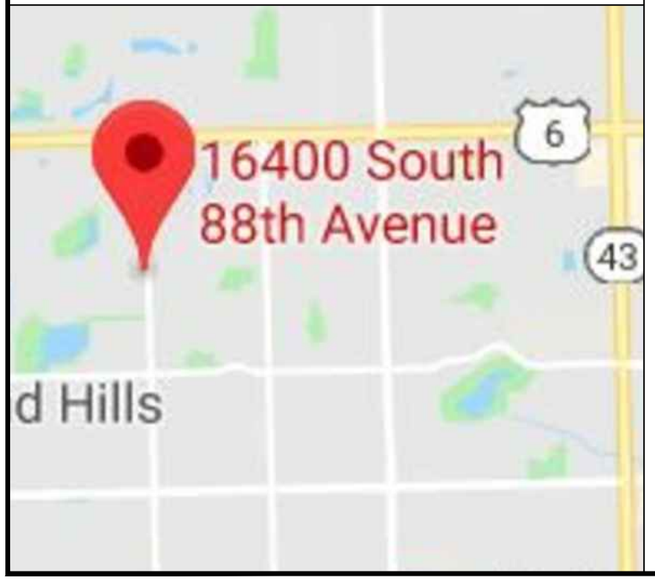
## SCOPE OF WORK

- **SYSTEM SIZE:** 17850W DC, 15200W AC
- **MODULES:** (51) LG ELECTRONICS: LG350Q1C-A5
- **INVERTER(S):**
  (1) SOLAREDGE TECHNOLOGIES: SE11400A-US WITH REVENUE GRADE METERING
  (1) SOLAREDGE TECHNOLOGIES: SE3800H-US WITH REVENUE GRADE METERING
- **RACKING:**
  SNAPNRACK RL; FLASHTRACK COMP. SEE DETAIL SD-00708

## VICINITY MAP



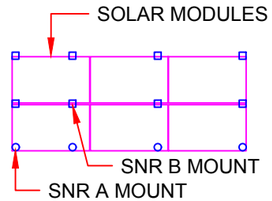

## GENERAL NOTES

- ALL WORK SHALL COMPLY WITH NEC 2011, IBC 2015, MUNICIPAL CODE, AND ALL MANUFACTURERS' LISTINGS AND INSTALLATION INSTRUCTIONS.
- PHOTOVOLTAIC SYSTEM WILL COMPLY WITH NEC 2011.
- ELECTRICAL SYSTEM GROUNDING WILL COMPLY WITH NEC 2011.
- PHOTOVOLTAIC SYSTEM IS UNGROUNDED. NO CONDUCTORS ARE SOLIDLY GROUNDED IN THE INVERTER. SYSTEM COMPLIES WITH 690.35.
- MODULES CONFORM TO AND ARE LISTED UNDER UL 1703.
- INVERTER CONFORMS TO AND IS LISTED UNDER UL 1741.
- RACKING CONFORMS TO AND IS LISTED UNDER UL 2703.
- SNAPNRACK RACKING SYSTEMS, IN COMBINATION WITH TYPE I, OR TYPE II MODULES, ARE CLASS A FIRE RATED.
- RAPID SHUTDOWN REQUIREMENTS MET WHEN INVERTERS AND ALL CONDUCTORS ARE WITHIN ARRAY BOUNDARIES PER NEC 690.12(1).
- CONSTRUCTION FOREMAN TO PLACE CONDUIT RUN PER 690.31(G).
- ARRAY DC CONDUCTORS ARE SIZED FOR DERATED CURRENT.
- 10.77 AMPS MODULE SHORT CIRCUIT CURRENT.
- 16.82 AMPS DERATED SHORT CIRCUIT CURRENT [690.8 (a) & 690.8 (b)].

