

Solar Photovoltaic System Checklist

City of Salem, Virginia
Community Development
Building Inspections
(540) 375-3032

This is a basic pre-submittal checklist intended to expedite the plan review process. This checklist must be completed, signed and submitted with the permit application. Additional information beyond what is listed below may be required with this application upon review by the plan reviewers. Place a check beside each line to confirm compliance.

General Plan Submittal	
	Building Permit application
	Electrical permit
	Zoning application
	Electronic Copy submitted to communitydev@salemva.gov
	Solar Photovoltaic System Checklist
Site and Zoning Plan	
	<ul style="list-style-type: none">• Scale (1" = 20' is typical) and north arrow• Address and/or parcel number• All parcel lines and corners in bold• Distance between proposed and existing structures• Proposed setbacks from property lines for ground installations• Driveways, parking and/or other paved or gravel areas• Flood zone indicated
Building Plan	
	Scale (1/4" – 1 foot is typical), fully dimensioned.
	Footing/foundation plan for ground installations
	Compliance with the following current codes (as applicable): <ul style="list-style-type: none">• Virginia Construction Code (VCC)• Virginia Residential Code (VRC)• National Electric Code (NEC)• International Fire Code (IFC)• Virginia Existing Building Code (VEBC). NOTE: this list is not all inclusive and other codes may apply as conditions warrant.
	<i>For commercial work only</i> - Construction documents prepared and sealed by a registered design professional (RDP) Commercial only.
	Local design criteria met. See Climate Design Criteria document on website.
	Structural framing plans for roof identifying all sizes, span lengths and spacing
	Details showing attachment to the roof.
	Manufacturer's design specification of pre-fabricated solar panels.
	Stamped letter verifying roof is adequate to support the imposed loads. Calculations must include: <ul style="list-style-type: none">• Local Design Criteria• Existing roof conditions and materials• Original seal and signature of the RDP responsible for verification.
Structure	
	Work must be completed by a licensed contractor.
	Site inspections by the City of Salem will be required. Access to the location and roof top systems may be required. Safe access must be provided to inspector(s).
	<i>For commercial work only</i> - Photovoltaic panels and modules installed upon a roof or as an integral part of a roof assembly shall comply with the requirements of the IFC.
	<i>For commercial work only</i> - Roof top mounted photovoltaic panels and modules shall be designed in accordance with the IFC.

