



## City of Laguna Beach

Community Development  
Department

### INFORMATIONAL GUIDE FOR THE:

# Photo-Voltaic Plan Check

**Please provide 2 complete sets of plans with the following information:**

Note: EMT is prohibited where installed in exterior locations by local ordinance.

#### **SUPPLIED DIAGRAMS**

Provide a minimum of a three-line diagram with the permit application package showing :

- a. Array configuration
- b. Array wiring identified
- c. Combiner/junction box identified
- d. Conduit from junction box to PV power source disconnect identified
- e. Equipment grounding specified
- f. Disconnect specified
- g. Conduit from disconnect to inverter identified
- h. Inverter specified
- i. Conduit from inverter to AC disconnect to panel identified
- j. System grounding specified
- k. Point of connection attachment method identified

#### **INVERTER INFORMATION**

Show the following information on the plans:

- a. Provide a cut sheets for inverter(s) and installation instructions.
- b. Show on plans, the inverter model number.
- c. Provide the approval listing for utility interactivity
- d. Show maximum continuous output power
- e. Show input voltage range of inverter
- f. Provide and show the grounding electrode conductor and associated ground rod or ufer attachment.
- g. Provide and show a minimum of a #6 grounding conductor
- h. Provide and show grounding conductor protection.

#### **PV MODULE INFORMATION**

Show the following on the plans:

- a. Provide a cut sheet for PV Modules and installation instructions.
- b. Show the open-circuit voltage (Voc) from the listing
- c. Show the maximum permissible system voltage from the listing.
- d. Show the Short-circuit current(Isc) from the listing
- e. Show the maximum series fuse rating from the listing
- f. Show the maximum power @ standard test conditions (Pmax)
- g. Show voltage at Pmax
- h. Show current at Pmax

### **ARRAY INFORMATION**

Show the following on the plans:

- a. Number of modules in series.
- b. Number of parallel source circuits
- c. Total number of modules
- d. Operating voltage (number of modules in series X module voltage @ Pmax.)
- e. Operating current. (number of parallel source circuits X module current @ Pmax.)
- f. Maximum system voltage (CEC690.7)
- g. Short-circuit current (CEC690.8)

### **WIRING AND OVERCURRENT PROTECTION**

Show the following on the plans:

- a. Wire type and sizes
- b. Conductor ampacities are sufficient for temperature corrections
  - i. PV source circuit current
  - ii. PV source circuit ampacity
  - iii. PV output circuit ampacity
  - iv. Inverter output circuit ampacity
- c. Point of connection meets provisions of CEC690.64
  - i. Point of connection panel busbar rating

### **SERVICE AND DISCONNECT**

The disconnecting means shall be of a visible open, lockable disconnect

- a. Show location of electrical service
- b. Show location of inverter
- c. Show location of A/C and D/C disconnecting means
- d. Provide single line diagram

### **ROOF INFORMATION (ROOFTOP SYSTEMS)**

Structural information:

- a. Provide a roof plan. Show location and dimensions of all arrays.
- b. Arrays covering more than 25% of roof area may require Fire Department review.
- c. Provide partial roof plan where arrays are to be installed. Show size, span and spacing of all framing members supporting arrays.(rafters, headers and/or beams.
- d. Provide calculations by a licensed professional engineer or architect verifying supporting members are adequate to support existing and proposed loads.

Non-Structural Information:

- a. Identify roofing type (e.g. comp shingle, shake, light weight tile, etc.)
- b. Provide details of PV panel mounting hardware attachment to the roof framing members.
- c. Identify and show method of sealing the roof penetrations. (e.g. flashing, urethane caulking, etc.)
- d. Show all existing roof penetrations (plumbing and mechanical vents) where arrays are to be placed. Indicate if any penetrating items are to be relocated.
- e. **Provide photograph of roof where arrays are to be located showing existing penetrations – plumbing vents, mechanical vent, skylights etc. If arrays will cover any penetration detail relocation to an approved area.**

### **SYSTEM LABELS AND WARNINGS**

Required Signage for PV Installations 2016 C.E.C.:

Signs shall have a red background with white letters (or other approved contrasting colors) and shall be permanently attached without the use of adhesives. Screws shall be non-reversible type.

Lettering shall be embossed or engraved.

Directory signs when required by CEC 690.56 (B) shall comply with the above.

Install on DC disconnect

D/C Disconnect

Operating Current: \_\_\_\_\_

Operating Voltage: \_\_\_\_\_

Maximum System Voltage: \_\_\_\_\_

Short-Circuit Current: \_\_\_\_\_

Install on A/C service section and  
all A/C sub-panels

**WARNING:**  
TURN OFF PHOTOVOLTAIC  
AC DISCONNECTS PRIOR TO  
WORKING INSIDE PANEL

Install on main service

THIS SERVICE IS FED FROM MULTIPLE SOURCES:  
GRID AND PV ARRAY

Install on back-fed breaker

**CAUTION:**  
PHOTOVOLTAIC SYSTEM  
CIRCUIT BREAKER IS BACKFED

Install on AC disconnect

PHOTOVOLTAIC  
AC DISCONNECT

Maximum A/C Output Operating Current: \_\_\_\_\_

Maximum A/C Operating Voltage: \_\_\_\_\_

Install on pull boxes with internal terminals

**WARNING: ELECTRICAL SHOCK HAZARD**  
DO NOT TOUCH TERMINALS. TERMINALS ON BOTH LINE  
AND LOAD SIDES MAY BE ENERGIZED  
IN THE OPEN POSITION