

- NOTES:**
1. EQUIPMENT SHALL BE INSTALLED AND LABELED IN ACCORDANCE WITH THE NEC AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRIC UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION.
  2. BI-DIRECTIONAL UTILITY METER INSTALLED BY UTILITY COMPANY.
  3. LABEL BREAKER "PHOTOVOLTAIC ELECTRIC POWER SOURCE" PER NEC 705.12(B)(3), AND "BREAKERS ARE BACKFED" PER NEC 705.12(B)(4) LABEL WITH THE MAXIMUM AC OUTPUT OPERATING CURRENT AND THE OPERATING VOLTAGE PER NEC 690.54.
  4. LABEL "UTILITY DISCONNECT SWITCH." SWITCH COVER TO BE LOCKED AT ALL TIMES. SWITCH TO BE VISUAL OPEN AND ACCESSIBLE PER UTILITY REQUIREMENTS AND CONFORM TO NEC 705.22.
  5. LABEL "PHOTOVOLTAIC ARRAY DC DISCONNECT DEVICE" PER NEC 690.13(B). LABEL WITH MAXIMUM VOLTAGE, MAXIMUM CIRCUIT CURRENT AND MAXIMUM RATED OUTPUT CURRENT PER NEC 690.53. SWITCH TO BE LOCKED.
  6. LABEL "UNI-DIRECTIONAL METER (LINE SIDE VOLTAGE ON TOP LUGS)." METER ENCLOSURE AND SOCKET PROVIDED AND INSTALLED BY CUSTOMER PER APS ESRM. METER, CTs AND TEST SWITCHES PROVIDED BY UTILITY COMPANY WHEN REQUIRED. NOTE 1: CUSTOMER TO SUBMIT SHOP DRAWINGS OF METERING CABINET TO APS METERSHOP FOR APPROVAL. NOTE 2: CT RATED PRODUCTION METERING ENCLOSURES SHALL HAVE THE BUS IDENTIFIED WITH REFERENCE TO THE GENERATION SOURCE SIDE PRIOR TO METERING INSTALLATION WITH A TEMPORARY TAG LABELED "GENERATION SOURCE."
  7. PROVIDE WARNING SIGN PER NEC 690.13(B) READING "WARNING-ELECTRIC SHOCK HAZARD-DO NOT TOUCH TERMINALS-TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION."
  8. LABEL "WARNING INVERTER OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE" AND LOCATE BREAKER AT OPPOSITE END OF BUS FROM MAIN BREAKER LOCATION PER NEC 705.12(B)(2)(3)(b).
  9. METALLIC CONDUIT SHALL BE USED WITHIN BUILDING PER NEC 690.31(E).
  10. LABEL "DEDICATED PHOTOVOLTAIC SYSTEM COMBINER PANEL" AND "DO NOT ADD LOADS TO THIS PANEL."
  11. GEC TO BE INSTALLED AS REQUIRED BY MANUFACTURER INSTRUCTIONS AND NEC 690.47.
  12. EQUIPMENT SHALL BE LISTED, TESTED AND MARKED TO WITHSTAND THE AVAILABLE SHORT CIRCUIT CURRENT.
  13. LABEL "PHOTOVOLTAIC SYSTEM DISCONNECT SWITCH". SWITCH COVER TO BE LOCKED BY CUSTOMER AT ALL TIMES, AND COMPLY WITH NEC 705.22.

**NOTE: SYSTEM DESIGNED IN ACCORDANCE WITH THE 2017 N.E.C.**

**SAMPLE LOAD SIDE TAP THREE-LINE DIAGRAM**

1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		<b>ABC SOLAR COMPANY, INC.</b>	
APPROVALS _____ DATE _____		THREE-LINE ELECTRICAL DIAGRAM 4.8 KW AC PHOTOVOLTAIC SYSTEM 333 E. CACTUS BIRD RD. ANY CITY, AZ 85123	
DRAWN ABC	1-23-17	SIZE <b>B</b>	DRAWING NO. <b>0000-0002</b>
CHECKED _____	ENGINEER _____	SCALE <b>NA</b>	REV. _____
REV. _____	ABC PROJECT #1111-9999	SHEET <b>2</b> OF <b>5</b>	

