



TOWN OF BRECKENRIDGE
COMMUNITY DEVELOPMENT

**REQUIRED SUSTAINABLE BUILDING CODE CHECKLIST
FOR NEW RESIDENTIAL CONSTRUCTION**

The following options meet the community goals identified in the Climate Action Plan, adopted by the Breckenridge Town Council in 2019.

Option 1: [Department of Energy's Zero Energy Ready Home Program](#) (ZERH) requiring performance modeling. **This is the only option for projects with >30% fenestration.**

Option 2: Thermal envelope requirements of the 2021 IECC as well as the prescribed items below.

Option 3: Solar PV offset of 25% of the total annual energy use of the home as well as the prescribed items below.

Please select from one of the three pathways for residential new construction. Selection commits the project to that pathway.

No substitutions are allowed for options 2 & 3. If substitutions are anticipated or required, utilize the performance based DOE ZERH option.

[DOE ZERH Program](#), or

2021 IECC Prescriptive Pathway, or

- Forced air-furnace system, minimum 97% AFUE.
- Radiant heating system, minimum 95% AFUE.
- Heat pump minimum efficiency, Heating Seasonal Performance Factor (HSPF) 10
- High-efficacy LED lights, minimum 100%.
- Energy efficient water heater.
- Electric, minimum 0.95 energy factor
- Gas, minimum 0.76 energy factor.
- Provide an electrical car charging rough in, including a blanked electrical box, and a raceway terminating in the electrical panel per Article 625 of the 2020 NEC.
- Provide PV ready construction including a metal raceway from the electrical panel to the roof location where the panels will be installed, including a roof jack, a #8 copper ground, a 2 pull blank in the electrical panel and an electrical conduit from the electrical panel out to the electric meter.
- WaterSense fixtures throughout.
- HRV/ ERV, 65% sensible heat recovery efficiency, meeting minimum airflow rates per IRC installed.
- Maximum 30% of exterior walls to be fenestrations.
- Programmable thermostats.

Thermal envelope requirements:

- Roof/ ceiling: R60, or R49 uncompressed over the top plate

- Above grade walls: R30 cavity or R20 cavity, R5 continuous insulation (ci) or R13 cavity, R10 ci or R20 ci
- Slabs, including slab edge: R10
- Fenestrations: Max U 0.32
- Floor R-value: R38
- Basement wall: R15 ci or R19 cavity or R13 cavity, R5 ci
- Mass Wall: R19 ci or R21 cavity
- Crawl space wall: R15 ci or R19 cavity or R13 cavity, R5 ci
- Blower Door: ACH 2.7 at a pressure 0.2 inches w.g. (50 Pascals)

These specifications are based on the 2021 IECC residential thermal envelope requirements as described in Table R402.1.3, which should be referred to for interpretation reasons.

PV Prescriptive Pathway

- Forced air-furnace system, minimum 97% AFUE.
- Radiant heating system, minimum 95% AFUE.
- Heat pump efficiency, Heating Seasonal Performance Factor (HSPF) 10
- High-efficacy LED lights, minimum 100%.
- Energy efficient water heater.
- Electric, minimum 0.95 energy factor
- Gas, minimum 0.76 energy factor.
- Provide an electrical car charging rough in, including a blanked electrical box, and a raceway terminating in the electrical panel per Article 625 of the 2020 NEC.
- WaterSense fixtures throughout.
- HRV/ ERV, 65% sensible heat recovery efficiency, meeting minimum airflow rates per IRC installed.
- Maximum 30% of exterior walls to be fenestrations.
- Programmable thermostats.

Thermal envelope requirements:

- Roof/ ceiling: R49
- Above grade walls: R23 cavity or R20 cavity, R5 continuous insulation (ci)
- Slabs, including slab edge: R10
- Fenestrations: Max U 0.35
- Floor R-value: R38
- Basement wall: R15 ci or R19 cavity or R13 cavity, R5 ci
- Mass Wall: R19 ci or R21 cavity
- Crawl space wall: R15 ci or R19 cavity or R13 cavity, R5 ci
- Blower Door: ACH 3.0 at a pressure 0.2 inches w.g. (50 Pascals)
- PV system: Provide an onsite PV system sized to provide 25% of the total annual energy use determined through an engineered solar calculator approved by the Breckenridge Building Department. The PV system will be limited by the allowable maximum size as determined by the electrical service provider.

**Residential buildings over 4,000 sq. ft. must have an estimated annual energy consumption evaluation stamped by a Colorado state licensed engineer, to be submitted with PV permit application.*

Applicant Signature

Date