

5.5kw AC and 6.05kw DC Roof Mounted Photovoltaic System

EQUIPMENT SUMMARY

22 No's - LG, LG275SIC-B3 Module
22 No's - Enphase, M250-60-2LL-S2X inverter
Everest Solar Systems Cross Rail Racking System
Quick Mount PV Quick Hook - Classic Composition Mount QMSC

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GOVERNING CODES

ALL WORK TO COMPLY WITH THE FOLLOWING CODES:
UNDERWRITERS LABORATORIES (UL) STANDARDS
OSHA 29 CFR 1910.269
2013 CALIFORNIA ELECTRICAL CODE
2013 CALIFORNIA MECHANICAL CODE
2013 CALIFORNIA BUILDING CODE
2013 CALIFORNIA RESIDENTIAL CODE
2013 CALIFORNIA PLUMBING CODE
2013 CALIFORNIA FIRE CODE
2013 CALIFORNIA ENERGY CODE WITH 2008 CA ENERGY EFFICIENCY STANDARDS

CUSTOMER:

INSTALLER :



VICINITY MAP



SINGLE FAMILY RESIDENCE

CONTRACTOR :

OWNER :

DESIGNED BY



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ELECTRICAL CONSTRUCTION GENERAL NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC (NATIONAL ELECTRIC CODE), NFPA (NATIONAL FIRE PROTECTION ASSOCIATION), AND ALL APPLICABLE LOCAL, STATE AND FEDERAL CODES, LAWS AND REGULATIONS.
2. ALL WORK SHALL CONFORM TO APPLICABLE STATE AND FEDERAL SAFETY CODES INCLUDING OSHA AND CAL OSHA. NO 'HOT' WORK IS AUTHORIZED. ALL 'HOT' WORK SHALL BE APPROVED IN WRITING WITH THE GENERAL CONTRACTOR AND OWNER.
3. WORK UNDER THIS CONTRACT SHALL INCLUDE, BUT NOT BE LIMITED TO, FURNISHING, INSTALLING AND CONNECTION OF ALL ELECTRICAL EQUIPMENT AND TESTING OF ALL SYSTEMS AND SUB-SYSTEMS WITHIN THE SCOPE OF THIS CONTRACT. ANY ERRORS, OMISSION, OR UNCERTAINTY SHALL BE BROUGHT TO THE ATTENTION OF THE PRIME CONTRACTOR AND OR OWNER PRIOR TO CONSTRUCTION.
4. COORDINATE ALL WORK WITH ARCHITECTURAL, MECHANICAL AND STRUCTURAL DRAWINGS. INSTALL ALL WORK TO CLEAR NEW AND EXISTING ARCHITECTURAL AND STRUCTURAL MEMBERS. NO ITEM SUCH AS PIPE, DUCT, ETC. SHALL BE IN CONTACT WITH ANY ELECTRICAL EQUIPMENT.
5. CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY AND SECURITY OF THE WORKSITE. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
6. DO NOT SCALE DRAWINGS. LARGER SCALE DRAWINGS HAVE PRECEDENCE OVER SMALL SCALE DRAWINGS. SPECIFICATIONS HAVE PRECEDENCE OVER DRAWINGS. NOTIFY THE PRIME CONTRACTOR IMMEDIATELY AFTER DISCOVERY OF ANY DISCREPANCY BETWEEN DRAWINGS, SPECIFICATIONS OR FIELD CONDITIONS.
7. NOTIFY THE PRIME CONTRACTOR OR OWNER IMMEDIATELY AFTER DISCOVERING ANY HAZARDOUS MATERIAL.
8. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED. VERIFY THE EXACT LOCATIONS AND CONDITIONS OF ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS PRIOR TO ANY WORK. LOCATIONS FOR EQUIPMENT SHALL BE TAKEN FROM THE OTHER SHEETS WHERE THEY OCCUR. EXTEND WIRING FROM ALL JUNCTION BOXES, CONTROL PANELS, PUMPS, RECEPTACLES, SWITCHES, ETC. AND MAKE ALL FINAL CONNECTIONS TO EQUIPMENT AS REQUIRED.
9. THE INTENT OF THESE DRAWINGS IS FOR A COMPLETE ELECTRICAL SYSTEM. ANY ERRORS OR UNCERTAINTY SHALL BE BROUGHT TO THE ATTENTION OF THE PRIME CONTRACTOR AND ENGINEER AS SOON AS FOUND.
10. THE COMPLETE ELECTRICAL INSTALLATION SHALL BE TESTED AS A COMPLETE WORKING SYSTEM.
11. RESTORE ALL DAMAGES RESULTING FROM WORK AND LEAVE PREMISES IN CLEAN CONDITION WHEN FINISHED WITH WORK.
12. ALL TYPES OF SWITCHES, RECEPTACLES, WALL PLATES AND LIGHTING FIXTURES SHALL BE AS APPROVED BY PRIME CONTRACTOR OR OWNER. VERIFY MATERIALS AND COLOR AND LOCATIONS, SUBMIT CATALOG CUTS OR SHOP DRAWINGS FOR ALL MATERIALS AND EQUIPMENT.
13. ALL ITEMS ARE NEW UNLESS NOTED AS EXISTING (E).
14. REMOVE ALL INDICATED ITEMS. REMOVE ALL EXPOSED CONDUITS. REMOVE WIRES TO NEAREST CONCEALED JUNCTION BOX OR PANEL. ABANDON IN PLACE EXISTING UNUSED CONCEALED CONDUITS NOT EXPOSED BY CONSTRUCTION.
15. ALL EQUIPMENT SHALL BE SECURED IN ACCORDANCE WITH GOVERNING SEISMIC REGULATIONS. PROVIDE EXPANSION AND DEFLECTION FITTINGS IN CONDUITS REQUIRED BY CEC (CALIFORNIA ELECTRIC CODE).
16. FIRE STOP ALL PENETRATIONS THROUGH FIRE RATED SURFACES. SEE DETAIL D/E5.
17. PROVIDE GROUND ROD, GROUNDING ELECTRODE AND BONDING FOR ALL SERVICE ENTRANCE EQUIPMENT, BUILDING STRUCTURAL STEEL, COLD WATER PIPE AND TRANSFORMER PER CEC (CALIFORNIA ELECTRIC CODE).
18. ALL NEW CIRCUIT BREAKER SHALL BE RATED 10,000 AIC OR HIGHER UNO.
19. ALL CONDUITS SHALL BE EMT, INTERMEDIATE METAL CONDUIT, OR RIGID STEEL. MINIMUM SIZE SHALL BE 1/2". ALL CONDUIT, BOXES AND ELECTRICAL FITTINGS SHALL BE STEEL.
20. DO NOT USE THE WORKING SPACE WITHIN ANY EXIT SIGN OR ASSOCIATED JUNCTION BOX FOR ANY OTHER CIRCUIT.
21. PROVIDE EXPANSION AND DEFLECTION FITTINGS IN CONDUITS CROSSING BUILDING EXPANSION AND SEISMIC JOINTS. SEE DETAIL E/E5.
22. PROVIDE JUNCTION AND/OR PULL BOXES WHEN NECESSARY OR REQUIRED BY CEC.
23. ALL CONDUCTORS SHALL BE COPPER, THHN, #12 AWG MINIMUM. UNLESS IN A WET LOCATION IN WHICH CASE THWN SHALL BE USED.
24. INSTALL GREEN INSULATED GROUND WIRE IN ALL CIRCUITS. SIZE PER NEC REQUIREMENTS OR THE SAME AS PHASE CONDUCTORS WHICH EVER IS LARGER. UNLESS INDICATED OTHERWISE.
25. ALL NEW WIRING, CONDUIT, AND JUNCTION BOXES SHALL BE CONCEALED WITHIN NEW WALLS, CEILINGS OR FLOOR SPACES. SURFACE MOUNT CONDUIT ON OLD WALLS AND CEILINGS. RUN ALL SURFACE RACEWAY TIGHT TO STRUCTURE, PARALLEL TO BUILDING LINES.
26. PAINT ALL EXPOSED ELECTRICAL CONDUITS AND BOXES, PATCH AND PAINT ALL SCUFF MARKS AND/OR DAMAGE RESULTING FROM CONSTRUCTION. SELECT NEW PAINT COLOR TO MATCH EXISTING PAINT COLOR.
27. NO FOREIGN EQUIPMENT SHALL BE LOCATED WITHIN THE SPACE ABOVE OR BELOW ELECTRIC PANELS
28. PROVIDE SIGNAGE ON ALL ELECTRIC PANELS TO KEEP THE SPACE 36" IN FRONT OF THE PANELS FREE OF OBSTRUCTIONS.
29. PROVIDE WARNING LABEL ON ALL PANELS "WARNING, ELECTRICAL ARC FLASH HAZARD, PERSONAL PROTECTION, EQUIPMENT REQUIRED, FAILURE TO COMPLY CAN RESULT, IN INJURY OR DEATH, REFER TO NFPA 70E."
30. UPDATE PANEL BOARD DIRECTORY AS CIRCUITS ARE INSTALLED. PREPARE NEW TYPE WRITTEN PANEL SCHEDULES.
31. ALL EXTERIOR EQUIPMENT SHALL BE IN WEATHERPROOF (NEMA 3R) ENCLOSURES. ALL NEW WIRING SHALL BE IN CONDUIT, SUITABLE FOR SUN EXPOSURE AND WET LOCATIONS. FIELD APPLIED COATING ARE NOT ACCEPTABLE.
32. DC SOLAR POWER SHALL BE NEGATIVELY GROUNDED.
33. ALL MARKING SHALL BE PER CODE REQUIREMENTS.
34. INVERTERS MUST COMPLY WITH UL 1741 TO PREVENT ISLANDING ON POWER FAILURE. THE INVERTER SHALL PUT NOT POWER ON TO THE GRID IF THE GRID IS OFF-LINE.
35. NOTHING IN THESE PLANS SHALL BE CONSTRUED TO CONTRADICT NEC, UL OR LOCAL CODES.
36. ALL SYSTEM COMPONENTS (MODULES AND INVERTERS ETC) SHALL BE UL LISTED.
37. MOUNT TO ROOF USING UL APPROVED MOUNTING HARDWARE. FOLLOWING MANUFACTURERS DIRECTIONS. MOUNTING HARDWARE EVERY 4' ON CENTER UNLESS OTHERWISE NOTED.
38. MARK ALL DC CONDUIT "CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED". MARK ALL DISCONNECTS INCLUDING DISCONNECTS INCLUDED IN INVERTERS WITH "CAUTION: SOLAR CIRCUIT DISCONNECT". MARK THE MAIN SERVICE WITH "CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED". USE DURABLE MARKING WITH 3/8" WHITE LETTERS ON RED BACKGROUND.
39. MARK THE NEC REQUIRED CLEAR SPACE ON THE FLOOR IN FRONT OF ALL DEVICES BEING INSTALLED.
40. SUPPORT ALL ROOF MOUNTED CONDUIT WITH FOAM 'SLEEPERS' IN UL APPROVED SYSTEM.
41. OBTAIN THE BEST INFORMATION ON UNDERGROUND UTILITIES IN AREAS BEING TRENCHED. USE 'DIG ALERT' OR OTHER LOCATING SERVICE BEFORE DIGGING.
42. SOLAR PANELS SHALL NOT BE INSTALLED OVER ANY PLUMBING OR MECHANICAL VENTS, EXHAUSTS OR CHIMNEYS.
43. REMOVAL OF INVERTER, METER OR OTHER EQUIPMENT SHALL NOT DISCONNECT THE BONDING CONNECTION BETWEEN THE GROUNDING ELECTRODE CONDUCTOR AND THE PHOTOVOLTAIC SOURCE AND/OR OUTPUT CIRCUIT GROUNDED CONDUCTOR.
44. ALL PV MODULES AND ASSOCIATED EQUIPMENT SHALL BE PROTECTED FROM ANY PHYSICAL DAMAGE, AND ACCESS BY UNQUALIFIED PERSONS.

