## General Guidelines

The installer shall follow the manufacturer's instructions for all installed equipment and shall have them available at the time of inspection.

All wire sizes shown are a minimum, unless indicated otherwise, and the installer may upsize them at their discretion.

All OCPD ratings shown must match the inspection checklist exactly, any ratings that do not match the inspection checklist are valid reasons for inspection failure.

Conduit sizing to be confirmed at time of inspection. Contractor to provide conduit fill calculations where requested by inspector.

### Main Service Panel Equipment

<table>
<thead>
<tr>
<th>Description</th>
<th>Rating</th>
<th>Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Breaker Ampere Rating Size</td>
<td>200 AMP</td>
<td></td>
</tr>
<tr>
<td>Main Bus Ampere Rating Size</td>
<td>225 AMP</td>
<td></td>
</tr>
<tr>
<td>Utility Service Rating</td>
<td>225</td>
<td></td>
</tr>
</tbody>
</table>

The equipment is connected either directly to the main service panel or in a Supply Side Connection.

If grounding electrode is rod, pipe or plate, then supplemental electrode is properly installed. Exception: If a single rod, pipe, or plate grounding electrode has a resistance to earth of 25 ohms or less, the supplemental electrode shall not be required.

EGC is installed ensuring continuity to all system components and finally to grounding electrode.

### Interconnection at Main Service Panel

<table>
<thead>
<tr>
<th>Description</th>
<th>Rating</th>
<th>Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Phase Grid Voltage</td>
<td>240 V</td>
<td></td>
</tr>
</tbody>
</table>

System Point of Interconnection Compliance Method At Main Service Panel:

- **NEC 705.12 (B) (2) (b) 120% Rule**
  
Where two sources, one a primary power source and the other another power source, are located at opposite ends of a busbar that contains loads, the sum of 125 percent of the power source(s) output circuit current and the rating of the overcurrent device protecting the busbar shall not exceed 120 percent of the ampacity of the busbar.

- **NEC 705.12 (B) (2) (d) 120% Rule for Center Fed Panels**
  
A connection at either end, but not both ends, of a center-fed panelboard in dwellings shall be permitted where the sum of 125 percent of the power source(s) output circuit current and the rating of the overcurrent device protecting the busbar does not exceed 120 percent of the current rating of the busbar.

Backfeed breakers are at opposite load ends of the panel.

For center fed panels, backfeed breakers are on one side of main breaker and not both in the panel.

### Equipment Point of Interconnection

<table>
<thead>
<tr>
<th>Description</th>
<th>Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>All power production inverter outputs have the same point of connection.</td>
<td></td>
</tr>
</tbody>
</table>
### Equipment Point of Interconnection

**Pass**

- Connected equipment is within line of sight and closer than 10ft to the point of interconnection or a disconnect/isolation means are installed.

- There is no existing Utility interactive power production source connected to the home’s electric service. Only the utility interactive power production sources and/or photovoltaic modules specified on this inspection checklist list are present on site.

- DC and AC conductors are copper, Class B or Class C, and THWN-2, NM or PV Wire, or they are a jacketed multiconductor cable assembly listed and identified for the application.

- All power terminals are rated to 75°C or greater, labeled for use with Copper Class B or Class C wires, and accept at least 8 AWG wire.

- Conductors are properly terminated and wired according to the code.

- Where Equipment Grounding Conductors (EGC) are not routed with circuit conductors, EGC is a minimum of 6 AWG or it's protected from physical damage.

- There is a minimum of 3 feet working clearance, according to the code, for all components that may require service.

