ORDINANCE NO. 019, 2014,
OF THE COUNCIL OF THE CITY OF FORT COLLINS
AMENDING CHAPTER 5, ARTICLE II, DIVISION 2, OF THE CODE
OF THE CITY OF FORT COLLINS FOR THE PURPOSE OF
REPEALING THE *2009 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)*
AND ADOPTING THE *2012 INTERNATIONAL*
ENERGY CONSERVATION CODE, WITH AMENDMENTS

WHEREAS, since 1924, the City has reviewed, amended and adopted the latest nationally recognized building standards available for the times; and

WHEREAS, upon recommendation of City staff, the City Council has determined that it is in the best interests of the City to align the five interconnected basic construction codes under one publication year; and

WHEREAS, the five interconnected basic construction codes are the *International Building Code, International Residential Code, International Mechanical Code, International Fuel Gas Code,* and *International Energy Conservation Code*; and

WHEREAS, the City Council has determined that the 2012 publication year of the five interconnected basic construction codes ought to be adopted and that their counterpart codes previously adopted should be repealed, both in order to align the publication years of the codes and also because the 2012 publications contain improvements in construction code regulation; and

WHEREAS, City staff has conducted a significant public outreach program, working with the regulated construction industry and building professionals; and

WHEREAS, the adoption of the five interconnected basic construction codes has been presented to and recommended by the Affordable Housing Board, the Commission on Disability, the Air Quality Advisory Board, the Natural Resources Advisory Board, the Building Review Board, the Electric Board, the Landmark Preservation Commission and the Water Board; and

WHEREAS, the City Council has determined that it is in the best interests of the citizens of the City that more stringent insulation rating requirements should be established in order to conserve energy and reduce monthly utility bills; and

WHEREAS, the City Council has determined that it is in the best interest of the health, safety and welfare of the City and its citizens that the *2009 International Energy Conservation Code*, as amended be repealed, and that in its place, the *2012 International Energy Conservation* Code be adopted, with amendments.

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF FORT COLLINS as follows:

Section 1. That Section 5-26(c) of the Code of the City of Fort Collins is hereby amended to read as follows:

(c) Pursuant to the power and authority conferred on the City Council by Section 31-16-202, C.R.S., and Article II, Section 7 of the Charter, the City Council hereby repeals the *2006~~9~~ International Energy Conservation Code (2006~~9~~ IECC)*, and adopts, as the energy conservation code of the City, the *2009~~12~~ International Energy Conservation Code* (*2009~~12~~ IECC)* published by the International Code Council, as amended by the City, which shall have the same force and effect as though set forth in full herein and which shall apply exclusively to the design and construction of all buildings that are classified as residential buildings not more than three (3) stories above grade and their systems; new portions of such existing buildings and their systems; and new systems and equipment in such existing buildings, exclusive of detached one- and two-family dwellings, multiple single-family dwellings (townhouses), for the purpose of establishing minimum requirements for minimum energy efficiency.

Section 2. That Section 5-31 of the Code of the City of Fort Collins is hereby amended to read as follows:

Sec. 5-31. Amendments and deletions to code.

The *2012 INTERNATIONAL ENERGY CONSERVATION CODE* adopted in § 5-26 is hereby amended in the following respects:

COMMERCIAL

(1) Section C101.1 Title is amended to read as follows:

> "**C101.1 Title.** This code shall be known as the *International Energy Conservation Code* of the City of Fort Collins and shall be cited as such. It is referred to herein as 'this code."

(2) Section C101.4 Applicability is amended by the addition of a second paragraph to read as follows:

> "Information contained in the amended Commercial Sections: ***C101.1 Title; C101.4.3.1 Energy assessments, C103.6 Permits; C107 Fees; C107.3 Work commencing before permit; C109 Board of Appeals; C110 Violations; C110.2 Work commencing before permit issuance; C202 Definitions; C301.4 Exterior and Interior design parameters; C402.2 Specific insulation requirements,*** shall be applicable to the corresponding Residential Sections and shall have the same meaning."

(3) Section C101.4.3.1 Energy assessment, is hereby added to read as follows:

> "**C101.4.3.1 Energy assessment**. Prior to any *alterations*, an energy assessment shall be required and submitted to the *building official*.
>
> **Exceptions:** Energy assessments are not required in the following cases.

