

solar PERMITTING & INSTALLATION handbook

C A M B R I D G E , M A



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"I'd put my money on the sun and solar energy. What a source of power! I hope we don't have to wait until oil and coal run out before we tackle that."
- Thomas Edison, 1931

BACKGROUND

The market for residential solar installations has grown dramatically over the past several years. As prices for residential solar systems drop and electricity rates continue to rise, homeowners have become more interested in renewable energy sources. Demand for residential solar photovoltaic systems is expected to continue grow steadily for the foreseeable future.

SCOPE

This guide's goal is to provide clear information about the application and review procedures to obtain permits to install solar photovoltaic electric generating systems on residential buildings in the City of Cambridge.

The permitting process includes adding a PV system to an existing structure as an addition or alteration, or installing a system on a new building.

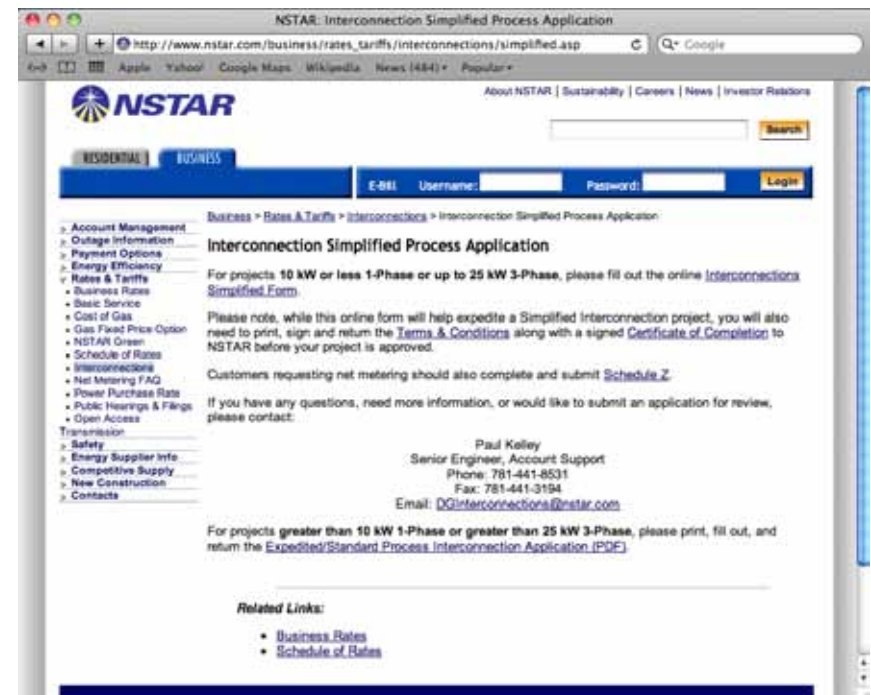
The guide also details zoning considerations and design elements that may require pre-application sign-offs by additional City departments or further plan review. This guide does not cover permitting for commercial installations or for solar water heating.

PRE-CONSTRUCTION CONSIDERATIONS

There are sections of the City of Cambridge that cannot be interconnected with the grid. Regardless of the location of the PV project, installers should always contact NSTAR as early as possible in the pre-construction phase to ensure that the PV system can be safely interconnected with the grid.

