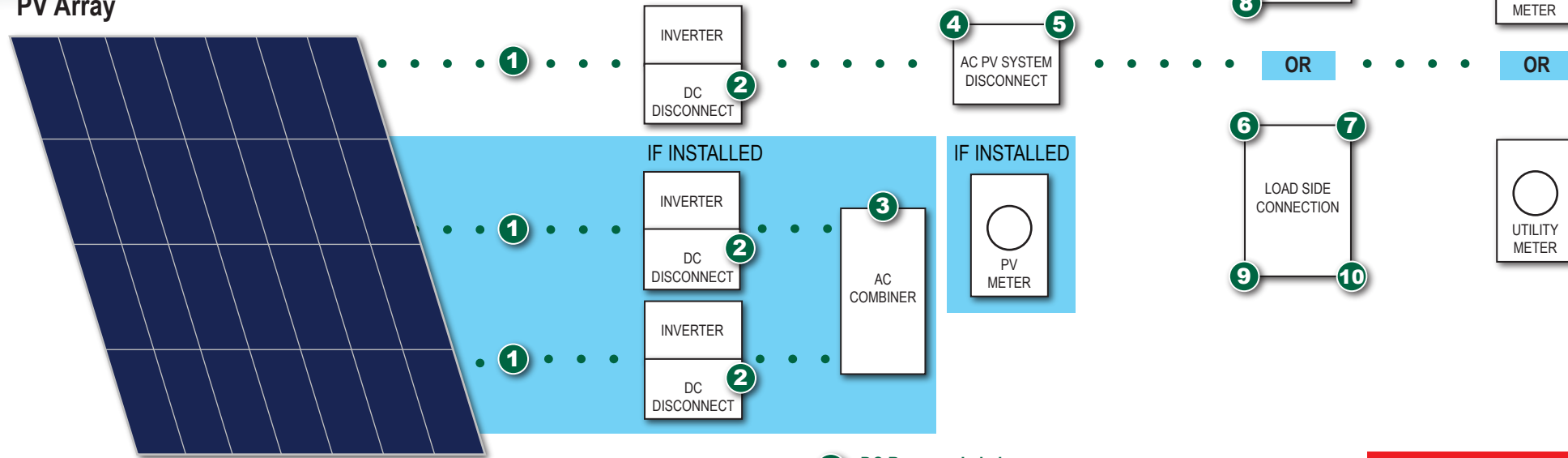


# PV SYSTEM LABELING

Requirements for the 2023 National Electrical Code<sup>1</sup>

## PV Array



### 1 DC Raceway Label

Section 690.31(D)(2)

- On or in a building, unless location/purpose is evident
- Raceways, enclosures, every 10', suitable for environment
- Minimum 3/8" CAPS, White on Red

### 2 DC PV Circuits

Section 690.7

- Max system voltage calculated in accordance with 690.7
- At one of the following locations:
  - DC PV system disconnect
  - PV system electronic power conversion equipment
  - Distribution equipment associated with the PV system

### 3 "AC Combiner Panel"

Section 705.12(B)(3)

- Sum of ampere ratings, excluding source OCPD
- Label applied adjacent to distribution equipment
- The following or equivalent wording:

### 4 PV System Disconnect

Section 690.13(B)

- See Figure 705.1 diagrams for location in system
- Disconnects PV from all other wiring systems
- Installed in a readily accessible location
- Permanently marked: PV SYSTEM DISCONNECT, or equivalent
- Where line/load may be energized in open (off) position:
  - Marked with the following or equivalent:

PHOTOVOLTAIC POWER SOURCE

OR

SOLAR PV DC CIRCUIT

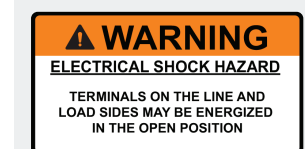
PV MAX SYSTEM VOLTAGE Vdc

Example of Max System Voltage label



PV SYSTEM DISCONNECT

Example of PV System Disconnect Identification



Example of Line/Load Energized marking

### 5 Buildings with Rapid Shutdown

Section 690.12(D)(2)

- Switch label that includes the following:
  - Minimum 3/8" CAPS, White on Red, Reflective
  - Located on or within 3' of switch
  - Required for all system types!

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

### 6 Identification of Power Sources

2021 NFPA 1: Section 11.12.2.1.5

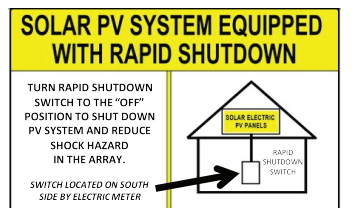
- Adjacent to the main disconnect
- Provides name and emergency phone number of company currently servicing the PV system



### 7 Buildings with Rapid Shutdown

Section 690.12(D)

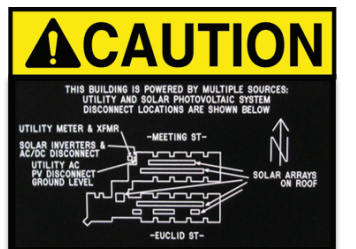
- Located at each service equipment location where PV is connected "or approved readily visible location"
- Shall indicate location of rapid shutdown initiation devices
- Shall include simple diagram of building and roof
- Minimum 3/8" CAPS, text shall contrast the background



### 8 Service Disconnect Directory

Sections 690.56/705.10

- Permanent plaques, labels, or directories installed at either:
  - Each service equipment location
  - Approved readily visible location
- Marked with the following wording:
  - Denote location of each power source disconnect
  - Indicate the emergency telephone numbers of any off-site entities servicing the power source systems



### 9 Overcurrent Protection Marking

Section 705.30(C)

- Equipment containing overcurrent devices
- Supplied from interconnected power sources
- "Marked to indicate the presence of all sources"

WARNING DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

### 10 "Do Not Relocate"

Section 705.12(B)(2)

- Two sources, opposite ends of busbar
- Label applied adjacent to back-fed breaker
- The following or equivalent wording:

WARNING POWER SOURCE OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE.

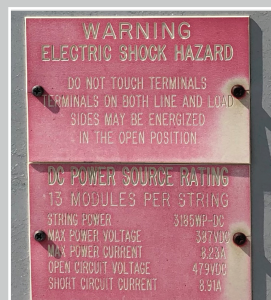
## General Labeling Guidance

There are several marking and labeling requirements for PV systems and a variety of interpretations. This document provides a summary of the most common requirements and an example of each location. Because of the wide range of installations, systems may require fewer labels, or additional labels not outlined here.

When providing code-required markings, consideration should be given to environmental conditions and overall clarity of the content relative to its location. Excessive labeling may be confusing. Red and white labels should only be used when required by a specific code or ANSI standard. Section 110.21(B) requires permanent labels, not handwritten, and suitable for the environment in which they are installed. It also recommends the labels to follow ANSI Z535.4-2011 Product Safety Signs and Labels.



Example of ANSI Z535.4-2011 markings



Although placards are generally the most durable option, they need to be designed for exposure



Excessive labeling may be confusing

<sup>1</sup>All code references are to the 2023 edition of the National Electrical Code (NEC), unless otherwise noted.