

ORDINANCE NO. 2016 - 03

AN ORDINANCE OF THE BOARD OF COUNTY COMMISSIONERS OF BLAINE COUNTY, IDAHO, REPEALING ALL REFERENCES TO THE 2009 INTERNATIONAL ENERGY CONSERVATION CODE; ADOPTING NEW REFERENCES TO THE 2012 INTERNATIONAL ENERGY CONSERVATION CODE WITH AMENDMENTS RELEVANT TO LOCAL CONDITIONS; PROVIDING FOR A SEVERABILITY CLAUSE; AND EFFECTIVE DATE.

RECITALS

WHEREAS, Blaine County is recognized as a state leader in natural resources protection.

WHEREAS, residential buildings account for approximately 21 percent of U.S. energy use and residential energy use is growing faster than any other sector. and

WHEREAS, buildings account for seventy-two percent of U.S. electricity consumption, while residential and commercial structures account for one-third of all natural gas consumption.

WHEREAS, "existing buildings" are the overwhelming majority of buildings in any locality and create the largest opportunity for decreasing energy consumption. and

WHEREAS, energy conservation can result in consumer cost savings and improvements to environmental quality, national security, personal security, and comfort.

WHEREAS, gas and electrical transmission infrastructure serving Blaine County is nearing capacity. Reducing energy demand is the most cost effective way to ease these constraints, providing additional capacity for growth and development and it may delay the need for certain infrastructure improvements.

WHEREAS, energy reduction is the most cost effective policy to increase energy supplies to Blaine County. and

WHEREAS, the average home size in the unincorporated county is 4,500 square feet, twice the national average, and natural gas consumption is higher than the state average. and

WHEREAS, Home Energy Rating System (HERS) is a significantly more robust tool than ResCheck and the tool of choice for most locally adopted 'above-code' building programs and is used as a method of verification in Leadership Energy and Environmental Design (LEED) for Homes, National Green Building Standards (NGBS) and ENERGY STAR programs. and

WHEREAS, heated drive-ways and large pools and spas consume energy at a rate much higher than buildings. Heated Drives: 1 sq. ft. heated drive = 1 sq. ft. total home energy consumption,

per year (with an ENERGY STAR boiler). Pools and Spas: The average 100 sq. ft. hot tub consumes the same amount of energy as a 1,200 sq. ft. home, per year. and

WHEREAS, the 2012 International Energy Conservation Code (2012 IECC) in its entirety and without state of Idaho amendments has met or exceeded many of the standards set forth in Blaine County code Title 7, Chapter 6.

WHEREAS, Blaine County is deleting sections 402.4.2 and 402.4.2.1 as they are pertaining to air sealing and testing options that is less than the requirements of the 2012 IECC.

WHEREAS, Blaine County is amending section 405.2, as the 2012 IECC has a higher standard for insulating supply and return air ducts outside of the building thermal envelope.

WHEREAS, Blaine County is deleting tables 405.5.2(1) and 405.5.2(2) because they are duplicates of the revised and upgraded tables in the 2012 IECC.

WHEREAS, Blaine County is amending Appendix A, section A101.2, as the 2012 IECC has a higher standard for insulation under snow melted areas.

WHEREAS, Notice for the April 5, 2016 hearing on this ordinance satisfies Idaho law and Blaine County Code.

WHEREAS, Blaine County, pursuant to Idaho Code 39-4116(2) and as a local government that issues building permits and performs building code enforcement activities, shall adopt the following codes as published by the International Code Council.

WHEREAS, Blaine County, pursuant to Idaho Code 39-4116(4), may amend the adopted codes or provisions of the above referenced codes to reflect local concerns, if such amendments establish at least an equivalent level of protection.

NOW THEREFORE BE IT ORDAINED by the Board of County Commissioners of Blaine County, Idaho, Pursuant to Idaho Code section 39-4116(2), that:

SECTION 1: Title 7, Chapter 6 is hereby amended (underlines for additions and strikeouts for deletions) as follows:

(BC) Denotes additional code sections added by Blaine County

7-6-1 ADMINISTRATION;

(The following amendments and/or additions are to be read and interpreted with Chapter 1 of the 2012 ~~2009~~ International Energy Conservation Code, Residential Provisions.)

Section 101.1 Title. Insert the name "Blaine County" for name of jurisdiction.

Section 101.4.3 Additions, Alterations, Renovations And Repairs is hereby amended and shall read as follows: Additions, alterations, renovations or repairs to an existing building, building system or portion thereof shall conform to the provisions of this code ~~without requiring the unaltered portion(s) of the existing building or building system to comply with this code.~~ Additions, alterations, renovations, or repairs shall not create an unsafe or hazardous condition or overload existing building systems. ~~An addition shall be deemed to comply with this code if the addition alone complies or if the existing building and addition comply with this code as a single building.~~

Section 103.3.3 Phased Approval is hereby amended and shall read as follows: The *code official* shall have the authority to issue a permit for the construction of part of an energy conservation system before the construction documents for the entire system have been submitted or *approved*, provided adequate information and detailed statements have been filed complying with all pertinent requirements of this code. The holders of such permit shall proceed at their own risk without assurance that the permit for the entire energy conservation system will be granted. Equipment sizing calculations, in accordance with ACCA Manual J, S, and D, shall be submitted prior to subfloor inspection.

Section 107.1 Fees is hereby amended and shall read as follows: A permit shall not be valid until all fees as prescribed in ~~section 107.2 have been paid~~ the Blaine County BuildSmart and exterior renewable energy mitigation fee ordinance that is in effect at the time of submittal of a permit are paid in full, nor shall an amendment to the permit be released until the additional fees, if any, have been paid.

(BC) Add Section 110 Modification. The chief building official may make modifications to the requirements of Chapter 4 of the 2012 International Energy Conservation Code if it is determined that strict application of the requirements:

1. Create practical difficulties or excessive expense in the upgrade of an existing residential structure.
2. Require *alteration* to either a structure greater than 50 years in age or any structure in a historic district or site which would materially alter the historic integrity of that structure or adversely affect the historic integrity of the district or site.
3. Create practical difficulties in meeting on-site renewable energy requirements due to topographic constraints associated with the lot or location of the structure.

