

TOWN OF BERTHOUD

ORDINANCE NO. 1231

**AN ORDINANCE AMENDING CHAPTER 11, SECTION 4, OF THE MUNICIPAL CODE
OF THE TOWN OF BERTHOUD, FOR THE PURPOSES OF REPEALING THE 2006
INTERNATIONAL ENERGY CONSERVATION CODE (IECC) AND ADOPTING THE
2015 INTERNATIONAL ENERGY CONSERVATION CODE, WITH AMENDMENTS**

WHEREAS, it is deemed to be in the interest of the public health, safety and general welfare to adopt the International Energy Conservation Code with certain amendments tailored to accommodate particular circumstances and requirements of the Town; and

WHEREAS, Town staff has conducted an outreach program, working with the regulated construction industry and building professionals in the development of these provisions; and

WHEREAS, the Board of Trustees, after proper notice, has held a public hearing on this ordinance providing for the adoption of said code pursuant to C.R.S. § 31-16-203; and

WHEREAS, the International Energy Conservation Code and amendments thereto have been submitted to the Board of Trustees in writing and the Board of Trustees has determined that such code and amendments thereto should be adopted as herein set forth;

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF TRUSTEES OF THE TOWN OF BERTHOUD, COLORADO:

Section 1. That Section 11.04 of the Berthoud Municipal Code is hereby repealed, and the 2015 edition of the International Energy Code with the following amendments underlined below with strikethroughs for deletions, including the 2018 IECC section R-406 is adopted as follows:

1. SECTION R202 GENERAL DEFINITIONS is hereby retained except the following addition:

Dwelling Unit Enclosure Area: The sum of all the boundary surfaces that define the dwelling unit, including top/ceiling, bottom/floor, and the sides of all walls. This does not include interior partition walls within the dwelling unit. Wall height should be measured from the finished floor of the dwelling unit to the underside of the floor above (rather than stopping at the finished ceiling).

2. Section R303.2 Installation. Materials, systems and equipment shall be installed in accordance with the manufacturer's instructions and the International Building Code or the 2012 or 2015 International Residential Code, as applicable.
3. Section R402.1.1 Vapor retarder. Wall assemblies in the building thermal envelope shall comply with the vapor retarder requirements of Section R702.7 of the 2012 or 2015 International Residential Code or Section 1405.3 of the International Building Code, as applicable.

4. Section R402.4.1.2 Testing: Single family detached buildings or dwelling units shall be tested and verified as having an air leakage rate of not exceeding three air changes per hour in Climate Zones 1 through 8, or 0.24 cubic feet per minute at 50 Pascals/square feet of dwelling unit enclosure area. Attached single family or multifamily buildings or dwelling units shall be tested and verified as having an air leakage rate of five or less air changes per hour in Climate Zones 1 through 8 or 0.30 cubic feet per minute at 50 Pascals/square feet of dwelling unit enclosure area.
5. R403.3.3 Duct testing (Mandatory). Ducts shall be pressure tested to determine air leakage by one of the following methods: and shall not leak more than 4 cubic feet per minute (113.3 L/min) per 100 square feet (9.29 m²) of conditioned floor area served, (4cfm/100sqft), when the air handler is installed at the time of the test. When the air handler is not installed at the time of the test, the total leakage shall be less than or equal to 3 cubic feet per minute (85 L/min) per 100 square feet (9.29 m²) of conditioned floor area; (3cfm/100sqft). Registers shall be taped or otherwise sealed during the test.

Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. All registers shall be taped or otherwise sealed during the test.

2. Postconstruction test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. Registers shall be taped or otherwise sealed during the test.

Exception:

- a. A duct air leakage test shall not be required where the ducts and air handlers are located entirely within the building thermal envelope.
- b. If the HVAC duct system is serving less than or equal to 1,200 square feet of conditioned floor area, the allowable duct leakage shall be 60 cubic feet per minute or less.

A written report of the results of the test shall be signed by the party conducting the test and provided to the *code official*.

R403.3.4 Duct leakage (Prescriptive). The total leakage of the ducts, where measured in accordance with Section R403.3.3, shall be as follows:

1. Rough in test: The total leakage shall be less than or equal to 4 cubic feet per minute (113.3 L/min) per 100 square feet (9.29 m²) of conditioned floor area where the air handler is installed at the time of the test. Where the air handler is not installed at the time of the test, the total leakage shall be less than or equal to 3 cubic feet per minute (85 L/min) per 100 square feet (9.29 m²) of conditioned floor area.
2. Postconstruction test: Total leakage shall be less than or equal to 4 cubic feet per minute (113.3 L/min) per 100 square feet (9.29 m²) of conditioned floor area.

6. SECTION R406 ENERGY RATING INDEX COMPLIANCE ALTERNATIVE has been repealed in its entirety, and replaced with the 2018 version below:

SECTION R406 ENERGY RATING INDEX COMPLIANCE ALTERNATIVE

R406.1 Scope. This section establishes criteria for compliance using an Energy Rating Index (ERI) analysis.

R406.2 Mandatory requirements. Compliance with this section requires that the provisions identified in Sections R401 through R404 indicated as “Mandatory” and Section R403.5.3 be met. The *building thermal envelope* shall be greater than or equal to levels of efficiency and *Solar Heat Gain Coefficients* in Table 402.1.1 or 402.1.3 of the 2009 *International Energy Conservation Code*.

