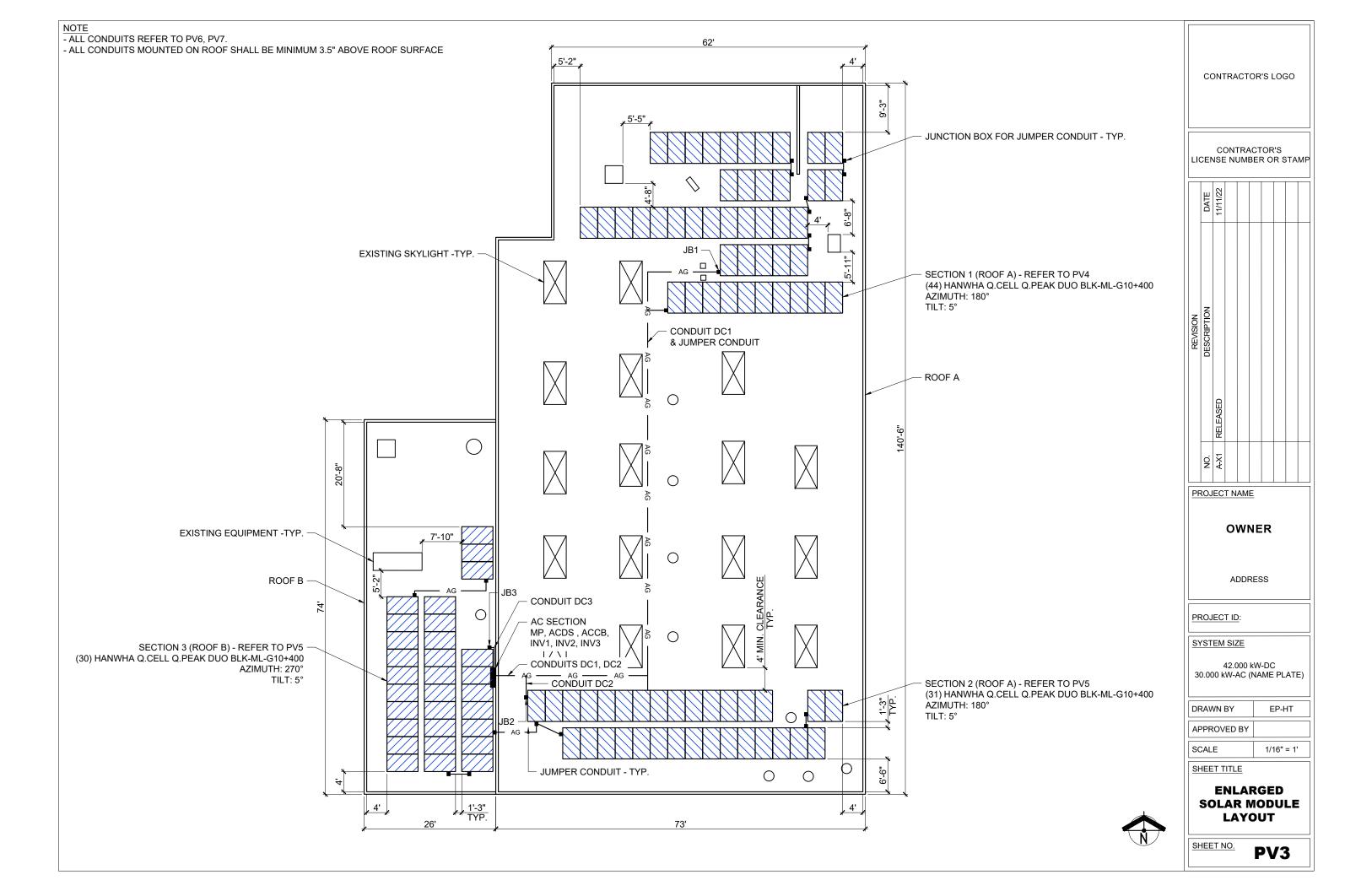
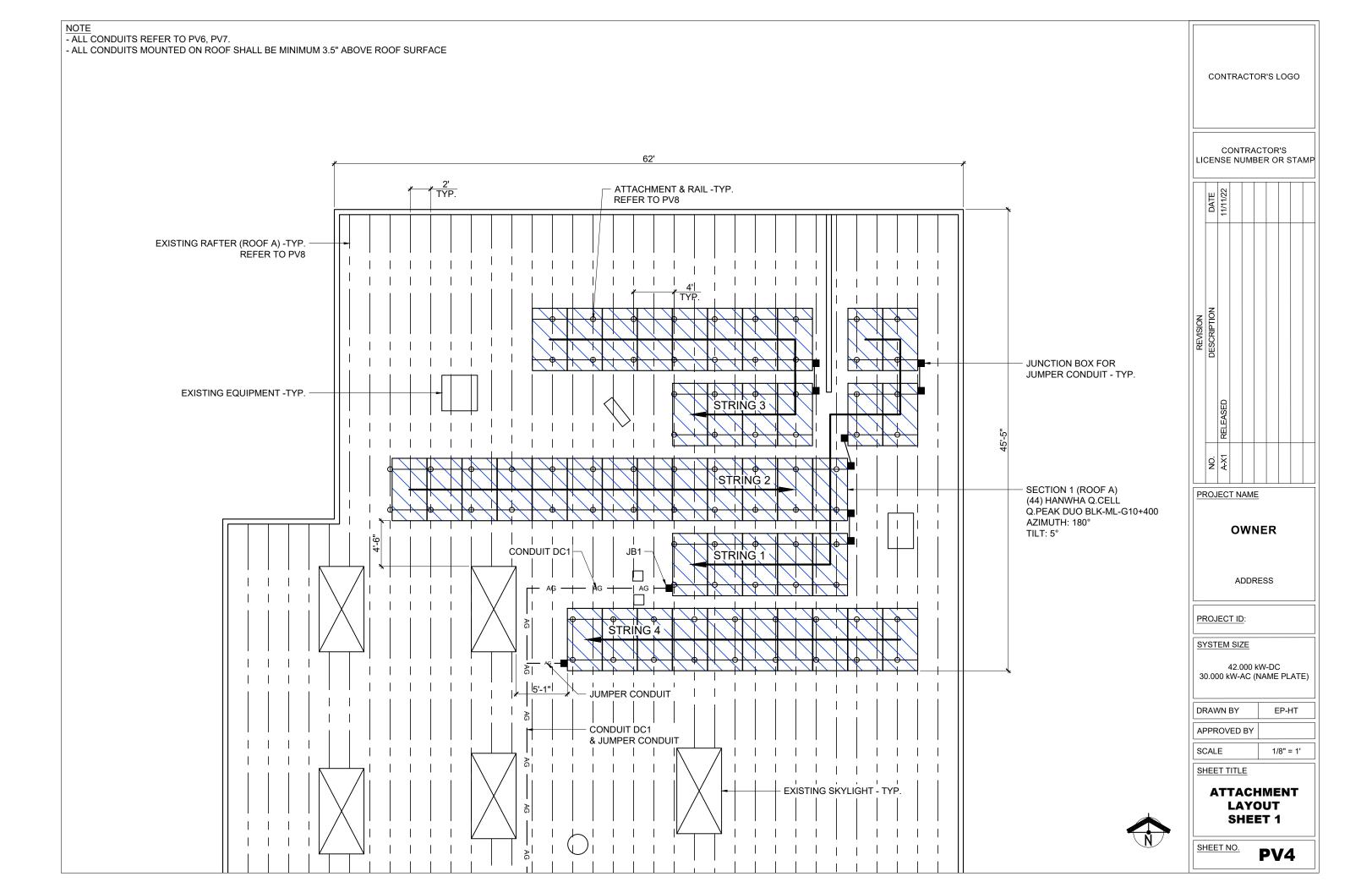
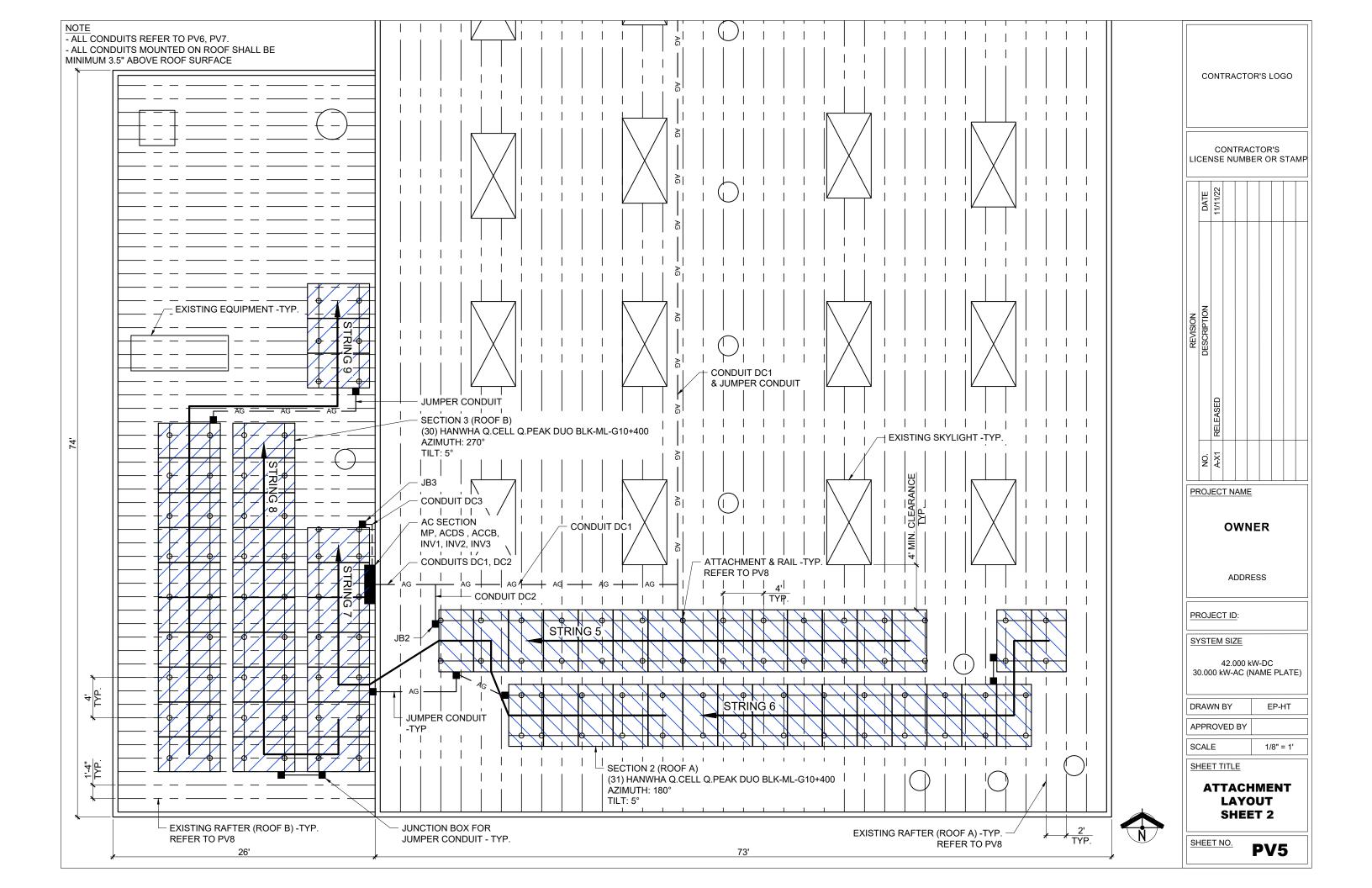
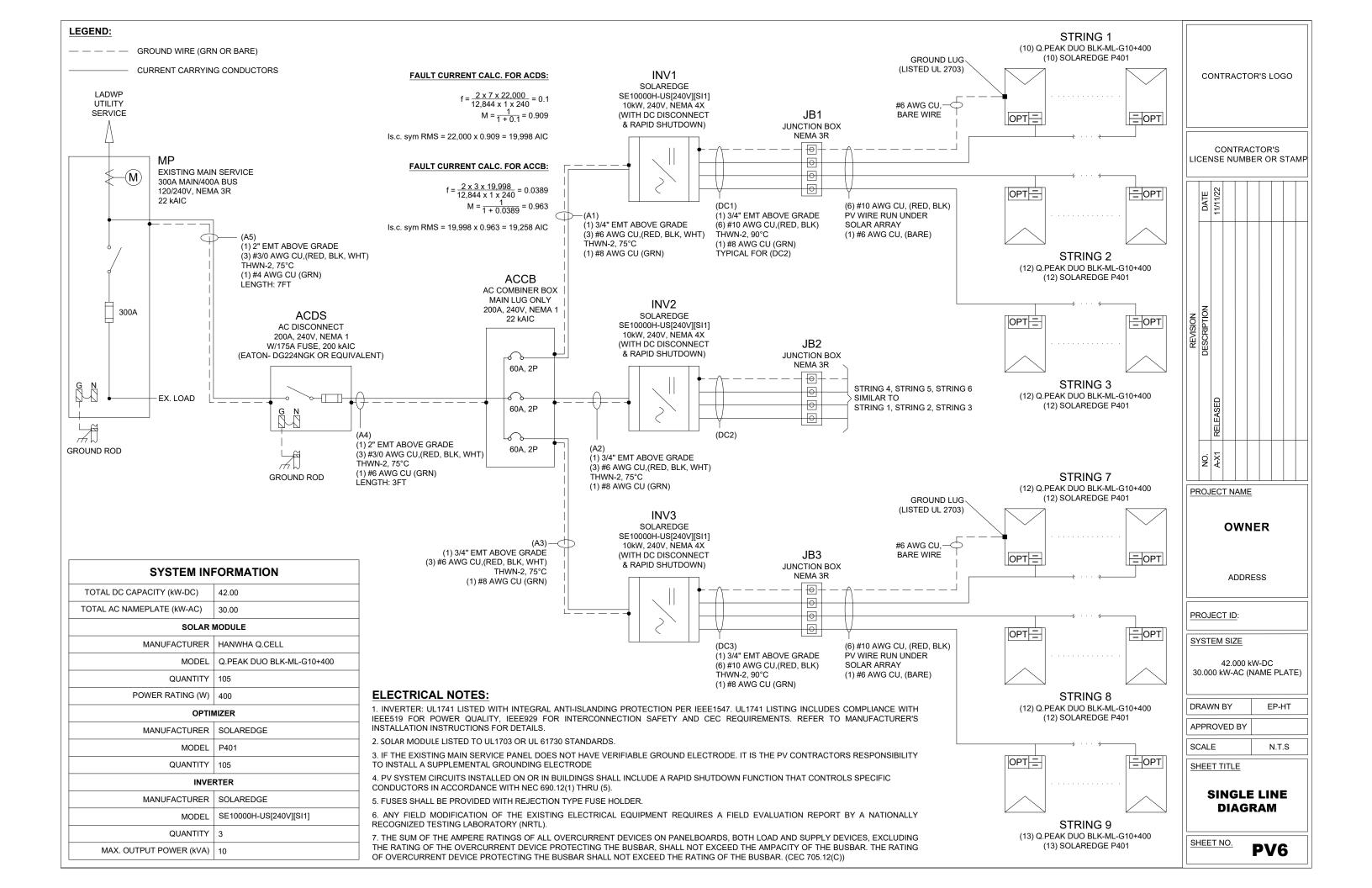
#### SOLAR POWER SYSTEM INSTALLATION FOR SHEET INDEX PROJECT DATA SCOPE OF WORK 1. INSTALLATION OF SOLAR PHOTOVOLTAIC SYSTEM **BUILDING DATA: ELECTRICAL APPENDIX** CONTRACTOR'S LOGO MODULE: (105) HANWHA Q.CELL Q.PEAK DUO BLK-ML-G10+400, 400Wp BUILDING HEIGHT: 27ft PV1 COVER SHEET SOLAR MODULE DATA SHEET OPTIMIZER: (105) SOLAREDGE P401, 430 W STORIES: PV2 SITE PLAN OPTIMIZER DATA SHEET CLASSIFICATION OCCUPANCY: S-1 INVERTER: (3) SOLAREDGE SE10000H-US[240V][SI1], 10 kW PV3 ENLARGED SOLAR MODULE LAYOUT INVERTER DATA SHEET **GOVERNING CODES** RACKING: PRO SOLAR & IRONRIDGE RISK OF CATEGORY: PV4 ATTACHMENT LAYOUT SHEET 1 RAPID SHUTDOWN INSTALLATION SYSTEM CAPACITY: 42.000 kW-DC 1. ALL WORKS TO COMPLY WITH 2022 CALIFORNIA RESIDENTIAL CODE (CRC), WIND SPEED: 100 mph PV5 ATTACHMENT LAYOUT SHEET 2 STRUCTURAL DATA SHEET 30.000 kW-AC (NAME PLATE) WIND EXPOSURE: 2022 CALIFORNIA BUILDING CODE (CBC), 2022 CALIFORNIA FIRE CODE (CFC). STRUCTURAL INTEGRATED GROUNDING PV6 SINGLE LINE DIAGRAM SNOW LOAD: 0 psf 2022 CALIFORNIA ELECTRICAL CODE (CEC), 2022 CALIFORNIA MECHANICAL PV7 ELECTRICAL CACLS. CERTIFICATE OF COMPLIANCE CONTRACTOR'S FIRE SPRINKLER SYSTEM: CODE (CMC), 2022 CALIFORNIA PLUMPING CODE (CPC), 2022 CALIFORNIA PV8 STRUCTURE DETAIL LICENSE NUMBER OR STAMP GREEN CODE (CGC), 2022 CALIFORNIA ENERGY CODE (CEnC), PV9 EQUIPMENT MOUNTING DETAIL 2022 CALIFORNIA GREEN BUILDING STANDERS CODE (CGC) PV10 SIGNAGE & PLACARD LIMITS OF WORK **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. STREET NAME ALL ELECTRICAL MATERIAL SHALL BE LISTED BY "UL" FOR THE TYPE OF APPLICATION AND "UL" LABEL SHALL APPEAR ON ALL ELECTRICAL EQUIPMENT. PROPERTY LINE 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 **EXISTING** WITH INSULATION OF GREEN OR