In assessing whether a request for a modification should be granted, the chief building official shall, in consultation with the staff and/or an energy rater retained by the building official at the applicant's expense, determine whether the strict application of Chapter 4 of the 2012 International Energy Conservation Code creates a situation described in items one

through three, listed above. If it is determined that the request warrants a modification on this basis the chief building official shall determine what appropriate mitigation measures shall be required to ensure that the structure meets the intent and spirit of chapter 4. Appropriate mitigation measures may include requiring additional energy-saving or resource-efficient construction methods or materials.
(Ord. 2011-02, 2-14-2011, eff. 5-1-2011)

7-6-2 DEFINITIONS;

The following "general definitions" as outlined in chapter 2 of the 2012 2009 IECC, Residential Provisions shall be added or replace existing definitions:

Addition. The placement of or fabrication of a structure that adds *conditioned floor area* to an existing structure.

Certified Energy Auditor. Residential energy auditor accredited by the Building Performance Institute (BPI) or the Residential Energy Services Network (RESNET).

Conditioned Floor Area. The *floor area* of a building that is heated or cooled. Square footage is calculated based on RESNET standards, which uses the ANSI Z765-2003 standard.

Energy Mitigation Program (EMP). Requires newly constructed heated drives, pools, and spas to mitigate environmental impacts and reduce demand on existing energy infrastructure associated with their creation by installing a *renewable energy system* onsite or paying a renewable energy mitigation fee. Fees are used to create local sited renewable energy resources for the Wood River Valley.

Energy Audit. Is a service where the energy efficiency of a house is evaluated by a *certified energy auditor* using professional testing including but not limited to a blower door and duct leakage test. The audit shall include at minimum the following 1) an assessment of the various characteristics of the building envelope including but not limited to the walls, ceilings, floors, doors, windows, and skylights 2) lighting analysis 3) appliance analysis 4) prioritized list of energy improvements with estimated energy savings and simple paybacks.

Floor Area. The area of the building, existing or new, including basements and attached garages, calculated without deduction for corridors, stairways, closets, the thickness of interior walls, columns, or other features as measured from the exterior face of the exterior elements of the structural wall.

Home Energy Rater. Certified by the Residential Energy Services Network (RESNET) to create home energy models, *HERS ratings*.

Home Energy Rating System (HERS). Numerical rating system based on standardized performances determined by the Residential Energy Services Network (RESNET). A home energy rating involves an analysis of a home's design and onsite inspections. Based on the home's architectural plans, the *home energy rater* uses an energy efficiency software package to perform an energy analysis of the home's design. This analysis yields a projected, pre-construction HERS index, and then a final/confirmed/post-construction HERS index.

HERS Rating. The HERS rating is a scoring system established by the Residential Energy Services Network (RESNET) in which a home built to the specifications of the HERS reference home (based on the 2003 international energy conservation code with 2004 amendments) scores a HERS index of 100, while a net zero energy home scores a HERS index of 0. The lower a home's HERS index, the more energy efficient it is in comparison to the HERS reference home. Each 1-point decrease in the HERS index corresponds to a 1% reduction in energy consumption compared to the HERS reference home. Thus a home with a HERS index of 85 is 15% more energy efficient than the HERS reference home and a home with a HERS index of 80 is 20% more energy efficient.

Leadership In Energy And Environmental Design (LEED). The United States green building council (USGBC) rating system for green building.

National Green Building Standard (NGBS). The National Association Of Home Builders (NAHB) rating system for green building.

Renewable Energy System. Any renewable energy systems which meet the intent of the required on-site renewable energy offset as required by other sections of this code, including solar thermal systems, solar photovoltaic electric systems, geothermal heating systems, wind energy generation, or other similar systems.

Remodel. Work on an existing structure that does not add *conditioned floor area* but requires a building permit and involves the removal of the interior finished membrane and/or exterior wall sheathing on more than 25% of the area of the existing exterior wall.

Renovation. Interior work that does not add *conditioned floor area* but requires a building permit which does not involve the removal of the finished interior membrane and/or exterior wall sheathing on more than 25% of the area of the existing exterior wall.
(Ord. 2011-02, 2-14-2011, eff. 5-1-2011)

7-6-3 CLIMATE ZONES;

No amendments or additions have been made to Chapter 3 of the 2012 2009 International Energy Conservation Code, Residential Provisions.

7-6-4 RESIDENTIAL ENERGY EFFICIENCY;

The following amendments and/or additions are to be read and interpreted with chapter 4 of the 2012 2009 IECC, Residential Provisions:

Section 401.2 Compliance. Compliance is hereby amended to remove text as this section has been split into multiple subsections

(BC) Add Section 401.2.1 Compliance for New Structure and Large Addition. New structure or an *addition* resulting in a final *conditioned floor area* that is fifty (50%) percent more than the initial *conditioned floor area* shall comply with Section 401.2.1.1, 401.2.1.2, or 401.2.1.3. An engineer or experienced verifier shall review calculations to ensure ASHRAE Standard 62.2 "Ventilation for Acceptable Indoor Air Quality in Low-Rise Residential Buildings" has been met.

Exemption:

1. Manufactured homes

(BC) Add Section 401.2.1.1 Performance. Compliance shall be demonstrated by meeting the requirements of Section 405 (performance), using the RESNET system to determine anticipated energy consumption and energy efficiency (*HERS Rating System*). A third party, one that is not directly a part of the project team, must conduct the HERS Rating. Structures 2501 square feet or larger shall be required to find compliance as outlined in the Section 405 (performance) or meet the alternative standards outlined in Section 401.2.1.3.