1. Buildings for which the first Certificate of Occupancy was issued after October 2010.
2. First-time interior finishes.
3. A *building* that has undergone an energy assessment within the previous three years.
4. Alterations with a construction valuation of less than $50,000."

(4) Section C103.6 Permits is added to read as follows:

"**C103.6 Permits.** Procedures related to permits, required inspections, payment of fees and obtaining required approvals shall be as set forth in Section 105 of the adopted *International Building Code*, entitled 'Permits'."

(5) Section C107 Fees is hereby amended in its entirety to read as follows:

~~**SECTION C107**~~
~~**FEES**~~
~~**C107.1 Fees.** A permit shall not be issued until the fees prescribed in Section C107.2 have been paid, nor shall an amendment to a permit be released until the additional fee, if any, has been paid.~~
~~**C107.2 Schedule of permit fees.** A fee for each permit shall be paid as required, in accordance with the schedule as established by the applicable governing authority.~~
~~**C107.3 Work commencing before permit issuance.** Any person who commences any work before obtaining the necessary permits shall be subject to an additional fee established by the *code official*, which shall be in addition to the required permit fees.~~
~~**C107.4 Related fees.** The payment of the fee for the construction, *alteration*, removal or demolition of work done in connection to or concurrently with the work or activity authorized by a permit shall not relieve the applicant or holder of the permit from the payment of other fees that are prescribed by law.~~
~~**C107.5 Refunds.** The *code official* is authorized to establish a refund policy.~~

"**C107 Fees**

C107 Payment of fees. All items relating to fees shall be as specified in Section 109 of the adopted *International Building Code*, entitled 'Fees'."

(6) Section C107.3 Work commencing before permit issuance is hereby deleted.

~~**C107.3 Work commencing before permit issuance.** Any person who commences any work before obtaining the necessary permits shall be subject to an additional fee established by the *code official*, which shall be in addition to the required permit fees.~~

(7) Section C109 Board of Appeals is amended in its entirety to read as follows:

~~**SECTION C109**~~
~~**BOARD OF APPEALS**~~

~~**C109.1 General.** In order to hear and decide appeals of orders, decisions or determinations made by the *code official* relative to the application and interpretation of this code, there shall be and is hereby created a board of appeals. The *code official* shall be an ex officio member of said board but shall have no vote on any matter before the board. The board of appeals shall be appointed by the governing body and shall hold office at its pleasure. The board shall adopt rules of procedure for conducting its business, and shall render all decisions and findings in writing to the appellant with a duplicate copy to the *code official*.~~

~~**C109.2 Limitations on authority.** An application for appeal shall be based on a claim that the true intent of this code or the rules legally adopted thereunder have been incorrectly interpreted, the provisions of this code do not fully apply or an equally good or better form of construction is proposed. The board shall have no authority to waive requirements of this code.~~

~~**C109.3 Qualifications.** The board of appeals shall consist of members who are qualified by experience and training and are not employees of the jurisdiction.~~

"**C109.1 General.** Appeals of decisions, determinations and interpretations of this code shall be made pursuant to the applicable provisions of Section 113 of the adopted *International Building Code*, entitled 'Board of Appeals'."

(8) Section C110 Violations is added to read as follows:

"**C110.1 Violations.** Any person who violates a provision of this code or fails to comply with any of the requirements thereof or who erects, constructs, alters or repairs a building or structure in violation of the approved construction documents or directive of the *building official*, or of a permit or certificate issued under the provisions of this code, shall be guilty of a misdemeanor and shall be subject to the penalties and fines specified in Section 1-15 of the City Code."

(9) Section C110.2 Work commencing before permit issuance is hereby added to read as follows:

"**C110.2 Work commencing before permit issuance.** In addition to the penalties set forth in 110.1, any person or firm who, before obtaining the necessary permit(s), commences any construction of, or work on, a building, structure, electrical, gas, mechanical or plumbing system that is not otherwise exempted from obtaining a permit, shall be subject to a fine in addition to the standard prescribed permit fee. Said fine shall be equal in amount to the permit fee, except that it shall not be less than $50 nor more than $1,000 for the first such violation. A person or firm committing the same such violation repeatedly shall be subject to a fine equal to double the amount of the permit fee or double the amount of the fee imposed for the preceding violation, whichever is greater, for every such subsequent violation committed within 180 days of a previous violation. Said fines may be appealed to the City Manager pursuant to Chapter 2, Article VI of the City Code."