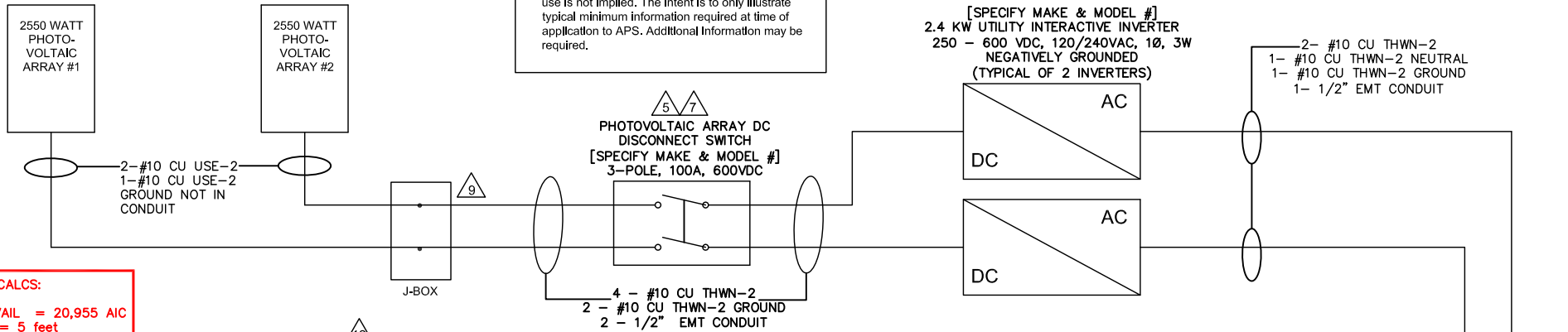
IRREVERSIBLE COMPRESSION-TYPE CONNECTOR PER NEC 250.64 (C) (1)

Voc=457VDC, Isc=7.28AMP  
Vmp=376VDC, Imp=6.78AMPS

Voc=457VDC, Isc=7.28AMP  
Vmp=376VDC, Imp=6.78AMPS

This Sample Drawing is for illustration purposes only and is not to be used for design or construction. This drawing and its suitability for end use is not implied. The intent is to only illustrate typical minimum information required at time of application to APS. Additional information may be required.

[SPECIFY MAKE & MODEL #]  
2.4 KW UTILITY INTERACTIVE INVERTER  
250 - 600 VDC, 120/240VAC, 1Ø, 3W  
NEGATIVELY GROUNDING  
(TYPICAL OF 2 INVERTERS)



