

# *Expedited Permitting*

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## **Solar ABCs**

PV Stakeholder Meeting



## Is it ever going to be done?

- Yes!
  - Stay tuned for the published version by mid-November at [www.solarabcs.org/permitting](http://www.solarabcs.org/permitting)
- No
  - The work will continue to evolve to add features and diagrams to address more permit options (e.g. line-side connections, modular inverters, ac modules, etc...)

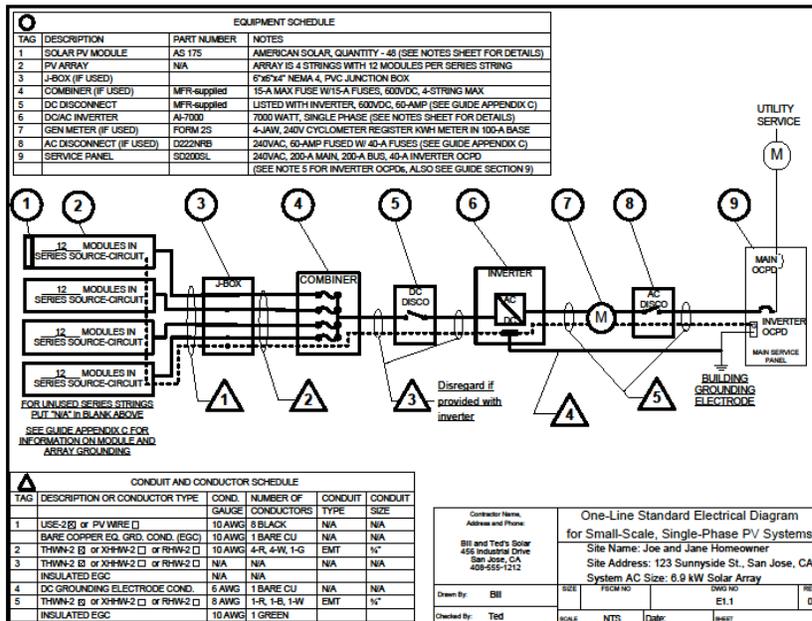




# EXPEDITED PERMIT PROCESS FOR PV SYSTEMS

A Standardized Process for  
the Review of Small-Scale PV Systems

Prepared by  
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**PV MODULE RATINGS @ STC (Guide Section 5)**

MODULE MAKE	AMERICAN SOLAR
MODULE MODEL	AS 175
MAX POWER-POINT CURRENT ( $I_{mp}$ )	4.99 A
MAX POWER-POINT VOLTAGE ( $V_{mp}$ )	35.8 V
OPEN-CIRCUIT VOLTAGE ( $V_{oc}$ )	44.4 V
SHORT-CIRCUIT CURRENT ( $I_{sc}$ )	5.3 A
MAX SERIES FUSE (OCPO)	15 A
MAXIMUM POWER ( $P_{max}$ )	175 W
MAX VOLTAGE (TYP 600 $V_{oc}$ )	600 V
VOC TEMP COEFF (mV/C) or %/C [g]	-0.33
IF COEFF SUPPLIED, CIRCLE UNITS	

**NOTES FOR ALL DRAWINGS:**

OCPO - OVERCURRENT PROTECTION DEVICE  
 NATIONAL ELECTRICAL CODE® REFERENCES  
 SHOWN AS (NEC XXX.X)

**INVERTER RATINGS (Guide Section 4)**

INVERTER MAKE	AMERICAN INVERTER
INVERTER MODEL	AI-7000
MAX DC VOLT RATING	600 V
MAX POWER @ 40°C	7000 W
NOMINAL AC VOLTAGE	240 V
MAX AC CURRENT	29 A
MAX OCPO RATING	50 A

