AN ORDINANCE OF THE TOWN COUNCIL OF BASALT, COLORADO, AMENDING CHAPTER 18, BUILDING REGULATIONS, OF THE MUNICIPAL CODE OF THE TOWN OF BASALT REGARDING SUSTAINABLE BUILDING REGULATIONS

Ordinance No. 20 Series of 2024

RECITALS

WHEREAS, the Town of Basalt ("Town"), acting by and through its Town Council ("Town Council"), has the power to amend the Municipal Code ("Town Code") of the Town of Basalt pursuant to the Home Rule Charter for the Town of Basalt and Section 1-58, Town Code, and all such amendments shall become part of the Town Code; and

WHEREAS, The Town adopted Sustainable Building Regulations for single-family and duplex development and some townhome development pursuant to Ordinance No. 11, Series of 2009 at the recommendation of the Basalt Green Team and subsequently amended those regulations pursuant to Ordinance No. 21, Series of 2015 to include all other development within the Town; and

WHEREAS, the Basalt Green Team, a citizen volunteer group appointed by Town Council, directed a subcommittee to prepare amendments to the Sustainable Building Regulations for Type I and Type II SBR construction to reflect that the Town amended the Building Code by way of Ordinance No. 19, series of 2017, and to respond to lessons learned in the implementation and application of the Sustainable Building Regulations; and

WHEREAS, The Town Council approved amendments to the Sustainable Building Regulations, Town's Fee Schedule, and other miscellaneous clean up items in Section 18 of the Municipal Code through the adoption of Ordinance No. 11, Series of 2018; and

WHEREAS, The Town Council approved amendments to the Sustainable Building Regulations, Town's Fee Schedule and Renewable Energy Mitigation Program (REMP) through the adoption of Ordinance No. 16, Series of 2022 which were further revised through Ordinance No. 15, Series of 2023; and

WHEREAS, the Town Council recently approved amendments to the Sustainable Building Regulations to incorporate miscellaneous updates and revisions to Type I Sustainable Building Regulations (SBR), Type II Sustainable Building Regulations (SBR) – Non-Residential, and Multi-family Residential Construction which were further revised through Ordinance No. 9, Series of 2024; and

WHEREAS, the Sustainable Building Regulations expand the scope of the other

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WHEREAS, the Town Council desires to updates its Sustainable Building Regulations for the benefit of the Town and to aid the Town in meeting its adopted climate action goals. The amendments in this Ordinance repeal and replace Section 18-24 Sustainable Building Regulations (SBR), Type I PV solar system regulations to address exterior uses of energy; and

WHEREAS, at a public meeting held on <u>October 22</u>, 2024, the Town Council considered the following amendments to Chapter 18 of the Town Code on first reading and continued and set a public hearing and second reading for the Ordinance for <u>November 12</u>, 2024, for a meeting to begin no earlier than 6:00 pm at the Basalt Town Hall, 101 Midland Avenue, Basalt, Colorado; and

WHEREAS, at a public hearing and second reading on November 12, 2024, the Town Council heard evidence and testimony as offered by the Town Staff and members of the public; and

WHEREAS, the Town Council finds and determines it is in the best interests of the Town to amend the Town Code as provided herein, and is reasonably necessary to promote the legitimate public purposes of public health, safety and welfare.

NOW, THEREFORE, BE IT ORDAINED by the Basalt Town Council of Basalt, Colorado, as follows:

1. Section 18-24 of the Town Code is hereby repealed and replaced in full, as set forth in **Exhibit A** (Sustainable Building Regulations), attached and incorporated herein by this reference.

2. <u>Severability</u>. If any section, part, subpart, sentence, clause or phrase of this Ordinance is for any reason held to be invalid, such decision shall not affect the validity of the remaining proportion of this Ordinance and the Town Council hereby declares it would have passed this Ordinance and each section, part, subpart, sentence, clause or phrase thereof regardless of the fact that any one or more sections, parts, subparts, sentences, clauses or phrases be declared invalid.

READ ON FIRST READING, ORDERED PUBLISHED AND SET FOR SECOND READING TO BE HELD ON <u>November 12, 2024</u>, by a vote of <u>6</u> to <u>0</u> on October 22, 2024.

READ ON SECOND READING AND ADOPTED, by a vote of <u>7</u> to <u>0</u> on November 12, 2024

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TOWN OF BASALT, COLORADO

By:

David Knight, Mayor

ATTEST: Ву: 🕎 Pamela K. Schilling, Town Clerk



First Publication: October 31, 2024 Final Publication: November 21, 2024 Effective date: December 5, 2024 Proposed Amendments in Underline and Strikethrough Text

Exhibit A

Sec. 18-24. Type I Sustainable Building Regulations (SBR).

(a) **Scope**. This regulation applies to buildings:

- (1) Residential:
 - i. New construction,
 - ii. Alteration per IEBC Level 2 > 750 SF work area
 - iii. Alteration per IEBC Level 3.
 - Reference Town of Basalt <u>"Work Area Commentary"</u> link found on Building Webpage
 - iv. Additions, > 500 SF,
 - v. Exterior energy uses.

Project applications for construction subject to the Type I Sustainable Building Regulations must demonstrate ability to comply with the appropriate threshold level established by Subsection (c) below and to meet the sections marked as (Required) prior to building permit based on conditioned floor area. Provide construction documents confirming requirements are to be met before any new construction, remodel, or addition begins. This compliance must be verified prior to a certificate of occupancy or certificate of completion is granted by the Town Building Official.

(b) Exceptions:

- (1) New manufactured housing approved by Colorado Department of Housing, and which is ENERGY STAR certified.
- (2) One-story attached or detached non-conditioned accessory structures.
- (3) Remodels that fall under the Level 1 Category per the International Existing Building Code.
- (4) Additions \leq five hundred (500) square feet.
- (c) **Compliance Paths:** Building permit applicants must inform the Town Building Official at the time of building permit application which of the following energy code compliance paths will be used to satisfying the Type I point thresholds:
 - (1) <u>Prescriptive via REScheck:</u> (option available only when new construction and additions ≤ two thousand square feet of conditioned floor area) via REScheck. The proposed design must exceed compliance by a minimum of 5 % comply with the requirements of Sections R401 through R404. All items listed in the Requirements Checklist in the REScheck must also be addressed. For all remodels IECC Chapter 5 Existing Buildings shall apply.
 - (2) <u>HERS Rating:</u> A HERS score of 40 <u>52</u> must be achieved for a residence utilizing both gas and electricity. For an all-electric or *Electrification-ready* residence, a HERS score of 45 <u>55</u> is required. A HERS score of 60 is mandatory for projects prior to any on-site renewables being added. A Projected HERS Report showing the score at 60 or below without PV and at or below 45/50 with PV shall be issued at permit submittal. The HERS report shall include the HERS Certificate and the Building Summary Report. Resubmittal of documents is required when as-built conditions occur, prior to issuance of a Certificate of Occupancy.