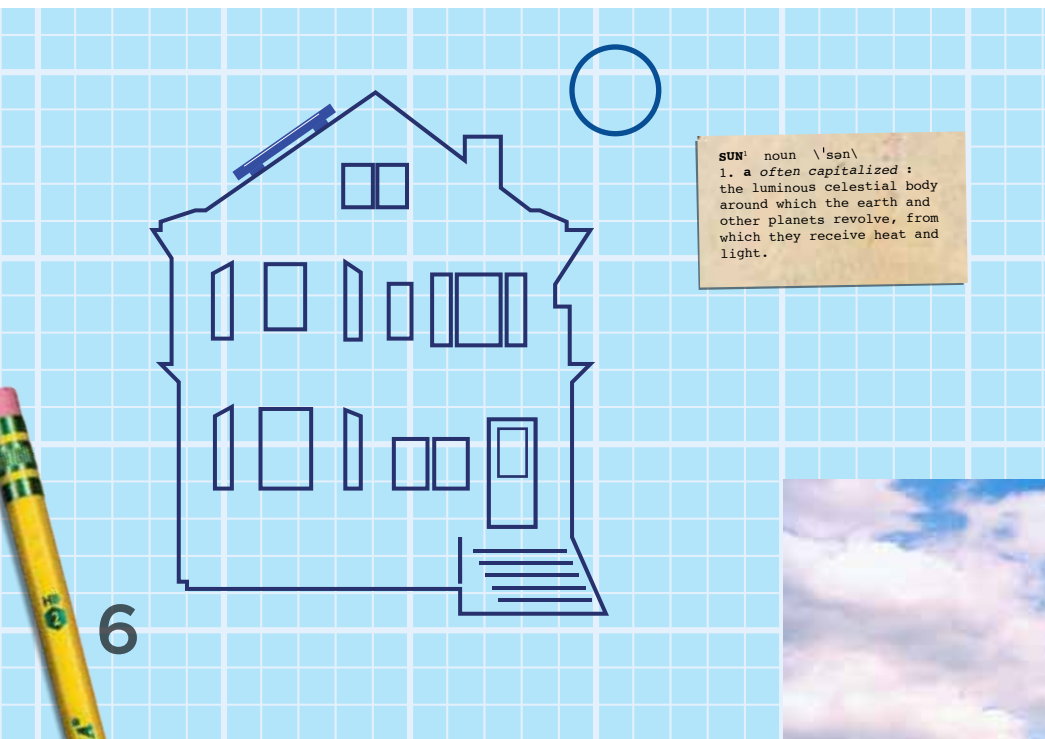
Only after consulting with NSTAR should one proceed with designing, purchasing and installing PV solar generating equipment. Please visit the NSTAR interconnection website for more information:

www.nstar.com/business/rates_tariffs/interconnections



The primary NSTAR account holder (usually the property owner) should apply for grid interconnection and net metering **as soon as** it is determined that the property is eligible for interconnection.

You will be given a “certification of completion” after your PV system passes final inspections by the building and electrical inspectors.



SUN: noun \ˈsʌn\
1. a often capitalized :
the luminous celestial body
around which the earth and
other planets revolve, from
which they receive heat and
light.



BUILDING PERMIT APPLICATION CHECKLIST

The City of Cambridge will only review completed building permit applications. Once the City has accepted your completed building permit application, a review process lasting 30 days or less will begin. Use the checklist to ensure your building permit application is complete to expedite this process.

After submitting your online application for a building permit, the Inspectional Services Department (ISD) will check with other City departments to verify proper sign off (if needed) and verify issuance of an electrical permit. You will receive an email from ISD after each approval or disapproval by relevant departments. You will also be notified by email if further documentation is needed.



If necessary:

- ☐ Special Permit/Board of Zoning Appeals (BZA) Approval
- ☐ Historical Commission Approval

Required:

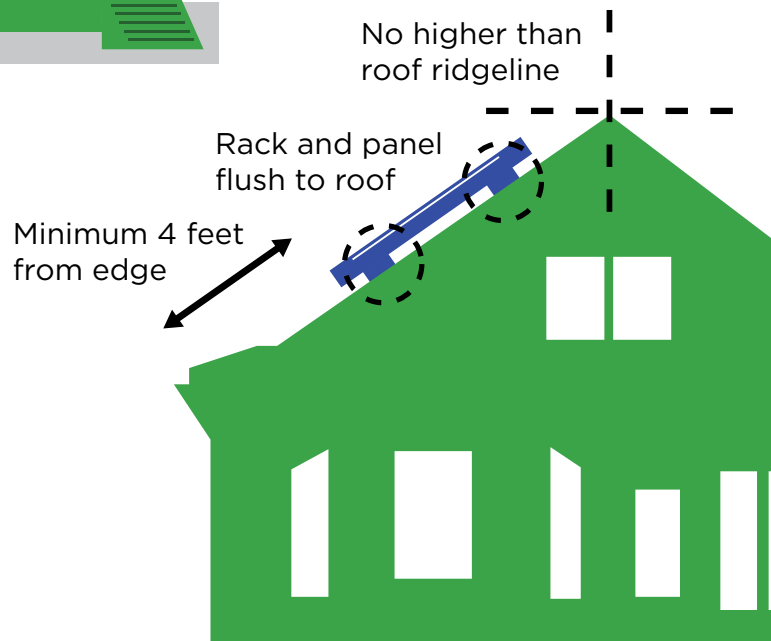
- ☐ Engineering Report of Roof Construction
- ☐ Electrical Permit issued in Conjunction with the Project
- ☐ 2 Sets of Plans in Digital Format
- ☐ Contractor's License & Home Improvement Contractor Registration
- ☐ Signed Contract between Property Owner & Contractor in Digital Format
- ☐ Homeowner or Condo Association Affidavit
- ☐ Building Permit Fee (1.5% of total project contract)