STORM WATER PREVENTION NOTES:

STORM WATER POLLUTION PREVENTION DEVICES AND PRACTICES SHALL BE INSTALLED AND/OR INSTITUTED AS NECESSARY TO ENSURE COMPLIANCE WITH THE CITY WATER QUALITY STANDARDS CONTAINED IN LOCAL REGULATIONS, FEDERAL REGULATIONS AND ANY EROSION CONTROL PLAN ASSOCIATED WITH THIS PROJECT. ALL SUCH DEVICES AND PRACTICES SHALL BE MAINTAINED, INSPECTED AND/OR MONITORED TO ENSURE ADEQUACY AND PROPER FUNCTION THROUGHOUT THE DURATION OF THE CONSTRUCTION PROJECT.

COMPLIANCE WITH THE WATER QUALITY STANDARDS AND ANY EROSION CONTROL PLAN ASSOCIATED WITH THIS PROJECT INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:

1. ALL POLLUTANTS SHALL BE RETAINED ON SITE UNTIL PROPERLY DISPOSED OF, AND MAY NOT BE TRANSPORTED FROM THE SITE VIA SHEET FLOW, SWALES, AREA DRAINS, NATURAL DRAINAGE COURSES OR WIND.
2. STOCKPILES OF CONSTRUCTION-RELATED MATERIALS SHALL BE PROTECTED FROM BEING TRANSPORTED FROM THE SITE BY FORCES OF WIND OR WATER FLOW.
3. TRASH AND CONSTRUCTION SOLID WASTES SHALL BE DEPOSITED INTO COVERED RECEPTACLE TO PREVENT CONTAMINATION OF RAINWATER AND DISPERSAL BY WIND.

VISIBILITY FROM ADJACENT PROPERTY:

THE SOLAR PANELS MAY BE VISIBLE FROM ADJACENT PROPERTIES. PAINT ALL STRUCTURAL ELEMENTS TO MATCH THE EXISTING ROOFING.

CONTRACTOR :

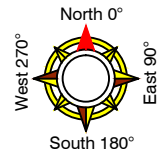
OWNER :

DESIGNED BY

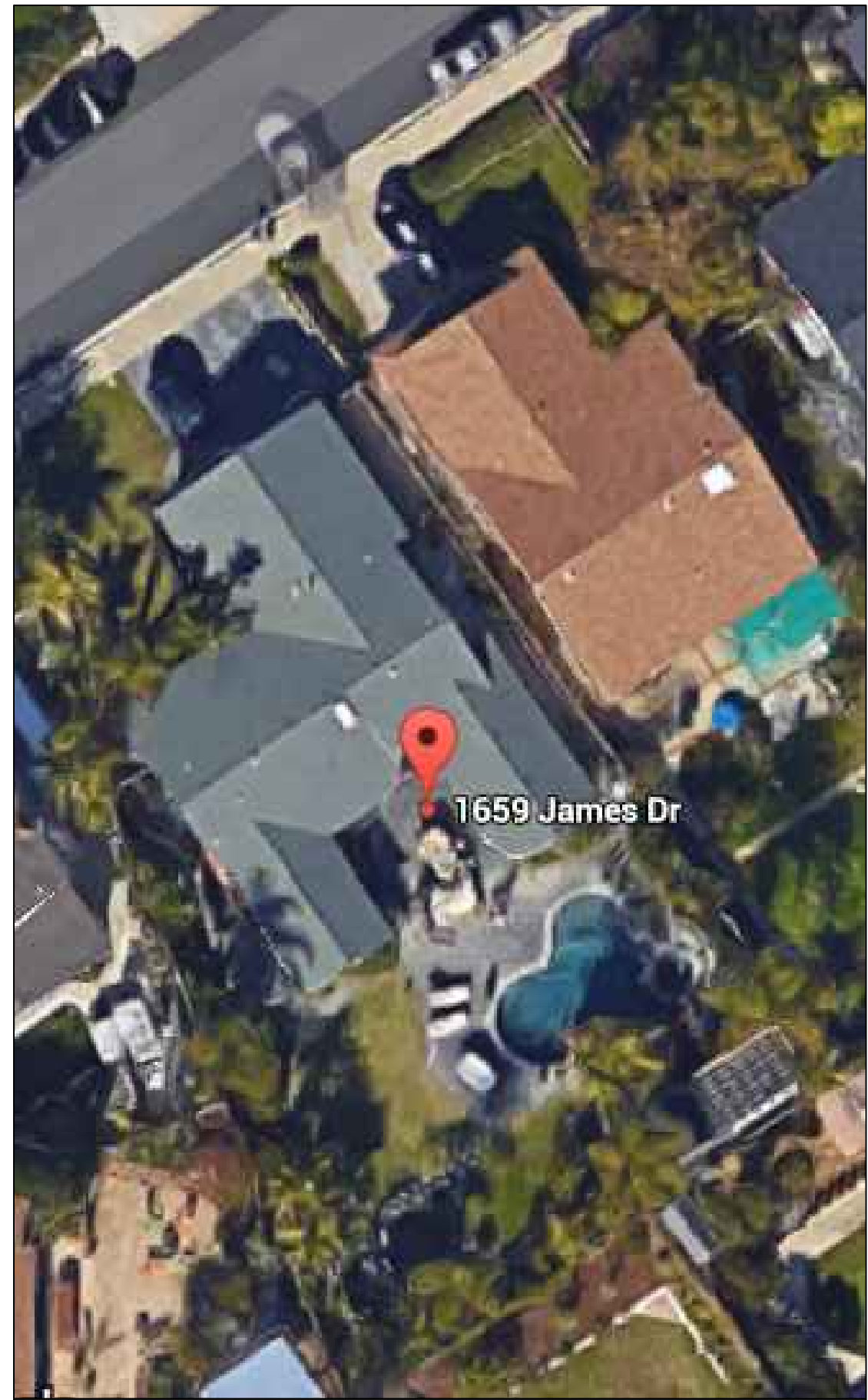


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PROPERTY LAYOUT



PROPERTY MAP

CONTRACTOR :

OWNER :

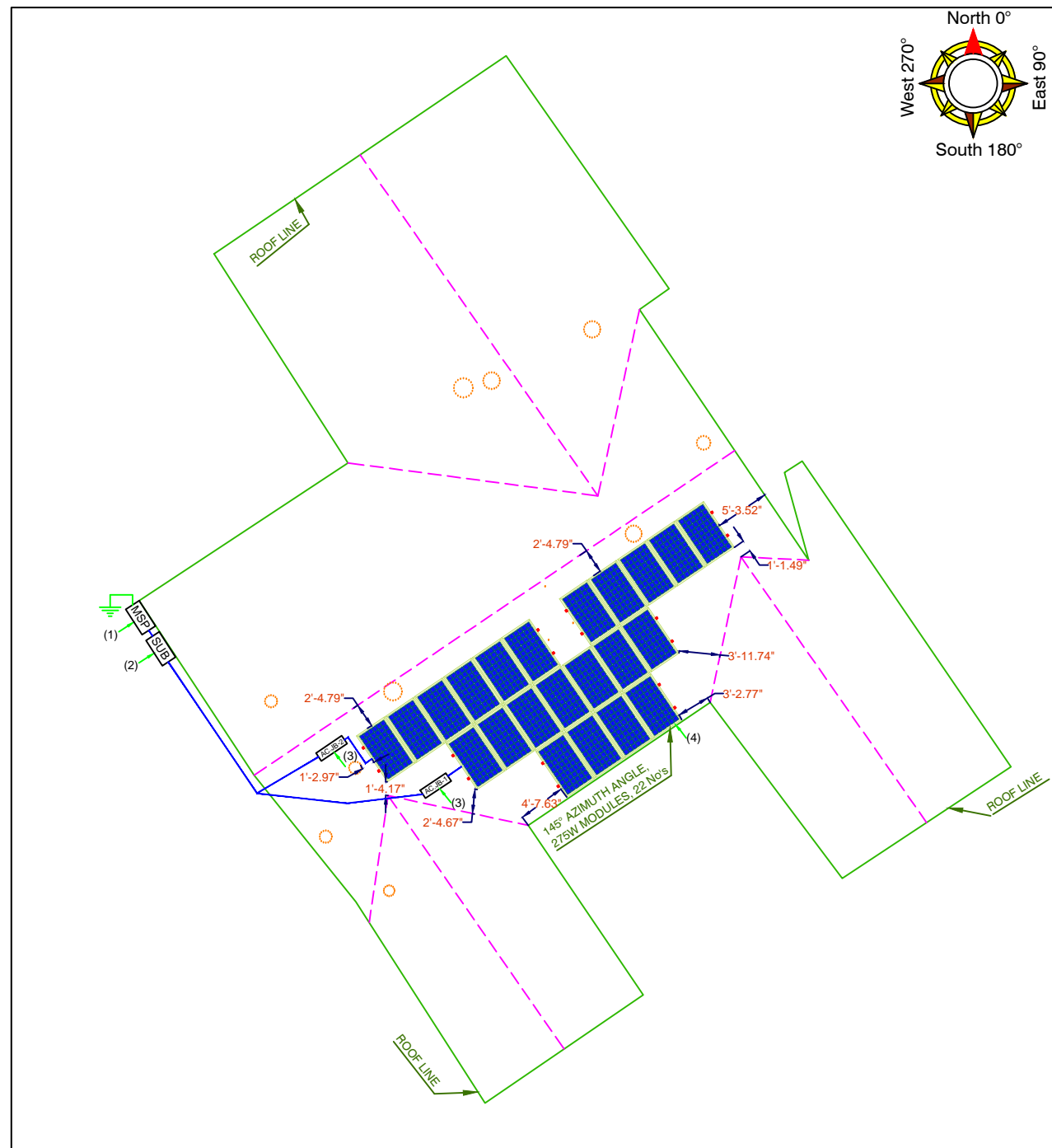
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STRING LAYOUT