### Inverter

<table>
<thead>
<tr>
<th>Inverter</th>
<th>Pass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inverter architecture:</td>
<td>String Inverter with DC-DC Converters</td>
</tr>
<tr>
<td>EGC Wire Size Inverter 1</td>
<td>10 AWG</td>
</tr>
<tr>
<td>Overcurrent Protective Device rating: Inverter 1</td>
<td>30 AMP</td>
</tr>
<tr>
<td>AC Wire size Inverter 1</td>
<td>10 AWG</td>
</tr>
<tr>
<td>Maximum number of THWN-2 conductors in an PV inverter AC output circuit raceway, excluding any equipment grounding conductors.</td>
<td>3</td>
</tr>
<tr>
<td>Inverter 1 model number</td>
<td>SE5000H-US [240V]</td>
</tr>
<tr>
<td>Inverter 1 manufacturer</td>
<td>SolarEdge Technologies Ltd.</td>
</tr>
<tr>
<td>Maximum number of THWN-2 DC conductors in raceway, excluding any equipment grounding conductors.</td>
<td>4 wires</td>
</tr>
<tr>
<td>Maximum number of DC PV wire or USE-2 conductors in raceway, excluding any equipment grounding conductors.</td>
<td>0 wires</td>
</tr>
<tr>
<td>Minimum DC Wire Gauge (THWN-2 Wire):</td>
<td>12 AWG</td>
</tr>
<tr>
<td>DC strings EGC is a minimum of 10 AWG</td>
<td></td>
</tr>
<tr>
<td>Presence of Rapid Shutdown switch label per Fire Bulletin</td>
<td></td>
</tr>
</tbody>
</table>

### Roof and PV Array

<table>
<thead>
<tr>
<th>Racking System Model Number</th>
<th>Solar Mount Flush</th>
</tr>
</thead>
<tbody>
<tr>
<td>Racking System Manufacturer</td>
<td>Unirac</td>
</tr>
<tr>
<td>Attachment points of the mounting system are staggered</td>
<td>No</td>
</tr>
<tr>
<td>Maximum spacing in inches between adjacent attachment points of the mounting system</td>
<td>3”</td>
</tr>
</tbody>
</table>
Roof and PV Array

- Roof penetration sealant method has been installed per the manufacturers instructions.
- The roof structure appears to be structurally sound, without signs of alterations or significant structural deterioration or sagging.
- Quantity and spacing of structural attachments match the installation instructions per manufacturer.
- Array conductors are secured and supported. Installed so as not to damage the cable, at intervals not exceeding 1.4 m (4.5 ft) and within 300 mm (12 in.) of every cable entry into enclosures such as outlet boxes, junction boxes, cabinets, or fittings.

<table>
<thead>
<tr>
<th>PV Module model number</th>
<th>TSM-335PE14A</th>
</tr>
</thead>
<tbody>
<tr>
<td>PV Module manufacturer</td>
<td>Trina Solar</td>
</tr>
<tr>
<td>PV Module quantity</td>
<td>18</td>
</tr>
<tr>
<td>Method of rapid shutdown compliance Inside the Array</td>
<td>AC module, microinverter, or DCDC converter installed on each module and listed for UL 1741 or UL 3741 as PVRSS or PVRSE used to comply with requirements for Rapid Shutdown.</td>
</tr>
</tbody>
</table>

- DC-DC converter Manufacturer: Solaredge
- DC-DC converter Model Number: P401

All rooftop conduits are mounted at least 7/8” above the roof surface.

All PV Source Circuit conductors installed without raceway are listed as PV Wire or USE-2.

---

Roof and PV Array 1

- Plane 1 Roof Covering: INPUT Modified bitumen roofing
- The distance from the module backsheet to the roof surface 1 does not exceed 10”

---

Fire

- Percentage of the Roof with a Solar Array: 18.60%
- Fire Pathways, venting and access in accordance with: Less Than 33/66
- Disconnecting Means are in compliance with the SolarAPP Fire Bulletin
- Signage, Placards, Directories and Markings in accordance with the SolarAPP Fire Bulletin
- Maximum AC operating current in labels: 20.8 A
- Maximum AC operating voltage in labels: 240 V

---

Corrections

---
## Disconnecting Means

**PV System**

PV system disconnecting means shall be provided in accordance with the 2017 National Electrical Code® (NEC), NFPA 70®, [690.13](NEC 2017 PV)

A Rapid Shutdown switch shall be provided at a readily accessible location outside the building in accordance with the 2017 National Electrical Code® (NEC), NFPA 70®, [690.12(C)]

## Signs, Placards, Directories, and Markings

### Guidance

**General**

All labeling shall comply with Section 324 of the 2018 International Residential Code and Articles 690 and 705 of the 2017 National Electrical Code® (NEC), NFPA 70

All labeling shall comply with [NEC 110.21 (B)]

