



TOWN OF GUILFORD

BUILDING DEPARTMENT

KIMBERLY NORMAN-ROSEDAM

50 BOSTON STREET – TOWN HALL SOUTH

BUILDING OFFICIAL

GUILFORD, CONNECTICUT 06437

TELEPHONE: (203) 453.8029

SETTLED IN 1639

Solar Photovoltaic (PV) System Permitting Process and Checklist

The pre-submittal checklist below contains the minimum information and project plan details required to be submitted to Town of Guilford when applying for a permit to install a residential and commercial/non-residential solar photovoltaic (PV) system. The intent of using the checklist is to provide transparent and well-defined information to minimize the number of required revisions, improve permit application quality, and accelerate the application and review process.

Codes and Design Criteria

Town of Guilford has adopted the following codes: 2022 Connecticut State Building Code (2022 CSBC), 2021 International Building Code (2021 IBC – Commercial), 2021 International Residential Code (2021 IRC – Residential) and 2020 National Electrical Code (2020 NEC)

The following local design criteria should be used: 2022 Connecticut State Building Code – Appendix N

(APPENDIX N) MUNICIPALITY - SPECIFIC STRUCTURAL DESIGN PARAMETERS												
Municipality	Ground Snow Load (psf)	MCE Spectral Acceleration s (%g)		Ultimate Design Wind Speeds, V_{ult} (mph)			Nominal Design Wind Speeds, V_{asd} (mph)			Wind-Borne Debris Regions ¹		Hurricane-Prone Regions
		S_s	S_1	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV	Risk Cat. I	Risk Cat. II	Risk Cat. III-IV	Risk Cat. II & III except Occup I-2	Risk Cat. III Occup I-2 & Risk Cat. IV	
East Hampton	30	0.177	0.062	120	130	140	93	101	108			Yes
East Hartford	30	0.180	0.064	115	125	135	89	97	105			Yes
East Haven	30	0.182	0.062	120	130	140	93	101	108		Type B	Yes
East Lyme	30	0.164	0.059	125	135	145	97	105	112	Type B	Type A	Yes
Easton	30	0.215	0.066	110	120	130	85	93	101			Yes
East Windsor	35	0.177	0.064	115	125	135	89	97	105			Yes
Ellington	35	0.176	0.064	115	125	135	89	97	105			Yes
Enfield	35	0.176	0.065	110	125	130	85	97	101			Yes
Essex	30	0.168	0.059	120	135	145	93	105	112		Type A	Yes
Fairfield	30	0.215	0.065	115	125	135	89	97	105		Type B	Yes
Farmington	35	0.183	0.064	115	125	135	89	97	105			Yes
Franklin	30	0.171	0.061	120	130	140	93	101	108		Type A	Yes
Glastonbury	30	0.180	0.063	115	125	135	89	97	105			Yes
Goshen	40	0.181	0.065	105	115	125	81	89	97			
Granby	35	0.176	0.065	110	120	130	85	93	101			Yes
Greenwich	30	0.259	0.070	110	120	130	85	93	101			Yes
Griswold	30	0.168	0.060	125	135	145	97	105	112		Type A	Yes
Groton	30	0.160	0.058	125	135	145	97	105	112	Type B	Type A	Yes
Guilford	30	0.176	0.061	120	130	140	93	101	108		Type B	Yes
Haddam	30	0.175	0.061	120	130	140	93	101	108			Yes

Required Permits

The following page contains the template solar permitting checklist that can be edited to match your community's permitting and inspection process

A permit must be obtained prior to the start of any work. Complete the following permit application form(s) and submit any additional required documents. Building Permit Application (Fillable):

[Building Permit Application](#), Electrical Sub Permit form: [ELECTRICAL SUB-PERMIT FILLABLE](#). You can either mail in your applications and payment or apply in person.

Solar Permit Checklist:

Or you can use SolarAPP+

<https://solarapp.nrel.gov/>

Eligibility to Use SolarAPP+

- **Main dwelling rooftop, permitted, residential structures only**
- No dwelling in a Flood Hazard Zone – Please check GIS go to interactive mapping to make sure the property is NOT in a Flood Hazard Zone by, entering the address in search field, then select Map Layer, then check **FEMA** mapping button - Enter.
https://quiford.mapxpress.net/ags_map/
- No dwelling in a Home Owner's Association where they will need to provide a letter of approval – to install the panels.
- No ballasted systems
- No systems with battery backup (coming soon)
- No building-integrated photovoltaic systems (BIPV)
- No upgrading, adding or enhancing any structural support.

