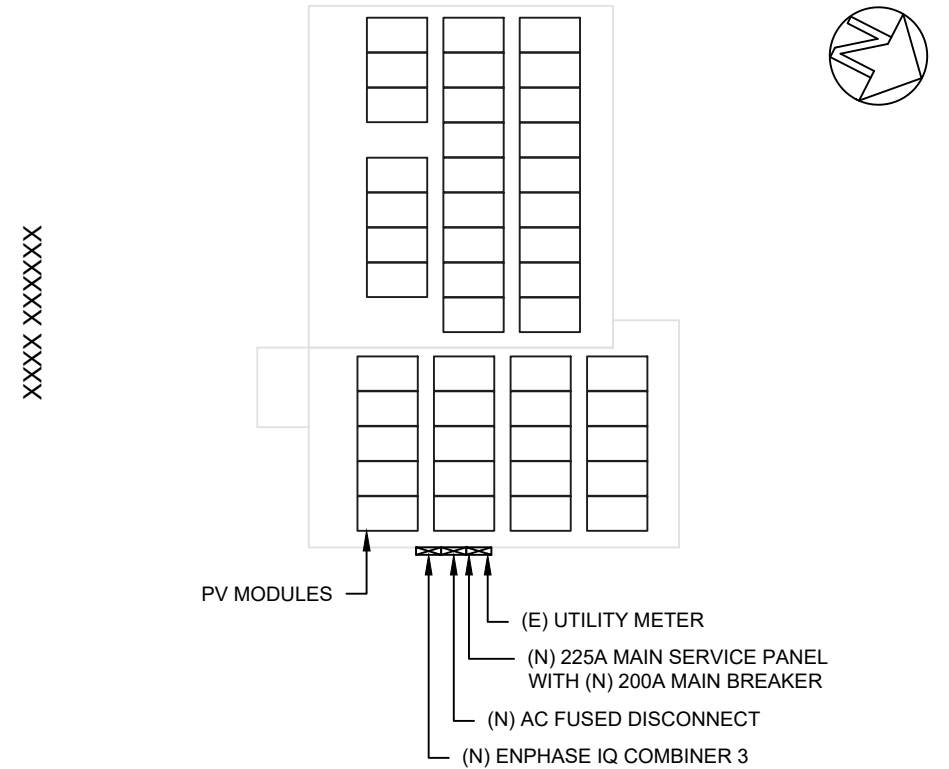
TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUTDOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN ARRAY



LABEL LOCATION:
 AC DISCONNECT, DC DISCONNECT, POINT OF INTERCONNECTION
 (PER CODE: 605.11.3.1(1) & 690.56(C)(1)(a))

CAUTION !

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN
 AT: MAIN SERVICE PANEL, UTILITY METER, AC DISCONNECT & ENPHASE IQ COMBINER 4



VERSION		
DESCRIPTION	DATE	REV
INITIAL RELEASE	MM/DD/YYYY	UR

Customer Name
 Street address,
 City, State, Zip USA
 APN# xxxxxxxx
 UTILITY: XXXXXXXXXXXXX
 AHJ: XXXXXXXXXXXXX

SHEET NAME	SHEET SIZE	SHEET NUMBER
SHEET'S NAME	ANSI B 11" X 17"	PV-6

Stamps	LOGO
--------	------

1. EACH MODULE TO BE GROUNDED USING THE SUPPLIED CONNECTION POINT PER MANUFACTURER'S REQUIREMENTS. ALL SOLAR MODULES, EQUIPMENT, AND METALLIC COMPONENTS ARE TO BE BONDED. IF THE EXISTING GROUNDING ELECTRODE SYSTEM CAN NOT BE VERIFIED OR IS ONLY METALLIC WATER PIPING, IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL A SUPPLEMENTAL GROUNDING ELECTRODE.
2. ALL PLAQUES AND SIGNAGE REQUIRED BY THE LATEST EDITION OF NATIONAL ELECTRICAL CODE. LABEL SHALL BE METALLIC OR PLASTIC, ENGRAVED OR MACHINE PRINTED IN A CONTRASTING COLOR TO THE PLAQUE. PLAQUE SHALL BE UV RESISTANT IF EXPOSED TO SUNLIGHT.
3. DC CONDUCTORS SHALL BE RUN IN EMT AND SHALL BE LABELED, "CAUTION DC CIRCUIT" OR EQUIV. EVERY 5 FT.
4. EXPOSED NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH 250.134 OR 250.136(A).
5. CONFIRM LINE SIDE VOLTAGE AT ELECTRIC UTILITY SERVICE PRIOR TO CONNECTING INVERTER. VERIFY SERVICE VOLTAGE IS WITHIN INVERTER VOLTAGE OPERATIONAL RANGE.
6. OUTDOOR EQUIPMENT SHALL BE NEMA-3R RATED OR BETTER.
7. ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT EXPANSION JOINTS AND ANCHOR CONDUIT RUNS AS REQUIRED PER NEC.
8. 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. NEC 110.2 - 110.4 / 300.4

