

GENERAL NOTES

KEYNOTE SYMBOLS

ABBREVIATIONS

OR AMP	AMPERE
AIC	AMPS INTERRUPTING CAPACITY
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CU	COPPER
E	ELECTRICAL CONDUIT
(E)	EXISTING
G	GROUND
HZ	HERTZ
INV	INVERTER
J-BOX OR JB	JUNCTION BOX
KAIC	THOUSAND AMPS INTERRUPTING CAPACITY
KVA	KILOVOLT AMP
KV	KILOVOLT
KW	KILOWATT
MAX	MAXIMUM
NEMA	NATIONAL ELECTRICAL MANUFACTURER ASSOCIATION
P	POLE
PH	PHASE
PV	PHOTOVOLTAIC
SA	SOLAR ARRAY
TBD	TO BE DETERMINED
TYP.	TYPICAL
UL	UNDERWRITERS LABORATORY
UON	UNLESS OTHERWISE NOTED
V	VOLT
VA	VOLT AMPERE
VT	VOLTAGE TRANSDUCER
W	WATT OR WIRE
X OR EXIST.	EXISTING (EQUIPMENT)

<p style="font-size: 1.2em; margin: 0;">BSE PROJECT NO. 805-125</p> <div style="display: flex; align-items: center; justify-content: center; margin: 10px 0;"> <div style="text-align: center;"> <p style="font-weight: bold; margin: 0;">BSE ENGINEERING, INC.</p> <p>10680 TREENA ST., SUITE 100 SAN DIEGO, CA 92131 TEL: 858.800.6000 FAX: 858.800.6001</p> </div> </div>																												
<p style="font-size: 2.5em; font-weight: bold; margin: 0;">PV-1.1</p>		<p style="font-size: 2.5em; font-weight: bold; margin: 0;">PV-1.1</p>																										
<p style="font-size: 1.5em; margin: 0;">PLANS FOR THE CONSTRUCTION OF</p> <p style="font-size: 1.5em; margin: 0;">BAY TERRACE SENIOR CENTER</p>																												
<p style="font-size: 1.5em; margin: 0;">PV SYSTEM SPECIFICATIONS</p>																												
<p style="font-weight: bold; margin: 0;">CITY OF SAN DIEGO, CALIFORNIA</p> <p style="font-weight: bold; margin: 0;">PUBLIC WORKS DEPARTMENT</p> <p style="font-weight: bold; margin: 0;">SHEET 136 OF 142 SHEETS</p>		<p style="font-weight: bold; margin: 0;">WBS S-16060</p>																										
<p>APPROVED: _____</p> <p style="font-weight: bold; margin: 0;">FOR CITY ENGINEER NIKKI LEWIS</p> <p style="margin: 0;">PRINT DCE NAME</p>		<p style="text-align: center; font-weight: bold; margin: 0;">6/25/2018</p> <p style="text-align: center; font-weight: bold; margin: 0;">DATE</p> <p style="text-align: center; font-weight: bold; margin: 0;">C64460</p> <p style="text-align: center; font-weight: bold; margin: 0;">RCE#</p>																										
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">DESCRIPTION</th> <th style="width: 10%;">BY</th> <th style="width: 30%;">APPROVED</th> <th style="width: 10%;">DATE</th> <th style="width: 20%;">FILMED</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>		DESCRIPTION	BY	APPROVED	DATE	FILMED																					<p>SUBMITTED BY: _____</p> <p style="font-weight: bold; margin: 0;">EDGAR LOZANO</p> <p style="font-weight: bold; margin: 0;">PROJECT MANAGER</p> <p>CHECKED BY: _____</p> <p style="font-weight: bold; margin: 0;">HODA AFSHARI</p> <p style="font-weight: bold; margin: 0;">PROJECT ENGINEER</p> <p style="margin: 0;">186-1755</p> <hr style="border: 0.5px solid black;"/> <p style="margin: 0;">CCS47 COORDINATE</p> <p style="margin: 0;">1827-6319</p> <hr style="border: 0.5px solid black;"/> <p style="margin: 0;">CCS83 COORDINATE</p> <p style="margin: 0;">40452-136-D</p>	
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FIRE DEPARTMENT REGULATIONS

1. GENERAL REQUIREMENTS
- 1.1 MARKING

PV SYSTEMS SHALL BE MARKED. MARKING IS NEEDED TO PROVIDE EMERGENCY RESPONDERS WITH APPROPRIATE WARNING AND GUIDANCE WITH RESPECT TO ISOLATING THE SOLAR ELECTRIC SYSTEM. THIS CAN FACILITATE IDENTIFYING ENERGIZED ELECTRICAL LINES THAT CONNECT THE SOLAR PANELS TO THE INVERTER, AS THESE SHOULD NOT BE CUT WHEN VENTING FOR SMOKE REMOVAL. MATERIALS USED FOR MARKING SHALL BE WEATHER RESISTANT. UL 969 SHALL BE USED AS A STANDARD FOR WEATHER RATING (UL LISTING OF MARKINGS IS NOT REQUIRED).
- 1.2 FORMAT FOR MARKINGS

RED BACKGROUND; WHITE LETTERING;
MINIMUM 3/8" LETTER HEIGHT; ALL CAPITAL LETTERS
ARIAL OR SIMILAR FONT, NON-BOLD

REFLECTIVE WEATHER RESISTANT MATERIAL SUITABLE FOR THE ENVIRONMENT (DURABLE ADHESIVE MATERIALS MUST MEET THIS REQUIREMENT).
- 1.3 MAIN SERVICE DISCONNECT

FOR COMMERCIAL APPLICATION, THE MARKING SHALL BE PLACED ADJACENT TO THE MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM THE LOCATION WHERE THE LEVER IS OPERATED.

