



Rockingham County

Solar Energy Systems on Roofs and Ground Mounted

(Photovoltaic Panels and Solar Hot Water Systems)

Plan Review Requirements

1. Residential Roof Installation: Requirements for Using County Details

Structural design and plans for the installation of modules shall be prepared by a registered design professional (RDP) OR the installing contractor and submitted for review. In lieu of the design prepared by an RDP or the contractor, the COUNTY DETAILS for the installation of solar energy systems can be used, provided the following conditions are met:

- A. The mounting structure is an engineered product designed and listed to mount modules.
- B. The roof truss system is an engineered product.
- C. Roof trusses/rafters shall not be over-spanned. Use IRC span tables to determine if your truss/rafter system is over-spanned.
- D. Building structure is fully enclosed.
- E. Roof is flat, hip with pitch less than 27 degrees, or gable with pitch less than 45 degrees.
- F. The roof type is *lightweight*. (dead load not greater than 20 PSF).
- G. The roof has a single roof covering.
- H. The spacing between the attachment points of the rails shall not exceed 4 feet.
- I. Provide the roof plan showing the layout of the modules.
- J. Provide manufacturer's installation recommendations and product specifications.
- K. The longer dimension of the module shall not exceed 65 inches; the area shall be limited to 15 sq. ft. and the longer dimension shall be perpendicular to the supporting beam/rail.
- L. Dead weight per attachment point will not exceed 45 lb.
- M. The distributed weight of the modules will not exceed 5 psf.

If any of the conditions listed in A through M are not met these details cannot be used.

Guide to determine if you will comply with Items L and M of the above conditions.

- 1. Mounting System Manufacturer: _____
- 2. Product Name and Model# _____
- 3. Total Dead Weight of Modules and Rails: _____ lbs.
- 4. Total Number of Attachment Points: _____
- 5. Weight per Attachment Point: _____
- 6. Total Surface Area of Modules : _____ square foot
- 7. Distributed Weight of Module on Roof : _____ lbs. per square foot

2. Residential Roof Installation: Solar Modules Requiring Designs by RDP /Contractor

If the roof system has:

1. Rafters or trusses that are over-spanned or site built.
2. The dead weight of the array is over 5 psf on any roof construction.
3. The attachments points have dead loads exceeding 45 lbs.
4. Module does not meet any of the conditions in Section 1, A through M.

The following shall be provided:

1. Engineering calculations and details showing that the roof structure will support the modules.
2. A framing plan that shows details for how you will strengthen the truss/rafter.

Worksheet for evaluation of roof mounted modules

This section is for evaluating roof structural members that are site built or are not engineered trusses or rafters.

1. Roof Construction: ___ Rafters ___ Trusses ___ Other
2. Describe site-built rafter or site-built truss system.
 - A. Rafter Size: ___ x ___ inches
 - B. Rafter Spacing: ___ Inches
 - C. Maximum unsupported span: ___ feet, ___ inches
 - D. Are the rafters over-spanned? Use the span tables from the Virginia Residential Code to determine if the rafters are over-spanned.

Ground Mounted Module

1. Mounting structure shall require engineering calculations and details by an RDP or AES contractor.
2. Details shall include module supports, framing members, foundation posts, footings and module attachment method to mounting structure.
3. Provide manufacturer's installation manual, including product specifications.
4. Zoning plot plan with setbacks shall be submitted. (height, full tilt, and sq. footage of modules needed, along with setbacks.)