Stamps	LOGO	VERSION			Customer Name Street address, City,State,Zip USA APN# xxxxxxxx UTILITY: XXXXXXXXXXXXX AHJ: XXXXXXXXXXXXX	SHEET NAME	SHEET SIZE	SHEET NUMBER
		DESCRIPTION	DATE	REV		SHEET'S NAME	ANSI B 11" X 17"	PV-7
		INITIAL RELEASE	MM/DD/YYYY	UR				



Q.PEAK DUO-G6+ 340-355

ENDURING HIGH PERFORMANCE



- Q.ANTUM TECHNOLOGY: LOW LEVELIZED COST OF ELECTRICITY**
Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 20.1%.
- INNOVATIVE ALL-WEATHER TECHNOLOGY**
Optimal yields, whatever the weather with excellent low-light and temperature behavior.
- ENDURING HIGH PERFORMANCE**
Long-term yield security with Anti LID and Anti PID Technology¹, Hot-Spot Protect and Traceable Quality Tra.Q™.
- EXTREME WEATHER RATING**
High-tech aluminum alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).
- A RELIABLE INVESTMENT**
Inclusive 25-year product warranty and 25-year linear performance warranty².
- STATE OF THE ART MODULE TECHNOLOGY**
Q.ANTUM DUO combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology.

¹ APT test conditions according to IEC/TS 62804-1:2015, method B (-1500V, 168h)
² See data sheet on rear for further information

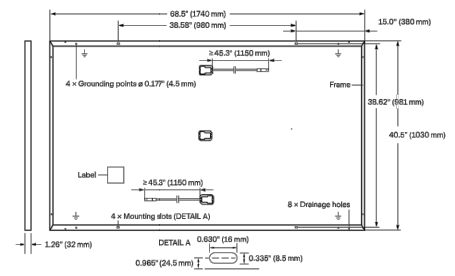
THE IDEAL SOLUTION FOR:



Engineered in Germany

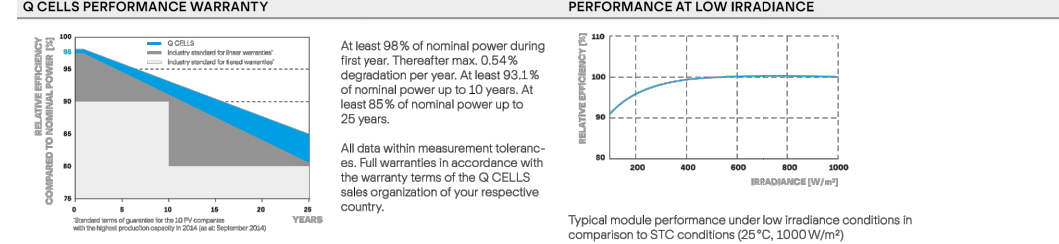


MECHANICAL SPECIFICATION	
Format	68.5 × 40.6 × 1.26 in (including frame) (1740 × 1030 × 32 mm)
Weight	43.9 lbs (19.9 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 × 20 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09-3.98 × 1.26-2.36 × 0.59-0.71 in (53-101 × 32-60 × 15-18 mm), Protection class IP67, with bypass diodes
Cable	4 mm ² Solar cable; (+) ≥ 45.3 in (1150 mm), (-) ≥ 45.3 in (1150 mm)
Connector	Stäubli MC4, Hanwha Q CELLS HQC4, Amphenol UTX, Renhe 05-6, Tongling TL-Cable01S, JMTHY JM601; IP68 or Friends PV2e; IP67



