



FORM-016

Express Checklist for Residential Rooftop Solar PV System 10 kW

This Express Checklist (Checklist) applies to flush rooftop-mounted solar photovoltaic (PV) system ≤ 10 kW (“System”) installed on the roofs of wood-framed one- and two-family dwellings. For multi-family dwellings and nonresidential buildings, refer to [FORM-023 Express Checklist for Other Building Rooftop Solar PV System 10 kW](#). “Flush rooftop-mounted” means the modules are installed parallel to, and relatively close to, the roof surface. This Checklist is intended to be a simple check to demonstrate reasonable assurance that the design of the System complies with the electrical, fire and structural provisions of the 2019 California Electrical Code (CEC), California Fire Code (CFC), and California Residential Code (CRC). If a project meets the criteria on this Checklist (all boxes marked as “Y” and blank fields are completed), then the need for a detailed engineering analysis or formal plan review submittal may be avoided and a streamlined permit issuance process may be granted. Refer to [IB-023 Guideline for Express Permit of Rooftop Solar PV System 10 kW](#) for additional information.

GENERAL REQUIREMENTS

(please check box, Y = Yes or True, N = No or False)

1. System size, both new and existing combined, is 10 kW AC CEC rating or less and without a battery system connected Y N
2. System is a flush rooftop-mounted array on a one- or two-family dwelling or accessory structure Y N
3. System is not a building-integrated PV system that serve as roof coverings Y N
4. Construction documents (i.e., plans, specifications, etc.) for the System is completed, attached and reflects the information contained and acknowledged on this Checklist Y N

PLANNING REQUIREMENTS

(please check box, Y = Yes or True, N = No or False)

5. System is not located in a Coastal Zone Y N
6. System is not located in a Historic District or on a qualified historical building or property Y N

ELECTRICAL REQUIREMENTS

(please check box, Y = Yes or True, N = No or False)

7. System’s panels, modules, inverters, and racking systems are listed and labeled in accordance to UL 1703, UL 1741 and UL 2703 Y N
8. System’s breaker(s) is(are) connected on the opposite end of the service panel Y N
9. Installation does not have a line side tap (GMA is acceptable) Y N
10. PV overcurrent devices, where required, shall be rated not less than 125% of the maximum of output currents calculated in CEC 690.8(A); where two sources, one a primary power source and the other another power source, are located at opposite ends of a busbar that contain loads, the sum of 125% of the power source(s) output circuit current and the rating of the overcurrent device protecting the busbar shall not exceed 120% of the ampacity of the busbar (CEC 705.12(B)(2)(3)(b)); calculation shall be provided onto the single-line diagram sheet of the plans for verification by the city inspector Y N
11. AC circuit conductor ampacity is not less than #12 AWG for 20A, #10 AWG for 30A or #8 AWG for 40A overcurrent protection device Y N
12. All wiring system and equipment are located outside of the premise or in the garage Y N
13. Where metallic cold-water grounding for the System is available, it will be provided within 5’-0” of the water service entry to the primary residence; where it is not, will provide UFER or two ground rods not less than 6’-0” apart Y N
14. System’s circuits installed on or in buildings have a rapid shutdown functions to reduce shock hazard for emergency responders in accordance to CEC 690.12 Y N

FIRE SAFETY REQUIREMENTS

(please check box, Y = Yes or True, N = No or False)

15. Not fewer than two pathways, on separate roof planes from lowest roof edge to ridge and not < 36” wide, are provided Y N
16. Not fewer than one pathway is provided on the street or driveway side of the roof Y N

- 17. Each roof plane with a PV array has a pathway not < 36" wide from the lowest roof edge to ridge on the same roof plane as the PV array, on an adjacent roof plane, or straddling the same and adjacent roof planes Y N
- 18. Pathways are over areas capable of supporting fire fighters accessing the roof Y N
- 19. Pathways are in areas with minimal obstructions (e.g., vent pipes, conduit, or mechanical equipment) Y N
- 20. PV arrays occupies ≤ 33% of the total roof area with ≥ 18" clear setback on both sides of the ridge; OR PV arrays occupies > 33% of the total roof area with ≥ 36" clear setback on both sides of the ridge Y N
- 21. Panels and modules are not be placed on the portion of the roof that is below an emergency escape and rescue opening AND has a pathway ≥ 36" wide to the emergency escape and rescue opening Y N
- 22. System is a tested, listed and identified as a Class C roofing in accordance with UL 1703 and UL 2703 Y N
- 23. All required markings and placards will be permanently etched on plastic or phenolic resin placards; sticker marking shall be on DC conduits/junction boxes Y N
- 24. Roof penetrations shall be flashed and sealed Y N