For Structural Only


## LEGEND AND ABBREVIATIONS

| | |
|---|---|
| SE | SERVICE ENTRANCE |
| MP | MAIN PANEL |
| SP | SUB-PANEL |
| LC | PV LOAD CENTER |
| SM | SUNRUN METER |
| PM | DEDICATED PV METER |
| INV | INVERTER(S) WITH INTEGRATED DC DISCONNECT AND AFCI |
| AC | AC DISCONNECT(S) |
| DC | DC DISCONNECT(S) |
| CB | COMBINER BOX |
| | INTERIOR EQUIPMENT SHOWN AS DASHED |




CHIMNEY
ATTIC VENT
FLUSH ATTIC VENT
PVC PIPE VENT
METAL PIPE VENT
T-VENT
SATELLITE DISH
FIRE SETBACKS
HARDSCAPE
— PL— PROPERTY LINE

SCALE: NTS

| | |
|---|---|
| A | AMPERE |
| AC | ALTERNATING CURRENT |
| AFCI | ARC FAULT CIRCUIT INTERRUPTER |
| AZIM | AZIMUTH |
| COMP | COMPOSITION |
| DC | DIRECT CURRENT |
| (E) | EXISTING |
| EXT | EXTERIOR |
| FRM | FRAMING |
| INT | INTERIOR |
| LBW | LOAD BEARING WALL |
| MAG | MAGNETIC |
| MSP | MAIN SERVICE PANEL |
| (N) | NEW |
| NTS | NOT TO SCALE |
| OC | ON CENTER |
| PRE-FAB | PRE-FABRICATED |
| PSF | POUNDS PER SQUARE FOOT |
| PV | PHOTOVOLTAIC |
| TL | TRANSFORMERLESS |
| TYP | TYPICAL |
| V | VOLTS |
| W | WATTS |

| REV | NAME | DATE | COMMENTS |
|---|---|---|---|
| A | JASON BARRY | 8/16/2018 | |
| | | | |
| | | | |

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SHEET
COVER SHEET

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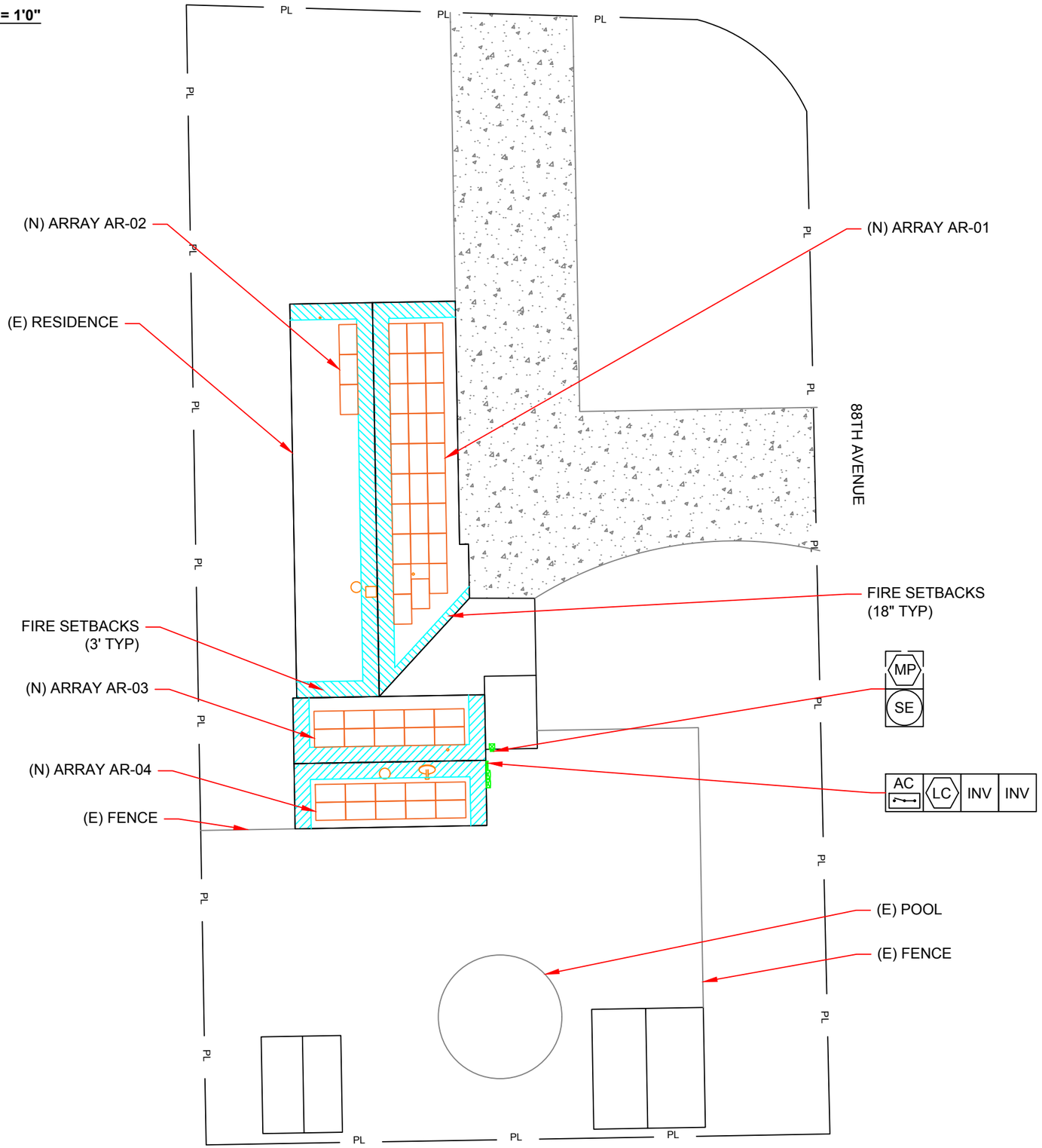
**SITE PLAN - SCALE = 3/64" = 1'0"**