GREEN WITH YELLOW STRIPES. THE COLOR OF UNGROUNDED CONDUCTOR SHALL BE OTHER THAN FOR GROUNDED, (NEUTRAL), AND GROUNDING CONDUCTORS. BUILDING CONTRACTOR SHALL EXTEND WIRING FROM ALL JUNCTION BOXES, SWITCHES, ETC. AND MAKE FINAL LIMITS OF WORK CONNECTIONS AS REQUIRED TO ALL BUILDING EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS. ST 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. PROJECT NAME 10. WIRING METHOD SHALL BE EMT ABOVE GROUND MOUNTED IN CONCEALED SPACES (UNLESS APPROVED OTHERWISE) AND SCHEDULE- 40 PVC FOR BELOW GROUND INSTALLATION UNLESS NOTED OWNER **OTHERWISE** 11. ALL CONDUIT TO USE WEATHER TIGHT EXPANSION FITTINGS. 12. ALL EXTERIOR CONDUITS SHALL BE PAINTED TO MATCH THE COLOR OF THE SURROUNDING AREA. **ADDRESS** 13. A LADDER WILL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS. VICINITY MAP 14. FIRE INSPECTION REQUIRED. "ALL CONNECTIONS TO EXISTING ROOF FRAMING SHALL REMAIN EXPOSED UNTIL INSPECTED." PROJECT ID: 15. INSPECTION REQUIRED FOR ROOF CONNECTION MOUNTING ASSEMBLIES PRIOR TO INSTALLING SYSTEM SIZE Glendale 16. EXISTING PLUMPING VENTS, SKYLIGHTS, EXHAUST OUTLET, & VENTILATION INTAKE AIR OPENINGS 42.000 kW-DC SHALL NOT BE COVERED OR BLOCKED BY THE SOLAR PHOTOVOLTAIC SYSTEM 30.000 kW-AC (NAME PLATE) 17. 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 DRAWN BY EP-HT CIRCUITING, OPEN CIRCUITING, OR COVER THE ARRAY WITH OPAQUE COVERING 18. THESE DRAWINGS ARE REPRESENTATIVE OF THE SCOPE AND NATURE OF WORK. IT IS NOT APPROVED BY GUARANTEED TO REPRESENT EXACT FIELD CONDITIONS AND DIMENSIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY FIELD DIMENSIONS AND TO COORDINATE THE **SCALE** N.T.S WORK WITH THAT OF THE CONSTRUCTION MANAGER Los Angeles SHEET TITLE 19. 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 **COVER SHEET** WITH THE OWNER/GENERAL CONTRACTOR AND ANY OTHER TRADES THAT THE NEW ROUTING MAY AFFECT SHEET NO. PV1