(BC) Add Section 401.2.1.2 Prescriptive. A structure which has a *conditioned floor area* of 2,500 square feet or less, may comply by meeting Section 401, 402.4, 402.5, 403.1, 403.2.2, 403.2.3, and 403.3 through 403.9 (referred to as the mandatory provisions) and Sections 402.1 through 402.3, 403.2.1 and 404.1 (prescriptive) and includes the following:

- Furnace efficiency increased from federal minimum standard (78% AFUE) to 90% AFUE; and
- Hot Water tank efficiency increased from federal minimum standard (0.59 EF to 0.62 EF (ENERGY STAR)); and
- ~~Infiltration improved from 2009 IECC requirement (7 ACH @ 50 Pa) to 5 ACH @ 50 Pa.~~

A prescriptive compliance path does not exist for structures 2,501 square feet or larger.

Large additions that result in structures 2,500 square feet or less of conditioned space must also upgrade applicable existing portions of the home so that the home complies with Home Performance with ENERGY STAR® Tier I requirements (see Section 401.2.2.2 for details).

(BC) Add Section 401.2.1.3 Alternative Standards. New construction that pursues the required certification level, based on *conditioned floor area*, in LEED or NGBS certification may comply, as outlined below, so long as proof of intent is shown through the submittal of a LEED or NAHB checklist prior to building permit issuance. Proof of NGBS or LEED certification shall be submitted to the building department prior to the issuance of a certificate of occupancy. This section requires compliance with Section 401, 402.4, 402.5, 403.1, 403.2.2, 403.2.3, and 403.3

through 403.9 (referred to as the mandatory provisions). All supply and return ducts not completely inside the *building thermal envelope* shall be insulated to a minimum of R-6.

LEED (Leadership Energy and Environmental Design)

- 2500 sq. ft. or smaller; LEED Certified
- 2501 sq. ft. - 6500 sq. ft.; LEED Certified Silver
- 6501 sq. ft. – or larger; LEED Certified Gold

NGBS (National Green Building Standard)

- 2500 sq. ft. or smaller Bronze NGBS Certified
- 2501 sq. ft. - 4000 sq. ft. shall be Silver NGBS Certified
- 4001 sq. ft. – 6500 sq. ft. shall be Gold NGBS Certified
- 6501 sq. ft. or larger shall be Emerald NGBS Certified

Add Section 401.2.2 Compliance for Existing Structure. Existing structure projects shall comply with Section 401.2.2.1, 401.2.2.2, 401.2.2.3, or 401.2.2.4.

Exemptions:

1. Window and door replacements.
2. Bathroom remodel projects limited to the replacement of fixtures and cabinets.
3. Kitchen remodel projects limited to the replacement of cabinets, counter tops, plumbing fixtures, and appliances.
4. Electrical work associated with permits issued only for electrical work.
5. Plumbing associated with permits issued only for plumbing.
6. Replacement of HVAC appliances associated with permits issued only for appliance replacement.
7. Reroofs.

~~(BC)~~ Add Section 401.2.2.1 Small Addition. All *additions* creating 300 sq. ft. of *conditioned floor area* or less shall be required to comply with Sections 401, 402.4, 402.5, 403.1, 403.2.2,

403.2.3, and 403.3 through 403.9, referred to as the mandatory provisions, when applicable and either:

1. Sections 402.1 through 402.3, 403.2.1 and 404.1 (prescriptive); or
2. Section 405 (performance)

(BC) Add Section 401.2.2.2 Standard Addition Performance Path. All *additions* creating 301 square feet or more of *conditioned floor area* shall be required to establish a HERS baseline score prior to receiving a building permit or meet the standard addition prescriptive path requirements in Section 401.2.2.2.1. Structures with a HERS score above 100 shall be required to improve the performance of the structure by 30 HERS points or until a HERS score of 100 is reached. For example, a pre-addition HERS score of 145 will require a post-addition HERS score of 115. New portions of the home must comply with Sections 401, 402.4, 402.5, 403.1, 403.2.2, 403.2.3, and 403.3 through 403.9, (mandatory provisions) when applicable and comply with Sections 402.1 through 402.3, 403.2.1 and 404.1 (prescriptive).

(BC) Add Section 401.2.2.2.1 Standard Addition Prescriptive Path. All *additions* creating 301 square feet or more of *conditioned floor area* shall have the existing portions of the home comply with Home Performance with ENERGY STAR® Tier I requirements. *Additions* that result in a square footage increase of fifty (50%) percent more than the initial *conditioned floor area* will be required to comply with Section 401.2.1.

ENERGY STAR® Tier I requirements:

- Attic insulation – R-48 minimum
- Wall insulation – Insulate to the greatest extent possible depending on construction. Use blow-in insulation installed to a density of 2.5 to 3 pounds-per-cubic-foot if stud cavities are uninsulated.
- Floor insulation – R-30 minimum in joist cavities or create a conditioned crawl space.
- Conditioned Crawl Space – Insulate exterior foundation walls using foam board insulation to R-19 minimum. Permanently seal all but one outside air vents at which mechanical ventilation must be installed. A new floor register open to the crawl space must be installed to provide make-up air from the house. Use .006-inch poly sheeting on the crawl space floor with joints overlapping 6 inches minimum and sealed with mastic and tape.
- Duct sealing – Seal supply and return ducts to the extent possible to achieve 50 percent reduction in air leakage through the *duct system*. If this is not possible, the system must be improved to achieve a leakage rate equal to or less than 10 percent of the *conditioned floor area*.

- Building envelope sealing – Using a blower door, the building envelope must be evaluated for leakage at penetrations. Seal leaking penetrations to achieve as low a leakage rate as is feasible, down to the minimum ventilation level of 0.35 natural air changes per hour for the home.

(BC) Add Section 401.2.2.3 Remodel. *Remodels* shall comply with Sections 401, 402.4, 402.5, and 403.1, 403.2.2, 403.2.3, 403.3 through 403.9, referred to as the mandatory provisions, when applicable, and are required to conduct an *energy audit* by a *certified energy auditor*. A copy of the audit report must be supplied to the building official prior to building permit issuance.

(BC) Add Section 401.2.2.4 Renovation. *Renovations* shall comply with Sections 401, 402.4, 402.5, and 403.1, 403.2.2, 403.2.3, 403.3 through 403.9, referred to as the mandatory provisions, when applicable, and are required to submit a self-conducted *energy audit* checklist prior to building permit issuance.

