



**Boulder County
Community
Planning & Permitting
Publications**

Solar Photovoltaic Systems Checklist

Community Planning & Permitting
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Solar Photovoltaic Systems Checklist

Per 2020 NEC (National Electrical Code)

Solar photovoltaic applications are reviewed by the county electrical inspectors. The following checklist shall be submitted with your plans. Each item on the list shall be marked to verify it is part of the submittal. Incomplete information may result in plan rejection or delay in the approval of your project.

Accessory ground-mounted solar arrays require only a building permit, if the application meets the parameters of [Article 4-516.K.5.e](#) of the [Land Use Code](#). Site Plan Review Waiver approval is required prior to building permit application if those parameters are exceeded.

Plan Submittal Requirements

All ground mounted systems require:

- ☐ Include the proposed PV system capacity in watts, and whether system is a stand-alone, grid-tied, or hybrid system.
- ☐ Electronic PDF files are to be submitted to Building Safety & Inspection Services through the [application submittals](#) webpage (boco.org/CPP-application-submittal). Minimum drawing scale is 1/4" per foot.

For roof mounted residential systems:

- ☐ Electronic PDF files are to be submitted to Building Safety & Inspection Services through the [application submittals](#) webpage (boco.org/CPP-application-submittal). Minimum drawing scale is 1/4" per foot.

Site Plan - Equipment Outside a Building

- ☐ Show the location of all disconnects.
- ☐ Show the location of all batteries.
- ☐ Show the location of inverters.
- ☐ Show the location and connection of all grounding electrode conductors.
- ☐ Show the clearances around all equipment.
- ☐ Show dimensions between equipment and structures.
- ☐ Show dimensions between equipment and property lines.
- ☐ Show the layout of all the arrays and the required minimum access and pathways per section R324 of the Boulder County Building Code Amendments.

Note: See the Pole or Ground Mounted Panels section on page 2 for additional site plan requirements.

Floor Plan - Equipment Within a Building

- ☐ Show the location of all disconnects.
- ☐ Show the location of all batteries.
- ☐ Show the location of inverters.
- ☐ Show the location and connection of all grounding electrode conductors.
- ☐ Show location of all equipment within structures.
- ☐ Label the use of the room in which the equipment is placed.
- ☐ Show clearances of the equipment.

Plan Submittal Requirements continued on page 2

Wiring Requirements

- ☐ Provide a one-line diagram that includes the following information:
- ☐ Label whether the system is stand-alone, grid-tied, or hybrid.
- ☐ Conductor sizes.
- ☐ Conductor insulation types (i.e., THHN, THWN, direct burial cable, etc.).
- ☐ Conductor material (i.e., copper/aluminum).
- ☐ Conduit sizes.
- ☐ Conduit material (i.e., non-metallic, EMT, etc.).
- ☐ Over current device ratings.
- ☐ Existing and new panel amperage ratings (buss ratings).
- ☐ Series and parallel configuration of the module connections.

Equipment Requirements

- ☐ Provide product listing sheets for all equipment with the following information:
- ☐ Module short circuit current ratings.
- ☐ Module open circuit voltage ratings.
- ☐ Module series fuse ratings.
- ☐ Inverter output circuit current rating.
- ☐ Inverter UL listings.
- ☐ All associated documentation (i.e., batteries, inverters, disconnects, modules, charge controllers, over-current devices etc.).
- ☐ Method of grounding for modules and array.
- ☐ Projected kWh/year for the system.

Note: Voltage correction factor is based on 125% (2020 NEC Table 690.7).

Panels

Roof Mounted Panels

Provide the following information:

- ☐ An Engineer's evaluation regarding the dead-load capability of the existing roof structure and its ability to support the added weight of the solar photovoltaic system. The Engineer must reference the required wind and snow load for the site. If the panels project above the ridge line of the roof, this must also be part of engineers evaluation.
- ☐ For flat roof installations provide method of repair for roof penetrations.

Pole or Ground Mounted Panels

Provide the following information:

- Site Plan to include the following:
 - ☐ Location of panel(s) on property.
 - ☐ Panel area (length of the panel x width of the panel).
 - ☐ Dimensions from panel(s) to property lines.
 - ☐ Dimensions from panel(s) to other structures on the property and property easements.
 - ☐ Dimensions from the furthest point on the panel to the closest point of the structure it is accessory to.
 - ☐ Location of onsite water treatment system (OWTS) components (go to www.septicsmart.org for final installation drawings). Arrays cannot be installed on or over OWTS absorption areas.
- Engineered footing design.
- Height from existing grade.

Rough Solar PV Inspections

Boulder County no longer conducts rough solar PV inspections. All rough inspections must be conducted by a Master Electrician. Once complete please submit to Boulder County Community Permitting and Planning a signed Letter of Verification, on Company Letterhead, verifying the roof mounted PV array equipment and grounding has been installed in accordance with 2020 NEC articles 690.41 through 690.47, as well as other applicable sections of the NEC and manufacture installation instructions.

For Installations that cannot provide such a letter, please reach out to an Electrical Building Inspector via email at – buildinginspectors@bouldercounty.org.