

**Connecticut Green Bank**

REQUEST FOR PROPOSALS FOR SOLAR PROJECTS AT STATE OF CONNECTICUT FACILITIES

**RFP Amendment #2**

Dated July 29, 2021

**A. Site Visits Round 2: See VI. Proposal Process, Section 3. Site Visits (page 17 of the RFP).**

Please reference the below site visit table for the second and final schedule of site visits.

Please also note that rubber-soled shoes are required for site visits.

<b>Date</b>	<b>Time</b>	<b>Site Name</b>	<b>Address</b>
8/3/2021	9:00	DOT Hamden	2061 State St, Hamden, CT 06517
8/3/2021	9:45	Eli Whitney Technical High School	100 Fairview Ave, Hamden, CT 06514
8/3/2021	10:35	Emmett O'Brien Technical School	141 Prindle Ave, Ansonia, CT 06401
8/3/2021	11:30	W.F. Kaynor Technical High School	43 Tompkins St, Waterbury, CT 06708
8/3/2021	12:30	Henry Abbott Technical High School	21 Hayestown Ave, Danbury, CT 06811
8/4/2021	9:00	DOT HQ	2800 Berlin Turnpike, Newington, CT, US, 06111
8/4/2021	9:45	A.I. Prince Technical High School	401 Flatbush Ave, Hartford, CT 06106
8/4/2021	10:30	Howell Cheney Technical High School	791 Middle Turnpike W, Manchester, CT 06040
8/4/2021	11:30	Portland Complex	163 Great Hill Road, Portland, CT 06480
8/4/2021	12:40	Marine Headquarters	333 Ferry Road, Old Lyme, CT 06371
8/4/2021	Lunch		
8/4/2021	14:30	Quinebaug Fish Hatchery	145 Trout Hatchery Road, Plainfield, CT 06374
8/4/2021	15:15	H.H. Ellis Technical High School	613 Upper Maple St, Danielson, CT 06239

**B. DOT Carport Height: See IV. Scope of Services and Project Information. See IV. Scope of Services and Project Information (page 9 of the RFP)**

The carport structures are now required to have a minimum height clearance of 14'-0" for all DOT Sites.

**C. CTECS Howell Cheney Technical High School Carport Height Requirement. See IV. Scope of Services and Project Information (page 9 of the RFP)**

The northwest most carport structure shall have a minimum height clearance of 11'-6" to allow for bus parking. Please reference the revised site report exhibit.

All other carport structures shall follow the requirements laid out in the RFP.

**D. Additional Drawings**

Additional drawings have been provided by CTECS and DEEP. These drawings are available in the exhibit folders available on the CT Greenbank RFP website. The new drawings are listed below.

- a. S100-G Quinnebaug - generator replacement drawings 100% DD SET.pdf
- b. S101 Portland Complex - COMPLEX EX ELECTRICAL 042021-EX (2).pdf
- c. S101 Portland Complex - Electrical Upgrade Drawings 2021\_06\_11 Bid Set to DEEP.pdf
- d. S111C AI Prince Tech Roof Plan.pdf

**E. Replacement Electric Room Photos**

New photos are available for the electrical room at S111C AI Prince. The photos previously made available were incorrect and should be deleted.

**F. Revised Site Plans**

Revised site plans are available in the exhibit folders on the CT Greenbank RFP website. The new files are listed below.

- a. DEEP Portland Complex - *Site Report - S101 rev1.pdf*
- b. H.H. Ellis Technical High School - *Site Report - S104B rev1.pdf*
- c. Eli Whitney Technical High School - *Site Report - S105B rev1.pdf*
- d. Henry Abbott Technical High School - *Site Report - S107A rev1.pdf*
- e. Howell Cheney Technical High School - *Site Report - S108A.pdf*
- f. A.I. Prince Technical High School - *Site Report - S111C rev1.pdf*

**G. Site Visit Round 1 Sign In Sheets**

Sign-in sheets are available for the first round of site visits. Note that the visits scheduled for 7/9/2021 were cancelled due to inclement weather so no sheet is available.

- a. *State Solar RFP sign in 20210707.pdf*
- b. *State Solar RFP sign in 20210708.pdf*

**H. CTECS Roof Insurance Compliance**

All proposed CTECS rooftop systems have FM Global roof insurance. Below is an excerpt from communications with FM Global regarding the proposed solar PV arrays. The data sheets 1-15, 1-28, 1-54 and 5-31 which are referenced below all have been added as Exhibits. They can be found through the link on the RFP webpage in "Exhibit A – Site Reports and Available Details" in the folder "FM Global Exhibit". The awarded Proposer is responsible for following FM Global

requirements in order to ensure the CTECS coverage remains in place. The awarded proposer shall also provide CTECS personnel with a copy of the construction documents including the wind study analysis and report for their records.

