TOWN OF EASTON

Solar Permit Package

TOWN OF EASTON

SOLAR PERMIT APPLICATION

Call for FEE AMOUNT (203)268-6291 Applications **WILL NOT** be Processed if Check is Not Submitted

REVIEW & FILL OUT ALL REQUIRED PAPERWORK		
PERMIT #		
OWNERS NAME:		**Ph. #**
ADDRESS:		
SOLAR COMPANY:		**Job Cost: $**
Email:		**Ph. #**
kW:	**#Panels:**	**UI#**
Electrician Name:		**Ph. #**
License #	**License Type:**	**Exp. Date:**
A STAMPED SIGNED ENGINEER LETTER MUST BE INCLUDED		

I, THE UNDERSIGNED, hereby affirm and attest that I am familiar with the requirements & provisions of the BUILDING CODE of the STATE of CONNECTICUT and Ordinances of the TOWN of EASTON as they apply to the work described above, and I agree to satisfy those requirements in every portion of that work, and to give the applicable local and state requirements precedence over other written specifications, drawings and instructions.

I further agree to cooperate with and assist the Officials of the Town of Easton in their inspections of this work, and in the enforcement of applicable local and state codes and regulations.

I hereby certify that I am the Owner or Authorized Agent of the Owner of the Property herein described, and that I have the necessary legal right and authority to proceed with the work herein outlined, and that the information I have is true and correct, and that the cost estimate is accurate to the best of my knowledge.

Signature: _____ ***Date:***_____

OFFICE USE ONLY

JOB PRICE:
PERMIT FEE:
ADMIN FEE:
TOTAL FEE:

Building Official Signature: _____ Date: _____

TOWN OF EASTON

BUILDING DEPARTMENT

BUILDING DEPARTMENT

To Obtain a Building Permit for a Photovoltaic Power System You Will Need to Take the Following Steps:

- ☐ Call the Building Department to Get the Permit Fee. ***(Permit Can Not Be Processed Without Payment)*** **(203)-268-6291 Ext.110**
- ☐ Solar Permit Application Must be Filled in Completely
- ☐ Connecticut Energize CT Form Must be Filled Out Completely
- ☐ Plans Should Include:
  - A One-Line Electrical Drawing
  - Roof Description
  - Number of Panels
  - System Size/kW Output
  - Number and Type of Inverters
- ☐ A Signed & Sealed Letter from a Licensed Connecticut Structural Engineer Stating that the Roof Structure is Adequate to Hold the Weight of New Solar Panels
- ☐ Copy of the Certificate of Insurance showing Worker's Compensation coverage or Worker's Compensation Waiver Form.
- ☐ Installers must be licensed by the Department of Consumer Protection. Provide a copy of the contractor's HIC & E-1 license
- ☐ Equipment Specifications
- ☐ Sample of Required Labeling
- ☐ Complete the "Certification for Photovoltaic Power System Installations" after installation and email copy to: NicoleC@EastonCT.gov
- ☐ Copy of the Certificate of Insurance showing Worker's Compensation coverage or Worker's Compensation Waiver Form.
- ☐ Installers must be licensed by the Department of Consumer Protection. Provide a copy of the contractor's HIC & E-1 license.
- ☐ A Final Inspection is Required by the Building Official. You Must Provide a UI# or Eversource# Before Scheduling a Final Inspection
- ☐ Call the Building Department to Schedule Inspection. **ph. (203)268-6291 ext.110**
  (Inspections for Photovoltaic Power Systems are Done on Tuesday's and Friday's **ONLY!**

Ground Mount System Additional Requirements

- ☐ All Ground Mount Arrays Require Special Permit Zoning Application & Health Department Approval

  P&Z Department: **ph. (203)268-6291 ext.120**

  Aspetuck Health District: **ph. (203)227-9571 ext. 221**

- ☐ A Site Plan Showing Location of a Ground Mounted System in Relation to Set-Backs & Structures

- ☐ Conservation/Inland Wetlands Permit May Also be Required. Call for Determination