(10) Section C202 DEFINITIONS, is hereby amended by adding the following definitions in alphabetical sequence as follows:

"CONTINUOUS AIR BARRIER: The combination of interconnected materials, assemblies, and flexible sealed joints and components of the *building thermal envelope* that provides air tightness to a specified permeability.

ELECTRIC HEAT: An indoor environmental primary heat source that is electric. A ground-source electric heat pump designed by a licensed professional engineer shall not be considered *electric heat*.

NON-ELECTRIC HEAT: An indoor environmental primary heat source that is gas or that is a ground-source electric heat pump designed by a licensed professional engineer to operate without the use of supplemental electric resistance heat."

(11) Section C301.4 Exterior and Interior Local Design Parameters is added to read as follows:

"Exterior and Interior Local Design Parameters.

Winter Outdoor, Design Dry-bulb (^{o}F)	= 6
Winter Indoor, Design Dry-bulb (^{o}F)	= 72
Summer, Outdoor Design Dry-bulb (^{o}F)	= 90
Summer, Indoor Design Dry-bulb (^{o}F)	= 75
Summer, Outdoor Design Wet-bulb (^{o}F)	= 62
Summer, Indoor Design Wet-bulb (^{o}F)	= 62
Degree Days heating	= 6368
Degree days cooling	= 479

Fort Collins is in Climate Zone 5."

(12) Section C402.1.1 Insulation and fenestration criteria is hereby amended by the addition of an exception to read as follows:

"**Exception:** For *buildings* using *electric heat* at the power density of 1.5 Watts per square foot or greater, the *building thermal envelope* values in Table C402.2(3), shall be mandatory."

(13) Section C402.1.2 U-Factor alternative is hereby amended by the addition of an exception to read as follows:

"**Exception:** For buildings using *electric heat* at the power density of 1.5 Watts per square foot or greater, the *building thermal envelope* values in Table C402.2(3), shall be mandatory."

(14) Section C402.2 Specific insulation requirements is hereby amended by adding a second paragraph to read as follows:

"**Insulation installation requirements (Mandatory).** In addition to the requirements of Section C402.1, insulation shall meet the specific requirements of Sections C402.2.1 through C402.2.8. All insulation shall be installed to meet Residential Energy Services Network (RESNET) Grade I standard.

Exception: RESNET Grade II is acceptable for cavity insulation in exterior walls that include continuous rigid insulating sheathing and/or insulated siding with a minimum R-value of 5, and rim joists."

(15) Table C402.2(3) Building thermal envelope is hereby added to read as follows:

"TABLE C402.2(3) (Mandatory)
***BUILDING THERMAL ENVELOPE* REQUIREMENTS FOR ELECTRIC HEAT**

Opaque Elements	Assembly Max.	Insulation Min. R-Value
Roofs		
Insulation Entirely above Deck	U-0.039	R-25.0 ci
Metal *Building*	U-0.035	R-19.0 + R-11.0 Ls
Attic and Other	U-0.021	R-49.0
Walls, Above Grade		
Mass[a]	U-0.080	R-13.3 ci
Metal *Building*	U-0.052	R-13.0 + R-13.0 ci
Steel Framed	U-0.055	R-13.0 + R-10.0 ci
Wood Framed and Other	U-0.051	R-13.0 + R-7.5 ci
Wall, Below Grade		
	U-0.092	R-10.0 ci
Floors		
Mass	U-0.064	R-12.5 ci
Steel Joist	U-0.026	R-30.0 + R-7.5 ci
Wood Framed and Other	U-0.032	R-38.0
Slab-On-Grade Floors		
Unheated	F-0.540	R-10 for 24 in.
Heated	F-0.440	R-15.0 for 36 in. + R-5 ci below
Opaque Doors		
Swinging	U-0.400	
Non-Swinging	U-0.400	

Fenestration	Assembly Max. U
Vertical Fenestration, (up to 40% of Wall maximum)	
Nonmetal framing: all[b]	U-0.25
Metal fr: curtainwall/storefront[c]	U-0.35
Metal framing: entrance door[c]	U-0.70
Metal framing: all other[c]	U-0.45
Skylight (up to 3% of Roof maximum)	U_{all}-0.50
SHGC	U-0.40

The following definitions apply: ci = continuous insulation, Ls = liner system, NR = No (insulation) requirement.
[a] Mass walls with a heat capacity greater than 12 Btu/ft^2·°F which are unfinished or finished only on the interior do not need to be insulated.
[b] Nonmetal framing includes framing materials other than metal with or without metal reinforcing or cladding.
[c] Metal framing includes metal framing with or without thermal break. The "all other" subcategory includes operable windows, fixed windows, and non-entrance doors."