SYSTEM INF	FORMATION
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
OPTIN	MIZER
MANUFACTURER	SOLAREDGE
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
INVER	RTER
MANUFACTURER	SOLAREDGE
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. DC INPUT CURRENT (Adc)  MAX. AC OUTPUT VOLTAGE (V)	27 240

Voc AT LOWEST TEMPERATURE (1 MODULE/OPTIMIZER)

		· ·							1	IVIII V. IL		
									2% A'	VERAGE H	HIGH. TEMP.	26
1									MAX. T	EMP. 3.5"	ABOVE ROOF	43
CONDUIT	WIRE TYPE	DC & AC CONNECTION	OUTPUT CURRENT (A)	MAX. CURRENT PER CEC 690.8(B)(1)(a)	OVER CURRENT PROTECTION DEVICE	AMBIENT TEMP. DERATE PER CEC	DERATE PER CEC	WIRE SIZE	TEMP.	MPACITY RATING	DERATED WIRE AMPACITY	GROUND WIRE PER CEC 250.122 OR 250.66
					PER CEC 690.9	0.00(2)(2)(4)	310.15(B)(3)(a)		75°C	90°C		
	THWN-2 (CU)	STRING 1 TO INV1 (DC+)	15	18.75	20	0.87	0.8	10		40	27.84	
	THWN-2 (CU)	STRING 1 TO INV1 (DC-)	15	18.75	20	0.87	0.8	10		40	27.84	
DC1	THWN-2 (CU)	STRING 2 TO INV1 (DC+)	15	18.75	20	0.87	0.8	10		40	27.84	8
-	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	
	THWN-2 (CU)	STRING 3 TO INV1 (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 4 TO INV2 (DC-)	15	18.75	20	0.87	0.8	10		40	27.84	
DC2	THWN-2 (CU)	STRING 5 TO INV2 (DC+)	15	18.75	20	0.87	0.8	10		40	27.84	8
	THWN-2 (CU)	STRING 5 TO INV2 (DC-)	15	18.75	20	0.87	0.8	10		40	27.84	o o
	THWN-2 (CU)	STRING 6 TO INV2 (DC+)	15	18.75	20	0.87	0.8	10		40	27.84	
	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	
DC3	THWN-2 (CU)	STRING 8 TO INV3 (DC+)	15	18.75	20	0.87	0.8	10		40	27.84	8
DC3	THWN-2 (CU)	STRING 8 TO INV3 (DC-)	15	18.75	20	0.87	0.8	10		40	27.84	0
	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	
_ A1	THWN-2 (CU)	INV1 TO ACDS (L2)	42	52.50	60	1.00	1.00	6	65		65.00	8
	THWN-2 (CU)	INV1 TO ACDS (N)	-	-	-	-	-	6	-		-	
	THWN-2 (CU)	INV2 TO ACDS (L1)	42	52.50	60	1.00	1.00	6	65		65.00	
A2	THWN-2 (CU)	INV2 TO ACDS (L2)	42	52.50	60	1.00	1.00	6	65		65.00	8
-	THWN-2 (CU)	INV2 TO ACDS (N)	-	-	-	-	-	6	-		-	
	THWN-2 (CU)	INV3 TO ACDS (L1)	42	52.50	60	1.00	1.00	6	65		65.00	
A3	THWN-2 (CU)	INV3 TO ACDS (L2)	42	52.50	60	1.00	1.00	6	65		65.00	8
	THWN-2 (CU)	INV3 TO ACDS (N)	-	-	-	-	-	6	-		-	
	THWN-2 (CU)	ACCB TO ACDS (L1)	126.00	157.50	175	1.00	1.00	3/0	200		200.00	
A4	THWN-2 (CU)	ACCB TO ACDS (L2)	126.00	157.50	175	1.00	1.00	3/0	200		200.00	6
_	THWN-2 (CU)	ACCB TO ACDS (N)	-	-	-	-	-	3/0	-		-	
	THWN-2 (CU)	ACDS TO MAIN SERVICE (L1)	126.00	157.50	175	1.00	1.00	3/0	200		200.00	
A5	THWN-2 (CU)	ACDS TO MAIN SERVICE (L2)	126.00	157.50	175	1.00	1.00	3/0	200		200.00	4
	THWN-2 (CU)	ACDS TO MAIN SERVICE (N)	-	_	_	_	_	3/0	<u> </u>			

**ELECTRICAL CALCULATION** 

Voc = (1) (45.3) [1 + (-0.0027 ((4-25)))] = 47.87 V

CONTRACTOR'S LOGO

TEMP. REFERENCE (°C)

MIN. TEMP.

CONTRACTOR'S LICENSE NUMBER OR STAMP



OWNER

PROJECT NAME

ADDRESS

PROJECT ID:

SYSTEM SIZE

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

DRAWN BY EP-HT

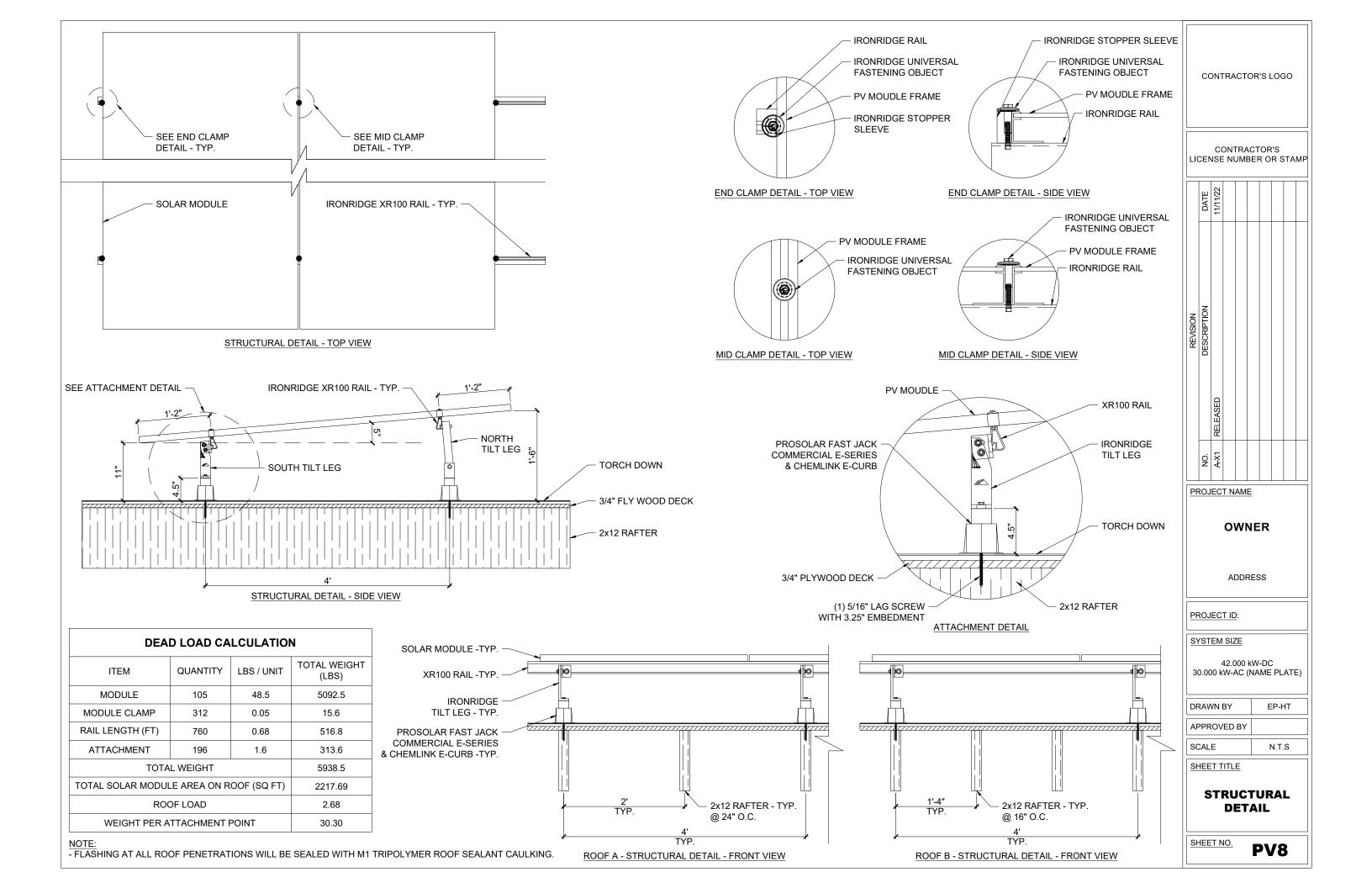
APPROVED BY

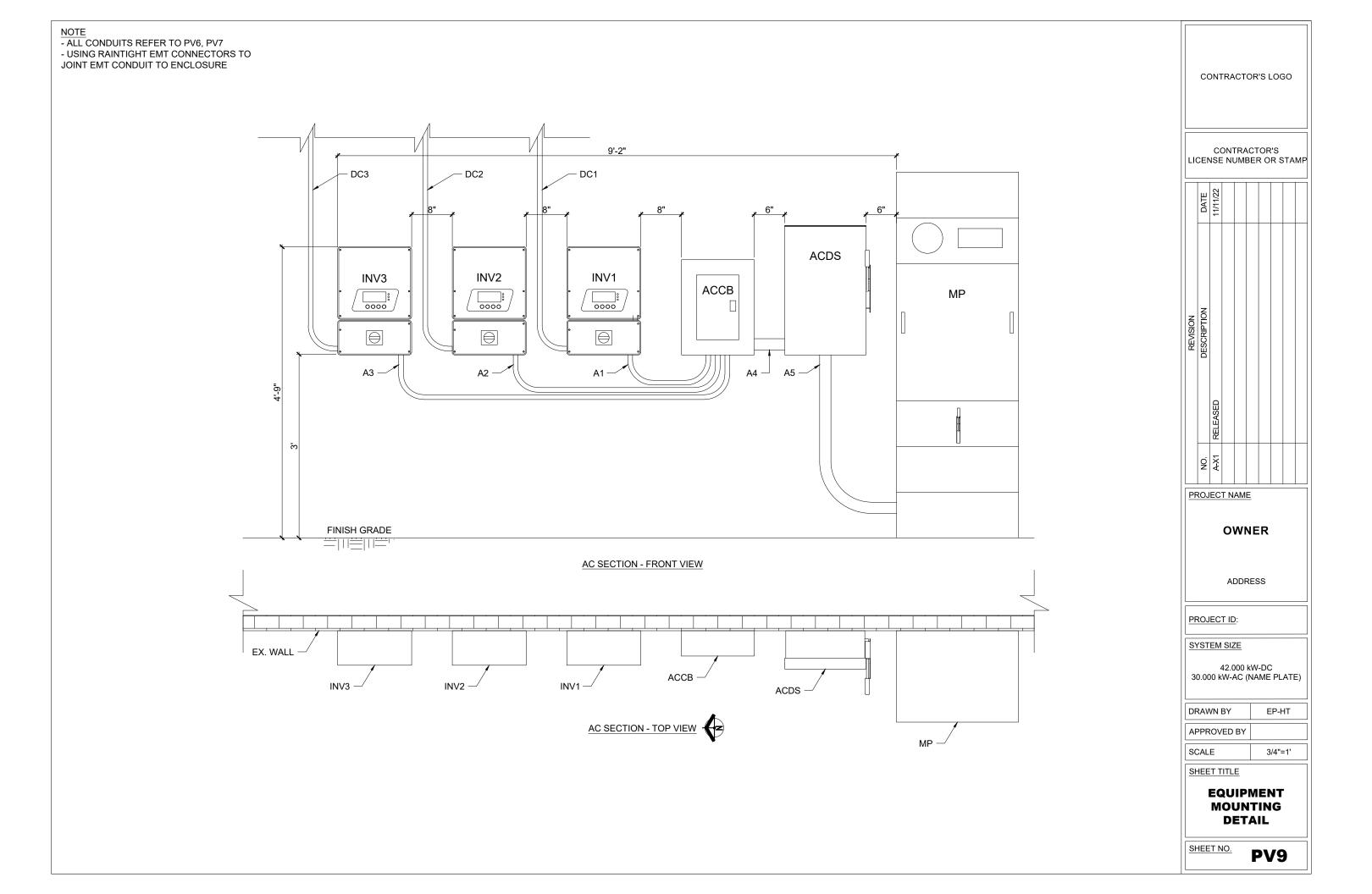
SCALE N.T.S

SHEET TITLE

ELECTRICAL CALCULATION

SHEET NO.





#### WARNING: PHOTOVOLTAIC **POWER SOURCE**

- INSTALL LOCATION: CONDUIT
- WHITE LETTERING, RED BACKGROUND
- MATERIAL: REFLECTIVE, PREMIUM OUTDOOR VINYL WITH FILM LAMINATION

#### **WARNING**

INVERTER OUTPUT CONNECTION DO NOT RELOCATE

- INSTALL LOCATION: MAIN SERVICE, SUB PANEL
- WHITE LETTERING. RED BACKGROUND
- MATERIAL: PREMIUM OUTDOOR VINYL WITH FILM LAMINATION

#### THIS OVERCURRENT DEVICE

## **WARNING**

**ELECTRIC SHOCK HAZARD** 

DO NOT TOUCH TERNINALS TERNINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

- INSTALL LOCATION: AC DISCONNECT
- WHITE LETTERING, RED BACKGROUND
- MATERIAL: PREMIUM OUTDOOR VINYL WITH FILM LAMINATION

#### PHOTOVOLTAIC SYSTEM AC DISCONNECT **RATED AC OUTPUT CURRENT 175 AMPS** AC NORMAL OPERATING VOLTAGE 240 VOLTS

- INSTALL LOCATION: AC DISCONNECT
- WHITE LETTERING. RED BACKGROUND
- MATERIAL: PREMIUM OUTDOOR VINYL WITH FILM LAMINATION

#### 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



- INSTALL LOCATION: AC DISCONNECT
- BLACK OUTLINE WITH BLACK TEXT AND WHITE BACKGROUND NOTE ON TOP IS IN BLACK TEXT AND YELLOW BACKGROUND
- MATERIAL: PREMIUM OUTDOOR VINYL WITH FILM LAMINATION