MARKING CONTENT: CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED

CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED
- 1.4 MARKING DC CIRCUIT

MARKING IS REQUIRED ON ALL INTERIOR AND EXTERIOR DC CONDUIT, RACEWAYS, ENCLOSURES, CABLE ASSEMBLIES, AND JUNCTION BOXES TO ALERT THE FIRE SERVICE TO AVOID CUTTING THEM. MARKING SHALL BE PLACED EVERY 10 FEET, AT TURNS AND ABOVE AND/OR BELOW PENETRATIONS, AND AT ALL DC COMBINER AND JUNCTION BOXES.

MARKING CONTENT: CAUTION: DC CIRCUIT

CAUTION: DC CIRCUIT
- 1.5 INVERTERS

NO MARKINGS ARE REQUIRED FOR THE INVERTER.

WIRING SPECIFICATIONS

- ALL CONDUITS: ALUMINUM RIGID WHERE RUN ON ROOF, RMC WHERE EXPOSED TO PHYSICAL DAMAGE, PVC SCH. 40 WHERE RUN BELOW GROUND, EMT WHERE RUN NOT SUBJECT TO PHYSICAL DAMAGE;
- W1

ARRAY MODULES INTERCONNECTED BY VENDOR SUPPLIED CONNECTORS AND GROUNDED PER NEC SECTIONS 690.43 AND 250.136A, RUN IN FREE AIR ALONG SOLAR PANEL RACKING.

NOTE: HOME RUNS, ARRAY STRINGING, AND JUMPERS, TRANSITION TO CONDUIT AFTER LEAVING THE COVER OF THE ARRAYS: SEE BUILDING PLANS FOR CONDUIT ROUTING.
- W2

3/4" CONDUIT [RUN 1/2"-3 1/2" ABOVE ROOF] W/ (2) #10 USE-2 (1000V) C.C.C. AND (1) #8 THWN-2 EQUIPMENT GROUND;
AMPACITY CALCULATION
9.47A*1.25*1.25 = 14.79A; PER TABLE 310.15(B)(3)(A), 310.15(B)(3)(C) & 310.15(B)(2)(A), 9.47*1.25/0.50/0.82 = 28.87A; PER TABLE 310.15(B)(16), (@90C) 40A MAX. C.C.C. AMPACITY > 28.87A & (@75C) 35A MAX. C.C.C AMPACITY > 28.87A = OKAY
- W3

3/4" CONDUIT [NOT ON ROOF] W/ (2) #6 THWN-2 C.C.C., (1) #8 THWN-2 NEUTRAL AND (1) #8 G.E.C.;
AMPACITY CALCULATION
42A*1.25 = 52.50A, INVERTER OUTPUT PROTECTED BY 60A BREAKER PV SUBPANEL; 60A OCPD >= 52.50A = OKAY; PER TABLE 310.15(B)(3)(A), 310.15(B)(3)(C) & 310.15(B)(2)(A), 60A/1.0/1.04 = 57.69A; PER TABLE 310.15(B)(16), (@90C) 75A MAX. C.C.C. AMPACITY > 57.69A & (@75C) 65A MAX. C.C.C AMPACITY > 57.69A = OKAY
- W4

1-1/2" CONDUIT [NOT ON ROOF] W/ (2) #1/0 THWN-2 C.C.C., (1) #1/0 THWN-2 NEUTRAL AND (1) #6 G.E.C.;
AMPACITY CALCULATION
42A*2*1.25=105A, PN SUN PANEL PROTECTED BY PV PANEL MAIN BREAKER; 125A OCPD >= 105A = OKAY; PER TABLE 310.15(B)(3)(A), 310.15(B)(3)(C) & 310.15(B)(2)(A), 105A/1.0/1.04 = 100.96A; PER TABLE 310.15(B)(16), (@90C) 170A MAX. C.C.C. AMPACITY > 100.96A & (@75C) 150A MAX. C.C.C AMPACITY > 100.96A = OKAY

EQUIPMENT SPECIFICATIONS

- E1

Q.CELL DUO BLK-G5 320 (320W) MODULE
VMP: 33.8V
IMP: 9.47A
VOC: 40.56V
ISC: 9.94A
- E2

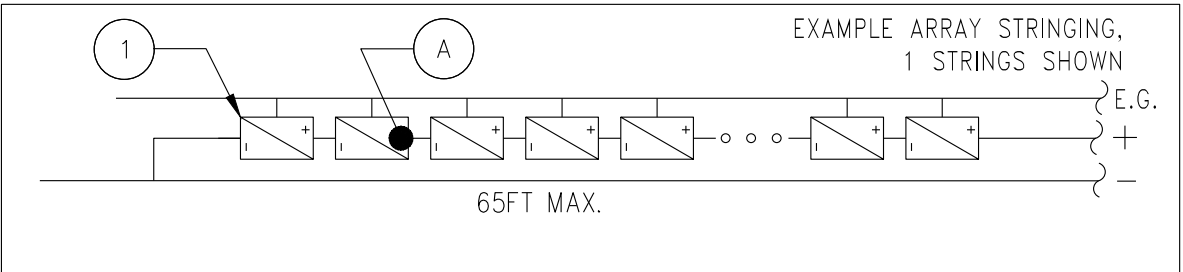
SOLAREEDGE SE10000A-US 10KVA INVERTER
PHASES: 1
AC VOLTAGE: 240
ENCLOSURE: NEMA 3R
MAX A IN: 30.5A PER MPPT
MAX DC VOLTAGE: 500V
MAX A OUT: 42A
MAX W OUT: 10000W
CEC LISTED EFFICIENCY @ 240V: 97.5%
COMES WITH AUTO-RAPID SHUTOFF SYSTEM
SEE DATA SHEET ON SHEET PV-5.1
- E3

PV AC SUBPANEL
MANUFACTURER: EATON OR EQUIVALENT
TYPE: 1PH 3W
AMPERE RATING: 225A
ENCLOSURE: NEMA 3R
VOLTAGE: 120/240V
MAIN BREAKER: 125A, 2P
PV CIRCUIT BREAKERS: (2) 60A, 2P
INTERRUPT RATING: 22K A.I.C. FULLY RATED
NOTE: PV SUB PANEL ONLY. DO NOT ADD LOADS.
MAX IMBALANCE: 0A
- E4