  Conservation / Inland Wetlands: **ph. (203)268-6291 ext.123**

TOWN OF EASTON

BUILDING DEPARTMENT

CHECKLIST FOR PHOTOVOLTAIC POWER SYSTEM INSTALLATIONS

EMAIL THIS CHECK LIST ALONG WITH SIGNED CERTIFICATE UPON COMPLETION OF JOB TO:
NicoleC@EastonCT.gov

WE WILL NOT RELEASE JOB UNTIL RECEIVED

PV ARRAYS

- ☐ PV modules listed to UL Standard 1703 [110.3] {690.4(D)}

a. Mechanical Attachment

- ☐ Modules attached to the mounting structure according to the manufacturer's instructions [110.3]
- ☐ Roof penetrations secure and weather tight

b. Grounding

- ☐ Each module grounded using the supplied hardware, the grounding point identified on the module and the manufacturer's instructions Note: Bolting the module to a "grounded" structure usually will not meet NEC requirements [110.3 (B)]. Array PV mounting racks are usually not identified as equipment-grounding conductors
- ☐ Properly sized equipment-grounding conductors routed with the circuit conductors [690.45]

c. Conductors

- ☐ Conductor type – If exposed: USE-2, UF (usually inadequate at 60°C) or SE, 90°C, wet-rated and sunlight-resistant. [690.31 (B)] {2011 NEC restricts exposed single-conductor wiring to USE-2 and listed PV/Photovoltaic wire/cable}-If in conduit: RHW-2, THWN-2, or XHHW-2 90°, wet rated conductors [310.15]
- ☐ Conductor insulation rated at 90°C [UL-1703] to allow for operation at 70°C+ near modules and in conduit exposed to sunlight (add 17-20°C to ambient temperature- see Table 310.15(B)(2)
- ☐ Temperature-derated ampacity calculations based on 156% of short circuit current (Isc), and the derated ampacity greater than 156% Isc rating of overcurrent device [690.8,9] Note: Suggest temperature derating factors of 65°C in installations where the backs of the module receive cooling air (6" or more from surface) and 75°C where no cooling air can get to the backs of the modules. Ambient temperatures in excess of 40°C may require different derating factors.
- ☐ Portable power cords allowed only for tracker connections [690.31(C), 400.3,7,8]
- ☐ Strain reliefs/cable clamps or conduit used on all cables and cords [300.4, 400.10]
- ☐ Listed for the application and the environment

OVERCURRENT PROTECTION

- ☐ Overcurrent devices in the dc listing for dc operation- if device not marked dc, verify dc listing with manufacturer – auto, marine, and telecom devices not acceptable
- ☐ Rated at 1.25 x 1.25 = 1.56 times short- circuit current from modules [UL- 1703, 690.8, module instructions] Note: Both 125% factors are now in the disconnects for equipment [690.17]
- ☐ Grounded conductors not fused or switched – Bolted disconnects OK Note: Listed PV Centers by Xantrex, Outback, and others for 12, 24 and 48-volt systems contain charge controllers, disconnects, and overcurrent protection for entire dc system with possible exception of source circuit or module protective fuses.

INVERTERS (Stand-alone Systems)

- ☐ Inverter listed to UL Standard 1741 [110.3] {690.4(D)} Note: Inverters listed to telecommunications or other standards do not meet NEC requirements
- ☐ DC input currents calculated for cable and fuse requirements- Input current=rated as output in watts divided by the lowest battery voltage divided by inverter efficiency at that power level. [690.8]
- ☐ Cables to batteries sized 125% of calculated inverter input currents [690.8(A)]
- ☐ Overcurrent/Disconnects mounted near batteries and external to PV load centers if cables are longer than 4-5 feet to batteries or inverter
- ☐ High interrupt, listed, listed, dc-rated fuses or circuit breakers used battery circuits- AIR/AIC at least 20,000 amps [690.71 (C), 1009]
- ☐ No multiwire branch circuits where single 120-volt inverters connected to 120/140-volt load centers [100-Branch Circuit, Multiwire], [690.10 (C)]

BATTERIES (none are listed)

- ☐ Building-wire type cables used [Chapter 3] Note: Welding cables, marine, locomotive (DLO), and auto battery cables do not meet NEC. Flexible, listed RHW or THW cables are available. Article 400 flexible cables larger than 2/0 AWG are OK for battery cell connections, but not in conduit or through walls. [690.74, 400.8] Flexible, fine stranded cables require very limited, specially listed terminals. See stand-alone inverters for ampacity calculations.
- ☐ Access limited [690.71 (B)]
- ☐ Installed in well-vented areas (garages, basements, outbuilding, and not living areas) Note: Manifolds, power venting, and single exterior vents to the outside are not required and should be avoided.
- ☐ Cables to inverters, dc load centers, and/or charge controllers in conduit
- ☐ Conduit enters the battery enclosure below the tops of the batteries [300.4] Note: There are no listed battery boxes. Lockable heavy-duty plastic polyethylene tool boxes are usually acceptable.