If a project does not meet the required HERS score, at the SBR building final, a calculated fee of \$0.25 multiplied by the conditioned floor area, multiplied by the number of points short shall apply and be paid prior to final.

(3) <u>Department of Energy - Zero Energy Ready Home Program</u>: ZER Prescriptive or Performance. The Town's fee schedule provides for rebates in Energy & SBR Plan Review Fee for certification per this compliance path.

- (4) *Living Building Certification or Petal Certification: When pursuing Petal Certification, one (1) of the three (3) required petals shall be Energy. The Town's fee schedule provides for rebates in Energy & SBR Plan Review Fee for certification per this compliance path.
- (5) ****Passive House Certification via PHIUS:** PHIUS Performance or Prescriptive Certification. The Town's fee schedule provides for rebates in Energy & SBR Plan Review Fee for certification per this compliance path.
- (6) ****LEED Gold:** Must achieve LEED for Homes Gold Certification or greater. The Town's fee schedule provides for rebates in Energy & SBR Plan Review Fee for certification per this compliance path.

*Indicates an "above-code" compliance option, which is exempt from the SBR program; however, IECC requirements still apply.

**Indicates an "above-code" compliance option, which are exempt from the SBR program, Parts 1.0 - 4.0 and Parts 6.0 - 7.0 only. Part 5.0 Renewable Energy and Beneficial Electrification shall still apply. IECC requirements still apply.

- (d) Conditioned floor area subject to Type I Sustainable Building Regulations: Shall satisfy all IECC Mandatory Requirements, plus any additional requirements listed in the current code and this Ordinance, for the path chosen by the applicant.
 - (1) All new construction subject to SBR I regulations must satisfy items identified as (Required).
 - (2) All tenants finish and remodels subject to SBR I requirements must satisfy the items identified as (Required) unless they are not applicable.
- (e) Minimum thresholds point requirements: The conditioned floor area shall achieve total point thresholds' as shown below in Table 1 for each type of development subject to Type I regulations. For additions and alterations, conditioned space volume or floor area of project is subject to the Type I Sustainable Building Regulations requirements.

New residential projects \geq one-thousand five hundred (1,500) or more square feet of conditioned floor area development shall also satisfy minimum subcategory point thresholds for each of the seven (7) parts summarized in Section 18-23(c) as shown on Table 2.

Sustainable Building Regulations - Minimum Total Required Point Threshold per Development Activity Type I – Table 1						
Min. Number of Points	Development Activity					
	REScheck, HERS, Zero Energy Ready					
n/a	Level 1: Alterations - Level 1 under the IEBC					
15	Level 2: Alterations - Level 2 under the IEBC > 750 SF work area.					
20	Level 3: Alterations - Level 3 under the IEBC, change of occupancy					
20	A: Additions > 500 square feet					
20	NC: 0 - 500 square feet *					
72	NC: 501-1500 square feet *					
78	NC: 1501 - 2000 square feet *					
83	NC: 2001 - 3000 square feet *					

88	NC	NC: 3001- 4000 square feet *							
93	NC	NC: 4001- 5000 square feet *							
* Threshold levels increase 10 points for forced air conditioning									
			Type 1- Ta	ble 2	Point Threshold per				
REScheck, HERS, DOE ZER	(1) Site/Water	(2) Recycling and Reuse	(3) Framing and Materials	(4) Energy	(5) Additional Energy Measures	(6) Indoor Air Quality	(7) Innovation		
nens, boe een	17	6	12	0	0	16	0		

Projects not meeting point thresholds set forth above shall pay a mitigation fee as follows:

Total Threshold Fee: Total number of points short of threshold x square footage of project x \$.15 = Fee assessment. For example, a 4,000 square foot project that is 5 points short would be assessed a fee as follows:

5 points short x 4000 sq ft x \$.15 = \$3,000

Total Subcategory Threshold Fee: Total number of points short of all subcategory thresholds x square footage of project x \$.05 = Fee assessment. For example, Category (1) 2 points short, Category (2) 1 points short, Category (3) 2, points short, Category (4) 4 points short would be assessed a fee as follows: (2+1+2+4+) = 9 points short x 4000 sq ft x \$.05 = \$1,800

Total SBR Fees for example would be \$3000.00 + \$1800.00 = \$4800.00

SBR Checklist I Part R3 Requirements and Fees:

2021 IECC Section R402.4.1.2 amended.

- Single-family Residential Buildings; 3.0 air changes per hour @ 50 Pascals.
- Multi-family Buildings; .30 cubic feet per minute (CFM) per square foot @ 50 Pascals.
- Alterations/ remodels level2 ≤ 750 Sq ft and level 3; 15% improvement air changes per hour @ 50 Pascals over baseline blower door test prior to construction. (no additional volume created).
- Additions ≤ 500 SF; 15% improvement air changes per hour @ 50 Pascals over baseline blower door test prior to construction. (based on total envelope).

Any building or dwelling unit providing final testing between 3.1 and 5.0 air changes per hour @ 50 Pascals shall require mechanical ventilation and be subject to fines.

Single-family Residential Buildings:

- Per each .1 air changes per hour @ 50 Pascals >3.0 \$1.00 x conditioned floor area.
 Multi-family Buildings:
- Per each .01 cubic feet per minute (CFM) per square foot @ 50 Pascals > .30 \$800.00

SBR Checklist I Part R3 Requirement Fee:

Any building or dwelling unit providing final testing > designated cubic feet per minute (226.6 L/min) per 100 square feet (9.29 m2) of conditioned floor area be subject to fines.

Per each .01 cubic feet per minute (CFM) per 100 square foot - \$.40 x conditioned floor area.

