

SOLAR POWER SYSTEM INSTALLATION FOR _____

PROJECT DATA	
PROJECT DATA: MODULE: (105) HANWHA Q.CELL Q.PEAK DUO BLK-ML-G10+400, 400Wp OPTIMIZER: (105) SOLAREDGE P401 , 430 W INVERTER: (3) SOLAREDGE SE10000H-US[240V][S11], 10 kW RACKING: PRO SOLAR & IRONRIDGE SYSTEM CAPACITY: 42.000 kW-DC 30.000 kW-AC (NAME PLATE)	BUILDING DATA: BUILDING HEIGHT: 27ft STORIES: 1 CLASSIFICATION OCCUPANCY: S-1 RISK OF CATEGORY: II WIND SPEED: 100 mph WIND EXPOSURE: C SNOW LOAD: 0 psf FIRE SPRINKLER SYSTEM: NO

SHEET INDEX	
ELECTRICAL	APPENDIX
PV1 COVER SHEET PV2 SITE PLAN PV3 ENLARGED SOLAR MODULE LAYOUT PV4 ATTACHMENT LAYOUT SHEET 1 PV5 ATTACHMENT LAYOUT SHEET 2 PV6 SINGLE LINE DIAGRAM PV7 ELECTRICAL CACLS. PV8 STRUCTURE DETAIL PV9 EQUIPMENT MOUNTING DETAIL PV10 SIGNAGE & PLACARD	SOLAR MODULE DATA SHEET OPTIMIZER DATA SHEET INVERTER DATA SHEET RAPID SHUTDOWN INSTALLATION STRUCTURAL DATA SHEET STRUCTURAL INTEGRATED GROUNDING CERTIFICATE OF COMPLIANCE

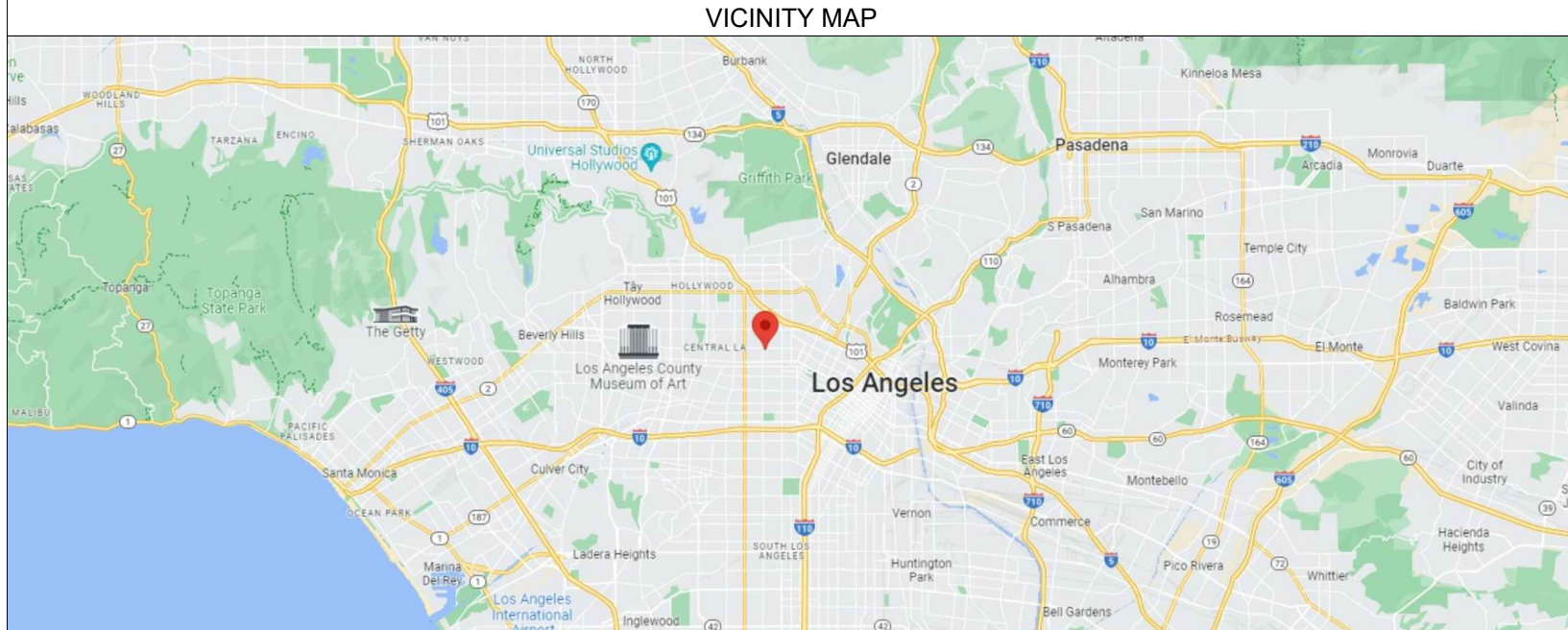
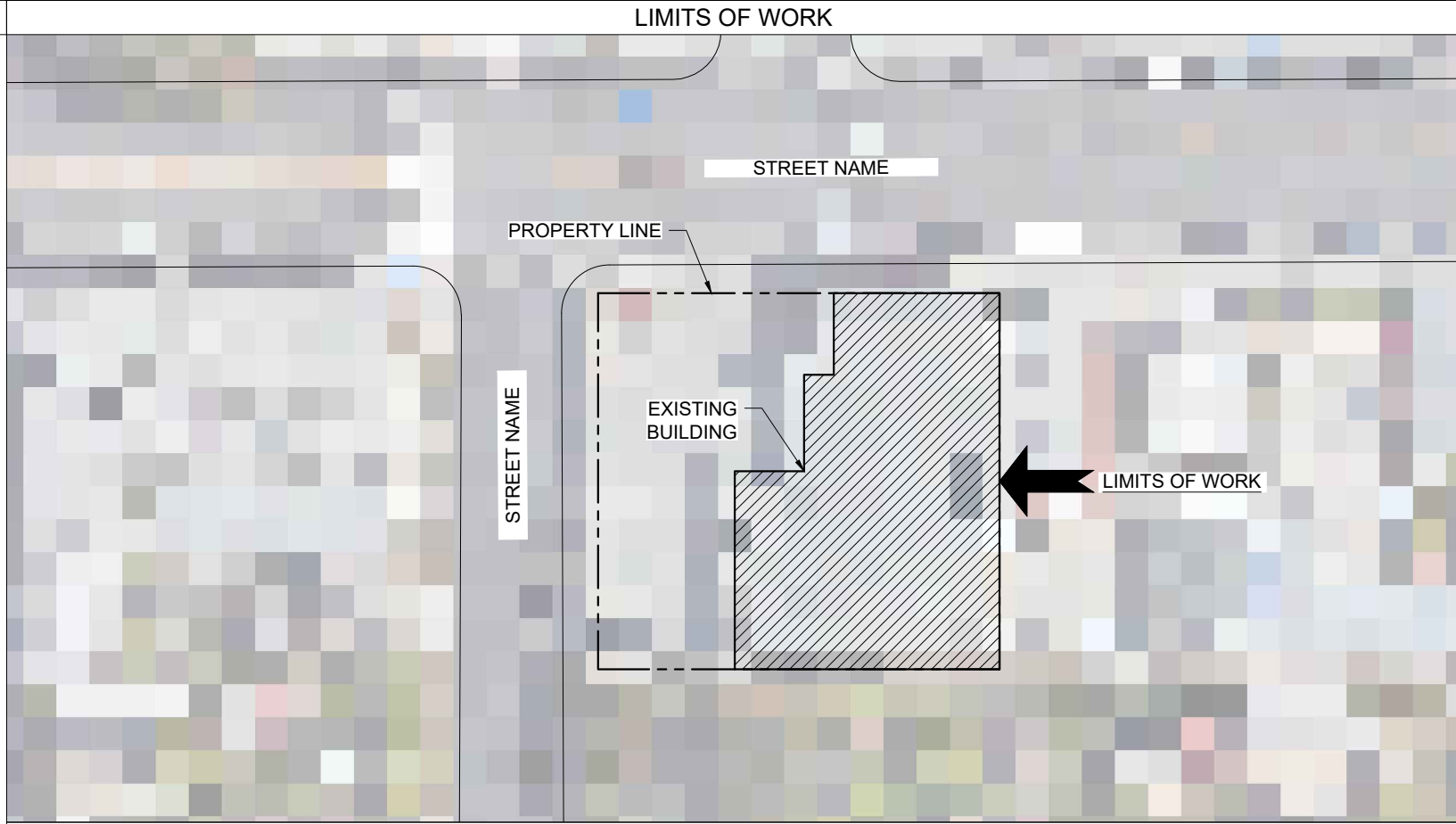
SCOPE OF WORK
1. INSTALLATION OF SOLAR PHOTOVOLTAIC SYSTEM
GOVERNING CODES
1. ALL WORKS TO COMPLY WITH 2022 CALIFORNIA RESIDENTIAL CODE (CRC), 2022 CALIFORNIA BUILDING CODE (CBC), 2022 CALIFORNIA FIRE CODE (CFC), 2022 CALIFORNIA ELECTRICAL CODE (CEC), 2022 CALIFORNIA MECHANICAL CODE (CMC), 2022 CALIFORNIA PLUMPING CODE (CPC), 2022 CALIFORNIA GREEN CODE (CGC), 2022 CALIFORNIA ENERGY CODE (CEnc), 2022 CALIFORNIA GREEN BUILDING STANDERS CODE (CGC)