ELECTRICAL CHARACTERISTICS		340	345	350	355	
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC¹ (POWER TOLERANCE +5W/-0W)						
Minimum	Power at MPP ¹	P _{MPP} [W]	340	345	350	355
	Short Circuit Current ¹	I _{SC} [A]	10.68	10.73	10.79	10.84
	Open Circuit Voltage ¹	V _{OC} [V]	40.24	40.49	40.73	40.98
	Current at MPP	I _{MPP} [A]	10.16	10.22	10.27	10.33
	Voltage at MPP	V _{MPP} [V]	33.45	33.76	34.07	34.38
	Efficiency ¹	η [%]	≥ 19.0	≥ 19.3	≥ 19.5	≥ 19.8
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT²						
Minimum	Power at MPP	P _{MPP} [W]	254.5	258.2	261.9	265.7
	Short Circuit Current	I _{SC} [A]	8.60	8.65	8.69	8.74
	Open Circuit Voltage	V _{OC} [V]	37.94	38.17	38.41	38.65
	Current at MPP	I _{MPP} [A]	8.00	8.04	8.09	8.13
	Voltage at MPP	V _{MPP} [V]	31.81	32.10	32.40	32.69

¹ Measurement tolerances P_{MPP} ± 3%; I_{SC}, V_{OC} ± 5% at STC: 1000 W/m², 25 ± 2°C, AM 1.5 according to IEC 60904-3 - *800 W/m², NMOT, spectrum AM 1.5



TEMPERATURE COEFFICIENTS			
Temperature Coefficient of I _{SC}	α [%/K] +0.04	Temperature Coefficient of V _{OC}	β [%/K] -0.27
Temperature Coefficient of P _{MPP}	γ [%/K] -0.36	Normal Module Operating Temperature	NMOT [°F] 109 ± 5.4 (43 ± 3°C)

PROPERTIES FOR SYSTEM DESIGN			
Maximum System Voltage V _{sys}	[V]	1000 (IEC)/1000 (UL)	Safety Class II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI / UL 1703 C (IEC)/TYPE 2 (UL)
Max. Design Load, Push / Pull ¹	[lbs / ft ²]	75 (3600 Pa) / 55 (2667 Pa)	Permitted Module Temperature on Continuous Duty -40 °F up to +185 °F (-40 °C up to +85 °C)
Max. Test Load, Push / Pull ²	[lbs / ft ²]	113 (5400 Pa) / 84 (4000 Pa)	

QUALIFICATIONS AND CERTIFICATES	PACKAGING INFORMATION
UL 1703, VDE Quality Tested, CE-compliant, IEC 61215:2016, IEC 61730:2016, Application Class II, U.S. Patent No. 9,893,215 (solar cells)	Number of Modules per Pallet 32
	Number of Pallets per 53' Trailer 28
	Number of Pallets per 40' HC-Container 24
	Pallet Dimensions (L x W x H) 71.5 × 45.3 × 48.0 in (1815 × 1150 × 1220 mm)
	Pallet Weight 1505 lbs (683 kg)

Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Hanwha Q CELLS America Inc.
400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL +1 949 748 59 96 | EMAIL inquiry@us.q-cells.com | WEB www.q-cells.us

Specifications subject to technical changes © Q CELLS Q.PEAK DUO-G6+ 340-355_2019-06_Rev01_1A

Stamps	LOGO	VERSION			Customer Name Street address, City, State, Zip USA APN# xxxxxxxx UTILITY: XXXXXXXXXXXX AHJ: XXXXXXXXXXXX	SHEET NAME	SHEET'S NAME	SHEET SIZE	SHEET NUMBER
		DESCRIPTION	DATE	REV					
		INITIAL RELEASE	MM/DD/YYYY	UR					
							ANSI B 11" X 17"	PV-8	



IQ8 Series Microinverters

Our newest IQ8 Microinverters are the industry's first microgrid-forming, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application-specific integrated circuit (ASIC) which enables the microinverter to operate in grid-tied or off-grid modes. This chip is built in advanced 55nm technology with high speed digital logic and has super-fast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.



Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the Enphase IQ Battery, Enphase IQ Gateway, and the Enphase App monitoring and analysis software.



IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.



Connect PV modules quickly and easily to IQ8 Series Microinverters using the included Q-DCC-2 adapter cable with plug-n-play MC4 connectors.



IQ8 Series Microinverters are UL Listed as PV Rapid Shut Down Equipment and conform with various regulations, when installed according to manufacturer's instructions.

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IQ8SE-DS-0001-01-EN-US-2022-03-01

Easy to install

- Lightweight and compact with plug-n-play connectors
- Power Line Communication (PLC) between components
- Faster installation with simple two-wire cabling

High productivity and reliability

- Produce power even when the grid is down
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

Microgrid-forming

- Complies with the latest advanced grid support
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) requirements

IQ8 Series Microinverters

INPUT DATA (DC)		IQ8-60-2-US	IQ8PLUS-72-2-US	IQ8M-72-2-US	IQ8A-72-2-US	IQ8H-240-72-2-US	IQ8H-208-72-2-US ¹
Commonly used module pairings ²	W	235 – 350	235 – 440	260 – 460	295 – 500	320 – 540+	295 – 500+
Module compatibility		60-cell/120 half-cell					
MPPT voltage range	V	27 – 37	29 – 45	33 – 45	36 – 45	38 – 45	38 – 45
Operating range	V	25 – 48		25 – 58			
Min/max start voltage	V	30 / 48		30 / 58			
Max input DC voltage	V	50		60			
Max DC current ³ [module Isc]	A	15					
Overtoltage class DC port		II					
DC port backfeed current	mA	0					
PV array configuration		1x1 Ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit					
OUTPUT DATA (AC)		IQ8-60-2-US	IQ8PLUS-72-2-US	IQ8M-72-2-US	IQ8A-72-2-US	IQ8H-240-72-2-US	IQ8H-208-72-2-US
Peak output power	VA	245	300	330	366	384	366
Max continuous output power	VA	240	290	325	349	380	360
Nominal (L-L) voltage/range ⁴	V	240 / 211 – 264					
Max continuous output current	A	1.0	1.21	1.35	1.45	1.58	1.73
Nominal frequency	Hz	60					
Extended frequency range	Hz	50 – 68					
Max units per 20 A (L-L) branch circuit ⁵		16	13	11	11	10	9
Total harmonic distortion		<5%					
Overtoltage class AC port		III					
AC port backfeed current	mA	30					
Power factor setting		1.0					
Grid-tied power factor (adjustable)		0.85 leading – 0.85 lagging					
Peak efficiency	%	97.5	97.6	97.6	97.6	97.6	97.4
CEC weighted efficiency	%	97	97	97	97.5	97	97
Night-time power consumption	mW	60					
MECHANICAL DATA							
Ambient temperature range		-40°C to +60°C (-40°F to +140°F)					
Relative humidity range		4% to 100% (condensing)					
DC Connector type		MC4					
Dimensions (HxWxD)		212 mm (8.3") x 175 mm (6.9") x 30.2 mm (1.2")					
Weight		1.08 kg (2.38 lbs)					
Cooling		Natural convection – no fans					
Approved for wet locations		Yes					
Acoustic noise at 1 m		<60 dBA					
Pollution degree		PD3					
Enclosure		Class II double-insulated, corrosion resistant polymeric enclosure					
Environ. category / UV exposure rating		NEMA Type 6 / outdoor					
COMPLIANCE							
Certifications		CA Rule 21 (UL 1741-SA), UL 62109-1, UL1741/IEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01					

(1) The IQ8H-208 variant will be operating in grid-tied mode only at 208V AC. (2) No enforced DC/AC ratio. See the compatibility calculator at <https://link.enphase.com/module-compatibility> (3) Maximum continuous input DC current is 10.6A (4) Nominal voltage range can be extended beyond nominal if required by the utility. (5) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

IQ8SE-DS-0001-01-EN-US-2022-03-01

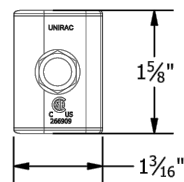
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		DESCRIPTION	DATE	REV
		INITIAL RELEASE	MM/DD/YYYY	UR