PV LAYOUT

GENERAL NOTES

- This project has been designed in compliance with the CBC Section 11&09 to withstand a minimum 85mph wind load.
- This system will not be interconnected until approval from the local jurisdiction and the utility is obtained.
- This system is an utility interactive system with no storage batteries.
- The solar photovoltaic installation system not obstruct any plumbing,mechanical or building roof vents.
- Roof access and ladder shall be located in area not requiring placement of ground ladder over openings such as doors or windows. Roof access shall be located in strong points of building construction in location where access point does not conflict with overhead obstruction such as tree limbs,wires or sings.
- Proper access and working clearance will be provided as per section 110.21 & CEC.
- All equipment shall be identified on a warning placard clearly showing the location of all pertinent equipment and disconnect .Alternate power source placard shall meet the specification of the San Diego Area Newsletter.
- Provide load calculation at first inspection. All breaker spaces shall be used at distribution panel.

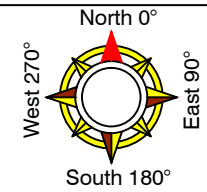
Details :-

- (1) Main Service Panel
- (2) SUB Panel
- (3) AC Junction Box
- (4) Location Of Crystalline Modules & Inverter - LG, LG 275 SIC - B3 Module & M250 - 60 - 2LL - S2X Inverter

LEGEND:-

- (1) - Main Service Panel
- (2) - SUB Panel
- (3) - AC Junction Box
- (4) - PV Modules & Inverter
- - Rail
- - Fire Setback

**Solar Modules Cover
Less than 50% of
Total Roof Area**



CONTRACTOR :

OWNER :

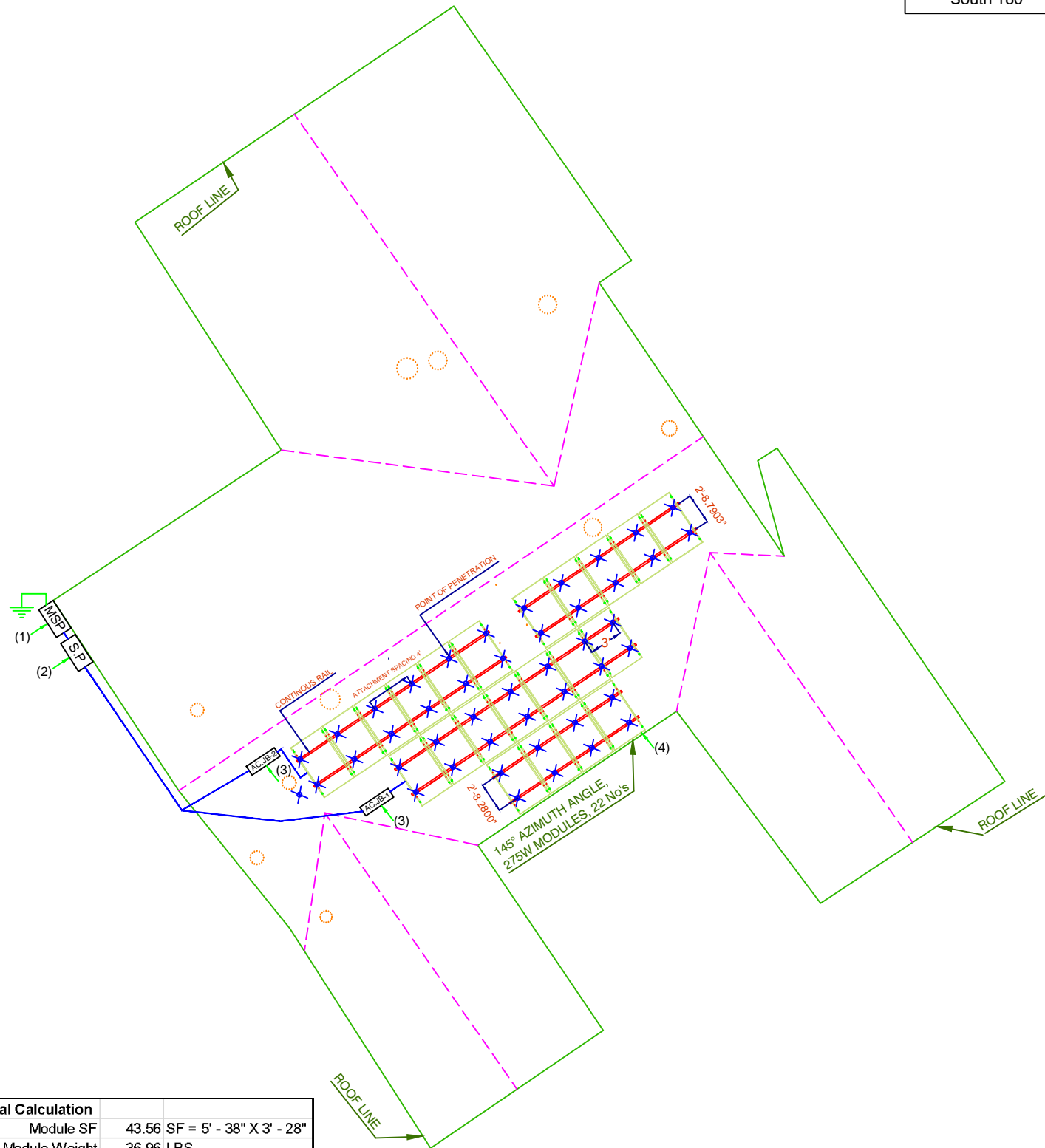
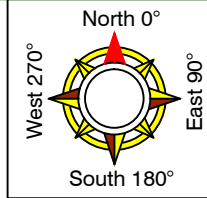
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ATTACHMENT LAYOUT

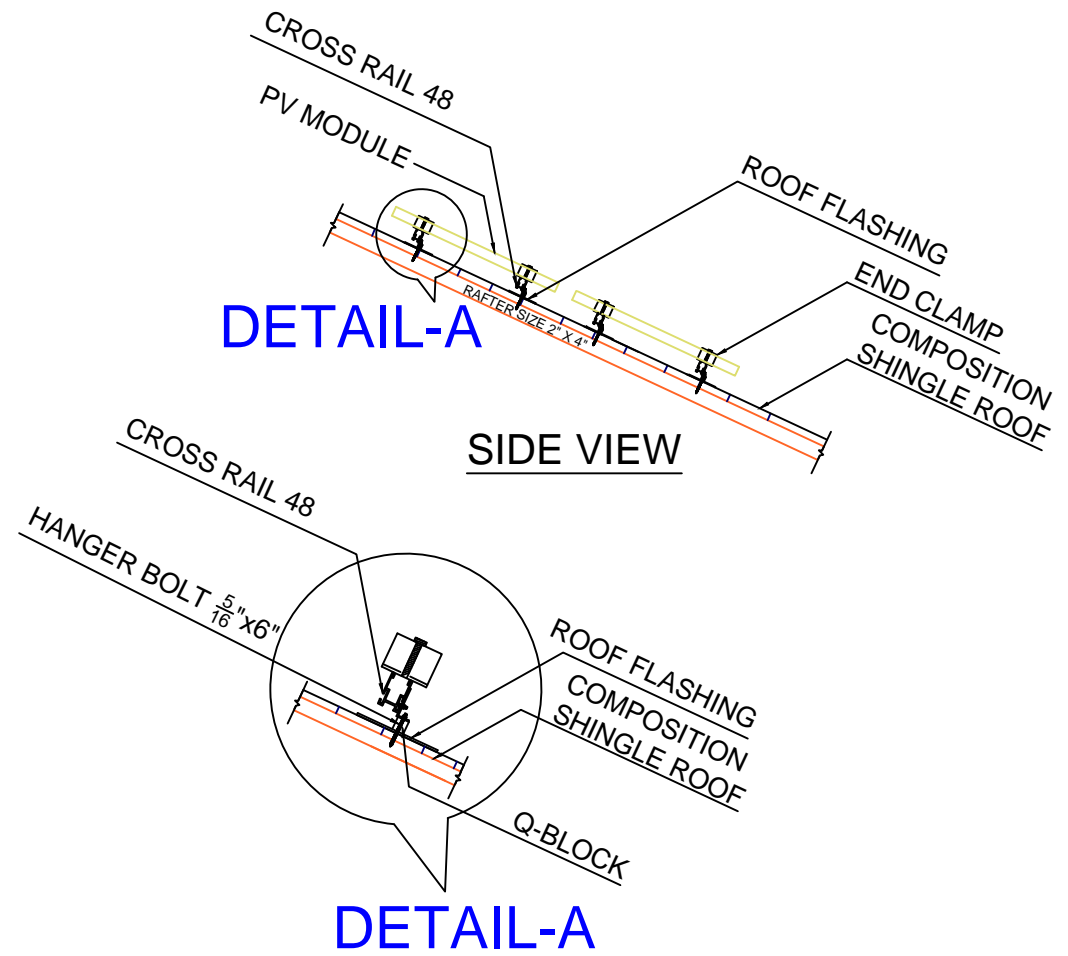
PV MODULES
 X ROOF PENETRATION POINTS
 RAILS