Rooftop Solar Photovoltaic (PV) System Field Inspection Checklist

Residential Solar PV System:

- ☐ Electrical Permit
- ☐ Building Permit
- ☐ Zoning Permit
- ☐ Flood Permit {If in a flood zone}

Commercial/non-residential Solar PV System

- ☐ Electrical Permit
- ☐ Building Permit
- ☐ Zoning Permit
- ☐ Flood Permit {If in a flood zone}

Additional Required Documents

- ☐ Site Plan
 - Site plan should show the location of major components on the property. The site plan drawing need not be exactly to scale, but it should represent relative location of components at site (see supplied example site plan).

1. Engineered stamped plans for PV arrays in compliance with 2021 IRC fire setback requirements need no separate fire service review.

<https://codes.iccsafe.org/content/IFC2018P6/CHAPTER-12-ENERGY-SYSTEMS>

2. Letter from CT Licensed Engineer that the roof structure has been examined and found to be structurally capable of handling the additional loads

☐ Electrical Diagram

- Electrical diagram/worksheets should show PV system configuration, wiring system, overcurrent protection, inverter, disconnects, required signs, and AC connection to the building.

☐ Specification sheets and installation manuals

- Provide spec sheets and manuals for all manufactured components including, but not limited to, PV modules, inverter(s), combiner box, disconnects, and mounting system

Contractor Requirements

Home Improvement Contractors (H.I.C.) registration with the State of Connecticut Consumer Protection [To Install the PV system] and an Electrical [E-1] license with the State of Connecticut Consumer Protection [To install the wiring, grounding and bonding].

Permit Fees

Based on calculated value of the total project (calculated value includes labor & materials)

First \$1,000 of value	\$50
Each Additional \$1,000 of value	\$12
State Education Fee per \$1000	\$.26

A building application that is less than \$ 1,000.00 = \$50.26, please see the two examples below:

How to calculate a Building Permit Fee:

Example 1:

Cost of Construction:	\$ 8,400
<u>Fee Calculation:</u>	
First \$1,000	= \$50.00
$((8,400 - 1,000) \div 1000) \times \12	= \$88.80
<u>State Education Fee Calculation:</u>	
$(8,400 \div 1000) \times \$.26$	= \$2.18
Total payment due:	\$140.98

Example 2:

Cost of Construction:	\$750
<u>Fee Calculation:</u>	
First \$1,000	= \$50.00
<u>State Education Fee Calculation:</u>	
First \$1,000	= \$.26
Total payment due:	\$50.26

[There is a zoning fee of \$85.00 if it's a ground mount solar system and if it's in a flood zone a flood fee of \$50.00 shall apply.]

Complete fee information can be found

https://www.guilfordct.gov/Document_Center/Department/Building%20Department/Copy%20of%20Building%20Permit%20Calculation%20Widget.xlsx

[Zoning Permit Application](#)

[Flood Hazard Application fillable](#)

Submit Permit Application

Can be submitted in person, by mail or inserted into our drop box (must be accompanied with a payment check made out to the "Town of Guilford" to process permit application).

Review Process Timeline

The department reviewers are committed to providing a timely review of solar PV permit applications. Best efforts are made to review completed residential and commercial/non-residential solar permit applications **within 30 days less**. These turnaround times are typical, not guaranteed. The Town Hall South building has a staff of dedicated individuals, but workloads, vacations, and sick leave can cause unforeseen delays that may impact turnaround time.

Certain circumstances can prolong the permit turnaround time including:

- Applicant does not submit all required information
- Contractor applying for permit is not a licensed contractor
- Equipment is not listed
- **Letter from Ct Licensed Engineer that the roof structure has been examined and found to be structurally capable of handling the additional loads**
- Two sets of Plans/drawings drawn to ¼ inch scale "FOR BUILDING DEPARTMENT", that reflect all changes required by other department approvals, (these are in addition to copies that other departments may require). Set must include survey and Site plans.
- Workman's Compensation Certificate- this form must have signature(s)

Rooftop Solar Photovoltaic (PV) System Field Inspection Checklist

This checklist provides basic guidelines for inspecting most residential rooftop solar PV systems (15 kW and under). The intent of using the checklist is to provide transparent and well-defined information to minimize the number of re-inspections and accelerate project completion. These guidelines are not exhaustive.