Customer Name
Street address,
City, State, Zip USA
APN# xxxxxxxx
UTILITY: XXXXXXXXXXXX
AHJ: XXXXXXXXXXXX

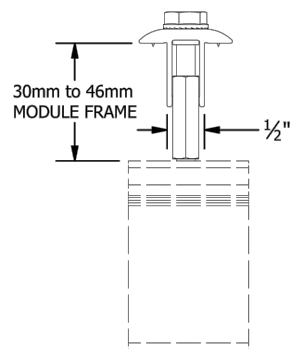
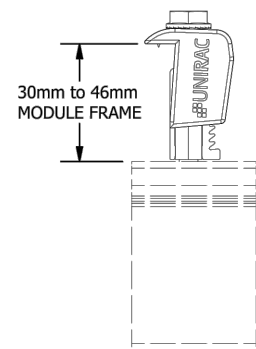
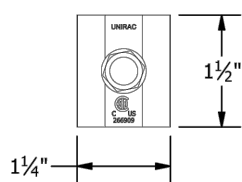
SHEET NAME	SHEET SIZE	SHEET NUMBER
SHEET'S NAME	ANSI B 11" X 17"	PV-10

PART # TABLE	
P/N	DESCRIPTION
302045M	UNIVERSAL AF MID CLAMP - MILL
302045D	UNIVERSAL AF MID CLAMP - DRK
302050M	UNIVERSAL AF END CLAMP - MILL
302050D	UNIVERSAL AF END CLAMP - DRK