**FAULT CALCS:**

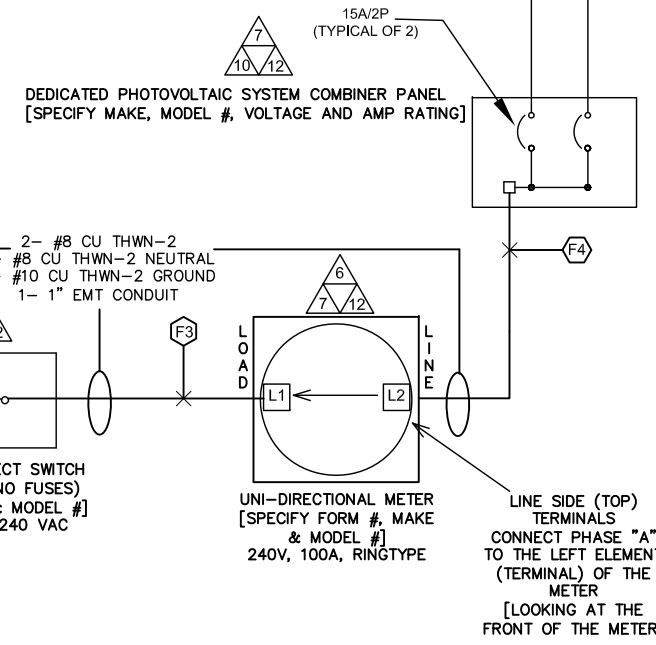
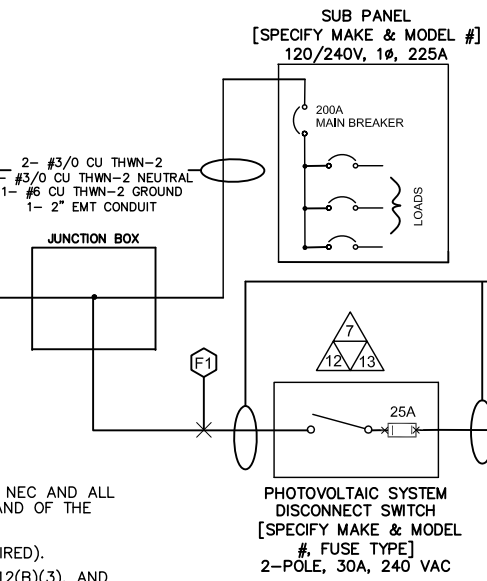
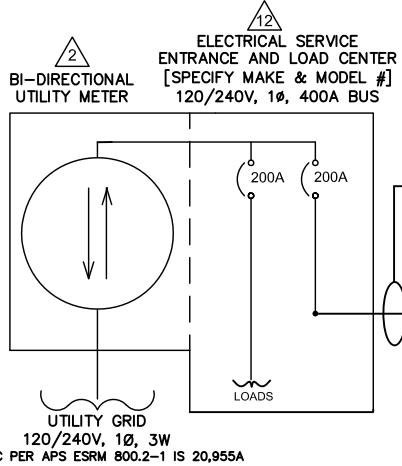
F1: AVAIL = 20,955 AIC  
d = 5 feet  
f = .560  
m = 0.641  
Isc = 13,432 AIC

F2: AVAIL = 13,432 AIC  
d = 5 feet  
f = .359  
m = 0.736  
Isc = 9,883 AIC

F3: AVAIL = 9,883 AIC  
d = 5 feet  
f = .264  
m = 0.791  
Isc = 7,818 AIC

F4: AVAIL = 7,818 AIC  
d = 5 feet  
f = .209  
m = 0.827  
Isc = 6,467 AIC

\* SOURCE: COOPER BUSSMAN SPD MANUAL, REV 2009. CALCULATIONS IN ACCORDANCE WITH NEC ART 110.9 & 110.10.



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  - BI-DIRECTIONAL UTILITY METER INSTALLED BY UTILITY COMPANY (AS REQUIRED).
  - LABEL BREAKER "PHOTOVOLTAIC ELECTRIC POWER SOURCE" PER NEC 705.12(B)(3), AND "BREAKERS ARE BACKFED" PER NEC 705.12(B)(4) LABEL WITH THE MAXIMUM AC OUTPUT OPERATING CURRENT AND THE OPERATING VOLTAGE PER NEC 690.54.
  - LABEL "UTILITY DISCONNECT SWITCH," SWITCH COVER TO BE LOCKED AT ALL TIMES. SWITCH TO BE VISUAL OPEN AND ACCESSIBLE PER UTILITY REQUIREMENTS AND CONFORM TO NEC 705.22.
  - LABEL "PHOTOVOLTAIC ARRAY DC DISCONNECT DEVICE" PER NEC 690.13(B). LABEL WITH OPERATING CURRENT, OPERATING VOLTAGE, MAXIMUM SYSTEM VOLTAGE, AND SHORT CIRCUIT CURRENT PER NEC 690.53. SWITCH TO BE LOCKED.
  - LABEL "UNI-DIRECTIONAL METER (LINE SIDE VOLTAGE ON TOP LUGS)," METER ENCLOSURE AND SOCKET PROVIDED AND INSTALLED BY CUSTOMER PER APS ESRM. METER, CTs AND TEST SWITCHES PROVIDED BY UTILITY COMPANY WHEN REQUIRED. NOTE 1: CUSTOMER TO SUBMIT SHOP DRAWINGS OF METERING CABINET TO APS METERSHOP FOR APPROVAL. NOTE 2: CT RATED PRODUCTION METERING ENCLOSURES SHALL HAVE THE BUS IDENTIFIED WITH REFERENCE TO THE GENERATION SOURCE SIDE PRIOR TO METERING INSTALLATION WITH A TEMPORARY TAG LABELED "GENERATION SOURCE."
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  - EQUIPMENT SHALL BE LISTED, TESTED AND MARKED TO WITHSTAND THE AVAILABLE SHORT CIRCUIT CURRENT.
  - LABEL "PHOTOVOLTAIC SYSTEM DISCONNECT SWITCH". SWITCH COVER TO BE LOCKED BY CUSTOMER AT ALL TIMES, AND COMPLY WITH NEC 705.22.

