TOLLAND GREEN HISTORIC DISTRICT COMMISSION
Application for a Certification of Appropriateness

Property Information

Property Address: 45 Tolland Green

Property Owner: United Congregational Church of Tolland

Phone Number: [redacted]

Applicant Information

Applicant Name: Kevin Thompson on behalf of 715 United Congregational Church of Tolland members

Applicant Address: 65 Noah Lane Tolland CT 06084

Phone Number: [redacted] **Email:** [redacted]

Project Information

Type of Building: Church and Education Building

Nature and description of work to be done as it affects exterior appearance. Attach appropriate drawing or plans giving the position of the house or structure on the site, ground plan of house with proposed addition, and all pertinent elevations showing size and style of windows, dormers, doors, exterior wall finishes, roofing material, chimneys, vents and ornamentation. *(If more space needed, attach sheet to application.)*

Building mounted solar arrays (see attached presentation for details)

Estimated Start and Completion Dates:

Start: August 2024 **Complete:** December 2024

1. Attach a photograph of the existing structure or place to be changed as viewed from the street showing that portion of the structure to be altered, together with a drawing of the proposed alteration or change.
2. Application fee of $75.00 must accompany application (*make checks payable to Town of Tolland*).
3. Application form, fee, plans, photograph and drawing must be submitted to ***Planning & Building Department***. Public Hearings will be scheduled within not more than sixty-five days after the filing of an application.

Certificate of Appropriateness will expire 1 year from date of approval.

This application form and all accompanying plans and materials are accurate and complete:

Applicant Signature: Kevin Thompson **Date:** February 20, 2024

Property Owner Signature: Not applicable **Date:**

OFFICE USE ONLY

Received & Fee Paid:	2/20/24 [redacted]	earing Scheduled:	3/20/24
Hearing Advertised:	3/6/24 + 3/13/24	Action:	
Notice of Action to Applicant:		HDC Due Date:	4/25/24

United Congregational Church of Tolland (UCCT)
Tolland Green Historic District Commission (TGHDC)
Compromise Solar Energy Proposal
March 2024

Join Us in Supporting the UCCT Holistic Commitment to a Green Environment

- The main source of carbon emissions is powering the electrical grid
- Through the release of 2350 billion tons of carbon dioxide since 1850, the average global temperature has increased 2 degrees Fahrenheit[1]
- By 2100 the average global temperature is expected to have increased by 5-10 degrees Fahrenheit[1]
- The impact of rising global temperatures includes:
  - Extended periods of drought
  - Severe deluges with flooding
  - Periods of dangerous heat waves
  - Rising sea levels
  - Melting of permafrost and ice caps that release methane and possibly release pathogens
- In 2023 investments in UCCT Green initiatives including LED lighting and setback thermostats exceeded $25,000
  - Similar investments continue in 2024

[1] https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature

Join Us in Supporting the UCCT Commitment to Tolland

- Supporting all-inclusive faith formation in all church activities
- Providing baptisms, weddings, funerals and other pastoral services to all in the community who desire them
- Hiring a Community Engagement Pastor in 2023
- Supporting young families for 40 years with Tolland Green Learning Center daycare
- Providing a free, safe meeting space for:

Alcoholics Anonymous	Foodshare Distribution	Boy & Girl Scouts
PFLAG Tolland-Mansfield Chapter	Mother's & Veterans Groups	THS Rage Robotics

- Giving out candy on Halloween and providing cider and hot chocolate at the Tolland Light Parade
- Offering the use of the parking lots and bathrooms during events on the Green
- Supporting the Tolland Food Pantry, Cornerstone Soup Kitchen, and South Park Inn
- Providing chaplaincy services for the fire department and state police

UCCT Recent Solar Proposals

- October 2023 building-mounted solar panel installation
  - Total project cost of $144,000
  - Payback period of 8 years (based on conservative annual electric rate increases)
- November ground-based solar panel site preparation and installation
  - UCCT made a good faith effort to test the feasibility of the TGHDC's suggested ground-based solar array, but unfortunately, that approach resulted in **exceptional practical difficulty and undue financial hardship**
  - Total project cost of $225,000 (56% higher than the initial building-mounted proposal)
  - Payback period of 15 years (based on conservative annual electric rate increases)
  - Significant ground-based solar panel additional costs:
    - Purchase and install steel solar panel support structure
    - Trench and install conduit and cable 453 feet from array to electric meters
    - Prepare site including church, education building, Tobiassen House and parking lot drainage design and construction
    - Remove and dispose of 18 trees
    - Implement long-term knotweed control
    - Install heavy duty landscape fabric, spread topsoil, and plant grass
    - Install perimeter fencing

UCCT March 2024 ***Compromise*** Solar Proposal

- UCCT proposes a ***compromise*** solution installing solar panels on the Church and Phelps Education buildings:
  - Remove all solar panels from the historic front of the church as requested by the TGHDC
  - Create an **incidental only view** of solar panels from public streets
    - Mount solar panels **on the side or to the rear of buildings**
    - Setback roof solar panels 130 feet from Route 195
  - Total project cost of $158,000 (42% lower than ground-based solar panels)
  - Payback period of 10 years (based on conservative annual electric rate increases)

