THE TOWN OF GLASTONBURY, CONNECTICUT

Facilities & Maintenance Building Emergency Service Modifications – Glastonbury

State of CT. Project # 53-191, Contract 3
Town Project # GL-2019-26

2145 MAIN STREET, GLASTONBURY, CT.

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ABBREVIATIONS

A.B.	ANCHOR BOLT
A.C.P.	ASBESTOS CEMENT PIPE
ADJ.	ADJUSTABLE
A.F.F.	ABOVE FINISH FLOOR
A.C.T.	ACOUSTICAL CEILING TILE
ALUM.	ALUMINUM
APPROX.	APPROXIMATE
ARCH.	ARCHITECTURAL
ASPH.	ASPHALT
AVG.	AVERAGE
BSMT.	BASEMENT
BD.	BOARD
BRG.	BEARING
BRK.	BRICK
BIT.	BITUMINOUS
BLK.	BLOCK
BLDG.	BUILDING
B.S.	BOTH SIDES
C.I.	CAST IRON
C.I.P.	CAST IN PLACE CONCRETE
C.B.	CATCH BASIN
C.B.R.	CATCH BASIN TO BE REMOVED
CLG.	CEILING
℄	CENTER LINE
C. BD.	CHALK BOARD
C.C.	CURB CUT
C.O.	CLEAN OUT
COL.	COLUMN
CONC.	CONCRETE
CONF.	CONFERENCE
C.M.U.	CONCRETE MASONRY UNIT
CONT.	CONTINUOUS, CONTINUE
C.J.	CONTROL JOINT/ CONSTRUCTION JOINT
CONTR.	CONTRACTOR
DET.	DETAIL
DIA.	DIAMETER
DIM.	DIMENSION
DR.	DOOR
DN.	DOWN
DWG.	DRAWING
E	ELECTRICAL
EA.	EACH
EXTR.	EXISTING CEILING TO REMAIN
ED.	EDUCATION
ELEC.	ELECTRICAL
E.F.	EACH FACE
E.J.	EXPANSION JOINT
EL.	ELEVATION
ELEV.	ELEVATION
EMER.	EMERGENCY
ENCL.	ENCLOSURE
ENL.	ENLARGED
ENT.	ENTRANCE
EP.	EPOXY PAINT
EQ.	EQUAL
ES.	EXPOSED STRUCTURE
E.T.R.	EXISTING TO REMAIN
E.W.	EACH WAY
E.W./E.F.	EACH WAY/EACH FACE
EXAM.	EXAMINATION
EXIST	EXISTING
EXP.	EXPANSION
EXT.	EXTERIOR
FDN.	FOUNDATION
F.F.	FINISHED FLOOR
FIN.	FINISH, FINISHED
FIXT.	FIXTURE
FL.	FLOOR
FT.	FOOT
F.S.	FAR SIDE
FTG.	FOOTING
G	GAS
GA.	GAGE, GAUGE
GEN.	GENERAL
G.C.	GENERAL CONTRACTOR
GYP.	GYPSUM
GYP. BD.	GYPSUM BOARD
H.C.	HANDICAPPED
HD.	HEADED
HDWR.	HARDWARE
HGT.	HEIGHT
H.P.	HIGH POINT
H.M.	HOLLOW METAL
HORIZ.	HORIZONTAL, HORIZONTALLY
H.B.	HOSE BIBB
HR.	HOUR
HYD.	HYDRANT
INSUL.	INSULATION, INSULATED
INT.	INTERIOR
INV.	INVERT
JAN.	JANITOR
K.P.	KICK PLATE
LAM.	LAMINATE
L.F.	LINEAL FOOT
LG.	LONG
LOC.	LOCATION
L.P.	LOW POINT
LTG.	LIGHTING
MAS.	MASONRY
MAX.	MAXIMUM
MECH.	MECHANICAL
M.H.	MANHOLE
MIN.	MINIMUM
MISC.	MISCELLANEOUS
M.O.	MASONRY OPENING
MTD.	MOUNTED
N.A.	NOT APPLICABLE
N.I.C.	NOT IN CONTRACT
NO.	NUMBER
NOM.	NOMINAL
N.S.	NEAR SIDE
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
O.C.C.	OCCUPANT
O.D.	OUTSIDE DIAMETER
OPNG.	OPENING
P.C.B.	PAINTED CONCRETE BLOCK
P.G.B.	PAINTED GYPSUM BOARD
PL.	PLATE
PLUMB.	PLUMBING
PLYWD.	PLYWOOD
PREP.	PREPARATION
P.T.	PRESSURE TREATED
PTD.	PAINTED
P.V.C.	POLYVINYL CHLORIDE
R.	RISER
RAD.	RADIUS
R.C.P.	REINFORCED CONCRETE PIPE
R.D.	ROOF DRAIN
REINF.	REINFORCEMENT
REQD.	REQUIRED
R.H.	ROOF HATCH
R.L.	ROOF LEADER
RM.	ROOM
S.	STORM
SAN.	SANITARY
S.C.	SEALED CONCRETE
SCHED.	SCHEDULE
SECT.	SECTION
S.F.	STEP FOOTING
SIM.	SIMILAR
S.O.G.	SLAB ON GRADE
SPEC.	SPECIFICATIONS
SQ.	SQUARE
SQ. FT.	SQUARE FEET
STL.	STEEL
STRUCT.	STRUCTURAL
SUSP.	SUSPENDED, SUSPENSION
S.W.	SHEAR WALL
S.W.F.	SHEAR WALL FOOTING
T.	TELEPHONE
T&B	TOP & BOTTOM
TECH.	TECHNOLOGY
T.O.	TOP OF
T.O.F.	TOP OF FRAME
T.O.S.	TOP OF STEEL
T/S	TOP OF SLAB
T/W	TOP OF WALL
TYP.	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
V.B.	VINYL BASE
V.C.T.	VINYL COMPOSITE TILE
VERT.	VERTICAL
V.I.F.	VERIFY IN FIELD
W.	WATER
W/	WITH
W.C.J	WALL CONTROL JOINT
WD.	WOOD
WF.	WIDE FLANGE
W.W.F.	WELDED WIRE FABRIC
W.W.M.	WELDED WIRE MESH
@	AT
Φ	DIAMETER

