Temporarily Approved Solar Photovoltaic System Electrical Schematics

This document is intended as a temporary interpretation of approved solar photovoltaic electrical schematics in accordance with the State Electrical Code, specifically Articles 690 and 705. As the result of an urgent need to provide the State with acceptable designs for the installation of solar photovoltaic systems that interconnect with a utility service, the State Electrical Division has created four (4) methods that shall be accepted by the local electrical inspector having jurisdiction. These four (4) designs are not intended to be exhaustive methods of compliance, instead these methods are installations in which an approval can be assured.

Currently, the State Electrical Division is in the process of creating a permanent interpretation with designs that meet the provisions of Articles 690 and 705. After the permanent interpretation is released, this document will be null and void. Such formal interpretation will be found at the following link once finalized.


The following schematics are current approved designs by the State Electrical Division:
Separate Meter Base & Service Disconnect

Example Drawing
Option No. 1

Interior Installations Note: Power Source Output Conductors shall not exceed 5 feet in length and shall be contained within an approved metal conduit or armored jacket within the interior of a structure.

Both Neutral and Grounding Bars have Bonding Jumpers to the Enclosures.
Must have Bonding Jumper to Enclosure

Separate Meter Base & Service Disconnect

Power Source Output Circuit Conductors

Interior Installations Note: Power Source Output Conductors shall not exceed 5 feet in length within the interior of a structure and shall be contained within an approved metal conduit or armored jacket.

Both Neutral and Grounding Bars have Bonding Jumpers to the Enclosures

To 120/240 volt Single Phase Utility Service

Grounding Electrode Conductors

100 amp 2-pole Breaker

Main Service Panel Listed as Service Equipment

PV Source AC Disconnect Suitable for Use as Service Equipment

Inverter

Inverter Output Circuit

NEMA Type 3R Enclosure

Equipment Grounding Conductor

Equipment Grounding Conductor

Neutral

AC

DC

GRND

Listed as Service Equipment

Both Neutral and Grounding Bars have Bonding Jumpers to the Enclosures

Power Source Output Circuit Conductors

Example Drawing Option No. 2
Separate Meter Base & Service Disconnect

Main Service Disconnect Panel
Listed for Service Equipment

Power Source Output Circuit
Conductors

PV Source AC
Disconnect
Suitable for Use as
Service Equipment

Inverter Output
Circuit

Inverter

Neutral

GRND

AC

DC

Neutral is isolated in the PV Disconnect

Interior Installations Note: Power Source Output Conductors shall not exceed 5 feet in length within the interior of a structure and shall be contained within an approved metal conduit or armored jacket.
**Premises load**

*Inverter Output Circuit*

**Neutral**

*Example Drawing*

Option No. 4

To 120/240 volt Single Phase Utility Service

- 100 amp 2-pole Breaker
- Premises load

**Power Source Output Circuit Conductors**

**PV Source AC Disconnect**

Suitable for Use as Service Equipment

**Inverter**

- Inverter Output Circuit
- **Neutral**
- **GRND**

Equipment Grounding Conductor

Both Neutral and Grounding Bars have bonding jumpers to the enclosures

Interior Installations Note: Power Source Output Conductors shall not exceed 5 feet in length within the interior of a structure and shall be contained within an approved metal conduit or armored jacket

Power Source Output Conductors being Tapped with Listed Splicing Terminals (See Pages 6 – 9)

PV Source AC Disconnect Suitable for Use as Service Equipment

To 120/240 volt Single Phase Utility Service

Grounding Electrode Conductor

Interior Installations Note: Power Source Output Conductors shall not exceed 5 feet in length within the interior of a structure and shall be contained within an approved metal conduit or armored jacket

Power Source Output Circuit Conductors

Grounding Electrode Conductor

Equipment Grounding Conductor

Both Neutral and Grounding Bars have bonding jumpers to the enclosures

PV Source AC Disconnect Suitable for Use as Service Equipment

100 amp 2-pole Breaker

Premises load

Power Source Output Circuit Conductors

Equipment Grounding Conductor

Both Neutral and Grounding Bars have bonding jumpers to the enclosures

Interior Installations Note: Power Source Output Conductors shall not exceed 5 feet in length within the interior of a structure and shall be contained within an approved metal conduit or armored jacket

PV Source AC Disconnect Suitable for Use as Service Equipment

100 amp 2-pole Breaker

Premises load

Power Source Output Circuit Conductors

Equipment Grounding Conductor

Both Neutral and Grounding Bars have bonding jumpers to the enclosures

Interior Installations Note: Power Source Output Conductors shall not exceed 5 feet in length within the interior of a structure and shall be contained within an approved metal conduit or armored jacket

PV Source AC Disconnect Suitable for Use as Service Equipment

100 amp 2-pole Breaker

Premises load

Power Source Output Circuit Conductors

Equipment Grounding Conductor

Both Neutral and Grounding Bars have bonding jumpers to the enclosures

Interior Installations Note: Power Source Output Conductors shall not exceed 5 feet in length within the interior of a structure and shall be contained within an approved metal conduit or armored jacket

PV Source AC Disconnect Suitable for Use as Service Equipment
Example of Listed Splicing Terminal Tap devices that could be used for connection to service conductors on PV systems.
May not be able to install devices. Very little room for connectors and would have to be staggered.
Cannot install the tap devices on curved sections of a conductor, per installation instructions.
Would also have to comply with section 312.8.
Installations instructions would not allow the tap device to be installed on any part of conductor that is curved. Must be on a straight run of conductor.
These factory installed bars cannot be altered without being re-evaluated by the listing laboratory.