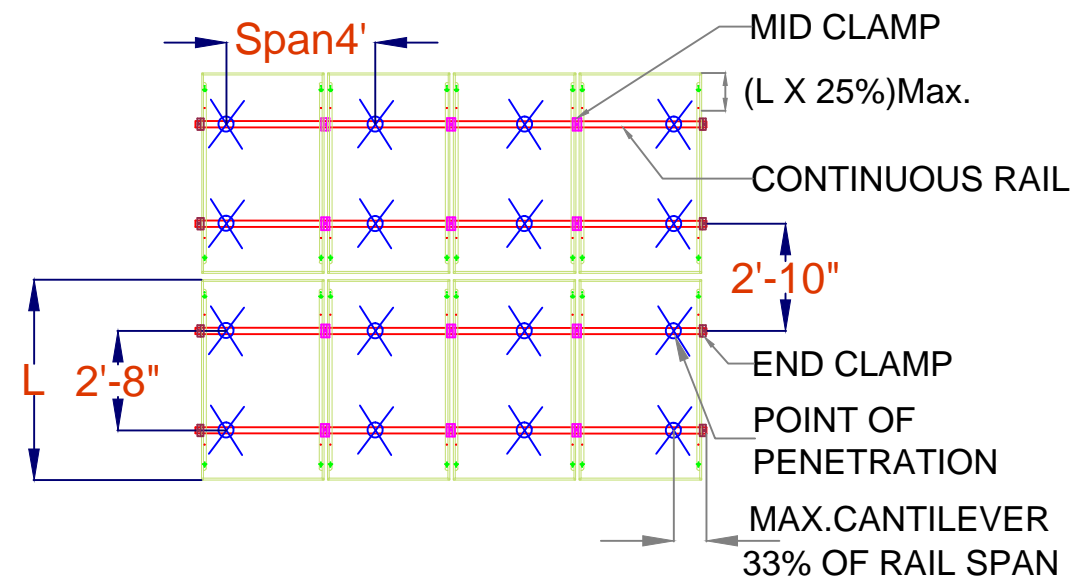
| Structural Calculation | | |
|------------------------|--------------------------------|--------|
| Module SF | 43.56 SF = 5' - 38" X 3' - 28" | |
| Module Weight | 36.96 LBS | |
| Module Loading | 0.85 LBS/SF | |
| Mounting Weight | 1 LBS approx. | |
| Total Weight | 1.85 LBS/SF | |
| Code Limit 4LBS/SF | | |
| Site Data | | |
| Module | LBS | |
| Home | 22 | 813.12 |

ATTACHMENT DETAILS

DETAIL-A



ATTACHMENT SPACING DETAILS



CONTRACTOR :

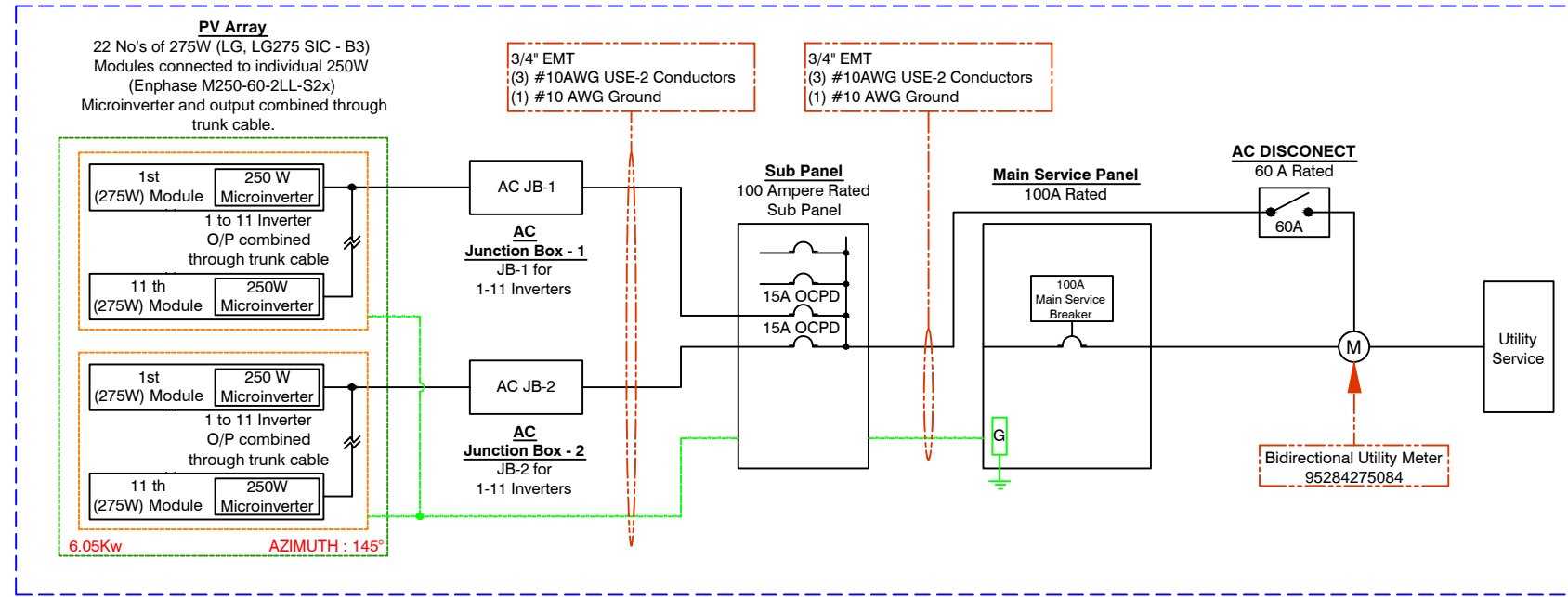
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5.5KW AC & 6.05 kW DC PROPOSED PV SYSTEM ONE LINE DIAGRAM



WIRING AND CONDUIT SCHEDULE

| DC SCHEDULE | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|---------------------------------|--|---------------------------------|-----|---------------------|--------------------------|--------------------------|-------------------------|-------------------------|-----------------|---------------------------|-----------------------|-------------------------|---------------------------|--------------------|-------------------------|-----------|-------------------|----------------------|----------|-----------|------------------------|------------------------------------|--------------|------------------------|------------------------------------|---------|
| S.NO | ITEM | DESCRIPTION | ID | QTY | V _{oc} (V) | V _{MPP} (V) STC | I _{MPP} (A) STC | I _{sc} (A) STC | Max Circuit current (A) | Nominal Power | Minimum Ampacity (A) | Adjusted Ampacity (A) | OCPD rating (A) | Multiple conductor Derate | Temperature Derate | Max ONE WAY LENGTH (ft) | WIRE SIZE | Wire Ampacity (A) | Derated Ampacity (A) | GROUND | WIRE TYPE | R/1000FT | V LOSS % | TEMP MAX | TOTAL NO OF CONDUCTORS | NO. OF CURRENT CARRYING CONDUCTORS | CONDUIT |
| 1 | MODULE TO MICRO INVERTER WIRING | MODULE TO MICRO INVERTER LG 275W LG275 SIC - B3 | | 22 | 38.7 | 31.7 | 8.68 | 9.26 | 11.58 | 275 | 14.5 | 15.4 | NA | 1.00 | 0.76 | 5 | #12 AWG | 30 | 22.8 | #10 BARE | PV | 1.98 | 0.54% | 52 C | 2 | 2 | NA |
| AC SCHEDULE | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S.NO | ITEM | DESCRIPTION | ID | QTY | VOLTAGE (V) | Max Circuit Current (A) | Power | Minimum Ampacity (A) | Adjusted Ampacity (A) | OCPD rating (A) | Multiple conductor Derate | Temperature Derate | Max ONE WAY LENGTH (ft) | WIRE SIZE | Wire Ampacity (A) | Derated Ampacity (A) | GROUND | WIRE TYPE | R/1000FT | V LOSS % | TEMP MAX | TOTAL NO OF CONDUCTORS | NO. OF CURRENT CARRYING CONDUCTORS | CONDUIT | | | |
| 2 | 6.05Kw 145° | MICRO INVERTER OUTPUT CONNECTED TO INPUT OF TRUNK CABLE | | 11 | 240 | 1 | 250 | 1.3 | 1.3 | NA | 1.00 | 0.76 | 2 | #12 AWG | 30 | 22.8 | #10 AWG | THWN-2 | 1.98 | 0.00% | 52 C | 4 | 2 | NA | | | |
| 3 | | TRUNK CABLE OUTPUT TO AC JUNCTION BOX (11 MICRO INVERTERS AC OUTPUT CONNECTED PARALLEL BY USING TRUNK CABLE) | | 1 | 240 | 11 | 2750 | 13.8 | 18.3 | 15 | 0.80 | 0.76 | 20 | #10 AWG | 40 | 24.32 | #10 AWG | THWN-2 | 1.24 | 0.11% | 52 C | 4 | 2 | 3/4" EMT min | | | |
| 4 | | AC JUNCTION BOX-1 TO SUB PANEL | | 1 | 240 | 11 | 2750 | 13.8 | 18.3 | 15 | 0.80 | 0.76 | 30 | #10 AWG | 40 | 24.32 | #10 AWG | THWN-2 | 1.24 | 0.17% | 52 C | 4 | 2 | 3/4" EMT min | | | |
| 5 | | MICRO INVERTER OUTPUT CONNECTED TO INPUT OF TRUNK CABLE | | 11 | 240 | 1 | 250 | 1.3 | 1.3 | NA | 1.00 | 0.76 | 2 | #12 AWG | 30 | 22.8 | #10 AWG | THWN-2 | 1.98 | 0.00% | 52 C | 4 | 2 | NA | | | |
| 6 | | TRUNK CABLE OUTPUT TO AC JUNCTION BOX (11 MICRO INVERTERS AC OUTPUT CONNECTED PARALLEL BY USING TRUNK CABLE) | | 1 | 240 | 11 | 2750 | 13.8 | 18.3 | 15 | 0.80 | 0.76 | 20 | #10 AWG | 40 | 24.32 | #10 AWG | THWN-2 | 1.24 | 0.11% | 52 C | 4 | 2 | 3/4" EMT min | | | |
| 7 | | AC JUNCTION BOX-2 TO SUB PANEL | | 1 | 240 | 11 | 2750 | 13.8 | 18.3 | 15 | 0.80 | 0.76 | 30 | #10 AWG | 40 | 24.32 | #10 AWG | THWN-2 | 1.24 | 0.17% | 52 C | 4 | 2 | 3/4" EMT min | | | |
| 8 | | AC WIRING | SUB PANEL TO MAIN SERVICE PANEL | | 1 | 240 | 22 | 5500 | 27.5 | 36.6 | 30 | 0.80 | 0.96 | 10 | #10 AWG | 40 | 30.72 | #10 AWG | THWN-3 | 1.24 | 0.11% | 30 C | 4 | 2 | 3/4" EMT min | | |
| AC DROP 0.69% | | | | | | | | | | | | | | | | | | | | | | | | | | | |

