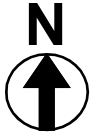


See detail on Site Drawing page #2

PV Modules

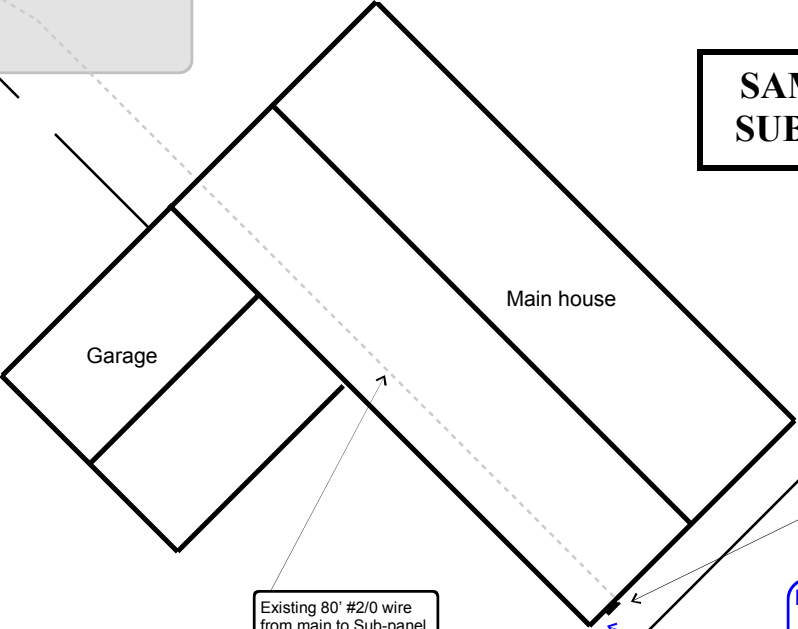
Circuit Combiner, DC Disconnect, Inverter, and GFCI
 Attach sign:
"WARNING –ELECTRIC SHOCK HAZARD –DANGEROUS VOLTAGES AND CURRENTS –NO USER SERVICEABLE PARTS INSIDE – CONTACT QUALIFIED SERVICE PERSONNEL FOR ASSISTANCE"

SAMPLE PV SUBMITTAL



Existing 125amp rated Sub-panel inside Garage

Existing Main PG&E Main 100 amp Service Panel w/ 50amp Circuit breaker to Sub-panel on detached garage.