CONTRACTOR'S LOGO

CONTRACTOR'S LICENSE NUMBER OR STAMP

NO.	REVISION	DESCRIPTION	DATE
A-1	RELEASED		11/11/22

- ### GENERAL NOTES
- ALL EQUIPMENT SHALL BE LISTED AND LABELED BY A RECOGNIZED TESTING LABORATORY AND AND INSTALLED PER THE LISTING REQUIREMENT AND THE MANUFACTURER'S INSTRUCTIONS, CEC110.2, 110.3, 690.4(B) AND 390.12(5).
 - ALL PANELS, SWITCHES, ETC. SHALL HAVE SUFFICIENT GUTTER SPACE AND LUGS IN COMPLIANCE TO UL REQUIREMENTS TO ACCOMMODATE CONDUCTORS SHOWN.
 - ALL ELECTRICAL MATERIAL SHALL BE LISTED BY "UL" FOR THE TYPE OF APPLICATION AND "UL" LABEL SHALL APPEAR ON ALL ELECTRICAL EQUIPMENT.
 - ALL EXTERIOR ELECTRICAL DEVICES AND EQUIPMENT INCLUDING THOSE THAT ARE EXPOSED TO OUTSIDE ENVIRONMENT SHALL BE WEATHERPROOF TYPE NEMA 3R.
 - ALL CONDUCTORS EXPOSED TO WEATHER SHALL BE LISTED AND IDENTIFIED FOR USE IN DIRECT SUNLIGHT, CEC310.10(D) AND 690.31(C) THROUGH (G).
 - ALL GROUNDED, (NEUTRAL), CONDUCTOR'S INSULATION SHALL BE SOLID WHITE, GRAY, OR 3-WHITE STRIPES; AND ALL GROUNDING CONDUCTORS SHALL BE OF BARE WIRE WITHOUT COVERING, OR WITH INSULATION OF GREEN OR GREEN WITH YELLOW STRIPES. THE COLOR OF UNGROUNDED CONDUCTOR SHALL BE OTHER THAN FOR GROUNDED, (NEUTRAL), AND GROUNDING CONDUCTORS.
 - CONTRACTOR SHALL EXTEND WIRING FROM ALL JUNCTION BOXES, SWITCHES, ETC. AND MAKE FINAL CONNECTIONS AS REQUIRED TO ALL BUILDING EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS.
 - WHERE WIRE SIZES ARE INDICATED ON PLANS FOR INDIVIDUAL CIRCUITS, THE WIRE SIZE INDICATED SHALL APPLY TO THE COMPLETE CIRCUIT, UNLESS OTHERWISE NOTED.
 - DISCONNECT SWITCHES SHALL BE MOUNTED ON INDIVIDUAL SUPPORTS, OR OTHERWISE DIRECTLY ON EQUIPMENT, PROVIDED NO MODIFICATION TO EQUIPMENT IS NECESSARY.
 - WIRING METHOD SHALL BE EMT ABOVE GROUND MOUNTED IN CONCEALED SPACES (UNLESS APPROVED OTHERWISE) AND SCHEDULE- 40 PVC FOR BELOW GROUND INSTALLATION UNLESS NOTED OTHERWISE.
 - ALL CONDUIT TO USE WEATHER TIGHT EXPANSION FITTINGS.
 - ALL EXTERIOR CONDUITS SHALL BE PAINTED TO MATCH THE COLOR OF THE SURROUNDING AREA.
 - A LADDER WILL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.
 - FIRE INSPECTION REQUIRED. "ALL CONNECTIONS TO EXISTING ROOF FRAMING SHALL REMAIN EXPOSED UNTIL INSPECTED."
 - INSPECTION REQUIRED FOR ROOF CONNECTION MOUNTING ASSEMBLIES PRIOR TO INSTALLING SOLAR MODULE.
 - EXISTING PLUMPING VENTS, SKYLIGHTS, EXHAUST OUTLET, & VENTILATION INTAKE AIR OPENINGS SHALL NOT BE COVERED OR BLOCKED BY THE SOLAR PHOTOVOLTAIC SYSTEM
 - DUE TO THE FACT THAT PV MODULES ARE ENERGIZED WHENEVER EXPOSED TO LIGHT, PV CONTRACTOR SHALL DISABLE THE ARRAY DURING INSTALLATION AND SERVICE BY SHORT CIRCUITING, OPEN CIRCUITING, OR COVER THE ARRAY WITH OPAQUE COVERING.
 - THESE DRAWINGS ARE REPRESENTATIVE OF THE SCOPE AND NATURE OF WORK. IT IS NOT GUARANTEED TO REPRESENT EXACT FIELD CONDITIONS AND DIMENSIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY FIELD DIMENSIONS AND TO COORDINATE THE WORK WITH THAT OF THE CONSTRUCTION MANAGER.
 - THE LAYOUT OF THE CONDUIT SHOWN IN THIS DRAWING PACKAGE IS INDICATIVE ONLY. THE INSTALLATION CONTRACTOR WILL BE RESPONSIBLE FOR FIELD ROUTING AND LOCATING ALL CONDUITS TO SUIT SPECIFIC SITE CONDITIONS. THE CONTRACTOR WILL COORDINATE ALL LOCATIONS WITH THE OWNER/GENERAL CONTRACTOR AND ANY OTHER TRADES THAT THE NEW ROUTING MAY AFFECT.



PROJECT NAME

OWNER

ADDRESS

PROJECT ID:

SYSTEM SIZE

42.000 kW-DC
30.000 kW-AC (NAME PLATE)

DRAWN BY EP-HT

APPROVED BY

SCALE N.T.S

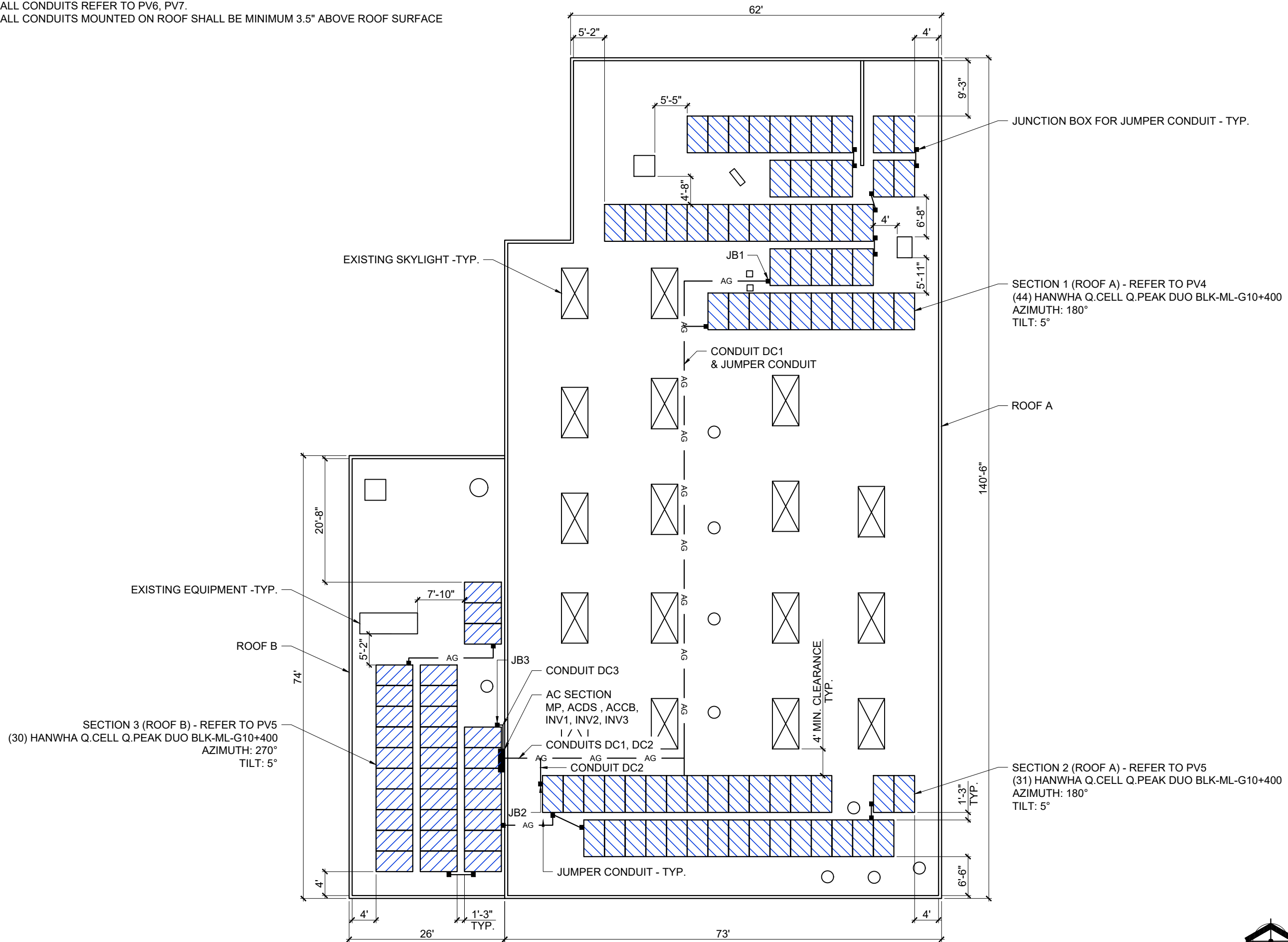
SHEET TITLE

COVER SHEET

SHEET NO. **PV1**

NOTE

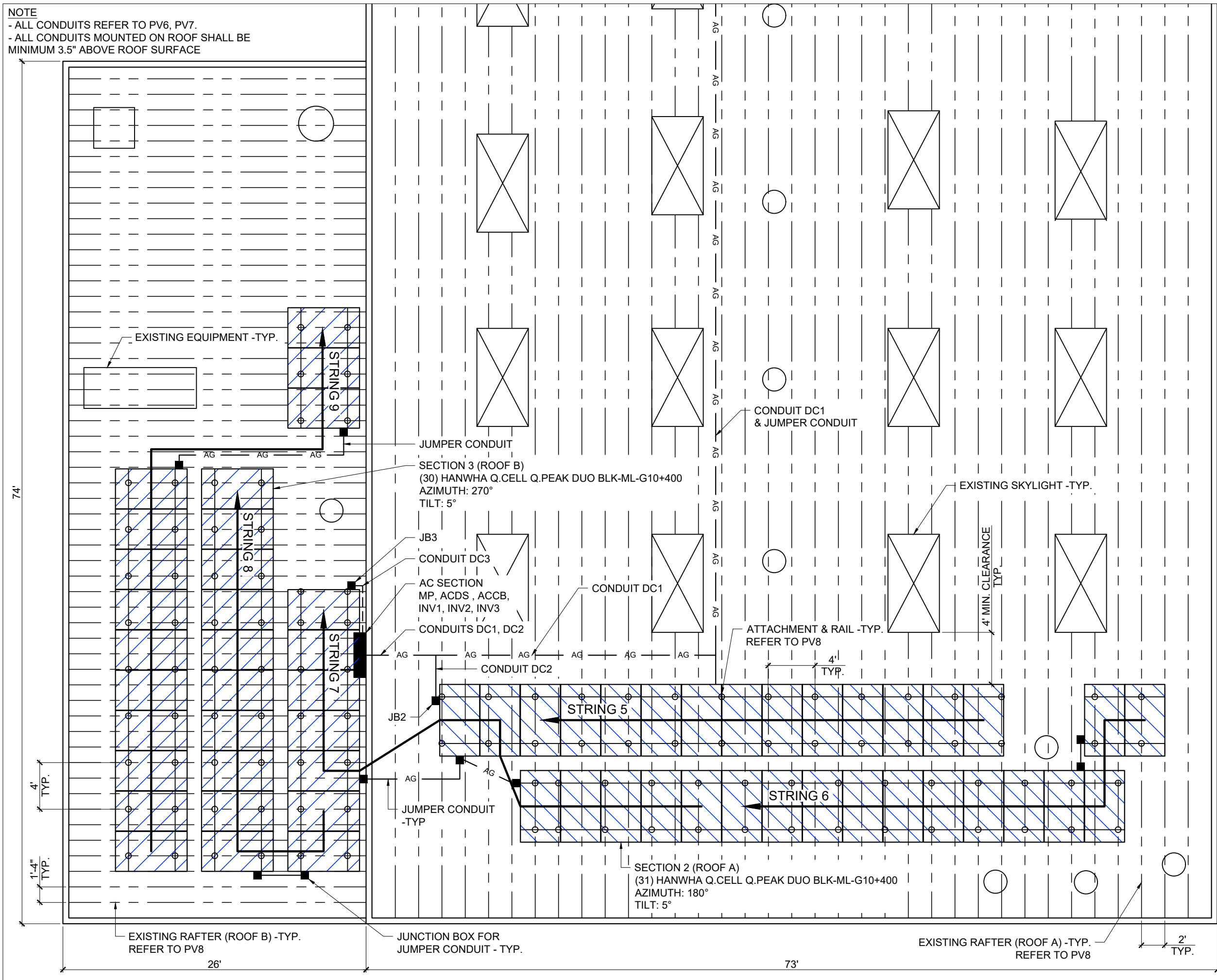
- ALL CONDUITS REFER TO PV6, PV7.
- ALL CONDUITS MOUNTED ON ROOF SHALL BE MINIMUM 3.5" ABOVE ROOF SURFACE



