



**Boulder  
County**

**Boulder County  
Community Planning  
& Permitting  
Publications**

# Solar Photovoltaic Systems Checklist

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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.

All accessory ground-mounted solar arrays require Site Plan Review Waiver (SPRW) approval as a part of the permit application.

### Plan Submittal Requirements

#### All ground mounted systems require:

- A completed Building Permit application form. Include the proposed PV system capacity in watts, and whether system is a stand-alone, grid-tied, or hybrid system.
- A deposit (the balance of fees is due at the time of permit issuance).
- Electronic PDF files are to be submitted to Building Safety & Inspection Services through the Online Application Submittals webpage at [www.boco.org/\\_CPP-application-submittal](http://www.boco.org/_CPP-application-submittal). Minimum drawing scale is 1/4" per foot.

#### For roof mounted residential systems:

- A completed EZBP application form.
- Electronic PDF files are to be submitted to Building Safety & Inspection Services through the Online Application Submittals webpage at [www.boco.org/\\_CPP-application-submittal](http://www.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.
  - Dimensions from panel(s) to property lines.
  - Dimensions from panel(s) to other structures on the property and property easements.
- Engineered footing design.

### Rough Solar PV Inspections

Beginning Feb. 1, 2011, Boulder County began doing rough solar PV inspections. This inspection should be scheduled after the installation of the solar PV racking system, grounding, and no more than 50% of the PV modules. Roof mounted junction boxes or DC combiner boxes shall also be installed and wires terminated. In addition to the rough inspection, at the completion of the work, Building Safety and Inspection Services will conduct a final inspection.

If you have questions, contact Boulder County Building Safety & Inspection Services at 720-564-2640, or email [building@bouldercounty.org](mailto:building@bouldercounty.org).