(16) Section C402.2.4 Thermal resistance of below-grade walls is hereby amended to read as follows:

"**C402.2.4 Thermal resistance of below-grade walls.** The minimum thermal resistance (R-value) of the insulating material installed in, or continuously on, the below-grade walls shall be ~~as specified in Table C402.2(1),~~ R-10 and shall extend to a depth of 10 feet (3,048 mm) below the outside finish ground level, or to the level of the floor, whichever is less."

(17) Section C402.2.6 Slabs on grade is amended to read as follows:

"**C402.2.6 Slabs on grade.** The minimum thermal resistance (*R*-value) of the insulation around the perimeter of unheated slab-on-grade floors shall be ~~as specified in Table C402.2~~ R-10 for 24 inches below. The insulation shall be placed on the outside of the foundation or on the inside of a foundation wall. The insulation shall extend downward from the top of the slab for a minimum distance as shown in the table or to the top of the footing, whichever is less, or downward to at least the bottom of the slab and then horizontally to the interior or exterior for the total distance shown in the table."

(18) Section C402.4 Air leakage (Mandatory) is hereby amended to read as follows:

~~**C402.4 Air leakage (Mandatory).** The thermal envelope of buildings shall comply with Sections C402.4.1 through C402.4.8.~~

"**C402.4 Air leakage (Mandatory).** The *building thermal envelope* shall be designed and constructed with a *continuous air barrier* that complies with the following requirements to control air leakage into, or out of, the *conditioned space*. The boundary limits and size of the surface area (floor, wall, and ceiling or roof) of the building air barrier, and of the zone or zones to be tested for maximum building air infiltration and exfiltration, shall be clearly identified on the approved construction drawings. All *air barrier* components of each *building thermal envelope* assembly shall be clearly identified on construction documents and the joints, interconnections, and penetrations of the *air barrier* components shall be detailed and shall comply with the following:

1. The *air barrier* shall be continuous throughout the *building thermal envelope* (at the lowest floor, exterior walls, and ceiling or roof), with all joints and seams sealed and with sealed connections between all transitions in planes and changes in materials and at all penetrations.

2. The *air barrier* component of each assembly shall be joined and sealed in a flexible manner to the *air barrier* component of adjacent assemblies, allowing for the relative movement of these assemblies and components.

3. The *air barrier* shall be capable of withstanding positive and negative combined design wind, fan, and stack pressures on the *air barrier* without damage or displacement, and shall transfer the load to the structure, and shall not displace adjacent materials under full load.

4. The *air barrier* shall be installed in accordance with the manufacturer's instructions and in such a manner as to achieve the performance requirements.

5. Where lighting fixtures with *ventilation* holes or other similar objects are to be installed in such a way as to penetrate the *continuous air barrier*, provisions shall be made to maintain the integrity of the *continuous air barrier*.

Compliance of the *continuous air barrier* for the opaque *building thermal envelope* shall be demonstrated by the following:

1. Materials. Using air-barrier materials that have an air permeability not to exceed 0.004 cfm/ft^2 under a pressure differential of 0.3 in. water (1.57 lb/ft^2) (0.02 L/s·m^2 under a pressure differential of 75 Pa) when tested in accordance with ASTM E2178;

2. Assemblies. Using assemblies of materials and components that have an average air leakage not to exceed 0.04 cfm/ft^2 under a pressure differential of 0.3 in. water (1.57 lb/ft^2) (0.2 L/s·m^2 under a pressure differential of 75 Pa) when tested in accordance with ASTM E2357 or ASTM E1677;

3. *Building*. Testing the completed *building* and documenting that the air leakage rate of the *building thermal envelope* does not exceed 0.25 cfm/ft^2 under a

pressure differential of 0.3 in. water (1.57 lb/ft^2) (0.02 L/s·m^2 under a pressure differential of 75 Pa) in accordance with the most current version of the City of Fort Collins Building Air Leakage Test Protocol for commercial buildings or City of Fort Collins Building Code Protocol for *New Multifamily Building Air Tightness Testing*. Documentation of the testing results shall be submitted to the *building official* prior to approval."