CONTRACTOR'S LOGO	
CONTRACTOR'S LICENSE NUMBER OR STAMP	
REVISION	DATE
DESCRIPTION	11/11/22
NO.	RELEASED
A-X1	
PROJECT NAME	
OWNER	
ADDRESS	
PROJECT ID:	
SYSTEM SIZE	
42,000 kW-DC 30,000 kW-AC (NAME PLATE)	
DRAWN BY	EP-HT
APPROVED BY	
SCALE	1/16" = 1'
SHEET TITLE	
ENLARGED SOLAR MODULE LAYOUT	
SHEET NO.	PV3



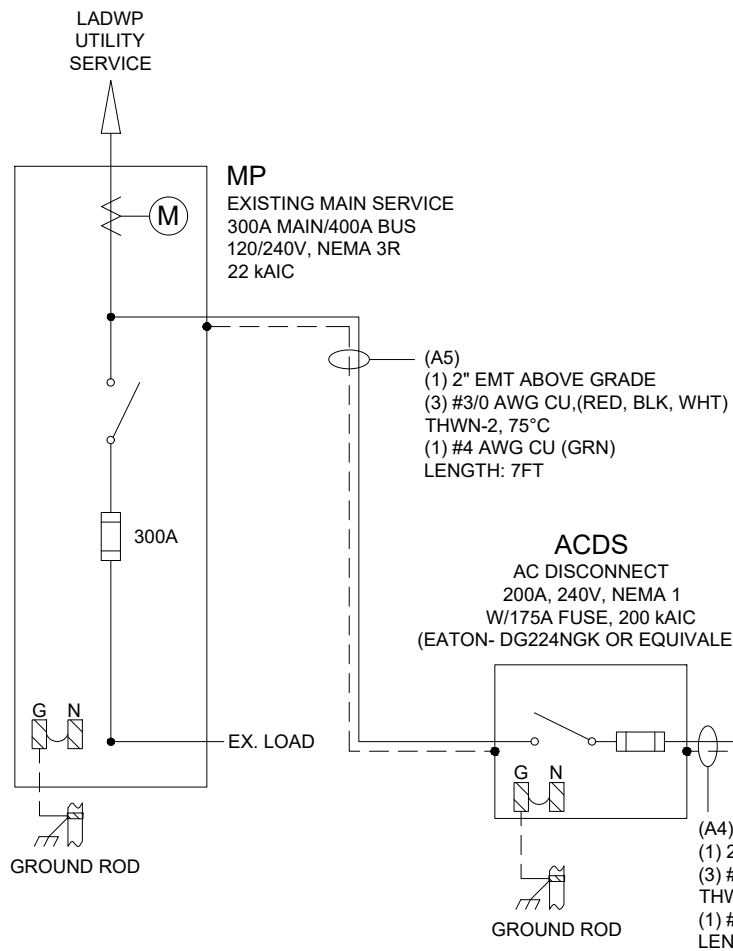
NOTE
 - ALL CONDUITS REFER TO PV6, PV7.
 - ALL CONDUITS MOUNTED ON ROOF SHALL BE
 MINIMUM 3.5" ABOVE ROOF SURFACE



CONTRACTOR'S LOGO	
CONTRACTOR'S LICENSE NUMBER OR STAMP	
DATE	11/11/22
REVISION	DESCRIPTION
NO.	A-X1
PROJECT NAME	
OWNER	
ADDRESS	
PROJECT ID:	
SYSTEM SIZE	
42.000 kW-DC 30.000 kW-AC (NAME PLATE)	
DRAWN BY	EP-HT
APPROVED BY	
SCALE	1/8" = 1'
SHEET TITLE	
ATTACHMENT LAYOUT SHEET 2	
SHEET NO.	PV5

LEGEND:

- GROUND WIRE (GRN OR BARE)
- CURRENT CARRYING CONDUCTORS



FAULT CURRENT CALC. FOR ACDS:

$$f = \frac{2 \times 7 \times 22,000}{12,844 \times 1 \times 240} = 0.1$$

$$M = \frac{1}{1 + 0.1} = 0.909$$

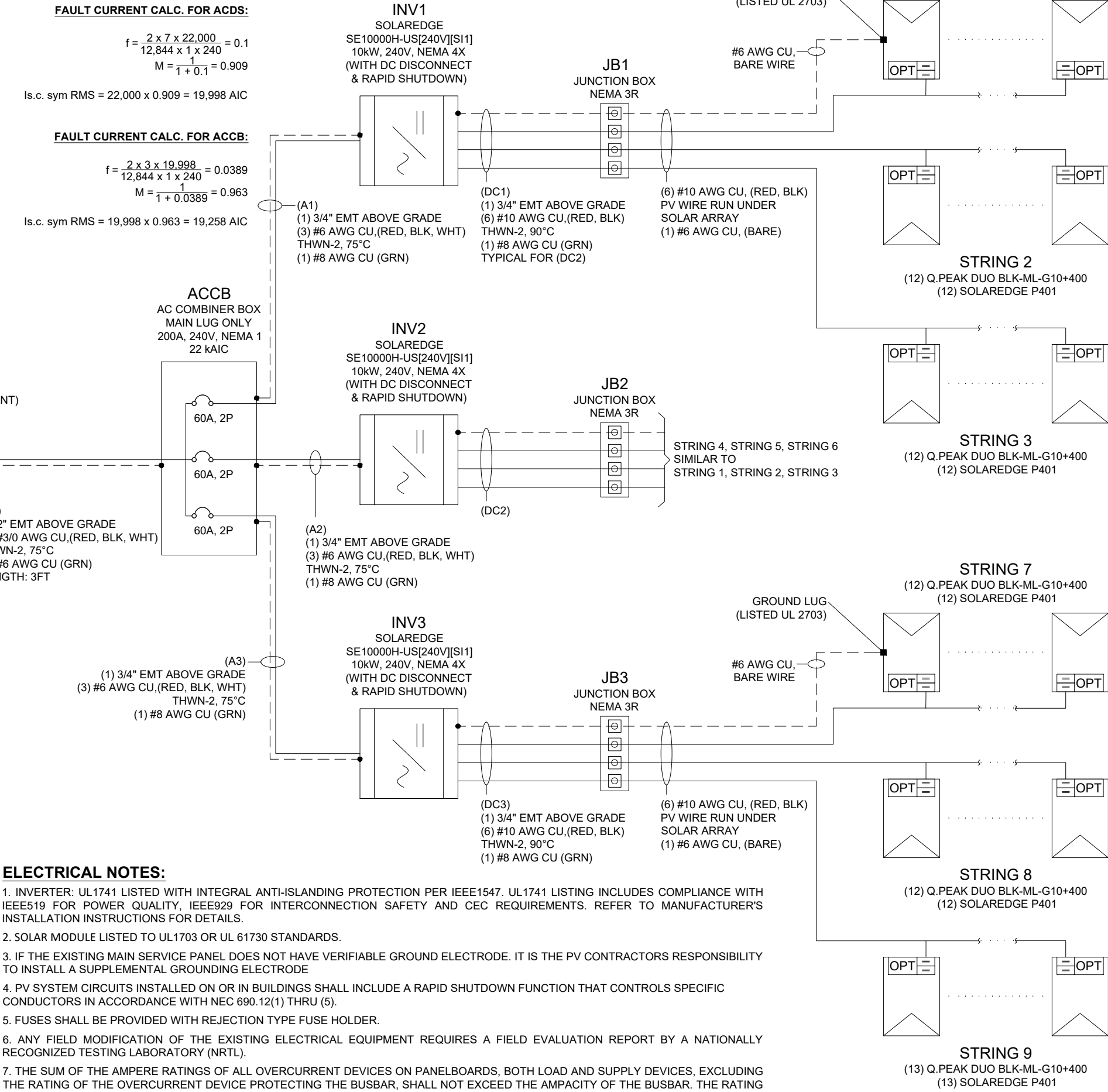
Is.c. sym RMS = 22,000 x 0.909 = 19,998 AIC

FAULT CURRENT CALC. FOR ACCB:

$$f = \frac{2 \times 3 \times 19,998}{12,844 \times 1 \times 240} = 0.0389$$

$$M = \frac{1}{1 + 0.0389} = 0.963$$

Is.c. sym RMS = 19,998 x 0.963 = 19,258 AIC



ELECTRICAL NOTES:

1. INVERTER: UL1741 LISTED WITH INTEGRAL ANTI-ISLANDING PROTECTION PER IEEE1547. UL1741 LISTING INCLUDES COMPLIANCE WITH IEEE519 FOR POWER QUALITY, IEEE929 FOR INTERCONNECTION SAFETY AND CEC REQUIREMENTS. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR DETAILS.
2. SOLAR MODULE LISTED TO UL1703 OR UL 61730 STANDARDS.
3. IF THE EXISTING MAIN SERVICE PANEL DOES NOT HAVE VERIFIABLE GROUND ELECTRODE. IT IS THE PV CONTRACTORS RESPONSIBILITY TO INSTALL A SUPPLEMENTAL GROUNDING ELECTRODE
4. PV SYSTEM CIRCUITS INSTALLED ON OR IN BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION THAT CONTROLS SPECIFIC CONDUCTORS IN ACCORDANCE WITH NEC 690.12(1) THRU (5).
5. FUSES SHALL BE PROVIDED WITH REJECTION TYPE FUSE HOLDER.
6. ANY FIELD MODIFICATION OF THE EXISTING ELECTRICAL EQUIPMENT REQUIRES A FIELD EVALUATION REPORT BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL).
7. THE SUM OF THE AMPERE RATINGS OF ALL OVERCURRENT DEVICES ON PANELBOARDS, BOTH LOAD AND SUPPLY DEVICES, EXCLUDING THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR, SHALL NOT EXCEED THE AMPACITY OF THE BUSBAR. THE RATING OF OVERCURRENT DEVICE PROTECTING THE BUSBAR SHALL NOT EXCEED THE RATING OF THE BUSBAR. (CEC 705.12(C))

