



City of Campbell

Community Development – Building Division

70 N. First Street, Campbell, CA 95008

Phone: (408)866-2130 Inspections: (408)866-2706

GENERAL INFORMATION FOR RESIDENTIAL ROOF MOUNTED SOLAR PHOTOVOLTAIC SYSTEM

This submittal checklist can be used to determine and verify completeness of a solar photovoltaic permit application per the 2016 CRC Section R907, R909 and R918 and 2016 CEC Article 690. Upon verification of a complete submittal package, please submit **four (4) single-sided sets of plans (minimum sheet size is 11"x17")** and supporting documents to the Building Department for review and approval.

APPLICATION SUBMITTAL INFORMATION		COMPLETED BY STAFF	
		REQUIRED (CHECK)	PROVIDED (CHECK)
SUPPORTING DOCUMENTS	Provide two (2) copies structural calculations, prepared by a registered California design professional for roof-mounted systems if the total weight of the PV system is over five (5) pounds per square foot or if the maximum height above the roof surface exceeds 18 inches; or if the total height of the PV system exceeds five feet in height for ground-mounted systems.	<input type="checkbox"/>	<input type="checkbox"/>
	Manufacturer's Specifications for all equipment	<input type="checkbox"/>	<input type="checkbox"/>
COVER SHEET	Name of property owner	<input type="checkbox"/>	<input type="checkbox"/>
	Address of property owner	<input type="checkbox"/>	<input type="checkbox"/>
	Scope of work documented on the plans	<input type="checkbox"/>	<input type="checkbox"/>
	Is this building sprinklered? Yes <input type="checkbox"/> No <input type="checkbox"/>		
	Project Data (including Assessor's Parcel Number, use of building, construction type, number of stories, etc)	<input type="checkbox"/>	<input type="checkbox"/>
SITE PLAN	Site plan including property boundaries and North arrow clearly identifying the location of the PV installation.	<input type="checkbox"/>	<input type="checkbox"/>
	Site Plan shall indicate location of electrical service, combiner box, inverter, a/c & d/c disconnects, junction boxes and battery banks.	<input type="checkbox"/>	<input type="checkbox"/>
	Site Plan for Ground-mounted systems shall identify all structures on property, topography of site, driveway access from street, easements, site utilities, septic system with leach lines, etc.	<input type="checkbox"/>	<input type="checkbox"/>
	Contractor to calculate square footage of array(s) and % of roof covered by array(s)	<input type="checkbox"/>	<input type="checkbox"/>
	Building elevation showing doors and windows in relation to roof access	<input type="checkbox"/>	<input type="checkbox"/>
CONSTRUCTION PLANS	Roof Mount:	<input type="checkbox"/>	<input type="checkbox"/>
	Provide Roof Plan indicating location and total coverage (area) of PV array. Roof plan shall show adequate access and pathways based on the Solar Photovoltaic Installation Guide by the State Fire Marshal's Office and CalFire:	<input type="checkbox"/>	<input type="checkbox"/>
	Provide Partial Roof Framing Plan identifying size and spans of framing members that support the PV system.	<input type="checkbox"/>	<input type="checkbox"/>
	Provide details indicating attachment of PV modules to roof framing. Verify method of waterproofing and flashing.	<input type="checkbox"/>	<input type="checkbox"/>
	Ground Mount:	<input type="checkbox"/>	<input type="checkbox"/>