UNIVERSAL AF
END CLAMP

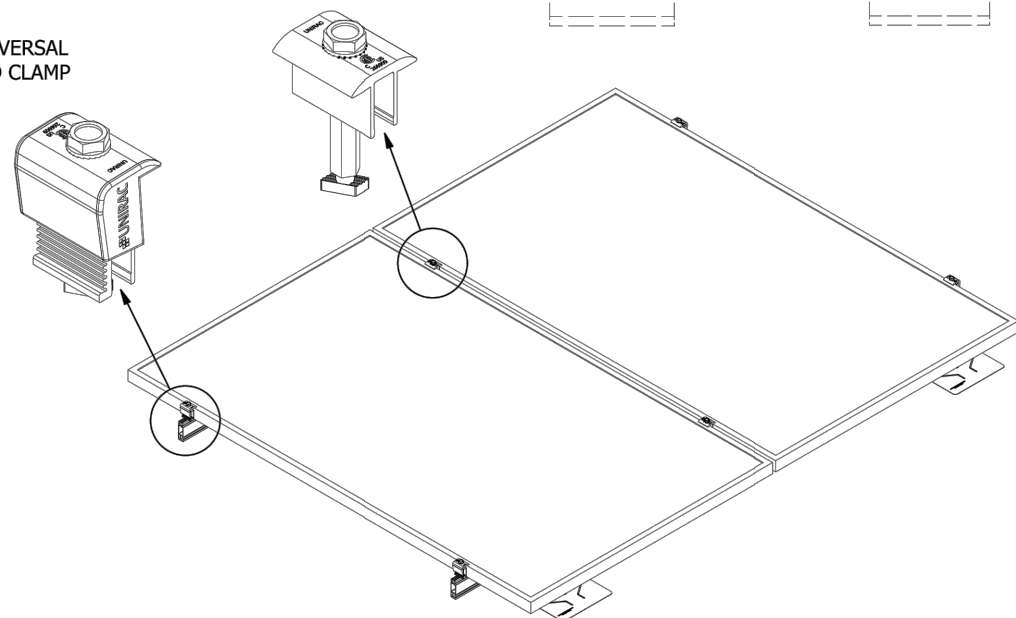


UNIVERSAL AF
MID CLAMP

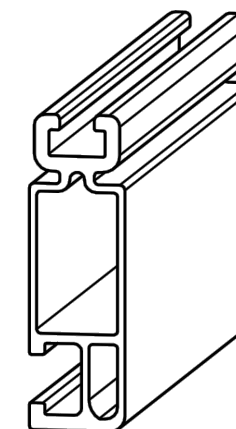
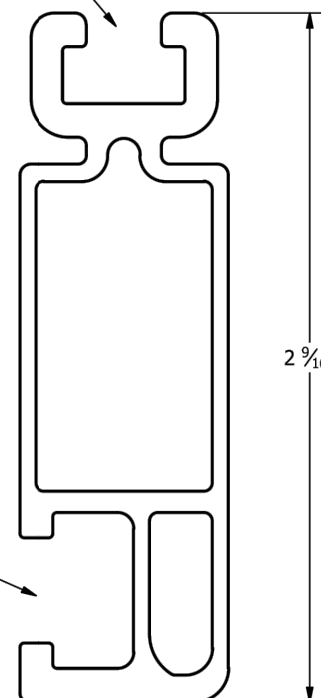


UNIVERSAL
MID CLAMP

UNIVERSAL
END CLAMP



1/4" BOLT LOCATION



3/8" BOLT LOCATION

PART # TABLE		
P/N	DESCRIPTION	LENGTH
320132M	SM RAIL 132" MILL	132"
310132C	SM RAIL 132" CLR	132"
320168M	SM RAIL 168" MILL	168"
310168C	SM RAIL 168" CLR	168"
320168D	SM RAIL 168" DRK	168"
320208M	SM RAIL 208" MILL	208"
310208C	SM RAIL 208" CLR	208"
320240M	SM RAIL 240" MILL	240"
310240C	SM RAIL 240" CLR	240"
310240D	SM RAIL 240" DRK	240"



PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART & ASSEMBLY
DESCRIPTION:	UNIVERSAL AF CLAMPS
REVISION DATE:	9/28/2020

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE
NOMINAL

PRODUCT PROTECTED BY
ONE OR MORE US PATENTS
LEGAL NOTICE

SM-A01B

SHEET



PRODUCT LINE:	SOLARMOUNT
DRAWING TYPE:	PART DETAIL
DESCRIPTION:	STANDARD RAIL
REVISION DATE:	9/11/2017

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE
NOMINAL

PRODUCT PROTECTED BY
ONE OR MORE US PATENTS
LEGAL NOTICE

SM-P01

SHEET

Stamps

LOGO

VERSION		
DESCRIPTION	DATE	REV
INITIAL RELEASE	MM/DD/YYYY	UR

Customer Name
Street address,
City, State, Zip USA
APN# xxxxxxxx
UTILITY: XXXXXXXXXXXX
AHJ: XXXXXXXXXXXX

SHEET NAME

SHEET'S NAME

SHEET SIZE

ANSI B
11" X 17"

SHEET NUMBER

PV-12

FLASHLOC™ RM

THE STRONGEST ATTACHMENT FOR EVERY FLAT ROOF



Unirac's **FLASHLOC™ RM** is a lightweight, durable, powder-coated cast aluminum roof attachment solution that provides fast, easy installation and helps save labor cost. **FLASHLOC™ RM** is compatible with most roofing materials and is applicable for almost all solar racking form factors. Rigorous mechanical, sealing, and ease-of-install testing has been successfully completed for assurance of long-term reliability.

FEATURES

FLASHLOC™ Technology – no more membrane SKUs or heat welding

- Works for all roof types – see Chemlink M-1's compatibility for details
- Labor and attachment savings
- Industry-leading install time
- 6,600-lb. uplift offset (ultimate)
- Includes 8 fastener holes
- Attachment can accommodate roofing screw sizes #12 - #15
- 25-year warranty

PRODUCT SPECIFICATIONS

- 7.5" diameter X 0.94" height
- Included hardware: 1 preassembled bolt and washer
- Chemlink M-1 and 1-Part included in kit

PART NUMBER	DESCRIPTION	LIST PRICE	PACK SIZE
310999	FLASHLOC RM KIT	\$44.00 ea.	10

*Check with your local distributor for finalized pricing.



FLASHLOC™ RM

INSTALLATION GUIDE



CLEAN SURFACE & MARK LOCATION

STEP ONE CLEAN SURFACE AND MARK LOCATION

-**IMPORTANT:** Thoroughly clean roof surface with isopropyl alcohol or denatured alcohol. Bonding surfaces should be clean, dry and free of dirt or contamination. Remove all previously applied caulk, mastic or other contaminants with a wire brush. Brush away all gravel or loose granules.