SOLAREEDGE POWER OPTIMIZER
RATED INPUT DC POWER: 320W
MAX A IN: 10A PER MPPT
MAX V OUT: 60VDC
MAX A OUT: 15A
MAX V IN: 48VDC
MAX A IN: 13.75A
MAX SYSTEM VOLTAGE: 1000VDC
ENCLOSURE: NEMA 6P
SEE DATA SHEET ON SHEET PV-5.1

DESIGN NOTE: THE PV SYSTEM DESIGN IS BASED ON EQUIPMENT SPECIFIED ON THIS SHEET. IF THE CONTRACTOR SELECTS TO SUBSTITUTE THE EQUIPMENT AS AN "OR EQUAL" SYSTEM, THEN THE CONTRACTOR SHALL BE REQUIRED TO PREPARE AND SUBMIT A COMPLETE DESIGN PACKAGE WITH THE SUBSTITUTED EQUIPMENT, AT NO ADDITIONAL COST. IN ORDER TO MAINTAIN THE NET ZERO RATING OF THE BUILDING, ANY SUBSTITUTE EQUIPMENT AND SYSTEM SHALL HAVE AN EQUAL OR GREATER AC AND KWH RATED OUTPUT COMPARED TO THE SPECIFIED SYSTEM. THE DESIGN OF ANY PROPOSED "OR EQUAL" SYSTEM SHALL HAVE A SIMILAR ROOF LAYOUT OF THE PV PANELS WITH EACH ENTIRE PV STRING CONSISTING OF PV PANELS EITHER ON THE SOUTH FACING ROOF OR THE WEST FACING ROOF. PV PANELS ON A SINGLE STRING CANNOT BE CONTAIN PANELS FROM BOTH ROOF FACES WHICH COULD POTENTIALLY CREATE UNEVEN CURRENT FLOWS.

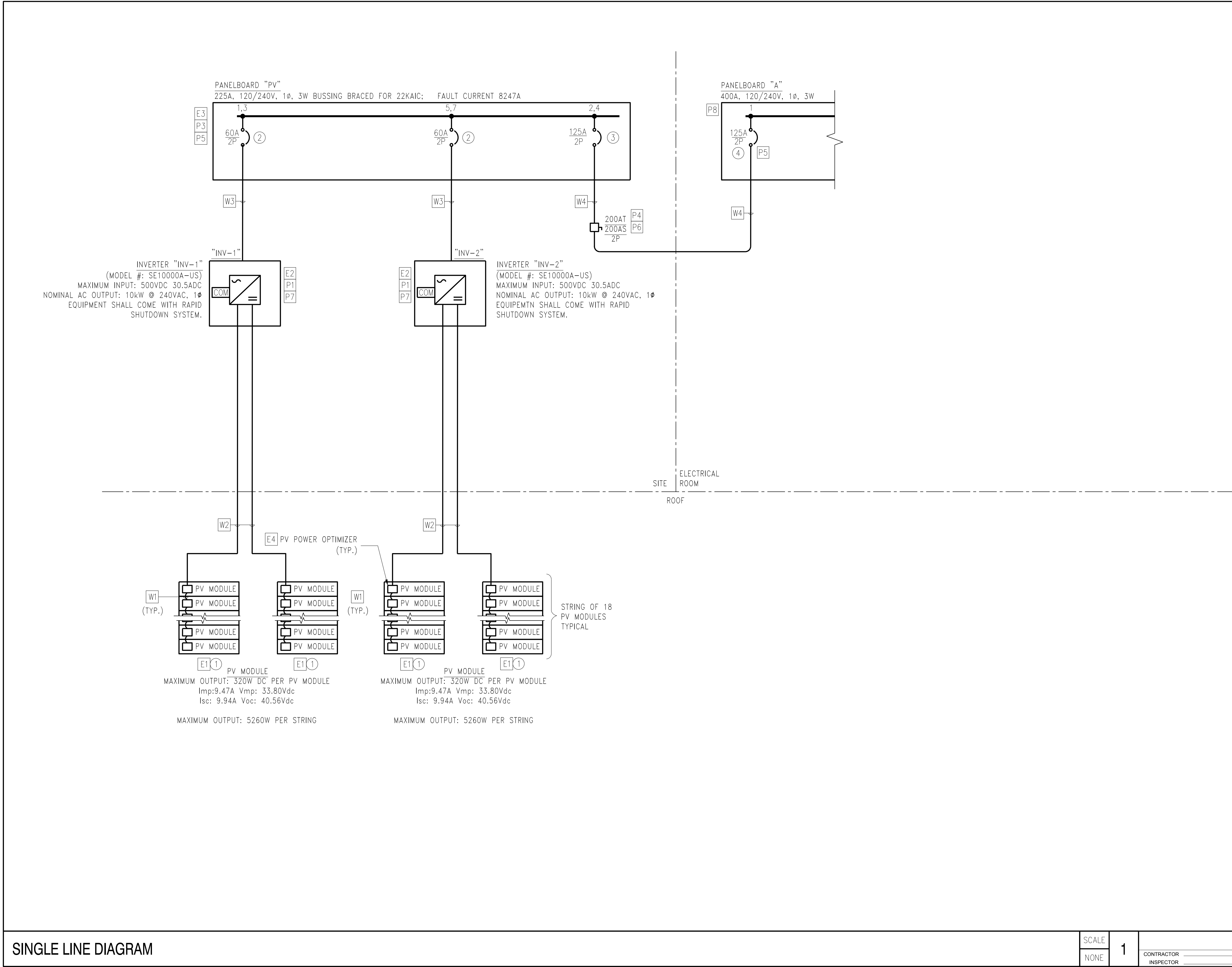
GROUNDING NOTE: EQUIPMENT GROUNDING OF MODULE FRAME AND RACKING SHALL BE ROUTED AND INSTALLED TO PREVENT INTERRUPTION OF THE GROUND PATH IF ANY MODULE IS REMOVED. INTEGRATED GROUND AS AN APPROVED EQUIVALENT IS ACCEPTABLE.



