



**Residential Roof Mounted Solar Photovoltaic (PV)  
System Verification Form  
(must accompany Electrical Permit Application for Solar Installation)**

Project Address:
Owner:
Installer:

**Required Documentation for Permit Submittal.** Answer the questions below to verify whether engineering is required. Submit this form in association with all residential roof-mounted solar system applications.

1. Is the roof supporting the installation a pitched roof in good condition, without visible sag, cracking or splintering of support, or other potential structural defect?  
 Yes    No
  
2. Is the roof framing composed of an engineered truss system?  
 Yes    No
  
3. Is the equipment to be flush-mounted to the roof such that the collector surface is parallel to the roof slope?  
 Yes    No
  
4. Is the roofing type lightweight, such as asphalt shingles or metal?  
 Yes    No
  
5. Does the roof have a single-layer roof covering?  
 Yes    No
  
6. Are the solar panels less than 5 pounds per square foot?  
 Yes    No

**If answering NO to any of the questions above, additional documentation is required** in the form of a statement stamped by an Iowa-licensed structural engineer. The documentation will need to demonstrate the structural integrity of the roof and all necessary structural modifications needed to maintain integrity. The undersigned applicant confirms that the foregoing information is true and correct:

Applicant's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## PV WORKSHEET - MICRO-INVERTER ARRAY

Solar Photovoltaic (PV) systems have widely gained acceptance as an alternative energy source, and installations range from the small array supplying a bus stop luminaire to a large array that covers acres. Since each installation comes with its own characteristics, this worksheet has been provided for the installer to complete and submit to the electrical inspector prior to the permit issuance. With this information in advance, the inspector can get a good idea of what the project entails and perhaps warn the installer of an electrical code issue before the installation is complete. The entire PV system installation must comply with Article 690 of the 2020 National Electrical Code (NEC).

Prior to the Solar permit issuance, please provide the following documentation to the electrical inspector:

1. Pages 2 and 3 of this document (completed)
2. Equipment spec/cut sheets for grounding/bonding fittings, modules, inverters, micro inverters, or optimizers (if these are not available complete page 4 of this document)
3. A one-line diagram of the PV system including service interconnection
4. A site plan showing the relative location of the array and the PV equipment on the property or roof top. Provide the pathway dimensions and distances from the array to the roof edge, peaks, hips, and valleys. Also provide the location of the service and distance to the array

A PV installer is allowed to construct the support system, mount the modules, inverters or optimizers, and connect the factory provided module wiring harness (plug and play only). The remainder of the installation such as panelboards, raceways, boxes, fittings, breakers, and building wire shall be sized and installed by a **licensed electrical contractor**, who shall obtain the appropriate permit along with corresponding inspections.

**Please consult with the utility company supplying power to the site before the installation commences. This will help ensure their requirements are met.**

## PV SYSTEM INFORMATION

TYPE OF ARRAY			
	Y	N	
Roof Array?	<input type="checkbox"/>	<input type="checkbox"/>	Rapid Shutdown Required (690.12)?
Ground Array?	<input type="checkbox"/>	<input type="checkbox"/>	Guarding of Conductors Required (690.31A)?

PV SYSTEM VOLTAGE	LOAD SIDE CONNECTION <sup>(1)</sup>
Maximum System Voltage	Service Voltage
# Modules/String	Service Panel Main Breaker
# Strings in System	Service Panel Bus Rating
Maximum Circuit Current	Service Conductor Size
Battery Storage? Y N	PV system OCPD <sup>(2)</sup>

### CALCULATIONS

#### MAXIMUM SYSTEM VOLTAGE – 609.7(A)

$(V_{oc}) (\text{module label}) \times \text{Thermal Coefficient}^3 \times \# \text{ of modules/string} = V_{MAX}$

#### MAXIMUM CIRCUIT CURRENT – 690.8(A)(1)

$(I_{sc})(\text{module label}) \times (\text{Sum of the paralleled modules}) \times 125\% = I_{MAX}$

