

Title Array Grounding and Bonding for New Equinox™ Installations, 536599
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Application Equinox® solar systems and InvisiMount® mounting systems

Overview

SunPower® Equinox™ systems must use a 6 AWG copper conductor for the equipment grounding conductor (EGC) on the roof when the EGC routes outside of a conduit or junction box. The conductor size requirement is based on National Electric Code (NEC) 690.46 and 250.122 (2017 and 2020 Editions). Even if the local authority having jurisdiction (AHJ) has approved an installation with smaller conductors in these conditions, SunPower requires compliance with these code provisions on all systems constructed under the SunPower lease and loan programs.

Summary and Expectation

Array EGCs must be sized according to 690.45, 690.46, 250.122, and 250.120(C). These requirements have been largely unchanged since the publication of the 2014 Edition. Language and references in this document, however, will refer to the 2017 NEC.

690.45 requires that the EGC be sized in accordance with 250.122. The EGC between a lug attached to a rail, and connected to the equipment grounding bus bar in a main service panel or subpanel meets the definition of an EGC subject to these requirements.

250.122 requires that the EGC be sized in accordance with Table 250.122. For AC module circuits connected to a 20 A breaker, Table 250.122 allows an EGC as small as 12 AWG.

690.46 restricts the use an EGC smaller than 6 AWG, requiring it to comply with 250.120(C). Specifically, 250.120(C) requires that an EGC smaller than 6 AWG must be protected by a raceway, *"unless installed within hollow spaces of the framing members of buildings or structures and where not subject to physical damage."* Some have misinterpreted that clause as allowing an electrician or AHJ to claim that the space between rails (racking) underneath an array qualifies as a space between framing members, or that other means of protection from physical damage would be allowed. But the clause is intended to apply to hollow spaces such as stud bays, and only applies to such spaces if they are not subject to physical damage.

Quality audits for SunPower Equinox installations across the nation have shown that a 10 AWG conductor is sometimes used as the equipment grounding conductor (EGC) from the array which enters the rooftop junction box.

Many AHJs do not inspect this portion of the array, and many that do may not be familiar with the nuances of these provisions of the NEC. **Therefore, even for systems that have received final inspection from the AHJ, SunPower requires a minimum 6 AWG conductor be used for the EGC for those portions outside of the array.** After entering a junction box, the EGC may be downsized if otherwise allowed by the NEC. The 2011 NEC and earlier versions were more ambiguous in these requirements, but equipment grounding is essential to safe operation of the system.

SunPower requires a minimum 6 AWG conductor to be used outside of the array in all jurisdictions, even where the AHJ has adopted an earlier version of the NEC.

If an EGC smaller than 6 AWG is installed outside of a raceway and discovered during a SunPower quality audit, SunPower will require the site to be reworked. It will be the Dealer's responsibility to cover the cost of the truck roll, the materials, and the labor to perform this work.

If you have any questions please contact SunPower Technical Support at 1.855.977.7867.

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