<div><div>BSE PROJECT NO. 805-125</div><div><div>BSE ENGINEERING, INC. 10680 TREENA ST., SUITE 100 SAN DIEGO, CA 92131 TEL: 858.800.6000 FAX: 858.800.6001</div></div></div>		<div><div><div>REGISTERED PROFESSIONAL ENGINEER</div><div>ALAN J. BROWN</div><div>No. 13353</div><div>09-30-20</div><div>ELECTRICAL</div><div>STATE OF CALIFORNIA</div></div></div>
PV-1.2		
PLANS FOR THE CONSTRUCTION OF BAY TERRACE SENIOR CENTER		
WIRING AND EQUIPMENT SPECIFICATIONS		
CITY OF SAN DIEGO, CALIFORNIA PUBLIC WORKS DEPARTMENT SHEET 137 OF 142 SHEETS		
WBS S-16060		
APPROVED:  FOR CITY ENGINEER NIKKI LEWIS PRINT DCE NAME		
DATE 6/25/2018 C64460 RCE#		
SUBMITTED BY: EDGAR LOZANO PROJECT MANAGER CHECKED BY: HODA AFSHARI PROJECT ENGINEER		
DESCRIPTION BY APPROVED DATE FILMED		
186-1755 CCS27 COORDINATE		
1827-6319 CCS83 COORDINATE		
40452-137-D		
CONTRACTOR INSPECTOR		
DATE STARTED DATE COMPLETED		

BAY TERRACE SENIOR CENTER

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GENERAL NOTES:

- REFER TO PV-1.2 FOR FEEDER SCHEDULE.
- CONTRACTOR SHALL GUARANTEE IN WRITING THAT THE COMBINED MAXIMUM OUTPUT VOLTAGE OF THE PV MODULES STRINGS AND OPTIMIZERS SHALL NOT EXCEED THE MAXIMUM INPUT VOLTAGE RATING OF THE INVERTER.

NOTES:

- ROOF-MOUNTED PV SUB-ARRAY. EACH INVERTER TO HAVE TWO (2) STRING. EACH STRING TO HAVE 18 MODULES. PV MODULES TO BE PRE-EQUIPPED WITH VENDOR SUPPLIED CONNECTORS.
- PROVIDE A 60A/2P, 22KAIC CIRCUIT BREAKER WITH CLEAR INDICATION FOR ON/OFF POSITION AS PER NEC 404.11. FOR EACH INVERTER, CIRCUIT BREAKER TO BE SUITABLE FOR BACKFEED.
- TO BE LABELED "CONNECT TO PANEL-A". CIRCUIT BREAKER TO BE SUITABLE FOR BACKFEED. CIRCUIT BREAKER TO SHOW CLEAR INDICATION FOR ON/OFF POSITION AS PER NEC 404.11.
- TO BE LABELED "CONNECT TO PHOTOVOLTAIC SYSTEM PANEL-PV". CIRCUIT BREAKER TO BE SUITABLE FOR BACKFEED. CIRCUIT BREAKER TO SHOW CLEAR INDICATION FOR ON/OFF POSITION AS PER NEC 404.11.

BSE PROJECT NO. 805-125



BSE ENGINEERING, INC.
10660 TREENA ST., SUITE 100
SAN DIEGO, CA 92131
TEL: 858.800.6000
FAX: 858.800.6001

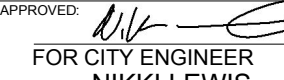
REGISTERED PROFESSIONAL ENGINEER
No. 13353
09-30-20
ELECTRICAL
STATE OF CALIFORNIA

PV-1.3

PLANS FOR THE CONSTRUCTION OF
BAY TERRACE SENIOR CENTER

SINGLE LINE DIAGRAM

CITY OF SAN DIEGO, CALIFORNIA
PUBLIC WORKS DEPARTMENT
SHEET 138 OF 142 SHEETS

APPROVED: 
FOR CITY ENGINEER
NIKKI LEWIS
PRINT DCE NAME

DATE
6/25/2018
C64460
RCE#

WBS S-16060

SUBMITTED BY
EDGAR LOZANO
PROJECT MANAGER
CHECKED BY
HODA AFSHARI
PROJECT ENGINEER

DESCRIPTION

BY

APPROVED

DATE

FILMED

186-1755
CCS27 COORDINATE

1827-6319
CCS83 COORDINATE

CONTRACTOR

INSPECTOR

DATE STARTED

DATE COMPLETED

40452-138-D

BAY TERRACE SENIOR CENTER

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P1

PHOTOVOLTAIC INVERTER
INVERTER 1 OF 2
WARNING
ELECTRIC SHOCK HAZARD
TERMINALS ON BOTH THE
LINE AND LOAD SIDES MAY BE ENERGIZED
DC ELECTRICAL SPECIFICATIONS:
VMP = 2 @ 608.4V
IMP = 2 @ 9.47A
VOC = 2 @ 730.08V
ISC = 2 @ 9.94A
AC ELECTRICAL SPECIFICATIONS:
VOLTAGE: 240V
FEEDS: PV SUBPANEL

P2

PHOTOVOLTAIC INVERTER
INVERTER 2 OF 2
WARNING
ELECTRIC SHOCK HAZARD
TERMINALS ON BOTH THE
LINE AND LOAD SIDES MAY BE ENERGIZED
DC ELECTRICAL SPECIFICATIONS:
VMP = 2 @ 608.4V
IMP = 2 @ 9.47A
VOC = 2 @ 730.08V
ISC = 2 @ 9.94A
AC ELECTRICAL SPECIFICATIONS:
VOLTAGE: 240V
FEEDS: PV SUBPANEL

P3

**PV AC SUBPANEL
DO NOT ADD LOADS!**
WARNING
ELECTRIC SHOCK HAZARD
TERMINALS ON BOTH THE
LINE AND LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION
DUAL POWER SUPPLY-PHOTOVOLTAIC SYSTEM
AC ELECTRICAL SPECIFICATIONS:
VOLTAGE: 240V
CONNECTION: LINE TAP IN MAIN SWITCHBOARD
FED BY: INVERTERS 1-2

P4

**PV DISCONNECT
FOR UTILITY OPERATION**

P5

CAUTION: SOLAR CIRCUIT

P6

**RAPID SHUTDOWN SWITCH
FOR SOLAR PV SYSTEM.**

TURN SWITCH TO THE "OFF" POSITION TO SHUTDOWN
CONDUCTORS OUTSIDE THE ARRAY.
CONDUCTORS IN ARRAY
REMAIN ENERGIZED IN SUNLIGHT.

NOTE: ABOVE SIGNAGE TO BE PRINTED IN WHITE ON RED BACKGROUND AS PER NEC 690.56

P7

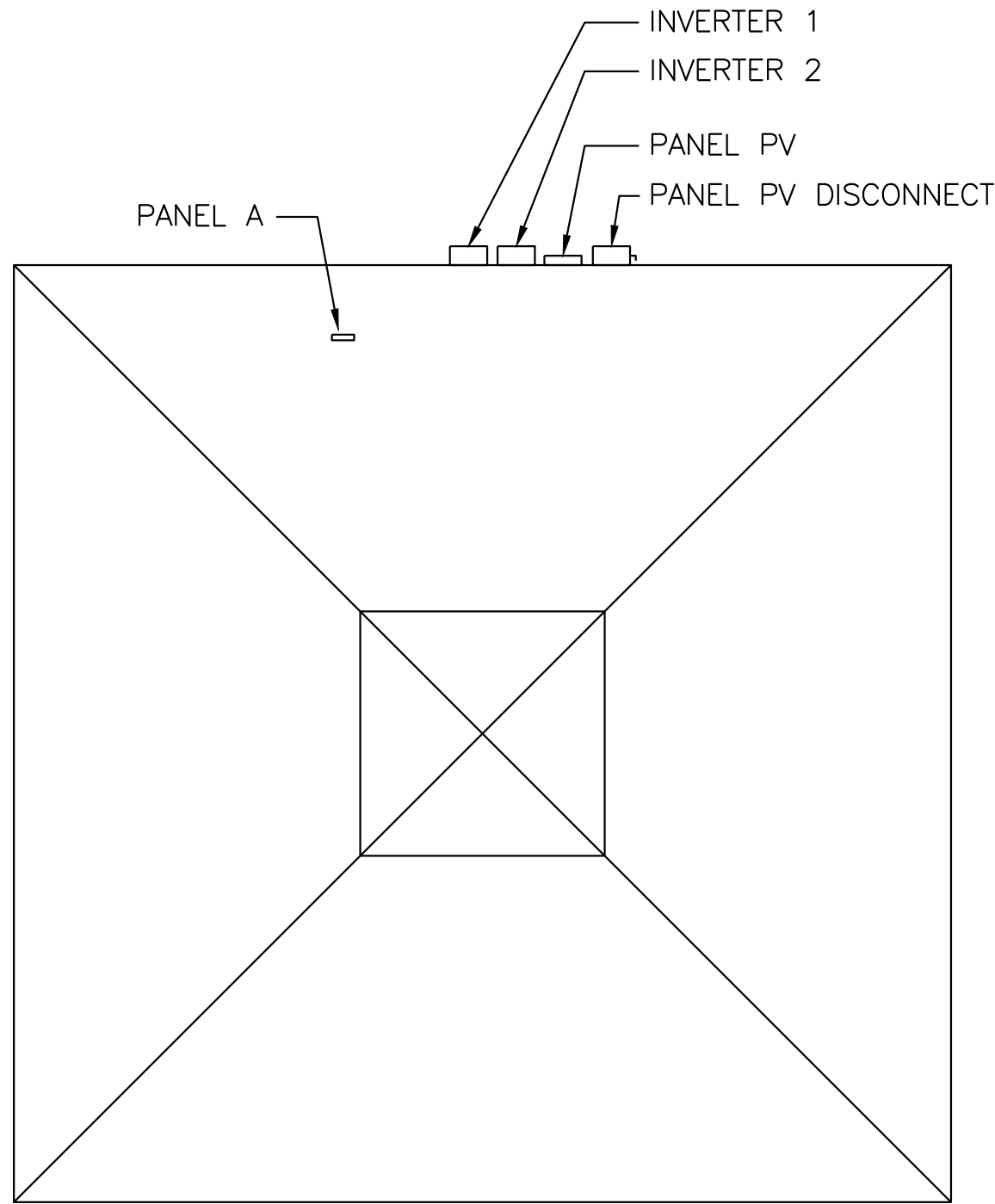
**SOLAR PV SYSTEM IS EQUIPPED
WITH RAPID SHUTDOWN.**

NOTE: ABOVE SIGNAGE TO BE PRINTED IN WHITE ON RED BACKGROUND AS PER NEC 690.56

P8

CAUTION

POWER TO THIS EQUIPMENT IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN
PANEL IS SOLAR POWER ENHANCED!
IN ORDER TO SAFE OFF PV BACKFEED, TURN OFF PV SERVICE DISCONNECT FOR UTILITY OPERATION

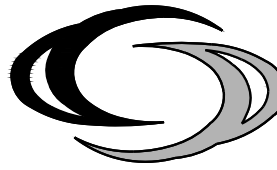
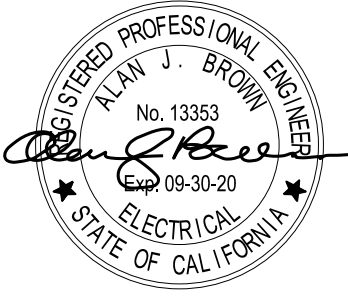
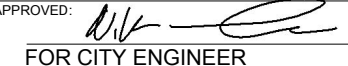


SITE CONTAINS A PV GENERATION SYSTEM WITH INVERTER AND DISCONNECTS AS LABELED ABOVE.