**SIGNS-SEE GUIDE SECTION 7**

**SIGN FOR DC DISCONNECT**

PHOTOVOLTAIC POWER SOURCE	
RATED MPP CURRENT	19.6 A
RATED MPP VOLTAGE	430 V
MAX SYSTEM VOLTAGE	577 V
MAX CIRCUIT CURRENT	26.5 A
WARNING: ELECTRICAL SHOCK HAZARD-LINE AND LOAD MAY BE ENERGIZED IN OPEN POSITION	

**SIGN FOR INVERTER OCPO AND AC DISCONNECT (IF USED)**

SOLAR PV SYSTEM	
AC POINT OF CONNECTION	
AC OUTPUT CURRENT	29 A
NOMINAL AC VOLTAGE	240 V
THIS PANEL FED BY MULTIPLE SOURCES (UTILITY AND SOLAR)	

**NOTES FOR ARRAY CIRCUIT WIRING (Guide Section 6 and 8 and Appendix E)**

- 1) LOWEST EXPECT AMBIENT TEMPERATURE BASED ON ASHRAE MINIMUM MEAN EXTREME DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. LOWEST EXPECTED AMBIENT TEMP \_\_\_ °C
- 2) HIGHEST CONTINUOUS AMBIENT TEMPERATURE BASED ON ASHRAE HIGHEST MONTH 2% DRY BULB TEMPERATURE FOR ASHRAE LOCATION MOST SIMILAR TO INSTALLATION LOCATION. HIGHEST CONTINUOUS TEMPERATURE \_\_\_ °C
- 2) 2005 ASHRAE FUNDAMENTALS 2% DESIGN TEMPERATURES DO NOT EXCEED 4°C IN THE UNITED STATES (PALM SPRINGS, CA IS 44.1°C). FOR LESS THAN 9 CURRENT-CARRYING CONDUCTORS IN ROOF-MOUNTED SUNLIT CONDUIT AT LEAST 0.5" ABOVE ROOF AND USING THE OUTDOOR DESIGN TEMPERATURE OF 47°C OR LESS (ALL OF UNITED STATES).
- 3) 12 AWG, 90°C CONDUCTORS ARE GENERALLY ACCEPTABLE FOR MODULES WITH 16¢ OF 7.65 AMPS OR LESS WHEN PROTECTED BY A 12-AMP OR SMALLER FUSE.
- 5) 10 AWG, 90°C CONDUCTORS ARE GENERALLY ACCEPTABLE FOR MODULES WITH 16¢ OF 9.5 AMPS OR LESS WHEN PROTECTED BY A 15-AMP OR SMALLER FUSE.

**NOTES FOR INVERTER CIRCUITS (Guide Section 8 and 9)**

- 1) IF UTILITY REQUIRES A VISIBLE-BREAK SWITCH, DOES THIS SWITCH MEET THE REQUIREMENT? YES  NO  N/A
- 2) IF GENERATION METER REQUIRED, DOES THIS METER SOCKET MEET THE REQUIREMENT? YES  NO  N/A
- 3) SIZE PHOTOVOLTAIC POWER SOURCE (DC) CONDUCTORS BASED ON MAX CURRENT ON NEC 690.53 SIGN OR OCPO RATING AT DISCONNECT
- 4) SIZE INVERTER OUTPUT CIRCUIT (AC) CONDUCTORS ACCORDING TO INVERTER OCPO AMPERE RATING. (See Guide Section 9)
- 5) TOTAL OF \_\_\_ INVERTER OCPO(s) ONE FOR EACH INVERTER. DOES TOTAL SUPPLY DISCONNECT COMPLY WITH 120% BUSBAR EXCEPTION IN 690.54(B)(2)? YES  NO

Contractor Name: Address and Phone: Bill and Ted's Solar 456 Industrial Drive San Jose, CA 408-555-1212	Notes for One-Line Standard Electrical Diagram for Single-Phase PV Systems Site Name: Joe and Jane Homeowner Site Address: 123 Sunnyside St., San Jose, CA System AC Size: 6.9 kW Solar Array
Drawn By: Bill	SIZE: _____
Checked By: Ted	DATE: _____

