

**GUIDELINES FOR PLAN CHECK AND PERMIT REQUIREMENTS
FOR SMALL RESIDENTIAL ROOFTOP SOLAR ENERGY SYSTEM
OVER SINGLE OR TWO-FAMILY DWELLING**

Administrative

1. Completed plan check application form is required. The plan check application form can be downloaded at www.ci.garden-grove.ca.us/plan-check-app.
2. Provide 2 sets of plans, minimum sheet size 11"x17".
3. Attach all manufacturer's specification sheets, installation instructions and U.L. listings to the plans.
4. Plans are to be signed by State of California contractor with any of the following classifications: "A", "B", "C-46", "C-10" or licensed electrical engineer. Provide signature and contractor license number on each sheet.

I. Solar Photo-Voltaic System:

To qualify for expedited permitting of small residential rooftop photo-voltaic system, complete the Eligibility Checklist available on the City's web page and meet all criteria therein.

A. Roof Plan

1. Provide a roof plan projected on a site plan. Show the location and dimensions of all solar voltaic equipments and PV arrays.
2. Provide typical 3 foot clear access (at ridge, hip, valley and gable).
3. Provide a partial roof framing plan. Show new and existing supporting rafters, beams and headers; include rafter size, span, and spacing. Identify roof sheathing and roofing materials.

ALTERNATE: Framing information is not required if arrays are supported at a maximum spacing of 4 feet.

4. Detail equipment support connections to roof. Provide a detail for flashing and water proofing at system supports.
5. Provide calculations by a licensed professional engineer or architect to verify supporting members are adequate for existing and proposed loads.

ALTERNATE: Calculation not required if arrays are supported at a maximum spacing of 4 feet.

6. Provide lateral calculations by a licensed professional engineer or architect showing that affected existing lateral resisting elements are no more than 10% overstressed according to the 2013 CBC, section 3403.

ALTERNATE: Lateral Analysis is not required if total area of arrays is less than half of the total roof area and the weight of the modules plus support components is not more than 4 psf.

B. Electrical

1. Provide Electrical drawings to show compliance with the applicable provisions of the 2013 California Electrical Code.
2. Show the location and size of the main electrical service, AC/DC disconnects, all solar voltaic equipment, and PV arrays on the roof plan.
3. New back fed P.V. breaker shall be positioned at opposite end of main breaker per CEC art. 690.64.B7 (New 2013 CEC requirement) when using the 120% of rating allowance for determining the total rating of over current device [CEC 690.64(B)(2)].
4. When selecting the back feed P.V., please use size per CEC article 240.4(B) and 240.6. Use the next HIGHER standard value of breaker, and it must not exceed the maximum AC output over-current protective device shown in the inverter manufacturer's specifications.
5. Account for the voltage correction factors for Crystalline and Multi-crystalline Silican Modules (CEC Table 690.7 and Article 690.7), or use the open-circuit voltage temperature coefficients when supplied by the modules' manufacturer. Show where did you account for this factor in your inverter sizing? (690.7 is an inverter safety requirement).
6. Specify the solar modules grounding lugs manufacturer's name, model #, and UL approval report number on plans. (CEC 690.43, 690.48, 250.122 and 250.136).
7. Single Line Diagram: show array configuration, conduit and conductors sizes with derating calculations.
8. Inverter Information: show model number, specification cut sheets and maximum D.C. input.
9. PV Module Information: show open circuit voltage (VOC), short-circuit current (ISC) max series fuse.
10. Array information: show number of modules in series, number of parallel source circuits.

11. Wiring and Over Current Protection: show conductor ampacities, adjusted with all derating factors show rating and location of all Over Current Devices (OCD).
12. System Labels and Warnings: show required signage on the plans per 2013 CEC-Article 690.
13. Grounding Details: show equipment ground conductor, ground electrode conductor from inverter to ground rod or ufer ground.
14. Disconnects: show AC/DC disconnects at inverter. DC disconnect required prior to DC array conductors penetrating the surface of the roof or entering the building.
15. System Calculations: show (VOC) calculated 1.13 (temperature correction factor for City of Garden Grove) (ISC) calculated x 1.25% (NEC 690) x 1.25% (UL 1703).
16. All PV equipment shall be listed by a recognized test lab.
17. Notify serving utility before activation of PV system.

II. Solar Domestic Water Heating System:

To qualify for expedited permitting of small residential rooftop solar domestic water heating system, complete the Eligibility Checklist available on the City's web page and meet all criteria therein.

A. Roof Plan

1. Provide a roof plan projected on a site plan showing the roof layout and solar collectors with attachment details.

B. Plumbing/Mechanical

Provide all equipment cut sheets along with Plumbing/Mechanical plan that includes the following:

1. Total number of collectors and area
2. Make, model and collector certification number
3. System certification number
4. Solar storage tank name, model, insulation and capacity
5. Heat exchanger make and model (if applicable)
6. Specifications of heat transfer fluid (if applicable)
7. System schematic, including major components

Plan Review

Plan check application can be submitted in person to Garden Grove Community Development Dept./Building Division at 11222 Acacia Parkway, Garden Grove, CA 92840 or electronically through: email/website solar-app@garden-grove.org.

Inspections

Once all permits have been issued and the system has been installed, it must be inspected before final approval is granted. On-site inspections can be scheduled by contacting the building inspection request line at (855) 380-8758 or electronically at <https://ch.ci.garden-grove.ca.us/permitsoft/inspections/new>.

Inspection requests received up to 4:00 pm will be scheduled for the following business working day. Inspection requests received after 4:00 pm will be scheduled for the second business working day.

Permit holders must be prepared to show conformance with all technical requirements in the field at time of inspection. The inspector will verify that the installation is in conformance with applicable code requirements and with the approved plans.

Contact Information

For additional information regarding this permit process, please contact our Building Division at (714) 741-5307.