This Sample Drawing is for illustration purposes only and is not to be used for design or construction. This drawing and its suitability for end use is not implied. The intent is to only illustrate typical minimum information required at time of application to APS. Additional information may be required.

NOTES:

5 TOTAL PARALLEL SOURCE CIRCUITS:
EACH STRING COMPRISED OF 5 MODULES (360 WATTS EACH) IN SERIES
TOTAL DC SYSTEM 9000 WATTS

MODULE/PANEL RATINGS
Voc=48.3 VDC, Isc=9.84 AMPS
Vmp=38.4 VDC, Imp=9.4 AMPS
T COEFF OF V = -0.28% / C

1. EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC AND ALL APPLICABLE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
2. FOLLOW MANUFACTURERS SUGGESTED INSTALLATION PRACTICES AND WIRING SPECIFICATIONS.
3. WIRES SHALL BE RATED AND LABELED "SUNLIGHT RESISTANT" WHERE EXPOSED TO AMBIENT CONDITIONS.

PHOTOVOLTAIC MODULE SPECIFICATIONS
- COMPLETE PHOTOVOLTAIC ARRAY
  5 TOTAL PARALLEL SOURCE CIRCUITS: EACH STRING COMPRISED OF 5 MODULES (390 WATTS EACH) IN SERIES
  TOTAL DC SYSTEM 9000 WATTS

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Rapid Shutdown Using IMO Fire Raptor MLPE Devices and Power Supply with Outback 24V DPDT Relay (Refer to Outback Application Note)

This CKT is depicted in Outback's Application Note - do not connect since it will turn inverter and back-up load panel off during a grid outage.
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PV SYSTEM DISCONNECT SHALL BE PERMANENTLY MARKED AS A WARNING - ELECTRIC SHOCK HAZARD.

OVERCURRENT DEVICES SHALL BE PERMITTED IN ACCORDANCE WITH 240.4(B) AND (C).

THE RATING OR SETTING OF OVERCURRENT DEVICES SHALL BE SIZED TO CARRY THE INVERTER CONTINUOUS OUTPUT CURRENT RATING.

AMBIENT TEMPERATURE AT END OF TABLE.

ON AMBIENT TEMPERATURE OF 30°C. NOTE CORRECTION FACTORS FOR CURRENT-CARRYING CONDUCTORS IN RACEWAY, CABLE, OR EARTH, BASED ON CURRENTS MULTIPLIED BY 125 PERCENT.

2000 VOLTS, 60°C THROUGH 90°C, NOT MORE THAN THREE ALLOWABLE AMPACITIES OF INSULATED CONDUCTORS RATED 0 THROUGH 5000 AMPERES.

PHOTOVOLTAIC SOURCE CIRCUIT CURRENTS. THE MAXIMUM CURRENT IN TABLE 250.66, EXCEPT AS PERMITTED IN 250.66(A) THROUGH (C).

GROUNDED OR UNGROUNDED AC SYSTEM SHALL NOT BE LESS THAN GIVEN THE SIZE OF THE GROUNDING ELECTRODE CONDUCTOR AT THE SERVICE, AND AT EACH BUILDING OR STRUCTURE WHERE SUPPLIED BY A FEEDER(S) OR BRANCH CIRCUIT(S), OR AT A SEPARATELY DERIVED SYSTEM OF A GROUND-FAULT PROTECTION.

A PERMANENT PLAQUE OR DIRECTORY, DENOTING ALL ELECTRIC POWER SOURCES ON OR IN THE PREMISES, SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION AND AT LOCATIONS OF ALL ELECTRIC POWER DISTRIBUTION SOURCES CAPABLE OF BEING INTERCONNECTED.

EXCEPTION: INSTALLATIONS WITH LARGE NUMBERS OF POWER DISTRIBUTION SOURCES SHALL BE PERMITTED TO BE DESIGNATED BY GROUPS.

