

**CHERRY HILLS VILLAGE
COLORADO**

2450 E Quincy Avenue
Cherry Hills Village, CO 80110
www.cherryhillsvillage.com

Village Center
Telephone 303-789-2541
FAX 303-761-9386

REQUIREMENTS FOR PLAN SUBMITTAL

Residential Solar Photovoltaic Systems

This checklist must be attached to the Permit Application submitted for such work.

Project Address:	
Contact Person:	
Contact Phone Number:	
Date:	

- Two permits are required. A building permit is required for the installation and structural support of the system. An electrical permit is required for the electrical portion of the installation.
- Permit issuance is subject to approval from the Cherry Hills Village Planning Department and Building Department.
- Permit fees shall be paid at the time of permit issuance in accordance with State of Colorado law.
- 2 sets of construction documents are required for each individual address.
- 2 sets of site plans are required indicating the location of the system.
- 2 sets of elevation drawings are required for roof mounted systems. If equipment is located above the highest point of the roof ridge, an overall height calculation is required.
- 3 sets of construction staging plans that follow the Construction Staging Plan Requirements (See Section 18-10 of the Municipal Code) for any construction project, or landscaping project that disturbs more than 500 square feet of property and 10 cubic feet of soil.
- Plans received by mail, courier, UPS or otherwise unaccompanied by an applicant knowledgeable with the project will be checked for completeness per this checklist. If the plans are determined to be unacceptable for plan review, the applicant (listed contact person) will be notified that the plans must be picked up within one week for resubmitting, or they will be discarded.

ELECTRICAL PLANS:

- Provide one-line diagram showing number of modules, wattage of modules, conductor sizes, wire lengths, insulation types, conduit sizes, fuses, circuit breaker ratings, inverter ratings, AC & DC disconnect rating and ground fault protection device.
- Specify the PV module's nameplate short-circuit current and open-circuit voltage relative to the work performed.

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- Provide calculations used to determine wire sizes, fuse/breakers; which include temperature deration factors per the NEC Table 690.31(C). Roof mounted systems should use worse case ambient temperature of 56-60 degrees C.
- Provide calculations to show that the PV system voltage does not exceed the maximum rated DC inverter input voltage or that of the connected equipment.
- Plans shall include all grounding on one-line diagram. Show the grounding electrode system per NEC 690.47. Show calculations used to size equipment grounding conductor per NEC 690.43 & 690.45.
- Plans shall show location of all disconnecting means. Installation of equipment and panels with reference to house and service equipment. Clearly indentify if the wiring is run on the interior or the exterior of house. The PV system disconnecting means shall be grouped together per NEC 690.14(C)(5).
- Provide UL Standard 1703 manufacturer's specifications for the module installation and grounding requirements. The manufacturer's specifications shall be dated after May 1, 2012.
- Provide manufacturer's cut sheets and listing information for PV equipment.
- Provide a copy of the application for Xcel Energy's Solar Rewards Contract. Submit a copy of the signed and approved Xcel Energy's Solar Rewards Contract upon project completion.
- Plans shall be submitted in minimum size of 11" X 17".

STRUCTURAL PLANS:

- Plans shall show load path elements.
- Plans shall show the means of attachment if installed on a roof.
- Existing structures shall be evaluated by a structural engineer and the plans shall include plans showing how the existing structure will be altered to support the additional loads of the system. If the engineer finds that the existing structure will support the additional loads, a letter shall be submitted with the application stating the existing structure will support the additional gravity and lateral loads. In each case the plans and/or a letter shall be stamped by a structural engineer licensed by the State of Colorado.

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SOLAR PV ARRAY REQUIREMENTS

Solar photovoltaic power systems. Solar photovoltaic power systems shall be installed in accordance with Sections R324.1 through R324.7 and NFPA 70.

Access and pathways. Roof access, pathways, and spacing requirements shall be provided in accordance with Sections R324.2 through R324.7.

Exceptions:

1. Residential structures shall be designed so that each photovoltaic array is no greater than 150 feet by 150 feet in either axis.
2. Panels/modules shall be permitted to be located up to the roof ridge where an alternative ventilation method approved by the fire chief has been provided or where the fire chief has determined vertical ventilation techniques will not be employed.

Roof access points. Roof access points shall be located in areas that do not require the placement of ground ladders over openings such as windows or doors, and located at strong points of building construction in locations where the access point does not conflict with overhead obstructions such as tree limbs, wires, or signs.

Residential systems for one- and two-family dwellings. Access to residential systems for one- and two-family dwellings shall be provided in accordance with Sections R324.4 through R324.7.

Residential buildings with hip roof layouts. Panels/modules installed on residential buildings with hip roof layouts shall be located in a manner that provides a 3-foot-wide clear access pathway from the eave to the ridge on each roof slope where panels/modules are located. The access pathway shall be located at a structurally strong location on the building capable of supporting the live load of fire fighters accessing the roof.

Exception: These requirements shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.

Residential buildings with a single ridge. Panels/modules installed on residential buildings with a single ridge shall be located in a manner that provides two, 3-foot-wide access pathways from the eave to the ridge on each roof slope where panels/modules are located.

Exception: This requirement shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.

Residential buildings with roof hips and valleys. Panels/modules installed on residential buildings with roof hips and valleys shall be located no closer than 18 inches to a hip or a valley where panels/modules are to be placed on both sides of a hip or valley. Where panels are to be located on only one side of a hip or valley that is of equal length, the panels shall be permitted to be placed directly adjacent to the hip or valley.

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Exception: These requirements shall not apply to roofs with slopes of two units vertical in 12 units horizontal (2:12) or less.

Residential building smoke ventilation. Panels/modules installed on residential buildings shall be located no higher than 3 feet below the ridge in order to allow for fire department smoke ventilation operations.