	Foundation Plan with foundation details referenced to applicable details.	<input type="checkbox"/>	<input type="checkbox"/>
ELECTRICAL PLANS	Electrical single-line diagram clearly identifying all devices installed in the PV system and indicating total kVA rating of system. 1) Array wiring identified 2) Combiner/junction box identified 3) Equipment grounding specified 4) Disconnect specified 5) Inverter specified 6) System grounding specified	<input type="checkbox"/>	<input type="checkbox"/>
	If the existing main panel is 125amps or less-submit a household electrical demand worksheet.	<input type="checkbox"/>	<input type="checkbox"/>
	Clearly identify the point of interconnection with the utility supplied wiring system and provide details on main breaker, PV breaker and rating of bussing.	<input type="checkbox"/>	<input type="checkbox"/>
	Indicate type and size of all conduit and conductors throughout the PV system.	<input type="checkbox"/>	<input type="checkbox"/>
	Provide typical detail of signage. Signage should be a phenolic plaque with contrasting colors between the text and background to meet the intent of the code for permanency. No type size is specified, but 20 point (3/8") should be considered the minimum. Warning signs or labels shall comply with 2016 CEC Art. 110.21(B).	<input type="checkbox"/>	<input type="checkbox"/>
	Identify location of service disconnecting means and PV system disconnect (for PV systems connected to utility services). Plans shall indicate that the inverter disconnects are to be a separate component and serviceable. And, if applicable, plans shall identify the building or area to be served.	<input type="checkbox"/>	<input type="checkbox"/>
	Identify the DC array solar panel Voc and Isc rating on plans.	<input type="checkbox"/>	<input type="checkbox"/>
GENERAL NOTES (ADD NOTES TO PLANS)	The installation of the PV system shall conform to the requirements of 2016 CRC R324.1 through R324.7.2.7 and 2016 CEC Article 690 and Article 705 and any other applicable articles or standards.*	<input type="checkbox"/>	<input type="checkbox"/>
	Installation shall be provided by a California Licensed Contractor (B, C-46 or C-10)	<input type="checkbox"/>	<input type="checkbox"/>
	Buildings with standalone systems shall have a placard indicating that it is a standalone system and shall show the location of the disconnecting means or; Buildings with utility services and a PV system shall have a plaque or directory indicating the location of the service disconnecting means and the PV system disconnecting means.	<input type="checkbox"/>	<input type="checkbox"/>
	Any solar structure that requires variation from the setback or height restriction where the strict application of applicable development standards would prohibit or severely limit solar access, the community development director may approve minimum adjustments to the standards necessary to achieve an adequate level of solar access (per C.M.C. Section 21.36.220)	<input type="checkbox"/>	<input type="checkbox"/>

NOTE: All drawings must be signed by the person preparing them. All work shall comply with the 2016 California Residential Code and the 2016 California Electrical Code, Article 690.