#### PHOTOVOLTAIC SYSTEM **INVERTER 1**

**RATED MAX POWER - POINT CURRENT: 27 A** RATED MAX POWER - POINT VOLTAGE: 400 V SHORT CIRCUIT CURRENT: MAXIMUM SYSTEM VOLTAGE: 480 V

- INSTALL LOCATION: INVERTER 1 - WHITE LETTERING, RED BACKGROUND

- TYPICAL FOR INVERTER 2, INVERTER 3

WITH FILM LAMINATION

- MATERIAL: REFLECTIVE, PREMIUM OUTDOOR VINYL

- INSTALL LOCATION: AC DISCONNECT
- WHITE LETTERING, RED BACKGROUND
- MATERIAL: PREMIUM OUTDOOR VINYL WITH FILM LAMINATION

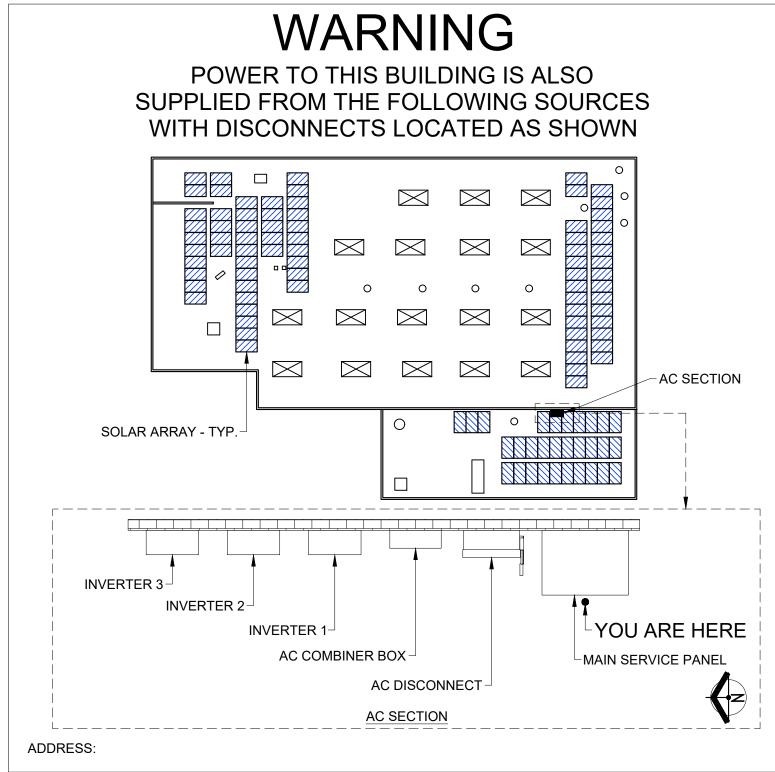
RAPID SHUTDOWN SWITCH FOR

**SOLAR PV SYSTEM** 

#### **AC COMBINER BOX**

- INSTALL LOCATION: AC COMBINER BOX
- WHITE LETTERING, RED BACKGROUND

- MATERIAL: PREMIUM OUTDOOR VINYL WITH FILM LAMINATION



- INSTALL LOCATION: MAIN SERVICE PANEL
- WHITE LETTERING, RED BACKGROUND
- MATERIAL: ACRYLIC WITH UV RATED POLYMER AND FULL ADHESIVE BACKING

CONTRACTOR'S LOGO

CONTRACTOR'S LICENSE NUMBER OR STAMP

	DATE	11/11/22						
REVISION	DESCRIPTION	RELEASED						
	9 Q	A-X1						
PF	ROJ	EC	ΤN	AM	E			
			Ο!	\ <b>\</b> /\	\ <b> </b> =	: Р		

**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

**SIGNAGE** & PLACARD

## **Q.PEAK DUO BLK ML-G10+ SERIES**



385-405Wp | 132 Cells 20.6% Maximum Module Efficiency

MODEL Q.PEAK DUO BLK ML-G10+







12 busbar cell technology



#### Breaking the 20% efficiency barrier

Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.6%.



