



Solar arrays, also known as photovoltaic (PV) systems, are a type of solar energy system which provides an alternative option to provide power. These alternative energy systems may help to save money on energy costs, but also help to improve air quality by reducing carbon emissions.

Orange County allows for residential solar arrays, including roof mounted and ground mounted systems. Solar arrays should be installed by qualified professionals who are certified through the North American Board of Certified Practitioners. In addition, solar arrays shall be permitted and installed based on the North Carolina State Building Code and Orange County Unified Development Ordinance (UDO).

For roof mounted solar in the Town of Hillsborough Historic District and all ground mount solar in the Town of Hillsborough Zoning Jurisdiction, please contact the Town of Hillsborough Planning Department for zoning requirements and follow Building Inspections instructions for roof and ground mounted solar outlined in this document.

Planning and Zoning

Roof mounted and ground mounted solar arrays are permitted as accessory structures to single family homes. A summary of standards, contained in Section 5.9.6 of the Orange County Unified Development Ordinance, is provided below. Additional standards can be found at: www.orangecountync.gov/Additional.

Standards of Evaluation (roof and ground mounted)

- Requires a professionally prepared site plan including, but not limited to:
 - Property lines
 - Proposed solar array's location, batteries, and storage devices
 - All existing residential structures (i.e. single family home, accessory dwelling units)
 - All existing accessory structures (i.e. barns, sheds, greenhouses)
 - Existing well and septic systems
 - Streams and stream buffers
 - Proposed setbacks of the solar array from all property lines
- Shall provide power to the principal use of the property and shall not be installed for income generation.
- Property owner shall provide the County with written authorization from the local utility company acknowledging and approving the utility connection.

Roof Mounted

- An array may be mounted on the roof of a principal or an accessory structure located on the property.
- The array shall be viewed as an extension of the roof structure and, as a result, shall not exceed the maximum building height detailed within Article 3 of the Orange County UDO for the underlying zoning district where the property is located.

- As part of the building permit review process, structural engineering shall be provided demonstrating the roof can support the weight of the proposed array.

Ground Mounted

- Ground mounted system shall not exceed a maximum height of 15 feet from finished grade.
- Arrays may be allowed to be erected anywhere on the property outside of established building setback areas, preserved open space areas, streams and stream buffers, floodplains and buffers, and well/septic system setback areas as identified by Orange County Environmental Health.
- Arrays shall observe the principal setback requirements of the underlying zoning district where the property is located as detailed within Article 3.
- If a ground mounted array is removed, any earth disturbance shall be graded and reseeded within 60 days.

Residents interested in installing solar panels in Orange County are encouraged to consider the following:

- Determine if their property is suitable for a solar array system and how it may be installed.
- Contact a licensed installer to provide assistance through the review and installation process.
- Contact your HOA to determine if there are any standards limiting solar arrays on your property.
- Review zoning regulations for your lot. For setback, stream buffer, and floodplain information, request a Zoning Report at planningapps@orangecountync.gov

For additional information contact Planning staff at 919-245-2575 or planningapps@orangecountync.com

Building Inspections

Building permits are required for all residential solar arrays, including roof mounted and ground mounted. Roof mounted and ground mounted systems have different permitting requirements. Permitting checklists are provided below.

Solar Array Type	Required Permit Applications
Roof Mounted	<ul style="list-style-type: none"> • Simple Electrical, Mechanical, and Plumbing Permit Application (Trade Permit) • Recyclable Materials Permit
Ground Mounted	<ul style="list-style-type: none"> • Residential Building Permit Application • Recyclable Materials Permit

Solar Array Checklist for Residential Photovoltaic (PV) Systems

Roof Mounted

Please note, if a roof or structure requires modifications in order to install the solar array system, the applicant must follow the ground mounted process outlined below.

1.	Obtain a letter from a licensed design professional (architect or engineer) certifying that your roof can structurally handle the weight of a roof mounted system.
2.	Complete a Simple Electrical, Mechanical & Plumbing Permit Application (www.orangecountync.gov/DocumentCenter/View/23900) <ul style="list-style-type: none"> • Leave the PERMIT # line blank. This will be assigned by County staff. • TMBL or Parcel Identification Number (PIN) can be found Orange County GIS website (https://gis.orangecountync.gov/orangencgis)
3.	Submit a complete permit application and required documents to the Orange County Planning and Inspections Department (Contractor requirements per NCGS 87-1 and 87-43) <ul style="list-style-type: none"> • In-person: West Campus Office Building, 131 W Margaret Lane in Hillsborough, North Carolina • Online: ocbuildingpermit@orangecountync.gov
4.	Pay Building Inspection fees (www.orangecountync.gov/3030)
5.	Install the system
6.	Verification <ul style="list-style-type: none"> • Orange County Inspections will verify that all work was completed according to plan.
7.	Complete

Ground Mounted

For ground mounted solar installations, residents shall follow the Residential Building Permit process.

1.	Complete a Residential Building Permit Application (www.orangecountync.gov/DocumentCenter/View/25455) <ul style="list-style-type: none"> • Complete all pages that state: "Required For All Projects" filling in all fields that are relevant for your project. • Zoning Permit Application section are required for all ground mount systems • Additional guidance is provided below for specific questions: <ul style="list-style-type: none"> • Question 1 – Check "Other" and fill in system type • Question 2 – Provide roof frame material (N/A for ground mount) • Question 8 – Provide cost of PV system work • Question 9 – Check PV system and complete related items • Question 10 – Provide utility provider • Question 12 – For roof-mounted only (do not include cost of electrical work; Disregard #12 A, B, and C)
	Complete Contractor Information Sheet <ul style="list-style-type: none"> • Electrical contractor information and signature is required. • Contractor requirements per NCGS 87-1 and 87-43

	Complete Owner Exemption Affidavit If the project total is \$40,000 or greater (including PV system and any structural work) you need to have a licensed contractor OR if a homeowner wishes to do the work themselves or serve as a general contractor, the following forms are required: <ul style="list-style-type: none"> • Owner Exemption Affidavit if owner is project contractor. • Affidavit of Workers Compensation Coverage • If owner is serving as contractor, they must be present for all inspections. If there are two owners listed on permit application, both must be present.
	Provide a Mechanics Liens (designated lien agent) <ul style="list-style-type: none"> • Required if property is not owner-occupied and the project is \$40,000 or greater (Lien Holder Certification provides step by step instructions for the homeowner to complete for generating the required QR code, including property owner information and a \$30 fee.)
2.	Determine if a Land Disturbance Permit is required (ground mounted only) <ul style="list-style-type: none"> • If ground mounted PV construction will result in more than 10,000 square feet in land disturbance, contact Erosion Control to determine if a permit is required. • Watershed Map and Matrix Table (www.orangecountync.gov/DocumentCenter/View/21314)
	Determine if solar array is meeting Environmental Health requirements (ground mounted only) <ul style="list-style-type: none"> • Ground mounted solar arrays shall meet setback requirements from existing and proposed well and septic systems. For additional information contact Environmental
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