

**ELECTRICAL CALCULATIONS AND SCHEDULES:**

INVERTER DC INPUT CONFIGURATION				INVERTER DC INPUT CONFIGURATION		
INVERTER	MPPT - 1	2		STRING HOME RUN WIRE SIZE	LONGEST STRING LENGTH (ft)	STRING VOLTAGE DROP (%)
INVERTER 1	MPPT - 1	2		#10 AWG	105'	0.6%
	MPPT - 2	2		#10 AWG	105'	0.6%
INVERTER 2	MPPT - 1	2	INVERTER 1	#10 AWG	105'	0.6%
	MPPT - 2	2	INVERTER 2	#10 AWG	105'	0.6%
INVERTER 3	MPPT - 1	2	INVERTER 3	#10 AWG	105'	0.6%
	MPPT - 2	2				

ARRAY CONFIGURATION						
INVERTER NUMBER	MODULE TYPE	# OF MODULES	TILT	AZIMUTH	kW	
INVERTER 1	CS6P-250P	52	4° & 2.4°	24° & 204°	13.0	
INVERTER 2	CS6P-250P	52	+/- 0.8°	24° & 204°	13.0	
INVERTER 3	CS6P-250P	52	4° & 2.4°	204°	13.0	
TOTAL		156			39.0	

AC WIRE AND CONDUIT SCHEDULE					
CONDUIT ID	MINIMUM WIRE SIZE	WIRE SIZE AND TYPE	MINIMUM CONDUIT	CONDUCTOR LENGTH	VOLTAGE DROP (%)
Ⓐ	#8 AWG	(4) # 8 CU THHN + #10 GND	1" EMT	<20'	0.41%
Ⓑ	#1/0 AWG	(4) # 2/0 CU THHN + #6 GND	2" EMT	<250'	1.9%

- KEY NOTES:**
- 1. 13 CANADIAN SOLAR CS6P-250P SOLAR PANELS WIRED IN SERIES. EACH MODULE INCLUDES 1 #10 AWG OUTDOOR RATED QUICK CONNECT FOR MODULE INTERCONNECTION. DO NOT REMOVE QUICK CONNECTS, OTHERWISE THE MODULE WARRANTY AND UL LISTING MAY BE INVALIDATED. QUICK CONNECTS WILL COMPLY WITH NEC 690.33.
  - 2. DC JUNCTION BOX CONTAINING 15A FUSES FOR EACH STRING OF MODULES.
  - 3. (3) FRONIUS SYMO 10.0-3 3Φ SOLAR PV INVERTERS. 9.995KW-AC EACH.
  - 4. NEW NEMA-3R MLO 120/208V, 200A, 18SP PANEL BOARD. INSTALL (3) 50A BREAKERS TO MATCH MANUFACTURERS AIC RATING.
  - 5. NEW FORM 16S, CLASS 320 ZREC METER. TO BE REVIEWED AND APPROVED BY UTILITY.
  - 6. NEW LOCUS LGATE-320, REVENUE GRADE SOLAR PV GENERATION METER.
  - 7. NEW 200A, 3P NON-FUSIBLE DISCONNECT. MOUNTED ON NE CORNER OF BUILDING ADJACENT TO UTILITY ZREC METER.
  - 8. EXISTING 400A MAIN DISTRIBUTION PANEL TO BE REPLACED WITH 600A PANEL, RETAIN 400A MCB RATING. SOLAR PV WILL COUPLE VIA 150A BACKFED BREAKER.
  - 9. EXISTING UTILITY REVENUE METER.