(BC) Add Section 401.2.3 Compliance for Exterior Energy Use. Residential snowmelt, outside pool, or outside spa systems and equipment shall comply with all applicable requirements of Section 403 and the compliance tools and requirements in Appendix A: Exterior Renewable Energy Mitigation Program (EREMP).

Section 402.2.5 402.2.4 Mass walls is hereby amended and shall read as follows: Mass walls for the purposes of this chapter shall be considered *above-grade walls* of concrete block, concrete, insulated concrete form (ICF), masonry cavity, brick (other than brick veneer), earth (adobe, compressed earth block, rammed earth) and solid timber/logs per the log table for climate zone 6 as suggested for the state of Idaho ~~B~~building ~~C~~code ~~B~~board.

~~Section 402.4.2 Air sealing and insulation is hereby amended and shall read as follows: Building envelope air tightness and insulation installation shall be demonstrated to comply with Section 402.4.2.1. The home may comply with Section 402.4.2.1 or 402.4.2.2 if the structure is following a prescriptive option.~~

~~Section 402.4.2.1 Testing option, is hereby amended and shall read as follows: Building envelope tightness and insulation installation shall be considered acceptable when tested air leakage is less than seven air changes per hour (ACH) when tested with a blower door at a pressure of 50 Pascals. Testing shall occur after rough in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation and combustion appliances. A *certified energy auditor*, one that is not directly a part of the project team, must conduct the testing.~~

~~During testing:~~

- ~~1. Exterior windows and doors, fireplace and stove doors shall be closed but not sealed;~~

- ~~2. Dampers shall be closed, but not sealed, including exhaust, intake, makeup air, backdraft and flue dampers;~~
- ~~3. Interior doors shall be open;~~
- ~~4. Exterior openings for continuous ventilation systems and heat recovery ventilators shall be closed and sealed;~~
- ~~5. Heating and cooling system(s) shall be turned off;~~
- ~~6. HVAC ducts shall not be sealed; and~~
- ~~7. Supply and return registers shall not be sealed.~~

~~Minimum required ventilation—Structures with less than five air changes per hour (ACH) when tested with a blower door at a pressure of 50 Pa shall be required to install mechanical ventilation, per ASHRAE Standard 62.2 Section 4 Whole Building Ventilation. This can be met by installing a mechanical exhaust system, supply system or combination that forces outdoor air into the home at the rate required by Equation 1-1.~~

$$Q_{fan} = 0.01 * A_{floor} + 7.5 * (N_{br} + 1)$$

~~(Equation 1-1) where:~~

~~Q_{fan} = fan flow rate, cubic feet per minute~~

~~A_{floor} = conditioned floor area, square feet~~

~~N_{br} = number of bedrooms, not to be less than one~~

Section 403.6 Equipment Sizing (Mandatory) is hereby amended and shall read as follows: Heating and cooling equipment shall be sized in accordance with section M1401.3 of the *International residential code*. Equipment sizing calculations, in accordance with ACCA Manual J, S, and D, shall be submitted prior to subfloor inspection.

Section 405 SIMULATED PERFORMANCE ALTERNATIVE (Performance) is hereby amended and shall read as follows: The 2012 2009 IECC, Residential Provisions, Section 405 has been re-written in its entirety. This newly written section will outline the performance path for new construction and additions.

Section 405.1 Scope. This section establishes criteria for compliance using the simulated energy performance analysis. Such analysis requires a *HERS rating*.

Section 405.2 Mandatory requirements. Compliance with this section requires that the mandatory provisions identified in Sections 401, 402.4, 402.5, 403.1, 403.2, 403.2.2, 403.2.3, and 403.3 through 403.9 be met. ~~All supply and return ducts not completely inside the building thermal envelope shall be insulated to a minimum of R-6.~~

Section 405.3 Performance-based compliance. A proposed residence that is required to meet Section 401.2.1.1 must meet the HERS performance requirements outlined in Table 405.3(1). A

proposed *addition* that is required to meet Section 401.2.2.2 must demonstrate a 30 point HERS improvement/reduction or until a 100 HERS is reached.