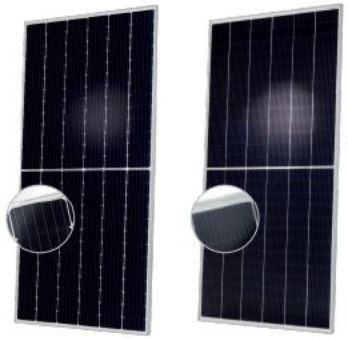
UCCT Proposed Solar Panels

Q.PEAK DUO XL-G10 SERIES

qcells

475-490Wp | 156 Cells
21.2% Maximum Module Efficiency

MODEL Q.PEAK DUO XL-10.3/BFG



6 busbar cell technology

12 busbar cell technology

Bifacial energy yield gain of up to 20%

Bifacial Q.ANTUM solar cells with zero gap cell layout make efficient use of light shining on the module rear-side for radically improved LCOE.

Low electricity generation costs

Q.ANTUM DUO Z combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology for higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 21.2%.

A reliable investment

Double glass module design enables extended lifetime with 12-year product warranty and improved 30-year performance warranty[1].

Enduring high performance

Long-term yield security with Anti LeTID Technology, Anti PID Technology[2], Hot-Spot Protect.

Frame for versatile mounting options

High-tech aluminum alloy frame protects from damage, enables use of a wide range of mounting structures and is certified regarding IEC for high snow (5400 Pa) and wind loads (2400 Pa).

Innovative all-weather technology

Optimal yields, whatever the weather with excellent low-light and temperature behavior.

[1] See data sheet on rear for further information.
[2] APT test conditions according to IEC / TS 62804-1:2015 method B (-1500 V, 168 h) including post treatment according to IEC 61215-1-1 Ed. 2.0 (CD)

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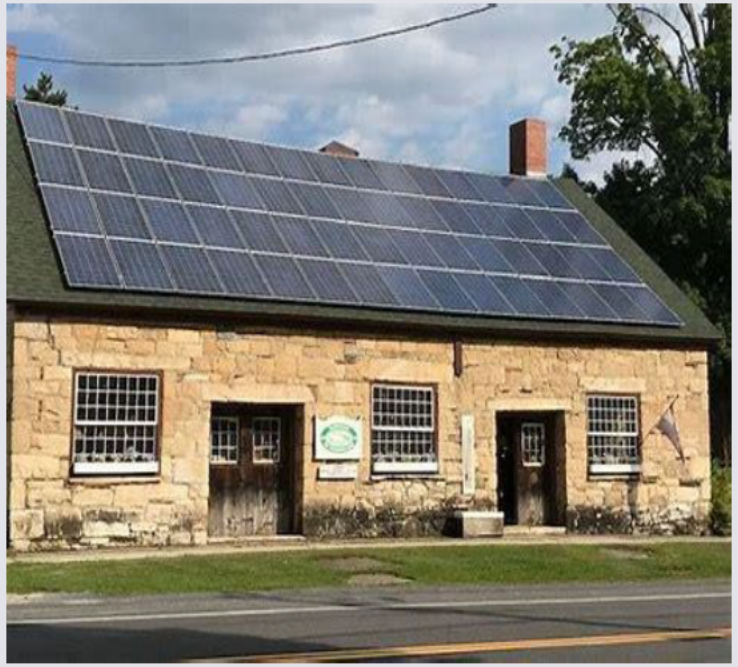
UCCT Compromise Solar Proposal

UCCT Compromise Solar Proposal – Street View

Connecticut and Federal Historic Building Solar Approvals

- The Connecticut State Office of Historic Preservation **approved** the UCCT building-mounted solar proposal
- US Department of the Interior - Three historic structures with approved solar panels:



Historic District Guidelines that Support this Compromise Solar Proposal

- Connecticut General Statute 7-147f and Section 96-5 of the Tolland Code: No application for a certificate of appropriateness for an exterior architectural feature, **such as a solar energy system**, designed for the utilization of renewable resources shall be denied unless the commission finds that the feature cannot be installed without **substantially impairing the historic character and appearance of the district**
- Tolland Green Historic District Chapter 96 Regulations: 96-4 Certificate of Appropriateness; …**For the purposes of this chapter, exterior architectural features which are located on the side or to the rear of buildings or structures and are only incidentally visible from a public street shall not be considered "open to view."** "

Join Us in Supporting this Compromise Solar Panel Proposal

- This Compromise Solar Panel Proposal:
  - Creates green environment support that is only incidentally visible from a public street
  - Results in no substantial impairment of the historic character and appearance of the district
  - Relieves UCCT from exceptional practical difficulty and undue financial hardship
  - Supports long-term continuation and support of UCCT and its 715 members
  - Aligns with UCCT member vote to approve Compromise proposal
  - Encourages continued UCCT community involvement and support
  - Demonstrates meaningful compromise between historic preservation and global stewardship
  - Establishes a tasteful, prestigious Tolland example of reduced carbon footprint and green environment support
- **UCCT respectfully requests TGHDC approval of this compromise solar proposal**