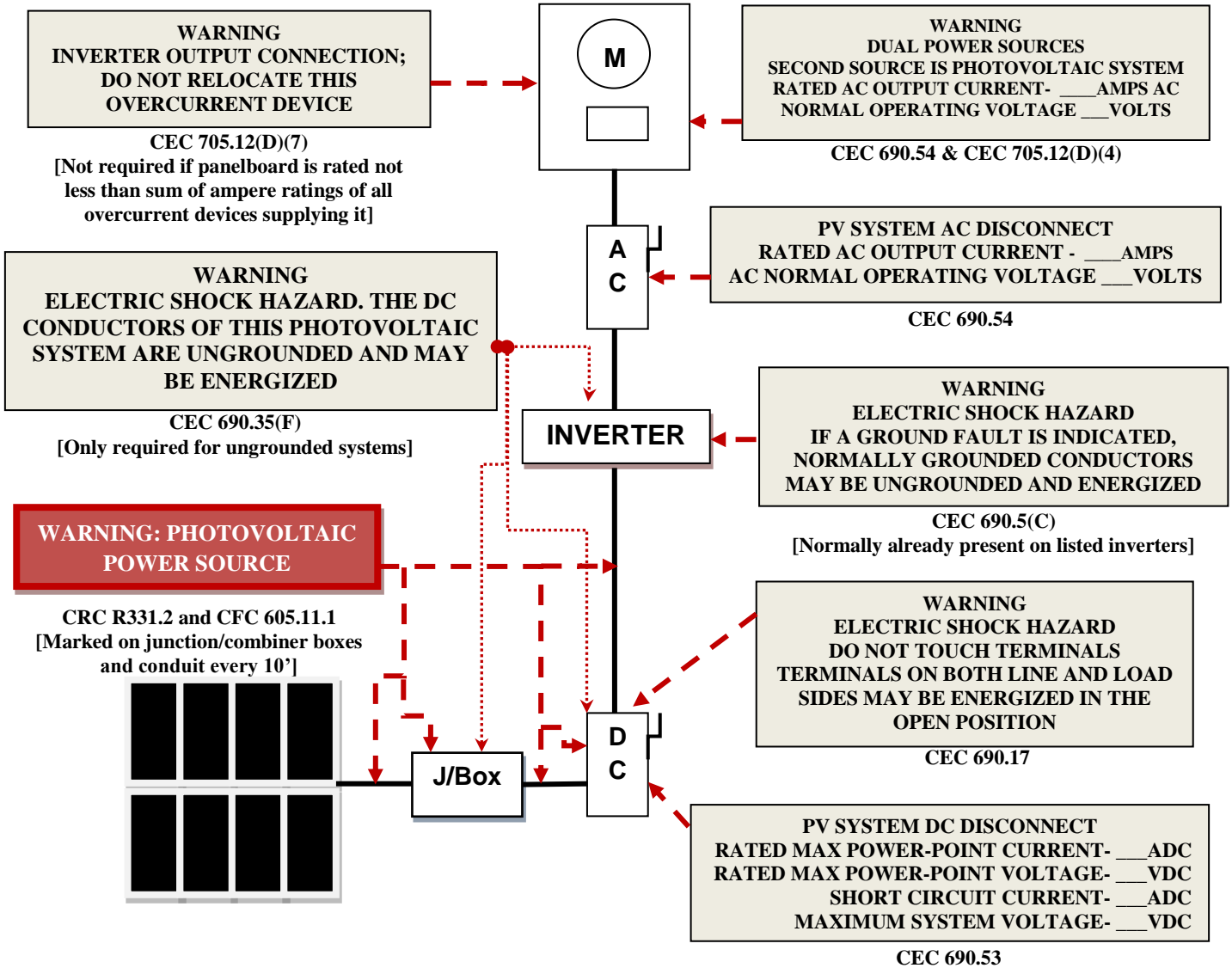
PROJECT INFORMATION

SITE ADDRESS:	APN	DATE
OWNER NAME	OWNER PHONE	

Solar PV Standard Plan – Simplified Central/String Inverter Systems for One- and Two-Family Dwellings

Markings

CEC Articles 690 and 705 and CRC Section R331 require the following labels or markings be installed at these components of the photovoltaic system:



Code Abbreviations:

- California Electrical Code (CEC)
- California Residential Code (CRC)
- California Fire Code (CFC)

Informational note: ANSI Z535.4 provides guidelines for the design of safety signs and labels for application to products. A phenolic plaque with contrasting colors between the text and background would meet the intent of the code for permanency. No type size is specified, but 20 point (3/8") should be considered the minimum.

CEC 705.12 requires a permanent plaque or directory denoting all electric power sources on or in the premises.

Solar PV Standard Plan – Simplified Central/String Inverter System for One- and Two-Family Dwellings

△ TAG	DESCRIPTION
1	SOLAR PV MODULE / STRING
2	DC/DC CONVERTERS INSTALLED? YES / NO (IF YES, STEPS 6 & 8 REQUIRED)
3	SOURCE CIRCUIT JUNCTION BOX INSTALLED?: YES / NO
4	SEPARATE DC DISCONNECT INSTALLED?: YES / NO
5	INTERNAL INVERTER DC DISCONNECT: YES / NO
6	CENTRAL INVERTER
7	LOAD CENTER INSTALLED?: YES / NO
8	PV PRODUCTION METER INSTALLED?: YES / NO
9	*SEPARATE AC DISCONNECT INSTALLED?: YES / NO
10	CONNECT TO INVERTER #2 (USE LINE DIAGRAM 2)