SYSTEM INFORMATION	
TOTAL DC CAPACITY (kW-DC)	42.00
TOTAL AC NAMEPLATE (kW-AC)	30.00
SOLAR MODULE	
MANUFACTURER	HANWHA Q.CELL
MODEL	Q.PEAK DUO BLK-ML-G10+400
QUANTITY	105
POWER RATING (W)	400
OPTIMIZER	
MANUFACTURER	SOLAREEDGE
MODEL	P401
QUANTITY	105
INVERTER	
MANUFACTURER	SOLAREEDGE
MODEL	SE10000H-US[240V][SI1]
QUANTITY	3
MAX. OUTPUT POWER (kVA)	10

CONTRACTOR'S LOGO

CONTRACTOR'S LICENSE NUMBER OR STAMP

REVISION	DESCRIPTION	DATE	RELEASED	NO.	A-X1		
		11/11/22					

PROJECT NAME

OWNER

ADDRESS

PROJECT ID:

SYSTEM SIZE

42.000 kW-DC
30.000 kW-AC (NAME PLATE)

DRAWN BY	EP-HT
APPROVED BY	
SCALE	N.T.S

SHEET TITLE

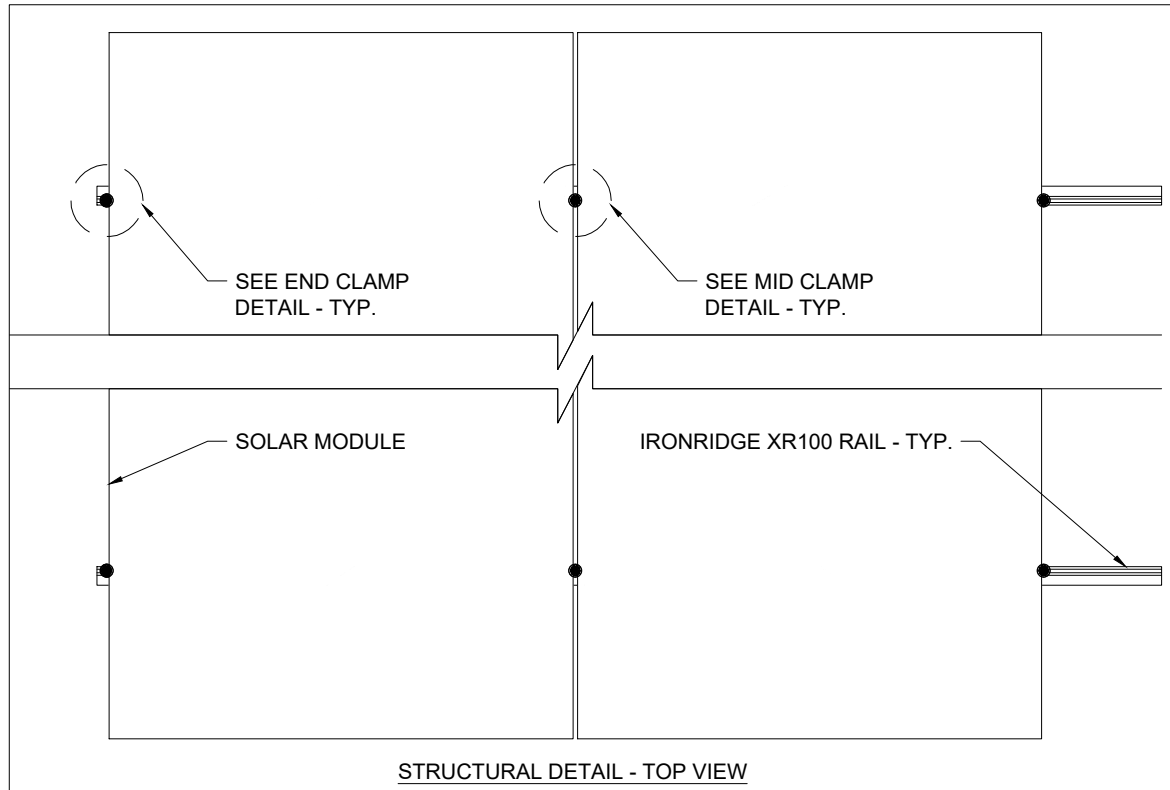
SINGLE LINE DIAGRAM

SHEET NO. PV6

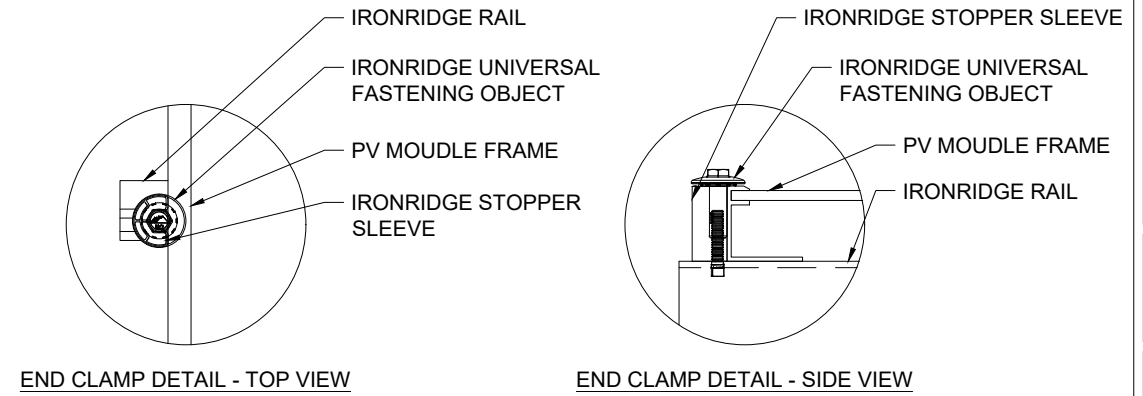
SYSTEM INFORMATION	
TOTAL DC CAPACITY (kW-DC)	42.00
TOTAL AC NAMEPLATE (kW-AC)	30.00
SOLAR MODULE	
MANUFACTURER	HANWHA Q.CELL
MODEL	Q.PEAK DUO BLK-ML-G10+400
QUANTITY	105
POWER RATING (W)	400
OPEN CIRCUIT VOLTAGE Voc (Vdc)	45.3
MAX. POWER VOLTAGE Vmp (Vdc)	37.13
MAX. POWER CURRENT Imp (Adc)	10.77
SHORT CIRCUIT CURRENT Isc (Adc)	11.14
VocTC (%)	-0.27
OPTIMIZER	
MANUFACTURER	SOLAREEDGE
MODEL	P401
QUANTITY	105
MAX. DC INPUT POWER (VA)	430
MAX. DC INPUT VOLTAGE Voc (Vdc)	60
MAX. DC INPUT CURRENT (Adc)	14.65
MAX. DC OUTPUT VOLTAGE (Vdc)	60
MAX. DC OUTPUT CURRENT (Adc)	15
INVERTER	
MANUFACTURER	SOLAREEDGE
MODEL	SE10000H-US[240V][SI1]
QUANTITY	3
MAX. OUTPUT POWER (kVA)	10
MAX. DC INPUT VOLTAGE Voc (Vdc)	480
MAX. DC INPUT CURRENT (Adc)	27
MAX. AC OUTPUT VOLTAGE (V)	240
MAX. AC OUTPUT CURRENT (A)	42

ELECTRICAL CALCULATION												
Voc AT LOWEST TEMPERATURE (1 MODULE/OPTIMIZER)		Voc = (1) (45.3) [1 + (-0.0027 ((4-25)))] = 47.87 V						TEMP. REFERENCE (°C)				
								MIN. TEMP.		4		
								2% AVERAGE HIGH. TEMP.		26		
								MAX. TEMP. 3.5" ABOVE ROOF		43		
CONDUIT LABEL	WIRE TYPE	DC & AC CONNECTION	OUTPUT CURRENT (A)	MAX. CURRENT PER CEC 690.8(B)(1)(a)	OVER CURRENT PROTECTION DEVICE PER CEC 690.9	CORRECTION FACTOR		WIRE SIZE	WIRE AMPACITY TEMP. RATING		DERATED WIRE AMPACITY	GROUND WIRE PER CEC 250.122 OR 250.66
						AMBIENT TEMP. DERATE PER CEC 310.15(B)(2)(a)	CONDUIT FILL. DERATE PER CEC 310.15(B)(3)(a)		75°C	90°C		
DC1	THWN-2 (CU)	STRING 1 TO INV1 (DC+)	15	18.75	20	0.87	0.8	10		40	27.84	8
	THWN-2 (CU)	STRING 1 TO INV1 (DC-)	15	18.75	20	0.87	0.8	10		40	27.84	
	THWN-2 (CU)	STRING 2 TO INV1 (DC+)	15	18.75	20	0.87	0.8	10		40	27.84	
	THWN-2 (CU)	STRING 2 TO INV1 (DC-)	15	18.75	20	0.87	0.8	10		40	27.84	
	THWN-2 (CU)	STRING 3 TO INV1 (DC+)	15	18.75	20	0.87	0.8	10		40	27.84	
DC2	THWN-2 (CU)	STRING 3 TO INV1 (DC-)	15	18.75	20	0.87	0.8	10		40	27.84	8
	THWN-2 (CU)	STRING 4 TO INV2 (DC+)	15	18.75	20	0.87	0.8	10		40	27.84	
	THWN-2 (CU)	STRING 4 TO INV2 (DC-)	15	18.75	20	0.87	0.8	10		40	27.84	
	THWN-2 (CU)	STRING 5 TO INV2 (DC+)	15	18.75	20	0.87	0.8	10		40	27.84	
	THWN-2 (CU)	STRING 5 TO INV2 (DC-)	15	18.75	20	0.87	0.8	10		40	27.84	
DC3	THWN-2 (CU)	STRING 6 TO INV2 (DC+)	15	18.75	20	0.87	0.8	10		40	27.84	8
	THWN-2 (CU)	STRING 6 TO INV2 (DC-)	15	18.75	20	0.87	0.8	10		40	27.84	
	THWN-2 (CU)	STRING 7 TO INV3 (DC+)	15	18.75	20	0.87	0.8	10		40	27.84	
	THWN-2 (CU)	STRING 7 TO INV3 (DC-)	15	18.75	20	0.87	0.8	10		40	27.84	
	THWN-2 (CU)	STRING 8 TO INV3 (DC+)	15	18.75	20	0.87	0.8	10		40	27.84	
A1	THWN-2 (CU)	STRING 8 TO INV3 (DC-)	15	18.75	20	0.87	0.8	10		40	27.84	8
	THWN-2 (CU)	STRING 9 TO INV3 (DC+)	15	18.75	20	0.87	0.8	10		40	27.84	
	THWN-2 (CU)	STRING 9 TO INV3 (DC-)	15	18.75	20	0.87	0.8	10		40	27.84	
	THWN-2 (CU)	INV1 TO ACDS (L1)	42	52.50	60	1.00	1.00	6	65		65.00	
	THWN-2 (CU)	INV1 TO ACDS (L2)	42	52.50	60	1.00	1.00	6	65		65.00	
A2	THWN-2 (CU)	INV1 TO ACDS (N)	-	-	-	-	-	6	-		-	8
	THWN-2 (CU)	INV2 TO ACDS (L1)	42	52.50	60	1.00	1.00	6	65		65.00	
	THWN-2 (CU)	INV2 TO ACDS (L2)	42	52.50	60	1.00	1.00	6	65		65.00	
A3	THWN-2 (CU)	INV2 TO ACDS (N)	-	-	-	-	-	6	-		-	8
	THWN-2 (CU)	INV3 TO ACDS (L1)	42	52.50	60	1.00	1.00	6	65		65.00	
	THWN-2 (CU)	INV3 TO ACDS (L2)	42	52.50	60	1.00	1.00	6	65		65.00	
A4	THWN-2 (CU)	INV3 TO ACDS (N)	-	-	-	-	-	6	-		-	6
	THWN-2 (CU)	ACCB TO ACDS (L1)	126.00	157.50	175	1.00	1.00	3/0	200		200.00	
	THWN-2 (CU)	ACCB TO ACDS (L2)	126.00	157.50	175	1.00	1.00	3/0	200		200.00	
A5	THWN-2 (CU)	ACCB TO ACDS (N)	-	-	-	-	-	3/0	-		-	4
	THWN-2 (CU)	ACDS TO MAIN SERVICE (L1)	126.00	157.50	175	1.00	1.00	3/0	200		200.00	
	THWN-2 (CU)	ACDS TO MAIN SERVICE (L2)	126.00	157.50	175	1.00	1.00	3/0	200		200.00	
	THWN-2 (CU)	ACDS TO MAIN SERVICE (N)	-	-	-	-	-	3/0	-		-	

