

## **Photovoltaic System Submittal Requirements (Solar panel installation/replacement submittal)**

1. A permit application must be completely filled out with contact person, phone number, and total valuation of the PV system (material, labor, and profit).
2. Provide 2 sets of complete drawings.
3. A plan review is required for each property or address.
4. The applicable design codes are: 2017 NEC, 2018 IRC and 2018 IBC.
5. Design criteria for engineering: 90 MPH 3-second gust, exposure site specific, roof snow load 30 lbs per square foot and seismic design category B.
6. Systems installed on roofs shall have structural engineering to prove the roof system will support the new load being added (i.e. for wind uplift, roof snow load, and dead load of system).
7. Systems that are ground-mounted must include a plot/site plan showing location of the PV array and distances to property line and existing structures on property.
8. Zoning requirements are set by individual jurisdictions and applicant should contact the jurisdiction directly to verify compliance.

### **ELECTRICAL PLANS:**

- A. Provide a four-line diagram showing number of modules, wattage of modules, conductor sizes, wire lengths, insulation types, conduit sizes, fuses, circuit breaker ratings, inverter ratings, AC & DC disconnect rating, grounding and ground fault protection device.
- B. Specify the PV module's nameplate short circuit current and open circuit voltage relative to the work performed.
- C. Provide calculations used to determine wire sizes, fuse/breakers; which include temperature derating factors per NEC Table 690.31(C). Roof mounted systems should use worst case ambient temperature of 56-60 degrees C.
- D. Provide calculations to show that the PV system voltage does not exceed the maximum rated de inverter input voltage or connected equipment.
- E. Plans shall include all grounding on four-line diagram. Show calculations used to size equipment grounding conductor per NEC 690.43 & 690.45.
- F. Plans shall show location of all disconnecting means. Installation of equipment and panels with reference to house and service equipment. Clearly identify if wiring is run on interior or exterior of house. The PV system disconnecting means shall be grouped together per NEC 690.14(C) (5).
- G. Provide manufacturer's cut sheets and listing information for PV equipment.
- H. Provide sheet showing all required placards and labels showing verbiage and colors.

### **STRUCTURAL:**

- A. Plans to have structural engineering if to be installed on a roof.
- B. Plans to show load path elements.
- C. Plans to show means of attachment.