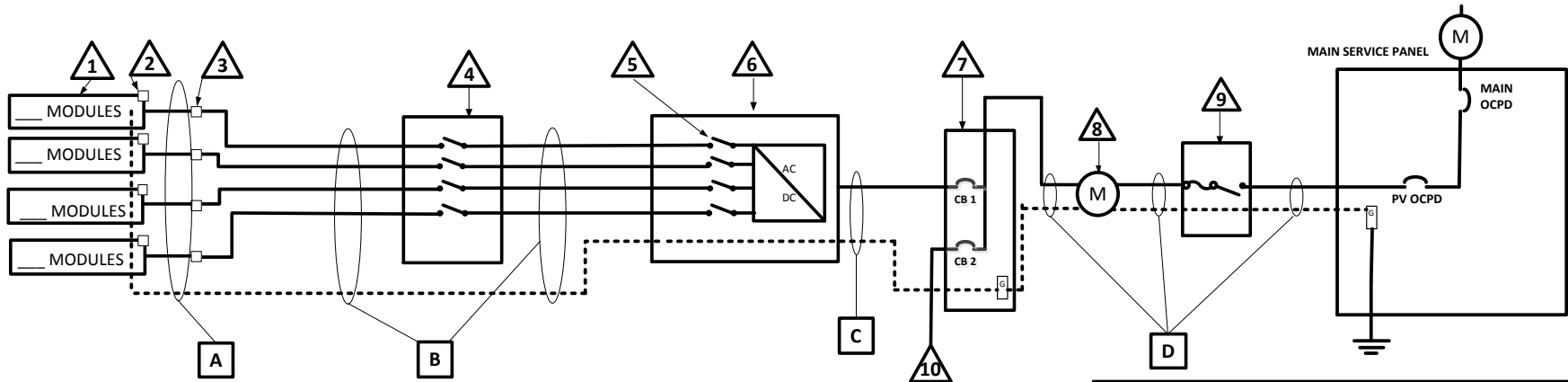
* Consult with your local AHJ and /or Utility

SINGLE-LINE DIAGRAM #1 – NO STRINGS COMBINED PRIOR TO INVERTER

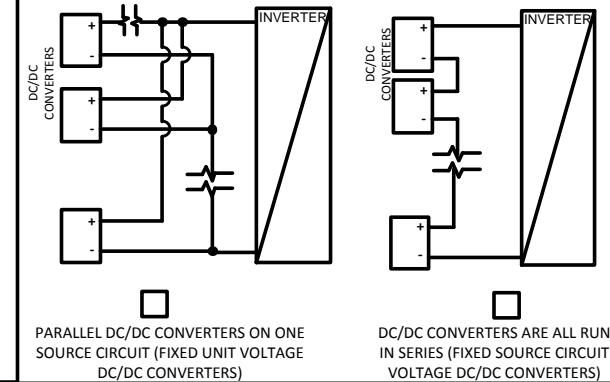
CHECK A BOX FOR WHETHER SYSTEM IS GROUNDED OR UNGROUNDED: GROUNDED (INCLUDE GEC) UNGROUNDED

FOR UNGROUNDED SYSTEMS:

- DC OCPD MUST DISCONNECT BOTH CONDUCTORS OF EACH SOURCE CIRCUIT
- UNGROUNDED CONDUCTORS MUST BE IDENTIFIED PER 210.5(C). WHITE-FINISHED CONDUCTORS ARE NOT PERMITTED.



