



INFORMATION BULLETIN

## **BU-023**

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### **Residential Rooftop Solar PV Systems $\leq$ 10 kW**

This Information Bulletin (IB) is intended to serve as a guide for permit applicants regarding the streamlined permitting process for flush-mounted solar photovoltaic (PV) systems  $\leq$  10 kW installed on the roofs of wood-framed one- and two-family dwellings. If a residential rooftop solar PV system meets the criteria of this IB and the Express Eligibility Checklist (Checklist), then the need for a detailed engineering analysis and formal plan review submittal may be avoided and a streamlined permit issuance process may be granted. This IB provides pertinent information about the application submittal requirements, permit fees, and inspection process.

#### CONTACT LOCAL UTILITY COMPANY

Southern California Edison (SCE) is the local utility company providing electrical power for the City of Long Beach (City). All solar PV installations need SCE's approval to link into the electricity grid, a process commonly referred to as "interconnection." This interconnection approval must be granted before a solar PV installation is allowed to operate and is completely separate from the Building and Safety Bureau's (BAS) approval for the solar installation. Interconnection approval ensures that a solar installation will safely connect and operate on the electricity grid.

Understanding SCE's requirements and process is very important. Permit applicants should contact SCE at the beginning of the project planning stage. SCE provide information about required interconnection agreements and can also provide information about available financial rebates or incentives. Please contact SCE or visit their website at [www.sce.com](http://www.sce.com).

#### SUBMITTAL REQUIREMENTS

The following documents are required for residential rooftop solar PV system application submittals:

- a. City Permits/Documents:
  - Development Services Permit (complete General and Electrical sections)
  - Planning Permit / Local Coastal Development (for projects within coastal zone)
  - Certificate of Appropriateness (for projects in historic districts or historical buildings)
- b. Express Eligibility Checklist. Complete this form to determine eligibility for this service. All items shall be checked "Y" and provide the required information to all of the questions on the Checklist.
- c. Electrical Plans. A complete set of electrical plans shall be submitted that includes the following:
  - Locations of main service or utility disconnect
  - Total number of modules, number of modules per string and the total number of strings
  - Make and model of inverter(s) and/or combiner box if used
  - One-line diagram of the system

- Specify grounding/bonding, conductor type and size, conduit type and size and number of conductors in each section of conduit
  - If batteries are to be installed, include them in the diagram and show their locations and venting
  - Equipment cut sheets including inverters, modules, AC and DC disconnects, combiners and wind generators
  - Labeling of equipment as required by CEC, Sections 690 and 705
  - Site diagram showing the arrangement of panels on the roof, north arrow, lot dimensions and the distance from property lines to adjacent buildings/structures (existing and proposed)
- d. Roof Plan. A roof plan showing roof layout, PV panels and the following fire safety items: approximate location of roof access point, location of clear access pathways, PV system fire classification and the locations of all required labels and markings shall be provided.

### PLAN REVIEW

Planning review is not required for residential rooftop solar PV system unless the project is located in a Coastal Zone or in a Historic District/Building.

Permit applications and construction documents (i.e., electrical and/or structural plans, calculations, equipment cut sheets, etc.) may be required to be submitted through the regular plan review process for electrical and building review if it does not meet the criteria of this IB and the Checklist.

### PERMIT AND FEES

An “Electrical Permit” shall be issued for residential rooftop solar PV systems ≤ 10 kW. The total permit fee, including all applicable surcharges and filing fees, is \$286.41 and shall be collected at the time of permit issuance. This fee covers all required plan review and inspection services. Additional fees may apply if the project is located within a Coastal Zone or in a Historic District/Building.

### INSPECTIONS

Once the permit for the residential rooftop solar PV system has been issued and the system has been installed, it must be inspected to verify conformance to the Checklist and the construction documents and that all systems meet minimum code requirements. The Checklist, construction documents, and the job inspection card shall be at the site for inspection at all times. Access is required to all elements of the installation at the time of the requested inspection. All ladders necessary to conduct the inspection must be OSHA compliant and set up in conformance with prescribed safety requirements. Approval will be granted upon final inspection of the solar PV system.

### ADDITIONAL INFORMATION

Additional information can be obtained from our website at [www.longbeach.gov/lbds/building/permit-center/solar-permit](http://www.longbeach.gov/lbds/building/permit-center/solar-permit).

To request this information in an alternative format or to request a reasonable accommodation, please contact the Development Services Department at [longbeach.gov/lbds](http://longbeach.gov/lbds) and 562.570.3807. A minimum of three business days is requested to ensure availability; attempts will be made to accommodate requests with shorter notice.



## Residential Rooftop Solar PV Systems ≤ 10 kW Express Eligibility Checklist

This Express Eligibility Checklist (“Checklist”) applies to flush-mounted solar photovoltaic (PV) systems ≤ 10 kW installed on the roofs of wood-framed one- and two-family dwellings. “Flush-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 solar array complies with the electrical, fire and structural provisions of the 2019 California Electrical Code (CEC), California Fire Code (CFC), California Building Code (CBC) and California Residential Code (CRC). If a project meets the design criteria on this Checklist, then the need for a detailed engineering analysis and formal plan review submittal may be avoided and a streamlined permit issuance process may be granted.