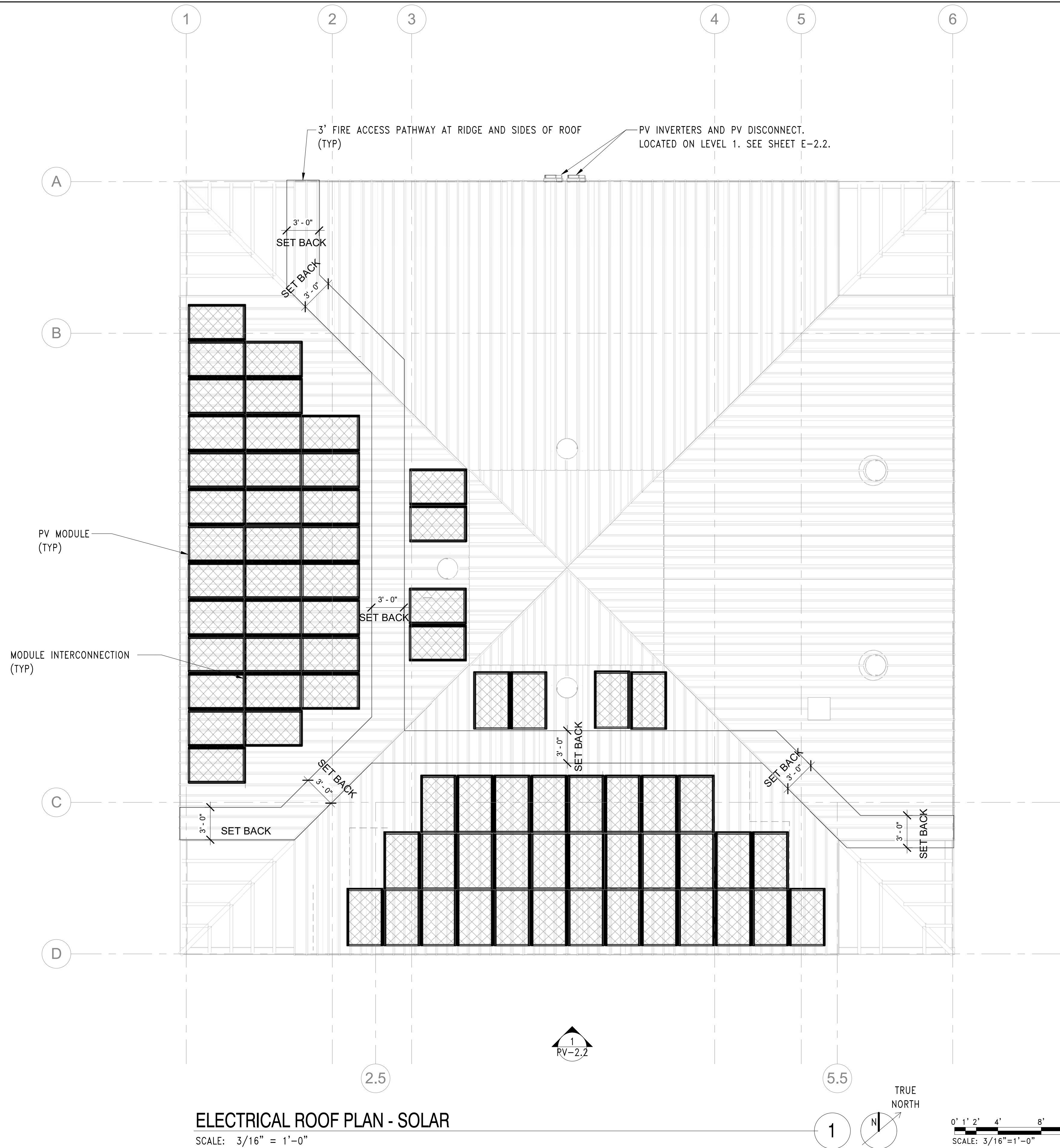
PLACARD NOTES			
ALL PLACARDS ARE TO BE IN ACCORDANCE WITH UTILITY CO-GENERATION, NEC 2014 AND CEC 2016 SIGNAGE REQUIREMENTS. PLACARDS SHALL BE OF WEATHERPROOF CONSTRUCTION. FASTEN PLACARDS WITH STAINLESS STEEL MACHINE SCREWS, NO SELF ADHESIVE LABELS ALLOWED			
NUMBER	QUANTITY	LOCATION	
P1 P2	1 OF EACH	FRONT OF ASSOCIATED INVERTER ON EXTERIOR OF BLDG.	
P3	1	FRONT COVER OF PV SUBPANEL.	
P4	1	PV DISCONNECT FOR UTILITY OPERATION ON EXTERIOR OF BLDG.	
P5	1	PANEL "A" NEXT TO BREAKER FOR PANEL "PV" IN ELECTRICAL ROOM.	
P6	1	SURFACE OF PANEL PV DISCONNECT.	
P7	2	ONE TO EACH PV INVERTER.	
P8	2	PANEL "A" DOOR IN ELECTRICAL ROOM AND METER PEDESTAL.	

GENERAL NOTE:

PROVIDE ALL PLACARDS AS REQUIRED BY AUTHORITY
HAVING JURISDICTION (AHJ) WHETHER OR NOT SHOWN
ON THIS SHEET.


