

Summit Sustainable Building Code POINT & COMPLIANCE SUMMARY

MANDATORY MEASURES

The following measures are mandatory for all projects:

Minimum Insulation Values

Exterior Wall = R-21
Roof Ceiling = R-38
Basement Wall = R-10
Conditioned Crawl Space (below grade) = R-10
Conditioned Crawl Space (above grade) = R-19
Under Slab = R-10
Slab Edge = R-10
Floor (over crawl) = R-19
Cantilever Floor = R-30

Compliance: Inspected (Insulation)

Windows and Glazed Doors – Maximum U-factor values

Windows = .35 U-value
Doors = .40 U-value
Skylights & other fenestration = .50 U-value

Compliance: Inspected (Plan Check and Final) Inspector must be able to clearly identify the U-value and the window type.

Exterior Opaque Doors

Door maximum U-Value: of .50

Compliance: Inspected (Final)

Energy Efficient Boiler or Furnace

Boiler = 87% efficient
Forced Air = 88% efficient

Compliance: Inspected (Final)

Water Heater

Conventional (storage) water heater
 Gas = minimum .63 energy factor (EF)
 Electric = .90 energy factor (EF)
Tankless/On-Demand Water Heater
Indirect Water Heater
Solar Hot Water System
Heat Pump

Compliance: Inspected (Final)

Owners Manual

Must include operation instructions of all mechanical and energy saving systems

Compliance: Inspected (Final)

SECONDARY MEASURES

Secondary measures must be incorporated into the design and construction of all single family (attached and detached) units or offset by the designated point value through other options listed under Sustainable Building Menu.

Building Size

Single Family (attached or detached): *For every 50 square feet of conditioned space (including heated garage) over 3,000 square feet on a single family unit, one additional point must be off-set by an alternative in the Sustainable Building Menu.*

For example, a 3,400 square foot unit would be required provide measures to off-set a total of 8 points (3,400 – 3,000 = 400; divided by 50 = 8 points).

Multi-Family Units: *For every 50 square feet of conditioned space (including heated garage) over 1,500 square feet on a single unit, one additional point must be off-set by an alternative in the Sustainable Building Menu.*

Additions: (TBD)

Renewable or Engineered Lumber

Minimum of 60% of renewable or engineered lumber in roof framing
Minimum of 80% of renewable or engineered lumber in floor framing
Minimum of 80% of renewable or engineered lumber in beams and headers

Off set value, 1 point for every 10% less than required above.

Compliance: Inspected (Framing)

Day Lighting

All bathrooms/powder rooms/laundry rooms have windows, skylights and/or transoms meeting natural light requirements of the Residential Code.

Offset value, 2 points for every bathroom/ powder room/ laundry room not meeting natural light requirements of the Residential Code.

Compliance: Inspected (Final)

Air Stratification

All vaulted / raised ceiling areas greater than fifteen feet above the finished floor level are to include an air circulation fan or vent system.

Off set value, 5 points

Compliance: Inspected (Final)

Window Insulation

All high windows in vaulted ceiling areas or high ceiling rooms greater than fifteen feet above finished floor level shall install insulated blinds/curtains that are readily controlled from the floor below.

Off set value, 1 points for each 10 sq/ft of window area above fifteen feet without insulated blinds/curtains.

Compliance: Self-certified

Recycling

Install a recycling center in all kitchen areas. Provide dedicated space in all garages for the storage of recycling bins.

Off set value, 3 points

Compliance: Inspected (Final)

Energy Star® rated appliances

Install an Energy Star rated dishwasher, refrigerator and/or freezer, and clothes washer.

Off set value, 1 points per appliance not rated or not provided

Compliance: Inspected (Final)

Energy Efficient Controls

In-floor Radiant Heat & Hot Water Baseboard Heat

Provide digital thermostat.

Forced Air Heat

Provide programmable thermostat.