-Mark center point locations on the roof. **NOTE:** We recommend locating Flashloc RM after your equipment has been installed or layout is confirmed.



APPLY CHEMLINK M1 SEALANT

STEP TWO APPLY M1 SEALANT

-Apply a 5/16" bead of Chemlink M1 sealant to the entire bottom perimeter AND to the bottom of each bolt location to be used. Tool M1 sealant bead to form a smooth surface along the entire bottom perimeter. Refer to Chemlinks application guidelines with temperatures below 40 degrees F.

-**IMPORTANT:** CHEMLINK TPO PRIMER MUST BE USED ON TPO SINGLE-PLY ROOF SUBSTRATES MEMBRANES PRIOR TO INSTALLATION.



SECURE ATTACHMENT

STEP THREE SECURE ATTACHMENT

- Align mount using alignment marks on roof and base. Using fasteners specified by your P.E. of record, securely fasten attachment to the roof. Drive screws down until the base is firmly attached to the roof and the M1 sealant expands beyond the outer perimeter of the base.

- Tool M1 sealant bead around entire perimeter to form a smooth fillet. **TIP:** Use caution to avoid over-torquing the screws.



FILL WITH CHEMLINK 1-PART & PLACE CAP

STEP FOUR FILL BASE WITH CHEMLINK 1-PART

-Completely fill base with Chemlink 1-Part sealant. Sealant must completely cover all screw heads. Do NOT overfill.

- Place cap on base and secure racking to mount with Unirac provided 3/8" hardware or other 3/8"-16 threaded hardware as specified by the P.E. of record.

-**IMPORTANT:** To ensure robust sealing over the life of the product, the maximum allowed gap between attachment kit strut and the top surface of the flat roof attachment is 1/16".

FASTER INSTALLATION. 25-YEAR WARRANTY.

FOR QUESTIONS OR CUSTOMER SERVICE VISIT UNIRAC.COM OR CALL (505) 248-2702

FASTER INSTALLATION. 25-YEAR WARRANTY.

FOR QUESTIONS OR CUSTOMER SERVICE VISIT UNIRAC.COM OR CALL (505) 248-2702

Stamps

LOGO

VERSION		
DESCRIPTION	DATE	REV
INITIAL RELEASE	MM/DD/YYYY	UR

Customer Name
Street address,
City,State,Zip USA
APN# xxxxxxxx
UTILITY: XXXXXXXXXXXX
AHJ: XXXXXXXXXXXX

SHEET NAME

SHEET SIZE

SHEET NUMBER

SHEET'S NAME

ANSI B
11" X 17"

PV-13

Tilt Leg

ITEM NO	DESCRIPTION	QTY IN KIT
1	BOLT, BONDING 3/8-16 SQ HEAD, 2.25"	1
2	NORTH TILT LEG, 1.5" SQ, LENGTH VARIES	1
3	NUT, FLANGE HEX 3/8-16 SS	3
4	BOLT, BONDING 3/8-16 SQ HEAD, 1.0"	1
5	PRE-ASSEMBLED SOUTH TILT LEG	1
6	WASHER, FLAT 3/8 SS	1
7	BOLT, 3/8-16 X 2.5" CS SST	1
8	U-FOOT	1

TILT MOUNT KIT OPTIONS

PART NUMBER	DESCRIPTION	NORTH TILT LEG LENGTH
TM-FTL-010	Kit, Fixed Tilt Leg, 10", Mill	10"
TM-FTL-015	Kit, Fixed Tilt Leg, 15", Mill	15"
TM-FTL-020	Kit, Fixed Tilt Leg, 20", Mill	20"
TM-FTL-025	Kit, Fixed Tilt Leg, 25", Mill	25"
TM-FTL-030	Kit, Fixed Tilt Leg, 30", Mill	30"

v1.1

1,4) Bolt, Bonding 3/8-16 Sq Head

Property	Value
Material	Stainless Steel
Finish	Clear

2)North Tilt Leg

Property	Value
Material	Aluminum
Finish	Mill

3) Nut, Flange Hex 3/8-16 SS

Property	Value
Material	Stainless Steel
Finish	Clear

4) Washer, Flat 3/8 SS

Property	Value
Material	Stainless Steel
Finish	Clear

5)Pre-assembled South Tilt Leg

Property	Value
Material	Aluminum
Finish	Mill

6) Bolt, 3/8-16 X 2.5" CS SS

Property	Value
Material	Stainless Steel
Finish	Clear

7) U-Foot

Property	Value
Material	Aluminum
Finish	Mill

v1.1

Stamps

LOGO

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Customer Name
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 APN# xxxxxxxx
 UTILITY: XXXXXXXXXXXX
 AHJ: XXXXXXXXXXXX