#### A reliable investment

Inclusive 25-year product warranty and 25-year linear performance warranty<sup>1</sup>.



#### **Enduring high performance**

Long-term yield security with Anti LeTID Technology, Anti PID Technology<sup>2</sup> and Hot-Spot Protect.



#### **Extreme weather rating**

High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).



#### Innovative all-weather technology

Optimal yields, whatever the weather with excellent low-light and temperature behaviour.



#### The most thorough testing programme in the industry

Qcells is the first solar module manufacturer to pass the most comprehensive quality programme in the industry: The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland

The ideal solution for:







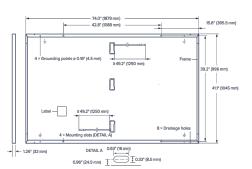




#### Q.PEAK DUO BLK ML-G10+ SERIES

#### ■ Mechanical Specification

Format	74.0 in × 41.1 in × 1.26 in (including frame) (1879 mm × 1045 mm × 32 mm)
Weight	48.5 lbs (22.0 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 22 monocrystalline Q.ANTUM solar half cells
Junction box	2.09-3.98 in × 1.26-2.36 in × 0.59-0.71 in (53-101 mm × 32-60 mm × 15-18 mm), IP67, with bypass diodes
Cable	$4  \text{mm}^2$ Solar cable; (+) $\geq 49.2  \text{in}$ (1250 mm), (-) $\geq 49.2  \text{in}$ (1250 mm)
Connector	Stäubli MC4; IP68



#### **■ Electrical Characteristics**

POWER CLASS			385	390	395	400	40
INIMUM PERFORMANCE AT ST	ANDARD TEST CONDITIONS, ST	C1 (POWER TOLE	RANCE +5W/-0W)				
Power at MPP <sup>1</sup>	P <sub>MPP</sub>	[W]	385	390	395	400	40
Short Circuit Current <sup>1</sup>	I <sub>sc</sub>	[A]	11.04	11.07	11.10	11.14	11.
Open Circuit Voltage <sup>1</sup> Current at MPP	V <sub>oc</sub>	[V]	45.19	45.23	45.27	45.3	45.3
Current at MPP	I <sub>MPP</sub>	[A]	10.59	10.65	10.71	10.77	10.
Voltage at MPP	$V_{MPP}$	[V]	36.36	36.62	36.88	37.13	37.
Efficiency <sup>1</sup>	η	[%]	≥19.6	≥19.9	≥20.1	≥20.4	≥20
MINIMUM PERFORMANCE AT N	ORMAL OPERATING CONDITION:	S, NMOT²					
Power at MPP	P <sub>MPP</sub>	[W]	288.8	292.6	296.3	300.1	303
Short Circuit Current	I <sub>sc</sub>	[A]	8.90	8.92	8.95	8.97	9.
	V <sub>oc</sub>	[V]	42.62	42.65	42.69	42.72	42
Open Circuit Voltage	- 00						_
	I <sub>MPP</sub>	[A]	8.35	8.41	8.46	8.51	8.

#### Qcells PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal nowe nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Qcells sales organisation of your respective

# PERFORMANCE AT LOW IRRADIANCE

Typical module performance under low irradiance conditions in comparison to STC conditions (25  $^{\circ}\text{C}, 1000\,\text{W/m}^2\text{)}.$ 

TEMPERATURE COEFFICIENTS							
Temperature Coefficient of I <sub>sc</sub>	α	[%/K]	+0.04	Temperature Coefficient of V <sub>oc</sub>	β	[%/K]	-0.27
Temperature Coefficient of P <sub>MPP</sub>	γ	[%/K]	-0.34	Nominal Module Operating Temperature	NMOT	[°F]	109±5.4 (43+3°C)

#### ■ Properties for System Design

\*Standard terms of guarantee for the 5 PV companies with the highest production capacity in 2021 (February 2021)

		_			
Maximum System Voltage	$V_{\rm sys}$	[V]	1000 (IEC)/1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating		[A DC]	20	Fire Rating based on ANSI/UL 61730	TYPE 2
Max. Design Load, Push/Pull <sup>3</sup>		[lbs/ft <sup>2</sup> ]	75 (3600 Pa)/55 (2660 Pa)	Permitted Module Temperature	−40°F up to +185°F
Max. Test Load, Push/Pull <sup>3</sup>		[lbs/ft <sup>2</sup> ]	113 (5400 Pa)/84 (4000 Pa)	on Continuous Duty	(-40°C up to +85°C)
3 See Installation Manual					

#### Qualifications and Certificates

UL 61730, CE-compliant, Quality Controlled PV - TÜV Rheinland IEC 61215:2016, IEC 61730:2016, U.S. Patent No. 9,893,215 (solar cells),







Qcells pursues minimizing paper output in consideration of the global environment.

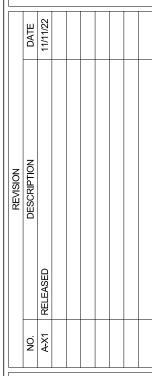
Note: Installation instructions must be followed. Contact our technical service for further information on approved installation of this product.

Harwha Q CELLS America Inc. 400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA I TEL +1 949 748 59 96 I EMAIL hqc-inquiry@qcells.com I WEB www.qcells.com

**QCEIIS** 

CONTRACTOR'S LOGO

CONTRACTOR'S LICENSE NUMBER OR STAMP



PROJECT NAME

OWNER

**ADDRESS** 

PROJECT ID:

SYSTEM SIZE

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

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

SHEET TITLE

**APPENDIX 1** 

<sup>&</sup>lt;sup>1</sup> See data sheet on rear for further information. <sup>2</sup> APT test conditions according to IEC/TS 62804-1:2015, method A (-1500 V, 96 h)

## Single Phase Inverter with HD-Wave Technology

for North America

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





#### 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



**NVERTERS** 

## 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-XXXXXBXX	4			
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 MinNomMax. (211 - 240 - 264)	✓	<b>✓</b>	✓	✓	✓	✓	✓	Vac
AC Output Voltage MinNomMax. (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	А
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	А
Power Factor			1	adjustable -0.85 to 0	85			
GFDI Threshold				1				А
Utility Monitoring, Islanding Protection, Country Configurable Thresholds								
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		38	30			400		Vdc
Maximum Input Current @240V <sup>(2)</sup>	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V <sup>(2)</sup>	-	9	=1	13.5	-	-	27	Ado
Max. Input Short Circuit Current				45				Adc
Reverse-Polarity Protection				Yes				
Ground-Fault Isolation Detection				600kΩ Sensitivity				
Maximum Inverter Efficiency	99			99	9.2			%
CEC Weighted Efficiency			g	9			99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption			<u> </u>	< 2.5				W

ADDITIONAL FEATURES							
Supported Communication Interfaces		RS485, Ethernet, ZigBee (optional), Cellular (optional)					
Revenue Grade Data, ANSI C12.20			Optional <sup>(3)</sup>				
Inverter Commissioning	wit	h the SetApp mobile applica	ation using built-in W	i-Fi station for local c	onnection		
Rapid Shutdown - NEC 2014 and 2017 690.12		Automatic Rapid	Shutdown upon AC	Grid Disconnect			
STANDARD COMPLIANCE							
Safety	UI	L1741, UL1741 SA, UL1699B,	CSA C22.2, Canadiar	AFCI according to T.	I.L. M-07		
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (HI)						
Emissions	FCC Part 15 Class B						
INSTALLATION SPECIFICATION	NS						
AC Output Conduit Size / AWG Range		3/4" minimum / 14-6 AW	/G		3/4" minimum /14-4 AWG		
DC Input Conduit Size / # of Strings / AWG Range	3/4	1" minimum / 1-2 strings / 14	-6 AWG		3/4" minimum / 1-3 strings / 14-6 AWG		
Dimensions with Safety Switch (HxWxD)	1	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	in / mm	
Weight with Safety Switch	22 / 10	25.1 / 11.4	26.2	/ 11.9	38.8 / 17.6	lb/kg	
Noise		< 25			<50	dBA	
Cooling			Natural Convection				
Operating Temperature Range		-44	0 to +140 / -40 to +6	iO <sup>(4)</sup>		°F/°C	
Protection Rating		NEMA 4	X (Inverter with Safet	y Switch)			

<sup>(3)</sup> Revenue grade inverter P/N: SExxxH-US000BNC

CONTRACTOR'S LOGO

CONTRACTOR'S LICENSE NUMBER OR STAMP



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.