| | ARRAY PITCH | TRUE AZIM | MAG AZIM | PV AREA (SQFT) | ARRAY/ ROOF |
|---|---|---|---|---|---|
| AR-01 | 18° | 90° | 93° | 520.6 | 51% |
| AR-02 | 18° | 270° | 273° | 55.8 | 5% |
| AR-03 | 23° | 0° | 3° | 185.9 | 42% |
| AR-04 | 23° | 180° | 183° | 185.9 | 42% |

For Structural Only

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SITE PLAN

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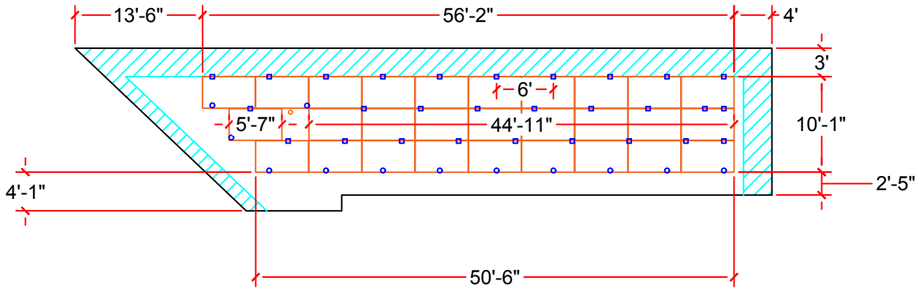
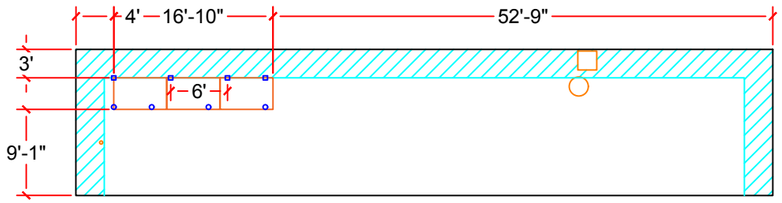
| | ROOF TYPE | MOUNTING DETAIL | ROOF HEIGHT | ROOF EXPOSURE | FRAME MATERIAL | FRAME TYPE | FRAME SIZE | MAX FRAME SPAN | OC SPACING | ROOF EDGE ZONE | MAX PEN SPACING | MAX MOD. OVERHANG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AR-01 | COMP SHINGLE | FLASHTRACK COMP. SEE DETAIL SD-00708 | 1 STORY | ATTIC | WOOD | RAFTER | 2 X 6 | 11' - 0" | 24" | 3.2' | 6' - 0" | 2' - 0" |
| AR-02 | COMP SHINGLE | FLASHTRACK COMP. SEE DETAIL SD-00708 | 1 STORY | ATTIC | WOOD | RAFTER | 2 X 6 | 11' - 0" | 24" | 3.2' | 6' - 0" | 2' - 0" |
| AR-03 | COMP SHINGLE | FLASHTRACK COMP. SEE DETAIL SD-00708 | 1 STORY | ATTIC | WOOD | RAFTER | 2 X 6 | 9' - 5" | 16" | 3.2' | 6' - 0" | 2' - 0" |
| AR-04 | COMP SHINGLE | FLASHTRACK COMP. SEE DETAIL SD-00708 | 1 STORY | ATTIC | WOOD | RAFTER | 2 X 6 | 9' - 5" | 16" | 3.2' | 6' - 0" | 2' - 0" |