SHEET NAME

SHEET SIZE

SHEET NUMBER

SHEET'S NAME

ANSI B
 11" X 17"

PV-14



Certificate of Compliance

Certificate: 70131735 **Master Contract:** 266909
Project: 80090260 **Date Issued:** 2021-07-14
Issued To: Unirac
 1411 Broadway NE
 Albuquerque, New Mexico, 87102
 United States

Attention: Klaus Nicolaedis

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.

Issued by: Michael Hoffnagle
 Michael Hoffnagle



PRODUCTS

CLASS - C531302 - POWER SUPPLIES- PHOTOVOLTAICS- PV Racking
 CLASS - C531382 - POWER SUPPLIES- PHOTOVOLTAICS PV Racking and clamping systems-Certified to US Standards

Models:	SM	-	SOLARMOUNT Flush-to-Roof is an extruded aluminum rail PV racking system that is installed parallel to the roof in landscape or portrait orientations.
	ULA	-	Unirac Large Array is a ground mount system using the SolarMount (SM) platform for the bonding and grounding of PV modules.

Solarmount



Certificate: 70131735
Project: 80090260

Master Contract: 266909
Date Issued: 2021-07-14

The system listed is designed to provide bonding/grounding, and mechanical stability for photovoltaic modules. The system is secured to the roof with the L-Foot components through the roofing material to building structure. Modules are secured to the racking system with stainless steel or aluminum mid clamps and Aluminum end clamps. The modules are bonded to the racking system with the stainless-steel bonding mid clamps with piercing points. The system is grounded with 10 AWG copper wire to bonding/grounding lugs. Fire ratings of Class A with Type 1, 2, 3, 10, 19, 22 or 25 for steep slope. Tested at 5" interstitial gap which allows installation at any stand-off height.

The grounding of the system is intended to comply with the latest edition of the National Electrical Code, to include NEC 250 & 690. Local codes compliance is required, in addition to national codes. All grounding/bonding connections are to be torqued in accordance with the Installation Manual and the settings used during the certification testing for the current edition of the project report.

The system may employ optimizers/micro-inverters and used for grounding when installed per installation instructions.

UL 2703 Mechanical Load ratings:

Downward Design Load (lb/ft ²)	113.5
Upward Design Load (lb/ft ²)	50.7
Down-Slope Load (lb/ft ²)	16.13

Test Loads:

Downward Load (lb/ft ²)	170.20
Upward Load (lb/ft ²)	76.07
Down-Slope Load (lb/ft ²)	24.2

Unirac Large Array

ULA is a ground mount system using the SolarMount (SM) platform for the bonding and grounding of PV modules. ULA aluminum components merge with SM rails and installer-supplied steel pipe. The SM rail system is secured to the horizontal Pipe using the Rail Bracket components. The Rear and Front cap secures the horizontal Pipe to the vertical Pipe. The Front cap is also used to secure the Cross brace. A Slider is attached to the vertical Pipe to secure the Cross brace. The SM rails, caps, slider, rail brackets, and cross braces materials are 6105-T5 aluminum extrusion. Fasteners materials are 304 stainless steel. Horizontal and vertical pipe materials meet the minimum requirements of ASTM A53 for galvanized steel pipe in 2" and 3" diameter.

The mechanical load ratings from the SM test data will be applied to the ULA model.

Fire Testing is not applicable due to being a ground mount system.

Stamps

LOGO

VERSION		
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 APN# xxxxxxxx
 UTILITY: XXXXXXXXXXXX
 AHJ: XXXXXXXXXXXX

SHEET NAME

SHEET SIZE

SHEET NUMBER

SHEET'S NAME

ANSI B
 11" X 17"

PV-18