Projects meeting the overall minimum number of points, but which do not meet the minimum threshold per subcategory can apply for points in Subcategory 7, Innovation Points for review by the Town Building Official. It is at the Town's sole discretion whether these innovation points are eligible. If a project is not eligible for innovation points or otherwise cannot satisfy the points for a subcategory, a mitigation fee shall be paid.

Note: LEED Gold Living Building and Passive House PHIUS pathways certification and documentation shall be submitted to the Town Building Official prior to issuance of CO. If certification is not achieved, projects will be held to the minimum thresholds.

- (f) Type I Sustainable Building Regulations—Qualification Details: The qualification of what is required by the applicant and at what point in the building permit process compliance will be confirmed is provided in this subsection.
 - (1) Part 1.0 Site/water conservation:
 - <u>1.01: Limit site impact to fifteen (15) feet beyond building footprint:</u>

Show detailed construction management plan with sediment fence/limits of construction no more than fifteen (15) feet around proposed building footprint. Driveway and material storage exempted. Thinning required for wildfire mitigation is exempt. Show areas impacted by construction on landscaping plan.

- credit limit: 3 points.
- Confirmation: Will be at plan review and foundation inspection.
- ii. <u>1.02 Water efficient, fire resistant and edible landscaping:</u>

Automatic controllers and rain sensors are required for irrigation systems.

Limited turf: Irrigated turf area must be ≤ forty percent (40%) of landscaped area, or one thousand (1,000) square feet, whichever is smaller. Turfgrass installed shall be low evapotranspiration (ET), drought tolerant and require no more than one inch of water every two weeks. Turfgrass shall be prohibited for use in non-active use areas. Submittal plans shall indicate turf areas and drip-irrigation lines/beds on landscaping plan. Irrigation systems shall be controlled with automatic timer and rain sensors.

Any Turfgrass installed shall be low evapotranspiration (ET), drought tolerant and require no more than one inch of water every two weeks. Turfgrass shall be prohibited for use in non-active use areas.

The Town Building Official may determine whether this standard is applied on a lot-by-lot basis or whether the common area on a project may be considered in satisfying this standard.

- Credit limit: 2 points.
- Edible landscaping: A minimum of fifty (50) square feet must be prepared and dedicated to the use of native food plants as design features in a landscape consisting of permanent inground planting areas or raised beds. Submittal plans shall indicate planting areas. Berry, stone fruit, and pome fruit producing plants should be avoided as they entice wildlife into urban areas.
 - Credit limit: 2 points.
- Xeriscape: Landscaping plan must only show xeriscape plants listed by Colorado Waterwise, or source recognized by the Town Building Official. Submittal plans shall indicate landscaping minimum standards. Temporary irrigation is permissible during plant establishment period. Landscaping must be planted prior to CO to be eligible.
 - Credit limit: 4 points.
- Firewise: Utilize fire resistant landscaping methods to create a defensible space around your residence. Submittal plans shall indicate fire resistant landscaping.

• Credit limit: 4 points.

Confirmation will be at plan review and final inspection.

iii. <u>1.03 Storm water and/or non-potable water for irrigation:</u>

Provide a grading plan which illustrates the principle and construct swales to maximize distribution of surface drainage to planted areas on site, or direct surface drainage to a larger, neighborhood ecosystem. Subsurface "deep-root" irrigation for individual plantings also qualifies.

credit limit: 4 points.

Confirmation will be at plan review and final inspection.

iv. 1.04 Greywater Use for Irrigation:

Install a 3-way value that separates the greywater fixtures from the sewer/septic fixtures and diverts this water to the landscaping or plumb the sewer and graywater separately.

credit limit: 6 points.

Confirmation will be at plan review and final plumbing inspection.

v. 1.05 Food production: On site greenhouse:

Greenhouse must be built for food production and must be isolatable from living space and must be greater than thirty (30) square feet. Any supplemental heating for the greenhouse must be provided by a separately controllable system or zone with a maximum temperature set point of fifty (50) degrees F.

credit limit: 4 points.

Confirmation will be at plan review and final inspection.

vi. 1.06 Ultra-low or dual-flush toilets:

All Water Closet must be ultra-low (1.28 gpf of less) or dual flush per current EPA Water Sense requirements.

- Per each Fixture: 2 points.
- If \leq 3 fixture and all qualify: 6 points.
- Maximum credit limit: 6 points.
- Confirmation will be at plan review and final inspection.

vii. 1.07 Low-flow showerheads:

Shower heads that meet or exceed the current <u>EPA Water Sense</u> requirements (2.0 gpm or less) must be installed. Provide any documentation for on-site inspection. Only one (1) shower head in each shower shall be installed to obtain points.

- Per each Fixture: 1 point
- If \leq 3 fixture and all qualify: 3 points.
- Maximum credit limit: 3 points.

Confirmation will be at plan review and final inspection.

viii. 1.08 Low-flow bathroom faucets:

Bathroom sink faucets must be EPA Water Sense and labeled, using 1.5 gpm of less.

- Per each Fixture: 1 point.
- If \leq 3 fixture and all qualify: 3 points.
- Maximum credit limit: 3 points.

Confirmation will be at plan review and final inspection.

ix. <u>1.09 Energy Star clothes washer and/or dishwasher:</u>

Clothes washer/dishwasher must be listed on www.energystar.gov or must be shown to have similar water usage.

- Per each Fixture: 1 point.
- Maximum credit limit: 2 points.

Confirmation will be at plan review and final inspection.

- x. Spare
- (2) Part 2.0 Recycling and reuse:
 - i. 2.01 Recycle wood, concrete, metal scrap and cardboard:

Must be shown on construction management plan. Labeled containers for concrete, metal, and/or cardboard construction waste located on site with evidence of use and service.

- Per each Fixture: 1 point.
- Maximum credit limit: 3 points.

Confirmation will be ongoing through all inspections.

ii. 2.02 Beetle-kill lumber applications:

Structural or nonstructural construction usage, \geq fifty percent (50%) of the function of use must be beetle kill pine. Per each material category of use.

- Construction structural function: 2 points.
- Construction nonstructural function: 2 points.
- Maximum credit limit: 6 points.
- Confirmation will be at framing and final inspection.
- iii. 2.03 Donate surplus materials:

Keep records and receipts of donated materials on the job site.