INVERTERS (Utility-interactive Systems)

- ☐ Inverter listed to UL Standard 1741 and identified for use in interactive photovoltaic power systems [690.4 (D),690.60] Note: Inverters listed to telecommunications and other standards do not meet NEC requirements
- ☐ Backup charge controller to regulate the batteries when the grid fails [690.72(B)(1)]
- ☐ Connected to dedicated branch circuit with back-fed overcurrent protection [705.12]
- ☐ Listed dc and ac dis-connects and over current protection [690.15,17]

TOWN OF EASTON

BUILDING DEPARTMENT

Certification for Photovoltaic Power System Installations

Date: _____

Town of Easton
Office of the Building Official
225 Center Road
Easton, CT 06612

RE: **PHOTOVOLTAIC POWER SYSTEM INSTALLATIONS**

To whom it may concern,

This letter is to certify that the photovoltaic power system installed at

_____, Easton, CT 06612, has been installed and tested as per the requirements of the 2022 Connecticut State Building Code, including the 2022 National Electrical Code (NFPA 70).

Sincerely,

_____
Signature

COMPANY NAME	
ADDRESS	
LICENSE TYPE	
LICENSE #	
CRS#	

Permit # [For Jurisdiction Use]: _____

energize CONNECTICUT℠

CT Standardized Solar PV Permit Application Supplement

Please fill in the following information and submit ALL applicable attachments.

Date: _____

General Description of Solar PV Array: _____

_____

System Size (kW DC): _____

Solar PV Mounting Information

Mounting Type (roof, pole, ground, other-specify): _____

Mounting System Manufacturer: _____

Product Name and Model #: _____

Building Information (For Roof-Mounted Systems Only)

Building Type (e.g. house, shed, barn, slab): _____

Building Height (in feet): _____

Is the building permitted? ☐ Yes ☐ No ☐ NA

If no, reason: _____

Electrical Description

Size (amps) and type (phase, voltage) of electrical service: _____

Amperage of main breaker: _____ Will the value of main breaker change? ☐ Yes ☐ No To: _____

Rated amperage of the bus bar in the main panel: _____

Type of interconnection (e.g. breaker-load side, supply-side interconnect): _____

Electrical panel location: _____

If load side interconnect, will solar intertie into a subpanel? ☐ Yes ☐ No

If yes, rated amperage of the subpanel bus bar? _____ Value of breaker protecting subpanel bus bar? _____

Attachments for application (See instructions on the next page. Example Attachments are available for download at www.energizect.com/sunrisene)

- ☐ 1. Additional Subcontractors and Information
- ☐ 2. One-Line Electrical Drawing
- ☐ 3. One-Line Site Plan Drawing
- ☐ 4. Attachment Details (Line Drawing)*
- ☐ 5. Solar PV Module Specification Sheets From Manufacturer
- ☐ 6. Inverter Specification Sheets From Manufacturer
- ☐ 7. Pole or Ground Mount Information (if applicable)*
- ☐ 8. Structural Evaluation (if required by municipality). See page 3 for documentation requirements.
- ☐ 9. Additional Information for Large Solar PV Systems (as Specified by the Municipality)

***NOTE:** Applicants should submit either Attachment 4 for roof-mounted systems OR Attachment 7 for pole/ground-mounted systems, not both.

Instructions for ATTACHMENTS to the Connecticut Standardized Solar PV Permit Application

Please Complete the Application Form (page 1) and provide all applicable Attachments based on the below instructions for Attachments 1-8. Attachment 8 is a Structural Evaluation to be completed if required by the municipality. Additional information required by a municipality for large solar PV systems can be submitted as a 9th Attachment. Example Attachments (e.g. sample drawings) can be found at www.energizect.com/sunrisene.