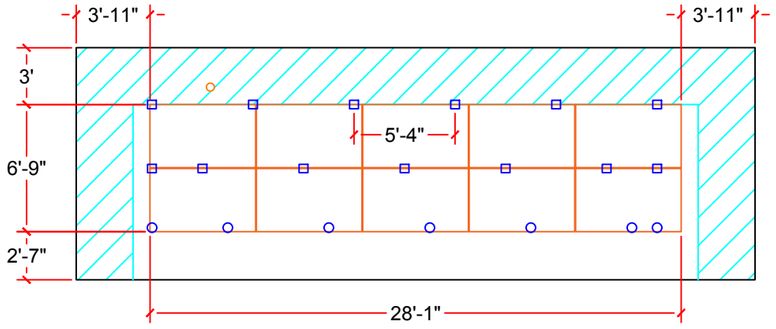
**D1 - AR-01 - SCALE: 1/16" = 1'-0"**
**PITCH:** 18°
**AZIM:**90°



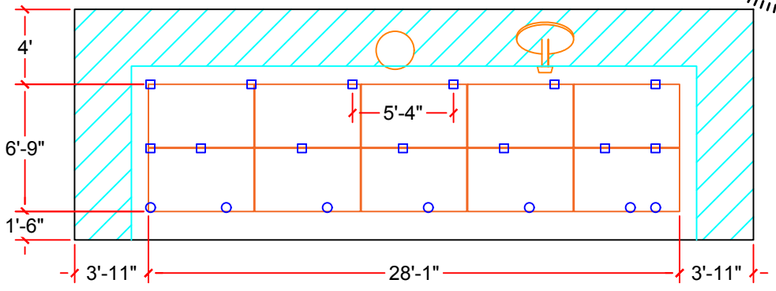

**D2 - AR-02 - SCALE: 1/16" = 1'-0"**
**PITCH:** 18°
**AZIM:**270°




**D3 - AR-03 - SCALE: 1/8" = 1'-0"**
**PITCH:** 23°
**AZIM:**0°




**D4 - AR-04 - SCALE: 1/8" = 1'-0"**
**PITCH:** 23°
**AZIM:**180°




## DESIGN CRITERIA

**MODULES:**
LG ELECTRONICS: LG350Q1C-A5
**MODULE DIMS:**
66.93" x 40" x 1.57" (40mm)
**MODULE CLAMPS:**
Portrait: 7.9" - 15.7"
Landscape: 0" - 4.7"
**MAX DISTRIBUTED LOAD:** 3 PSF
**SNOW LOAD:** 30 PSF
**WIND SPEED:**
115 MPH 3-SEC GUST.
**LAG SCREWS:**
5/16"x3.5": 2.5" MIN EMBEDMENT
**NOTE:**
INSTALLERS TO VERIFY RAFTER SIZE, SPACING AND SLOPED SPANS, AND NOTIFY E.O.R. OF ANY DISCREPANCIES BEFORE PROCEEDING.