Make sure all PV disconnects and circuit breakers are in the open position and verify the following: Helpful tip: Update the following checklist to include any relevant state or local code requirements.

- ☐ **1. All** work done in a neat and workmanlike manner [NEC 110.12].
- ☐ **2.** PV module model number, quantity, and location according to the approved plan.
- ☐ **3.** Array mounting system and structural connections according to the approved plan.
- ☐ **4.** Roof penetrations flashed/sealed according to the approved plan.
- ☐ **5.** Array exposed cables are properly secured, supported, and routed to prevent physical damage.
- ☐ **6.** Conduit installation according to NEC 690.31(D) and the approved plan.
- ☐ **7.** Firefighter access according to IRC R324 and the approved plan.
- ☐ **8.** Roof-mounted PV mounting system and modules have sufficient fire classification [IRC R324.4.2].
- ☐ **9.** Grounding/bonding of rack and modules according to the manufacturer's instructions.

- ❑ **10.** Equipment installed, listed, and labeled according to the approved plan (e.g., PV modules, inverters, dc-to-dc converters, rapid shutdown equipment).
- ❑ **11.** For grid-connected systems, inverter is marked "interactive" or documentation is provided to show that inverter meets utility interconnection requirements.
- ❑ **12.** Conductors, cables, and conduit types, sizes, and markings according to the approved plan.
- ❑ **13.** Overcurrent devices are the type and size according to the approved **plan**.
- ❑ **14.** Disconnects according to the approved plan and properly located as required by the NEC.
- ❑ **15.** Inverter output circuit breaker is located at opposite end of bus from utility supply at load center and/or service panelboard. If panel is center-fed, inverter output circuit breaker can be at either end of busbar [NEC 705.12(B)] (not required if the sum of the inverter and utility supply circuit breakers is less than or equal to the panelboard bus rating).
- ❑ **16.** PV system markings, labels, and signs according to the approved plan. **I=1 17.** Connection of the PV system equipment grounding conductors according to the approved plan.
- ❑ **18.** Access and working space for operation and maintenance of PV equipment such as inverters, disconnecting means and panelboards (not required for PV modules) [NEC 110.26].
- ❑ **19.** The rapid shutdown system is installed and operational according to the approved plan [NEC 690.12].
- ❑ **SUBMIT ENGINEER'S LETTER FOR POST (AFTER) STRUCTURAL INSTALLATION OF SOLAR PANELS.**

Permit Status

To check your permit status please call the building department office at 203 453-8029 or email us at building.perm@guilfordct.gov

Permit Expiration

All permits expire six (6) months after date of issue. Failure to start the work authorized by a permit within this six-month period renders the permit invalid and a new permit must be obtained. Once work begins, noticeable progress must continue until completion. All work must be complete within eighteen (18) months of a permit issue date.

Scheduling an Inspection and the Inspection Process

To schedule an inspection please call the building department office at 203 453-8029.

Typically, inspections are scheduled within seven days. [Inspection time frame are between 9:30am – 12pm and 1pm – 3pm].

A residential solar PV system requires 1 inspection:

- 1) Final Inspections: We will inspect the (Electrical wiring, subpanel, grounding and bonding)
- 2) Prior to issuance of a Certificate of Approval (COA), applicant shall submit a letter by the Architect or Engineer of Record, a Notarized "STATEMENT OF COMPLIANCE" bearing a seal of a Connecticut registered professional, verifying that all construction and repairs performed under this permit has been completed, inspected and approved as conforming to the approved construction documents

Review solar PV system inspection requirements.

Contact Information

If you have any questions, please contact us at:

- Building Department:
- Office Email: building.perm@guilfordct.gov

- Office Phone Number: (203) 453-8029

Address: 50 Boston Street, Guilford, CT 06437

Hours of Operation

- Office: 8:30 am – 4:30 pm
- Permit Counter: 8:30am – 1:30 pm