**NOTE: SYSTEM DESIGNED IN ACCORDANCE WITH THE 2017 N.E.C.**

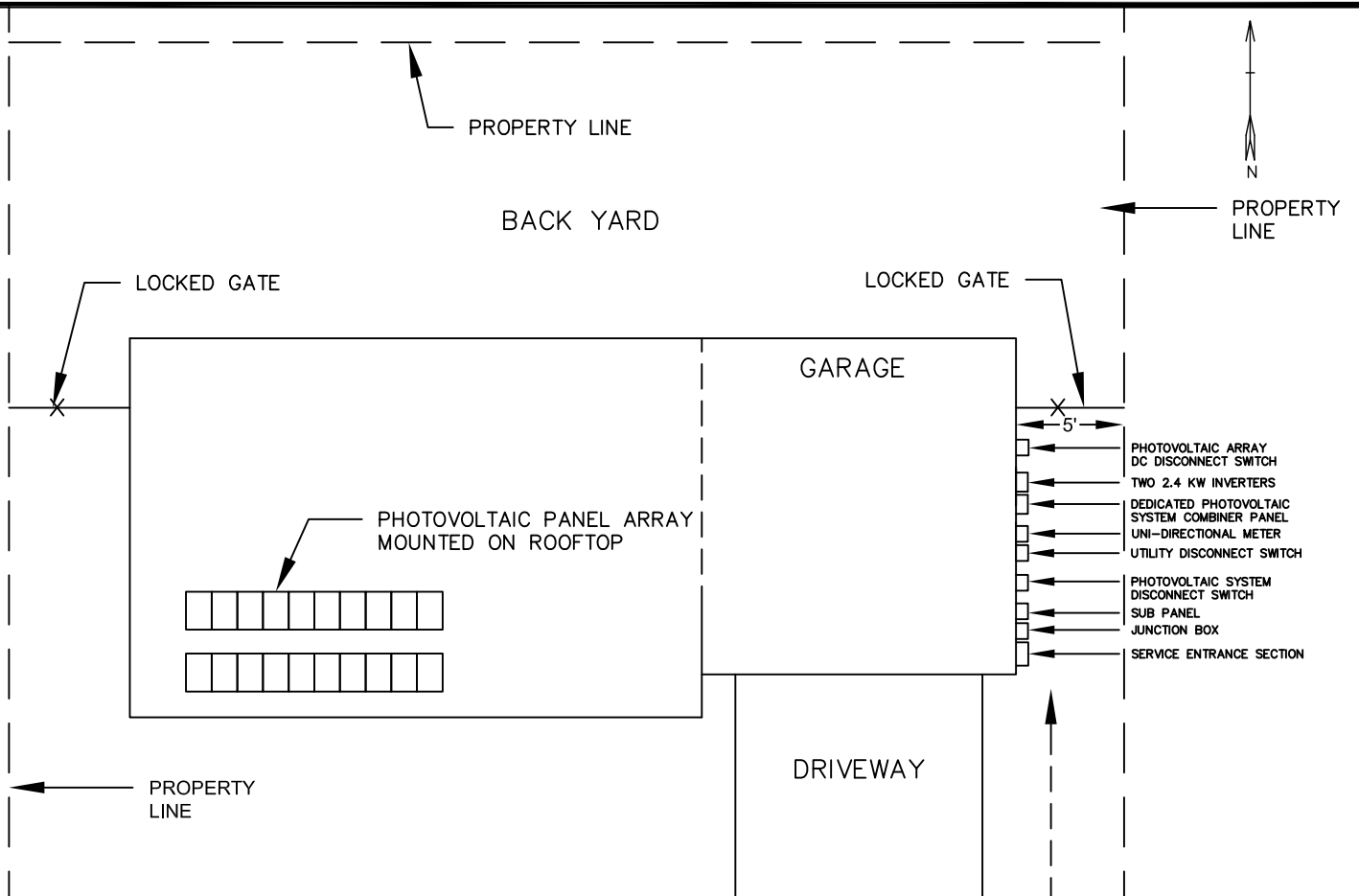
**SAMPLE LOAD SIDE TAP ONE - LINE DIAGRAM**