**Rapid Shutdown Label**

A label shall be installed not greater than 3ft from the electric utility service location that includes the location of all identified Rapid Shutdown switches if not at the same location. [IRC 324]

The label shall indicate which type of Rapid Shutdown system is installed, and include a simple diagram with sections in red designating areas that are not controlled by the rapid shutdown switch. [NEC 690.56(C)(1)]

Buildings with more than one rapid shutdown type:

A detailed plan view diagram showing each PV system and a dotted line around areas that remain energized after the rapid shutdown switch is operated. [NEC 690.56(C)(2)]

Rapid Shutdown (PV Hazard Control) switch:

This switch shall have a label not greater than 3 feet from the switch that states the following:

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM [NEC 690.56(C)(3)]

## Roof Access, Egress, and Ventilation

### General

Access and minimum spacing shall be provided for access to specific areas of the roof, emergency egress from the roof and opportunities for smoke ventilation in accordance with the 2018 International Residential Code [IRC 324.6]

## References:

- Ridge Setbacks - [IRC R324.6.2]
- Sprinklered Occupancies - [IRC R324.6.2.1]
- Pathways - [IRC 324.6.1]
- Emergency escape and rescue openings - [IRC R324.6.2.2]
### Exceptions:

<table>
<thead>
<tr>
<th>Detached, non-inhabitable structures [IRC R324.6 Ex. 1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roof access, pathways and setbacks need not be provided where the code official has determined that rooftop operations will not be employed. [IRC R324.6 Ex. 2]</td>
</tr>
<tr>
<td>Low-slope roofs with pitch of less than or equal to 2:12; this exception may not be valid depending on the jurisdiction. [IRC R324.6 Ex. 3]</td>
</tr>
</tbody>
</table>

### Carbon Monoxide, Smoke & Heat Detectors

#### Guidance:
Carbon Monoxide and smoke detectors shall be provided in accordance with the code or an Affidavit has been provided by the customer. 2018 International Residential Code. [R314, R315]

### Fire Classification

#### PV System
Rooftop-mounted PV systems shall have the same fire classification as the roof assembly required in 2018 International Residential Code. [R902.4; R324.4.2]

Building-integrated photovoltaic products installed as the roof covering shall be tested, listed, and labeled for fire classification. [IRC R902.3, R324.5.2]

Building-integrated photovoltaic products installed as the roof covering shall comply with the minimum requirements for fire classification set by the jurisdiction. [IRC 902.1]

### Product Certifications

#### PV System
PV panels and modules shall be listed and labeled to UL 1703 and/or both UL 61730-1 and UL 61730-2 [NEC 690.4(B)][IRC R324.3.1]

Inverters shall be listed and labeled to UL 1741 [NEC 690.4(B)][IRC R324.3.1]

#### Hazard Control System
Hazard control system shall be listed and labeled to UL 3741 [NEC 90.7; 110.3(C); 690.4(B) 690.12(D)]
### Service Disconnect

**SOLAR PV SYSTEM IS EQUIPPED WITH RAPID SHUTDOWN**

| **TURN RAPID SHUTDOWN SWITCH TO THE “OFF” POSITION TO SHUT DOWN CONDUCTORS OUTSIDE THE ARRAY.** | **CONDUCTORS IN ARRAY REMAIN ENERGIZED IN SUNLIGHT.** |

Location: No more than 1 m (3 ft) away from the service disconnecting means.

Code: [NEC 690.56(C)(1)(a)]

### RSD Initiation Device

**RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM**

Location: Rapid shutdown initiation device.

Code: [NEC 690.56(C)(3)]

### Point of Interconnection

**WARNING:**

- **EQUIPMENT FED BY MULTIPLE SOURCES LOCATION OF DISCONNECTING MEANS**
- **DUAL POWER SOURCE SECOND SOURCE IS PV SYSTEM**

| (LAYOUT OR DESCRIPTION) | |

Location: At each service equipment location and at the location(s) of the system disconnect(s) for all electric power production sources capable of being interconnected.