<sup>(4)</sup> 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

## **Power Optimizer**

For North America

P370 / P400 / P401 / P485 / P505



#### PV power optimization at the module level

- Specifically designed to work with SolarEdge
- ✓ Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial
- Flexible system design for maximum space utilization

- Fast installation with a single bolt
- Next generation maintenance with modulelevel monitoring
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)
- Module-level voltage shutdown for installer and firefighter safety

### 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 <sup>(1)</sup>	370	400	430	485	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	60	80	60	125 <sup>(2)</sup>	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			%
Overvoltage Category			II.			

OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)							
Maximum Output Current	15		Adc				
Maximum Output Voltage	60	80	Vdc				
OUTPUT DURING STANDBY	OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREDGE INVERTER OR SOLAREDGE INVERTER OFF)						

Safety Output Voltage per Power Optimizer	1 ± 0.1		
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		
D-LIC	Voc		

RoHS		Yes							
INSTALLATION SPECIFICATION	ONS								
Maximum Allowed System Voltage			1000			Vdc			
Compatible inverters		All SolarEdge S	Single Phase and Three Phas	e inverters					
Dimensions (W x L x H)	129 x 153 x 27.5 /	129 x 153 x 33.5 /	129 x 153 x 29.5 /	129 x 159 x 49.5 /	129 x 162 x 59 /	mm			
Dimensions (W X L X H)	5.1 x 6 x 1.1	5.1 x 6 x 1.3	5.1 x 6 x 1.16	5.1 x 6.3 x 1.9	5.1 x 6.4 x 2.3	/ in			
Weight (including cables)	630 / 1.4	750 / 1.7	655 / 1.5	845 / 1.9	1064 / 2.3	gr/lb			
Input Connector		MC4 <sup>(3)</sup>		MC4 <sup>(3)</sup>	MC4 <sup>(3)</sup>				
Input Wire Length <sup>(4)</sup>			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 <sup>(5)</sup>	-40 to +85 / -40 to +185								
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-xxxxxx (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-derating-note-na.pdf

PV System Design Using a SolarEdge Inverter <sup>(6)(7)</sup>		Single Phase HD-Wave Single phase		Three Phase for 208V grid	Three Phase for 277/480V grid	
Minimum String Length P370, P400, P401		8	}	10	18	
(Power Optimizers)	P485, P505	6	)	8	14	
Maximum String Length (Por	wer Optimizers)	2:	5	25	50	
Maximum Power per String		5700 <sup>®</sup> (6000 with SE7600-US - SE11400-US) 5250 <sup>®</sup>		6000 <sup>(9)</sup>	12750 <sup>(10)</sup>	W
Parallel Strings of Different L	engths or Orientations			Yes		

(6) For detailed string sizing information, refer to <a href="http://www.solaredge.com/sites/default/files/string\_sizing\_na.pdf">http://www.solaredge.com/sites/default/files/string\_sizing\_na.pdf</a>

- (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 2,0000

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

PROJECT NAME

OWNER

**ADDRESS** 

PROJECT ID:

SYSTEM SIZE

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

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SHEET TITLE

**APPENDIX 3** 

**PV13** 

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## Rapid Shutdown Kit - Installation and Configuration (Single Phase Inverters)

This document describes how to install the rapid shutdown kit in the SolarEdge Safety Switch, and how to enable the rapid shutdown feature in the inverter in order to provide the functionality described in the Rapid Shutdown clause of NEC2014 690.12 (1) through (4).

#### **Kit Contents**

- Rapid shutdown cables
- Micro-SD card and SD card adapter with firmware files (Note: DO NOT THROW AWAY THE CARD AND THE ADAPTER; keep them for installation of other rapid shutdown kits)

#### **Cable Installation**

Perform this procedure before connecting the strings to the Safety Switch [Chapter 4: Connecting the AC and the Strings to the Safety Switch in the SolarEdge Installation Guide].

- 1 Turn the inverter ON/OFF switch to OFF. If installing the kit in an inverter that is already operating, wait until the LCD indicates that the DC voltage is safe (<50V), or wait five minutes before continuing to the next step.
- **2** Turn the Safety Switch and the AC switch on the main circuit board to OFF.



#### ARNING!

If you cannot see the inverter panel, or if a malfunction is indicated on the LCD panel, wait five minutes for the input capacitors of the inverter to discharge.

- **3** Loosen the four Allen screws on the front cover of the Safety Switch, and open the cover.
- 4 Carefully disconnect the two DC cables from the left side of the switch and from the DC connection spring clamp terminals, as illustrated below<sup>1</sup>. Use a standard straight-bladed screwdriver to disconnect the cables from the terminals.

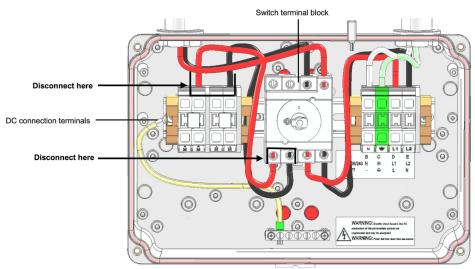


Figure 1: Inside the AC/DC Safety Switch

Rapid Shutdown Kit Installation - MAN-01-00186-1.6

#### 1

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Rapid Shutdown Kit - Installation and Configuration (Single Phase Inverters)

- The rapid shutdown cables have a resistor connected to one end (on the red cable). Connect these ends to the switch, making sure that the red and black cables are <u>reversed</u> relative to the cables connected at the top of the switch (going into the DC side conduit between the inverter and the Safety Switch), as detailed below. Apply a torque of 2 N\*m (18 lb\*in):
- If the cables at the top are red and black from left to right, connect as shown below.

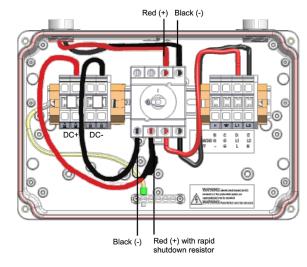


Figure 2: Rapid shutdown cable connected - option 1

If the cables at the top are black and red from left to right, connect as shown below.

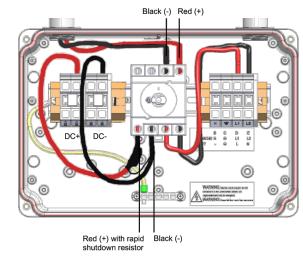


Figure 3: Rapid shutdown cable connected - option 2

- **6** Use a standard straight-bladed screwdriver to connect the other end of the rapid shutdown cables to the DC connection spring-clamp terminals: Connect the black cable from the switch to the DC- terminal block, and connect the red cable from the switch to the DC+ terminal block.
- 7 Check that the cables are located and connected in the correct positions to ensure the rapid shutdown functionality.
- 8 Close the cover: Attach the switch cover and secure it by tightening the four screws with a torque of 0.9 ft.\*lb / 1.2 N\*m.