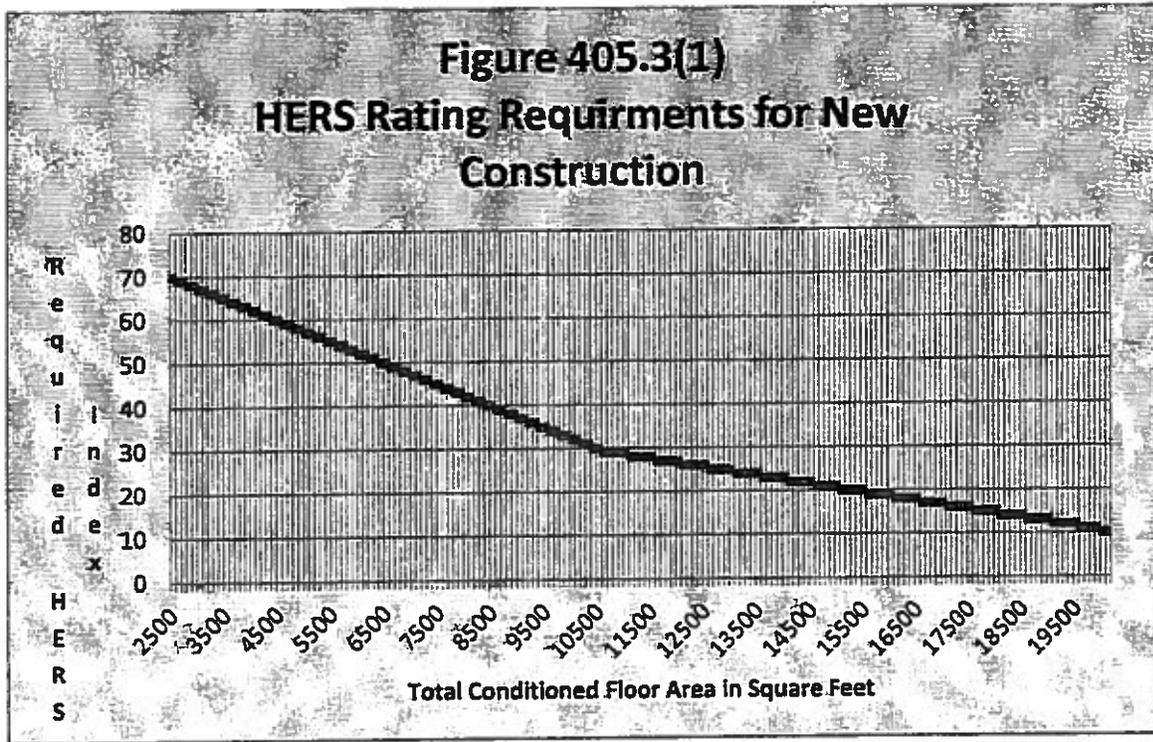


Table 405.3(1)
HERS Rating Requirements for New Construction

| SQ. FT. of Home is less than: | Required HERS Score. | SQ. FT. of Home is less than: | Required HERS Score. | SQ. FT. of Home is less than: | Required HERS Score. | SQ. FT. of Home is less than: | Required HERS Score. |
|-------------------------------|----------------------|-------------------------------|----------------------|-------------------------------|----------------------|-------------------------------|----------------------|
| 2,500 | 70 | 5,400 | 56 | 8,400 | 41 | 13,300 | 27 |
| 2,800 | 69 | 5,600 | 55 | 8,600 | 40 | 13,600 | 26 |
| 3,000 | 68 | 5,800 | 54 | 8,800 | 39 | 13,900 | 25 |
| 3,200 | 67 | 6,000 | 53 | 9,000 | 38 | 14,200 | 24 |
| 3,400 | 66 | 6,200 | 52 | 9,200 | 37 | 14,500 | 23 |
| 3,600 | 65 | 6,400 | 51 | 9,400 | 36 | 14,800 | 22 |
| 3,800 | 64 | 6,600 | 50 | 9,600 | 35 | 15,100 | 21 |
| 4,000 | 63 | 6,800 | 49 | 9,800 | 34 | 15,400 | 20 |
| 4,200 | 62 | 7,000 | 48 | 10,000 | 33 | 15,700 | 19 |
| 4,400 | 61 | 7,200 | 47 | 10,200 | 32 | 16,000 | 18 |
| 4,600 | 60 | 7,400 | 46 | 10,400 | 31 | 16,300 | 17 |
| 4,800 | 59 | 7,600 | 45 | 10,600 | 30 | 16,600 | 16 |
| 5,000 | 58 | 7,800 | 44 | 11,200 | 29 | 17,100 | 15 |
| 5,200 | 57 | 8,000 | 43 | 11,600 | 28 | 17,600 | 14 |
| | | 8,200 | 42 | 12,000 | 27 | 18,000 | 13 |
| | | | | 12,600 | 26 | Open to Code | 12 |
| | | | | 13,000 | 25 | Open to Code | 11 |

Section 405.4 Documentation. A RESNET approved software must be used for the *HERS rating*. To ensure independent third-party review *home energy raters* cannot certify structures they have designed or have been hired to construct.

Section 405.4.1 Performance Documentation For New Construction Or Large Additions. Structures that are required to meet section 401.2.1.1 must provide the following to the building department:

1. Prior to building permit issuance a pre-construction *HERS rating* shall be created by a certified *home energy rater* that demonstrates the building will be in compliance with the energy performance requirement in section 405.3. Submittal documents to the building official are:

- a. Building file report of proposed home.
- b. Home energy rating certificate of proposed home.

2. Prior to sub-floor inspection the applicant shall submit a completed Manual J, S, and D, in accordance with ACCA.

3. Prior to the installation of the wall or ceiling finish materials the owner, contractor or identified energy rater must submit verification to the building official of the *home energy rater's* pre-drywall inspection, including a duct blaster test (if applicable) demonstrating the ability of the residence to achieve the required HERS index rating.

4. Upon completion of construction and prior to final building inspection approval an *home energy rater* must perform a final inspection which includes a blower door test and duct blaster test (if applicable) and submit a confirmed home energy rating certificate to certify that the residence has achieved the required HERS index rating.

Section 405.4.2 Performance Documentation For Additions. Structures that are required to meet section 401.2.2.2 must provide the following to the building department:

1. Prior to building permit issuance the applicant shall provide documentation that establishes a baseline *HERS rating* of the home, the resulting required HERS score of the home, and a proposed pre-construction *HERS rating* of the home that demonstrates a 30 point HERS improvement/reduction or a 100 HERS index or better. Submittal documents to the building official are:

- a. Building file report of existing home.
- b. Home energy rating certificate of existing home.
- c. Calculation worksheet determining the required HERS score.

d. Building file report of proposed home.

e. Home energy rating certificate of proposed home.

2. If applicable, prior to sub-floor inspection the applicant shall submit completed Manual J, S, and D, in accordance with ACCA.

3. Prior to the installation of the wall or ceiling finish materials the owner, contractor or identified energy rater must submit verification to the building official of the *home energy rater's* pre-drywall inspection, including a duct blaster test (if applicable) demonstrating the ability of the residence to achieve the required HERS index rating.

4. Upon completion of construction and prior to final building inspection approval an *home energy rater* must perform a final inspection which includes a blower door test and duct blaster test (if applicable) and submit a confirmed home energy rating certificate to certify that the residence has achieved the required HERS index improvement as outlined in section 401.2.2.2.

[Delete Table 405.5.2(1) and accompanying notes. Note: Table and notes are a duplicate of IECC Table 405.5.2(1) and notes.]