SYMBOL LEGEND

- XXX — ROOM NUMBER
- XX — DOOR NUMBER
- XX — DEMOLITION NOTE
- XX — WINDOW TYPE
- XX / XX — DETAIL NUMBER / DRAWING NUMBER
- XX — CONSTRUCTION NOTE
- X / X — SECTION / DETAIL DRAWING NUMBER
- XX / XX — WALL SECTION DRAWING NUMBER
- XX / XX — INTERIOR / EXT. ELEVATION DRAWING NUMBER
- REFERENCE POINT
- XX — WALL TYPE
- X — REVISION MARK

GRAPHIC LEGEND

- CONCRETE
- CONCRETE MASONRY UNITS
- BRICK
- STONE
- METALS
- COMPACTED GRAVEL
- EARTH
- PLYWOOD
- ACOUSTICAL TILE
- WOOD FRAMING - THROUGH MEMBER
- WOOD FRAMING - INTERRUPTED MEMBER
- FINISHED WOOD
- BATT INSULATION
- RIGID INSULATION
- GYPSUM BOARD

GENERAL NOTES

1. FOR SPECIFIC WALL DESIGNATIONS AND RATED DESIGNS, SEE THIS DWG A1.
2. GENERAL NOTES FOUND ANYWHERE IN THE CONTRACT DOCUMENTS RELATE TO ALL DRAWINGS AND SPECIFICATIONS.
3. ALL MATERIALS & EQUIPMENT ARE NEW UNLESS OTHERWISE NOTED AS 'EXISTING'.
4. ALL EXISTING UTILITIES & EQUIPMENT LOCATIONS ARE APPROXIMATE - CONTRACTOR TO FIELD VERIFY.
5. ASSUME THAT ALL OF THE EXISTING STEEL IS PAINTED WITH LEAD BASED PAINT. CONTRACTOR IS RESPONSIBLE FOR THE PROPER SAFETY PRECAUTIONS WHEN DISTURBING THE PAINT. THIS INCLUDES THE STATE OF CONNECTICUT AND OSHA.
6. ALL MATERIALS USED IN THE SCOPE OF WORK MUST NOT CONTAIN ANY ASBESTOS AND THE CONTRACTOR MUST CERTIFY THAT TO THE BEST OF HIS/HER KNOWLEDGE THAT MATERIALS USED IN THE SCOPE OF WORK ARE ASBESTOS FREE.
7. PROVIDE ALL TEMPORARY PARTITIONS AND PROTECTION METHODS TO INSURE THAT THE OWNERS MATERIALS, EQUIPMENT AND OPERATIONS ARE PROTECTED AND REMAIN OPERATIONAL DURING CONSTRUCTION.
8. THE DRAWINGS AND THE SPECIFICATIONS ARE COMPLEMENTARY - WHAT IS REQUIRED BY ONE IS REQUIRED BY BOTH.