Confirmation will be at final inspection.

iv. 2.04 Reclaimed and/or recycled-content materials:

Use of construction materials that are either reclaimed from another structure, and/or any materials produced with recycled content, materials that are purchased from a reclaimed materials distributor, deconstructed by the owner/applicant from another structure, or that are purchased from a used building materials exchange all qualify as reclaimed materials (must provide documentation).

For each material category of use:

- Post consumer usage, ≥ fifty percent (50%) of the function of use must be reclaimed, recycled and/or recycled content.
- Pre consumer usage, ≥ seventy-five percent (75%) of the function of use must be reclaimed, recycled and/or recycled content.
- Per each material category: 1 point.
- Maximum credit limit: 4 points.

Confirmation: Material information/documentation must be on the job site with a field set of plans for inspection.

v. 2.05 Built-in recycling and/or compost center with composting service:

Design and build a recycling and compost collection center, in or adjacent to the kitchen, with at least two (2) bins for glass, cans, plastic, paper, compost and other common recycling items. Must include countertop compost collection bin and a minimum of six (6) months of service with a local compost hauler.

credit limit: 2 points.

Confirmation will be at plan review and final inspection.

vi. Spare

(3) Part 3.0 Framing and materials:

i. 3.01 Insulated concrete forms (ICFs) for foundation:

ICFs are detailed on structural drawings must be used for over seventy-five percent (75%) of exterior Foundation.

credit limit: 5 points.

Confirmation will be at plan review and foundation inspection.

<u>3.02 Insulated concrete forms (ICFs) for above-grade walls:</u>

ICFs shown on structural drawings and must be used for over seventy-five percent (75%) of exterior walls.

credit limit: 8 points.

Confirmation will be at plan review and framing inspection.

iii. 3.03 Alternative Cementitious Materials in Cement used in Concrete:

Provide a documented letter from the batch plant that the cement used in the project's concrete mix used "alternative cementitious materials (ACMs)," such as fly ash or limestone, that reduce cement's CO2 footprint.

credit limit: 4 points.

Confirmation will be at foundation inspection.

iv. 3.04 Double wall framing:

Show wall elevations on plans. Double wall framing must be incorporated in seventy-five percent (75%) or more of the building.

credit limit: 6 points.

Confirmation will be at plan review and framing inspection.

- v. 3.05 Incorporate optimal value engineering (OVE) framing techniques:
 - ◆ 3.05.1—Use twenty-four-inch on center studs ≥ seventy-five percent (75%) of the structure.
 - 3.05.2—Use two-stud or California type corners ≥ seventy-five percent (75%) of the structure.
 - 3.05.3—Use efficient headers ≥ seventy-five percent (75%) of the structure. "Efficient headers" refers to insulated headers on exterior walls or eliminating headers in non-load bearing walls.
 - Each section credit limit: 3 points.
- Confirmation will be at plan review and framing inspection.
- vi. 3.06 Structural elements:
 - 3.06.1: Engineered wood joists used for ≥ fifty percent (50%) of flooring system.
 - 3.06.2: Engineered wood rafters or prefab trusses ≥ fifty percent (50%) roof framing.
 - Sections 306.1-306.2 credit limit: 1 points.
 - ◆ 3.06.3: Engineered wood studs for \geq fifty percent (50%) of the structure.
 - Sections 306.3 credit limit: 3 points.

Confirmation will be at plan review and framing inspection.

vii. 3.07 Pre-cut, prefabricated elements:

3.07.1: Pre-cut studs and trusses ≥ seventy-five percent (75%) of structure.

credit limit: 2 points.

- 3.07.2: Panelized/prefabricated walls/modular sections.
- credit limit: 4 points.

Confirmation will be at plan review and framing inspection.

viii <u>3.08 Forest Stewardship Council (FSC) or Sustainable Forestry Initiative (SFI) certified materials</u> for framing: Wood certified by Forest Stewardship Council (FSC). Material must be used in over fifty percent (50%) of the building.

credit limit: 3 points.

Confirmation will be at plan review and framing inspection.

ix. 3.09 Structural insulated panels (SIPs) or straw bales used for exterior walls:

Must be used for \geq seventy-five percent (75%) of exterior walls.

credit limit: 10 points.

Confirmation will be at plan review and framing inspection.

x. 3.10 Materials manufactured in Colorado and/or rapidly renewable materials:

Present documentation for any materials used that were manufactured within Colorado, or that consist of rapidly renewable materials (naturally reproducing within fifteen (15) years). Provide documentation for any materials used that were manufactured within Colorado. Concrete does not qualify.

Construction usage, ≥ fifty percent (50%) of the function of use must be manufactured within Colorado, or that consist of rapidly renewable materials.

- Per each material category of use: 2 points.
- Maximum credit limit: 6 points.

Confirmation will be at plan review and framing inspection.

xi. 3.11 Sustainable Forestry Initiative (SFI) or Forest Stewardship Council (FSC) certified materials

products:

Forest Stewardship Council (FSC) or Sustainable Forestry Initiative (SFI) stamped certification on material(s) required. Construction usage, one hundred percent (100%) of the function of use must be FSC Data Base Link or SFI Data Base Link, engineered lumber, pre-fab trusses and/or steel studs.

Per each material category of use: 2 points.

Maximum credit limit: 12 points.

Confirmation will be at plan review and framing inspection.

xii. 3.12 Roofing materials:

Install roofing with minimum thirty-year life or roofing with greater than seventy-five percent (75%) recycle content. Roofs that typically will qualify for seventy-five percent (75%) recycled content include metal and faux shake/slate roofing. Provide a cut sheet for roofing with a thirtyyear warranty or recycled content.

credit limit: 2 points.

Confirmation will be at plan review and framing inspection.

xiii. Spare

(4) Part 4.0 Energy:

i. 4.01 Continuous air barrier: (Required)

Provide construction documents detailing a continuous air barrier is required around the entire thermal envelope. Show Air barrier and air sealing details, including the location of the air barrier on construction plans.

Confirmation will be at plan review and insulation inspection.

ii. 4.02 Eliminate Use of Foams with a High GWP (Global Warming Potential) Blowing Agents: (Required)

Provide product specs at insulation inspection. Insulating foams containing HFC-245fa as a blowing agent in spray foam and HFC-134a in XPS board is not permitted.