**TABLE 405.5.3(1)
SPECIFICATIONS FOR THE STANDARD REFERENCE AND PROPOSED DESIGNS**

| BUILDING COMPONENT | STANDARD REFERENCE DESIGN | PROPOSED DESIGN |
|--------------------------------|---|---|
| Above-grade walls | Type: mass wall if proposed wall is mass; otherwise wood frame. Gross area: same as proposed U factor: from Table 402.1.3 Solar absorptance = 0.75 Emittance = 0.90 | As proposed As proposed As proposed As proposed As proposed |
| Basement and crawl space walls | Type: same as proposed Gross area: same as proposed U factor: from Table 402.1.3, with insulation layer on interior side of walls. | As proposed As proposed As proposed |
| Above-grade floors | Type: wood frame Gross area: same as proposed U factor: from Table 402.1.3 | As proposed As proposed As proposed |
| Ceilings | Type: wood frame Gross area: same as proposed U factor: from Table 402.1.3 | As proposed As proposed As proposed |
| Roofs | Type: composition shingle on wood sheathing Gross area: same as proposed Solar absorptance = 0.35 Emittance = 0.90 | As proposed As proposed As proposed As proposed |
| Attics | Type: vented with aperture = 1 ft ² per 300 ft ² ceiling area | As proposed |
| Foundations | Type: same as proposed foundation wall area above and below grade and soil characteristics: same as proposed. | As proposed As proposed |

| | | |
|-----------------------------|--|---|
| Doors | Area: 40 ft ² Orientation: North U factor: same as fenestration from Table 402.1.3. | As-proposed As-proposed As-proposed |
| Glazing ^e | Total area ^b = (a) The proposed glazing area; where proposed glazing area is less than 15% of the conditioned floor area. (b) 15% of the conditioned floor area; where the proposed glazing area is 15% or more of the conditioned floor area. Orientation: equally distributed to four cardinal compass orientations (N, E, S & W). U factor: from Table 402.1.3 SHGC: From Table 402.1.1 except that for climates with no requirement (NR) SHGC = 0.40 shall be used. Interior shade fraction: Summer (all hours when cooling is required) = 0.70 Winter (all hours when heating is required) = 0.85 ^e External shading: none | As-proposed As-proposed As-proposed As-proposed Same as standard reference design As-proposed |
| Skylights | None | As-proposed |
| Thermally isolated sunrooms | None | As-proposed |
| BUILDING COMPONENT | STANDARD REFERENCE DESIGN | PROPOSED DESIGN |
| Air exchange rate | Specific leakage area (SLA) ^d = 0.00036 assuming no energy recovery | For residences that are not tested, the same as the standard reference design. For residences without mechanical ventilation that are tested in accordance with ASHRAE 119, Section 5.1, the measured air exchange rate ^e but not less than 0.35 ACH For residences with mechanical ventilation that are tested in accordance with ASHRAE 119, Section 5.1, the measured air exchange rate ^e combined with the mechanical ventilation rate, <i>f</i> which shall not be less than $0.01 \times CFA + 7.5 \times (N_b + 1)$ where: CFA = conditioned floor area N _b = number of bedrooms |

| | | |
|---|--|---|
| Mechanical ventilation | None, except where mechanical ventilation is specified by the proposed design, in which case: Annual vent fan energy use: $\text{kWh/yr} = 0.02942 \times \text{CFA} + 29.565 \times (N_{br} + 1)$ where: CFA = conditioned floor area N_{br} = number of bedrooms | As proposed |
| Internal gains | $\text{IGain} = 17,900 + 23.8 \times \text{CFA} + 4104 \times N_{br}$ (Btu/day per dwelling unit) | Same as standard reference design |
| Internal mass | An internal mass for furniture and contents of 8 pounds per square foot of floor area. | Same as standard reference design, plus any additional mass specifically designed as a thermal storage element ^{6f} but not integral to the building envelope or structure |
| Structural mass | For masonry floor slabs, 80% of floor area covered by R-2 carpet and pad, and 20% of floor directly exposed to room air. For masonry basement walls, as proposed, but with insulation required by Table 402.1.3 located on the interior side of the walls For other walls, for ceilings, floors, and interior walls, wood frame construction | As proposed As proposed As proposed |
| Heating systems ^{6-h} | As proposed Capacity: sized in accordance with Section M1401.3 of the <i>International Residential Code</i> | As proposed |
| Cooling systems ⁶⁻ⁱ | As proposed Capacity: sized in accordance with Section M1401.3 of the <i>International Residential Code</i> | As proposed |
| Service water heating ^{6-j, k} | As proposed Use: same as proposed design | As proposed $\text{gal/day} = 20 + (10 \times N_{br})$ |
| Thermal distribution systems | A thermal distribution system efficiency (DSE) of 0.88 shall be applied to both the heating and cooling system efficiencies for all systems other than tested duct systems. Duct insulation: From Section 403.2.1. For tested duct systems, the leakage rate shall be the applicable maximum rate from Section 403.2.2. | As tested or as specified in Table 405.5.2(2) if not tested |
| Thermostat | Type: Manual, cooling temperature setpoint = 75°F; Heating temperature setpoint = 72°F | Same as standard reference |

TABLE 405.5.2(1) continued

For SI: 1 square foot = 0.93 m²; 1 British thermal unit = 1055 J; 1 pound per square foot = 4.88 kg/m²; 1 gallon (U.S.) = 3.785 L; °C = (F° - 32)/1.8, 1 degree = 0.79 rad.

a. ~~Glazing shall be defined as sunlight transmitting fenestration, including the area of sash, curbing or other framing elements, that enclose conditioned space. Glazing includes the area of sunlight transmitting fenestration assemblies in walls bounding conditioned basements. For doors where the sunlight transmitting opening is less than 50 percent of the door area, the glazing area is the sunlight transmitting opening area. For all other doors, the glazing area is the rough frame opening area for the door including the door and the frame.~~

b. ~~For residences with conditioned basements, R-2 and R-4 residences and townhouses, the following formula shall be used to determine glazing area: $AF = A_s \times FA \times F$ where:~~

~~AF = Total glazing area.~~

~~A_s = Standard reference design total glazing area.~~

~~FA = (Above grade thermal boundary gross wall area)/(above grade boundary wall area + 0.5 x below grade boundary wall area).~~

