

Residential Solar PV Guide

Contractor Licenses allowed to install solar:

1. City licensed Solar Energy PV Licensed contractor (with a Master Electrician on staff or sub-contracted).
2. Master Electrician with Solar License issued by submitting 3 completed PV projects. Project verification form required.
3. Licensed plumber required for plumbing portions on hydronic systems

Solar PV requires a permit

Thermal Hydronic Solar for Domestic Water Hot Water systems requires a permit.

Submittal Checklist (all documents must be in PDF format)

- Permit Application:** (Name PDF: *Apps – Address – v1*)
- Payment:** Plan check fee required at permit submittal (see #6 [here](#))
- Plans** (Name PDF: *Plans – Address – v1*)
 - **One-line diagram:** from a Licensed Engineer or Electrician showing the source circuits, inverter, inverter output circuit, and electric production/distribution to network Section/side view
 - **Plans showing:**
 1. Size and location of panels
 2. Structural Engineer’s evaluation (stamped) showing:
 - Roof can support new dead load of panels
 - Roof mounted panels elevated above the roof plane must submit engineering showing connections to roof structure per the Front Range Gust Map or 140 Vult wind speed, Exposure B.
 - Solar panels on the ground must be attached to a structure or have a foundation/frame
 3. Listed (3rd party tested) solar panels and inverter are required.
 4. Roof Plan showing fire access (setbacks and clearances – see page 2)
- 5. For Thermal Hydronic Solar Domestic Hot Water Systems (if used) show:**
 - If glycol is used in the heating lines it must be the non-toxic type.
 - PDF documents showing listed (3rd party tested) solar panels and water heater is required. The water heater must be listed for this type of use.
- 6. For roof/ground mounted PV that returns electricity back to City Electric Utilities and/or battery storage:**
 - Proposed system must be approved by City of Fort Collins Light and Power prior to permit issuance.

An additional, separate permit is required by Poudre Fire Authority for ESS (Energy Storage Systems) installations that exceed the following ratings*:

1. 20 kWh for individual ESS units.
2. 40 kWh aggregate for ESS systems located in utility closets, basements, or storage or utility spaces.
3. 80 kWh aggregate for ESS systems located in attached garages, detached garages/accessory structures, on exterior walls, or outdoors on the ground.

Utilities Solar Process: <https://www.fcgov.com/utilities/residential/renewables/solar-rebates/#cb-32565-5020-2>

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Clearances, Access, Pathways

Roof Access points

- Provide no fewer than two pathways, on separate roof planes from the lowest roof edge to ridge not less than 36" wide.
- Provide at least one pathway on the street or driveway side of roof.
- Access shall be located in areas that do not require the placement of ground ladders over openings such as windows and doors.
- Pathways must be capable of supporting the live load of fire fighters accessing the roof.
- Access shall be located in areas with minimal obstructions such as overhead tree limbs, wires or signs.
- Panels shall not be placed on a portion of a roof that is below an emergency escape or rescue opening. Provide at least a 36" pathway for emergency escapes and rescue openings.

Hip roofs

- Arrays must be located to provide a minimum 36-inch-wide access pathway from the eave to the ridge on all roof sections containing solar equipment. An 18" pathway required at the top of the ridge/hip where someone can stand on the opposite roof plane.

Single ridge roofs

- A shed roof must provide a 36" access pathway along the top of the roof.
- Arrays must be located to provide a 36-inch-wide access pathway from the eave to the ridge on all roof sections containing solar equipment.

Roofs with hips and valleys

- Arrays must not be located less than 18 inches from a hip or valley where solar equipment is to be placed on both sides of the hip or valley. Where panels or modules are only on one side of the hip or valley, they may be placed directly adjacent to the hip or valley.

General Exceptions

- Detached, non-habitable structures such as detached garages, parking shade structures, carports, solar trellises, and similar structures do not require access and pathways.
- Roof structures with a slope less than 2:12 do not require access and pathways.
- Panels may be placed adjacent to the roof ridge if an alternate fire-fighting smoke ventilation method is approved by the Building Official.
- When an automatic sprinkler system is installed (NPFA 13D or Section 2904) setbacks at ridges shall be:
 1. 18" when arrays cover up to 66% of the total roof area or
 2. 36" when arrays cover more than 66% of the total roof area.
- Building integrated PV systems that serve as roof coverings (BIPV) if listed in accordance with NFPA 70 690.12(B)(2) where the removal/cutting away of the system during firefighting does not expose fire fighters to electric shock hazards. *

Location and spacing for energy storage systems (batteries)*

- Exterior: 3ft from windows and doors
- Interior locations per R328 of the International Residential Code. (not allowed in sleeping rooms or rooms that open directly into sleeping rooms).
- Individual units must be spaced 3ft apart where more than one is installed.