BSE PROJECT NO. 805-125  BSE ENGINEERING, INC. 10680 TREENA ST., SUITE 100 SAN DIEGO, CA 92131 TEL: 858.800.6000 FAX: 858.800.6001		
PV-1.4		
PLANS FOR THE CONSTRUCTION OF BAY TERRACE SENIOR CENTER		
PLACARDS		
CITY OF SAN DIEGO, CALIFORNIA PUBLIC WORKS DEPARTMENT SHEET 139 OF 142 SHEETS		
WBS S-16060		
APPROVED:  FOR CITY ENGINEER NIKKI LEWIS PRINT DCE NAME DATE: 6/25/2018 RCE# C64460		
SUBMITTED BY: EDGAR LOZANO PROJECT MANAGER CHECKED BY: HODA AFSHARI PROJECT ENGINEER		
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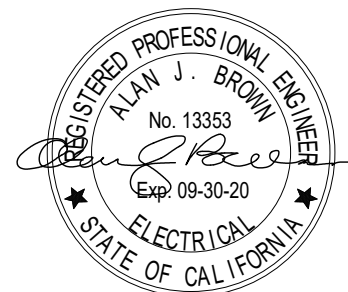
BAY TERRACE SENIOR CENTER



SCALE: $3/16" = 1'-0"$

BSE PROJECT NO. 805-125

 **BSE ENGINEERING, INC.**
10680 TREENA ST., SUITE 100
SAN DIEGO, CA 92131
TEL: 858.800.6000
FAX: 858.800.6001




PV-2.1

PLANS FOR THE CONSTRUCTION OF BAY TERRACE SENIOR CENTER

ELECTRICAL ROOF PLAN - SOLAR

CITY OF SAN DIEGO, CALIFORNIA
PUBLIC WORKS DEPARTMENT
SHEET 140 OF 142 SHEETS

WBS	S-16060
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APPROVED:  6/25/2018
FOR CITY ENGINEER DATE
NIKKI LEWIS C64460
PRINT DCE NAME RCE#

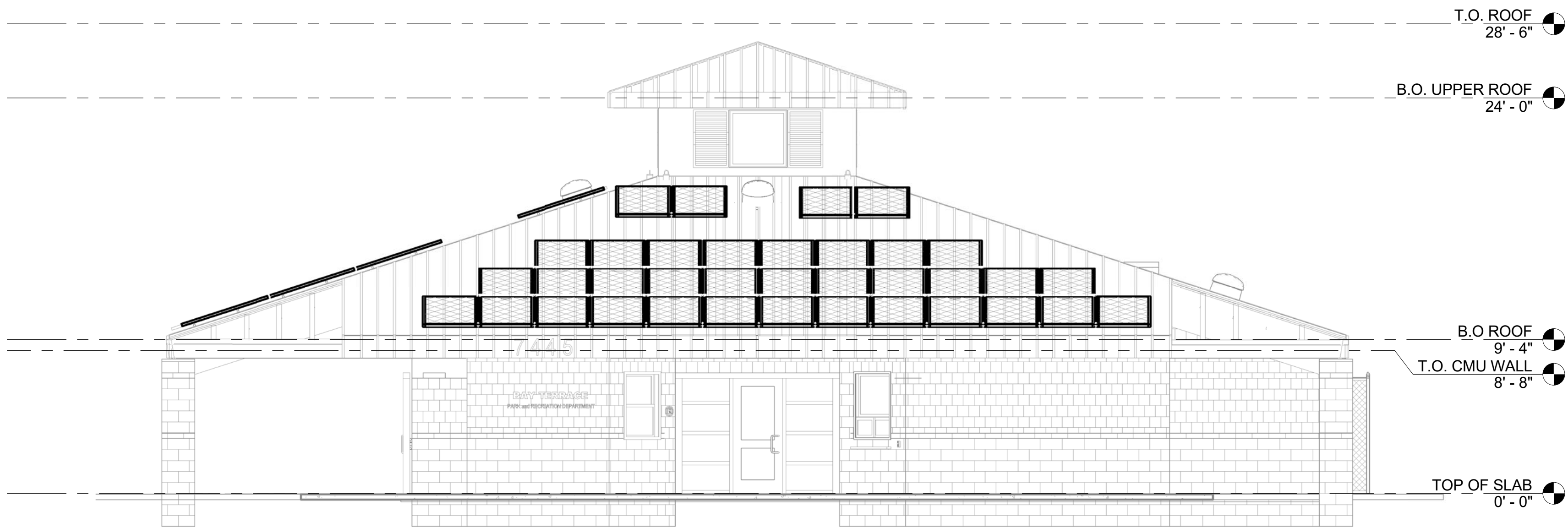
SUBMITTED BY:	EDGAR LOZANO
	PROJECT MANAGER
CHECKED BY:	HODA AFSHARI
	PROJECT ENGINEER

DESCRIPTION	BY	APPROVED	DATE	FILM
ORIGINAL			6/25/18	

	186-1755
	CCS27 COORDINATE
	1827-6319
	CCS83 COORDINATE

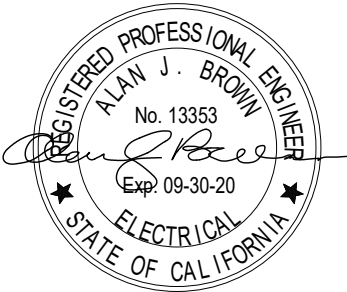
CONTRACTOR	DATE STARTED
INSPECTOR	DATE COMPLETED

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ELECTRICAL ELEVATION PLAN
SCALE: 3/16" = 1'-0"

BSE PROJECT NO. 805-125
BSE ENGINEERING, INC.
10680 TREENA ST., SUITE 100
SAN DIEGO, CA 92131
TEL: 858.800.6000
FAX: 858.800.6001