(19) Section C402.4.1 Air barriers is hereby deleted in its entirety.

~~**C402.4.1 Air barriers.** A continuous air barrier shall be provided throughout the building thermal envelope. The air barriers shall be permitted to be located on the inside or outside of the building envelope, located within the assemblies composing the envelope, or any combination thereof. The air barrier shall comply with Sections C402.4.1.1 and C402.4.1.2.~~

~~**Exception:**~~

~~Air barriers are not required in buildings located in Climate Zones 1, 2 and 3.~~

~~**C402.4.1.1 Air barrier construction.** The *continuous air barrier* shall be constructed to comply with the following:~~

~~1. The air barrier shall be continuous for all assemblies that are the thermal envelope of the building and across the joints and assemblies.~~

~~2. Air barrier joints and seams shall be sealed, including sealing transitions in places and changes in materials. Air barrier penetrations shall be sealed in accordance with Section C402.4.2. The joints and seals shall be securely installed in or on the joint for its entire length so as not to dislodge, loosen or otherwise impair its ability to resist positive and negative pressure from wind, stack effect and mechanical ventilation.~~

~~3. Recessed lighting fixtures shall comply with Section C404.2.8. Where similar objects are installed which penetrate the air barrier, provisions shall be made to maintain the integrity of the air barrier.~~

~~**Exception:**~~

~~Buildings that comply with Section C402.4.1.2.3 are not required to comply with Items 1 and 3.~~

~~**C402.4.1.2 Air barrier compliance options.** A continuous air barrier for the opaque building envelope shall comply with Section C402.4.1.2.1, C402.4.1.2.2, or C402.4.1.2.3.~~

~~**C402.4.1.2.1 Materials.** Materials with an air permeability no greater than 0.004 cfm/ft2 (0.02 L/s · m2) under a pressure differential of 0.3 inches water gauge (w.g.) (75 Pa) when tested in accordance with ASTM E 2178 shall comply with this section. Materials in Items 1 through 15 shall be deemed to comply with this section provided joints are sealed and materials are installed as air barriers in accordance with the manufacturer's instructions.~~

~~1. Plywood with a thickness of not less than 3/8 inch (10 mm).~~

~~2. Oriented strand board having a thickness of not less than 3/8 inch (10 mm).~~

~~3. Extruded polystyrene insulation board having a thickness of not less than 1/2 inch (12 mm).~~

~~4. Foil-back polyisocyanurate insulation board having a thickness of not less than 1/2 inch (12 mm).~~

~~5. Closed-cell spray foam a minimum density of 1.5 pcf (2.4 kg/m3) having a thickness of not less than 11/2 inches (36 mm).~~

6. Open-cell spray foam with a density between 0.4 and 1.5 pcf (0.6 and 2.4 kg/m3) and having a thickness of not less than 4.5 inches (113 mm).
7. Exterior or interior gypsum board having a thickness of not less than 1/2 inch (12 mm).
8. Cement board having a thickness of not less than 1/2 inch (12 mm).
9. Built-up roofing membrane.
10. Modified bituminous roof membrane.
11. Fully adhered single-ply roof membrane.
12. A Portland cement/sand parge, or gypsum plaster having a thickness of not less than 5/8 inch (16 mm).
13. Cast-in-place and precast concrete.
14. Fully grouted concrete block masonry.
15. Sheet steel or aluminum.

C402.4.1.2.2 Assemblies. Assemblies of materials and components with an average air leakage not to exceed 0.04 cfm/ft2 (0.2 L/s · m2) under a pressure differential of 0.3 inches of water gauge (w.g.)(75 Pa) when tested in accordance with ASTM E 2357, ASTM E 1677 or ASTM E 283 shall comply with this section. Assemblies listed in Items 1 and 2 shall be deemed to comply provided joints are sealed and requirements of Section C402.4.1.1 are met.