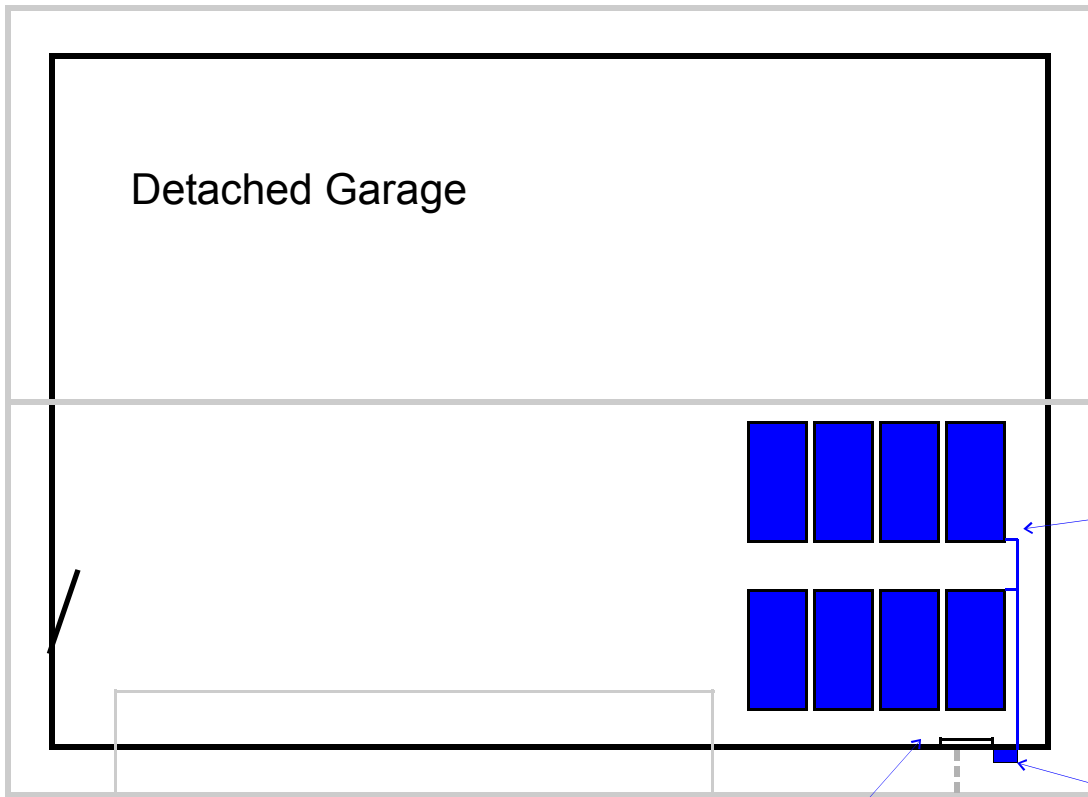


Existing 80' #2/0 wire from main to Sub-panel

Install sign signs of Main Circuit Breaker Panel:
"SOLAR PANEL DISCONNECT LOCATED ON S/E CORNER OF DETACHED GARAGE."
"WARNING - ELECTRIC SHOCK HAZARD -DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION"
 Per. NEC 690-17

Davis Circle

SMITH RESIDENCE
 Title: Site Drawing #1 of 2 Date: 10-18-01
 Scale: N/A
 4718 Sun Ray Lane, Rohnert Park
 Project: Installation of Photovoltaic Panel System



8- 120 Watt PV Modules mounted on the roof structure. The panels are fastened to aluminum cross bars that are lag bolted through the metal roofing into existing roof trusses. (Total weight approx. 250 pounds over 100 s/f)

Modules wired w/ #10AWG THWN-2 rated conductor in rated sunlight resistance flex conduit through panel mounted rain tight (IP54 rated) junction box. Wire run is 20' long 7.75 amps (open circuit voltage) @ 84.2 volts x (2) (short-circuit current). # 10 ground wire lugged to each module.

DC/AC Inverter w/ PV Array Circuit Combiner, DC disconnect, and Ground Fault protection

Label outside:
"WARNING –ELECTRICAL SHOCK HAZARD –DANGEROUS VOLTAGES AND CURRENTS –NOUSER SERVICABLE PARTS INSIDE –CONTACT QUALIFIED SERVICE PERSONNEL FOR ASSISTANCE."

Existing Sub-Panel inside of garage:
 Cutler-Hammer brand 125 amp rated box.

Install new 15 amp single pole 120 volt Circuit breaker. Connect to Inverter 120 volt output

Label door:
"WARNING –ELECTRICAL SHOCK HAZARD –DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION"

