



FIRE CLASSIFICATION FOR ROOF MOUNTED PHOTOVOLTAIC SYSTEMS

Recent changes to the California Building Code (CBC) and the California Residential Code (CRC) now require rooftop mounted PV “systems” permitted after January 1, 2015 be tested, listed, and identified with a fire classification in accordance with UL 1703. Also, that the fire classification be based on the type of construction for the building with a Class C or better rating.

Until recently, UL 1703 focused the fire testing of PV modules as “stand-alone components” providing them with Class A, B or C fire ratings. However, further testing revealed that performance of a “system” (which includes PV modules mounted on a racking system) is not the same as that of a stand-alone module mounted directly on a roof. As a result, UL 1703 was revised in October 2013 to create a method of testing PV modules intended to be used in a “system” with stand-off or rack mounting and “typed” based on comparable construction characteristics and flammability characteristics.

Using this method of “typing”, a manufacturer can have their modules listed as a specific “type” for purposes of achieving a fire classification when installed on a rack mounting system, which has been tested in compliance with UL 2703. Therefore, if a PV rack mounting system is tested with a “Type 1” module and achieves a Class A fire rating as a “system”, the installer can use any other “Type 1” module and retain that fire classification and thereby building code compliance. This requires that manufacturers have their modules “typed” through evaluation by a Nationally Recognized Test Labs (NRTL) under the October 2013 or later revision of UL 1703 and that PV rack mounting systems be tested under UL 2703 with the newly “typed” modules. There are currently only four NRTLs recognized by OSHA to provide this evaluation service: UL, CSA, Intertek, and TUV.

POLICY FOR ROOFTOP MOUNTED PHOTOVOLTAIC SYSTEMS

In order to verify the fire classification of rooftop mounted PV “systems”, PV submittals shall include the following information:

- Manufacturer’s make and model of the proposed PV modules, “typed” and listed in accordance with UL 1703 (2002 edition with October 2013 revisions or later).

Exception: For construction requiring a minimum Class C roof, modules provided with a Class C fire rating in accordance with the previous version of UL 1703 (2002 edition with revisions through April 2008) or UL 790 (2004 edition with revisions through October 2008) may be permitted.

- Manufacturer’s cut sheet and verification of module “type” for the proposed PV modules.
- Manufacturer’s make and model of the proposed rack mounting system listed in accordance with UL 2703.
- Manufacturer’s installation instructions and cross-sectional details for the proposed rack mounting system (with approval for low-slope or steep-slope roof application).
- Certificate of compliance from one of the four NRTLs providing the achieved fire classification of the PV rack mounting system with a PV module “type” or specific make and model of PV module.

The California Solar Energy Industries Association (CALSEIA) has compiled a database of compliant products for easy reference at <http://www.calseia.org/ul-1703-compliance-database>. However, because the information may not be the most complete and up-to-date, the certificates of compliance should be verified for each manufacturer.

POLICY FOR BUILDING-INTEGRATED PHOTOVOLTAICS

Building-integrated photovoltaics (BIPVs) shall be listed and labeled as a Class A, B, or C roof covering material or roof covering system in accordance with UL 790 as referenced in the most recent version of UL 1703.