BILL OF MATERIAL

| S.NO | REF. DES. | QTY. | MANUFACTURER | MFR PN | DESCRIPTION |
|------|---------------|------|----------------|-----------------|--|
| 1 | SOLAR MODULES | 22 | LG | LG 275 SIC - B3 | LG, 275W, 600V DC (UL) NOTES: UL 1703, ISO 9001 |
| 2 | INVERTER | 22 | Enphase Energy | M250-60-2LL-S2x | INVERTER, 250W, 240V AC, NEMA 6 NOTES: UL1741/IEEE1547, FCC Part 15 Class B, CANCSA-C22.2 NO. 0-M91, 0.4-04, and 107.1-01 |
| 3 | SUB PANEL | 1 | TBD | TBD | SUB PANEL-240V, 2P OCPD NOTES: 1. UL1741, INPUT WIRE RANGE 16 AWG 6 AWG; OUTPUT WIRE RANGE IS 16 AWG to 6 AWG; 2 X 15A MAX CONTINUOUS OUTPUT |
| 4 | MSP | 1 | TBD | TBD | AC DISCONNECT, FUSED, 1PH, 100A, 240V, NEMA 3R NOTES: 1. USED AS PV UTILITY/SERVICE DISCONNECT 2. LOCKABLE HEAVY DUTY SWITCH WITH VISIBLE CONTACTS, NEMA 3R ENCLOSURE, UL LISTED, RATED @240V AC, 100A |

System Configuration

| | |
|-----------------------|-----------------|
| Number of strings | 22 |
| Modules per string | 1 |
| Number of Inverter | 22 |
| Module Model | LG 275 SIC - B3 |
| Inverter Model | M250-60-2LL-S2X |
| DC Watts STC | 6050 W |
| Max AC output Current | 22 A |
| Operating AC Voltage | 240 V |

Module Ratings:

LG, LG275 SIC - B3
 Pmax - 275W
 Vmp - 31.7 V
 Imp - 8.68 A
 Voc - 38.7 V
 Isc - 9.26 A

Inverter Ratings:

ENPHASE , M250-60-2LL-S2X
 Input : 15 A DC
 Output : 240 VAC
 I_{max} = 1A
 I_{nc} = 1.25 A (@ 125%)
 NEMA 6 Enclosure
 UL1741/IEEE 1547

PV SYSTEM AC DISCONNECT:

OPERATING CURRENT : 1 X 22 A
 OPERATING VOLTAGE : 240V
 MAXIMUM SYSTEM VOLTAGE : 600V
 SHORT CIRCUIT CURRENT : 27.5A
 Label Located on Inverter / DC Disconnect

CONTRACTOR :

OWNER :

DESIGNED BY



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SYSTEM LABELING DETAIL:

All Plaques and signage required by the 2013 edition of California Electrical Code, NEC and the San Diego Area Electrical News letter will be installed as required. Plaques consist of white lettering on red background with text written in capitol lettering a minimum of 3/8" in height on plastic Engraved plaques.

Alternate Power Source Placard shall be metallic or plastic with engraved or machine printed letters in a contrasting color to the plaque, include the location of meter, disconnects, inverter, the array and a footprint of the entire building and site. This plaque will be attached by pop rivets, screws or other approved fasteners. If exposed to sunlight, it shall be UV resistant.

Photovoltaic DC conductors entering the building shall be installed in a metallic raceway and shall be identified every 5 feet -- and within 1 foot of turns or bends and within 1 foot above and below penetrations of roof/ceiling assemblies, walls, or barriers labeled

"Caution Solar Circuit" or equivalent Examples of all required warning labels per NEC and CEC 690 below:

SIGNAGE REQUIREMENT :

RED BACKGROUND .WHITE LETTERING. ("WARNING"-3/8" LETTERS).ALL CAPITAL LETTERS.ARIAL OR SIMILAR FONT . WEATHER - RESISTANT MATERIAL,UL 969.

| DC DISCONNECT WARNING | AC DISCONNECT WARNING | SERVICE PANEL | |
|--|--|---|--|
| <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">PHOTOVOLTAIC SYSTEM DC DISCONNECT</p> <p>OPERATING VOLTAGE 16-48 Vdc OPERATING CURRENT 8.68 Adc MAX SYSTEM VOLTAGE 48 Vdc SHORT CIRCUIT CURRENT 9.26 Adc</p> <p style="text-align: center;">WARNING</p> <p style="text-align: center;">ELECTRIC SHOCK HAZARD</p> <p style="text-align: center;">DO NOT TOUCH TERMINALS TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION</p> <p style="font-size: small;">PER NEC 680.14(C)(2),680.17(4),680.54</p> <p style="font-size: x-small;">per NEC 690.53 operating voltage,operating current ,max system voltage short circuit current and maximum output current of the charge controller if one is installed</p> <p style="font-size: x-small;">PLACE ON : Main Solar Disconnect</p> <div style="border: 1px solid black; padding: 2px; text-align: center;"> <p style="margin: 0;">PHOTOVOLTAIC SYSTEM DISCONNECT</p> <p style="font-size: x-small;">*PV System Disconnect *label NEC 690.14(C)(2) Required Disconnect Markings</p> </div> </div> | <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">PHOTOVOLTAIC SYSTEM AC DISCONNECT</p> <p>OPERATING VOLTAGE 240 Volts OPERATING CURRENT 22 Amps</p> <p style="text-align: center;">WARNING</p> <p style="text-align: center;">ELECTRIC SHOCK HAZARD</p> <p style="text-align: center;">DO NOT TOUCH TERMINALS TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION</p> <p style="font-size: x-small;">PER NEC 680.14(C)(2),680.17(4),680.54</p> <p style="font-size: x-small;">per NEC 690.54 operating voltage,operating current</p> <p style="font-size: x-small;">PLACE ON: Inverter Breaker Panel if sum of breaker exceeds panel rating</p> <div style="border: 1px solid black; padding: 2px; text-align: center;"> <p style="margin: 0;">WARNING</p> <p style="margin: 0;">INVERTER OUTPUT CONNECTION</p> <p style="font-size: x-small;">DO NOT RELOCATE THIS OVERCURRENT DEVICE</p> </div> <p style="font-size: x-small;">Inverter output connection *label NEC 705.12(7) Point Of Conection</p> </div> | <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; font-size: 24px;">CAUTION</p> <p style="text-align: center; font-size: small;">SOLAR ELECTRIC SYSTEM CONNECTED WITH SOURCE AND DISCONNECTS AS SHOWN</p> <div style="text-align: center;"> </div> <div style="text-align: center;"> </div> <p style="font-size: x-small;">Details :- (1) Main Service Panel (2) SUB Panel (3) AC Junction Box (4) Location Of Crystalline Modules & Inverter - LG, LG 275 SIC - B3 Module & M250 - 60 - 2LL - S2X Inverter</p> <p style="font-size: x-small;">must show drawing of the property and equipment layout .per NEC 690.56</p> </div> | <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">WARNING</p> <p style="text-align: center;">INVERTER OUTPUT CONNECTION</p> <p style="font-size: x-small;">SOURCES : UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM</p> <p style="font-size: x-small;">*Dual Power Supply* label NEC 690.64,705.12(4) point of connection</p> <div style="border: 1px solid black; padding: 2px; text-align: center;"> <p style="margin: 0;">WARNING</p> <p style="margin: 0;">ELECTRIC SHOCK HAZARD</p> <p style="font-size: x-small;">DO NOT TOUCH TERMINALS TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION</p> <p style="font-size: x-small;">*Don Not Touch terminals* labels NEC 690.17(4) Switch or Circuit Breaker</p> </div> <div style="border: 1px solid black; padding: 2px; text-align: center;"> <p style="margin: 0;">THIS ELECTRIC SYSTEM IS ALSO SERVED BY A PHOTOVOLTAIC SYSTEM</p> </div> <p style="text-align: center; font-weight: bold; font-size: 14px;">CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED</p> </div> |
| DC LABELS | | OTHERS | |
| <p style="font-size: x-small;">PLACE ON 1.DC Junction Boxes 2.DC Combiner Boxes</p> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">WARNING</p> <p style="text-align: center;">ELECTRIC SHOCK HAZARD</p> <p style="font-size: x-small;">THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUND AND MAY BE ENERGIZED</p> <p style="font-size: x-small;">*Electric Shock Hazard*label NEC 690.35(F) ungrounded PV system</p> <p style="font-size: x-small;">PLACE ON 1.DC Junction Boxes 2.DC Combiner Boxes</p> <div style="border: 1px solid black; padding: 2px; text-align: center;"> <p style="margin: 0;">PHOTOVOLTAIC POWER SOURCE</p> <p style="font-size: x-small;">*PV Power Source *Label. NEC 690.31(E)(3) DC-PV Source Conductor</p> </div> </div> | <p style="font-size: x-small;">PLACE ON:All DC Source Markings and System Output Conductor Raceways</p> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; font-size: 24px; font-weight: bold;">CAUTION SOLAR CIRCUIT</p> <p style="font-size: x-small;">*Caution Solar Circuit *Label NEC 690.4(F),690.31(E)(4) place on conduit every 10 feet IFC 605.11.1.1 & IFC 605 .11.2 *MUST BE REFLECTIVE IF INDOORS OR IN ATTIC</p> </div> | <p style="font-size: x-small;">PLACE ON : Next to inverter interconnection Breaker,Load center, & Service Panel</p> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; font-weight: bold;">PV SOLAR BREAKER</p> <p style="font-size: x-small;">DO NOT RELOCATE THIS OVERCURRENT DEVICE</p> <p style="font-size: x-small;">(1) Main Service Panel (2) SUB Panel (3) AC Junction Box (4) Location Of Crystalline Modules & Inverter - LG, LG 275 SIC - B3 Module & M250 - 60 - 2LL - S2X Inverter</p> </div> | <p style="font-size: x-small;">PLACE ON : Next GFI Reset</p> <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">WARNING</p> <p style="text-align: center;">ELECTRIC SHOCK HAZARD</p> <p style="font-size: x-small;">IF GROUND FAULT IS INDICATED ALL NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUND AND ENERGIZED</p> <p style="font-size: x-small;">*Ground Fault Indicated*label Nec 690.5(C) Ground Fault Protection</p> </div> |