**PENETRATION SPACING:**
FULLY STAGGERED
**ROW SPACING:**
1.00" BETWEEN ROWS
**COLUMN SPACING:**
0.75" BETWEEN COLUMNS

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LAYOUT

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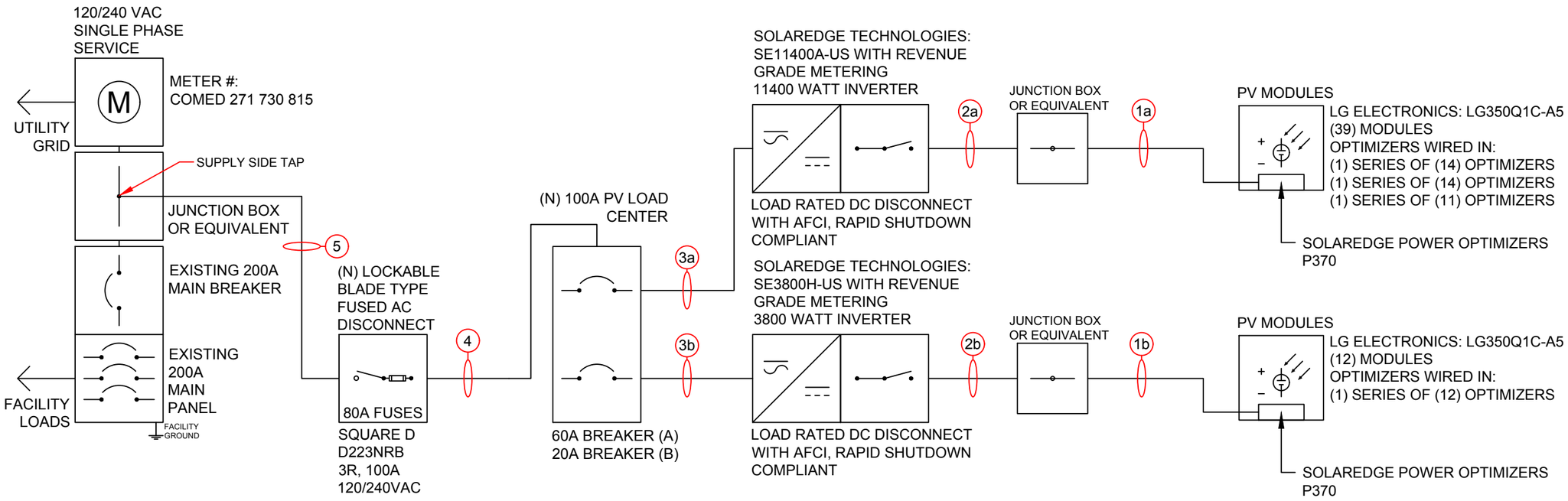


**CONDUIT SCHEDULE**

| # | CONDUIT | CONDUCTOR | NEUTRAL | GROUND |
|---|---|---|---|---|
| 1a | NONE | (6) 10 AWG PV WIRE | NONE | (1) 10 AWG BARE COPPER |
| 1b | NONE | (2) 10 AWG PV WIRE | NONE | (1) 10 AWG BARE COPPER |
| 2a | 3/4" EMT OR EQUIV. | (6) 10 AWG THHN/THWN-2 | NONE | (1) 10 AWG THHN/THWN-2 |
| 2b | 3/4" EMT OR EQUIV. | (2) 10 AWG THHN/THWN-2 | NONE | (1) 10 AWG THHN/THWN-2 |
| 3a | 1" EMT OR EQUIV. | (2) 4 AWG THHN/THWN-2 | (1) 10 AWG THHN/THWN-2 | (1) 8 AWG THHN/THWN-2 |
| 3b | 3/4" EMT OR EQUIV. | (2) 10 AWG THHN/THWN-2 | (1) 10 AWG THHN/THWN-2 | (1) 8 AWG THHN/THWN-2 |
| 4 | 1" EMT OR EQUIV. | (2) 3 AWG THHN/THWN-2 | (1) 8 AWG THHN/THWN-2 | (1) 8 AWG THHN/THWN-2 |
| 5 | 1" EMT OR EQUIV. | (2) 3 AWG THHN/THWN-2 | (1) 3 AWG THHN/THWN-2 | (1) 8 AWG THHN/THWN-2 |