Code: [NEC 705.10]
WARNING:
POWER SOURCE OUTPUT CONNECTION - DO NOT RELOCATE THIS OVERCURRENT DEVICE

Location: At back-feed breaker if using 120% rule (if applicable)

Code: [NEC 705.12(B)(2)(3)(b)]

WARNING:
THIS EQUIPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE, SHALL NOT EXCEED AMPACITY OF BUSBAR

Location: At distribution equipment adjacent to the back-fed breaker from the power source when using this "sum of breakers" code compliance rule.

Code: [NEC 705.12(B)(2)(3)(c)]

PHOTOVOLTAIC POINT OF INTERCONNECTION

MAXIMUM AC OPERATING CURRENT:

MAXIMUM AC OPERATING VOLTAGE:

Location: All interactive system(s) points of interconnection.

Code: [NEC 690.54]

DC Circuit Raceways and Enclosures

PHOTOVOLTAIC POWER SOURCE

Location: DC Circuit Raceways and Enclosures, conduit, and combiner/junction boxes.

Code: [NEC 690.31(G)(3)]

PV System Disconnect

WARNING:
ELECTRIC SHOCK HAZARD TERMINALS ON LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

Location: DC Disconnecting Means where terminals on both line and load side may remain energized. Example language or equivalent.

Code: [NEC 690.13(B)]
<table>
<thead>
<tr>
<th>DC String Inverters Equipment Disconnects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WARNING:</strong></td>
</tr>
<tr>
<td>ELECTRIC SHOCK HAZARD</td>
</tr>
<tr>
<td>TERMINALS ON THE LINE AND LOAD SIDES MAY</td>
</tr>
<tr>
<td>BE ENERGIZED IN THE OPEN POSITION</td>
</tr>
<tr>
<td>Location: Each PV system disconnecting means where line and load may be energized in the open position</td>
</tr>
<tr>
<td>Code: [NEC 690.13(B)]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PHOTOVOLTAIC DC DISCONNECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location: Each PV system disconnecting means.</td>
</tr>
<tr>
<td>Code: [NEC 690.13(B)]</td>
</tr>
</tbody>
</table>

| Maximum Voltage:                         |
| Maximum Circuit Current:                 |
| Maximum rated output current of the charge controller or dc-to-dc converter (if installed): |
| Location: At each DC PV system disconnecting means. |
| Code: [NEC 690.53]                       |
FIRE SAFETY CODE REQUIREMENTS

<table>
<thead>
<tr>
<th>Does the home have sprinkler systems?</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of Roof Area covered with PV</td>
<td>18.60%</td>
</tr>
<tr>
<td>Total Array Area / Total Roof Area</td>
<td></td>
</tr>
</tbody>
</table>

Roof Access and Ventilation Diagrams

**Ridge Setbacks**

PV Less Than 33% Roof Area (66% for homes with sprinkler systems)

![Ridge Setbacks Diagram](image1)

**Emergency Escape & Rescue Opening**

Minimum 3’ Emergency Escape Pathway

![Emergency Escape Pathway](image2)

**Hips and Valley Setbacks**

PV Less Than 33% Roof Area - Street Access (66% for homes with sprinkler systems)

![Street Access Diagram](image3)

PV Less Than 33% Roof Area - Driveway Access (66% for homes with sprinkler systems)

![Driveway Access Diagram](image4)
## General

### Project Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Title</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Homeowner's full name</td>
<td></td>
</tr>
</tbody>
</table>

Confirm that you have verified the homeowner's information and right to install on the property.

**AHJ**

**Project Type**

**Code Cycle**

**Scope of Work**

**PV System Size AC (kW)**

Confirm you have reviewed SolarAPP eligibility:

### Contractor Information

**Installation Applicability and Compliance**

All work will comply with the 2017 National Electrical Code (NFPA 70), the International Code Council 2018 I-Codes, Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE/SEI7-16), UL Standards, Manufacturer's instructions, and Municipal requirements.
Inspection Guidelines

The installer shall follow the manufacturer's instructions for all installed equipment and shall have them available at the time of inspection.

All wire sizes shown are, unless indicated otherwise, a minimum and the installer may upsize them at their discretion.

All OCPD ratings shown must match the inspection checklist exactly, any ratings that do not match the inspection checklist are valid reasons for inspection failure.

FIRE

I hereby affirm that I will comply with all requirements and guidelines as set out by the SolarAPP Fire Bulletin.