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EN



MonoX™

LG275S1C-B3 / LG270S1C-B3 / LG265S1C-B3

60 cell

MonoX™ series are LG Electronics' high-quality monocrystalline module brands. The quality is the result of our strong commitment to developing a module to improve benefits for customers. Features of MonoX™ series include higher efficiency and durability, convenient installation, and aesthetic exterior.



Light and Robust
With a weight of just 16.8 kg, LG modules are proven to demonstrate outstanding durability against external pressure up to 5400 Pa.



100% EL Test Completed
All LG modules pass Electroluminescence inspection. This EL inspection detects cracks and other imperfections unseen by the naked eye.



Reliable Warranties
LG stands by its products with the strength of a global corporation and sterling warranty policies. LG offers a 10 year product limited warranty and a 25 year limited linear output warranty.



Convenient Installation
LG modules are carefully designed to benefit installers by allowing quick and easy installations throughout the carrying, grounding, and connecting stages of modules.



The Extra 2% Power
To minimize losses due to mismatch, LG produces 3 groups of solar modules which are sorted by its current class. This enables MonoX™ to maximize the system's output by around 2% based off the theoretical calculation.



Positive Power Tolerance
LG provides rigorous quality testing to solar modules to assure customers of the stated power outputs of all modules, with a positive nominal tolerance starting at 0%.

About LG Electronics

LG Electronics is a global big player who has been committed to expanding its capacity, based on solar energy business as its future growth engine. We embarked on a solar energy source research program in '1985, supported by LG Group's rich experience in semi-conductor, LCD, chemistry, and materials industry. We successfully released the first MonoX™ series on the market, in 2010, which were exported to 32 countries in 2 years, thereafter, in 2013, MonoX™ NeoN won "Intersolar Award", which proved it's the leader of innovation in the industry.

MOUNT ACCORDING TO MOUNTING MFG INSTRUCTIONS AND CIVIL/STRUCTURAL DIRECTIONS.

USE FASTENERS SUITABLE TO SURFACE BEING ATTACHED. LAG-SCREWS FOR WOOD, NUTS (LOCKING) AND BOLTS FOR METAL STRUCTURES.

MOUNT 4' ON CENTER UNLESS OTHERWISE NOTED OR REQUIRED TO CONNECT TO STRUCTURAL MEMBERS.

MonoX™

LG275S1C-B3 / LG270S1C-B3 / LG265S1C-B3

Preliminary

Mechanical Properties

| | |
|------------------------|--|
| Cells | 6 x 10 |
| Cell vendor | LG |
| Cell type | Monocrystalline |
| Cell dimensions | 156.5 x 156.5 mm / 6 x 6 in |
| # of busbar | 3 |
| Dimensions (L x W x H) | 1640 x 1000 x 35 mm 64.57 x 39.37 x 1.38 in |
| Static snow load | 5400 Pa / 113 psf |
| Static wind load | 2400 Pa / 50 psf |
| Weight | 16.8 ± 0.5 kg / 36.96 ± 1.1 lb |
| Connector type | MC4 connector IP 67 |
| Junction box | IP 67 with 3 bypass diodes |
| Length of cables | 1000 mm / 39.37 in |
| Glass | High transmission tempered glass |
| Frame | Anodized aluminum |

Certifications and Warranty

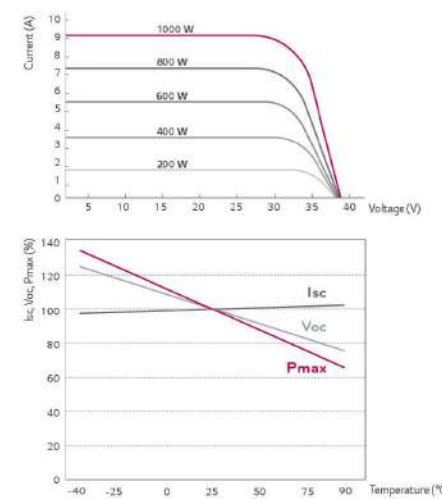
| | |
|--|--|
| Certifications (In Progress) | IEC 61215, IEC 61730-1/-2, IEC 61701, DLG-Fokus Test "Ammonia Resistance", UL 1703, ISO 9001 |
| Product warranty | 10 years |
| Output warranty of Pmax (measurement tolerance ± 3%) | Linear warranty* |

* 1) 1st year: 97%, 2) After 2nd year: 0.7% annual degradation, 3) 80.2% for 25 years

Temperature Coefficients

| | |
|------|-------------|
| NOCT | 45.0 ± 2 °C |
| Pmpp | -0.43 %/°C |
| Voc | -0.31 %/°C |
| Isc | 0.04%/°C |

Characteristic Curves



Electrical Properties (STC*)

| | LG275S1C-B3 | LG270S1C-B3 | LG265S1C-B3 |
|--------------------------------|----------------------|-------------|-------------|
| Maximum power at STC (Pmpp) | 275 | 270 | 265 |
| MPP voltage (Vmpp) | 31.7 | 31.5 | 31.3 |
| MPP current (Impp) | 8.68 | 8.58 | 8.49 |
| Open circuit voltage (Voc) | 38.7 | 38.5 | 38.3 |
| Short circuit current (Isc) | 9.26 | 9.17 | 9.11 |
| Module efficiency (%) | 16.8 | 16.5 | 16.2 |
| Operating temperature (°C) | -40 ~ +90 | | |
| Maximum system voltage (V) | 1000 (IEC), 600 (UL) | | |
| Maximum series fuse rating (A) | 15 | | |
| Power tolerance (%) | 0 ~ +3 | | |

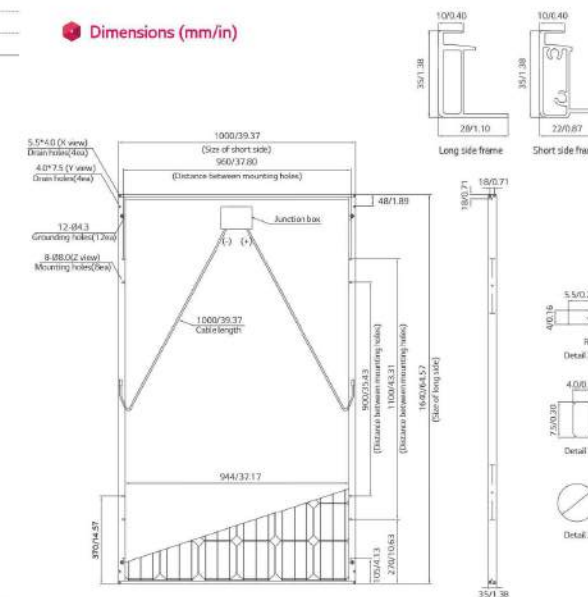
* STC (Standard Test Condition): Irradiance 1000 W/m², module temperature 25 °C, AM 1.5
* The nameplate power output is measured and determined by LG Electronics at its sole and absolute discretion.

Electrical Properties (NOCT*)

| | LG275S1C-B3 | LG270S1C-B3 | LG265S1C-B3 |
|---|-------------|-------------|-------------|
| Maximum power (Pmpp) | 202 | 198 | 195 |
| MPP voltage (Vmpp) | 29.1 | 29.0 | 28.8 |
| MPP current (Impp) | 6.92 | 6.84 | 6.77 |
| Open circuit voltage (Voc) | 35.9 | 35.7 | 35.5 |
| Short circuit current (Isc) | 7.46 | 7.39 | 7.34 |
| Efficiency reduction (from 1000 V/m² to 200 V/m²) | < 4.5% | | |

* NOCT (Nominal Operating Cell Temperature): Irradiance 800 W/m², ambient temperature 20 °C, wind speed 1 m/s

Dimensions (mm/in)



LG Electronics Inc.
Solar Business Division
Seoul Square 541, Namdaemun-ro 5-ga
Jung-gu, Seoul 100-714, Korea
www.lg-solar.com

Product specifications are subject to change without notice.
DS-B3-40-C-G-P-EH-40102

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01/01/2014



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Enphase® Microinverters

Enphase® M250



The **Enphase® M250 Microinverter** delivers increased energy harvest and reduces design and installation complexity with its all-AC approach. With the M250, the DC circuit is isolated and insulated from ground, so **no Ground Electrode Conductor (GEC) is required for the microinverter**. This further simplifies installation, enhances safety, and saves on labor and materials costs.

