



RESIDENTIAL ROOFTOP-MOUNTED PHOTOVOLTAIC SYSTEMS WORKSHEET AND COUNTY TYPICAL RESIDENTIAL STRUCTURAL DETAILS

Version 2023-0623

PROJECT NAME _____
PROJECT ADDRESS _____

Staff Use Only
BLD _____ - _____

This **Worksheet** and the **County Typical Residential Structural Details** may be used for **Residential Group R-5** occupancies including detached single- and two-family dwellings or townhouses three stories or less above grade excluding manufactured homes when all **CONDITIONS OF USE** below are marked **YES**.

A **Plan Review Submission** is required when any **CONDITIONS OF USE** below are marked **NO**.

For **Electrical Plan Submission Guidelines** and please see www.pwcva.gov/residentialsolar.

A copy of this document must be available at the job site for inspections.

DESIGNER CERTIFICATION

I have accurately completed the **Worksheet** to the best of my knowledge.

I certify the design complies the **CONDITIONS OF USE** below for checkboxes marked **YES**.

I certify that the design complies with the requirements of the Virginia Uniform Statewide Building Code (VUSBC).

Name/Signature: _____

Date: _____

☐ By checking this box, I agree to digitally signing this form.

Phone: _____

Email: _____

Other Contacts: ** All Contacts must have a Registered [ePortal](#) account to be added to the Permit **

CONDITIONS OF USE

	YES	NO
1. Occupancy is Residential Group R-5 including detached single- and two-family dwellings or townhouses three stories or less above grade not a manufactured home.		
2. Ground snow load of 30 psf per Policy 3.1.1 has been used for the design.		
3. Wind speed of 115 mph ultimate has been used for the design. Wind Exposure is Categories A or B.		
4. Existing roof construction is metal plate connected wood trusses. Existing roof construction there than metal plate connected wood trusses. Wood trusses are spaced at 24 inches on center maximum. Truss chords and webs are minimum 2x4 nominal lumber. Truss wood species is Spruce Pine Fir SPF #1/#2 or greater. Truss top chord has a maximum span of 7 feet 6 inches. See County Typical Detail for span.		
5. Roof slope is greater than or equal to 4/12 (18.43 degrees) and less than or equal to 8/12 (33.69 degrees).		
6. Existing roof construction including sheathing, trusses, and fasteners are in good structural condition.		
7. Rail-based or rail-less solar mount system is flush mount installed parallel to roof slope.		
8. Rail-based or rail-less solar mount system has a current valid engineering certification sealed by Virginia licensed engineer and/or research report by a nationally recognized testing laboratory (NRTL).		
9. The mounts (attachments) of the rail-based solar rack system or rail-less solar mount system are spaced at 4 feet 0 inches staggered maximum in landscape or portrait orientation. Mounts shall be attached to truss top chords or solid blocking between trusses. Pre-drilling of truss top chords or solid blocking is required for lag screws. All penetrations shall be sealed and/or flashed for weather protection per code.		



CONDITIONS OF USE (CONT'D)	YES	NO
10. For rail-based solar rack systems rails are spaced at 4 feet 0 inches maximum in landscape or portrait orientation. For rail-free mount systems the photovoltaic panel span shall comply with the manufacturer's span requirements.		
11. The installation will comply with the manufacturer's installation instructions. Where conflicts between this Worksheet and/or code and conditions of the manufacturer's installation instructions occur, Worksheet requirements and provisions of code shall apply.		
12. The existing roof has one application (layer) of asphalt shingles. The worksheet may not be used for an existing roof with two or more applications (layers) of asphalt shingles. The worksheet may not be used for roof coverings other than asphalt shingles such as standing seam metal roofing.		
13. The photovoltaic panels are maximum 4 feet 0 inches wide by 7 feet 6 inches long.		
14. The entire photovoltaic system has a maximum dead load weight of 5 pounds per square foot (psf).		
15. Not fewer than two pathways, on separate roof planes from lowest roof edge to ridge and not less than 36 inches wide, shall be provided on all buildings. Not fewer than one pathway shall be provided on the street or driveway side of the roof. For each roof plane with a photovoltaic array, a pathway not less than 36 inches wide shall be provided from the lowest roof edge to ridge on the same roof plane as the photovoltaic array, on an adjacent roof plane, or straddling the same and adjacent roof planes. Pathways shall be over areas capable of supporting fire fighters accessing the roof. Pathways shall be located in areas with minimal obstructions such as vent pipes, conduit, or mechanical equipment.		
16. For photovoltaic arrays occupying not more than 33 percent of the plan view total roof area, not less than an 18-inch clear setback is required on both sides of a horizontal ridge. For photovoltaic arrays occupying more than 33 percent of the plan view total roof area, not less than a 36-inch clear setback is required on both sides of a horizontal ridge.		
17. Panels and modules installed on dwellings shall not be placed on the portion of a roof that is below an emergency escape and rescue opening. A pathway not less than 36 inches (914 mm) wide shall be provided to the emergency escape and rescue opening.		
18. Photovoltaic inverters are listed and labeled in accordance with UL 1741.		
19. Photovoltaic panels and modules are listed and labeled in accordance with UL 1703 or with both UL 61730-1 and UL 61730-2.		



ROOF MOUNTED SOLAR PANELS STRUCTURAL TYPICAL DETAILS

