

SUMMIT SUSTAINABLE BUILDING CODE CHECKLIST/NEW SFR OR ADDITION

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|--------------|-----------------|
| PROJECT NAME | PERMIT # |
| LOCATION | CONTACT PHONE # |
| APPLICANT | E-MAIL |

MANDATORY REQUIREMENTS, 2012 IRC - Chapter 11 and 2012 IECC - Residential Provisions

- All projects to comply with all applicable requirements of the International Residential Code.
- Forced air-furnace system, minimum 91% AFUE.
- Radiant heating system, minimum 91% AFUE.
- High-efficacy lamps, minimum 75%.
- Energy efficient water heater.
 - Electric, minimum 0.95 energy factor
 - Gas, minimum 0.67 energy factor.
- Recycling; HC3 information to be provided at permit issuance.

Please complete the following calculations and then choose from the secondary measures for every point incurred. Your plans and inspections will be reviewed and inspected according to the above mandatory requirements and your secondary choices. LEED-H, ICC-700, Green Globes certified or alternate approved third party certified program is acceptable in place of this document.

Square footage of new conditioned (heated) space _____ ÷ 1000 sq. feet = _____

Number of outdoor fireplaces and/or fire pits _____

Hot Tub _____

Square footage of heated outdoor surfaces _____ ÷ 100 sq. feet = _____

Square footage of air conditioned space _____ ÷ 500 sq. ft = _____

Total Points Incurred *rounded to next highest whole number* _____

SECONDARY CHOICES: 1 point each or as indicated

- Energy Star appliances throughout.
- Electric Vehicle Charging Pre-Wire in every new garage or carport.
- Locally purchased compost from Summit County Resource Allocation Park (SCRAP)
- Air movement at all ceilings > 15'.
- Insulated exterior wall sheathing.
- Blower door test of 3.0 ACH or less. *Air Changes per Hour @ 50 Pascals.*
- SIP panel construction at walls. *Structural Insulated Panel.*
- SIP panel construction at ceiling.
- Roof framing 60% or greater renewable or engineered lumber.

- Floor framing 80% or greater renewable or engineered lumber.
- Beams and headers 80% or greater renewable or engineered lumber.
- Energy heels at trusses, 12" or greater.
- ICF foundation. *Insulated Concrete Forms.*
- Insulated headers (80% minimum at R-10).
- Greater than R-23 in walls.
- Greater than R-49 in ceiling.
- U-factor of .30 or lower on 80% of fenestrations.
- Conditioned crawlspace or slab on grade.
- High efficiency boiler, AFUE 95% or greater. *Annual Fuel Utilization Efficiency.*
- High efficiency furnace, AFUE 95% or greater.
- Boiler or furnace centrally located; no mechanical run longer than 2/3 the distance of the greatest diagonal dimension of the home.
- HRV or ERV system installed.
- Side arm water heater served by boiler.
- 50 year roof or greater warranty.
- Alternative energy sources: *1000 British Thermal Units/Kilowatt/Photovoltaic.*
 - Active solar space heating system 1 pt/25MBTU _____
 - Active solar domestic hot water system 1 pt/25MBTU _____
 - Ground source heating/cooling system 1 pt/25MBTU _____
 - Solar generated (PV) electric system 1 pt/2.5KW _____
 - Wind generated electric system 1 pt/2.5KW _____
- Dual flush toilets, 1.28 gpf toilets or Watersense toilets.
- Motion sensors on a minimum of 80% of exterior lights.
- Programmable thermostats.
- No recessed lights in the exterior insulated ceilings.
- OVE framing. *Optimal Value Engineering.*
- Bamboo, concrete, stone or cork flooring, 1 pt/50%.
- HERS rating. *Home Energy Rating.*
 - 2 pts for performing HERS rating _____
 - 4 pts HERS Index of 70 or less _____
 - 8 pts HERS Index of 55 or less _____
 - 12 pts HERS Index of 40 or less _____
- Innovative Product, Design or Technology (Points awarded by Building Official)

_____ **Total Points Awarded for Secondary Choices**

- _____ **Total Points incurred from other side**

_____ **Total Net Points must be greater than zero**

Applicant Signature

Date

AFUE

A thermal efficiency measure of combustion equipment like furnaces, boilers and water heaters. The AFUE differs from the true 'thermal efficiency' in that it is not a steady-state, peak measure of conversion efficiency but instead attempts to represent the actual, season-long, average efficiency of that piece of equipment. It is a dimensionless ratio of useful energy output to energy input, expressed as a percentage. For example, a 90% AFUE for a gas furnace means it outputs 90 BYUs of useful heating for every 100 BTUs of natural gas input. A higher AFUE means higher efficiency.