IF DC/DC CONVERTERS ARE USED, CHECK THE BOX BELOW THE CORRESPONDING CONFIGURATION



CONDUCTOR/CONDUIT SCHEDULE					
□ TAG	DESCRIPTION AND CONDUCTOR TYPE	CONDUCTOR SIZE	NUMBER OF CONDUCTORS	CONDUIT/CABLE TYPE	CONDUIT SIZE
A	USE-2 <input type="checkbox"/> OR PV-WIRE <input type="checkbox"/>				
	EGC/GEC:				
B					
	EGC/GEC:				
C					
	EGC/GEC:				
D					
	EGC/GEC:				

ENTER "N/A" WHERE SUITABLE FOR WHEN NOT USING CONDUIT OR CABLE AS PERMITTED BY CODE

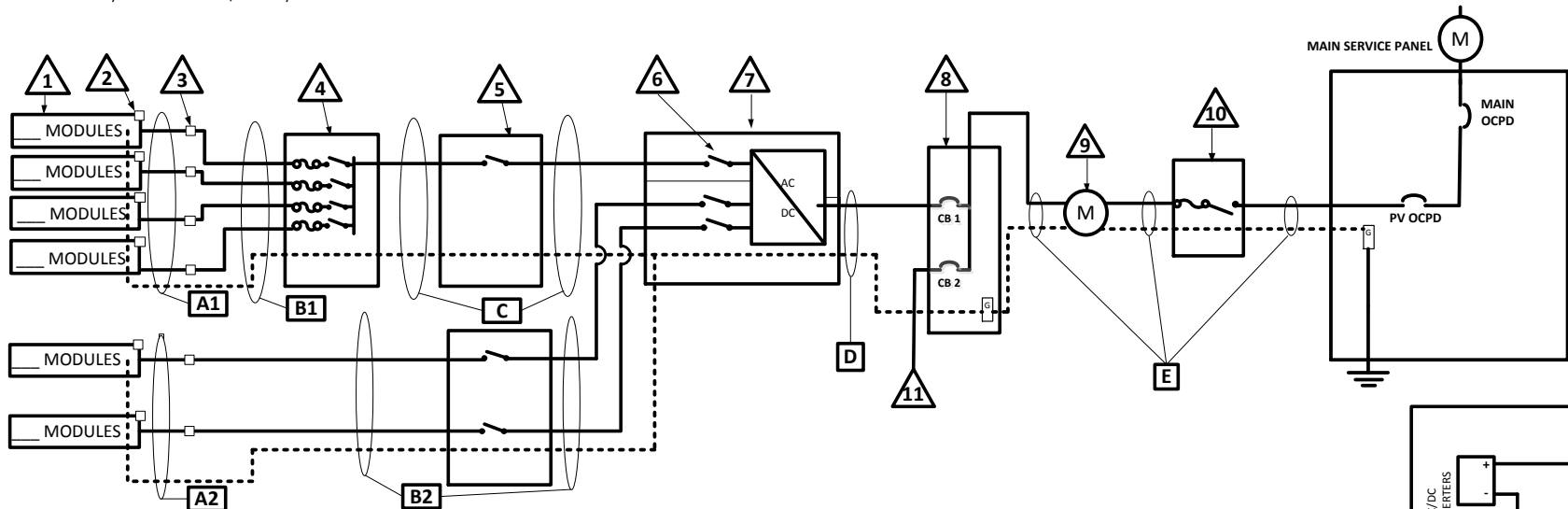
Solar PV Standard Plan – Simplified Central/String Inverter System for One- and Two-Family Dwellings

△ TAG	DESCRIPTION
1	SOLAR PV MODULE / STRING
2	DC/DC CONVERTERS INSTALLED? YES / NO (IF YES, STEPS 6 & 8 REQUIRED)
3	SOURCE CIRCUIT JUNCTION BOX INSTALLED?: YES / NO
4	COMBINER BOX (STEPS 11 & 12 REQUIRED)
5	SEPARATE DC DISCONNECT INSTALLED?: YES / NO
6	INTERNAL INVERTER DC DISCONNECT: YES / NO
7	CENTRAL INVERTER
8	LOAD CENTER INSTALLED?: YES / NO
9	PV PRODUCTION METER INSTALLED?: YES / NO
10	*SEPARATE AC DISCONNECT INSTALLED?: YES / NO
11	CONNECT TO INVERTER #2 (USE LINE DIAGRAM 4)