THE TITLE "SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN" SHALL BE LABELED ON OR IN THE PREMISES, LEAVING THE ARRAY SHALL BE LABELED:"SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN. TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN ARRAY".

FOR PV SYSTEMS THAT SHUT DOWN THE ARRAY AND CONDUCTORS OTHER THAN SERVICE CONDUCTORS SHALL BE ENSURED TO BE KEPT LOCKED. DOORS AND COVERS OF ENCLOSURES USED SOLELY AS PULL BOXES, SPICE BOXES, OR JUNCTION BOXES SHALL BE LOCKED, BOLTED, OR SCREWED ON. UNDOUBLED BOX COVERS THAT WEIGH OVER 45.4 KG (100LB) SHALL BE CONSIDERED AS MEETING THIS REQUIREMENT.

NEC 690.53 PERMANENT LABEL FOR DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE AT DISCONNECTING MEANS:

1) MAXIMUM VOLTAGE (REF: 690.7)
2) MAXIMUM CURRICULT CURRENT (REF: 690.8(A))
3) MAXIMUM RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC CONVERTER (IF INSTALLED)

PERMANENT LABEL-PLAQUE: [SOURCE/LABEL]
PV SYSTEM DISCONNECT / REF: NEC690.13 (B)
UTILITY SERVICE PANEL / "UTILITY SERVICE DISCONNECT."

NEC 690.56(C) BUILDINGS WITH RAPID SHUTDOWN TYPE

(a) FOR PV SYSTEMS THAT SHUT DOWN THE ARRAY AND CONDUCTORS LEAVING THE ARRAY SHALL BE LABELED: "SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN. TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN ARRAY."

(b) FOR PV SYSTEMS THAT ONLY SHUT DOWN CONDUCTORS LEAVING THE ARRAY:

"SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN. TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN CONDUCTORS OUTSIDE THE ARRAY. CONDUCTORS IN ARRAY REMAIN ENERGIZED IN SUNLIGHT".

THE TITLE "SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN" SHALL BE LABELED ON OR IN THE PREMISES, LEAVING THE ARRAY SHALL BE LABELED:"SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN. TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN CONDUCTORS OUTSIDE THE ARRAY. CONDUCTORS IN ARRAY REMAIN ENERGIZED IN SUNLIGHT".

ALLELOWABLE AMPACITIES OF INSULATED CONDUCTORS RATED 0 THROUGH 5000 AMPERES.

CONSIDER: 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225, 250, 300, 350, 400, 450, 500, 600, 700, 800, 1000, 1200, 1600, 2000, 2500, 3000, 4000, 5000, 6000 AMPERES.

THE TITLE "SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN" SHALL BE LABELED ON OR IN THE PREMISES, LEAVING THE ARRAY SHALL BE LABELED:"SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN. TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN CONDUCTORS OUTSIDE THE ARRAY. CONDUCTORS IN ARRAY REMAIN ENERGIZED IN SUNLIGHT".

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ALTERNATING-CURRENT GROUNDING ELECTRODE CONDUCTOR SHALL BE CONTINUOUS, GROUND CRIMPING TERMINALS OR BOLTS CANNOT BE READILY REMOVED, PERMITTING ACCESS TO LIVE PARTS. WHERE EQUIPMENT IS ACCESSIBLE TO UNQUALIFIED PERSONS AND THE BOTTOM OF THE ENCLOSURE IS LESS THAN 2.5 M (8FT) ABOVE THE FLOOR OR GRADE LEVEL, THE ENCLOSURE DOOR OR HINGED COVER SHALL BE KEPT LOCKED. DOORS AND COVERS OF ENCLOSURES USED SOLELY AS PULL BOXES, SPICE BOXES, OR JUNCTION BOXES SHALL BE LOCKED, BOLTED, OR SCREWED ON. UNDOUBLED BOX COVERS THAT WEIGH OVER 45.4 KG (100LB) SHALL BE CONSIDERED AS MEETING THIS REQUIREMENT.

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