1. Concrete masonry walls coated with one application either of block filler and two applications of a paint or sealer coating;
2. A Portland cement/sand parge, stucco or plaster minimum 1/2 inch (12 mm) in thickness.

C402.4.1.2.3 Building test. The completed building shall be tested and the air leakage rate of the *building envelope* shall not exceed 0.40 cfm/ft2 at a pressure differential of 0.3 inches water gauge (2.0 L/s · m2 at 75 Pa) in accordance with ASTM E 779 or an equivalent method approved by the code official.

(20) Section C402.4.2 Air barrier penetrations is hereby deleted.

C402.4.2 Air barrier penetrations. Penetrations of the air barrier and paths of air leakage shall be caulked, gasketed or otherwise sealed in a manner compatible with the construction materials and location. Joints and seals shall be sealed in the same manner or taped or covered with a moisture vapor permeable wrapping material. Sealing materials shall be appropriate to the construction materials being sealed. The joints and seals shall be securely installed in or on the joint for its entire length so as not to dislodge, loosen or otherwise impair its ability to resist positive and negative pressure from wind, stack effect and mechanical ventilation.

(21) Section C402.4.3 Air leakage of fenestration is hereby deleted.

C402.4.3 Air leakage of fenestration. The air leakage of fenestration assemblies shall meet the provisions of Table C402.4.3. Testing shall be in accordance with the applicable reference test standard in Table C402.4.3 by an accredited, independent testing laboratory and *labeled* by the manufacturer.

Exceptions:

1. Field-fabricated fenestration assemblies that are sealed in accordance with Section C402.4.1. 2. Fenestration in buildings that comply with Section C402.4.1.2.3 are not required to meet the air leakage requirements in Table C402.4.3.

(22) Section C402.4.4 Doors and access openings is hereby deleted.

C402.4.4 Doors and access openings to shafts, chutes, stairways, and elevator lobbies. Doors and access openings from *conditioned space* to shafts, chutes stairways and elevator lobbies shall either meet the requirements of Section C402.4.3 or shall be gasketed, weatherstripped or sealed.

Exception:

Door openings required to comply with Section 715 or 715.4 of the *International Building Code*; or doors and door openings required by the *International Building Code* to comply with UL 1784 shall not be required to comply with Section C402.4.4.

(23) Section C402.4.5 Air intakes, exhaust openings is hereby deleted.

C402.4.5 Air intakes, exhaust openings, stairways and shafts. Stairway enclosures and elevator shaft vents and other outdoor air intakes and exhaust openings integral to the building envelope shall be provided with dampers in accordance with Sections C402.4.5.1 and C402.4.5.2.

C402.4.5.1 Stairway and shaft vents. Stairway and shaft vents shall be provided with Class I motorized dampers with a maximum leakage rate of 4 cfm/ft2 (20.3 L/s • m2) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D. Stairway and shaft vent dampers shall be installed with controls so that they are capable of automatically opening upon:

1. The activation of any fire alarm initiating device of the building's fire alarm system; or
2. The interruption of power to the damper.

C402.4.5.2 Outdoor air intakes and exhausts. *Outdoor air* supply and exhaust openings shall be provided with Class IA motorized dampers with a maximum leakage rate of 4 cfm/ft2 (20.3 L/s • m2) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D.

Exceptions:

1. Gravity (nonmotorized) dampers having a maximum leakage rate of 20 cfm/ft2 (101.6 L/s • m2) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D are permitted to be used as follows:

1.1. In buildings for exhaust and relief dampers.

1.2. In buildings less than three stories in height above grade.

1.3. For ventilation air intakes and exhaust and relief dampers in buildings of any height located in Climate Zones 1, 2 and 3.

1.4. Where the design *outdoor air* intake or exhaust capacity does not exceed 300 cfm (141 L/s). Gravity (nonmotorized) dampers for ventilation air intakes shall be protected from direct exposure to wind.

2. Dampers smaller than 24 inches (610 mm) in either dimension shall be permitted to have a leakage of 40 cfm/ft2 (203.2 L/s • m2) at 1.0 inch water gauge (w.g.) (249 Pa) when tested in accordance with AMCA 500D.