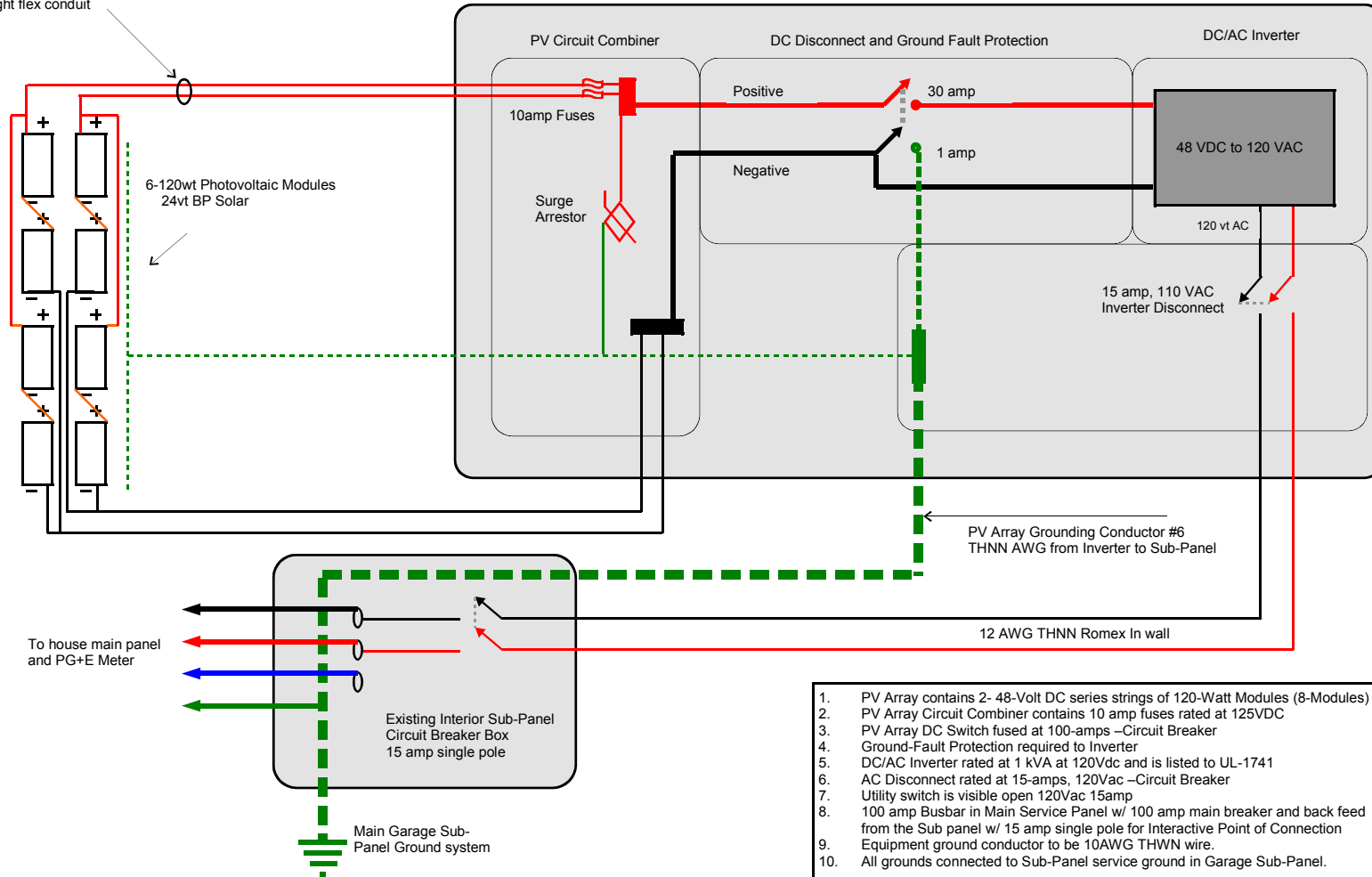
Existing #2/0 wire from Sub-panel to main 100 amp Service Panel

SMITH RESIDENCE

Title: Site Drawing #2 of 3 Date: 10-18-01
 Scale: N/A
 4718 Sun Ray Lane, Rohnert Park
 Project: Installation of Photovoltaic Panel System

#10-2 AWG THWN-2 conductors for all Array wiring in 1/2" water tight flex conduit

Utility Inter-tie inverter w/ GFCI & Disconnects



1. PV Array contains 2- 48-Volt DC series strings of 120-Watt Modules (8-Modules)
2. PV Array Circuit Combiner contains 10 amp fuses rated at 125VDC
3. PV Array DC Switch fused at 100-amperes –Circuit Breaker
4. Ground-Fault Protection required to Inverter
5. DC/AC Inverter rated at 1 kVA at 120Vdc and is listed to UL-1741
6. AC Disconnect rated at 15-amperes, 120Vac –Circuit Breaker
7. Utility switch is visible open 120Vac 15amp
8. 100 amp Busbar in Main Service Panel w/ 100 amp main breaker and back feed from the Sub panel w/ 15 amp single pole for Interactive Point of Connection
9. Equipment ground conductor to be 10AWG THWN wire.
10. All grounds connected to Sub-Panel service ground in Garage Sub-Panel.

Voltage Drop Calculations for DC conductor:
 Copper THWN-2 Wet wire roof mounted Modules.
 48 Volts, 7.45amps, 20 ft—D factor = 1.1 for 1% Voltage Drop
 3 x 1.1= D factor = 3.3 for 3% Voltage Drop
 Maximum for 10 AWG wire is 3.9 (d) Factor

- Notes:
1. NEC Array Open Circuit Voltage = 84.2 Volts DC
 2. Maximum Short Circuit Array Current = 15.5 amps
 3. AC output (960wt DC x 93% efficiency) = 893 Watts
 4. PV modules are BP Solar SX 120 UL1703 Listed (Total array consists of 8 modules 2 parallel sets of (2)+(2) 4 units in series)
 5. Advanced Energy Inc. Utility inverter model #GC-1000 48-Volt DC, 110-Volt AC inverter, UL 1471 listed.

SMITH RESIDENCE
 Title: Electrical Line Drawing # 3 of 3 Date: 10-25-01
 Scale: N/A
 4718 Sun Ray Lane, Rohnert Park
 Project: Installation of Photovoltaic Panel System