Does the home have sprinkler systems?

What is the total array area?

Total roof area

Percentage of Roof Area covered with PV

Total Array Area / Total Roof Area

See Fire Setback Diagram attached.
## General

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>The weight of the PV system in lbs/sq ft [IRC R301.4]</td>
<td></td>
</tr>
<tr>
<td>The ground snow load is [IRC Table R301.2(1)] [IRC Fig R301.2(6)]</td>
<td></td>
</tr>
<tr>
<td>Proposed maximum spacing in inches between adjacent attachment points of the</td>
<td></td>
</tr>
<tr>
<td>mounting system</td>
<td></td>
</tr>
<tr>
<td>Will attachment points of the mounting system be staggered?</td>
<td></td>
</tr>
<tr>
<td>The number of roof surfaces at different slopes and/or orientations that</td>
<td></td>
</tr>
<tr>
<td>will be used for installation are:</td>
<td></td>
</tr>
<tr>
<td>Note: 1 means all roofs used have the same orientation.</td>
<td></td>
</tr>
<tr>
<td>Type of mounting for the PV system</td>
<td></td>
</tr>
</tbody>
</table>

## Mounting Planes

### Mounting Plane Type 1

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum distance from the module backsheet to the roof</td>
<td></td>
</tr>
<tr>
<td>The current roof covering is [IRC Section R905]</td>
<td></td>
</tr>
<tr>
<td>The pitch of the roof surface is [IRC Section R905]</td>
<td></td>
</tr>
</tbody>
</table>

## Wind Speed

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the solar module and mounting system rated by the manufacturer to</td>
<td></td>
</tr>
<tr>
<td>withstand the upward force of the local wind speed (0 MPH) and evenly</td>
<td></td>
</tr>
<tr>
<td>distribute load into the supporting structure at the proposed maximum</td>
<td></td>
</tr>
<tr>
<td>spacing, and confirmed in UL 1703 or 61730 (Part 1 &amp; 2), and 2703 listings?</td>
<td></td>
</tr>
<tr>
<td>[IRC R324.4.1.2; R324.3.1]</td>
<td></td>
</tr>
</tbody>
</table>
### Roof Condition

Does the roof structure appear to be structurally sound, without signs of alterations or significant structural deterioration or sagging?

### ELECTRICAL DETAILS

#### Equipment

Architecture type used for all inverters in this project

#### Inverter 1

<table>
<thead>
<tr>
<th>Inverter 1 Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Datasheet for Inverter 1: See attached. [NEC 90.7; 110.3(C)][IRC R106.1]

<table>
<thead>
<tr>
<th>Inverter 1 Manufacturer:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Is Inverter 1 UL 1741 listed? [NEC 110.3(C); 690.4(B)][IRC R324.3.1]

#### Modules

<table>
<thead>
<tr>
<th>Module 1 Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Datasheet for Module 1: See attached. [NEC 90.7; 110.3(C)][IRC R106.1]

<table>
<thead>
<tr>
<th>Module 1 Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
### Modules

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is Module 1 UL 1703 or UL 61730 (Part 1 &amp; 2) listed?</td>
<td></td>
</tr>
<tr>
<td>Module 1 quantity</td>
<td></td>
</tr>
<tr>
<td>Module open circuit voltage with record low temperature correction</td>
<td></td>
</tr>
<tr>
<td>Module short circuit current with average high temperature correction</td>
<td></td>
</tr>
</tbody>
</table>

### Racking System

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Racking System Model Number</td>
<td></td>
</tr>
<tr>
<td>Datasheet for Racking System: See attached. [NEC 90.7; 110.3(C)][IRC R106.1]</td>
<td></td>
</tr>
<tr>
<td>Racking System Manufacturer</td>
<td></td>
</tr>
<tr>
<td>Is the Racking System UL 2703 listed for grounding and bonding with the PV module models specified in this SolarAPP project? [NEC 90.7; 110.3(C); 690.43(A)][IRC R324.4.2; R902.4]</td>
<td></td>
</tr>
<tr>
<td>The combination of modules and racking system shall have the same fire classification as the roof assembly. [IRC R324.4.2; R902.4]</td>
<td></td>
</tr>
<tr>
<td>Name/description of roof penetration sealant method to be used.</td>
<td></td>
</tr>
<tr>
<td>Datasheet for sealant method: See attached.</td>
<td></td>
</tr>
<tr>
<td>You have agreed to install the sealant method per the manufacturer's instructions for the means of accomplishing weather proofing [IRC R324.4.3]</td>
<td></td>
</tr>
</tbody>
</table>