Off set value, 1 point

Compliance: Inspected (Final)

INTENSIVE ENERGY USE AMENITIES

Decorative Gas Fireplaces/Stoves

All gas fired fireplaces, outdoor gas mounted deck heaters or other gas appliances must meet a minimum heat rating ([needs definition](#)) (excluding grills and other cooking appliances).

Off set value, 5 points for each decorative appliance that does not meet minimum heat rating.

Compliance: Inspected (Final)

Hot Tubs, Spa Pools and Swimming Pools

Off set value, 5 points for every 50 square feet of hot tub, spa, or pool water surface area.

Compliance: Inspected (Final)

Outdoor Heated Surfaces including exterior drives, pathways patios, and garage aprons, etc.

Off set value, 2 points for every 100 sq/ft of out door heated surface

Compliance: Inspected (Final)

Air Conditioners

Off set value, 2 points for each mechanical air conditioning unit installed

Compliance: Inspected (Final)

SUSTAINABLE BUILDING MENU

COMMUNITY BENEFIT

Simple Footprint

4 Exterior Corners

3 points

6 Exterior Corners

2 points

8 Exterior Corners

1 point

Land Use

Save and Reuse all Topsoil On-Site

3 points

Save and Reuse all Excavated Fill On-Site

3 points

Site-Rock Reclaimed and Used On-Site

3 points

On-Site Batch-Plant/Crushed Rock Used On-Site

1 point per 10 yards (maximum of 4 points)

Deconstruction Recycling

Deconstruction Plan Submitted to High Country Conservation Center

Includes:

Inventory of salvageable materials
Timeline for deconstruction

Submit to:

High Country Conservation Center
building@highcountryconservation.org
PO Box 4506 Frisco, CO 80443
110 3rd Ave (in Frisco Recreation Building)
970-668-5703

4 points

Wood Recycled or Donated to Reuse Center

1 point per 25% (4 points maximum)

Metal Recycled

1 point per 25% (4 points maximum)

Fixtures/Materials Donated to Reuse Center

1 point per 25% (4 points maximum)

Compaction (grinding or shredding)

1 point per 25% (4 points maximum)

Construction Recycling

Wood Recycled

1 point per 25% (4 points maximum)

Metal Recycled

1 point per 25% (4 points maximum)

Cardboard Recycled

1 point per 25% (4 points maximum)

Compaction (grinding or shredding)

1 point per 25% (4 points maximum)

Excess New Wood/Materials Donated to Reuse Center

1 point per 25% (4 points maximum)

ENERGY EFFICIENCY

Passive Solar Design:East West Axis within 30 degrees of True South

5 points

Properly Designed Overhangs

Show overhangs where south facing glazing is not shaded between 10 am and 2 pm on the winter solstice, and is totally shaded between 10 am and 2 pm on the summer solstice.

2 points

Solar Access is Unimpeded

Demonstrate unimpeded access on south facing glazing with an arc of 60 to 45 degrees access on a site plan, covenants or other agreements.

3 points

Sun Tempered Design

Meet above 3 criteria, and demonstrate south facing glazing equals 6-7% of the total heated floor area.

5 points

True Passive Solar Design

Meet criteria above, and demonstrate:

- south facing glazing should equal to 7-12 % of the total floor area.
- 5.5 square feet of uncovered, sunlit mass floor must be added for each square foot of south facing glass over 7 % of the floor area.
- Additional 1.0 square feet of south facing glass may be added for every 40 sq. ft. of thermal mass in the floor of the room which is not in the sun.
- An additional 1.0 sq. ft. of south facing glass may be added for each 8.3 sq. ft. of thermal mass placed in the wall or ceiling of the room.

5 points

South Roof Area Designed & Rough in for Future Solar Collector

Demonstrate roof angled within 20 degrees of True South; provide space for solar/mechanical equipment, and extra pipe and conduit runs for future solar system expansion.