1. Submit all plans for review to [ENGBostonPlanReview@fmglobal.com](mailto:ENGBostonPlanReview@fmglobal.com), allow for a 10 day lead time for review of any submission. When sending in the plans include the Name of the school, Account, and also the site index number listed in the table below as part of the subject line.

Site Index	Name
019634.13-01	Eli Whitney Technical High School
000664.39-01	Howell Cheney Technical High School
000408.19-01	Emmett O'Brien Technical High School
000262.93-01	A. I. Prince Technical High School
018860.03-01	W.F. Kaynor Technical High School
001276.60-01	Harvard H. Ellis Technical High School
020425.89-01	Henry Abbott Technical High School

- a. Drawings should be provided that indicate the dimensions of the solar panels, where the panels are located on the roof, details of ballasting, details of the solar array securement, aisle spacing, and any other information that would be helpful for FM Global to complete a full design review of the panels.
2. In accordance with FM Global Property Loss Prevention Data Sheet 1-15, Roof Mounted Solar Photovoltaic Panels, ballasted roof-mounted PV panels should only be installed over fully adhered roof covers. Mechanically attached roof covers are designed to move or billow during severe wind uplift conditions. The billowing of the roof cover can potentially change the angle of the PV panels and alter the friction coefficient between the PV racking system and the roof cover. This would lead to movement of the PV array which could potentially damage the roof cover.
3. Design the roof for snow drifting potentially caused by the PV arrays in accordance with Data Sheet 1-54.
4. Provide proper drainage for PV panel systems in accordance with Data Sheet 1-54.
5. Design all roof-mounted PV solar panels and their securement for wind speeds and surface roughness exposures in accordance with Data Sheet 1-28.
6. Design wind pressure resistance for ballasted or anchored roof-mounted PV panels using one of the following options:
  - a. Provide wind resistance based on prescriptive calculation methods provided in SEAOC PV2.
  - b. Provide wind resistance based on boundary layer wind tunnel (BLWT) data per ASCE 49 (or equivalent international standard). SEAOC PV2 lists organizations that are qualified to conduct BLWT tests.
7. If a ballasted system will be installed, use concrete paver blocks for ballasted PV panels that meet specifications in ASTM C1491 and are satisfactorily tested in accordance with ASTM C1262 for exposure to freeze-thaw cycles.

8. Anchor all related equipment, such as combiner/junction boxes and conduits, to the roof deck or roof structural members (or inverters to concrete foundations) as required to provide proper anchorage against expected loads (see Figures 2A, 2B, and 9 of Data Sheet 1-15). Use mechanical anchors that can be connected to the equipment and to the roof deck or roof framing.
9. Use PV panels that have a hail resistance for a 1.5 in., 38 mm diameter ice ball. Please inform FM Global if the PV panels are UL 1703 tested.
10. Provide sufficient aisle spaces (4 ft., 1.2 m) between other adjacent PV arrays, other adjacent rooftop equipment or penetrations, and between PV panels and expansion or control joints on each side. Minimum 4 ft. (1.2 m) wide aisles at a maximum of 150 ft. (46 m) in each direction is recommended
11. Install PV systems as follows.
  - a. Provide one of the following:
    - i. Residual current DC monitoring (RCD) on +/- feeder circuits, or
    - ii. Electronic DC current sensing relay in ground circuit in series with ground fault fuses
  - b. Provide interlocks to trip the DC feed to the inverter and initiate an on-site building alarm. Emergency procedures should state that a prompt response to this alarm should include an investigation of the ground fault.
12. Provide ground fault detection systems with an alarm function for ungrounded systems.
13. Provide a remote DC disconnect for each combiner box as close as possible to the output side of the box for all new installations.
14. Ensure adequate provision is made for expansion and contraction due to extreme temperature fluctuations during the year. This includes wiring, as well as the interface between the PV panels and the roof cover.
15. Provide surge protection for the inverters on the DC and AC sides.
16. Provide reverse current overload fuses (RCOL) for each string of panels to prevent reverse current from undamaged parallel panel circuits being exerted on damaged panels. Design and install cables and bus-bars in accordance with Data Sheet 5-31.
17. Use DC wires that are moisture and sunlight resistant and have a minimum temperature rating of 90°C.