### Rapid Shutdown

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Site Conditions

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient Dry Bulb Extreme Record Low Temperature (°C) [690.7(A)]</td>
<td></td>
</tr>
<tr>
<td>Ambient Dry Bulb Average High Temperature (°C)</td>
<td></td>
</tr>
<tr>
<td>Single Phase Grid Voltage</td>
<td></td>
</tr>
</tbody>
</table>

### Installation Details

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there an existing Utility interactive power production source connected to the home's electric service?</td>
<td></td>
</tr>
<tr>
<td>Are DC and AC conductors copper, Class B or Class C, and THWN-2, NM, USE-2, PV Wire, or jacketed multiconductor cable assembly listed and identified for the application? [NEC 690.8(B); 690.31 (A) &amp; (C), 310.15(A) and (B)]</td>
<td></td>
</tr>
<tr>
<td>Are all rooftop conduits mounted at least 7/8&quot; above the roof surface [NEC 310.15(B)(3)(c)]:</td>
<td></td>
</tr>
<tr>
<td>Are all PV Source Circuit conductors installed without raceway listed as PV Wire or USE-2? [NEC 690.31(C)]</td>
<td></td>
</tr>
<tr>
<td>Are all power terminals rated to 75°C or greater, labeled for use with Copper Class B or Class C wires, and accept at least 8 AWG wire? [NEC 110.14]</td>
<td></td>
</tr>
<tr>
<td>Where Equipment Grounding Conductors (EGC) are not routed with circuit conductors, EGC is a minimum of 6 AWG or it's protected from physical damage [250.120(C)]</td>
<td></td>
</tr>
<tr>
<td>DC strings EGC is a minimum of 10 AWG</td>
<td></td>
</tr>
<tr>
<td>Module voltage and current DC specifications fall within allowable range of connected equipment</td>
<td></td>
</tr>
</tbody>
</table>
All equipment is listed for the application, rated equal to or greater than the connected overcurrent device and installed per the manufacturer's instructions. Documentation shall be provided at time of inspection.

### String Inverter with DC-DC Converters

#### Maximum PV Source Circuit Voltage

<table>
<thead>
<tr>
<th>Max quantity modules in DC series string:</th>
</tr>
</thead>
</table>

Does the quantity of series connected DC-DC converters exceed the manufacturer's instructions to ensure a maximum string voltage of 600V?

DC-DC converter manufacturer

DC-DC converter Model Number

Module open circuit voltage is below the DC-DC converter maximum DC input voltage. The maximum DC input voltage for the equipment in question is

Module short circuit current is below the DC-DC converter maximum DC input current. The maximum DC input current for the equipment in question is

Datasheet for DCDC converter See attached.

#### PV Source Circuit

PV module series strings from solar arrays to the PV inverter are combined in parallel

See Table 6 for selection of the minimum DC wire size.

Input maximum number of current carrying PV Wire or USE-2 conductors in raceway

Input maximum number of current carrying THWN-2 conductors in raceway

The minimum DC THWN-2 wire size is based on the Table 6 below.
### PV Source Circuit

