



## Process Improvements

### Step 1, PR 1-A

#### Streamline Permitting: Develop criteria for expedited process

##### Develop permit criteria outlining thresholds for “standard” installations and streamline permitting processes accordingly

A jurisdiction can use permitting criteria to differentiate between standard and non-standard installations. This approach is based on the idea that if low-risk projects can be identified, their review can be streamlined. Generally, systems that raise concerns relating to structural soundness and/or are more complex may require more in-depth review and/or require a professional engineer’s stamp. The best example of permit criteria is the model expedited process called the Solar ABCs, an approach developed by the Solar America Board for Codes and Standards. Note: permitting criteria differ from the permitting checklist (PR 1-B) in that the checklist guides an applicant through the overall permitting process, while the criteria is a more specific tool for distinguishing between standard and non-standard installations.

Jurisdictions interested in drafting their own criteria for the identification of “standard” installations should start with the Solar ABCs document and adjust the criteria to reflect their individual context. There are two primary components to the Solar ABCs model process: 1) a structural review and 2) an electrical review. These review processes have been simplified so that one reviewer may conduct both the structural and electrical reviews. Many of the technical thresholds related to system size and complexity are driven by the need to represent the solar photovoltaic system using a standard, single electrical diagram and standard wire sizing. The use of a standard electrical diagram and wire sizing makes it significantly easier for city staff to review the application and reduces the amount of back-and-forth between the applicant and city staff. While the Solar ABCs model process is intended for use with small-scale residential projects, it may be applicable to small-scale commercial projects as well. The Solar ABCs model process can be accessed here: [www.solarabcs.org/about/publications/reports/expedited-permit/pdfs/Expermitprocess.pdf](http://www.solarabcs.org/about/publications/reports/expedited-permit/pdfs/Expermitprocess.pdf)

At this point in time, permit criteria for standard installations have not been as widely adopted as basic permitting checklists. Structural and electrical thresholds vary greatly within areas that have developed permitting criteria.

Examples of streamlining that applies to systems with defined thresholds are described below.

### Examples

#### *Evergreen State Solar Partnership, Expediting the Permitting Process for Solar PV*

The Evergreen State Solar Partnership was a collaboration of several major cities in the state of Washington. The cities of Bellevue, Edmonds, Seattle and Ellensburg collaborated to develop an expedited permitting process, which outlines criteria for PV (photovoltaic) systems to receive a building permit exemption, and an over-the-counter electrical permit. General requirements for the building permit exemption are:

- PV system is designed and proposed for a detached single-family house. Some jurisdictions may consider including other building types such as duplex, townhouse or small residential; however, applicable code may be more complex.
- PV system is designed for rooftop of a house in general compliance with applicable codes.
- Mounting system is engineered and designed for PV.
- Rooftop is made from lightweight material such as shingles.

The guidance also outlines structural and zoning requirements to receive a permit exemption. Electric permits can be expedited if installers use template plans, and the system meets the following requirements:

- PV modules, utility-interactive inverters, and combiner boxes are identified for use in PV systems.
- The AC interconnection point is on the load side of service disconnect.
- The system meets all current NEC, City and Washington Cities Electrical Code requirements.
- For split bus panels the AC interconnection must be one of the six service disconnects.
- Maximum load added to the panel board within limits.

<http://nwsolarcommunities.org/wp-content/uploads/2013/05/Permit-Package.pdf>

#### *City of San Jose, Calif.: Photovoltaic Systems Plan Review and Permitting Requirements*

In San Jose, photovoltaic system permitting has four potential steps: 1) building plan review, 2) electrical plan review, 3) building permit application, and 4) electrical permit application. For some photovoltaic systems, San Jose waives the requirement for a building plan review, although a site plan showing the building footprint and location of solar panels is required when applying for the permit. These exempted systems meet the following criteria:

- Total panel weight (including frame) is not greater than five pounds per square foot (psf).
- Maximum concentrated load of each point of support is not greater than 40 pounds.
- Maximum height above the roof surface does not exceed 18 inches.
- Solar panels are installed on the rooftop.
- Solar panels are not ballasted.

To streamline the permitting process for single- and two-family residential installations, the electrical plan review is generally not required. At the discretion of the building official, an electrical plan review may be conducted prior to issuing an electrical permit in cases where there is a complex installation.

For systems which meet the criteria for a waived building plan review, a building permit is not required if solar panels are to be installed on the rooftop of a building that does not contain more than two dwelling units.

[www.sanjoseca.gov/DocumentCenter/View/10721](http://www.sanjoseca.gov/DocumentCenter/View/10721)

#### *Town of Babylon, New York: Residential Streamlined Permitting Requirements*

Babylon, New York participates in the Long Island Unified Solar Permitting Initiative, which grants fee waivers for solar installations and expedites the permitting process for qualifying residential solar photovoltaic and hot water installations. Babylon provides a detailed checklist to determine if installations qualify for the program. Fast track permit applicants must also submit:

- System design plans.
- A roof diagram.
- A diagram of the equipment's proposed location.
- One line standard electrical diagram.
- Property survey for proposed accessory structures.

[www.townofbabylon.com/DocumentCenter/View/160](http://www.townofbabylon.com/DocumentCenter/View/160)

#### *City of Philadelphia, PA: Solar Photovoltaic System Installations with an Electrical Permit Only*

Philadelphia waives the requirement for a separate building permit for rooftop solar photovoltaic installations that are on the roof of a one- or two-family dwelling that is not designated historic by the Historical Commission. The installation

may not occur on roof systems comprising engineered trusses. Installation and electrical permit criteria closely follow the Solar ABCs model process. Criteria include:

- Equipment weighs less than five pounds psf.
- Equipment imposes less than 45 psf point load in any location.
- The height of the system is less than 18 inches above the adjacent roof.
- A three-foot clearance must be provided around all equipment.
- Installation includes a pre-engineered ballasted or mounting structure with attachment designed for a wind load of 90 miles per hour (mph).
- The equipment must be installed per the manufacturer's instructions.

System thresholds are defined as those that:

- Are 10 kW or less (with some caveats).
- Are composed of four or less series strings.
- Have a total inverter capacity of less than 13.44 kW.
- All materials, devices, and equipment are labelled and listed by a certified testing agency.

Applicants must also provide additional details such as: detailed riser diagrams, electrical service information, conduit and wiring details, module information, grounding detail and inverter information.

[www.phila.gov/green/PDFs/Streamlined%20Solar%20Standards.pdf](http://www.phila.gov/green/PDFs/Streamlined%20Solar%20Standards.pdf)

### *Go Solar, Broward County Florida, Online Permitting System for Pre-approved Installations*

Go Solar Broward County is a one-stop shop for online permitting. Fifteen Florida cities and towns agreed to accept and review permits submitted through the online solar permitting system for Broward County. Solar system designs which are pre-approved or pre-engineered can apply for permits through the web interface. Non-approved designs must be submitted in person. The web platform was developed as part of the Broward Rooftop Solar Challenge.

<https://gosolar.broward.org/gosolar/>

### **Sample “standard” installations**

These guidelines can provide standard installation design documentation for most locations within the U.S. that use the 2011 National Electrical Code (NEC).

In order for a PV system to be considered for an expedited permit process, the following must apply:

1. The structural installation of the systems meets the following criteria:
  - a. The array is mounted on a code-compliant structure.
  - b. An engineered mounting system is used to attach the array to the structure.
  - c. The array has a distributed weight of less than 5 lbs/psf and less than 45 lbs per attachment.
2. The electrical design of the system can be described using the supplied standard electrical diagram and meets the following criteria:
  - a. All products are listed and identified for the application (i.e. PV modules, utility-interactive inverters, source combiners, etc.)
  - b. The PV array is composed of 4 series strings or less per inverter.
  - c. The total inverter capacity has a continuous AC power output of 13,440 Watts or less.
  - d. The AC interconnection point is on the load side of service disconnecting means (690.64(B)).

## Resource

[www.solarabcs.org/about/publications/reports/expedited-permit/pdfs/Expermitprocess.pdf](http://www.solarabcs.org/about/publications/reports/expedited-permit/pdfs/Expermitprocess.pdf)

Additional requirements for a “standard” installation may include:

1. Maximum height above the roof surface does not exceed 18 inches.
2. Solar panels are installed on the rooftop.
3. Solar panels are not ballasted.

OR

4. Installation includes a pre-engineered ballasted or mounting structure with attachment designed for a wind load of 90 miles per hour (mph).
5. A three-foot clearance must be provided around all equipment.