CONTRACTOR'S LOGO											
CONTRACTOR'S LICENSE NUMBER OR STAMP											
REVISION DESCRIPTION	DATE										
	11/11/22										
	NO.	A-X1									
	RELEASED										
PROJECT NAME											
OWNER											
ADDRESS											
PROJECT ID:											
SYSTEM SIZE											
42.000 kW-DC 30.000 kW-AC (NAME PLATE)											
DRAWN BY						EP-HT					
APPROVED BY											
SCALE						N.T.S					
SHEET TITLE											
ELECTRICAL CALCULATION											
SHEET NO. PV7											

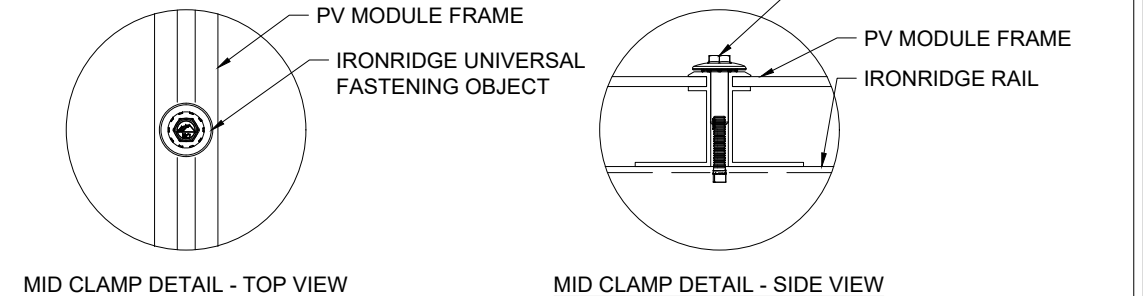


STRUCTURAL DETAIL - TOP VIEW



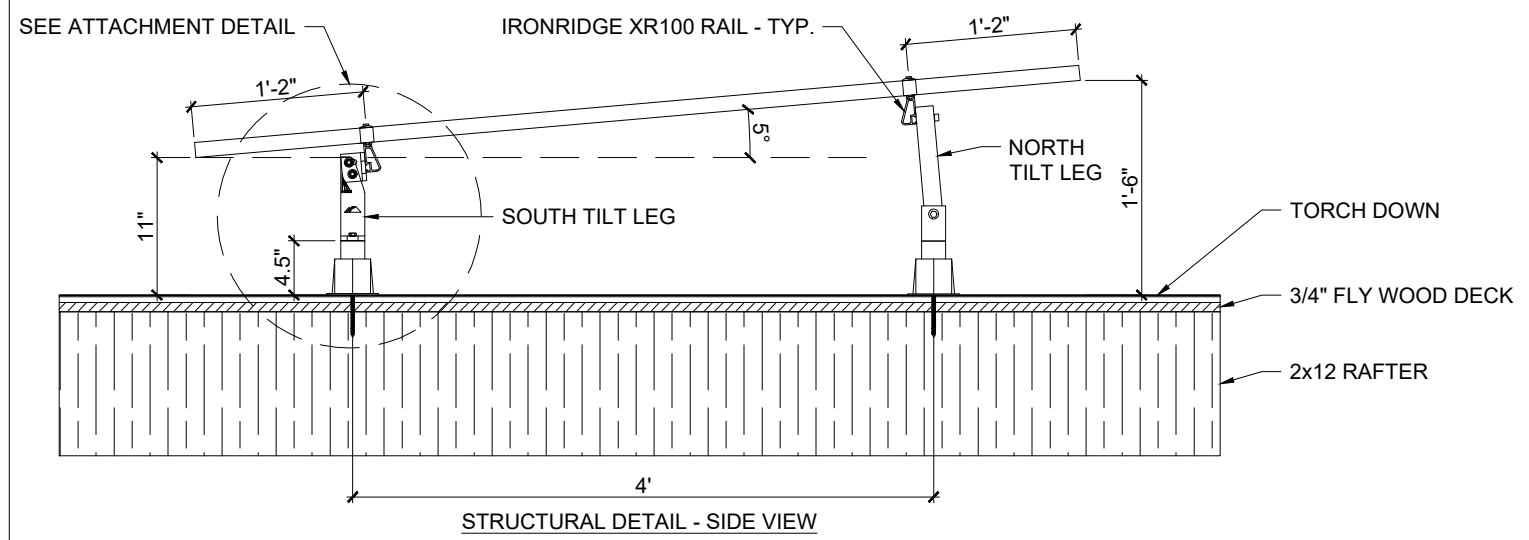
END CLAMP DETAIL - TOP VIEW

END CLAMP DETAIL - SIDE VIEW

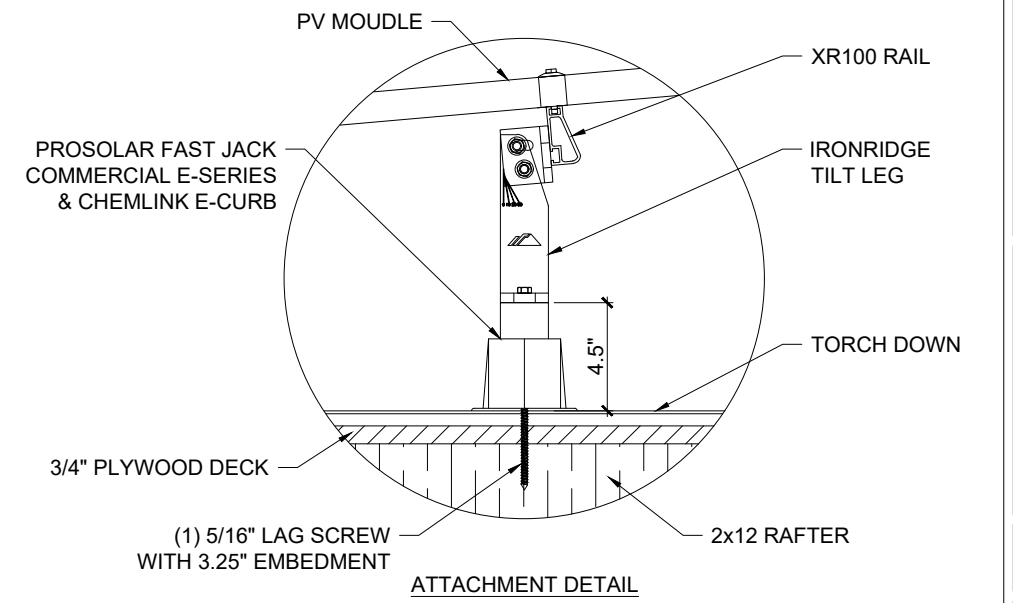


MID CLAMP DETAIL - TOP VIEW

MID CLAMP DETAIL - SIDE VIEW



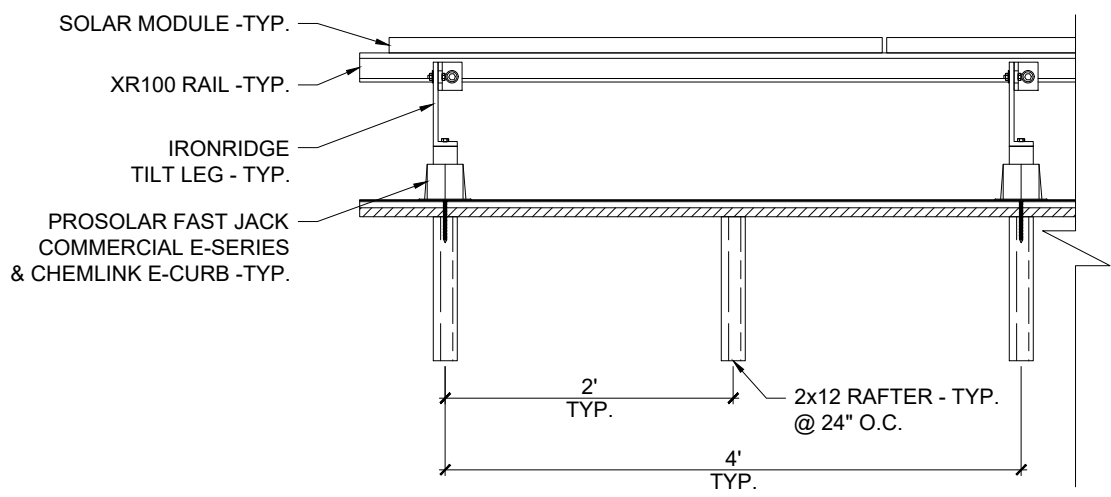
STRUCTURAL DETAIL - SIDE VIEW



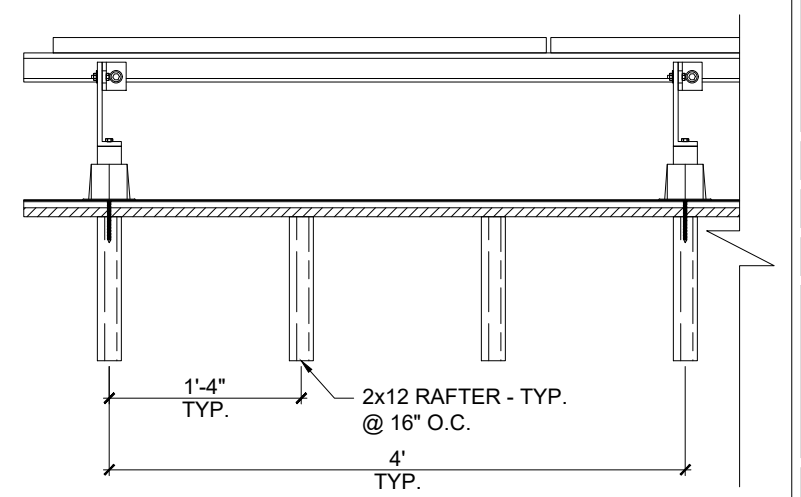
ATTACHMENT DETAIL

DEAD LOAD CALCULATION			
ITEM	QUANTITY	LBS / UNIT	TOTAL WEIGHT (LBS)
MODULE	105	48.5	5092.5
MODULE CLAMP	312	0.05	15.6
RAIL LENGTH (FT)	760	0.68	516.8
ATTACHMENT	196	1.6	313.6
TOTAL WEIGHT			5938.5
TOTAL SOLAR MODULE AREA ON ROOF (SQ FT)			2217.69
ROOF LOAD			2.68
WEIGHT PER ATTACHMENT POINT			30.30

NOTE:
- FLASHING AT ALL ROOF PENETRATIONS WILL BE SEALED WITH M1 TRIPOLYMER ROOF SEALANT CAULKING.



ROOF A - STRUCTURAL DETAIL - FRONT VIEW



ROOF B - STRUCTURAL DETAIL - FRONT VIEW

CONTRACTOR'S LOGO	
CONTRACTOR'S LICENSE NUMBER OR STAMP	
DATE	11/11/22
REVISION	DESCRIPTION
NO.	RELEASED
A-X1	
PROJECT NAME	
OWNER	
ADDRESS	
PROJECT ID:	
SYSTEM SIZE	
42.000 kW-DC 30.000 kW-AC (NAME PLATE)	
DRAWN BY	EP-HT
APPROVED BY	
SCALE	N.T.S
SHEET TITLE	
STRUCTURAL DETAIL	
SHEET NO.	PV8

Single Phase Inverter with HD-Wave Technology

for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US



INVERTERS

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Extremely small
- Built-in module-level monitoring
- Outdoor and indoor installation
- Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)

solaredge.com



Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXBXX4							
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	Vac
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Vac
AC Frequency (Nominal)	59.3 - 60 - 60.5 ¹⁾							Hz
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A
Power Factor	1, adjustable -0.85 to 0.85							
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							
INPUT								
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded	Yes							
Maximum Input Voltage	480							Vdc
Nominal DC Input Voltage	380							Vdc
Maximum Input Current @240V ²⁾	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V ²⁾	-	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600k Ω Sensitivity							
Maximum Inverter Efficiency	99			99.2				%
CEC Weighted Efficiency			99				99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5							W

¹⁾ For other regional settings please contact SolarEdge support
²⁾ A higher current source may be used; the inverter will limit its input current to the values stated

ADDITIONAL FEATURES

Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)
Revenue Grade Data, ANSI C12.20	Optional ³⁾
Inverter Commissioning	with the SetApp mobile application using built-in Wi-Fi station for local connection
Rapid Shutdown - NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect

STANDARD COMPLIANCE

Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (H)
Emissions	FCC Part 15 Class B

INSTALLATION SPECIFICATIONS

AC Output Conduit Size / AWG Range	3/4" minimum / 14-6 AWG	3/4" minimum / 14-4 AWG
DC Input Conduit Size / # of Strings / AWG Range	3/4" minimum / 1-2 strings / 14-6 AWG	3/4" minimum / 1-3 strings / 14-6 AWG
Dimensions with Safety Switch (HxWxD)	17.7 x 14.6 x 6.8 / 450 x 370 x 174	21.3 x 14.6 x 7.3 / 540 x 370 x 185
Weight with Safety Switch	22 / 10	25.1 / 11.4
Noise	< 25	< 50
Cooling	Natural Convection	
Operating Temperature Range	-40 to +140 / -40 to +60 ⁴⁾	
Protection Rating	NEMA 4X (Inverter with Safety Switch)	

³⁾ Revenue grade inverter P/N: SExxxH-US000BNC4
⁴⁾ Full power up to at least 50°C / 122°F; for power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>

CONTRACTOR'S LOGO

CONTRACTOR'S LICENSE NUMBER OR STAMP

REVISION	DATE	11/11/22						
	DESCRIPTION							
NO.	A-X1	RELEASED						

PROJECT NAME

OWNER

ADDRESS

PROJECT ID:

SYSTEM SIZE

42.000 kW-DC
30.000 kW-AC (NAME PLATE)

DRAWN BY EP-HT

APPROVED BY

SCALE N.T.S

SHEET TITLE

APPENDIX 2

SHEET NO. **PV12**

Power Optimizer

For North America

P370 / P400 / P401 / P485 / P505



POWER OPTIMIZER

PV power optimization at the module level

- Specifically designed to work with SolarEdge inverters
- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module-level monitoring
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)
- Module-level voltage shutdown for installer and firefighter safety

solaredge.com



Power Optimizer

For North America

P370 / P400 / P401 / P485 / P505

Optimizer model (typical module compatibility)	P370 (for higher-power 60 and 72-cell modules)	P400 (for 72 & 96-cell modules)	P401 (for high power 60 and 72-cell modules)	P485 (for high-voltage modules)	P505 (for higher current modules)	
INPUT						
Rated Input DC Power ⁽¹⁾	370	400	430	485	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	60	80	60	125 ⁽²⁾	83 ⁽²⁾	Vdc
MPPT Operating Range	8 - 60	8 - 80	8 - 60	12.5 - 105	12.5 - 83	Vdc
Maximum Short Circuit Current (Isc)	11	10.1	12.5	11	14	Adc
Maximum DC Input Current	13.75	12.5	14.65	12.5	17.5	
Maximum Efficiency			99.5			%
Weighted Efficiency			98.8			%
Oversvoltage Category			II			
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER)						
Maximum Output Current			15			Adc
Maximum Output Voltage	60			80		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF)						
Safety Output Voltage per Power Optimizer			1 ± 0.1			Vdc
STANDARD COMPLIANCE						
EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3					
Safety	IEC62109-1 (class II safety), UL1741, NEC/PVRSS					
Material	UL94 V-0, UV Resistant					
RoHS	Yes					
INSTALLATION SPECIFICATIONS						
Maximum Allowed System Voltage	1000					Vdc
Compatible inverters	All SolarEdge Single Phase and Three Phase inverters					
Dimensions (W x L x H)	129 x 153 x 27.5 / 5.1 x 6 x 1.1	129 x 153 x 33.5 / 5.1 x 6 x 1.3	129 x 153 x 29.5 / 5.1 x 6 x 1.16	129 x 159 x 49.5 / 5.1 x 6.3 x 1.9	129 x 162 x 59 / 5.1 x 6.4 x 2.3	mm / in
Weight (including cables)	630 / 1.4	750 / 1.7	655 / 1.5	845 / 1.9	1064 / 2.3	gr / lb
Input Connector	MC4 ⁽³⁾			MC4 ⁽³⁾	MC4 ⁽³⁾	
Input Wire Length ⁽⁴⁾	0.16 / 0.5					m / ft
Output Wire Type / Connector	Double Insulated / MC4					
Output Wire Length	1.2 / 3.9					m / ft
Operating Temperature Range ⁽⁵⁾	-40 to +85 / -40 to +185					°C / °F
Protection Rating	IP68 / NEMA6P					
Relative Humidity	0 - 100					%

(1) Rated power of the module at STC will not exceed the optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed
 (2) NEC 2017 requires max input voltage be not more than 80V
 (3) For other connector types please contact SolarEdge
 (4) Longer inputs wire lengths are available for use. For 0.9m input wire length order P401-xxxLxxx
 (5) For ambient temperature above +85°C / +185°F power de-rating is applied. Refer to Power Optimizers Temperature De-Rating Technical Note for more details: <https://www.solaredge.com/sites/default/files/se-temperature-de-rating-note-na.pdf>

PV System Design Using a SolarEdge Inverter ⁽⁶⁾⁽⁷⁾	Single Phase HD-Wave	Single phase	Three Phase for 208V grid	Three Phase for 277/480V grid	
Minimum String Length (Power Optimizers)	P370, P400, P401 P485, P505	8	10	18	
Maximum String Length (Power Optimizers)		6	8	14	
Maximum String Length (Power Optimizers)		25	25	50	
Maximum Power per String	5700 ⁽⁸⁾ (6000 with SE7600-US - SE11400-US)	5250 ⁽⁹⁾	6000 ⁽⁹⁾	12750 ⁽¹⁰⁾	W
Parallel Strings of Different Lengths or Orientations	Yes				

(6) For detailed string sizing information, refer to http://www.solaredge.com/sites/default/files/string_sizing_na.pdf
 (7) It is not allowed to mix P485/P505 with P370/P400/P401 in one string
 (8) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements, safety voltage will be above the 30V requirement
 (9) For the 208V grid, it is allowed to install up to 6,500W per string when the maximum power difference between each string is 1,000W
 (10) For 277/480V grid: it is allowed to install up to 15,000W per string when the maximum power difference between each string is 2,000W

© SolarEdge Technologies, Ltd. All rights reserved. SOLAREEDGE, the SolarEdge logo, OPTIMIZED BY SOLAREEDGE are trademarks or registered trademarks of SolarEdge Technologies, Inc. All other trademarks mentioned herein are trademarks of their respective owners. Date: July 12, 2022 DS-000044-NAM. Subject to change without notice.