PV MODULE - CS6P-250P		INVERTER - SYMO 10.0-3		INVERTER - SYMO 10.0-3 TRIP SETTINGS	
MAX POWER (W)	250w	MAX DC VOLTAGE:	600V	VOLTAGE PICKUP (p.u)	CLEARING TIME (S)
OPEN CIRCUIT VOLTAGE (V <sub>oc</sub> )	37.2	MPP VOLTAGE RANGE:	300-500V	V<0.5	0.16
MAX POWER VOLTAGE (V <sub>mp</sub> )	30.1	MIN. DC VOLTAGE/START VOLTAGE:	200V	V<0.88	2.0
MAX POWER CURRENT (I <sub>mp</sub> )	8.30	NOMINAL INPUT CURRENT (MPPT 1/MPPT 2):	25A/16.5A	V>1.1	1.0
SHORT CIRCUIT CURRENT (I <sub>sc</sub> )	8.87	# OF MPP TRACKERS/STRINGS PER:	2 / 2	V>= 1.2	0.16
STRING SIZING CALCULATIONS		AC NOMINAL POWER:	9.995W	FREQUENCY PICKUP (Hz)	CLEARING TIME (S)
# PANELS PER STRING	13	MAX AC APPARENT POWER:	9.995VA	F=60.5	0.16
MIN TEMPERATURE (°C)	-19	NOMINAL AC VOLTAGE:	208V, 3-PH	F<57.0	0.16
TEMP. COEFF. OF VOLT (%/°C)	-0.34%	AC VOLTAGE RANGE:	-12%/+10%	F< (59.8-57.0) ADJUSTABLE	(0.16-300) ADJ
TEMPERATURE CORR FAC.	14.96%	AC GRID FREQUENCY RANGE:	60Hz±59.3-60.5Hz	F<59.3 STANDARD	0.16 STD
=V <sub>oc</sub> x TEMP CORR FAC x PANELS/STRING	555.95V	MAX OUTPUT CURRENT:	31.5A		
PV SOURCE CIRCUIT CURRENT (NEC690.8(A)(1))	11.09V	POWER FACTOR:	0-1 IND./CAP.		
=I <sub>sc</sub> x 1.25	13.84A	HARMONICS:	<1.75%		
PV SHORT CIRCUIT CURRENT (NEC690.8(A)(1))	13.84A				

- GENERAL NOTES:**
- THE INSTALLATION CONTRACTOR WILL BE REQUIRED TO INSTALL WEATHERPROOF STRAIN RELIEFS FOR ALL WIRES ENTERING OR EXITING THE COMBINER BOX THAT ARE NOT PULLED THROUGH CONDUIT.
  - THE INSTALLATION CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF THE NEMA RATING OF THE INVERTER AND ENCLOSURES. ALL CONDUIT MUST ENTER THE EQUIPMENT AND BE PROPERLY GASKETED.
  - ELECTRICAL CONTRACTOR SHALL COLOR CODE SOURCE WIRING AS POSITIVE-RED AND NEGATIVE-WHITE. IF THE REQUIRED INSULATION COLOR IS NOT AVAILABLE, TAPING WITH CORRECT COLOR SHALL SUFFICE.
  - PROVIDE COMPRESSION LUGS AT BUS TERMINATIONS.

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REV. DATE:	REV. NO.	REVISIONS:
8.13.2015	7	REVISION 7

DC RATING: 39.0KW	NO. OF MPPT: VARIES	NO. OF INVERTER: (3) SYMO 10.0-3	NO. OF MODULES: 156	NO. OF RACKING SYSTEM: CARPORT	SCALE: NTS	DRAWN: AP
ARRAY PITCH: 204°	INVERTER: (3) SYMO 10.0-3	NO. OF MODULES: 156	NO. OF RACKING SYSTEM: CARPORT	SCALE: NTS	DRAWN: AP	

DRAWING TITLE:

One-Line Schematic

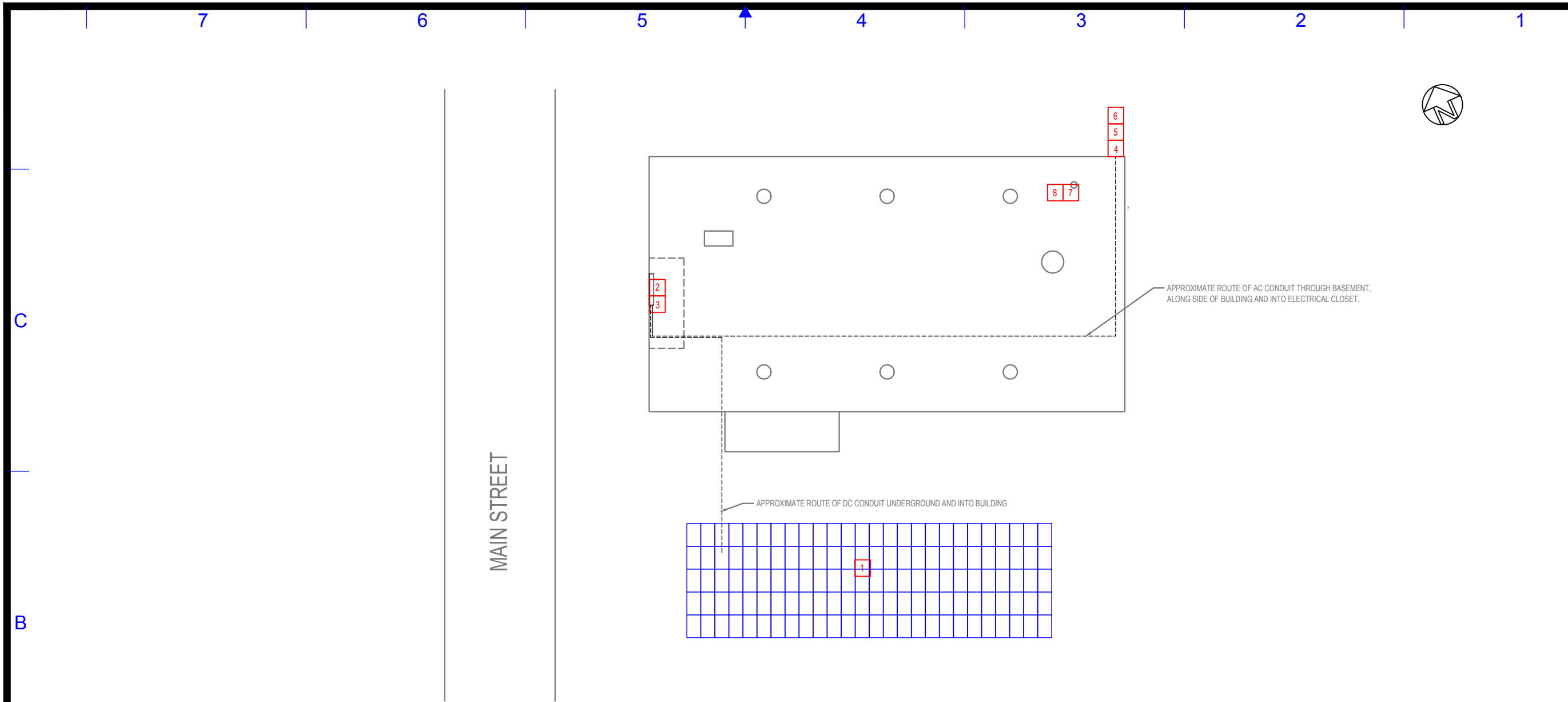
PROJECT:

STAFFORD TOWN HALL  
1 MAIN STREET  
STAFFORD, CT

DRAWING NUMBER:

PV-100

PROJECT NUMBER:



### Legend

- 1) Solar Modules – (156) CANADIAN SOLAR Solar PV modules on Carport
- 2) Inverters – (3) Inverters on West wall inside of basement mechanical room
- 3) PV Panelboard 1 – Mounted on West wall inside of basement mechanical room
- 4) ZREC Meter – Mounted on North facing exterior wall in NE corner of building
- 5) Locus Meter – Mounted on North facing exterior wall in NE corner of building
- 6) AC Disconnect 1 – Mounted on North facing exterior wall in NE corner of building
- 7) Main Service Panel – Mounted on North Wall inside 2nd floor electrical room in NE corner of building
- 8) Utility Revenue Meter – Mounted on North wall inside 2nd floor electrical room in NE corner of building

	
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REV. DATE: 8.13.2015 REVISION 7	
DC RATING: 39.0KW ARRAY PITCH: VARIES AZIMUTH: 204° INVERTER: (3) SYMO 10.0-3 NO. OF MODULES: 156 RACKING SYSTEM: CARPORT SCALE: NTS DRAWN: AP	
DRAWING TITLE: <h2 style="margin: 0;">Site Layout</h2>	
PROJECT: <h3 style="margin: 0;">STAFFORD TOWN HALL 1 MAIN STREET STAFFORD, CT</h3>	
DRAWING NUMBER: <h1 style="margin: 0;">PV-300</h1>	PROJECT NUMBER:

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