Confirmation will be at insulation inspection.

iii. 4.03 Baseline Blower Door Test & Energy Assessment: (Required) - (Alteration per IEBC Level 3, Alterations that impact > 750 SF)

Submit baseline blower door test and energy assessment with permit submittal. A final blower door test showing a minimum 15% increase in air tightness shall be submitted prior to the final building inspection. 15% ACH50 if volume remains the same. If volume is added, an improvement of 15% cfm/SF of dwelling unit enclosure area, which is based on the envelope, shall be used. Mechanical ventilation is required if the residence has 5.0 ACH50 or less. This can be achieved via the following methods. Note these methods are only acceptable for remodels:

- Exhaust-only Exhaust-only systems use kitchen, bath, and/or laundry fans to exhaust stale air to exterior of residence. The fans are to be governed by timed controls able to run continuously or intermittently.
- Supply Central fan-integrated supply ventilation provides outdoor air through an outdoor air intake that is ducted to the return side of the residence's central heating and cooling system air handler for filtering, heating, or cooling, and distribution to the house through the HVAC system ducts.
- Balanced Heat recovery ventilators (HRVs) simultaneously bring in outdoor air and exhaust indoor air, with both ducts passing through a heat exchanger for heat recovery. Energy recovery ventilators (ERVs) function like HRVs but move and transfer both heat and moisture. ERVs and HRVs may be connected to the residence's central air handler and duct system or independently ducted.

Confirmation will be at plan review and final inspection.

iv. 4.04 Airtight J boxes for all exterior walls: (Required)

Electrical boxes at all exterior wall locations shall be sealed around knockouts, where the wires enter the box and between the box and drywall. An air barrier installed behind penetrations shall be compliant with this section.

Confirmation will be at plan review and final inspection.

v. 4.05 Roof/ceiling insulation:

Show roof/ceiling insulation detail and install accordingly. Post completed insulation certificate in mechanical room and send to the Town Building Official.

- Per each R-value > IECC maximum: 1 point.
- Maximum credit limit: 15 points.

Confirmation will be at insulation inspection.

vi. 4.06 Reflective radiant barrier:

Show and specify a reflective radiant barrier on roof/ceiling insulation plan to provide extreme resistance to heat transfer between assemblies. Install a reflective radiant barrier on the "ceiling" or "floor" of the attic, or under the roof sheathing of a vaulted ceiling.

Confirmation will be at framing if installed on or under roof sheathing; or insulation inspection if laid over insulation.

vii. 4.07 Wall insulation:

Show wall insulation in construction plans. Install per plan. Post completed insulation certificate in mechanical room and send to the Town Building Official.

- Per each R-value > IECC maximum: 1 point.
- Maximum credit limit: 15 points.

Confirmation will be at insulation inspection.

viii. 4.08 Continuous exterior insulation:

Provide product documents for exterior continuous insulation. Include assembly detail sections on plan set.

- Per each R-value > IECC maximum: 1 point.
- Maximum credit limit: 10 points.

Confirmation will be at insulation inspection.

- ix. 4.09 Unheated Slab insulation:
 - Provide construction document details to account for continuous insulation under full slab.
 - Continuous R-10 minimum insulation: 2 points.
 - Continuous R-15 minimum insulation: 4 points.

Confirmation will be prior to slab pour.

x. <u>4.10 Crawl space/basement wall insulation:</u>

For crawl space and/or basement walls, show insulation of wall in construction plans. Install per plan. Insulation must be continuous for the entire wall height, from slab or floor up through the rim joist.

- Per each 5 R-value increment > IECC maximum: 1 point.
- Maximum credit limit: 2 points.

Confirmation will be at insulation or final inspection.

xi. 4.11 Blown or sprayed insulation:

Blown-in, or minimum 2.0 pcf density foam, insulation specified and installed in attics/ceilings, walls, and basements/crawl spaces qualifies.

- Twenty-five percent (25%) of total insulation: 1 point.
- Twenty-six percent (26%) Fifty percent (50%) of total insulation: 2 points.
- Fifty-one percent (51%) Seventy-five percent (75%) of total insulation: 3 points.
- ♦ ≥ Seventy-six percent (76%) of total insulation: 4 points.

Confirmation will be at insulation inspection.

xii. 4.12 High performance windows:

Provide construction documents detailing U-values for all glazing designed and installed. Leave window labels in place for inspection.

- Per each U-.02 < IECC maximum: 2 point.</p>
- Maximum credit limit: 10 points .

Confirmation will be at plan review and insulation inspection.

xiii. <u>4.13 Insulate all water pipes at all locations:</u>

Closed cell foam or fiberglass pipe insulation with a minimum with R3 minimum on all potable water piping.

credit limit: 2 points.

Confirmation will be at the insulation inspection.

xiv. <u>4.14 Radiant floor/heating system:</u>

In-floor radiant heat providing \geq fifty-percent (50%) of the heating needs of the structure are met by hydronic means. Boilers must be of modulating type and minimum Energy Star Standards AFUE efficiency.

- Fifty-percent (50%) ninety-nine percent (99%) of heating needs: 4 points.
- ✤ ≥ 100 percent (100%) of heating needs: 8 points.

Confirmation will be at mechanical rough-in and final inspection.

xv. <u>4.15 Heat pump for heating and cooling:</u>

Cold climate air-source heat pump to cover 100% of cooling and heating load - HSPF > 10 and SEER

> 16 minimum efficiency requirements per AHRI Directory.

- credit limit: 12 points.
- Confirmation will be at mechanical rough-in and final inspection.
- xvi. <u>4.16 No gas line or propane onsite:</u>
 - No natural gas line or propane service to site.
 - credit limit: 12 points.
 - Confirmation will be at plan review and foundation inspection.
- xvii. 4.17 HERS rated house:

Provide HERS documentation detailed from submitted plan set indicating an index less than 45 (all-electric) / 40 (dual fuel) per Basalt Ordinance and, at completion of the project, an As-Built Energy Rating Report with final rating.

- Per each HERS index rating < municipal ordinance requirement: 1 point.</p>
- Maximum credit limit: 9 points.

Confirmation will be upon presentation of the qualifying As-Built Energy Rating Report and is required prior to final building inspection certificate of occupancy.

xviii. 4.18 Blower door test:

Provide documentation detailing the completed blower door test by a certified professional that accurately shows air changes per hour (ACH) @ 50 Pascals. Test results cannot exceed 3.0 ACH @ 50 Pascals.