Blower Door Test

A blower door test measures how well the house is sealed against penetration of outside air to the inside or "draftiness". With all planned air intakes sealed (i.e., windows closed and all doors shut) the blower door is installed in an exterior door of a home. A fan in the blower door slightly depressurizes the home and measures the overall amount of outside air penetrating the home through leaks in the shell. These leaks may be from many sources, such as improper seals around windows, framing, wires, pipes, or recessed lighting. Air penetration into the house is measured in Natural Air Changes per Hour (NACH). Builders of high-performance homes typically use a performance standard for building air tightness that is less than or equal to 0.35 air changes per hour (ACH). This means that 35% of a volume of air in a given space is exchanged with outside air, from attics, wall cavities, crawl spaces, and other locations on an hourly basis. *Note: For blower door scores less than 0.35 NACH, consider adding mechanical ventilation with an HRV or ERV (refer to 3.7.9 for details).*

British Thermal Unit (BTU), MBTU

A standard unit of measurement used to denote both the amount of heat energy in fuels and the ability of appliances and air conditioning systems to produce heating or cooling. A BTU is the amount of heat required to increase the temperature of a pint of water by one degree Fahrenheit. MBTU stands for one million BTUs. MBTU is occasionally used as a standard unit of measurement for natural gas and provides a convenient basis for comparing the energy content of various grades of natural gas and other fuels. One cubic foot of natural gas produces approximately 1,000 BTUs, so 1,00 cubic feet of gas is comparable to 1 MBTU.

Electric Vehicle Charging Pre-Wire Option

New garage or carport that is accessory to a one- or two-family dwelling or townhouse may include one of the following, installed in accordance with the requirements of Article 625 of the Electrical Code (NEC 2011).

1. A Level 2 (240-volt) electric vehicle charging receptacle outlet, or
2. Upgraded wiring to accommodate the future installation of a Level 2 (240-volt) electric vehicle charging receptacle outlet, or
3. Electrical conduit to allow ease of future installation of a Level 2 (240-volt) electric vehicle charging receptacle outlet.

HERS Rating

A Home Energy Rating will provide a relative energy use calculation called the HERS® Index. This index goes from 100 to 0. A HERS Index of 100 represents the energy use of the "American Standard Building" and a HERS Index of 0 (zero) indicates that the building uses no net purchased energy (a Zero Energy Building). For example, a new home that achieves a HERS Index of 80 would be 20% more efficient than the typical "code" built home. In addition to the score, a set of recommendations for cost-effective improvements that can be achieved is also produced by the rater. Additionally, there are numerous rebates or incentives (like Federal Tax Credits) that require HERS scores to qualify the building.

OVE

"Optimum value engineering" refers to a set of practices that save material and money by reducing the amount of materials and time used in construction. These practices typically rely on an up-front investment in design and engineering time, as well as framing crew training, as a means of achieving these savings. This initial investment typically produces significant long-term savings. Incorporating less wood into a house also allows more room for insulation and has proven to reduce drywall cracking.

Use all of the following methods for framing:

OVE 24" On Center Studs: 24" on center framing uses less wood than 16" on center. Be sure to verify structural loads.

OVE Two Stud Corners: Two stud corners still allow for dual-sided exterior nailing and provide backing for drywall with the use of drywall clips, which also reduce cracking.

OVE Efficient Headers: This includes site-built or pre-manufactured, insulated headers, and/or eliminating headers when not necessary. You can also save wood & space by using header brackets instead of trimmer studs.

OVE Stacking Joists/Studs (eliminating double top plate): Most codes allow for the elimination of a top plate when members are stacked. Walls are then tied together with nail plates.

OVE Building with 2' Increments: Since a majority of building materials comes in two foot increments, there is less waste if the building was designed to take advantage of a material's dimensions.

PASCAL

The SI (metric conversion) unit of pressure or stress, equal to one newton per square meter.

RADON, 2012 IRC Appendix F

SIP, Structural Insulated Panel

A high performance building system for residential and light commercial construction. The panels consist of an insulating foam core sandwiched between two structural facings, typically oriented strand board (OSB).