SPECIAL PERMIT CONSIDERATIONS

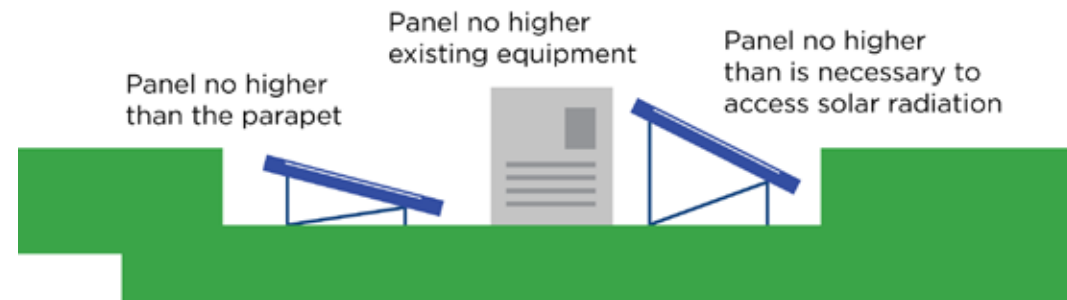
Pitched Roofs

PV systems mounted to pitched roofs typically will not require approval from the Board of Zoning Appeals (BZA), so long as the system does not exceed the height of the building (roof ridgeline) and the racking system is mounted flush to the surface of the roof. Additionally, panels may not be mounted less than 4 feet from the lowest edge of the roof.



Flat Roofs

PV systems mounted to flat roofs are considered mechanical equipment and typically will not require BZA approval. Racking systems for a flat roof installation should extend no higher above the roof than is necessary to access necessary solar radiation.



Plans or drawings for a residential PV solar installation that do not meet the criteria for pitched and flat roofs will most likely require a special permit or zoning variance from the BZA before a building permit can be issued. Please contact the Inspectional Service Department for more information.

Inspectional Service Department
831 Massachusetts Avenue
Cambridge, MA 02139
Phone: (617) 349-6100
Fax: (617) 349- 6132

HISTORICAL COMMISSION APPROVAL

Installation of a PV system on structures located in historic districts, designated as landmarks, or subject to preservation restrictions will require approval from the Cambridge Historical Commission. You can use the City of Cambridge CityViewer to determine whether the project site or structure is located in a historic preservation district or is a designated historical landmark by mapping the project address at:

[www2.cambridgema.gov/GIS/search.cfm?
applicationid=historicalpub](http://www2.cambridgema.gov/GIS/search.cfm?applicationid=historicalpub)

However, we strongly encourage you to contact the Cambridge Historical Commission directly to determine whether or not the project will be subject to historical review.

Cambridge Historical Commission
831 Massachusetts Avenue, 2nd Floor
Cambridge, MA 02139
Phone: (617) 349-4683
Fax: (617) 349-3116



Map of 42 Brattle Street in Cambridge, a designated landmark property located in a historic district.