Per each 0.5 < minimum, ACH50: 1 point.</p>

Maximum credit limit: 6 points.

Confirmation will be upon presentation of the qualifying test results. Should be done prior to insulation installation.

xix. <u>4.19 Insulating window coverings:</u>

Window coverings must be installed on seventy-five percent (75%), or more, of the windows and have a minimum R-3 to qualify. Provide documentation of window coverings. Some common options are duet/cellular shades, or quilted shades.

credit limit: 3 points.

Confirmation will be at final inspection.

xx. <u>4.20 Efficient boiler or furnace:</u>

Specify and install a heating appliance with an AFUE percentage rating of at a minimum of eight percent (8%) above current Federal Energy Management Program (FEMP) 2021 IECC R403.7

- Boiler and/or furnace with a (combined) AFUE rating of eight percent (8%) above current FEMA minimum is installed: 1 point.
- For each point of efficiency above initial AFUE rating of eight percent (8%): 1 point.
- Maximum credit limit: 7 points.

Confirmation will be at final inspection.

xxi. <u>4.21 Ductwork in conditioned spaces or insulated above IECC minimum:</u>

All joints and seams must be sealed with mastic to qualify for these points.

- All ductwork within thermal envelope: 2 points.
- Ducts in unconditioned space: 1 point.
 - ≤ 3" diameter or 7 sq in. area-insulate minimum R6
 - > 3" diameter or 7 sq in. area-insulate minimum R8.

Confirmation will be at the insulation inspection.

- xxii. <u>4.22 No mechanical air conditioning:</u>
 - No components for a rough-in system shall be installed.
 - credit limit: 4 points.

Confirmation will be at final inspection.

xxiii. 4.23 Programmable thermostats:

Thermostats that automatically change to programmed temperature settings must be installed and be functional.

Controls Fifty-percent (50%) – ninety-nine percent (99%) of heating needs: 1 points.

Controls 100 percent (100%) of heating needs: 2 points.

Confirmation will be at final inspection.

xxiv. 4.24 Thermostats for each room:

Each habitable space must have a separate environmental thermostat control.

credit limit: 2 points.

Confirmation will be at final inspection.

xxv. 4.25 Tankless on-demand water heater(s), heat pump hot water heater, side-arm or combined space and water heating appliance:

Gas or electric tankless models qualify and must meet over seventy five percent (75%) of total domestic hot water needs. A combined (space and water heating) appliance or a condensing water heater that is modulating with a thermal efficiency rating above current Federal Energy Management Program(FEMP) 2021 IECC R403.7 minimums also qualify.

- Tankless systems, heat pump hot water heater, dual space and water heating appliance: 3 points.
- Side-arm boiler: 1 point.

Confirmation will be at rough-in inspection.

xxvi. 4.26 Energy Star appliances:

Any appliances, other than those credited for water conservation (Section 1.9), with the EPA's Energy Star logo on them and/or listed on www.energystar.gov website qualify.

Per each appliance: 1 point.

- Maximum credit limit: 4 points.
- Confirmation will be at final inspection, with appliances installed and operable.

xxvii. 4.27 Ceiling fans/air destratification system in common rooms:

Show units/systems in construction plans.

- Per each ceiling fan: 1 point.
- Maximum credit limit: 4 points.
- Confirmation will be at final inspection.

xxviii. 4.28 Exterior lighting minimized:

Exterior lighting plan to be submitted with construction plans. The maximum output shall be 3000 lumens and the maximum color temperature shall be 3000k.

credit limit: 2 points.

Confirmation will be at plan review and the final inspection.

xxix. 4.29 Motion detecting light switches:

Install motion-detection-controlled lighting or as an integrated unit or by a remote motion sensor for area's not considered habitable space.

- Per each switch: 1 point.
- Maximum credit limit: 4 points.

Confirmation will be at final inspection.

xxx. Spare

- (5) Part 5.0 Renewable energy and beneficial electrification:
 - i. 5.01 Building electrification: (Required)

Building electrification consists of Service Load Calculation Documentation, Battery-Ready / Electrical Storage System (ESS)- Ready, Electric-ready, ESS service reserved space, Electric Vehicle (EV) Capable or Ready Space, Solar-ready.

- Service Load Calculation Documentation: Complete electrical load calculations consisting of all anticipated branch circuit requirements included in required *Electric-Ready* structures. The current adopted NEC shall govern load requirements. This is applicable to new construction, additions > 500 SF and Level 3 alterations > 750 SF.
- Battery-Ready / Electrical Storage System (ESS)- Ready: Having sufficient future physical space to install a future energy storage system, along with necessary electric infrastructure to accommodate the storage system and ensuring that it is protected by potential damage by vehicles. The location and layout diagram of the ESS-ready area shall be indicated on the construction documents compliant with all applicable adopted codes. Each building shall be required to have a 10 sq ft minimum ESS-ready floor area and is exempt from FAR calculations. Means to access the main electrical service panel for future electrical energy storage system installation is required and to have ESS service reserve space. This space shall be labeled "For Future Electric Storage."

Exception: Where an onsite electrical system storage system is already installed.

- Electric-ready: Buildings designed and constructed to support transition over to electric systems at any time during the life of the building including installation of individual branch circuits, conduit and or raceway, wiring, junction boxes, and receptacles, reserve space for overcurrent protection and electrical equipment capacity to accommodate future installation of any/all appliances planned for use in structure.
- ESS service reserved space: Provide reserved space on the main electrical service panel to allow installation of a two-pole circuit breaker for future electrical energy storage system installation. This space shall be labeled "For Future Electric Storage". The reserved spaces shall be positioned at the end of the panel that is opposite from the panel supply conductor connection. Any electrical energy storage system that is installed shall meet all requirements of the currently adopted NEC, IRC, NFPA ESS 885 and IFC codes.
- Electric Vehicle Capable Space: A dedicated parking space with a continuous raceway/conduit with electrical panel capacity and space for an individual branch circuit dedicated to terminating within 3' of the EV parking space that is not less than 40-ampere and 208/240-volt to enable the future installation of electric vehicle supply equipment. Termination points for raceway/conduits and electrical distribution equipment directory shall be clearly marked "for future electrical supply equipment (EVSE)".
- Electric Vehicle (EV) Ready Space: a designated parking space that has an individual branch circuit installation of 208/240-volt, 40-ampere, dedicated to terminating to a receptacle within 3' of the EV parking space to allow for the future installation of EV Supply Equipment (EVSE). Termination points for raceway/conduits and electrical distribution equipment directory shall be clearly marked "for future electrical supply equipment (EVSE)". For two adjacent EV-Ready spaces with receptacle installation, a single branch circuit is permitted.
- Electric Vehicle Supply Equipment (EVSE); All electrical conductors, including the ungrounded, grounded, and equipment grounding conductors, and the electric vehicle connectors, attachment plugs, personnel protection system, and all other fittings, devices,

power outlets, including apparatus installed specifically for the purpose of transferring energy between the premises wiring and the electric vehicle.