#### Table 6 [NEC Table 310.15(B)(3)(a); Table 310.15(B)(2)(b); Table 310.15(B)(16); 690.8(A)(1); 690.8(B)]

<table>
<thead>
<tr>
<th>Current Carrying Conductors (CCC) in raceway</th>
<th>Site Average High Temperature</th>
<th>2 series strings in parallel</th>
<th>Single series string</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;=3 CCC</td>
<td>&lt;= 35</td>
<td>10 AWG</td>
<td>12 AWG</td>
</tr>
<tr>
<td></td>
<td>&lt;= 40</td>
<td>10 AWG</td>
<td>12 AWG</td>
</tr>
<tr>
<td></td>
<td>&lt;= 45</td>
<td>10 AWG</td>
<td>12 AWG</td>
</tr>
<tr>
<td></td>
<td>&lt;= 50</td>
<td>10 AWG</td>
<td>12 AWG</td>
</tr>
<tr>
<td>4 - 6 CCC</td>
<td>&lt;= 35</td>
<td>10 AWG</td>
<td>12 AWG</td>
</tr>
<tr>
<td></td>
<td>&lt;= 40</td>
<td>8 AWG</td>
<td>12 AWG</td>
</tr>
<tr>
<td></td>
<td>&lt;= 45</td>
<td>8 AWG</td>
<td>12 AWG</td>
</tr>
<tr>
<td></td>
<td>&lt;= 50</td>
<td>8 AWG</td>
<td>12 AWG</td>
</tr>
<tr>
<td>7 - 9 CCC</td>
<td>&lt;= 35</td>
<td>8 AWG</td>
<td>12 AWG</td>
</tr>
<tr>
<td></td>
<td>&lt;= 40</td>
<td>8 AWG</td>
<td>12 AWG</td>
</tr>
<tr>
<td></td>
<td>&lt;= 45</td>
<td>8 AWG</td>
<td>12 AWG</td>
</tr>
<tr>
<td></td>
<td>&lt;= 50</td>
<td>8 AWG</td>
<td>12 AWG</td>
</tr>
</tbody>
</table>

#### Inverter Output Circuit

See Table 3 below for selection of minimum Inverter output wire size and inverter output overcurrent protection size.

Inverter 1: Inverter Continuous Output Current = Power / Site Voltage:

<table>
<thead>
<tr>
<th>Continuous Output Current</th>
<th>12.5</th>
<th>16.5</th>
<th>20.5</th>
<th>24.5</th>
<th>28.5</th>
<th>32.5</th>
<th>36.5</th>
<th>40.5</th>
<th>48.5</th>
<th>56.5</th>
<th>64.5</th>
<th>72.5</th>
<th>80.5</th>
<th>88.5</th>
<th>100.5</th>
<th>120.5</th>
<th>140.5</th>
<th>160.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCPD amperage size</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>35</td>
<td>40</td>
<td>45</td>
<td>50</td>
<td>60</td>
<td>70</td>
<td>80</td>
<td>90</td>
<td>100</td>
<td>110</td>
<td>125</td>
<td>150</td>
<td>175</td>
<td>200</td>
</tr>
<tr>
<td>AWG wire size for &lt;=3 CCC</td>
<td>12</td>
<td>12</td>
<td>10</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1/0</td>
<td>2/0</td>
<td>3/0</td>
</tr>
<tr>
<td>in raceway</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AWG wire size for 4 - 6 CCC</td>
<td>12</td>
<td>12</td>
<td>10</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1/0</td>
<td>2/0</td>
<td>3/0</td>
</tr>
<tr>
<td>in raceway</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AWG wire size for 7 - 9 CCC</td>
<td>12</td>
<td>12</td>
<td>10</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1/0</td>
</tr>
<tr>
<td>in raceway</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NM wire</td>
<td>12</td>
<td>12</td>
<td>10</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1/0</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

[240.4(D); Table 310.15(B)(3)(a); Table 310.15(B)(2)(b); Table 310.15(B)(16); 690.8; 690.9; 705.30; 220.5 (B)]

Inverter 1 - See Table 3 for the minimum Overcurrent Protection Device rating. [NEC 690.9(A); 690.9(B); Table 240.6(A)]

Inverter 1 Overcurrent Protection Device rating [NEC 690.9(A); 690.9(B)]

Input maximum number of AC current carrying THWN-2 conductors in raceway:

Inverter 1 - See Table 3 for selection of the AC wire size in raceway
Grounding & Bonding

See Table 5 for selection of Equipment Grounding Conductor wire gauge.

Inverter 1 - Equipment Grounding Conductor (EGC) based on overcurrent protective device:

<table>
<thead>
<tr>
<th>OCPD rating (amperes)</th>
<th>EGC wire gauge (AWG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;= 15</td>
<td>14</td>
</tr>
<tr>
<td>&lt;= 20</td>
<td>12</td>
</tr>
<tr>
<td>&lt;= 30</td>
<td>10</td>
</tr>
<tr>
<td>&lt;= 40</td>
<td>10</td>
</tr>
<tr>
<td>&lt;= 60</td>
<td>10</td>
</tr>
<tr>
<td>&lt;= 100</td>
<td>8</td>
</tr>
<tr>
<td>&lt;= 200</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 5 [NEC Table 250.122]  

New Panelboard for Relocated Loads

Will a new subpanel be installed with existing loads relocated into the new subpanel?