**NOTES TO INSTALLER:**

1. 14 VDC (INV1), 12 VDC (INV2) EXPECTED OPEN CIRCUIT STRING VOLTAGE.
2. ADD 100 AMP NEW PV LOAD CENTER.
3. ADD 60 AMP BREAKER TO PV LOAD CENTER (INV1).
4. ADD 20 AMP BREAKER TO PV LOAD CENTER (INV2).
5. INSTALLERS TO PASS EXISTING FEEDER CONDUCTORS THROUGH NEW JUNCTION BOX
6. PV SYSTEM CONNECTION TO BE MADE INSIDE NEW JUNCTION BOX VIA POLARIS CONNECTORS. CONDUCTORS ARE FIELD INSTALLED.

**MODULE CHARACTERISTICS**

| | |
|---|---|
| LG ELECTRONICS: LG350Q1C-A5: | 350 W |
| OPEN CIRCUIT VOLTAGE: | 42.7 V |
| MAX POWER VOLTAGE: | 36.1 V |
| SHORT CIRCUIT CURRENT: | 10.77 A |

**P370 OPTIMIZER CHARACTERISTICS:**

| | |
|---|---|
| MIN INPUT VOLTAGE: | 8 VDC |
| MAX INPUT VOLTAGE: | 60 VDC |
| MAX INPUT ISC: | 11 ADC |
| MAX OUTPUT CURRENT: | 15 ADC |

**SYSTEM CHARACTERISTICS - INVERTER 1**

| | |
|---|---|
| SYSTEM SIZE: | 13650 W |
| SYSTEM OPEN CIRCUIT VOLTAGE: | 14 V |
| SYSTEM OPERATING VOLTAGE: | 350 V |
| MAX ALLOWABLE DC VOLTAGE: | 500 V |
| SYSTEM OPERATING CURRENT: | 39 A |
| SYSTEM SHORT CIRCUIT CURRENT: | 45 A |

**SYSTEM CHARACTERISTICS - INVERTER 2**

| | |
|---|---|
| SYSTEM SIZE: | 4200 W |
| SYSTEM OPEN CIRCUIT VOLTAGE: | 12 V |
| SYSTEM OPERATING VOLTAGE: | 380 V |
| MAX ALLOWABLE DC VOLTAGE: | 480 V |
| SYSTEM OPERATING CURRENT: | 11.05 A |
| SYSTEM SHORT CIRCUIT CURRENT: | 15 A |

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**⚠ WARNING**

ELECTRICAL SHOCK HAZARD

DO NOT TOUCH TERMINALS. TERMINALS ON LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL LOCATION:
INVERTER(S), AC DISCONNECT(S), AC COMBINER PANEL (IF APPLICABLE).
PER CODE(S): CEC 2016: 690.17(E), NEC 2014: 690.17(E), NEC 2011: 690.17(4)

**⚠ WARNING**

ELECTRICAL SHOCK HAZARD

IF GROUND FAULT IS INDICATED ALL NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUNDED AND ENERGIZED

LABEL LOCATION:
INVERTER(S), ENPHASE ENVOY ENCLOSURE (IF APPLICABLE).
PER CODE(S): CEC 2016: 690.5(C), NEC 2014: 690.5(C), NEC 2011: 690.5(C)

**⚠ WARNING**

**ELECTRICAL SHOCK HAZARD**

**THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED**

LABEL LOCATION:
INVERTER(S), DC DISCONNECTS.
PER CODE(S): CEC 2016: 690.35(F), NEC 2014: 690.35(F), NEC 2011: 690.35(F)

**⚠ WARNING**

**DUAL POWER SUPPLY**

**SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM**

LABEL LOCATION:
UTILITY SERVICE METER AND MAIN SERVICE PANEL.
PER CODE(S): CEC 2016: 705.12(D)(3), NEC 2014: 705.12(D)(3), NEC 2011: 705.12(D)(4)