Solar-Ready Building Design: Provide construction documents showing designing and constructing a building in a way that facilitates and optimizes the installation of a rooftop solar photovoltaic (PV) system at some point after the building has been constructed. The commercial building shall be designed to have 40% of the roof area dedicated as a solarready zone, as well as a junction box and dedicated pathway for wiring from electrical panel to roof for future solar installation.

Confirmation will be at plan review & rough-in inspection.

- ii. 5.02 PV solar system: (Required)
 - New Construction <u>All exterior uses of energy, such as snowmelt, pools, spas, Heat tape,</u> Exterior Heaters, Exterior fireplaces, and garages shall require a PV solar offset.
 - 3.0 watts per square foot of the conditioned floor area (CFA) or (25% Annual energy use per definitions) if the structure has access to both gas and electrical utilities
 - 2.0 watts per square foot of the conditioned floor area (CFA) or (15% Annual energy use per definitions) if the structure is served solely by electrical utilities. Renewable energy source capacity shall be determined "Town of Basalt REMP Calculation Sheet".
 - Additions 500 SF and greater, alterations classified as a Level 3 remodel which are ≥ 750 SF:
 - 2.0 watts per square foot of the conditioned floor area (CFA) if the structure has access to both gas and electrical utilities.
 - 1.5 watts per square foot of the conditioned floor area (CFA) if the house structure is served solely by electrical utilities

The requirement represents a minimum solar requirement for each house which would inclusive of that required to achieve the minimum HERS rating.

Exceptions and options are below:

- Shading: Houses that do not have access to solar energy, as verified by an approved third party, approved by the Town Building Official, can provide the renewables offsite by purchasing renewable energy via a installing an Electrical Storage System (ESS) method approved by the town.
- Fee in lieu of 200% (twice as much) penalty of required renewables to be calculated per Section 18-14 Fees.

Houses Exterior Energy Uses that have a required calculated total solar array < 5kW, have the option to pay a fee in lieu of 100% penalty of required renewables.

Confirmation will be at plan review and final building inspection.

<u>5.03 Passive solar design:</u>

Site must have reasonably unobstructed solar access. Site plan must show a Sun Angles Dial along with the North Arrow, showing at minimum angles of sunrise, angles of the sun at noon, and angles of sunset, for summer solstice, equinox, and winter solstice respectively.

Town of Basalt: The angles of the noon sun are sixty-eight (68), forty-seven (47), and twenty-five (25) degrees for summer solstice, equinox, and winter solstice, respectively.

5.03.1 Optimize glazing/orientation: The building should be simple in shape, elongated east to west with the south-facing side of the house having the majority of the glazing and oriented within 30 degrees of true south and not shaded by other buildings or trees. Install south-facing glass from twelve (12%) to twenty percent (20%) of total heated floor area. Effective southfacing windows require a high Solar Heat Gain Coefficient (SHGC), typically 0.60 or higher to maximize heat gain

- 5.03.2 Shading: Provide proper shading according to the formula E = H/3.38, or conversely, H = E x 3.38, where E = eave depth, and H = height of bottom of window from the eave.
- 5.03.3 Thermal mass: For each square foot of south-facing glass, provide at minimum an equivalent square footage of thermal mass interior walls and/or floor reached by the solar gain. Examples of thermal mass include concrete, gypcrete, tile, masonry, or stone floors; double-layered sheetrock, masonry, stone, adobe walls.
 - credit limit: 25 points.

Confirmation will be at plan review and final inspection.

iv. 5.04 Solar hot water system for domestic 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 twenty (20) degrees of due south, and between thirty (30) and fifty (50) degrees from horizontal. System size is dependent on the number of bedrooms.

Evacuated-tube collectors' minimum requirements are to be twenty-five percent (25%) more efficient than flat plate collectors.

credit limit: 8 points.

Confirmation will be at plan review and final inspection.

v. 5.05 Integrated solar hot water system that supplements both radiant floor heat and domestic

hot water:

Install a solar hot water system sized appropriately and that provides heat for radiant floor heating as well as domestic hot water. Provide detailed system and schematics on construction plan set.

credit limit: 8 points.

Confirmation will be at plan review and final inspection.

vi. 5.06 Solar hot-water system:

Rough in Only:

- Two (2), well-secured runs of copper plumbing pipe, three-fourths-inch minimum, insulated to an R-6, minimum, must be installed in an interior wall between the attic/roof and the mechanical room or area that could house the storage tank/heat exchanger.
- An 18/2 (thermostat) wire (or one-half-inch conduit) must also be run at the same location for future control installations.
- The plumbing and wiring should terminate in an accessible location adjacent to roof that will
- support the solar collectors.
- Ends of installed pipes and wires must be labeled "solar"; pipes and conduit must be capped or effectively sealed; wires terminating outside must be in a sealed junction box.
- Provide three (3) feet by three (3) feet of floor space for a future storage tank.
 - credit limit: 2 points.

Confirmation will be at plan review and final inspection.

vii. 5.07 Solar photovoltaic system:

Solar installed > required per Required Solar (Sec18-24 (f) 5.02), HERS score (Sec 18-24(c)(2)) and Exterior Energy Use (Sec 18-23(d)).

Per each kW: 10 points.

Maximum credit limit: 50 points.

Confirmation will be at plan review and final inspection.

