

Install CFLs in lighting fixtures, 1 point for every 4 bulbs installed, maximum of 2 points.

Compliance: Inspected. (5: Final).

5.48 Airtight J Boxes

2 points

Reduce air infiltration through electrical boxes; use air tight boxes on all exterior walls for improved energy efficiency.

Compliance: Inspected. (4: Rough-in).

5.49: Interior lighting light pollution reduction

3 points

All openings in the envelope (translucent or transparent) with a direct line of sight to any non-emergency luminaires must have shielding between 9 PM and 6 AM.

Consider ways to reduce bright light spilling from inside your home into the outside environment to be a good neighbor. Curtains, shades, proper placement of fixtures, light shades and low light levels at night can help reduce light pollution.

Compliance: Inspection (5: final)

15.30.130 SECTION 6: SOLAR ENERGY

6.0 General Description:

Section 6 should be reviewed with Section 9.1:Size Requirement for renewable energy installation-

6.1 Prerequisite:

Site should have reasonably unobstructed solar access from the south from 10 AM to 2 PM. Site plan must show accurate North Arrow.

6.2: Rough-in for future solar hot water preheat

REQUIRED

Two runs of copper plumbing pipe minimum 3/4", insulated; to minimum R-6, must be installed in an interior wall and start in the mechanical room or near the area that will house the storage tank/heat exchanger. The plumbing should terminate in an attic space under the roof that will support the solar collectors, and it shall be above the insulation for easy sighting. If there isn't an attic space, the piping shall end after penetrating the roof that will support the collectors. In the mechanical room, identify 10 square feet for future preheat tank.

Compliance: Inspected (4: Rough-in)

6.3: Rough-in for future solar electric

REQUIRED

Install minimum 3/4" metal conduit from future site for solar electric to service panel or room for utilities.

Compliance: Inspected. (4: Rough-in).

6.4: Sun tempered design

5 points

In our climate 10-15% of a home's heating energy can be obtained by moving some of the home's windows to the south side of the house. Install south-facing (at least within 30 degrees of true south) glass, equivalent to 6-7% of total above grade heated floor area. On plans show calculation of area of south glass divided by total heated floor area.

Compliance: Plan Check (PC)

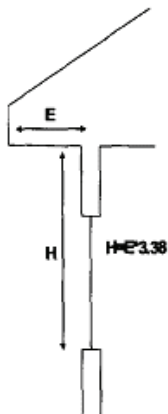
6.5: Passive solar design

5 to 10 points

Effective passive solar design allows for south-facing solar heat gain and heat storage in thermal mass of the interior during the winter, while properly shading south-facing windows to prevent unwanted heat gain during the summer.

Passive solar design for enhanced performance:

Install south-facing glass equivalent to 7-12% or more of total above grade heated floor area, and provide proper shading according to the figure to the left, where  $E$  = eave width,  $H$  = height of bottom of window from the eave, and  $H = E * 3.38$ , or conversely,  $E = H / 3.38$ . Show calculations on the plan. 5 points



For each square foot of south-facing glass, provide at least thermal mass in interior walls and/or floor reached by the solar gain. Types of thermal mass which qualify include concrete floors, double-layered sheetrock, gypcrete, tile, masonry, CMUs, adobe, stone. 5 points

Compliance: Plan Check and Inspection (PC, 5: Final)

6.6: Solar hot water system for domestic hot water

8 points

Solar hot water system also serves for heating

4 additional points

Domestic solar hot water:

Install a solar hot water system, which includes rooftop or ground-mounted panel collectors connected to a heat exchanger and/or insulated storage tank for domestic hot water supply. System must have unobstructed solar access. Systems may be active, using solar or electric pumps, or they may utilize a thermal siphon. Collectors must be facing within 20 degrees of true south, and between 30 and 60 degrees from horizontal. See Section 15.36.160 for on-site requirements. System size is dependent on number of bedrooms:

1 bedroom - 40 square feet of collectors	50 gallons storage
2 bedrooms - 48 square feet of collectors	60 gallons storage
3 bedrooms - 64 square feet of collectors	80 gallons storage
4+ bedrooms - 96 square feet of collectors	120 gallons storage

Compliance: Inspected (5: Final)

Integrated solar hot water:

Integrated solar hot water system that supplements both radiant floor heat and domestic hot water is worth a total of 12 points.

Install a solar hot water system sized as previous that provides heat for radiant floor heating as well as domestic hot water. Show system in construction plans and schematics. Distribute solar heat to a heat exchanger and/or insulated storage tank in order to meet part of the winter heating load. Area of solar collectors shall be 5-7% of total heated floor area. No more than 320 square feet of collector shall be installed on a house. The collectors for the solar system must be mounted with a minimum slope from the horizontal of 40 degrees.

Compliance: Inspected (5: Final)

6.7: On-site solar electric or photovoltaic system

5 to unlimited points

Obtain 5 points for every 0.5 Kilowatt (KW) installed for example: 2 KW= 20 points, 4 KW = 40 points. Partial points offered for systems not reaching the .5KW increments. For example: 3.1 KW equals 31 points.

Photovoltaic panels should be mounted within 30 degrees of true south and between 20 and 50 degrees from horizontal to receive full credit for KW capacity.

Systems with designs that are not within the orientation parameters must show efficiency of system more than 70% as per the “solar orientation chart.” Solar orientation chart is in the appropriate section in the Resource Guide. These systems can receive partial credit but the KW capacity must be adjusted for efficiency. For example: nameplate 4 KW times 75% percent efficiency equals 3 kilowatts.

