



Approved by: _____

Date: _____

City of Orange

Building Division

300 E. Chapman Ave.

Orange, CA 92866

(714) 744-7200

SOLAR PHOTO-VOLTAIC SYSTEM OVER SINGLE FAMILY DWELLING SUBMITTAL REQUIREMENTS

Administrative

1. Provide 2 sets of plans minimum sheet size 11" x 17".
2. Attach all manufacturer specification sheets, installation instructions and U.L. listings to the plans
3. Plans are to be signed by State of California licensed 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.

Roof Plan

1. Provide a roof plan projected on a site plan. Show the location and dimensions of all solar voltaic equipment and PV arrays.
2. 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
3. Detail equipment support connections to roof. Provide a detail for flashing and water proofing at system supports
4. Provide calculations by a licensed professional engineer or architect to verify supporting members are adequate for existing and proposed loads
5. Provide lateral calculations by a licensed professional engineer or architect per 2013 CBC showing that affected existing lateral resisting elements are no more than 10% overstressed according to the 2013 CBC.

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 beaker shall be positioned at opposite end of main breaker per CEC 705.12 (D)(7) (New 2010 CEC requirement), when using the 120% of rating allowance for determining the total rating of over current device. [CEC 705.12 (D)(2)]. The 120% rule does not apply to center fed panels.

4. When selecting the back feed P.V breaker. 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 manufacturers specifications.**
5. Account for the voltage correction factors for Crystalline and Multi-crystalline Silicon 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 a inverter safety requirement).**
6. Specify the solar modules' **grounding lugs**' manufacturer's name, model #, and UL approval report number on plans. (CEC 690.41,690.45, 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 1.12 (temperature correction factor for City of Orange (ISC) calculated x 1.25% (NEC 690) x 1.25% (UL 1703)
16. All PV equipment shall be listed by a recognized test lab.