	Rooftop-mounted photovoltaic panels and modules shall be designed for component and cladding wind loads in accordance with the applicable building code using an effective wind area based on the dimensions of a single unit frame.
	Rooftop-mounted photovoltaic panels and modules shall have the fire classification in accordance with the VCC.
	Rooftop-mounted photovoltaic panels and modules shall be installed in accordance with the manufacturer's instructions.
	Rooftop-mounted photovoltaic panels and modules shall be listed and labeled in accordance with UL 1703 and shall be installed in accordance with the manufacturer's instructions.
	<i>For commercial work only</i> - In other than in Group R-3 occupancies, there shall be a minimum 6-foot-wide clear perimeter around the edges of the roof. Exception: Where either axis of the building is 250 feet or less, the clear perimeter around the edges of the roof shall be permitted to be reduced to a minimum 4 foot wide.
	<i>For commercial work only</i> - In other than Group R-3 occupancies, the solar installation shall be designed to provide designated pathways. The pathways shall meet the following requirements: <ul style="list-style-type: none"> • The pathway shall be over areas capable of supporting fire fighters accessing the roof. • The centerline axis pathways shall be provided in both axes of the roof. Centerline axis pathways shall run where the roof structure is capable of supporting fire fighters accessing the roof. • Pathways shall be a straight line not less than 4 feet clear to roof standpipes or ventilation hatches. • Pathways shall provide not less than 4 feet clear around roof access hatch with not less than one singular pathway not less than 4 feet clear to a parapet or roof edge.
	<i>For residential work – this locality recommends following the commercial requirements for perimeters and pathways for fire safety and maintenance access.</i>
	<i>For commercial work only</i> - In Group R-3 occupancies, the arrays shall be not greater than 150 feet by 150 feet in distance in either axis in order to create opportunities for fire department smoke ventilation operations.
	<i>For commercial work only</i> - In Group R-3 occupancies, smoke ventilation options between array sections shall be one of the following: <ul style="list-style-type: none"> • A pathway 8 feet or greater in width. • A 4-foot or greater in width pathway and bordering roof skylights or gravity operated dropout smoke and heat vents on not less than one side. • A 4-foot or greater in width pathway and bordering all sides of non-gravity operated dropout smoke and heat vents. • A 4-foot or greater in width pathway and bordering 4-foot by 8-foot "venting cutouts" every 20 feet on alternating sides of the pathway.
	All roofs have an access point that does not place ground ladders over openings (windows, doors), and are located at strong points of construction.
	Access point locations are not located where a conflict with an overhead obstruction such as tree limbs, wires, or signs can interfere with access.
	Roof penetrations are flashed to prevent moisture from entering roof.
	Racking and PV support structures installed and torqued per manufacturer's instructions and approved plans.
	<i>For commercial work only</i> - Plans must be stamped by a licensed engineer with all load calculations completed to make sure the existing roof can support the new load of the PV system.
	<i>For commercial work only</i> - In Group R-3 occupancies, roofs with slopes greater than 2:12 have solar panel layouts that meet the following criteria: (some exceptions apply, see diagrams in IFC) <ul style="list-style-type: none"> • Hip Roofs: Panels/modules are located so that there is a 3-foot wide clear access pathway from the eave to the ridge on each roof slope where panels/modules are located. • Hips and Valleys: If panels/modules are placed on both sides of a hip or valley they are located no closer than 18 inches to a hip or valley. If the panels are located on only one side of a hip or valley that is of equal length, then the panels can be placed directly adjacent to the hip or valley. • Single Ridges: Panels/modules are located so that there are two 3-foot wide access pathways from the eave to the ridge on each roof slope where there are panels/modules installed. • Ridges: Panels/modules are located no higher than 3 feet from the top of the ridge in order to allow for fire department smoke ventilation operations. • Access pathways are located at a structurally sound location capable of supporting the load of fire fighters accessing the roof.
Electrical	
	All electrical work shall comply with the National Electrical Code.
	An electrical diagram will be required with location of components on structure. All wiring and components shall be labeled accordingly with proper signage. This diagram must be stamped by an electrical engineer.
	Rapid shut down initiation device installed and located per approved plans. This device shall be mounted outside (labeled) at a readily accessible location.
	A complete grounding electrode system installed
	Modules are grounded and bonded in accordance with the manufacturer's installation instructions, that are listed and approved, using the supplied hardware or listed equipment specified in the instructions and

	identified for the environment.
	Racking systems are bonded and grounded in accordance with the manufacture's installation instructions, that are listed and approved, using the supplied hardware or listed equipment specified in the instructions and identified for the environment
	PV system markings, labels and signs according to approved plan.
	Access and working space for operation and maintenance of PV equipment.
	Cables shall be secured by staples, cable ties, straps, hangers, or similar fittings at intervals that do not exceed the NEC requirements
	Conductors shall not to be in contact with the roof surface
	PV wiring and premises wiring shall be separated.
	Flexible battery cables do not leave the enclosure
	Flexible, fine stranded cables are only to be used with terminals, lugs, devices, and connectors listed and marked for use.
	The area is well ventilated and the batteries are not installed in living areas.
	Live parts of battery systems are guarded to prevent accidental contact by objects and humans.
	Working space and illumination shall be provided around battery location.
	Proper diagrams or placards shall be provided at the buildings electrical service equipment and other locations if any other power sources are present
City of Salem Electric Company Requirements	
	Residential services limited to 10 kW
	Commercial services limited to 500 kW
	Installation and equipment shall comply with IEEE 1547 and UL 1741 standards for grid-tie operation
	<p>For systems larger than 25 kW, additional requirements may need to be met:</p> <ul style="list-style-type: none"> • Electric distribution facilities and customer impact limitations review of existing facilities and expected impacts to power quality may be required • Secondary and service limitations review of existing secondary and service equipment may be required • Protection schemes review of the generator protective scheme and coordination with the distribution protection may be required

To be completed by installer	
Name:	Phone:
Address:	
City / State Zip:	E-mail:
Contractor State License #:	Expiration Date:
City of Salem Business License #:	
I hereby attest that all of the items have been completed on all the above items. I also attest that I am a licensed contractor legally allowed to work in the State of Virginia.	
Name of Installer:	
Signature of Installer:	Date: