Solar Photovoltaic (PV) System Permitting Checklist

The pre-submittal checklist below contains the basic information and project plan details required to be submitted to the Alamance County Inspections Department when applying to install a solar photovoltaic (PV) system (residential or commercial). The intent of using the checklist is to provide transparent and well-defined information to minimize the number of required revisions to expedite the application and review process. Solar (PV) plans designed and sealed by an engineer will be streamlined.

In order to process your permit application in an expeditious manner you must provide *all* the required information regarding your proposal. Incomplete applications will take longer to process. If you have questions please contact us using the information provided at the bottom of this sheet.

A Miscellaneous permit is required with the following documents:

☑ A completed permit application with:

- The location of the proposed installation
- Main contact information for the project
- Information for general contractor and electrical contractor
  - If a homeowner intends to work as their own contractor, they must list themselves on the application and also submit a notarized homeowner's affidavit form.
- Workers Comp Affidavit of Worker's Compensation Coverage (for projects costing over $30,000) and Certificate of Insurance showing Workers Comp coverage if applicable

LINK to application and forms: https://www.alamance-nc.com/inspections/permits/permit-applications/

☑ A wiring diagram showing:

- One line and three line diagrams (showing phases, neutral and ground)
- Equipment
- Fusing
- Points of connection
- Disconnects - DC and AC
- Array wiring
- Equipment grounding
- Distance in feet between the isolation switch (PV A/C disconnect) and customer meter must be labeled on line diagram.

☑ Electrical details of the equipment including:

- Manufacturer's installation instructions for PV modules and inverters, including specific models to be used on the project.

- Cut sheets for PV modules, including V_{oc} rating, I_{sc} rating, P_{max}, maximum series fuse rating, voltage at P_{max} and current at P_{max}.
- Documentation that Photovoltaic Inverter/Isolation System shall be UL 1741 listed and meet the requirements of:
- IEEE Standard 929 “Recommended Practice for Utility Interface of Photovoltaic (PV) Systems”
    - IEEE Standard 1547 “Interconnecting Distributed Resources with Electric Power Systems”
    - IEEE Standard 1547.1 “Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems”
- Instructions for the rapid shutdown of the system at the roof
- Location of service disconnect installed immediately adjacent to and with 6 feet of the customer’s meter, which is lockable, heavy duty, fused and sized per the NEC.
- Inverter location
- Type and size of conductors to be used
- A grounding diagram showing how the metal frame(s) and the PV electrical system is to be grounded including electrodes and grounding electrode conductors
- Array configuration shown on roof plan
    - Panels and modules shall be located in accordance with NC Fire Code 605.11 (commercial only)
- Types, sizes of conduits and lengths of runs
- Specification for any customer-furnished meter bases, which must be of a type approved by the Town of Apex for Revenue Metering.
- Detail enough to verify the ability of the PV systems installed on three phase-supplied systems to cease to export power on loss of voltage in any phase.
- Clearly note on plans that PV system shall be installed in accordance with National Electric Code (NEC)
    - Section 690 and posted with applicable warnings, signage and plaques per NEC
    - Sections 705.10, 690.17, and 705.1

☑ Building support details including:

- Manufacturer’s installation instructions for racking system, including specific model to be used on the project.
- Detail sketches of PV module connection to rack and rack connection to roof, if not included in installation instructions.
- Basic information of the existing roof structure to which the system is to be attached, including roofing material, type and span direction of roof rafters or trusses, and building construction type (commercial projects only).
- A NC Registered Design Professional will be required to seal the structural design at the time of application if any of the following conditions exist:
    - The weight of the PV system exceeds three pounds per square foot (3 psf)
    - The roof already has more than a single layer of asphalt shingles
    - The roofing material is something other than asphalt shingles or metal.

☑ Cut sheets on batteries, if applicable, and connection diagrams with cable sizes identifying:

- Battery fusing and fuse holders
- Amp hour of the battery bank
- Charge capacity of charge system
- Details for battery storage and venting

Permit Fees

There are permit fees for a solar PV system on a residential or commercial building.

Complete fee information can be found at https://www.alamance-nc.com/inspections/wp-content/uploads/sites/15/2022/07/Inspections-Fees-2022-23.pdf.

Submission
Email all documents noted on this checklist, as well as the checklist, into: planreview@alamance-nc.com.

Once application is made you will be notified for plan review payment. You will be notified when plans are approved and when a permit is ready to be issued and payment made.

Review Process Timeline
The Alamance County Inspections and Permitting Department is committed to providing timely review of solar PV permit applications. Best efforts are made to review completed single family solar permit applications within a timely manner. Alamance County Inspections Department has a staff of dedicated individuals, but workloads, vacations, and sick leave can cause unforeseen delays that may impact turnaround time.

Permit Status
Once issued, you can check your permit status and inspections results. You may call our main number at 336-290-0404 if you have any questions.

Permit Expiration
All permits expire six (6) months after the date of issue. If after commencement the work is discontinued for a period of 12 months, the permit therefor shall immediately expire. No work authorized by any permit that has expired shall thereafter be performed. Please contact our office at (336) 290-0404 if you have any questions.

Scheduling an Inspection
To schedule an inspection please log into the Alamance County online Permits and Inspections Typically, inspections are completed next-day if the request is received prior to 4:00pm. There is only one (1) inspection required for solar PV for the building and one (1) for the electrical final to be completed.
***Note that the single inspection format requires that a design professional inspection form, signed and sealed by a NC Design Professional, be submitted during the inspection and emailed to planreview@alamance-nc.com which will attest to the correct and Code compliant installation of the structural support (racking) system.

Contact Information

Email: planreveiw@alamance-nc.com
Phone: (336) 290-0404