LIST OF DRAWINGS

Project Title:

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Glastonbury, CT.
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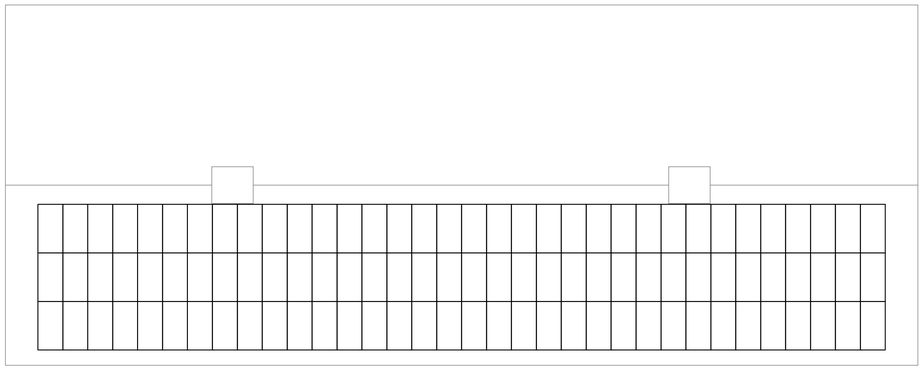
Revision:	Description:	Date:	Revised By:
	ISSUED FOR BID	12/12/2018	

Drawing Title: GENERAL INFORMATION

Date: 11.20.18
Scale: AS NOTED
Drawn By: DW
Project Number: 17.007

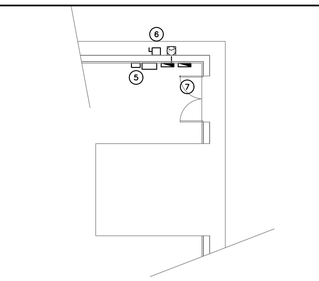
Drawing Number: A1



NORTH

PHOTOVOLTAIC SYSTEM ROOF PANEL PLAN — 1/E1

SCALE: 1/8" = 1'-0"

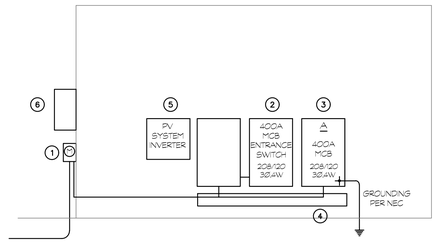


PARTIAL FLOOR PLAN — 3/E1

SCALE: 1/8" = 1'-0"

POWER RISER AND PLAN NOTES:

1. EXISTING UTILITY COMPANY METER ON THE EXTERIOR OF THE BUILDING. REFER TO NOTE #10.
2. EXISTING 400A, 208/120V, 3ø, 4W SQUARE D MAIN DISCONNECT CIRCUIT BREAKER.
3. EXISTING 400A, 208/120V, 3ø, 4W, 42 POLE PANEL "A".
4. EXISTING WIREWAY TO REMAIN.
5. NEW PV SYSTEM INVERTER. COORDINATE EXACT LOCATION WITH OWNER IN FIELD.
6. PHOTOVOLTAIC SYSTEM EXTERNAL DISCONNECT SWITCH. PROVIDE 200A, 240V, NEMA 3R DISCONNECT ON EXTERIOR OF BUILDING NEXT TO UTILITY METER FOR PV SYSTEM DISCONNECT. PROVIDE LABEL ON SWITCH STATING "PHOTOVOLTAIC SYSTEM DISCONNECT SWITCH". REFER TO PV SYSTEM GENERAL NOTES ON THIS DRAWING FOR FURTHER INFORMATION.
7. INSTALL 150A-3P CIRCUIT BREAKER IN POSITION 38/40/42 FOR PHOTOVOLTAIC SYSTEM. CIRCUIT BREAKER SHALL BE CLEARLY LABELED "PV SYSTEM FEED". PROVIDE PLACARD ON MAIN SWITCH ENCLOSURE THAT STATES "CAUTION, SOLAR PHOTOVOLTAIC (PV) SYSTEM INSTALLED".
8. SEAL ALL CONDUITS AS REQUIRED BY CODE.
9. PROVIDE PULL STRINGS AND CONDUIT END COVERS FOR ALL SPARE OR EMPTY CONDUITS.
10. UTILITY COMPANY IS TO REMOVE EXISTING METER ON EXTERIOR OF BUILDING UPON COMPLETION OF PV SYSTEM EQUIPMENT AND REPLACE WITH UTILITY COMPANY APPROVED ZREC METER.



ELECTRICAL ONE-LINE POWER RISER DIAGRAM — 2/E1

SCALE: N.T.S.

PV MODULE RATINGS @ STC
OPEN-CIRCUIT VOLTAGE (Voc): 52.8
OPERATING VOLTAGE (Vmp): 43.2
OPERATING CURRENT (Imp): 8.80
SHORT-CIRCUIT CURRENT (Isc): 9.34
MAXIMUM POWER (W): 380
Voc TEMP COEFF (mV OR %/°C) = 0.23

SOURCE COMBINER RATINGS
MAX OCPD RATING (A): 15
OCPD AMPERAGE RATING (A): 15
OCPD VOLTAGE RATING (V): 600

INVERTER RATINGS
MAX DC VOLT RATING (V): 600
MAX POWER @ 40°C (W): 20000
NORMAL AC VOLTAGE (V): 208
MAX AC CURRENT (A): 36
MAX OCPD RATING (A): 50

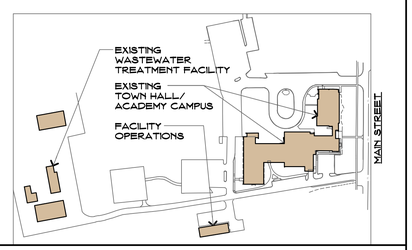
WIRE SELECTION FOR DC AND AC CONDUCTORS (ALL CU)
10 AWG USE-2 OUTDOOR RATED WIRE
GROUND WIRE: 6 AWG STRANDED
AC RUN: 4 #8 AWG IN 1" CONDUIT
DC RUN: 2 #8 AWG IN 1" CONDUIT

PHOTOVOLTAIC SYSTEM SCHEMATIC — 4/E1

SCALE: N.T.S.