* Consult with your local AHJ and /or Utility

SINGLE-LINE DIAGRAM #2 – COMBINING STRINGS PRIOR TO INVERTER

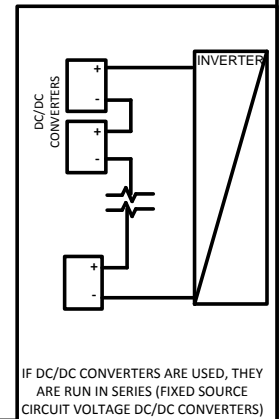
- CHECK A BOX FOR WHETHER SYSTEM IS GROUNDED OR UNGROUNDED: GROUNDED (INCLUDE GEC) UNGROUNDED
- FOR UNGROUNDED SYSTEMS:
 - DC OCPD MUST DISCONNECT BOTH CONDUCTORS OF EACH SOURCE CIRCUIT
 - UNGROUNDED CONDUCTORS MUST BE IDENTIFIED PER 210.5(C). WHITE-FINISHED CONDUCTORS ARE NOT PERMITTED.



COMBINER CONDUCTOR/CONDUIT SCHEDULE					
□ TAG	DESCRIPTION AND CONDUCTOR TYPE	CONDUCTOR SIZE	NUMBER OF CONDUCTORS	CONDUIT/CABLE TYPE	CONDUIT SIZE
A1	USE-2 <input type="checkbox"/> OR PV-WIRE <input type="checkbox"/>				
	EGC/GEC:				
B1					
	EGC/GEC:				
C					
	EGC/GEC:				
D					
	EGC/GEC:				
E					
	EGC/GEC:				

NON-COMBINED STRINGS CONDUCTOR/CONDUIT SCHEDULE (IF APPLICABLE)					
□ TAG	DESCRIPTION AND CONDUCTOR TYPE	CONDUCTOR SIZE	NUMBER OF CONDUCTORS	CONDUIT/CABLE TYPE	CONDUIT SIZE
A2	USE-2 <input type="checkbox"/> OR PV-WIRE <input type="checkbox"/>				
	EGC/GEC:				
B2					
	EGC/GEC:				

ENTER "N/A" WHERE SUITABLE FOR WHEN NOT USING CONDUIT OR CABLE AS PERMITTED BY CODE



Solar PV Standard Plan – Simplified

Central/String Inverter System for One- and Two-Family Dwellings

△ TAG	DESCRIPTION
1	SOLAR PV MODULE / STRING
2	DC/DC CONVERTERS INSTALLED? YES / NO (IF YES, STEPS 6 & 8 REQUIRED)
3	SOURCE CIRCUIT JUNCTION BOX INSTALLED?: YES / NO
4	SEPARATE DC DISCONNECT INSTALLED?: YES / NO
5	INTERNAL INVERTER DC DISCONNECT: YES / NO
6	CENTRAL INVERTER
7	*SEPARATE AC DISCONNECT INSTALLED?: YES / NO
8	TO LOAD CENTER ON LINE DIAGRAM 1

* Consult with your local AHJ and /or Utility

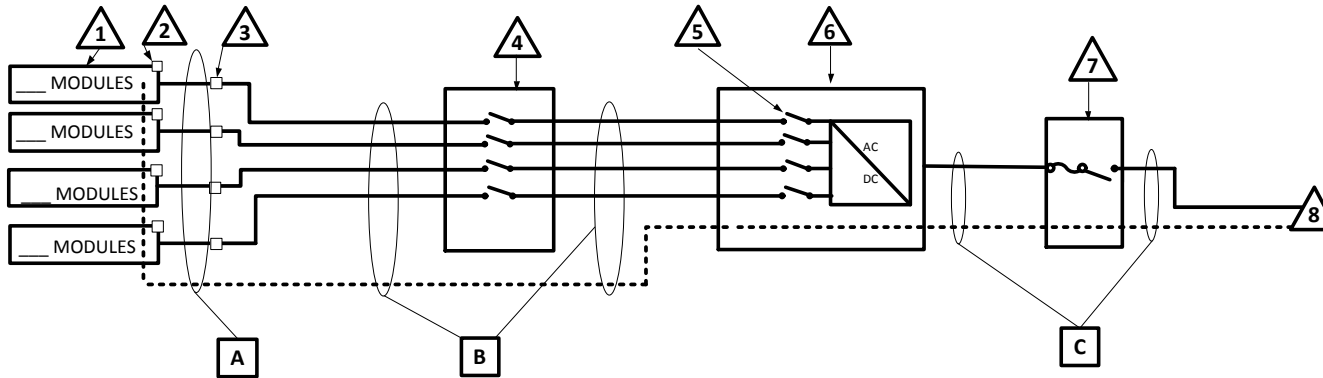
SINGLE-LINE DIAGRAM #3 – ADDITIONAL INVERTER FOR DIAGRAM #1