The Enphase M250 integrates seamlessly with the Engage® Cable, the Envoy® Communications Gateway™, and Enlighten®, Enphase's monitoring and analysis software.

PRODUCTIVE

- Optimized for higher-power modules
- Maximizes energy production
- Minimizes impact of shading, dust, and debris

SIMPLE

- No GEC needed for microinverter
- No DC design or string calculation required
- Easy installation with Engage Cable

RELIABLE

- 4th-generation product
- More than 1 million hours of testing and millions of units shipped
- Industry-leading warranty, up to 25 years

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ENERGY



MOUNT ACCORDING TO MOUNTING MFG INSTRUCTIONS AND CIVIL/STRUCTURAL DIRECTIONS.

USE FASTENERS SUITABLE TO SURFACE BEING ATTACHED. LAG-SCREWS FOR WOOD, NUTS (LOCKING) AND BOLTS FOR METAL STRUCTURES.

MOUNT 4" ON CENTER UNLESS OTHERWISE NOTED OR REQUIRED TO CONNECT TO STRUCTURAL MEMBERS.

Enphase® M250 Microinverter // DATA

| INPUT DATA (DC) | | M250-60-2LL-S22, M250-60-2LL-S25 | |
|--|--|-----------------------------------|-----------------------------------|
| Recommended input power (STC) | 210 - 310 W | | |
| Maximum input DC voltage | 48 V | | |
| Peak power tracking voltage | 27 V - 39 V | | |
| Operating range | 16 V - 48 V | | |
| Min/Max start voltage | 22 V / 48 V | | |
| Max DC short circuit current | 15 A | | |
| OUTPUT DATA (AC) | | @208 VAC | @240 VAC |
| Peak output power | 250 W | 250 W | 250 W |
| Rated (continuous) output power | 240 W | 240 W | 240 W |
| Nominal output current | 1.15 A (A rms at nominal duration) | 1.0 A (A rms at nominal duration) | 1.0 A (A rms at nominal duration) |
| Nominal voltage/range | 208 V / 183-229 V | 240 V / 211-264 V | 240 V / 211-264 V |
| Nominal frequency/range | 60.0 / 57-61 Hz | 60.0 / 57-61 Hz | 60.0 / 57-61 Hz |
| Extended frequency range* | 57-62.5 Hz | 57-62.5 Hz | 57-62.5 Hz |
| Power factor | >0.95 | >0.95 | >0.95 |
| Maximum units per 20 A branch circuit | 24 (three phase) | 16 (single phase) | 16 (single phase) |
| Maximum output fault current | 850 mA rms for 6 cycles | 850 mA rms for 6 cycles | 850 mA rms for 6 cycles |
| EFFICIENCY | | | |
| CEC weighted efficiency | 96.5% | | |
| Peak inverter efficiency | 96.5% | | |
| Static MPPT efficiency (weighted, reference EN50530) | 99.4 % | | |
| Night time power consumption | 65 mW max | | |
| MECHANICAL DATA | | | |
| Ambient temperature range | -40°C to +65°C | | |
| Dimensions (WxHxD) | 171 mm x 173 mm x 30 mm (without mounting bracket) | | |
| Weight | 1.6 kg (3.4 lbs) | | |
| Cooling | Natural convection - No fans | | |
| Enclosure environmental rating | Outdoor - NEMA 6 | | |
| Connector type | M250-60-2LL-S22: MC4 M250-60-2LL-S25: Amphenol H4 | | |
| FEATURES | | | |
| Compatibility | Compatible with 60-cell PV modules | | |
| Communication | Power line | | |
| Integrated ground | The DC circuit meets the requirements for ungrounded PV arrays in NEC 690.35. Equipment ground is provided in the Engage Cable. No additional GEC or ground is required. Ground fault protection (GFP) is integrated into the microinverter. | | |
| Monitoring | Enlighten Manager and MyEnlighten monitoring options | | |
| Compliance | UL1741/IEEE1547, FCC Part 15 Class B, CAN/CSA-C22.2 NO. 0-M91, 0.4-04, and 107.1-01 | | |

* Frequency ranges can be extended beyond nominal if required by the utility

To learn more about Enphase Microinverter technology, visit enphase.com

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ENERGY

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MKT-00070 Rev 1.0

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Mounting systems for solar technology





CROSSRAIL MAIN COMPONENTS


Below are the parts to assemble the Everest CrossRail system


- 


CrossRail 48
CrossRail Material: Aluminium
Length: 161.42"
- 

L-Foot w/ T-Bolt and Flange Nut (CR 48)
L-Foot Material: Aluminium
Hardware Material: Stainless Steel
T-Bolt: 28/15 M10
Hex Flange Nut, Serrated M10
- 

Rail Connector Set CrossRail 48
Material: Aluminium Splice
Hardware: Stainless Steel
- 


Module End Clamp Set
Material: Aluminium Clamp
Hardware: Stainless Steel
- 


Module Middle Clamp Set
Material: Aluminium
Hardware: Stainless Steel
- 


Dark Module End Clamp Set
Material: aluminium
- 


Dark Module Middle Clamp Set
Material: aluminium


CROSSRAIL ACCESSORIES


- 

Enphase 215 Mounting Kit
Material: Aluminium
- 

End Cap for CrossRail 48
Material: glass fibre reinforced polyamid
- 

Omega Wire Management Clip
Material: polyamid, black
- 

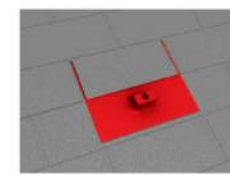
Burndy WEEB Lug 8.0
Material: aluminium
- 

Burndy WEEB Lug 8.0 Hardware Only
Material: Stainless Steel
For attaching Burndy WEEB Lug 8.0 to CrossRail 48
T-Bolt 28/15 M20
Hex Flange Nut, Serrated 20
- 

Burndy KMC WEEB Clip
Material: Stainless Steel
Use with Everest Mid Clamps to Bond Modules to the CrossRail 48

EVEREST SOLAR SYSTEMS
CROSSRAIL PITCHED ROOF SOLUTION

ASSEMBLY: STEP BY STEP



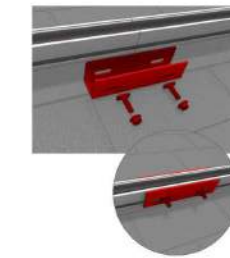
1 **ROOF ATTACHMENT / FLASHING**
Install the appropriate roof attachments and flashings according to the manufacturer's installation instructions (e.g. Quickmount PV Composition mount). Ensure the waterproofness of the roof observing all applicable laws, regulations, ordinances and codes. Ensure that the structural roof attachments points are in the right position according to your structural calculations for the CrossRail system.
Materials required: appropriate roof attachments and flashings



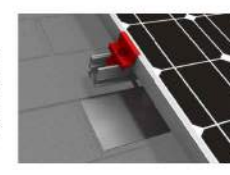
2 **L-FOOT TO ROOF ATTACHMENT**
Place the L-Foot on top of the roof attachment with the long leg of the foot facing the roof ridge. Tighten the hardware (e.g. bolt and nut) according to the manufacturer's instructions through hole on the bottom flange of the L-Foot.
Materials required: Everest L-Foot, attachment hardware by 3rd party roof attachment supplier.



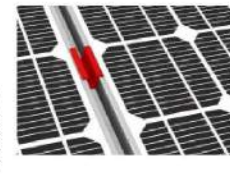
3 **ATTACH CROSSRAIL 48 TO THE L-FOOT**
Place the CrossRail on the high side of the L-Foot facing the roof ridge. Insert the T-Bolt through the L-Foot slot and into the lateral channel of the CrossRail 48. Turn the T-Bolt clockwise making sure that the groove mark on the end of the T-bolt is verticle. Put the appropriate self-locking Hex Flange Nut onto the T-Bolt, adjust the height of the rail and tighten the nut with a torque wrench using a torque: 25.8 lbf-ft (35Nm) for M10. Ensure that the top of the CrossRail 48 is located above the top of the L-Foot. Verify that the groove mark on the end of the T-Bolt is verticle, otherwise disassemble and repeat this step.
Due to thermal expansion, we recommend a thermal break after (20 m), but no further than (24.4 m). The minimum separation between the two rails is 1.25" to 2" (3-5 cm).
Materials required: CrossRail 48, T-Bolt M10, self-locking nut M10



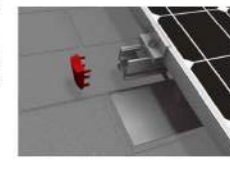
4 **RAIL CONNECTOR ASSEMBLY**
Align the two rail ends next to each other (Rail Joint). Slide the Rail Connector on to the rails from below aligning the middle of the Rail Connector near the Rail Joint. Connect the Rail Connector to each rail using 2 T-bolts, 4 T-Bolts total, and 4 self-locking nuts. The rail joint may not be in the range of the L-Foot or roof attachment. Tightening torque: 25.8 lbf-ft (35Nm) for M10 hardware.
Materials required: Rail Connector Set (includes hardware)



5 **ATTACH MODULES WITH END CLAMPS**
Everest Solar supplies End Clamps preassembled with the universal MK2 Slot Nut for fast, easy installation. To attach the End Clamps to the CrossRail, insert the MK2 Slot Nut into the CrossRail 48 by pulling up on the plastic tab then rotating clockwise by 90 degrees.
Never mount end clamps directly on the rail joint or end of the rail. There must be at least 1" (20 mm) from end clamp to the end of the rail.
Attach modules and position the clamps on the module according to the manufacturer's instructions. The Contractor shall verify that the mounting instructions of the module manufacturer are followed!
Module End Clamp Tightening Torque: 10.3 lbf-ft (14 Nm).
Materials required: End Clamp Set



6 **ATTACH MODULES WITH MIDDLE CLAMPS**
Everest Solar supplies Mid Clamps preassembled with the universal MK2 Slot Nut for fast, easy installation. To attach the Mid Clamps to the CrossRail, insert the MK2 Slot Nut into the CrossRail 48 by pulling up on the plastic tab then rotating clockwise by 90 degrees.
Attach modules and position the clamps on the module according to the manufacturer's instructions. The Contractor shall verify that the mounting instructions of the module manufacturer are followed!
Module Mid Clamp Tightening Torque: 10.3 lbf-ft (14 Nm).
Materials required: Middle Clamp Set



7 **OPTIONAL: END CAP ASSEMBLY**
Push the pins of the CrossRail 48 end cap into end of the rail.
Materials required: CrossRail 48 End Cap

ACCESSORY ASSEMBLY



ENPHASE 215 MOUNTING KIT
Everest Solar supplies the preassembled hardware to attach the Enphase 215 with the universal MK2 Slot Nut for fast, easy installation. To attach the enphase mounting kit to the CrossRail, insert the MK2 Slot Nut into the CrossRail 48 by pulling up on the plastic tab then rotating clockwise by 90 degrees.
Materials required: Enphase Mounting Kit
Optional: Burndy KMC WEEB Clip



OMEGA WIRE MANAGEMENT CLIP
Install the Omega Wire management clip to the CrossRail 48 by pinching the end of the clip and inserting the ends into the side c-channel slot of the CrossRail 48.

The CrossRail System is simple and fast to install. Please contact us for further assistance:
SERVICE-HOTLINE +1 760.301.5300

Everest Solar Systems, LLC
3809 Ocean Ranch Blvd.
Suite 111
Oceanside, CA 92056
Tel. +1.760.301.5300
info@everest-solarsystems.com
www.everest-solarsystems.com

CrossRail Techniques PB | 153 | 0213
Product images are for illustrative purposes only. Specifications are subject to change without notice. All sales of our products shall be subject to Everest Solar Systems terms and conditions, including the applicable federal warranty set forth therein.
Image sources: Tesla, epco-uk.com/uk, Wikimedia

- MOUNT ACCORDING TO MOUNTING MFG INSTRUCTIONS AND CIVIL/STRUCTURAL DIRECTIONS.
- USE FASTENERS SUITABLE TO SURFACE BEING ATTACHED. LAG-SCREWS FOR WOOD, NUTS (LOCKING) AND BOLTS FOR METAL STRUCTURES.
- MOUNT 4' ON CENTER UNLESS OTHERWISE NOTED OR REQUIRED TO CONNECT TO STRUCTURAL MEMBERS.

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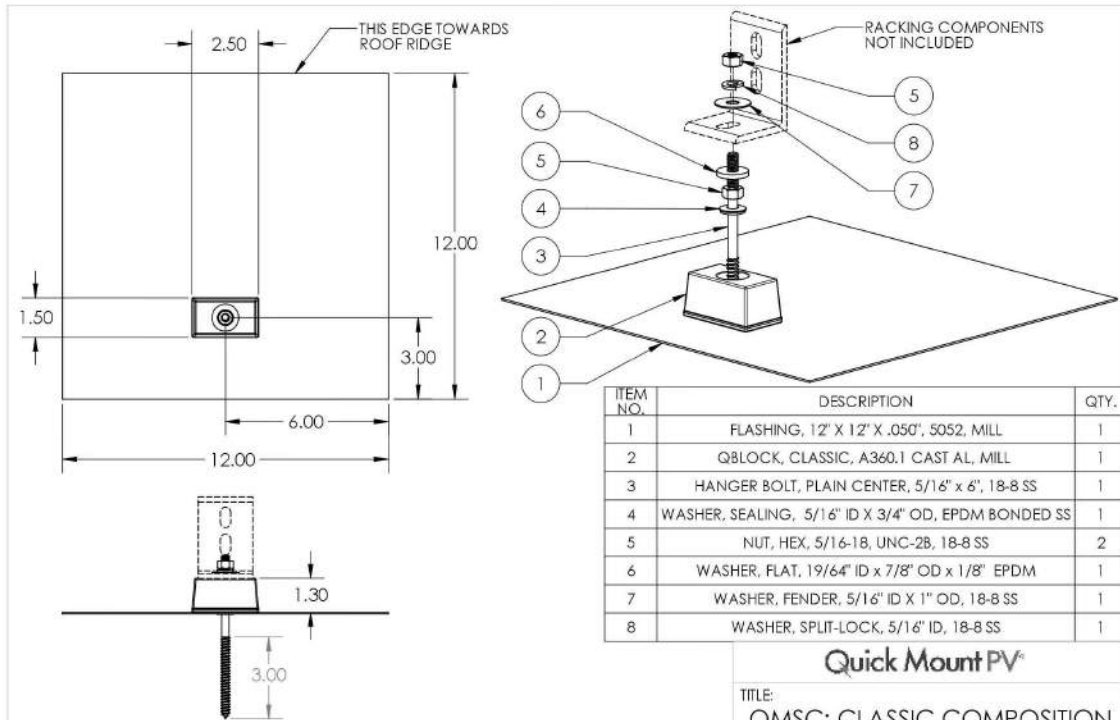
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Classic Composition Mount | QMSC



| ITEM NO. | DESCRIPTION | QTY. |
|----------|---|------|
| 1 | FLASHING, 12" X 12" X .050", 5052, MILL | 1 |
| 2 | QBLOCK, CLASSIC, A360.1 CAST AL, MILL | 1 |
| 3 | HANGER BOLT, PLAIN CENTER, 5/16" x 6", 18-8 SS | 1 |
| 4 | WASHER, SEALING, 5/16" ID X 3/4" OD, EPDM BONDED SS | 1 |
| 5 | NUT, HEX, 5/16-18, UNC-2B, 18-8 SS | 2 |
| 6 | WASHER, FLAT, 19/64" ID x 7/8" OD x 1/8" EPDM | 1 |
| 7 | WASHER, FENDER, 5/16" ID X 1" OD, 18-8 SS | 1 |
| 8 | WASHER, SPLIT-LOCK, 5/16" ID, 18-8 SS | 1 |

Quick Mount PV®
 TITLE: QMSC: CLASSIC COMPOSITION MOUNT
 UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES
 TOLERANCES: FRACTIONAL ± 1/8 TWO PLACE DECIMAL ± .15 THREE PLACE DECIMAL ± .125
 SIZE: A DRAWN BY: RAD DATE: 7/23/2013 REV: 6
 SCALE: 1:1 WEIGHT: 1.24 SHEET 1 OF 1

Lag pull-out (withdrawal) capacities (lbs) in typical lumber:

| | Lag Bolt Specifications | | |
|---|-------------------------|---------------------------------|---------------------------------|
| | Specific Gravity | 5/16" shaft per 3" thread depth | 5/16" shaft per 1" thread depth |
| Douglas Fir, Larch | .50 | 798 | 266 |
| Douglas Fir, South | .46 | 705 | 235 |
| Engelmann Spruce, Lodgepole Pine (MSR 1650 f & higher) | .46 | 705 | 235 |
| Hem, Fir | .43 | 636 | 212 |
| Hem, Fir (North) | .46 | 705 | 235 |
| Southern Pine | .55 | 921 | 307 |
| Spruce, Pine, Fir | .42 | 615 | 205 |
| Spruce, Pine, Fir (E of 2 million psi and higher grades of MSR and MEL) | .50 | 798 | 266 |

Sources: American Wood Council, NDS 2005, Table 11.2 A, 11.3.2 A
 Notes:
 1) Thread must be embedded in a rafter or other structural roof member.
 2) See NDS Table 11.5.1C for required edge distances.



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Classic Composition Mounting Instructions

Installation Tools Required: tape measure, roofing bar, chalk line, stud finder, caulking gun, sealant compatible with roofing materials, drill with 7/32" long-style bit, drill or impact gun with 1/2" deep socket.

WARNING: Quick Mount PV products are NOT designed for and should NOT be used to anchor fall protection equipment.

1 Locate, choose, and mark centers of rafters to be mounted. Select the courses of shingles where mounts will be placed.

2 Carefully lift composition roof shingle with roofing bar, just above placement of mount. Remove nails as required. See "Proper Flashing Placement" on next page.

3 Insert flashing between 1st and 2nd course. Slide up so top edge of flashing is at least 3/4" higher than the drip edge of the 3rd course and lower flashing edge is above the drip edge of 1st course. Mark center for drilling.

4 Using drill with 7/32" bit, drill pilot hole into roof and rafter, taking care to drill square to the roof. Do not use mount as a drill guide. Drill should be "long style bit" aka "aircraft extension bit" to drill a 3" deep hole into rafter.

5 Clean off any sawdust, and fill hole with sealant compatible with roofing materials.

6 Slide flashing into position. Prepare hanger bolt with hex nut and sealing washer. Insert into hole and drive hanger bolt until QBlock stops rotating easily. **Do NOT over torque.**

7 Insert EPDM rubber washer over hanger bolt into block.

8 Using the rack kit hardware, secure the racking (L-foot) to the mount using torque specs from racking manufacturer. If racking manufacturer does not specify torque setting, tighten to 13 ft.-lbs.

You are now ready for the rack of your choice. Follow all the directions of the rack manufacturer as well as the module manufacturer.
 All roofing manufacturers' written instructions must also be followed by anyone modifying a roof system. Please consult the roof manufacturer's specs and instructions prior to touching the roof.

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MOUNT ACCORDING TO MOUNTING MFG INSTRUCTIONS AND CIVIL/STRUCTURAL DIRECTIONS.
 USE FASTENERS SUITABLE TO SURFACE BEING ATTACHED. LAG-SCREWS FOR WOOD, NUTS (LOCKING) AND BOLTS FOR METAL STRUCTURES.
 MOUNT 4" ON CENTER UNLESS OTHERWISE NOTED OR REQUIRED TO CONNECT TO STRUCTURAL MEMBERS.

CONTRACTOR :

OWNER :



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