



## City of Orange Building Division

300 E. Chapman Ave.  
Orange, CA 92866  
(714) 744-7200

### Photovoltaic System / PV Arrays CHECKLIST

When submitting plans for Building Plan Check, three (3) sets of scaled drawings with the following information are required:

1. Approval is required by the Planning Department
2. Provide a roof plan projected on a site plan. Show the location and dimensions of all solar voltaic equipment and PV arrays.
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.
4. Detail equipment support connections to roof. Provide a detail for flashing and water proofing at system supports.
5. Provide structural calculations by a licensed professional engineer or architect to verify supporting members are adequate for existing and proposed loads.  
**Exception: Structural analysis is not required** if total area of solar voltaic equipment / PV arrays is less than 200 sq.ft and generate 3-4 kilowatts. (Since size of installation will not have major impact on the structure's vertical and lateral support systems).
6. Provide structural lateral calculations by a licensed professional engineer or architect per 2010 CBC. Showing that affected existing lateral resisting elements are no more than 10% overstressed according to 2010 CBC.  
**Exception: Lateral analysis is not required** if total area of solar voltaic equipment / PV arrays is less than 200 sq.ft for two-story or 300 sq.ft for single-story.
7. Provide Electrical drawings to show compliance with the applicable provisions of 2010 CEC.
8. All sheets of plans must be wet-signed by a California license Architect, civil/structural engineer or general contractor ("A", "B", "C-46", "C-10") or Electrical engineer who prepared the documents.

## **SOLAR PHOTO-VOLTAIC SYSTEM OVER SINGLE FAMILY DWELLING GUIDELING TO ELECTRICAL SUBMITTAL REQUIREMENTS**

1. Show the location of the main electrical service, AC/DC disconnects, all solar voltaic equipment, and PV arrays on the roof plan.
2. Single Line Diagram: show array configuration, conduit and conductors sizes with derating calculations.
3. Inverter Information: show model number, specification cut sheets, and maximum D.C. input.
4. PV Module Information: show open circuit voltage (VOC), short – circuit current (ISC) max series fuse.
5. Array Information: show number of modules in series, number of parallel source circuits.
6. Wiring and Over Current Protection: show conductor ampacities, adjusted with all derating factors show rating and location of all Over Current Devices (OCD).
7. System Labels and Warnings: show required signage on the plans per 2007 CEC-Article 690
8. Grounding Details: show equipment ground conductor, ground electrode conductor from inverter to ground rod or ufer ground.
9. Disconnects: show AC/DC disconnects at inverter. DC disconnects required prior to DC array conductors penetrating the surface on the roof or entering the building.
10. System Calculations: show (VOC) calculated 1.13 (temperature correction factor for City of Orange) (ISC) calculated x 1.25% (NEC 690) x 1.25% (UL 1703).