INVERTER # 2

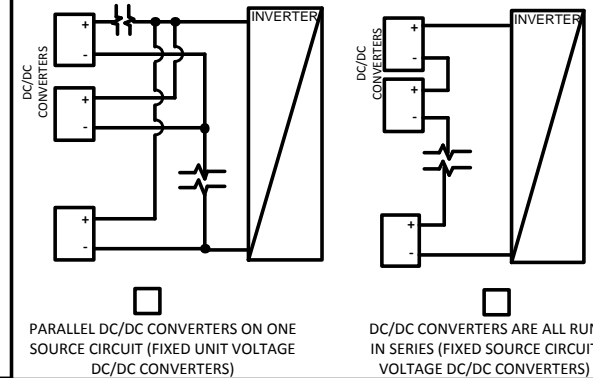
CHECK A BOX FOR WHETHER SYSTEM IS GROUNDED OR UNGROUNDED: GROUNDED (INCLUDE GEC) UNGROUNDED

FOR UNGROUNDED SYSTEMS:

- DC OCPD MUST DISCONNECT BOTH CONDUCTORS OF EACH SOURCE CIRCUIT
- UNGROUNDED CONDUCTORS MUST BE IDENTIFIED PER 210.5(C). WHITE-FINISHED CONDUCTORS ARE NOT PERMITTED.



IF DC/DC CONVERTERS ARE USED, CHECK THE BOX BELOW THE CORRESPONDING CONFIGURATION



ENTER "N/A" WHERE SUITABLE FOR WHEN NOT USING CONDUIT OR CABLE AS PERMITTED BY CODE

CONDUCTOR/CONDUIT SCHEDULE

<input type="checkbox"/> TAG	DESCRIPTION AND CONDUCTOR TYPE	CONDUCTOR SIZE	NUMBER OF CONDUCTORS	CONDUIT/CABLE TYPE	CONDUIT SIZE
A	USE-2 <input type="checkbox"/> OR PV-WIRE <input type="checkbox"/>				
	EGC/GEC:				
B					
	EGC/GEC:				
C					
	EGC/GEC:				

Solar PV Standard Plan – Simplified Central/String Inverter System for One- and Two-Family Dwellings

△ TAG	DESCRIPTION
1	SOLAR PV MODULE / STRING
2	DC/DC CONVERTERS INSTALLED? YES / NO (IF YES, STEPS 6 & 8 REQUIRED)
3	SOURCE CIRCUIT JUNCTION BOX INSTALLED?: YES / NO
4	COMBINER BOX (STEPS 11 & 12 REQUIRED)
5	SEPARATE DC DISCONNECT INSTALLED?: YES / NO
6	INTERNAL INVERTER DC DISCONNECT: YES / NO
7	CENTRAL INVERTER
8	*SEPARATE AC DISCONNECT INSTALLED?: YES / NO
9	TO LOAD CENTER ON LINE DIAGRAM 3