PV SYSTEM GENERAL NOTES

1. ALL INVERTERS SHALL BE IEEE 929 COMPLIANT AND SHALL BE INSPECTED BY LOCAL UTILITY BEFORE COMMISSIONING, TESTING AND OPERATION OF THE SYSTEM.
2. ALL OUTDOOR EQUIPMENT SHALL BE PROPERLY GROUNDED PER THE REQUIREMENTS OF NEC ARTICLE 250 & 690.
3. NEC ARTICLE 690.9 (A). ALL CIRCUITS CONNECTED TO MORE THAT ONE SOURCE SHALL HAVE OVERCURRENT DEVICES LOCATED CLOSE TO PROVIDE OVERCURRENT PROTECTION FROM ALL SOURCES.
4. NEC ARTICLE 690.18 DUE TO THE FACT THAT PV MODULES ARE ENERGIZED WHENEVER THEY ARE EXPOSED TO LIGHT, PV CONTRACTOR SHALL DISABLE THE ARRAY DURING INSTALLATION AND SERVICE BY SHORT CIRCUITING, OPEN CIRCUITING, OR COVERING THE ARRAY WITH AN OPAQUE COVERING.
5. PHOTOVOLTAIC SYSTEM SHALL BACKFEED THE DISTRIBUTION SYSTEM ON SITE PER THE REQUIREMENTS OF NEC ARTICLE 690.64 (B). ALL BACKFEED BREAKERS SHALL BE IDENTIFIED AS SUCH AND SHALL BE SECURED IN PLACE BY AN ADDITIONAL FASTENER PER THE REQUIREMENTS OF NEC 408.16 (F) & 408.36 (F).
6. NEC ARTICLE 690.56 (B) A PLACARD SHALL BE PROVIDED ON THE EXTERIOR AND INTERIOR OF THE UTILITY MAIN SERVICE DISCONNECT LOCATION WITH THE FOLLOWING TEXT: CAUTION SOLAR PHOTOVOLTAIC (PV) SYSTEM INSTALLED. WHEN POWER DISCONNECTED, SOLAR PV MODULES AND WIRING IN CONDUIT TO INVERTER MAY REMAIN ENERGIZED DURING DAYLIGHT HOURS. PHOTOVOLTAIC SYSTEM DISCONNECTS ARE LOCATED ON THE BUILDING EXTERIOR NEAR THE GENERATOR.
7. NEC ARTICLE 690.14. EACH DC DISCONNECT SHALL BE LABELED WITH: "SOLAR PHOTOVOLTAIC POWER SYSTEM EMERGENCY DC DISCONNECT." LABEL SHALL BE A 1" X 4" MINIMUM WITH UV RESISTANT BLACK LETTERS ON YELLOW BACKGROUND.
8. NEC ARTICLE 690.53 A PLACARD, MINIMUM 3" X 3", UV RESISTANT, AND INCLUDING BLACK LETTERS AND A YELLOW BACKGROUND, SHALL BE PROVIDED BESIDE THE DC DISCONNECT.
9. DC DISCONNECT AT THE INVERTER WILL BE READILY ACCESSIBLE AFTER THE INSTALLATION IS COMPLETE. PROVIDE A WARNING SIGN AT THIS DISCONNECT PER NEC ARTICLE 690.17.
10. CONTRACTOR TO PROVIDE GROUND FAULT PROTECTION FOR ROOF MOUNTED PHOTOVOLTAIC ARRAYS PER NEC ARTICLE 690.5.
11. WHERE MORE THAN ONE NOMINAL VOLTAGE SYSTEM EXISTS, THE DIFFERENT SYSTEMS SHALL BE IDENTIFIED BY PHASE AND SYSTEM.
12. PHOTOVOLTAIC SOURCE CURRENTS MUST BE RATED AT BOTH 125% OF THE PARALLEL MODULE AND AT A CONTINUOUS LOAD OF ANOTHER 125% FOR A TOTAL OF 156% OF THE LOAD.
13. PROVIDE PERMANENT PLAQUE OR DIRECTORY PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM DISCONNECT MEANS IF THEY ARE NOT IN THE SAME LOCATION PER NEC ARTICLE 690.56.
14. INSTALLATION OF PV PANEL ARRAYS SHOULD RESIST SLIDING AND POP-UP RESULTING FROM SEISMIC EVENTS AND SHOULD COMPLY WITH CBC SECTION 1613A AND ASCE STANDARD 7-05 CHAPTER 13.
15. PV SYSTEM INSTALLER WILL BE RESPONSIBLE FOR FURNISHING AND INSTALLING ALL RELATED EQUIPMENT, CABLES, ADDITIONAL CONDUITS, BOXES, WIREWAYS, AND ALL OTHER ACCESSORIES NECESSARY FOR A COMPLETE AND OPERATIONAL PHOTOVOLTAIC SYSTEM.
16. PV SYSTEM CONTRACTOR SHALL COORDINATE ALL WORK WITH THE ENGINEER, CONSTRUCTION MANAGER, AND OTHER CONTRACTORS TO INSURE THAT PV SYSTEM IS INSTALLED AS SPECIFIED IN THESE DOCUMENTS.
17. PV SYSTEM EQUIPMENT SHALL COMPLY WITH ALL UTILITY COMPANY REQUIREMENTS FOR ZREC LEVEL METERING.



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PHOTOVOLTAIC ROOF PLAN, PARTIAL FLOOR PLAN, DETAILS AND NOTES

Date: 11.20.18
Scale: AS NOTED
Drawn By: GK
Project Number: 17.007

Drawing Number: E1