#### OVERCURRENT DEVICE RATING – 690.9(B)

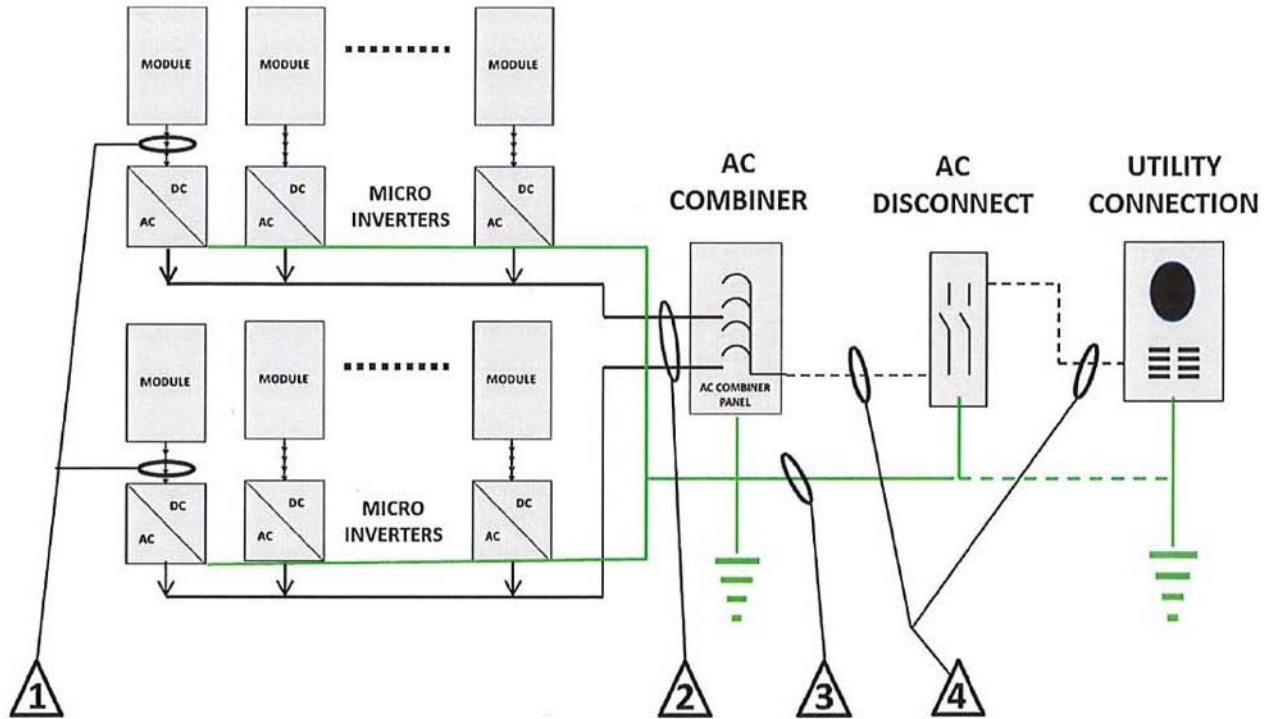
$(I_{max}) \times 125\% = OCPD2$

<sup>(1)</sup> Supply side connections may be allowed by your utility and shall comply with 705.12(A)

<sup>(2)</sup> OCPD - Overcurrent Protective Device

<sup>(3)</sup> Use thermal coefficient as provided by manufacturer. If not provided, use 1.20. (690.7)

# CONDUCTOR AND RACEWAY SCHEDULE



	Conductor Type	Conductor AWG	Conduit Type	Conduit Size
1	PV Source Conductors USE-2 PV Wire	MFG Cable	NA	NA
2	Exterior Cable Listed with Inverter	MFG Cable	NA	NA
3	Grounding Electrode Conductor/ Equipment Grounding Conductor		NA	NA
4	THWN-2 XHHW-2 RHW-2			



## COMPONENT RATINGS

May Submit manufacturers specs in place of filling out the form below

### PV MICRO-INVERTER RATINGS

Module Name \_\_\_\_\_

Module Model \_\_\_\_\_

Maximum Voltage \_\_\_\_\_

Maximum Current \_\_\_\_\_

Maximum Power \_\_\_\_\_

Maximum # Units/20A Circuit \_\_\_\_\_

Thermal Coefficient(3) \_\_\_\_\_

Use thermal coefficient as provided by manufacturer. If not provided, use 1.20. (690.7)