

<b>Maricopa Association of Governments Building Code Amendments and Standards Manual</b>	
<b>BCAS #18</b>	
Title: Solar Inspection Checklist for Single-Family Residences	
Originally Reviewed by MAG Building Codes Committee: 1/21/2015	
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The following checklist contains many of the most common errors seen by inspectors on solar photovoltaic (PV) installations. This list is not exhaustive and does not guarantee approval on first inspection. This checklist acts as a guide to make first inspection approval more likely. Note that all code references are to the 2012 International Residential Code (IRC), 2012 International Fire Code (IFC) and 2011 National Electrical Code (NEC). Installers should confirm which codes are in effect in the local jurisdiction, and adjust code citations below as appropriate.

1. Approved plans and specifications are on site at time of called inspection. **IRC R106.3.1**
2. Equipment is installed according to approved plans and manufacturer’s instructions. **NEC 110.3b**
3. Inspector has adequate and safe access to roof and all equipment.
4. At the PV modules the DC and AC conduits are grounded in accordance with **NEC 690.43 (A)**.
5. If a grounding electrode system is required by NEC 690.47, it must be installed in accordance with **NEC 250.50 through 250.60**.
6. When using a combination equipment grounding conductor/grounding electrode conductor, as allowed by **NEC 690.47(C)(3)**, the minimum size is #8 awg and shall meet the requirements of **NEC 250.64(C) & (E)**.
7. If a DC grounding electrode conductor (GEC) is required, the existing AC GEC may be used if the PV inverter is installed near the existing main electrical service. The DC GEC may be tapped from the AC GEC. **NEC 250.64(D)(1)**
8. Split bus and center feed service entry panels comply with electrical code for solar loads on their rated bus bars. A split bus panel is not recommended for use with a PV system due to the lack of a main breaker and the application of **NEC 705.12**.
9. AC and DC disconnects are required and must be readily accessible.
10. AC and DC disconnecting means must be located within sight of utility interactive inverters. **NEC 690.14(D)**
11. All PV breakers and equipment must be labeled where required by code. Multiple code sections apply; below are several common labels:
  - AC utility disconnects and AC combiner boxes are properly labeled with AC output current and nominal operating AC voltage. **NEC 690.54**
  - "Photovoltaic Power Source" labels are installed on DC junction boxes. **NEC 690.4 (1) and IFC 605.11.1**

- Exposed raceways, cable trays, covers of pull boxes, and other wiring methods containing PV power source conductors are marked “Photovoltaic Power Source” by permanently affixed labels. **NEC 690.31(E)(3)**
  - Combiner boxes containing circuit breakers are labeled as a disconnect. **NEC 690.14 (2)**
12. Proper wire management of module output conductors is provided. Cable must be properly supported/secured and not laying on top of abrasive roof tile or other roofing material. **NEC 338.10(B)(4)(b)**
  13. Splits in module mounting racks are properly bonded. **NEC 690.43 (C)**
  14. Bond bushings are required when concentric or eccentric knockouts are encountered in enclosures with circuits over 250 volts. **NEC 705.12(D)(1)**
  15. The sum of the ampere rating of overcurrent devices in circuits supplying power to a busbar or conductor shall not exceed 120% of the rating of the busbar or conductor. If required by design, the main breaker may be required to be de-rated. Additionally, house load calculations must be provided. **NEC 705.12(D)(1)**
  16. Circuit breaker shall be installed and used in accordance with any instructions included in listing and labeling. **NEC 110.3(B)**
  17. Module frame-to-rack grounding clips must be installed in accordance with the manufacturer’s instructions. This applies to “WEEB” clips. **NEC 110.3(B)**
  18. Meter socket sized properly for two-way meter.
  19. Conductors are properly sized for the overcurrent device.
  20. The overcurrent device is sized in accordance with the listing of inverter.
  21. Where DC PV source or output circuits are routed inside a building or structure, they shall be contained in metallic raceways. **NEC 690.31(E)**
  22. Verify with local jurisdiction for fire access and plumbing vent clearance requirements.