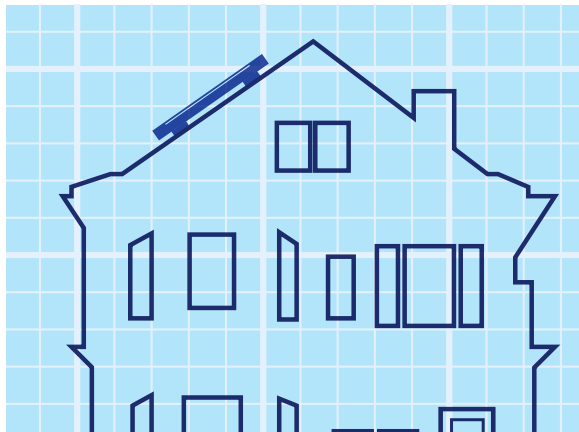
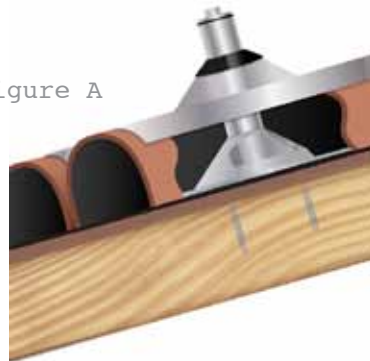
ENGINEERING REPORT OF ROOF CONSTRUCTION

A structural conditions report made by a registered structural engineer is **required**.

The building inspector will require the project design and specifications to be certified by a registered structural engineer. The building permit application and plans will not be accepted without this report.

In addition, it may be helpful to include photographs of the project roof that illustrate the spacing between joists and overall condition of the roof. A detailed drawing or description of the rack mounting system, roof penetration and flashing method is also strongly recommended.

Figure A



ELECTRICAL PERMIT— STANDARD SUBMITTAL



An electrical permit issued by the City of Cambridge in conjunction with the PV system project is **required**.

Electrical permits are issued to Massachusetts licensed electricians only. Homeowners and contractors who are not licensed electricians cannot pull their own electrical permits. Electrical permits are issued in accordance with Massachusetts General Laws (MGLs); MGL 143-3L.

After logging in and selecting “electrical permit” from the permit menu list, you will be directed to the electrical permit application. All information marked with a “!” is required.

INSPECTIONAL SERVICES DEPARTMENT

Firm Name

License Number Department of Public Safety "S" License No.

Work to Start: Licensee Phone Number

Licensee Email Licensee Cell Phone Number

Licensee Address

Cancel Previous **NEXT**

Both the licensed builder and the licensed electrician should establish a user name and account with the City of Cambridge ISD online permitting system.

Digital copies of your license and proof of insurance is necessary to complete permit applications.

BUILDING PERMIT— STANDARD SUBMITTAL



Assemble all relevant department approvals and required documentation for your building permit application in digital format. You will be required to upload these documents to submit your application and pay your fee.

Enter the address of the project. This is the address that will be used by all City departments to review the building permit application. Make sure you enter the street address used by the City.

No matter if you select Building 1&2 or Building Multi, rooftop PV system installation requires an “addition/alteration” permit.

BUILDING PERMIT— REQUIRED DOCUMENTS AND PAYMENT



Please attach the following documents:

REQUIRED DOCUMENTS:

- * Plans (digital .PDF Format)
- * Contractor's License
- * HIC Registration
- * Signed contract between property owner and contractor

IF APPLICABLE:

- * Homeowner's Affidavit
- * HERS report with Water Certificate
- * Proof of Extermination (excavation assumed)
- * Zoning Analysis (including site plan)
- * Solar Panel - Engineering Report of Roof Construction

File Name

BLDR-000393-2013

OK

• Upload required documents for your building permit application.

• Once the permit fee is paid, the system will generate a reference number for the application. The building permit fee is 1.5% of the total contract cost as enumerated in the signed contract between the property owner and the contractor.

CONSTRUCTION & SITE INSPECTIONS

The building and electrical inspectors determine the frequency of inspections to be made during the construction process. There are typically 3 inspections:

- 1) Electrical rough
- 2) Electrical final
- 3) Building final

ENFORCEMENT

All code requirements shall be in accordance with the applicable permitting and inspections procedures.

INTERCONNECTION

After passing final building and electrical inspections, the electrical inspector will issue a certificate of completion to the utility. The installer is then responsible for contacting the utility and securing the interconnection of the PV system with the grid.