



PHOTOVOLTAIC SYSTEMS SUBMITTAL REQUIREMENTS

BUILDING SERVICES



This is a comprehensive submittal list. All items may not pertain to your specific project.

**Multiple sets are required for submitting in-person. Sheet size requirements apply to in-person & [electronic submittals](#).*

General Requirements

The design and installation must comply with the 2019 California Building Code (CBC), 2019 California Residential Code (CRC), 2019 California Electrical Code (CEC), 2019 California Mechanical Code (CMC), 2019 California Plumbing Code (CPC). All components and equipment used in the photovoltaic system must be installed in accordance with its listing and the manufacturer's installation instructions.

Submittal requirements

1. Document Submittal List

A. Drawings (2 sets 11"x17" minimum, 24"x36" maximum)*

- Plot plan showing the property boundaries, all buildings located on the parcel, easements, etc.
- Electrical Plans
- Structural Plans (stamped and signed)
- 2 Sets* stamped by [Contra Costa Central Sanitary District](#) prior to submittal for ground mounted

B. Supporting Documents: (2 Sets 8 1/2" x 11" minimum)*

Acceptable to provide on plans (e.g 2 cutsheets that are 8 1/2"x11" on a 11"x17" sheet).

- Manufacturer specifications and installation instructions for:
 - a. Modules, inverters, disconnects, transformers, batteries, generators, etc.
 - b. Mounting systems
- Structural calculations (signed and stamped) provide for:
 - a. Total weight of the PV system exceeds 5 pounds per square foot.
 - b. PV system that is ground mounted.

2. Information to be Included on Documents

A. Plot Plan

- Lot dimensions: metes and bounds information
- Footprint of all existing and proposed buildings with all projections and dimensions to property lines and between buildings
- North arrow and bar scale (or indicate scale)
- Visible utility to curb
- Easement(s)
- Show & specify location, species, variety and size of trunk (measured 4.5 feet above the ground) for all trees
 - a. Show extent of tree canopy and dripline

B. Electrical Plans

- Specify the PV system rating: STC rating, PTC rating, and CEC-AC rating
 - a. Provide Standard Test Conditions (STC) rating in kW DC on Building Permit Application Form
- Roof Plan(s) for Roof Mounted PV systems
 - a. Layout of PV System panels
 - b. Indicate the dimension and layout of the existing roof framing members.
 - c. Fire Department Access Pathway
 - d. Total area covered by panels, total roof area, and percentage of area covered by Panels
 - e. Location of devices and electrical service, including amperage rating.
 - f. Racking/Railing layout (including railing spans), specify railing, and location of attachment points
- Installation of the PV system shall be in conformance with CEC Article 690.
- Provide details on the mounting of PV modules including type and number of roof coverings, including method of weather and water proofing.
- Provide device listing for the method of bonding PV modules.
- Include a torque schedule for all equipment connections including; inverter mounting hardware, disconnects, breakers, module clips, lug and panel hardware, inverter connections, racking system. This information shall be provided in either inch/lbs. or ft./lbs.

- Electrical line diagram
 - a. Identifying all existing/new devices and components in the system (e.g. service panel, sub panels, junction boxes, monitoring devices, inverters, optimizers, batteries, etc.)
 - b. Provide the total kVA rating
 - c. Provide amperage rating for service panels and subpanels
 - d. Include number of modules per each string
 - e. Show the type and size of conductors and conduits
 - f. Indicate breaker sizes
- Provide exterior elevations showing arrangement of each listed electrical panel and associated components.
- Provide identification and warning signage in conformance with CEC Article 690.
- Batteries or Energy Storage Systems
 - a. Provide floor plan of structure used to house battery bank.
 - b. Indicate battery type, size, dimensions, ventilation, and protection from physical damage.
 - c. Provide method for battery bank anchoring.
 - d. Provide wiring diagram of battery set.
 - e. Include battery in Electrical single-line diagram
 - f. Battery must be labeled to match assigned Breaker
- C. Structural Plans for Ground Mounted PV Systems
 - Indicate configuration of structural frame-work including details for: foundation system, framing material type with dimensions, and fasteners
 - Provide structural specifications for panel support
 - Drawn to scale
- D. Manufacturer specifications and installation instructions for railing, PV modules, inverters, batteries, etc.
 - Provide UL listing
 - Indicate which of the models is to be used if there are multiple models on the cutsheet/datasheet

The following information indicates the required roof top clearances for panels/arrays installed on residential buildings with slopes greater than 2:12:

- Roof access points.** Roof access points shall be located in areas that do not require the placement of ground ladders over openings such as windows or doors, and located at strong points of building construction in locations where the access point does not conflict with overhead obstructions such as tree limbs, wires or signs.
- Residential buildings with hip roof layouts.** Panels/modules installed on residential buildings with hip roof layouts shall be located in a manner that provides a 3-foot-wide clear access pathway from the eave to the ridge on each roof slope where panels/modules are located. The access pathway shall be located at a structurally strong location on the building capable of supporting the live load of fire fighters accessing the roof.
- Residential buildings with a single ridge.** Panels/modules installed on residential buildings with a single ridge shall be located in a manner that provides two, 3-foot-wide access pathways from the eave to the ridge on each roof slope where panels/modules are located.
- Residential buildings with roof hips and valleys.** Panels/modules installed on residential buildings with roof hips and valleys shall be located no closer than 18 inches to a hip or a valley where panels/modules are to be placed on both sides of a hip or valley. Where panels are to be located on only one side of a hip or valley that is of equal length, the panels shall be permitted to be placed directly adjacent to the hip or valley.
- Residential building smoke ventilation.** Panels/modules installed on residential buildings shall be located no higher than 3 feet below the ridge in order to allow for fire department smoke ventilation operations.
- Ground-mounted photovoltaic arrays.** Ground-mounted photovoltaic arrays shall require a clear, brush-free area of at least 10 feet.