

## 2020 NEC 690.12(B)(2) Controlling Conductors within the array boundary

The SunModo Racking Photovoltaic Hazard Control System (PVHCS) is a UL 3741 Listed system that complies with NEC 690.12(B)(2) (1), when installed by qualified persons per the installation procedures outlined in the SunModo Product Installation Manual and this Addendum. Please refer to the following pages of this addendum for various example cases of system designs that comply with 690.12(B)(2).

## 2020 NEC 690.12 Background

2020 NEC 690.12 Rapid Shutdown of PV Systems on Buildings requires that all PV arrays installed on or in buildings shall include rapid shutdown functions to reduce shock hazard for Fire Fighters (FF) in accordance with 690.12(A) through (D):

### A. Controlled Conductors

1. PV system DC circuits
2. Inverter output circuits originating from inverters located within array boundary

### B. Controlled Limits

1. Outside Array Boundary:  $\leq 30V$  within 30 seconds
2. Inside Array Boundary:
  1. Listed PV Hazard Control System (UL 3741)
  2.  $\leq 80V$  within 30 seconds after rapid shutdown initiation
  3. PV array without exposed wiring methods or conductive parts

### C. Initiation devices

- Initiation device(s) shall initiate the rapid shutdown function of the PV system.

### D. Equipment

- Equipment that performs rapid shutdown functions other than initiation devices, such as listed disconnect switches, circuit breakers, or control switches.

### E. Building with Rapid Shutdown

- Buildings with PV systems shall have a permanent label located at each service equipment location to which the PV systems are connected or at an approved readily visible location and shall indicate the location of rapid shutdown initiation devices.
- NEC 690.2 defines the array as a mechanically and electrically integrated grouping of modules with support structure, including any attached system components such as inverter (s) or dc-to-dc converter(s) and attached associated wiring. This indicates the SunModo Racking and collocated inverters are part of the array.
- NEC 690.12(B) defines the array boundary as 1ft from array in all directions. This indicates that the array boundary can extend 1ft from the edge of the SunModo Racking, inverter, or module.