System must have unobstructed solar access. Applicant must submit plans from a qualified architect, engineer, or COSEIA certified designer, certifying the KW capacity, and proper system design. Proper protection as per code and prevention of electric islanding must be in place in the event on a power outage.

Compliance: Inspected with documentation (5: Final).

15.30.140 SECTION 7: INNOVATION POINTS

7.1: Innovation points 1 to 20 points

Innovative product use and/or design will be given points on a case-by-case basis. The item must specifically meet the intent of the REBP code as stated at the beginning of this document, and points will be scaled as the item would apply to similar comparable sections in the code. Criteria for points granted will be made available.

Some options eligible for innovation points may include but are not limited to:

Energy 10 Analysis, American Lung Association-certified home, modulating or sequential staged boilers, sun rooms, net-zero energy home, pervious materials in hardscape areas, trombe wall/interior thermal massing systems, evapo-transpiration watering system.

7.2: Ground source heat pump (geothermal) system 20 points

Ground source heat pumps utilize glycol loop systems drilled into the ground to heat or cool a structure. System also provides hot water for your home. Minimum COP as per AHRI guidelines must be minimum 3.3. System design must cover the heat load of the residence.

Compliance: Inspected with documentation (4: Rough-in)  
AHRI Certificate required

7.3: Deconstruction/reuse of materials 1 to 10 points

In cases of scrape offs or remodels, deconstruction of structures should be considered. Materials can be donated or sold to organizations such as Habitat for Humanity or commercial building resellers for reuse or sale. The number of points is dependent on the amount of deconstruction material donated. Donated/reused value of \$5,000 equals 10 points.

Compliance: Inspection with documentation (4: Rough-in). Provide value receipt from donation or sale.

7.4: Deconstruction/grinding/recycling

5 points

In cases of scrape offs or remodels, deconstruction or grinding of waste should be considered. The number of trips to the landfill can be significantly reduced and wood waste can be recycled for use as compost material at either South Canyon or Pitkin County. Other materials such as metals can also be recycled.

Compliance: Inspection with documentation (4: Rough-in). Provide receipt for recycling and/or grinding operation.

7.5: Approved EPA wood stove or pellet stove

5 points

Wood and pellet stoves are considered a carbon-neutral energy source. Only 1 stove per dwelling unit is permitted and a separate permit must be requested from Building Department prior to installation (see Chapter 15.05.035 Wood Burning Stoves). Houses or units with this type heating for primary or supplemental heating require HERS rating of 80 or less. Test results must be submitted prior to permit approval for stove installation. Permissible solid fuel burning devices may emit no more than (i) 2.5 grams of exhaust per hour for catalytic stoves, or (ii) 4.0 grams of exhaust per hour for non-catalytic stoves and be on the EPA list of approved devices. All solid fuel burning devices must incorporate exterior combustion air ventilation that complies with Section 703 of the International Mechanical Code (IMC), as defined in Article 16-5 of the Town Code. Ducting for solid fuel burning devices must be fitted with back draft dampers. All applications for solid fuel burning devices shall reflect the applicant’s compliance with the foregoing requirements.

Pellet stoves utilize a salvage/recycled renewable fuel source, are clean burning, cost effective, and more energy efficient than regular wood burning stoves.

Compliance: Plan check and inspection (PC, 5: Final)

15.30.150 SECTION 8: ALTERNATIVE – CASH IN LIEU OF POINTS

8.1: Cash in Lieu

maximum of 25 %  
of required points

Projects may pay a fee instead of scoring points. The maximum amount of points per checklist is 25% of total required points. Fees are calculated using the checklist. In general the fee structure for points increases with increasing house size. Some examples of maximum points and cost for maximum points and cost per point ~~is~~ are shown below. Please refer to the Checklist for actual point cost for your specific project based on checklist input.

<u>Total Square Footage</u>	<u>Maximum Points Allowed for Cash in lieu</u>	<u>Cost per point</u>
3,000	27	\$250.00
5,000	57	\$333.33
7,000	74	\$500.00
10000	116	\$869.56

15.30.160 SECTION 9: ON-SITE RENEWABLE ENERGY AND EXTERIOR USE

9.1: Size requirement for renewable energy installation

Residential construction with total square footage over 5000 square feet as defined in 15.30.070 definitions are required to install a small renewable energy system on site or pay a fee. Options for complying with minimum renewable energy system are:

- Or solar electric system for houses over 5000 square feet
- Or pay a fee
- Or other system exceeding this performance

The solar electric system or fee payment is applied as per the REBP checklist calculations. If the applicant cannot use the electronic version of the checklist, the size of the solar electric system option or fee can be interpolated from the examples below. The fee structure and on-site renewable energy options are graduated. The Fee Option is calculated at \$5.00 per required watt of PV. Some examples of fees or solar options are as follows:

<u>Size square feet</u>	<u>On-site Requirement</u>	<u>Fee Option</u>
5,000	7.5 KW solar electric	\$ 37,500.00
7,500	11.25 KW solar electric	\$ 56,250.00
10,000	20 KW solar electric	\$ 100,000.00

Two Panel Solar thermal systems may be substituted for 2.7 KW of PV requirement.

The solar systems installed on site for house size requirements will also count towards points required for REB checklist.