

Plans Submittal Checklist

Considerations for Residential Solar Photovoltaic Systems

- Plans shall be designed to 2020 NEC, 2021 IRC and Longmont Power Company requirements.
(<http://www.ci.longmont.co.us/lpc/gen/solar/index.htm#systeminstall>)
- A City of Longmont and Colorado Licensed Electrical Contractor must obtain the permit.
- Provide a complete set of drawings and letter. Provide at a minimum the following documentation:
 - Drawings showing the fire distance clearance per 2021 IRC section 324. Make sure all dimensions are shown for both the panel layout and the fire distance clearance from panels and roofs. Refer below to additional information needed on drawings.
 - One-line diagram specific to the permit address.
 - A site specific structural engineer letter indicating our adopted loads (wind & snow), and the structure is adequate to take on the additional loads due to the solar panels.

Information needed on the documents submitted

- Provide a one-line diagram showing the number of modules, wattage of modules, conductor sizes, wire lengths, insulation types, conduit sizes, fuses, circuit breaker ratings, inverter type and ratings (meets UL standard 1741), AC & DC disconnect rating, ground fault protection devices, PV arc fault protection per NEC 690.11
- Provide a one-line diagram showing the new/existing AC electrical service showing size, disconnecting means location, conductors, panel rating, panel schedules and load calculations.
- Specify the PV module's nameplate short circuit current and open circuit voltage relative to the work performed.
- Provide calculations used to determine wire sizes, fuse/breakers; which include temperature derating factors per NEC table 690.31(A). Roof mounted systems should use worst case ambient temperature of 56-60 degrees C.
- Provide calculations to show that the PV system voltage does not exceed the maximum rated dc inverter input voltage or connected equipment.
- Plans should include all grounding on the one-line diagram. Show calculations used to size equipment grounding conductor per NEC 690.45.
- 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 the exterior of the house.
- Provide manufacturer's cut sheets and listing information for all PV equipment. PV equipment shall include rapid shutdown systems per NEC 690.12.

Structural:

- Plans shall use 110 mph nominal or 142 mph ultimate wind speed when determining design wind pressure (30 lb snow load and 10 lb dead load).
- Roofing with less than 10 years of use remaining shall be replaced beneath solar panel locations prior to panel installation.