1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		<b>ABC SOLAR COMPANY, INC.</b>	
APPROVALS		DATE	
DRAWN ABC		1-25-17	
CHECKED			
ENGINEER			
REV.			
ABC PROJECT #1111-9999		SIZE <b>B</b>	DRAWING NO. <b>0000-0001</b>
SCALE <b>NA</b>		REV.	SHEET <b>1</b> OF <b>5</b>

NOTE: UTILITY HAS 24-HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC SYSTEM COMPONENTS LOCATED AND SERVICE ENTRANCE.

NOTE: REFERENCE SECTION 301.15 OF THE APS ESRM FOR ELECTRIC METER SEPARATION BETWEEN WATER AND GAS.

NOTE: WORKSPACE IN FRONT OF AC ELECTRICAL SYSTEM COMPONENTS SHALL BE IN ACCORDANCE WITH APS AND NEC REQUIREMENTS. FOR APS REQUIREMENTS, REFERENCE SECTION 300 OF THE APS ESRM AND SECTION 8.2 OF THE APS INTERCONNECTION REQUIREMENTS.

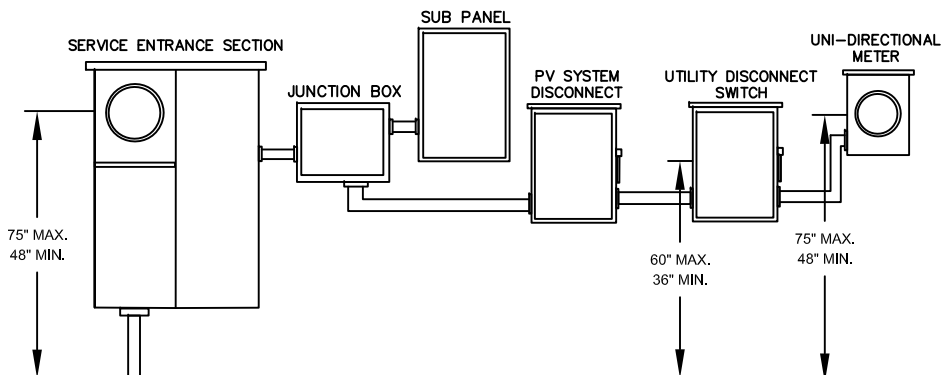


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E. CACTUS BIRD RD.

APS 24-HR ACCESS

ELEVATION VIEW



**SAMPLE LOAD SIDE TAP SITE PLAN**

1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		<b>ABC SOLAR COMPANY, INC.</b>	
		SITE PLAN	
		4.8 KW AC PHOTOVOLTAIC SYSTEM	
		333 E. CACTUS BIRD RD.	
		ANY CITY, AZ 85123	
APPROVALS	DATE	SIZE	DRAWING NO.
DRAWN ABC	1-23-17	B	0000-0005
CHECKED			
ENGINEER			
REV.			
ABC PROJECT #1111-9999		SCALE NA	REV.
			SHEET 5 OF 5