CONTRACTOR'S LOGO

CONTRACTOR'S LICENSE NUMBER OR STAMP

DATE	REVISION	DESCRIPTION	NO.	RELEASED
11/11/22			A-X1	

PROJECT NAME

OWNER

ADDRESS

PROJECT ID:

SYSTEM SIZE

42.000 kW-DC
30.000 kW-AC (NAME PLATE)

DRAWN BY EP-HT

APPROVED BY

SCALE N.T.S

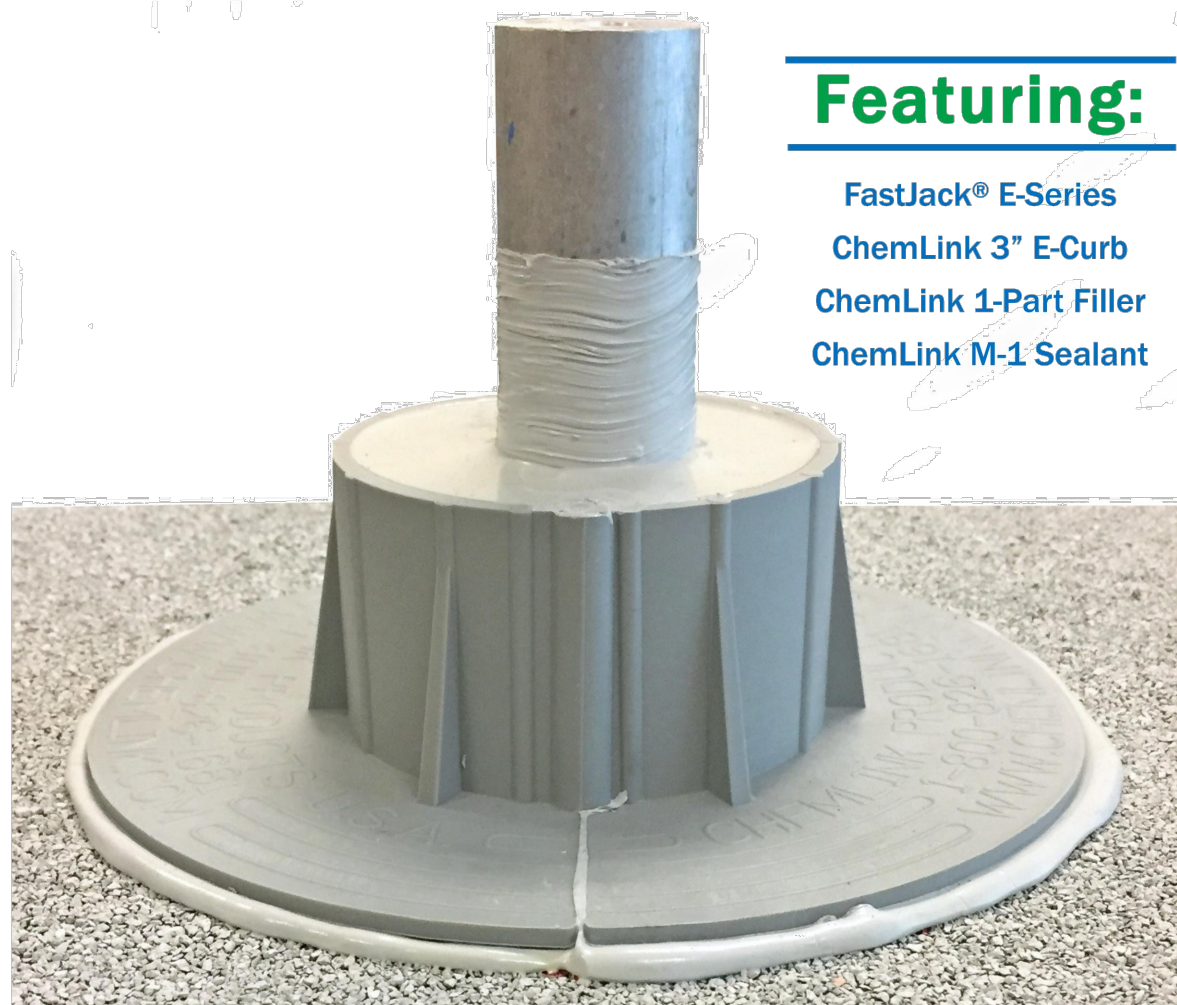
SHEET TITLE

APPENDIX 3

SHEET NO. PV13

FastJack® + CHEMLINK® POLYMER INNOVATION

The FastJack® / ChemLink™ combination is waterproof and compatible with most roof types, making it the go-to flat roof solar and other rooftop equipment mounting solution for today's contractors.



Featuring:

- FastJack® E-Series
- ChemLink 3" E-Curb
- ChemLink 1-Part Filler
- ChemLink M-1 Sealant

Waterproof | **Low Cost** | **High Quality** | **Easy-to-Install**

ProSolar®

COPYRIGHT PROFESSIONAL SOLAR PRODUCTS 2022: All information contained in this brochure is property of Professional Solar Products (PSP). (v 2.0)

LOW COST + EASY TO INSTALL

FastJack® Commercial E-Series



- 1 4-1/2" Commercial FastJack E-Series (P/N: CFJE-450-18)
- 2 6" Commercial FastJack E-Series (P/N: CFJE-600-18)
- 3 8" Commercial FastJack E-Series (P/N: CFJE-800-18)
- 4 10" Commercial FastJack E-Series (P/N: CFJE-1000-18)
- 5 12" Commercial FastJack E-Series (P/N: CFJE-1200-18)

Includes: 1-1/4" OD Solid Aluminum post with 3/8" Top Threaded, 2" E-base. Hardware sold separately.
Packaged 18 per box

1-Part and M1 Ratios

CFJE:

- (1) Tube 1-Part for (2) E-Curbs
- (1) Pouch 1-Part for (12) E-Curbs
- (1) Tube M-1 for (3) E-Curbs

FJE:

- (2) Tubes 1-Part for (3) E-Curbs
- (1) Pouch 1-Part for (10) E-Curbs
- (1) Tube M-1 for (3) E-Curbs

ProSolar®

COPYRIGHT PROFESSIONAL SOLAR PRODUCTS 2022: All information contained in this brochure is property of Professional Solar Products (PSP). (v 2.0)

FastJack® Residential E-Series



- 1 3" FastJack E-Series (P/N: FJE-300-18)
- 2 4-1/2" FastJack E-Series (P/N: FJE-450-18)
- 3 6" FastJack E-Series (P/N: FJE-600-18)

Includes: 1" OD Solid Aluminum Post and 1.5" OD E-base, 5/16" x 3-1/2" Lag screw, 3/8" SS Washer, and 3/8" x 3/4" SS Hex Bolt
Packaged 18 per box

CHEMLINK® POLYMER INNOVATION



- 1 ChemLink 1-Part Pouch (P/N: A-ChemLink 1-Part Pouch)
- 2 ChemLink 1-Part 10.1oz Tube (P/N: A-ChemLink 1-Part)
- 3 ChemLink M-1 10.1oz Tube (P/N: A-ChemLink M-1)
- 4 ChemLink E-Curb (P/N: A-ChemLink 3" E-Curb)
Round, 3" diameter, does not include M-1 adhesive/sealant or 1-Part sealant

CONTRACTOR'S LOGO

CONTRACTOR'S
LICENSE NUMBER OR STAMP

NO.	A-X1	RELEASED	REVISION	
			DESCRIPTION	DATE
				11/11/22

PROJECT NAME

OWNER

ADDRESS

PROJECT ID:

SYSTEM SIZE

42,000 kW-DC
30,000 kW-AC (NAME PLATE)

DRAWN BY: EP-HT

APPROVED BY:

SCALE: N.T.S

SHEET TITLE

APPENDIX 5

SHEET NO. **PV15**



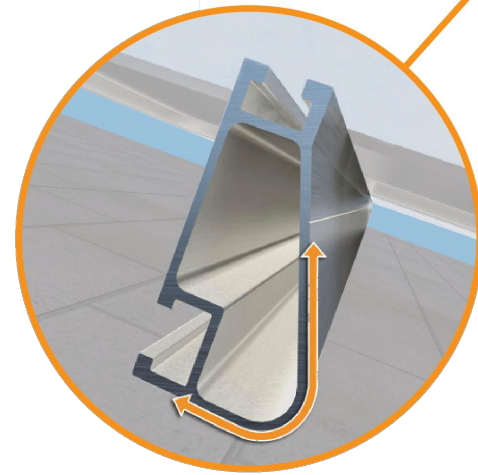
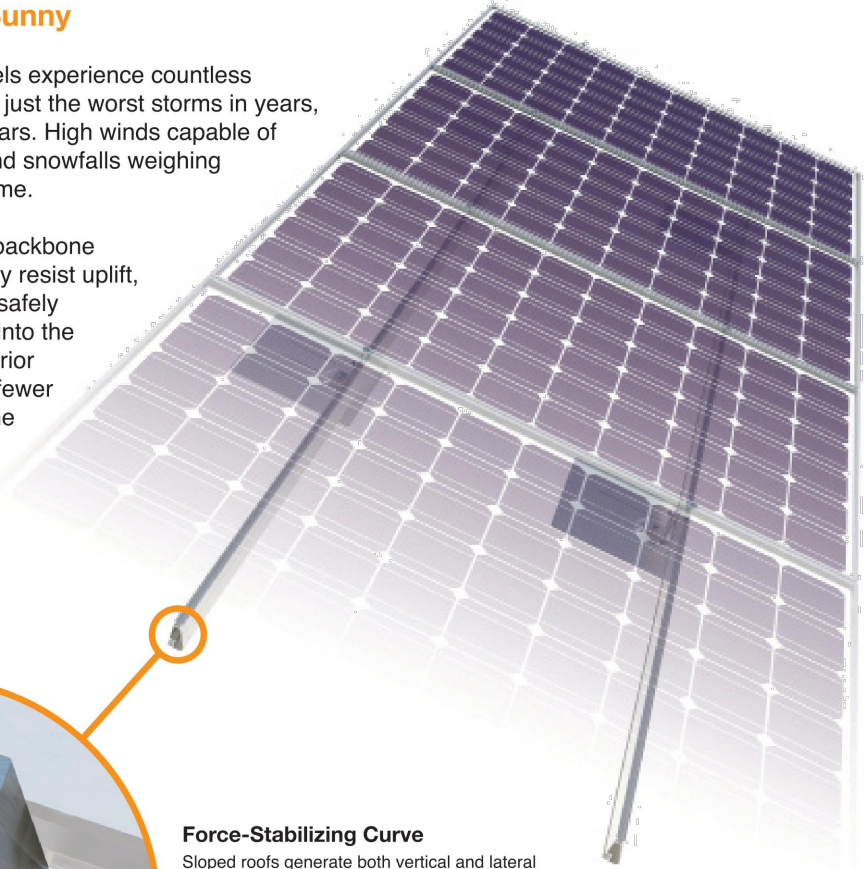
XR Rail® Family

Tech Brief

Solar Is Not Always Sunny

Over their lifetime, solar panels experience countless extreme weather events. Not just the worst storms in years, but the worst storms in 40 years. High winds capable of ripping panels from a roof, and snowfalls weighing enough to buckle a panel frame.

XR Rails® are the structural backbone preventing these results. They resist uplift, protect against buckling and safely and efficiently transfer loads into the building structure. Their superior spanning capability requires fewer roof attachments, reducing the number of roof penetrations and the amount of installation time.



Force-Stabilizing Curve

Sloped roofs generate both vertical and lateral forces on mounting rails which can cause them to bend and twist. The curved shape of XR Rails® is specially designed to increase strength in both directions while resisting the twisting. This unique feature ensures greater security during extreme weather and a longer system lifetime.

Compatible with Flat & Pitched Roofs



XR Rails® are compatible with FlashFoot® and other pitched roof attachments.