Each Attachment—Subcontractor List and Drawings —Must Include:

- Date
- Property Owner
  - Name
  - Address
  - Contact phone number
- Installation Company
  - Name of company and contact person
  - Address
  - Contact phone number
- Drawing number and Revision number or other control method
- Drawing designer

Attachment 1. Additional Subcontractor List
(If Needed, as per Permit Application)

Attachment 2. One-Line Electrical Drawing Must Show:

- Size of electrical service
  - Size of Main Breaker
  - Size of Bus Bar (If Known)
- Type of electrical service
- If interconnection point is a subpanel
  - Size of Subpanel Main Breaker
  - Size of Subpanel Bus Bar (If Known)
- Nominal power of solar system (Watts)
  - DC Capacity: Nameplate "STC" Value of all panels, watts
  - AC Capacity: Total AC capacity of Inverters, watts
- Batteries (If Present): Type, Quantity, Nominal Voltage, Capacity kWh
  - H_2 mitigation methods (If Necessary)

(Attachment 2 continued)

- Interconnection method
  - Size of overcurrent protection
- Number, type and electrical configuration of solar panels
- Number and type of Inverters
- Values for source stickers: NEC 690.53; NEC 690.54 (Encouraged, Not Required)
- Wiring methods
  - Wire Type(s), Size
  - Conduit Type(s), Size
- Solar metering (If Appropriate)
- Electrical current contribution from all PV sources
- Electrical grounding details: Wire Type, Size, GEC

Attachment 3. One-Line Site Plan Drawing Must Show:

- Location of solar panels
- Location of Inverters and major equipment
- Location of roof obstructions (Vents, Chimneys, etc.)
- Location of Main Breaker Panel
- Location of Utility Meter
- Location of AC disconnect
- Location of batteries and/or charge controllers (If Appropriate)
- Location of solar metering (If Appropriate)
- Planned conduit path (Encouraged, Not Required)
- Gross dimensions of structure (If Appropriate)
- Approximate layout of building or other structure (If Appropriate)
- Property lines, zoning, and setback considerations (If Appropriate)
- Trenching details: Location, Depth and Length of Trench (If Appropriate)
- A notation indicating scale —or not to scale (Both are Acceptable)

Instructions for ATTACHMENTS to the Connecticut Standardized Solar PV Permit Application

Attachment 4. Attachment Details for Roof-Mounted Systems (Line Drawing) Must Show:*

- Racking System
  - – Manufacturer of racking structure
  - – Model
  - – Type
- Flashing description
- Fastener detail
  - – Type of fasteners, e.g. Lag Screws, Seam Clamps, Ballast
    - ○ If Lag Screws include:
      (1) Type (e.g. Zinc, Stainless steel)
      (2) Size of Lag
      (3) Depth of Thread Penetration
      (4) Type of Sealant (e.g. caulk)
- Mitigation of Dissimilar Metals
  - – Describe how any dissimilar metals will be isolated

Attachment 5. Solar PV Module Specification Sheets
(provide PDF from manufacturer)

Attachment 6. Inverter Specification Sheets
(provide PDF from manufacturer)

Attachment 7. Pole Mount or Ground Mount Information (if applicable):*

- Racking system
- Mounting specification sheets and details from manufacturer (PDFs)
- Manufacturer's Pre-Engineered Document or PE Stamp
- Code Compliance Manual (If Requested by Municipality)
- One-way distance from the Solar PV system to the interconnection point
- Electrical grounding details
- Height of solar PV system at maximum design tilt
- Applicable zoning information if not shown on site plan (e.g. setback from property line)

Attachment 8. Structural Evaluation (if required by the municipality)

- **NOTE:** *If this Attachment is required by the municipality it must be submitted in a format accepted by the municipality (see two examples, listed below). Installers should contact the municipality's Building Department to determine what documentation will meet the municipality's Structural Evaluation requirements.*

  Two potentially acceptable formats are:

  1. Structural Review Worksheet (available at www.energizect.com/sunrisene). This worksheet can be used by an installer to meet the Structural Evaluation requirements of a municipal Building Department if the department specifically authorizes its use for that purpose.

  OR

  2. Proof of a Structural Review performed by a Registered Design Professional (e.g. Professional Engineer).

Attachment 9. Additional information required for larger solar PV systems

- This Standardized Solar PV Permit Application Supplement can also be used to permit larger systems. If a municipality requires additional information to permit larger systems, they should specify the information needed as a 9th attachment to the application.

*NOTE: Applicants should submit either Attachment 4 for roof-mounted systems OR Attachment 7 for pole/ground-mounted systems, not both.