Rapid Shutdown Kit Installation - MAN-01-00186-1.6

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	DATE	11/11/22				
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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

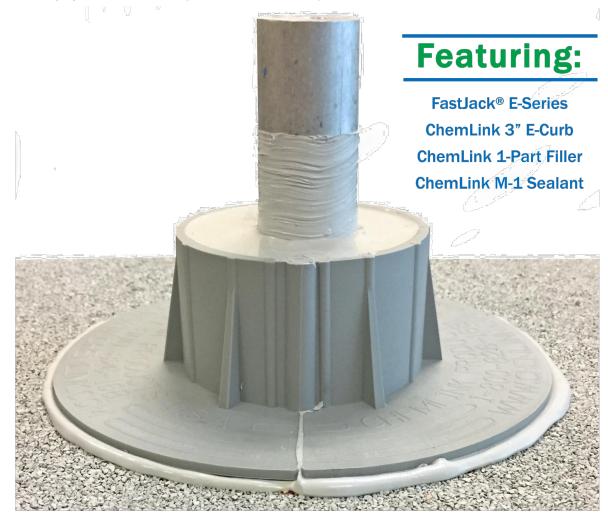
**APPENDIX 4** 

SHEET NO

<sup>&</sup>lt;sup>1</sup> The internal components may vary depending on the Safety Switch model; the figures in this documents show the AC/DC Safety Switch for single phase 7.6-11.4 kW inverters.

## 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.



Waterproof

Low Cost

High Quality

Easy-to-Install

ProSolar®

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## LOW COST + EASY TO INSTALL

## Fast Jack\*

**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



## Fast Jack 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

HEM LINK



- 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

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CONTRACTOR'S

	DATE	11/11/22				
REVISION	DESCRIPTION	A-X1 RELEASED				
	Ö	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 5** 

SHEET NO



#### Tilt Mount System



#### Trust your system at every angle.

The IronRidge Tilt Mount System supports a wide range of solar module tilting angles, while also resisting the extreme wind and snow forces experienced over a building's lifetime.

Every component has been carefully engineered and rigorously tested, and the entire system uses only aluminum and stainless steel materials to resist corrosion.



#### **Roof Friendly**

Lightweight and compatible with industry-standard attachments.



#### **Strength Tested**

All components evaluated for superior structural performance.



#### **UL 2703 Listed System**

Meets newest effective UL 2703 standard.



#### **PE Certified**

Pre-stamped engineering letters available in most states.



#### **Design Assistant**

Online software makes it simple to create, share, and price projects.



#### 25-Year Warranty

Products guaranteed to be free of impairing defects.

CONTRACTOR'S LOGO

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#### XR Rails & Tilt Legs

#### **XR Rails**



Attach directly to Tilt Legs. Available in three targeted sizes to support specific wind and snow loads.

- · Unique curved profile
- · Spanning capabilities up to 12'
- · Clear and black finish

#### Tilt Legs 🕀



Tilt assembly to desired angle, up to 30 degrees. Kits include South and North Tilt Leg and all hardware.

- Available in multiple lengths for a wide angle range
- Assembled South Tilt Legs include angle indicators
- · Legs are electrically bonded to rails

#### **Grounding Clamps**

#### UFOs 😩



Universal Fastening Objects secure and bond modules to rails.

· Fully assembled and lubricated

BOSS™ Bonded Splices ⊕

· Single, universal size

Accessories

· Clear and black finish

**Bonded Structural Splices connect** 

and bond XR Rails together.

Integrated bonding

· No tools or hardware

Self-centering stop tab

#### Stopper Sleeves 😑



Snap onto the UFO to transform into a bonded end clamp.

- · Bonds modules to rails
- · Sized to match modules
- · Clear and black finish

Grounding Lugs (

#### CAMO (



Bond modules to rails while staying completely hidden.

- · Universal end-cam clamp
- · Tool-less installation
- Fully assembled



Connects Tilt Mount system to equipment ground.

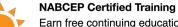
- Low profile
- Single tool installation
- · Mounts in any direction

### **Ends Caps & Wire Clips**



Provide a finished look and organize electrical wires.

- Simple snap-in installations
- · Clips hold up to ten 5mm wires
- UV-stabilized polymer



Go to IronRidge.com/training

#### Resources -



**Design Assistant** Go from rough layout to fully

engineered system. For free. Go to IronRidge.com/design



Earn free continuing education credits, while learning more about our systems.

SHEET TITLE

SCALE

DRAWN BY

APPROVED BY

PROJECT NAME

PROJECT ID:

SYSTEM SIZE

OWNER

**ADDRESS** 

42.000 kW-DC

30.000 kW-AC (NAME PLATE)

**APPENDIX 6** 

**PV16** 

EP-HT

N.T.S

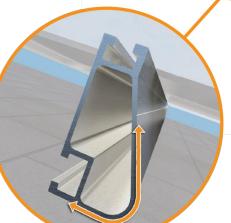


#### XR Rail<sup>®</sup> Family

#### **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<sup>©</sup> 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<sup>©</sup> and other pitched roof attachments.



IronRidge<sup>©</sup> offers a range of tilt leg options for flat roof mounting applications

#### **Corrosion-Resistant Materials**

All XR Rails<sup>©</sup> 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<sup>©</sup> Family

The XR Rail<sup>®</sup> 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<sup>®</sup> to match.



#### 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.

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

	DATE	11/11/22				
REVISION	I	A-X1 RELEASED				
	NO	A-X1				

PROJECT NAME

OWNER

**ADDRESS** 

PROJECT ID:

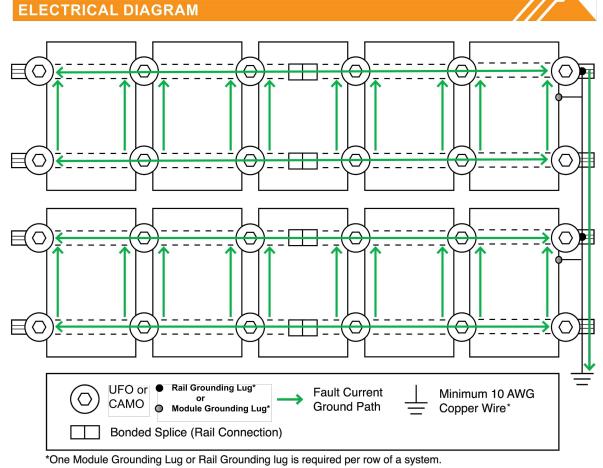
SYSTEM SIZE

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

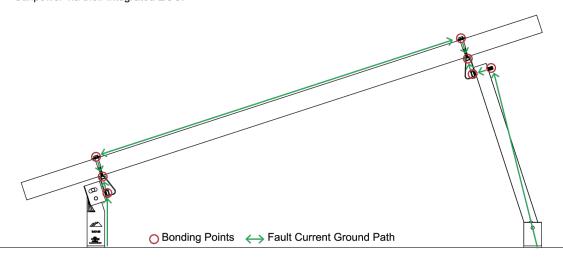
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SHEET TITLE

**APPENDIX 7** 



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.



Intertek

8431 Murphy Drive

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** Fire Class Resistance Rating:

**Characteristics:** -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

101769343MID-001r1, 101769343MID-001a, 101915978MID-001, 101999492MID-001ar1-cr1 & **Test Report Number(s):** 

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 Reviewed by: Chad Naggs

Title: Title:

Technician I, Fire Resistance Technician II, Fire Resistance

Christopher Jumbuch Chal Rays Signature: Signature: 05/25/2016 05/25/2016 Date: Date:

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CONTRACTOR'S LOGO

CONTRACTOR'S LICENSE NUMBER OR STAMP

	DATE	11/11/22				
REVISION	Q	RELEASED				
	ON	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 8**