2 points

Unconditioned Garage

1 point

Building Envelope

Advanced Sealing Package

BEFORE DRYWALL

- Seal bottom plate of exterior walls with caulk; seal inside edge with caulk after walls are up;
- Seal rim joist (also referred to as band joist) with caulk, spray foam or gasketing between top plate and rim joist, and between rim joist and subfloor;
- For tubs, showers and stairs on exterior walls, insulate the exterior wall and air seal behind these areas with sheet goods or plastic prior to installation;
- Seal between door thresholds and subflooring;
- Seal window and exterior door rough openings with backer rod and caulk, or use non-expanding latex-based spray foam that will not pinch jambs or void window warranties;

AFTER DRYWALL:

- Seal electrical switch, outlets and circuit break boxed to drywall with caulk or foam;
- Seal light fixture boxes, medicine cabinets and bath and kitchen ventilation fans to drywall with caulk or foam;
- Seal any plumbing or electrical wire penetration through drywall with caulk or foam;
- Seal gaps at whole house fan with spray foam or housewrap tape;
- For attic hatches and kneewall access doors, weatherstrip and include a tight hatch;
- Seal between UL-approved, airtight, IC-rated recessed can fixtures and drywall with caulk.

4 points

Higher R-Values

1 point per additional R-value above mandatory requirements
Maximum 10 points per application

Lower U-Values

All windows: lower than 0.35 U-value
4 points

All doors: lower than 0.40 U-value
4 points

All or each exterior opaque door(s) lower than 0.50 U-value

2 points

Sill Plate Sealed with Foam Sealer

Demonstrate use of a 'sill sealer' between the connection at the concrete foundation and the beginning of wood frame construction.

1 point

Energy Heals of 6" or more in Trusses

Demonstrate use of raised trusses.

4 points

Insulated Exterior Wall Sheathing (R-3.5 or better)

4 points

Insulated Headers (80% minimum R-10)

Use of rigid insulation between window, door, and opening headers with minimum R-10 on 80%.

2 points

Blower Door Test

Test results show 0.45 ACH or less = 4 points

Test results show 0.40 ACH or less = 6 points

Test results show 0.35 ACH or less = 8 points

Unvented Crawlspace per ASHRAE 23.11

Demonstrate the following:

- Crawl space floor is covered by a poly vapor barrier (at least 6 mil.) that is sealed to the foundation walls.
- Fully insulated crawl space
- Dedicated heat duct from the furnace conditions the crawl space and keeps it dry.

4 points

Mechanical Systems

Active Solar Space Heating System Installed

2 points

Active Solar Domestic Hot Water System Installed

2 points

Geothermal/Ground Source Heating System Installed

1 point per 200 watts/5 points per KW (50 point maximum)

(do we need Btu to watt conversion here?)

High Efficiency Boiler Installed (greater than 91%)

4 points

High Efficiency Furnace Installed (greater than 88%)

4 points

Furnace Centrally Located

Show no mechanical run being longer than 2/3 the distance of the longest diagonal dimension of the house

4 points

In-Floor Radiant Heat Installed

4 points

HVAC Equipment & Duct Sizing, Balancing, and Sealing:

Demonstrate the following actions:

- Equipment sized with computer program or Manual J calculations
- Ducts tested for leaks
- All joints sealed with mastic

4 points

Energy Star House

Demonstrate a score of 86 or higher through an energy rating.

4 points

Air to Air Heat Exchanger Installed

3 points

Convert Electric Resistance Heat to Gas – REMODELS ONLY

3 points

Replace Electric Hot Water Tank to Gas

3 points

Side Arm Water Heater Served by the Boiler

3 points

Electrical/Lighting/Appliances

Solar-Generated Electric System (PV)

1 point per 200 watts/5 points per KW (50 point maximum)

Wind-Generated Electric

1 point per 200 watts/5 points per KW (50 point maximum)

Clothes Washer is Front Loading (Horizontal Axis)

1 point

Clothes Line Installed (Inside or Outside)

1 point

Compact Fluorescent or LED bulbs installed in 90% or more of fixtures

4 points

Occupancy/Motion Sensor Controls Installed

1 point

Automatic Daylight Dimming Controls

2 points

Motion Sensor or Timers on Exterior Lights

2 points

No Recessed Lights in an Exterior Insulated Ceiling

4 points

Air-Loc, IC Rated Recessed Light Fixtures

2 points

MATERIAL & RESOURCE EFFICIENCY

Insulation

Blow or Sprayed Insulation in 50% or More of All Insulation

5 points

Insulate All Hot water Pipes to All Locations to R-3

3 points

Insulate All Hot Water Pipes in Unconditioned Space to R-6

4 points

Window Quilts or Insulated Shades Installed in 75% of Exterior Windows

4 points

Wall Insulation is 70% Recycled Content

3 points

Roof Insulation is 70% Recycled Content

3 points

Formaldehyde Free Insulation Used

2 points

Non-Toxic Water Based Spray On Insulation

2 points

HCFC-Free Rigid Foam Insulation Used

2 points

Existing Ceiling Insulated to R-30 or capacity – REMODEL ONLY

5 points

Existing Walls Insulated to Capacity or Rigid Insulation Added to Exterior –
REMODEL ONLY

5 points

Single Pane Windows updated to Double Glaze w/ U-factor 0.40 or less

5 points

Foundation

Insulated Concrete Foundation System Used

4 points

Recycled Content Insulated Concrete Foundation Used

4 points (8 points TOTAL??? With above)

Frost-protected Shallow Foundation

4 points

Western Coal Fly Ash Concrete

2 points

Non-solvent Based Foundation Waterproofing or Damp Proofing

2 points

Structural Frame

Structural Insulated Panels (SIPS) for Walls

1 point per 25% (4 points maximum)

Structural Insulated Panels (SIPS) for Roof

1 point per 25% (4 points maximum)

Factory Built or Panelized Construction

4 points

Finger-jointed Plate Material

2 points

Lox Toxic OSB Wall Sheathing

2 points

Recycled Content Wall Sheathing

2 points

Use of Locally Produced Beams, Studs, Lumber

1 point per 10% (10 point maximum)

Use of Reclaimed Structural Materials

1 point per 10% (10 point maximum)

Recycled Content Deck Material

3 points

Renewable (FSC or other) Deck Material

3 points

Salvaged or Reclaimed Deck Material

3 points

Sub Floor

OSB in Sub Floor

3 points

Low-Toxic OSB in Sub Floor

1 point (in addition to above points?? – need to standardize)

Windows & Doors

Exterior Doors Insulated to U-value of 0.20 or less

1 point per door (maximum 3 points)

Use of Salvaged, Reclaimed Doors

75% or more of total doors

4 points

Use of Salvaged, Reclaimed Windows (must meet mandatory measures)

50% of total windows

4 points

All Doors Made from Renewable (FSC or Other) Wood

2 points

Roof

Recycled Content Roofing Material with Minimum 30 Year Life

3 points

Metal Roof with Minimum 30 Year Life

3 points

Wall Finishes

Fiber Cement Siding on 50% or more of Exterior Wall

3 points

Recycled Content or Reclaimed Wood Siding (50% or more of total)

3 points

Low VOC or Low Toxic Paint and Stain (75% or more of total)

4 points

Natural Clay Wall Finish or Paint

2 points

Locally Produced Trim

1 point per 25% (4 points maximum)

Floor Finishes

Locally Produced Wood Flooring

1 point per 10% (10 points maximum)

Wood Flooring from Reused/Reclaimed/Remilled Sources

1 point per 25% (4 points maximum)

Wood Flooring from Renewable Sources (FSC or Other)

1 point per 25% (4 points maximum)

Ceramic Tile is Recycled Content

1 point per 25% (4 points maximum)

Ceramic Tile is Reclaimed/Salvaged

1 point per 25% (4 points maximum)

Bamboo Flooring in Place of Hardwood

1 point per 25% (4 points maximum)

Cork Flooring in Place of Hardwood

1 point per 25% (4 points maximum)

Natural Fiber Carpet in Place of Synthetic Carpet

1 point per 25% (4 points maximum)

Natural Linoleum in Place of Vinyl

1 point per 25% (4 points maximum)

Recycled Content Carpet is Used

1 point per 25% (4 points maximum)

Recycled Content or Natural Fiber Carpet is Used

1 point per 25% (4 points maximum)

Replaceable Carpet Squares Used in High Traffic Areas

1 point per 25% (4 points maximum)

Stone, Granite, or Concrete Floors

1 point per 25% (4 points maximum)

Solvent-free or Low Toxic Construction Adhesive Used

2 points

Solvent-free or Low Toxic Wood Finishes Used

2 points

Cabinetry and Other Finishes

Recycled Wood Particleboard for Cabinets

1 point per 25% (4 points maximum)

Recycled Wood Particleboard for Shelving/Countertops

1 point per 25% (4 points maximum)

Agricultural Waste Particleboard for Cabinets

1 point per 25% (4 points maximum)

Agricultural Waste Particleboard for Shelving/Countertops

1 point per 25% (4 points maximum)

Formaldehyde-free Particleboard/MDF for Cabinets

2 points

Formaldehyde-free Particleboard/MDF for Shelving/Countertops

2 points

All Exposed Particleboard Sealed with Water-Based Sealer

1 point

Solvent-free or Low Toxic Woodwork Finishes

2 points

Elimination of ALL Particleboard Inside Building Envelope

2 points

Cabinets made from Renewable Fiber

1 point per 25% (4 points maximum)

Cabinets made from Renewable Lumber (FSC or Other)

1 point per 25% (4 points maximum)

Countertops made from Renewable Fiber

1 point per 25% (4 points maximum)

Reclaimed Tile on Countertops and Walls

1 point per 25% (4 points maximum)

Recycled Content Tiles on Countertops and Walls

1 point per 25% (4 points maximum)

Locally Sourced Wood Used in Countertops or Other Finishes

1 point per 25% (4 points maximum)

Reclaimed/Reused Cabinets and/or Fixtures

1 point per 25% (4 points maximum)

Stone, Granite, or Concrete Countertops

1 point per 25% (4 points maximum)

WATER EFFICIENCY

Dual-flush Toilets Installed

2 points

Drip Irrigation Installed

2 points

Engineered/Vegetated Swales to Filter Storm Water Run-off

1 point

Grey Water Used for Irrigation

2 points

Native Plants from Building Site Salvaged and Replanted On-Site

2 points

INDOOR ENVIRONMENTAL QUALITY

Radon Mitigation System Installed

2 points

Rough-in for Radon Mitigation System

1 point

Mechanical Ventilation System Installed (15 cfm per person of outside air)

Minimum ventilation rate of 15 CFM per person

OR minimum of 0.35 air changes

3 points

Install HEPA Filter Sized for Whole House

1 point

Furnace and/or Dust-mounted Air Cleaner Meeting ASHRAE 52.2

1 point

Exhaust Fan in Garage in Timer or Wired to Door Opener

1 point

One Hard-wired Carbon Monoxide Filter Installed in Mechanical Room

1 point

Range Hood Vented to Outside

1 point

Permanent Mat/Snow Gate at Main Door

1 point per entrance (maximum 2 points)

EDUCATION & INNOVATION

Innovative Product, Design or New Technology

The Sustainable Building Technical Advisory Panel will determine point values for new products or practices. To be included in the resource guide and obtain points, a product or practice must meet one or more of the following criteria: reduce waste during demolition, construction, or operation; conserve energy or water; reduce the use of toxic materials in the manufacture and use of a product; contribute to a healthier indoor environment; encourage the marketplace to develop new products; support the use of renewable energy and resources.

The Technical Advisory Panel will consider new technologies and allowances as needed. A builder or owner can petition the Technical Advisory Panel for higher point values, innovative building or design techniques, and special circumstances. The Panel can be contacted at building@highcountryconservation.org or (970) 668-5703.