**⚠ WARNING**

**INVERTER OUTPUT CONNECTION**

**DO NOT RELOCATE THIS OVERCURRENT DEVICE**

LABEL LOCATION:
ADJACENT TO PV BREAKER (IF APPLICABLE).
PER CODE(S): CEC 2016: 705.12(D)(2)(3)(b), NEC 2014: 705.12(D)(2)(3)(b), NEC 2011: 705.12(D)(7)

**⚠ WARNING**

**PHOTOVOLTAIC SYSTEM COMBINER PANEL**

**DO NOT ADD LOADS**

LABEL LOCATION:
PHOTOVOLTAIC AC COMBINER (IF APPLICABLE).
PER CODE(S): CEC 2016: 705.12(D)(2)(3)(c), NEC 2014: 705.12(D)(2)(3)(c), NEC 2011: 705.12(D)(4)

WARNING: PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION:
INTERIOR AND EXTERIOR DC CONDUIT EVERY 1O FT, AT EACH TURN, ABOVE AND BELOW PENETRATIONS, ON EVERY JB/PULL BOX CONTAINING DC CIRCUITS.
PER CODE(S): CEC 2016: 690.31(G)(3), 690.31(G)(4), NEC 2014: 690.31(G)(3), 690.31(G)(4), NEC 2011: 690.31(E)(3), 690.31(E)(4), IFC 2012: 605.11.1.4

**PHOTOVOLTAIC AC DISCONNECT**

MAXIMUM AC OPERATING CURRENT: 63.33 AMPS

NOMINAL OPERATING AC VOLTAGE: 240 VAC

LABEL LOCATION:
AC DISCONNECT(S), PHOTOVOLTAIC SYSTEM POINT OF INTERCONNECTION.
PER CODE(S): CEC 2016: 690.54, NEC 2014: 690.54, NEC 2011: 690.54

INVERTER 1

**PHOTOVOLTAIC DC DISCONNECT**

| | | |
|---|---|---|
| RATED MAXIMUM POWER-POINT CURRENT: | 39 | ADC |
| RATED MAXIMUM POWER-POINT VOLTAGE: | 350 | VDC |
| MAXIMUM SYSTEM VOLTAGE: | 500 | VDC |
| MAXIMUM SHORT CIRCUIT CURRENT: | 45 | ADC |

LABEL LOCATION:
INVERTER(S), DC DISCONNECT(S).
PER CODE(S): CEC 2016: 690.53, NEC 2017: 690.53, NEC 2014: 690.53, NEC 2011: 690.53

INVERTER 2

**PHOTOVOLTAIC DC DISCONNECT**

| | | |
|---|---|---|
| RATED MAXIMUM POWER-POINT CURRENT: | 11.05 | ADC |
| RATED MAXIMUM POWER-POINT VOLTAGE: | 380 | VDC |
| MAXIMUM SYSTEM VOLTAGE: | 12 | VDC |
| MAXIMUM SHORT CIRCUIT CURRENT: | 15 | ADC |

NOTICE
PV SYSTEM COMBINER PANEL
DO NOT ADD LOADS TO THIS PANEL

LABEL LOCATION:
LOAD CENTER
[Only use when applicable for PV load center]

NOTES AND SPECIFICATIONS:

- SIGNS AND LABELS SHALL MEET THE REQUIREMENTS OF THE NEC 2011 ARTICLE 110.21(B), UNLESS SPECIFIC INSTRUCTIONS ARE REQUIRED BY SECTION 690, OR IF REQUESTED BY THE LOCAL AHJ.
- SIGNS AND LABELS SHALL ADEQUATELY WARN OF HAZARDS USING EFFECTIVE WORDS, COLORS AND SYMBOLS.
- LABELS SHALL BE PERMANENTLY AFFIXED TO THE EQUIPMENT OR WIRING METHOD AND SHALL NOT BE HAND WRITTEN.
- LABEL SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.
- SIGNS AND LABELS SHALL COMPLY WITH ANSI Z535.4-2011, PRODUCT SAFETY SIGNS AND LABELS, UNLESS OTHERWISE SPECIFIED.
- DO NOT COVER EXISTING MANUFACTURER LABELS.

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