STRUCTURAL REQUIREMENTS

(please check box, Y = Yes or True, N = No or False)

ROOF CHECKS

- 25. Visual Review/Contractor's Site Audit of Existing Conditions:
 - a. Roof is a single roof without a reroof overlay Y N
 - b. Roof structure appear structurally sound, without signs of alterations or significant structural deterioration or sagging (see Figure 1*) Y N
- 26. Roof Structure Data:
 - a. Measured roof slope (e.g., 6:12): _____:12
 - b. Type of roof framing (rafter or manufactured truss): rafter truss
 - c. Measured rafter or truss spacing (center-to-center): ____inches
 - d. Measured rafter size in inches (e.g., 1-3/4" x 3-3/4"): ____inches x ____inches
 - e. Measured rafter horizontal span in feet and/or inches (see Figure 4*): ____feet - ____inches
 - f. Horizontal rafter span in feet and/or inches per Table 2*: ____feet - ____inches
 - g. Measured horizontal rafter span is less than span in Table 2*: Y N

SOLAR ARRAY CHECKS

- 27. Flush-Mounted System:
 - a. Plane of the modules (panels) is parallel to the plane of the roof Y N
 - b. There is a 2" to 10" gap between underside of the modules and the roof Y N
 - c. Modules do not overhang any roof edges (ridges, hips, gable ends, eaves) Y N
- 28. Modules plus support components weigh no more than 4 psf for PV arrays Y N
- 29. PV array covers no more than half of the total roof area (all roof planes) Y N
- 30. Solar support component from manufacturer's project-specific worksheets/tables are completed Y N
- 31. Roof plan of the module and anchor layout are attached (see Figure 2*) Y N
- 32. Downward Load Check (Anchor Layout Check):
 - a. Proposed anchor horizontal spacing (see Figure 2*): ____feet - ____inches
 - b. Horizontal anchor spacing per Table 1*: ____feet - ____inches
 - c. Proposed anchor horizontal spacing is equal to or less than Table 1* spacing: Y N
- 33. Wind Uplift Check (Anchor Fastener Check):
 - a. Anchor fastener data (see Figure 3*):
 - (1). Diameter of lag screw, hanger bolt or self-drilling screw: ____inches
 - (2). Embedment depth of rafter: ____inches
 - (3). Number of screws per anchor (typically one): _____
 - (4). 5/16" diameter lag screws with 2.5" embedment into the rafter are used OR the anchor fasteners meet the manufacturer's guidelines Y N

FOOTNOTE: * Refer to the website at longbeach.gov/lbds/building/permit-center/solar-permit/ for the referenced tables and figures on this checklist.

ACKNOWLEDGMENT STATEMENT

I/We, the undersigned contractor(s)/installer(s) responsible for the design and installation of the solar PV system, understand that the permit will be issued based upon the checked "Y" and completing the required information to all of the above questions. I/We understand that if any questions are checked "N" or incomplete information to all of the above questions, I/We will revise the design to fit the criteria of this Checklist; otherwise the permit application may be required to go through the standard plan review process. I/We acknowledge that the construction documents, which are neither reviewed nor approved by the City, reflect the criteria of this Checklist. I/We assume all risk/responsibility if the installation of the work deviates from this Checklist and will strictly adhere to all code requirements and make the necessary changes to the installation. I/We understand that this permit conveys no vested rights in the event a conflict with any codes, local ordinances, and state laws are later identified as part of the inspection process. We further understand that any correction, removal or change of any portion of the installation will be done at the sole expense/liability of the contractor(s)/installer(s).

Job Address: _____ Permit #: _____

Contractor/Installer: _____ License # & Class: _____

Signature: _____ Date: _____ Phone #: _____