~~F = (Above grade thermal boundary wall area)/(above grade thermal boundary wall area + common wall area) or 0.56, whichever is greater.~~

~~and where:~~

~~Thermal boundary wall is any wall that separates conditioned space from unconditioned space or ambient conditions.~~

~~Above grade thermal boundary wall is any thermal boundary wall component not in contact with soil.~~

~~Below grade boundary wall is any thermal boundary wall in soil contact.~~

~~Common wall area is the area of walls shared with an adjoining dwelling unit.~~

c. ~~For fenestrations facing within 15 degrees (0.26 rad) of true south that are directly coupled to thermal storage mass, the winter interior shade fraction shall be permitted to be increased to 0.95 in the proposed design.~~

d. ~~Where leakage area (L) is defined in accordance with Section 5.1 of ASHRAE 119 and where: $SLA = L/CFA$~~

~~where L and CFA are in the same units.~~

e. ~~Tested envelope leakage shall be determined and documented by an independent party approved by the code official. Hourly calculations as specified in the 2001 ASHRAE Handbook of Fundamentals, Chapter 26, page 26.21, Equation 40 (Sherman Grimsrud model) or the equivalent shall be used to determine the energy loads resulting from infiltration.~~

f. ~~The combined air exchange rate for infiltration and mechanical ventilation shall be determined in accordance with Equation 43 of 2001 ASHRAE Handbook of Fundamentals, page 26.24 and the "Whole house Ventilation" provisions of 2001 ASHRAE Handbook of Fundamentals, page 26.19 for intermittent mechanical ventilation.~~

g. ~~Thermal storage element shall mean a component not part of the floors, walls or ceilings that is~~

part of a passive solar system, and that provides thermal storage such as enclosed water columns, rock beds, or phase change containers. A thermal storage element must be in the same room as fenestration that faces within 15 degrees (0.26 rad) of true south, or must be connected to such a room with pipes or ducts that allow the element to be actively charged.

- h. For a proposed design with multiple heating, cooling, or water heating systems using different fuel types, the applicable standard reference design system capacities and fuel types shall be weighted in accordance with their respective loads as calculated by accepted engineering practice for each equipment and fuel type present.
- i. For a proposed design without a proposed heating system, a heating system with the prevailing federal minimum efficiency shall be assumed for both the standard reference design and proposed design. For electric heating systems, the prevailing federal minimum efficiency air source heat pump shall be used for the standard reference design.
- j. For a proposed design home without a proposed cooling system, an electric air conditioner with the prevailing federal minimum efficiency shall be assumed for both the standard reference design and the proposed design.
- k. For a proposed design with a non-storage type water heater, a 40-gallon storage type water heater with the prevailing federal minimum energy factor for the same fuel as the predominant heating fuel type shall be assumed. For the case of a proposed design without a proposed water heater, a 40-gallon storage type water heater with the prevailing federal minimum efficiency for the same fuel as the predominant heating fuel type shall be assumed for both the proposed design and standard reference design.

[Delete Table 405.5.2(2) and accompanying notes. Note: Table and notes are a duplicate of IECC Table 405.5.2(2) and notes.]

**TABLE 405.5.2(2)
DEFAULT DISTRIBUTION SYSTEM EFFICIENCIES FOR PROPOSED DESIGNS**

| DISTRIBUTION SYSTEM CONFIGURATION AND CONDITION: | FORCED AIR SYSTEMS | HYDRONIC SYSTEMS ^b |
|--|--------------------|-------------------------------|
| Distribution system components located in unconditioned space | — | 0.95 |
| Untested distribution systems entirely located in conditioned space ^c | 0.88 | ± |
| "Ductless" systems ^d | ± | — |

For SI: 1 cubic foot per minute = 0.47 L/s; 1 square foot = 0.093 m²; 1 pound per square inch = 6895 Pa; 1 inch water gauge = 1250 Pa.

a. Default values given by this table are for untested distribution systems, which must still meet minimum requirements for duct system insulation.

b. Hydronic systems shall mean those systems that distribute heating and cooling energy directly to individual spaces using liquids pumped through closed loop piping and that do not depend on ducted, forced airflow to maintain space temperatures.

- ~~c. Entire system in conditioned space shall mean that no component of the distribution system, including the air handler unit, is located outside of the conditioned space.~~
 - ~~d. Ductless systems shall be allowed to have forced airflow across a coil but shall not have any ducted airflow external to the manufacturer's air handler enclosure.~~
-

7-6-5: Reference Standards ~~COMMERCIAL ENERGY EFFICIENCY:~~

No amendments or additions have been made to chapter 5 of the 2012 ~~2009~~ International Energy Conservation Code.

7-6-6: APPENDIX A - EXTERIOR RENEWABLE ENERGY MITIGATION PROGRAM (EREMP):

Add Appendix A to read as follows:

"Exterior Renewable Energy Mitigation Program (EREMP)"

SECTION A101 SCOPE AND ADMINISTRATION.

Section A101.1 Scope. Snowmelt, outside pool, or outside spa systems and equipment may be installed only if 50% of the supplemental energy meets the requirements of the Exterior Renewable Energy Mitigation Program (EREMP) of Appendix A. This applies to all installations for which an application for a permit or renewal of an existing permit is filed or is by law required to be filed with or without an associated Building Permit.

Section A101.2 Mandatory requirements. R-10 insulation shall be installed under all areas to be snow melted and R-5 insulation shall ~~may be used when the insulation~~ extends up the sides of the slab.

Section A101.3 Exterior Renewable Energy Mitigation Program (EREMP) Option. Exterior energy use for residential exterior snowmelt systems, outdoor spas, and outdoor pools are calculated as directed by Section 201.

Section A101.4 On-site Renewable Credits Option. Renewable credit options are calculated as directed by Section 301.

Section A102 Credits for on-site renewable energy. Applicants interested in exterior energy use systems can choose to produce on-site renewable energy with solar photovoltaics and/or solar hot water and/or micro-hydro to offset the payment option. The energy efficient technology of ground source heat pumps is also permitted for supplemental on-site energy.