PV-2.2

PLANS FOR THE CONSTRUCTION OF
BAY TERRACE SENIOR CENTER

ELECTRICAL ROOF PLAN - ELEVATIONS

CITY OF SAN DIEGO, CALIFORNIA PUBLIC WORKS DEPARTMENT SHEET 141 OF 142 SHEETS					WBS S-16060	
APPROVED: 			6/25/2018		SUBMITTED BY: EDGAR LOZANO	
FOR CITY ENGINEER NIKKI LEWIS			DATE C64460		PROJECT MANAGER	
PRINT DCE NAME			RCE#		CHECKED BY: HODA AFSHARI	
DESCRIPTION		BY	APPROVED	DATE	FILMED	PROJECT ENGINEER
						186-1755
						CCS27 COORDINATE
ORIGINAL				6/25/18		1827-6319
						CCS83 COORDINATE
			DATE STARTED		40452-141-D	
			DATE COMPLETED			

BAY TERRACE SENIOR CENTER

powered by

Q.ANTUM DUO

Q.PEAK DUO BLK-G5 305-320

Q.ANTUM SOLAR MODULE

The new Q.PEAK DUO BLK-G5 solar module from Q CELLS impresses with its outstanding visual appearance and particularly high performance on a small surface thanks to the innovative Q.ANTUM DUO Technology. Q.ANTUM's world-record-holding cell concept has now been combined with state-of-the-art circuitry half cells and a six-busbar design, thus achieving outstanding performance under real conditions — both with low-intensity solar radiation as well as on hot, clear summer days.



Q. ANTUM TECHNOLOGY: LOW LEVELLED COST OF ELECTRICITY
Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 19.3%.



INNOVATIVE ALL-WEATHER TECHNOLOGY
Optimal yields, whatever the weather with excellent low-light and temperature behaviour.



ENDURING HIGH PERFORMANCE
Long-term yield increase with Anti LiD Technology, Anti: PID Technology*, Hot-Spot Protect and Traceable Quality Tra.Q™



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



A RELIABLE INVESTMENT
Inclusive 12-year product warranty and 25-year linear performance warranty*.



STATE OF THE ART MODULE TECHNOLOGY
Q.ANTUM DUO combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology.











* APF test conditions according to IEC/TS 62804-1:2015, method B (1500V, 3000h)
* See data sheet on rear for further information.


THE IDEAL SOLUTION FOR:



Roof-top system on residential buildings

Engineered in Germany





solar**edge**

SolarEdge Single Phase Inverters
For North America

SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US /
SE7600A-US / SE10000A-US / SE11400A-US

The best choice for SolarEdge enabled systems

- Specifically designed to work with power optimizers
- Superior efficiency (98%)
- 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
- Small, lightweight and easy to install outdoors or indoors on provided bracket
- Built-in module-level monitoring
- Internet connection through Ethernet or Wireless
- Fixed voltage inverter for longer strings
- Optional – revenue grade data, ANSI C12.1

INVERTERS

SOLAR ARRAY PANEL	SCALE	4	PV SINGLE PHASE INVERTER	SCALE	3	GROUNDING TO PV MODULES AND RAIL DETAIL	SCALE
	NONE			NONE			NONE



The image shows two black, rectangular SolarEdge Power Optimizers. Each has a silver mounting bracket on top with a single screw. A circular seal with a starburst pattern is placed between the two units, containing the text "25 Years Warranty".

solar**edge**

SolarEdge Power Optimizer

Module Add-On For North America

P320 / P370 / P400 / P405 / 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
- Compliant with arc fault protection and rapid shutdown NEC requirements (when installed as part of the SolarEdge system)
- Module-level voltage shutdown for installer and firefighter safety

USA CANADA GERMANY UK ITALY THE NETHERLANDS JAPAN CHINA AUSTRALIA ISRAEL FRANCE BELGIUM TURKEY INDIA BULGARIA ROMANIA HUNGARY
SWEDEN SOUTH AFRICA POLAND CZECH REPUBLIC

www.sclaredge.com

Diagram illustrating the installation of a PV module using a rail system. The diagram shows a cross-section of the PV module being mounted onto two parallel rails. The rails are secured to a metal roof structure using standing seam clamps. The PV module is held in place by end clamps and mid clamps, which are secured with flange head machine screws. The rails are connected by channel nuts and 3" L-foot brackets. The diagram also shows the use of M8-1.25x16mm hex flange bolts to secure the rails to the roof structure.

Labels and components shown in the diagram:

- END CLAMP
- TWO (2) RAILS PER MODULE. EVEREST, UNIRACK OR APPROVED EQUAL. RAIL SPACING 12" IN FROM EACH END OF MODULE
- M8-1.25x16mm HEX FLANGE BOLT
- CANOPY STANDING SEAM METAL ROOF
- PV MODULE
- FLANGE HEAD MACHINE SCREW
- MID CLAMP
- CHANNEL NUT
- 3" L-FOOT BRACKET
- STANDING SEAM ROOF CLAMP, S-5 OR EQUAL WITH TWO STAINLESS STEEL SETSCREWS ON EACH SIDE. FIRST CLAMP ONE FOOT IN FROM END OF RAIL AND SPACED AT MAXIMUM OF 48" BETWEEN CLAMPS.

NOTE:
MOUNTING HARDWARE (NUTS, BOLTS, WASHERS, SETSCREWS, ETC.) SHALL BE STAINLESS STEEL.

INSTALLATION NOTES:
1. TO BE INSTALLED PER MANUFACTURER'S SPECS.

POWER OPTIMIZER	SCALE	5	PV MODULE MOUNTING ON CANOPY DETAIL	SCALE	2	CONTRACTOR _____ INSPECTOR _____
	NONE			NONE		

BSE PROJECT NO. 805-125																															
 BSE ENGINEERING, INC. 10680 TREENA ST., SUITE 100 SAN DIEGO, CA 92131 TEL: 858.800.6000 FAX: 858.800.6001																															
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APPROVED: 					SUBMITTED BY:																										
FOR CITY ENGINEER NIKKI LEWIS					EDGAR LOZANO PROJECT MANAGER																										
PRINT DATE NAME					CHECKED BY:																										
DATE 6/25/2018					HODA AFSHARI PROJECT ENGINEER																										
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