2017 Rapid Shutdown System Requirements

Based on the 2017 Massachusetts Electrical Code

This document summarizes key changes to solar photovoltaic (PV) Rapid Shutdown requirements in the 2017 Massachusetts Electrical Code (MEC). Local codes and standards may supersede any of the references below.

690.12, Rapid Shutdown of PV Systems on Buildings

The entire section of Article 690.12 has been revised since the 2014 MEC. The rooftop array boundary for controlled conductors has been reduced to **one foot** and within **three feet** inside building. The time limit has increased from 10 seconds in the 2014 MEC to **30 seconds**, with a voltage of not more than **30 volts**. In addition:

- Equipment shall be listed for providing rapid shutdown protection
- Effective Jan 1, 2019, conductors within the array are limited to 80 volts after 30 seconds.
- The initiation device must be located outside for one-family and two-family dwellings:
    - Service disconnect
    - PV system disconnect
    - Readily accessible switch, indicating whether "off" or "on"

Figure 1. Rapid shutdown initiation device is located outside and properly-labeled.

690.56(C)(3), Rapid Shutdown Switch

- A rapid shutdown switch shall have a label on or within 3 feet that includes the following wording:
  RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM
- White lettering, red background, reflective, minimum 3/8" capitalized letters (figure 1).
- This marking is required on all system types, including microinverters.

Figure 2. Array-level rapid shutdown label requirement, often used with DC-DC converter and microinverter systems.

690.56(C)(1), Rapid Shutdown Type

- Rapid shutdown must be indicated by one of the following labels below:
  -This label must be on or within 3 feet of the service disconnecting means to which the PV systems are connected and shall indicate the location of all identified rapid shutdown switches if not located at the same location

a) For systems that shut down conductors within and leaving the array:
SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN

- Black lettering, yellow background, minimum 3/8" capitalized letters, including a diagram of a building with a roof (figure 2).

b) For systems that only shut down conductors leaving the array:
SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN

- White lettering, red background, minimum 3/8" capitalized letters, including a diagram of a building with a roof (figure 3).

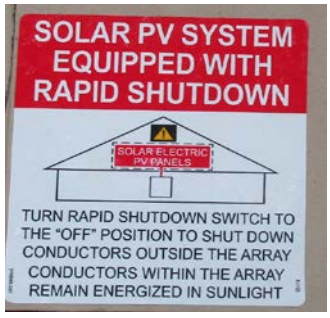

Figure 3. Array boundary rapid shutdown label, can be used for installations prior to January 1, 2019. See Article 690.12(B)(2) for further details.