- viii. 5.08 Ground source heat pump (geothermal) system:
 - Points are rewarded for each quantity level of the structure's heating/cooling needs met by the system. If utilized for a snowmelt system, total energy calculations must include exterior energy use (Sec 18-23(d)). as well.
 - Twenty-five percent (25%) of heating/cooling needs: 10 points.
 - Twenty-six percent (26%) Fifty percent (50%) of heating/cooling needs: 20 points.
 - Fifty-one percent (51%) Seventy-five percent (75%) of heating/cooling needs: 30 points.
 - ✤ ≥ Seventy-six percent (76%) of heating/cooling needs: 40 points.
 - Confirmation will be at plan review and final inspection.
 - ix. 5.09 High-efficiency wood-burning (or biomass) stove:

Provide specifications for stove make and model number on plans. Approved solid fuel-burning device is one which has been approved and certified by the Air Quality Control Commission pursuant to its authority under Section 25-7-104, et seq., C.R.S., or which complies with all the following:

- ★ Emissions generate ≤ 2.0 grams/hour of particulate.
- ♦ \geq seventy-five percent (75%) efficiency as determined by EPA (New Source Performance Standard for New Residential Wood Heaters) test methods using Low-Heat Value protocol.
- Provide EPA "Temporary Label", manufacturer's (IRS) certification statement, or other documentation at plan review.
- Installation must conform to manufacturer's recommendations at final inspection.
 - credit limit: 4 points.

Confirmation will be at plan review and final inspection.

x. 5.10 Battery storage installed with PV:

Install batteries that will cover essential loads for one day. Provide load calculation from the electrician, minimum 12.5 kWh. Or install a Smart Wall system.

- Calculated essential load kW for 24 hours: 4 points.
- Smart panel system: 8 points.
- Confirmation will be at plan review and final inspection.
- xi. 5.11 EV (Electric Vehicle) Charger:

Install EV charger.

- Per each charger: 4 points.
- Maximum credit limit: 8 points.
- xii. Spare
- (6) Part 6.0 Indoor air quality:
 - i. 6.01 Formaldehyde-free and/or low-toxic insulation: (Required)
 - Insulation must be labeled as formaldehyde-free or SPOT UL-certified at https://spot.ul.com. Confirmation will be at plan review and final inspection.
 - ii. 6.02 Low or zero-VOC and /or low toxic interior paint, stain/finishes/ and adhesives: (Required) Products must be either labeled "low od No VOC", Green guard certified, www.greenguard.org, or show that VOC levels are below EPA thresholds.
 - Confirmation will be at final inspection.
 - iii. 6.03 Radon mitigation: (Required)

Design and install a passive radon mitigation system that removes radon or other soil gas from under the slab/crawl space and vent per EPA guidelines. A fan shall be added to the radon

system if radon test indicates that levels are over EPA's 4 pCi/L threshold. A radon test must be submitted prior to building final. https://www.epa.gov/radon/radon-standards-practice www.buildingscience.com

Confirmation will be at plan review and foundation inspection.

iv. 6.04 Mold prevention: Moisture management strategy: (Required)

- Provide construction documents detailing the envelope assemblies with the air, water, thermal and vapor barriers drawn. Details must show how the walls and roof will be able to dry, and in which direction.
 - Remodels: the source of mold must be identified and mitigated.
 - Crawlspaces, install six (6) mil clear plastic as a vapor barrier over the dirt surface and overlap floor seams twelve (12) inches, and glue to the foundation wall.

Confirmation will be at plan review and the insulation inspection.

- v. <u>6.05 Smart Vapor Retarder in Wall Assembly:</u>
- Install a smart vapor-retarder system that allows moisture to leave the assembly both inward or outward, depending on the season.
- ✤ credit limit: 5 points.

Confirmation will be at plan review and the insulation inspection.

- vi. 6.06 Exhaust range hood outside:
- Install a range hood to exhaust not more than two hundred (200) CFM to the outside.
- credit limit: 2 points.

Confirmation will be at plan review and final inspection.

vii. 6.07 Use of an induction cooktop stove:

Install an induction cooktop stove.

credit limit: 2 points.

viii. 6.08 Installation of a Fresh Air System with greater than 80% energy recovery:

Install an efficient ERV / HRV with energy recovery \geq Eighty Percent (80%).

- credit limit: 6 points.
- ix. 6.09 Low-or non-toxic floor coverings:

Materials must be below EPA thresholds for low/non-toxicity or certified GREENGUARD materials. In general, most tile, wood, and natural carpets meet low-toxic standards. https://www.listindustries.com/support-center/greenguard .

- Twenty-five percent (25%) of covering level: 1 point.
- Twenty-six percent (26%) Fifty percent (50%) of covering level: 2 points.
- Fifty-one percent (51%) Seventy-five percent (75%) of covering level: 3 points.
- ♦ ≥ Seventy-six percent (76%) of covering level: 4 points.

Confirmation will be at plan review and final inspection.

x. 6.10 All furnaces, fireplaces, boilers, gas water heaters are sealed combustion/direct vented:

Provide construction documents for all appliance specifications with construction plans.

credit limit: 2 points.

Confirmation will be at final inspection.

xi. 6.11 High-efficiency filter on HVAC system: (MERV 8, 4 pts., > MERV 8, 5 pts.

Submit documents and install a filter with a minimum efficiency reporting value (MERV) eight (8) or higher that effectively filters one hundred percent (100%) of the HVAC system. The MERV scale ranges from one (1) to twenty (20).

- MERV value \leq 4: 4 points.
- ♦ MERV value \geq 5: 5 points.

Confirmation will be at final inspection.

xii. <u>Spare</u>

(7) Part 7.0 Innovation points:

Innovative product use and/or design points will be given points on a case-by-case basis. The item must specifically meet the intent of the sustainable building regulations guidelines as stated at the beginning of this guidelines document, and points will be scaled as the item would apply to similar comparable items in the guidelines, as determined by the plan's examiner.

Some options eligible for Innovation Points may include but are not limited to: "Passive House", post-construction debriefing meeting between contractor, architect, engineers, etc., frost-protected shallow foundation, Trombe wall/interior thermal massing systems, evapotranspiration watering system, on site co-generation power system, passive solar lighting, providing ongoing monitoring system (Garfield Energy Navigator), etc.

i. 7.01 Electric-Ready Participation:

Choose to participate in *Electrification-Ready* standards over Electric-Ready standards per definitions.

credit limit: 10 point.

Confirmation will be at plan review and final inspection.

(g) Spare