

Top 10 Solar Photovoltaic (PV) Violations

From the Sun to the Grid

- **Array Grounding Insufficient or Missing**
 - o Grounding must be in accordance with 690.43
 - o Lugs must be listed for outdoor use "DB" (tin plated copper), 300.6
- **DC Conductors at Array not Properly Supported and Protected**
 - o Conductors shall be protected against physical damage (including those beneath array)
 - o Articles 300.4, 338.10(B)(4)(b), 334.30, 338.12(A)(1)
 - o Conductors installed in readily accessible locations shall be in conduit per 690.31(A). Conductors can also be made "not readily accessible."
- **DC Conductors not Properly Sized for Conditions**
 - o 690.8 calculations, 310.15 ampacity/temperature/conduit fill
 - o 110.14(C) temperature limitations of conductors
- **DC Disconnect Switch not Rated for 600 Volts DC**
 - o DC current requires additional protection when interrupting. A switch only rated for AC will create a great hazard when operated on DC conductors under load. This is required by 690.17(4) and 690.9(D).
- **DC Disconnect Switch Breaking Grounded DC Negative Conductor**
 - o Prohibited by 690.13 unless following maintenance exception
- **DC Grounded Conductor not Properly-Identified**
 - o 200.6(A)(6) requires a distinctive white marking at all terminations
- **Inverter Missing Grounding Electrode Conductor (GEC)**
 - o Installation shall comply with 690.47(C)
 - o 250.66 requires minimum #8 AWG copper
- **AC Neutral Conductor Bonded to Ground Downstream of Main Service Panel** (i.e. inside revenue quality meter enclosure or inside PV subpanel)
 - o 250.24(A)(5) prohibits this connection on load side of service disconnecting means
- **Backfeed Breaker Size Issues**
 - o Must be sized to 125% of inverter continuous current 690.8(B)
 - o Within limits of busbar rating 705.12(D)(2)
 - o At proper location of busbar 705.12(D)(7)
- **PV Labels Missing**
 - o 690.31(E)(3), 690.14(C)(2), 690.17, 690.53, 690.54, 705.12(D)(4), 705.12(D)(7), 690.56(B)



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