Exception: Supply and return ducts not completely inside the *building thermal envelope* shall be insulated to an *R*-value of not less than R-6.

R406.3 Energy Rating Index. The Energy Rating Index

(ERI) shall be determined in accordance with RESNET/ICC 301 except for buildings covered by the *International Residential Code*, the ERI Reference Design Ventilation rate shall be in accordance with Equation 4-1.

Ventilation rate, CFM = $(0.01 \times \text{total square foot area of house}) + [7.5 \times (\text{number of bedrooms} + 1)]$

(Equation 4-1)

Energy used to recharge or refuel a vehicle used for transportation on roads that are not on the building site shall not be included in the *ERI reference design* or the *rated design*.

R406.4 ERI-based compliance. Compliance based on an ERI analysis requires that the *rated design* be shown to have an ERI less than or equal to the appropriate value indicated in Table R406.4 when compared to the *ERI reference design*.

TABLE R406.4

MAXIMUM ENERGY RATING INDEX

<u>CLIMATE ZONE</u>	<u>ENERGY RATING INDEX^a</u>
<u>1</u>	<u>57</u>
<u>2</u>	<u>57</u>
<u>3</u>	<u>57</u>
<u>4</u>	<u>62</u>

<u>5</u>	<u>61</u>
<u>6</u>	<u>61</u>
<u>7</u>	<u>57</u>
<u>8</u>	<u>57</u>

a. Where on-site renewable energy is included for compliance using the ERI analysis of Section R406.4, the building shall meet the mandatory requirements of Section R406.2, and the building thermal envelope shall be greater than or equal to the levels of efficiency and SHGC in Table R402.1.2 or Table R402.1.4 of the 2015 *International Energy Conservation Code*.

R406.5 Verification by approved agency. Verification of compliance with Section R406 shall be completed by an *approved third party*.

R406.6 Documentation. Documentation of the software used to determine the ERI and the parameters for the *residential building* shall be in accordance with Sections R406.6.1 through R406.6.3.

R406.6.1 Compliance software tools. Software tools used for determining ERI shall be Approved Software Rating Tools in accordance with RESNET/ICC 301.

R406.6.2 Compliance report. Compliance software tools shall generate a report that documents that the ERI of the *rated design* complies with Sections R406.3 and R406.4.

The compliance documentation shall include the following information:

1. Address or other identification of the residential building.
2. An inspection checklist documenting the building component characteristics of the *rated design*. The inspection checklist shall show results for both the *ERI reference design* and the *rated design*, and shall document all inputs entered by the user necessary to reproduce the results.
3. Name of individual completing the compliance report.
4. Name and version of the compliance software tool.

Exception: Where an otherwise identical building model is offered in multiple orientations, compliance for any orientation shall be permitted by documenting that the building meets the performance requirements in each of the four (north, east, south and west) cardinal orientations.

R406.6.3 Additional documentation. The *code official* shall be permitted to require the following documents:

1. Documentation of the building component characteristics of the *ERI reference design*.

2. A certification signed by the builder providing the building component characteristics of the *rated design*.

3. Documentation of the actual values used in the software calculations for the *rated design*.

R406.6.4 Specific approval. Performance analysis tools meeting the applicable sections of Section R406 shall be *approved*. Documentation demonstrating the approval of performance analysis tools in accordance with Section R406.6.1 shall be provided.

R406.6.5 Input values. Where calculations require input values not specified by Sections R402, R403, R404 and R405, those input values shall be taken from RESNET/ICC 301.

Section 2. If any section, paragraph, sentence, clause, or phrase of this ordinance is held to be unconstitutional or invalid for any reason, such decision shall not affect the validity or constitutionality of the remaining portions of this ordinance. The Board of Trustees hereby declares that it would have passed this ordinance and each part or parts hereof irrespective of the fact that any one part or parts be declared unconstitutional or invalid.

Section 3. All other ordinances or portions thereof inconsistent or conflicting with this ordinance or any portion hereof are hereby repealed to the extent of such inconsistency or conflict.

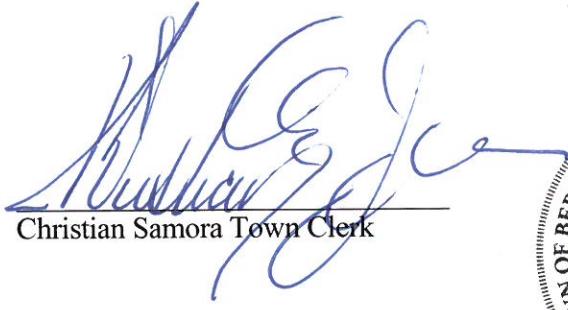
Section 4. The repeal or modification of any provision of the Municipal Code of the Town of Berthoud by this ordinance shall not release, extinguish, alter, modify, or change in whole or in part any penalty, forfeiture, or liability, either civil or criminal, which shall have been incurred under such provision, and each provision shall be treated and held as still remaining in force for the purpose of sustaining any and all proper actions, suits, proceedings, and prosecutions for the enforcement of the penalty, forfeiture, or liability, as well as for the purpose of sustaining any judgment, decree, or order which can or may be rendered, entered, or made in such actions, suits, proceedings, or prosecutions.

INTRODUCED, READ, ADOPTED, APPROVED, AND ORDERED PUBLISHED IN FULL this 9th day of January, 2018.

TOWN OF BERTHOUD, COLORADO



Steve Mulvihill, Mayor



Christian Samora Town Clerk

