

## **Plan Review Submittal Requirements**

### **Solar Photovoltaic System**

#### **General**

1. Completed permit application.
2. Two (2) sets of construction drawings.
3. A plan review is required for each property or address.
4. The applicable design codes are: 2008 NEC, 2009 IRC and 2009 IBC.
5. Design criteria 90 MPH 3 second gust, exposure C, snow load 30 lbs/sq. ft., seismic design category B.
6. All Commercial System plans are required to bear the stamp and signature of a design professional.

#### **Electrical Plans**

1. Provide a one-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.
2. Specify the PV module's nameplate short circuit current and open circuit voltage relative to the work performed.
3. 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 worse case ambient temperature of 56-60 degrees C.
4. Provide calculations to show that the PV system voltage does not exceed the maximum rated dc inverter input voltage or connected equipment.
5. Plans shall include all grounding on one-line diagram. Show calculations used to size equipment grounding conductor per NEC 690.43 & 690.45.
6. 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 per NEC 690.14(C) (5).
7. Provide manufacturer's cut sheets and listing information for PV equipment.
8. Provide a signed and approved copy of Xcel Energy's Solar Rewards Contract. The contract shall indicate the before rebate price for installation and material.

#### **Structural**

1. Roof installations require a structural engineering analysis for the additional loading i.e. wind uplift and snow load.
2. Plans to show means of attachment and all load path elements.