Section A103 Payment option. The EREMP payment option is the difference in energy use calculated in Section A201 and on-site renewable credits calculated in Section A301 and shall be paid at the time of issuance of the building permit. The payment, if any, is based on the amount of energy required, expressed as dollars per square foot, to operate the exterior energy

use systems. No payment shall be made to an applicant that exceeds the energy use with on-site renewable credits. All monies collected pursuant to this section shall be recorded in a separate fund and shall be spent in accordance with a resolution by the Board of Blaine County Commissioners.

Section A104 Pre-existing systems. Pre-existing snowmelt, pools or spas which are being overhauled or renovated qualify for exterior energy credit. This credit can only be applied towards an installation of exterior energy on the same parcel. The calculation of the credit shall be based on Section A301.

Section 105 Residential repairs. Repairs to building components, systems, or equipment which do not increase their pre-existing energy consumption need not comply with RREMP. All replacement mechanical equipment shall be Energy Star® rated.

Section A201 Exterior Energy Use Calculations

Section A201.1 Snowmelt. Fifty percent (50%) of the total square footage associated with snowmelt energy consumption shall be calculated as an *EREMP* payment option at \$34.00 per square foot divided by the boiler efficiency (AFUE).

Section A201.2 Outdoor Pool. Fifty percent (50%) of the total square footage associated with outdoor pool energy use shall be calculated as a *EREMP* payment option at \$136.00 per square foot divided by the boiler efficiency (AFUE). Outdoor pools with not more than 200 square feet of water surface are exempt.

Section A201.3 Outdoor Spa. Fifty percent (50%) of the total square footage associated with spa energy use shall be calculated as a *EREMP* payment option at \$176.00 per square foot divided by the boiler efficiency (AFUE). Package spas with not more than 64 square feet of water surface area are exempt.

Section A202 Total *EREMP* Payment. The total *EREMP* payment is the total sum of exterior energy use of sections A201.1, A201.2, and A201.3.

Section A301 On-Site Renewable Credits

Section A301.1 Photovoltaic. On-site renewable credit shall be calculated as \$6,241.20 per 1 kilowatt of the system design. Solar electric (photovoltaic) systems tied to the electric grid are eligible for on-site renewable credit. Systems must be sited, oriented, and installed for solar electric panels to supply at least 90% of rated capacity of the installed kW. System designer/installer must be certified by NABCEP (North American Board Of Certified Energy Practitioners) or the system must be installed per the manufacturer's design specifications.

Section A301.2 Solar Hot Water. On-site renewable credit shall be calculated as \$224.65 per 1 square foot of the system design.

Section A301.3 Ground Source Heat Pump. On-site renewable credit shall be calculated as \$6.84 per 100,000 BTU per year of the system design. In order to use a GSHP for on-site renewable credit the GSHP system must supply at least 20% of the peak load for heating the building and all the exterior energy uses. Each ground source heat pump system shall be tested and balanced and the design engineer shall certify in writing that it meets a design coefficient of performance of 3.0 exclusive of source pump power. The ground loop system must be designed by a CGD (certified geotexchange designer certified by the Association Of Energy Engineers) or a professional engineer with IGSHPA (International Ground Source Heat Pump Association). The mechanical system must be installed by a certified IGSHPA contractor or an energy design professional.

Section A302 Total EREMP Renewables. The total *EREMP* on-site renewable credit is the total sum of sections A301.1, A301.2, and A301.3.

Section A401 Public Domain Software. A free calculation program known as *EREMP 2012* ~~2009~~ International Energy Conservation Code shall be made available to the public.

Example Calculation For Exterior Renewable Energy Mitigation Program

Snowmelt example: 800 sq. ft. of snowmelt requested

(50% required to meet EREMP)

$(\$34.00 * (800 * .50)) / 0.91$ (efficiency rating of boiler) = \$14,945

EREMP payment option for exterior energy use will be \$14,945

On-Site Renewable Credits

40 square feet of solar hot water panels * \$224.65 per square foot = \$8,986

EREMP payment option will be \$5,959

Or

2.58 kW photovoltaic system * \$6,241.20 per kilowatt = \$16,102

EREMP payment option will be \$0

(Ord. 2011-02, 2-14-2011, eff. 5-1-2011)

Footnotes - ~~Click any footnote link to go back to its reference.~~

Footnote 1: The Air Conditioning Contractors Of America (ACCA) Manual J is a load calculation manual that outlines a procedure to estimate the heat loss and heat gain for conventional residential structures. These calculations are used to identify and correctly size residential heating and cooling equipment. ACCA Manual S outlines the procedures that should be used to select and size residential cooling equipment, furnaces, and heat pumps. Manual D outlines correct duct sizing and installation to ensure the potential benefits that are associated with building an efficient structure and using high efficiency equipment will materialize.

SECTION 2 Severability Clause. The Board of County Commissioners intends that each separate provision of this Ordinance be deemed independent of all other provisions herein, and it is further the intention of said Board that if any of the provisions of this ordinance be declared to be invalid, then all other provisions thereof shall remain valid and enforceable

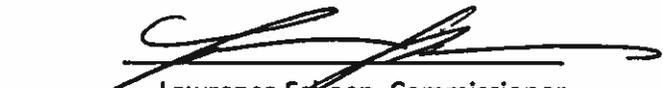
SECTION 3 Effective Date. This Ordinance shall be in full force and effect from and after its passage, approval, and publication.

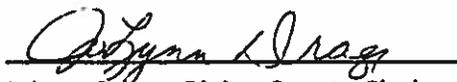
Regularly passed, approved, and adopted by the Board of County Commissioners of Blaine County, Idaho, this 12th day of April, 2016.

BOARD OF COUNTY COMMISSIONERS OF BLAINE COUNTY, IDAHO


Jacob Greenberg, Chairman


Angenie McCleary, Vice-Chairman


Lawrence Schoen, Commissioner

ATTEST: 
JoLynn Drage, Blaine County Clerk



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