* Consult with your local AHJ and /or Utility

SINGLE-LINE DIAGRAM #4 – ADDITIONAL INVERTER FOR DIAGRAM #2

INVERTER # 2

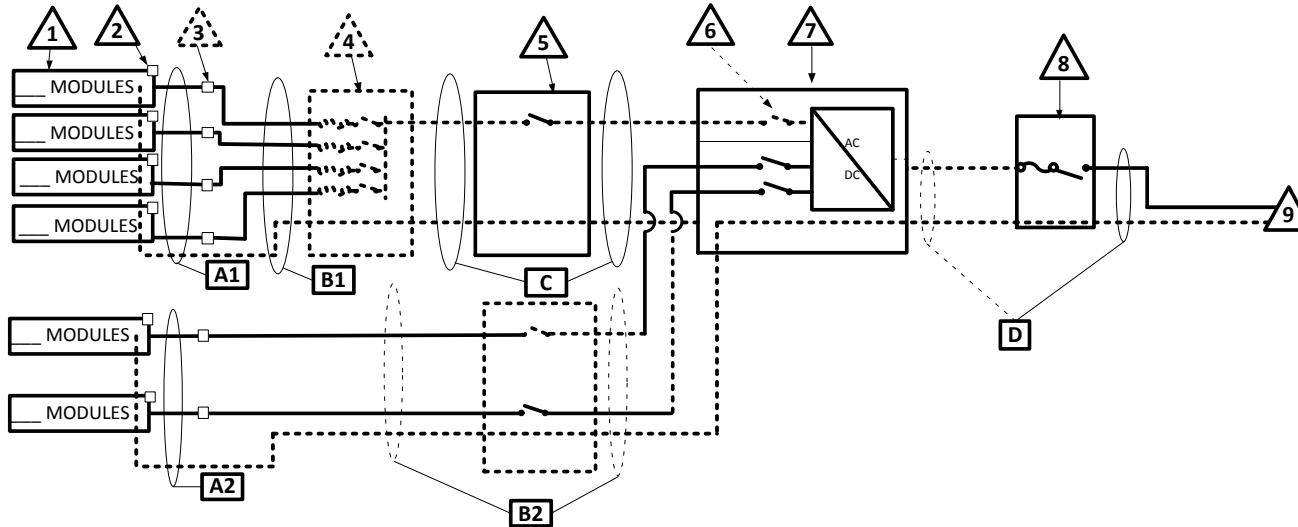
CHECK A BOX FOR WHETHER SYSTEM IS GROUNDED OR UNGROUNDED: GROUNDED (INCLUDE GEC)

UNGROUNDED

FOR UNGROUNDED SYSTEMS:

- DC OCPD MUST DISCONNECT BOTH CONDUCTORS OF EACH SOURCE CIRCUIT

- UNGROUNDED CONDUCTORS MUST BE IDENTIFIED PER 210.5(C). WHITE-FINISHED CONDUCTORS ARE NOT PERMITTED.



COMBINER CONDUCTOR/CONDUIT SCHEDULE

<input type="checkbox"/> TAG	DESCRIPTION AND CONDUCTOR TYPE	CONDUCTOR SIZE	NUMBER OF CONDUCTORS	CONDUIT/CABLE TYPE	CONDUIT SIZE
A1	USE-2 <input type="checkbox"/> OR PV-WIRE <input type="checkbox"/>				
	EGC/GEC:				
B1					
	EGC/GEC:				
C					
	EGC/GEC:				
D					
	EGC/GEC:				

NON-COMBINED STRINGS CONDUCTOR/CONDUIT SCHEDULE (IF APPLICABLE)

<input type="checkbox"/> TAG	DESCRIPTION AND CONDUCTOR TYPE	CONDUCTOR SIZE	NUMBER OF CONDUCTORS	CONDUIT/CABLE TYPE	CONDUIT SIZE
A2	USE-2 <input type="checkbox"/> OR PV-WIRE <input type="checkbox"/>				
	EGC/GEC:				
B2					
	EGC/GEC:				

ENTER "N/A" WHERE SUITABLE FOR WHEN NOT USING CONDUIT OR CABLE AS PERMITTED BY CODE

