

PHOTOVOLTAIC SYSTEM INSTALLATION GUIDE

FOR ONE-TO-TWO FAMILY DWELLINGS

SUBMITTAL REQUIREMENTS

A permit is required for photovoltaic system installation. The permit shall be obtained prior to the start of the work.

One electronic set of plans, digitally signed by the designer/architect, contractor, or homeowner responsible for preparing the plans. All plans submitted shall be on a minimum plan size of 11" x 17" and **must be legible** to facilitate digital imaging as a permanent record after the project is completed.

Exterior modifications to buildings may require Planning review and approval prior to submittal to the Building Division.

If the property is overseen by a Homeowners Association a letter of authorization signed by the HOA, is required.

1. **SITE PLAN.** Provide a site plan showing the location of:
 - a. Existing or proposed structure(s) for which the PV system shall be mounted.
 - b. Parcel dimensions and outline.
 - c. Label street(s) frontage and access.
 - d. Outline panel configuration or layout on existing/proposed structure.
 - e. Location of ground mounted cabinet or equipment.
 - f. Show on the plans a complete and clear scope of work, including main panel upgrade, new subpanels and/or proposed energy storage systems.
2. **ROOF PLAN.** Provide a roof plan showing:
 - a. Location and size of main service panel.
 - b. Location and size of subpanel, existing and/or proposed.
 - c. Location of PV system.
 - d. Roof access, pathways and setbacks proposed.
 - e. Existing roof ventilation affected by the location of the proposed PV.
 - f. Detailed panel configuration or layout with dimensions of rooftop.
 - g. Identify the required egress windows to show compliance with code requirement #6 (above).
3. **CROSS SECTION.** Provide a cross section/elevation detail showing the following:
 - a. Existing roof rafters, spacing and roof slope where the PV modules are going to be attached.
 - b. Minimum and maximum separation between roof and proposed PV modules.
 - c. Roof type & materials.
 - d. Panel attachment system type and minimum embedment (2 ½ inches minimum).
 - e. Support spacing layout and dimensions (shall be spaced maximum 48 inches o.c. in each direction).
4. **ELECTRICAL LINE DIAGRAM.** Provide an electrical line diagram showing the following items:
 - a. Existing or proposed main service panel size (amps) and disconnect.
 - b. Size and type of conductors.
 - c. Voltage and amperage of all circuits.
 - d. Overcurrent protection.
 - e. Equipment grounding.
 - f. Disconnection devices – AC & DC.
 - g. Equipment labeling.
 - h. Connection of storage batteries (if applicable).
5. **SYSTEM SIGNAGE.** Provide a plan page with all the required markings/labels per CEC.

6. **SYSTEM INFORMATION.** Provide manufacturers cut sheets and listing information for all the components (listed equipment, storage battery racking system and attachment details) (CRC R324.3).
7. **BATTERIES INSTALLED.** Show on the floor plan the equipment installed.
 - a. If installed in enclosed space, show dimensions of space and working clearances.
 - b. Storage battery layout with racking system.
 - c. Show method of protection for components installed subject to damage.
 - d. ESS Batteries to have a minimum of 3 feet clearance between batteries.
8. **SERVICE DISCONNECTING.** Per section 8.51(C) & (D) of the MVCC the service disconnecting means for one family dwelling shall have a rating of not less than 200 amperes.

BASIC CODE REQUIREMENTS

The following is a listing of the general code requirements based on the **2022** California Codes & Mountain View Municipal Code. This handout is intended to provide general information. If you have questions, please contact the Building Division at (650) 903-6313 or email us at building@mountainview.gov.

9. Photovoltaic system, the installation of equipment, and all associated wiring and interconnections shall be performed only by qualified personnel (CEC 690.4C). This is defined as a person who has skills and knowledge related to the construction and operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazard involved. If not meeting the definition of qualified personnel, the applicant shall obtain approval from the Chief Building Official.
10. Show compliance on the plans with the current California Residential Code Section R324 and the California Electrical Code.
11. Rooftop-mounted photovoltaic panel system installed on or above the roof covering shall be designed and installed in accordance with CRC Section R324.4
12. Building-integrated photovoltaic (BIPV) systems that serve as roof coverings shall be designed and installed in accordance with CRC Section R905 per R324.5
13. Show compliance on the plans with the roof access, pathways, and setback requirements (CRC R324.6.1 and R324.6.2).
 - a. Pathways: Not fewer than 2 pathways, on separate roof planes from lowest roof edge to ridge and not less than 36" wide, shall be provided on all buildings. Not fewer than one pathway shall be provided on the street or driveway side of the roof. For each roof plane with photovoltaic array, a pathway not less than 36" wide shall be provided from the lowest roof edge to ridge on the same roof plane as the photovoltaic array, on an adjacent roof plane, or straddling the same and adjacent roof planes. Pathways shall be over areas capable of supporting fire fighters accessing the roof and shall be located in areas with minimal obstructions such as vent pipes, conduit, or mechanical equipment.
 - b. Setback at ridge: Photovoltaics arrays occupying $\leq 33\%$ of the plan view total roof area, not less than an 18" clear setback is required on both sides of a horizontal ridge. For photovoltaics arrays occupying $> 33\%$ of the plan view total roof area, not less than 36" clear set back is required on both sides of a horizontal ridge.
14. Panels and modules installed on dwellings shall not be placed on the portion of a roof that is below an emergency escape and rescue opening. A pathway not less than 36 inches wide shall be provided to the emergency escape and rescue opening (CRC R324.6.3).
15. Conduits, wiring systems, and raceways for photovoltaic circuits shall be located as close as possible to the ridge or hip or valley and from the hip or valley as directly as possible to an outside wall to reduce trip hazards and maximize ventilation opportunities (CRC R324.7.3).
16. Roof penetrations shall be flashed and sealed in accordance with chapter 9 per CRC R324.4.3
17. Panels shall be adequately anchored to the roof framing (CRC R907)

OTHER RELATED HANDOUTS

- Smoke Detector & Carbon Monoxide requirements
- Self-Certification - Smoke & Carbon Monoxide Detectors

Revised: 4/14/2023