<b>GENERAL REQUIREMENTS</b>	(please check box)
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|--|---|
| 1. System size, both new and existing combined, is 10 kW AC CEC rating or less                         | <input type="checkbox"/> Y <input type="checkbox"/> N |
| 2. System is roof-mounted on one- or two-family dwelling or accessory structure                        | <input type="checkbox"/> Y <input type="checkbox"/> N |
| 3. System will not exceed the maximum legal building height  | <input type="checkbox"/> Y <input type="checkbox"/> N |
| 4. Permit application is completed and attached  | <input type="checkbox"/> Y <input type="checkbox"/> N |
| 5. Construction documents (i.e., plans, specifications, etc) for the system are completed and attached | <input type="checkbox"/> Y <input type="checkbox"/> N |
| 6. System is mounted on an existing and legally permitted building or structure                        | <input type="checkbox"/> Y <input type="checkbox"/> N |

<b>ELECTRICAL REQUIREMENTS</b>	(please check box)
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- |   |   |
|---|---|
| 7. PV breakers is connected on the opposite end of the service panel  | <input type="checkbox"/> Y <input type="checkbox"/> N |
| 8. Service panel is not center fed  | <input type="checkbox"/> Y <input type="checkbox"/> N |
| 9. Installation does not have a line side tap (GMA is acceptable)   | <input type="checkbox"/> Y <input type="checkbox"/> N |
| 10. Sum of 125% of the inverter(s) output circuit current and the rating of the overcurrent device protecting the busbar does not exceed 120% of the ampacity of the busbar               | <input type="checkbox"/> Y <input type="checkbox"/> N |
| 11. AC circuit conductor ampacity is not less than #10 AWG for 20A/30A or #8 AWG for 40A overcurrent protection   | <input type="checkbox"/> Y <input type="checkbox"/> N |
| 12. All wiring system and equipment are located outside of the premise or in the garage   | <input type="checkbox"/> Y <input type="checkbox"/> N |
| 13. Metallic cold-water grounding for the system will be provided within 5-feet of the water service entry to the primary residence; OR will provide UFER or two ground rods 6 feet apart | <input type="checkbox"/> Y <input type="checkbox"/> N |

<b>FIRE SAFETY REQUIREMENTS</b>	(please check box)
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|---|---|
| 14. Diagram of the roof layout that reflects all panels, modules, clear access pathways and approximate locations of electrical disconnecting means and roof access points are completed and attached | <input type="checkbox"/> Y <input type="checkbox"/> N |
| 15. System is a fire classification “C” rating  | <input type="checkbox"/> Y <input type="checkbox"/> N |
| 16. All required markings and placards will be permanently etched on plastic or phenolic resin placards; sticker marking shall be on DC conduits/junction boxes                                       | <input type="checkbox"/> Y <input type="checkbox"/> N |

<b>STRUCTURAL REQUIREMENTS FOR FLUSH MOUNTED SOLAR ARRAYS</b>	(please check box)
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**ROOF CHECKS**

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| 17. Visual Review/Contractor's Site Audit of Existing Conditions:  |   |
| a. Roof is a single roof without a reroof overlay  | <input type="checkbox"/> Y <input type="checkbox"/> N |
| b. Roof structure appear structurally sound, without signs of alterations or significant structural deterioration or sagging (see Figure 1*) | <input type="checkbox"/> Y <input type="checkbox"/> N |

18. 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): \_\_\_\_\_inch
  - d. Measured rafter size in inches (e.g., 1-3/4" x 3-3/4"): \_\_\_\_\_inch x \_\_\_\_\_inch
  - e. Measured rafter horizontal span in feet and/or inches (see Figure 4\*): \_\_\_\_\_feet - \_\_\_\_\_inch
  - f. Horizontal rafter span in feet and/or inches per Table 2\*: \_\_\_\_\_feet - \_\_\_\_\_inch
  - g. Measured horizontal rafter span is less than span in Table 2\*: Y N

**SOLAR ARRAY CHECKS**

19. Flush-mounted Solar Array:
- 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 module and the roof Y N
  - c. Modules do not overhang any roof edges (ridges, hips, gable ends, eaves) Y N
20. Modules plus support components weigh no more than 4 psf for photovoltaic arrays Y N
21. Array covers no more than half of the total roof area (all roof planes) Y N
22. Solar support component from manufacturer's project-specific worksheets/tables are completed Y N
23. Roof plan of the module and anchor layout are attached (see Figure 2\*) Y N
24. Downward Load Check (Anchor Layout Check):
- a. Proposed anchor horizontal spacing (see Figure 2\*): \_\_\_\_\_feet - \_\_\_\_\_inch
  - b. Horizontal anchor spacing per Table 1\*: \_\_\_\_\_feet - \_\_\_\_\_inch
  - c. Proposed anchor horizontal spacing is equal to or less than Table 1\* spacing: Y N
25. Wind Uplift Check (Anchor Fastener Check):
- a. Anchor fastener data (see Figure 3\*):
    - (1). Diameter of lag screw, hanger bolt or self-drilling screw: \_\_\_\_\_inch
    - (2). Embedment depth of rafter: \_\_\_\_\_inch
    - (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 fastener meet the manufacturer's guidelines Y N

**FOOTNOTE:** \* Refer to the website at [www.longbeach.gov/lbds/building/permit-center/solar-permit/](http://www.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 #: \_\_\_\_\_

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