IronRidge® offers a range of tilt leg options for flat roof mounting applications.

Corrosion-Resistant Materials

All XR Rails® are made of 6000-series aluminum alloy, then protected with an anodized finish. Anodizing prevents surface and structural corrosion, while also providing a more attractive appearance.



XR Rail® Family

The XR Rail® Family offers the strength of a curved rail in three targeted sizes. Each size supports specific design loads, while minimizing material costs. Depending on your location, there is an XR Rail® to match.

Tech Brief



XR10

XR10 is a sleek, low-profile mounting rail, designed for regions with light or no snow. It achieves spans up to 6 feet, while remaining light and economical.

- 6' spanning capability
- Moderate load capability
- Clear & black anodized finish
- Internal splices available



XR100

XR100 is the ultimate residential mounting rail. It supports a range of wind and snow conditions, while also maximizing spans up to 10 feet.

- 10' spanning capability
- Heavy load capability
- Clear & black anodized finish
- Internal splices available



XR1000

XR1000 is a heavyweight among solar mounting rails. It's built to handle extreme climates and spans up to 12 feet for commercial applications.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish
- Internal splices available

Rail Selection

The table below was prepared in compliance with applicable engineering codes and standards.* Values are based on the following criteria: ASCE 7-16, Gable Roof Flush Mount, Roof Zones 1 & 2e, Exposure B, Roof Slope of 8 to 20 degrees and Mean Building Height of 30 ft. Visit IronRidge.com for detailed certification letters.

Load		Rail Span					
Snow (PSF)	Wind (MPH)	4'	5' 4"	6'	8'	10'	12'
None	90						
	120						
	140	XR10		XR100		XR1000	
	160						
20	90						
	120						
	140						
	160						
30	90						
	160						
40	90						
	160						
80	160						
	160						
120	160						
	160						

*Table is meant to be a simplified span chart for conveying general rail capabilities. Use approved certification letters for actual design guidance.

CONTRACTOR'S LOGO

CONTRACTOR'S LICENSE NUMBER OR STAMP

NO.	A-X1	RELEASED	REVISION	DATE							
				DESCRIPTION							
				11/11/22							

PROJECT NAME

OWNER

ADDRESS

PROJECT ID:

SYSTEM SIZE

42,000 kW-DC
30,000 kW-AC (NAME PLATE)

DRAWN BY EP-HT

APPROVED BY

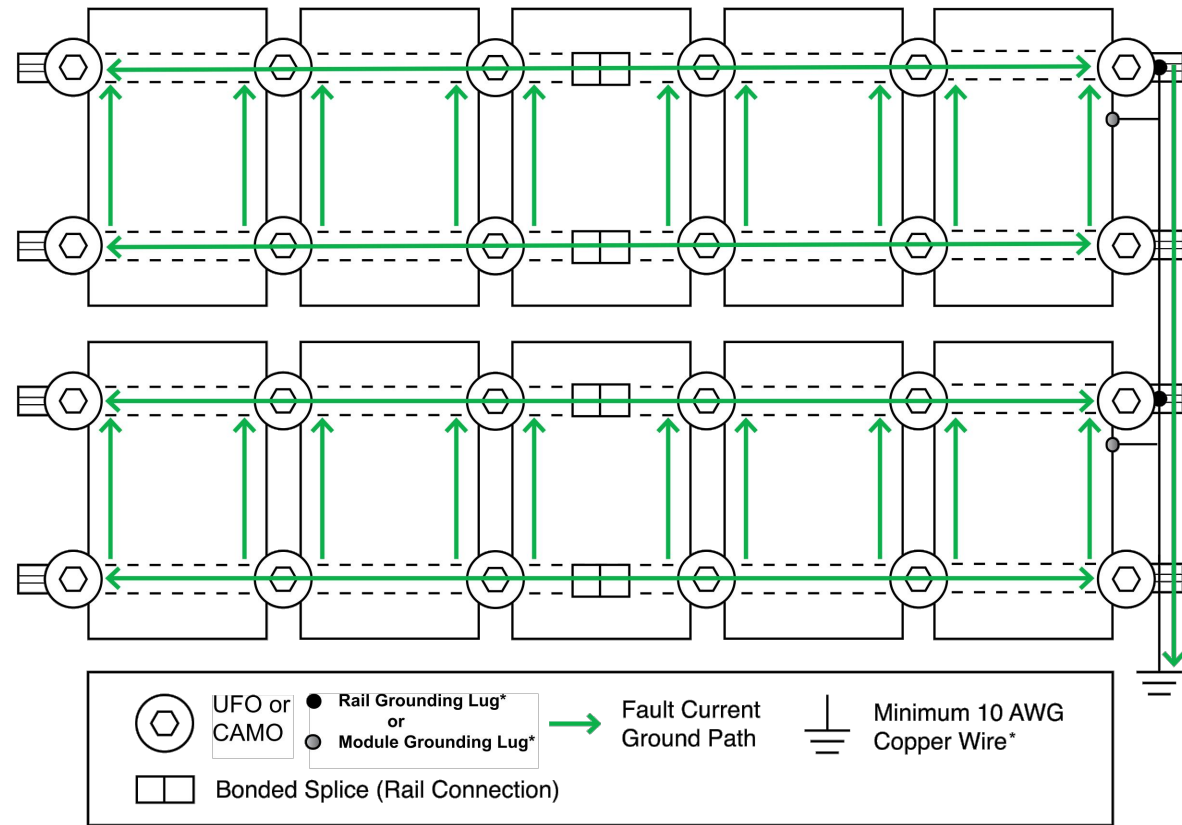
SCALE N.T.S

SHEET TITLE

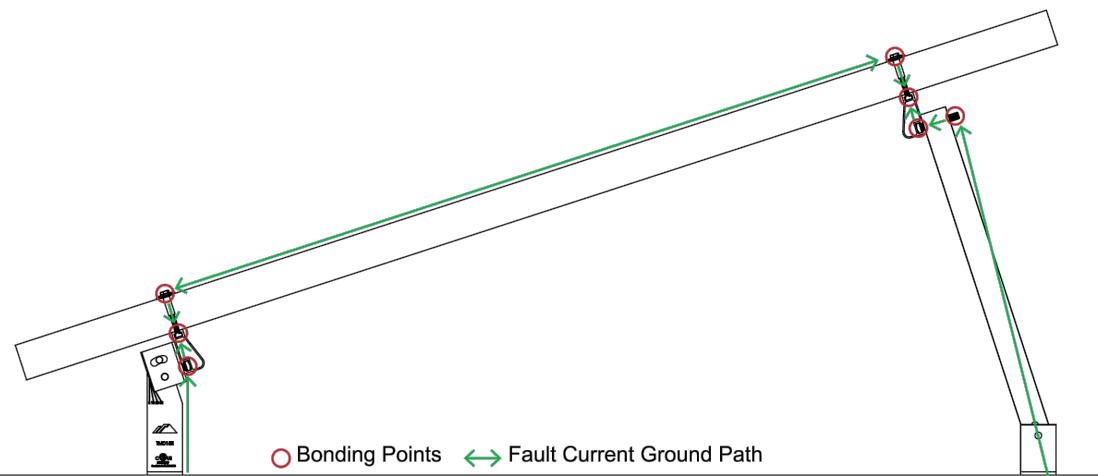
APPENDIX 7

SHEET NO. **PV17**

ELECTRICAL DIAGRAM



*One Module Grounding Lug or Rail Grounding lug is required per row of a system. Grounding Lugs and wire are not required in systems using certain Enphase microinverters or certain Sunpower modules. Equipment grounding is achieved with the Engage cable for Enphase or the AC module cable system for Sunpower via their integrated EGC.



8431 Murphy Drive
Middleton, WI 53562 USA
Telephone: 608.836.4400
Facsimile: 608.831.9279
www.intertek.com

Test Verification of Conformity

In the basis of the tests undertaken, the sample(s) of the below product have been found to comply with the requirements of the referenced specifications at the time the tests were carried out.

Applicant Name & Address:	IronRidge, Inc. 1495 Zephyr Ave. Hayward, CA 94544 USA
Product Description:	Tilt Mount System with XR Rails.
Ratings & Principle Characteristics:	<u>Fire Class Resistance Rating:</u> -Tilt Mount (Asymmetrical). Class A Fire Rated for Low Slope applications when using Type 1, 2 and 3, listed photovoltaic modules. Class A Fire Rated for Steep Slope applications with Type 1 and 2, listed photovoltaic modules. "Angle of tilt allowed by the system is any greater than or equal to 1° and specified in the installation instructions. This system was evaluated with a 5" gap between the bottom of the module and the roof's surface. Per Section 31.2.2.1 of UL 1703 this product can be installed with any gap stated in the manufacturers installation instructions. No perimeter guard is required. Installed with components per IronRidge installation manual and as reviewed by Intertek Engineering Evaluation 102241487MID-001.1. This rating is applicable with any IronRidge or 3rd party roof anchors.
Models:	IronRidge Tilt Mount with XR Rails
Brand Name:	IronRidge Tilt Mount
Relevant Standards:	UL 2703 (Section 15.2 and 15.3) Standard for Safety Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for Use with Flat-Plate Photovoltaic Modules and Panels, First Edition dated Jan. 28, 2015 Referencing UL1703 Third Edition dated May 2015, (Section 31.2) Standard for Safety for Flat-Plate Photovoltaic Modules and Panels.
Verification Issuing Office:	Intertek Testing Services NA, Inc. 8431 Murphy Drive Middleton, WI 53562
Date of Tests:	Tests: 08/27/2014 to 03/17/2015; Evaluations: 08/19/2015
Test Report Number(s):	101769343MID-001r1, 101769343MID-001a, 101915978MID-001, 101999492MID-001ar1-cr1 & 102241487MID-001.1 (Evaluation for South Tilt Leg Assembly)

This verification is part of the full test report(s) and should be read in conjunction with them. This report does not automatically imply product certification.

Completed by:	Chris Zimbrich Title: Technician II, Fire Resistance	Reviewed by:	Chad Naggs Title: Technician I, Fire Resistance
Signature:		Signature:	
Date:	05/25/2016	Date:	05/25/2016

This Verification is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Verification. Only the Client is authorized to permit copying or distribution of this Verification. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test/inspection results referenced in this Verification are relevant only to the sample tested/inspected. This Verification by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

GFT-OP-11a (24-MAR-2014)

CONTRACTOR'S LOGO

CONTRACTOR'S LICENSE NUMBER OR STAMP

REVISION	DESCRIPTION	DATE
NO. A-X1	RELEASED	11/11/22

PROJECT NAME

OWNER

ADDRESS

PROJECT ID:

SYSTEM SIZE

42.000 kW-DC
30.000 kW-AC (NAME PLATE)

DRAWN BY EP-HT

APPROVED BY

SCALE N.T.S

SHEET TITLE

APPENDIX 8

SHEET NO. **PV18**