Equipment Point of Interconnection

Point of Connection

125% of the sum of power production sources continuous output current.

At the time of inspection, it will be verified that if connected equipment is NOT within line of sight or closer than 10ft to the point of interconnection, disconnect or isolation means are installed. [NEC 690.15 (A)]

Point of Connection at Subpanel

Existing Subpanel

Will power production inverter outputs be connected directly to an existing subpanel?

Point of Connection at Main Panel
Main Service Panel

Main Bus Ampere Rating

Main Breaker/Service Disconnect Ampere Rating

What is the Utility service feed rated for?

Since no connection was indicated at a subpanel or at a subpanel feeder, power production sources are connected either directly to the main service panel or in a Supply Side Connection.

Point of Connection at Subpanel Feeders

Load Side Tap

Power production sources are connected to a subpanel feeder. A subpanel feeder connection, may be a connection directly to a conductor, or using lug terminations in equipment such as an Microgrid Interconnection Device (MID). [NEC 705.12 (B) (2) (1) (a); 705.12 (B) (2) (1) (b)]

Interconnection at Main Service Panel

120% Rule

Where two sources, one a primary power source and the other another power source, are located at opposite ends of a busbar that contains loads, the sum of 125 percent of the power source(s) output circuit current and the rating of the overcurrent device protecting the busbar shall not exceed 120 percent of the ampacity of the busbar. 705.12(B)(2)(3)(b)

Point of Connection

WORKERS' COMP

By applying for this permit, you represent and warrant that you have (and will have during the performance of the work) all valid approvals, certifications, and licenses required for the performance of the work for which this permit is issued, (ii) carry (and will carry during the performance of the work) all necessary insurance required by law or governmental authority in the jurisdiction and (iii) will comply with all applicable laws required in the performance of the work.
### System

**New Rooftop Residential Retrofit PV Systems**

- Installed by contractor with all licenses required by jurisdiction

### Electrical

**Applicable National Electric Code**

- 600V Max per DC System Size
- Single phase only
- No Aluminum Wires
- Must use 600V rated PV wire (due to outer diameter > 0.24" (6.1mm))
- Must use 90 deg C rated insulated wire
- Max 2 DC strings in parallel
- Max 9 current carrying conductors in a raceway
- Inverter output circuit conductors must be THWN-2, or listed NM
- Terminals must be rated to 75 deg C, labeled for use with Cu wires, and accept minimum 8 AWG wire

**If using microinverter, 1 module per microinverter**

- Whenever used, microinverters or AC Modules must be rated for a 20A branch circuit overcurrent device
- Permitted to install on up to or equal to 400A Service
- Permitted to install on up to or equal to 225A Service Disconnect
- Permitted to install on up to or equal to 225A busbars
- No existing PV or ESS
- May install only 1 module type
- May install up to 2 Inverters for String Inverters, up to 1 inverter type for Micro-inverters and AC modules Systems
- Conduit may not be Schedule 80 PVC
- Single Family Dwelling Only
- Modules and Inverters must be listed on CEC
- Rapid Shutdown cannot be satisfied using the method: No exposed wiring or conductive parts [690.12(B)(2)(3)]
- No trenching allowed
- All power production inverter outputs have the same point of connection
- All equipment is assumed to be non-continuous rated
- May install only 1 racking system type
- Height of rooftop conduit ≥ 7/8”
- Flat Plate PV Modules Only

### Structural

**Applicable International Residential Code**

- PV system + hardware weight is less than or equal to 4psf
- No ground mounted systems
- No carports or non-permanent structures
- Installed on a permitted structure
- No wood shake or wood shingle roofing
- Limit of 10” above the roof for pitched (>2/12) roof systems
- No metal roof or low-slope roof in areas with > 15psf snow load

### Fire

**Applicable International Residential Code**