(24) Section C402.4.6 Loading dock weather-seals is hereby amended to read as follows:

"**C402.4.6 Loading dock weather-seals.** Cargo doors and loading dock doors shall be equipped with weather-seals to restrict infiltration. ~~when vehicles are parked in the doorway.~~"

(25) Section C405.2.1.2.1 Occupant sensor controls is hereby added to read as follows:

"**C405.2.1.2.1 Occupant sensor controls**. In new construction and additions that require a building permit, occupant sensor controls shall be provided to automatically reduce connected lighting power by not less than 50 percent during periods when no occupants are present in the following locations:

1. corriders and enclosed stairwells;
2. storage stack areas not open to the public;
3. library stack areas; and
4. parking garages.

Lighting in *means of egress* shall comply with the luminance or uniformity criteria required by the *International Building Code* when occupied.

Exception: *Automatic* power reduction shall not be used to control battery back-up emergency lighting and exit signage."

(27) Section C405.2.3 number 3 is hereby deleted.

~~3. Hotel and motel sleeping units and guest suites shall have a master control device at the main room entry that controls all permanently installed luminaires and switched receptacles.~~

(28) Section C405.2.4 Exterior lighting controls is hereby amended in its entirety to read as follows:

~~**C405.2.4 Exterior lighting controls.** Lighting not designated for dusk-to-dawn operation shall be controlled by either a combination of a photosensor and a time switch, or an astronomical time switch. Lighting designated for dusk-to-dawn operation shall be controlled by an astronomical time switch or photosensor. All time switches shall be capable of retaining programming and the time setting during loss of power for a period of at least 10 hours.~~

"**C405.2.4 Exterior lighting controls.** In addition to any other applicable requirements of this IECC, all outdoor lighting controls shall comply with the following requirements. For lighting of *building* façades, parking lots, garages, canopies (sales and non-sales), and all outdoor sales areas, *automatic* controls shall be installed to reduce the sum of all

lighting power (in watts) by a minimum of 50 percent two hours after normal business closing, and to turn off outdoor lighting within 30 minutes after sunrise.

Exceptions:

1. Lighting required by a statute, ordinance, or regulation duly adopted for the protection of public health, safety and/or human life, including but not limited to, emergency lighting.

2. Lighting that is controlled by a motion sensor and photo-control.

3. Lighting for facilities that have equal lighting requirements at all hours and are designed to operate continuously.

4. Temporary outdoor lighting.

5. Externally illuminated signs and signs that are either internally illuminated or have integral lamps."

(29) Section C405.2.5 Sleeping unit controls is hereby added to read as follows:

"**C405.2.5 Sleeping unit controls.** In hotels and motels with over 20 guest rooms, the lighting switched outlets, permanently wired luminaires, television, and heating, ventilating and air conditioning system equipment serving each guest room shall be automatically controlled so that lighting, switched outlets, permanently wired luminaires, and televisions will be turned off and the heating, ventilating and air conditioning system set point raised at least 5 degrees Fahrenheit (3 degrees centigrade) in the cooling mode and lowered at least 5 degrees Fahrenheit (3 degrees centigrade) in the heating mode whenever the guest room is unoccupied.

C405.2.5.1 Sleeping unit bathroom controls. All permanently wired luminaires located in bathrooms within sleeping units in hotels, motels, boarding houses or similar *buildings* shall be equipped with occupant sensors that require manual intervention to energize circuits."

(30) Section C405.8 Electricity distribution design is hereby added to read as follows:

"C405.8 Electricity distribution design requirements and load type isolation. Electric distribution systems within, on or adjacent to and serving a new *building* shall be designed in such fashion that each primary panel supplies only one electricity load type as defined in Sections C405.8.1 through C405.8.5. The energy load type served by each distribution panel shall be clearly designated on the panel with the use served, and adequate space shall be provided for installation of metering equipment or other data collection devices, temporary or permanent, to measure the energy use associated with each distribution panel.

Exceptions:

1. *Buildings* with less than 600 amp electric service are exempted from this requirement.

2. Electrical systems that are designed and constructed in such fashion that the total usage of each of the load types as described in Sections C405.8.1 through C405.8.5 shall be permitted to be measured through the use of installed *sub-meters* or other equivalent methods as *approved*.

3. Group S and Group U occupancies

C405.8.1 Heating, ventilating, and air conditioning system electric load. This category shall include all electricity used to heat, cool, and provide *ventilation* to the *building* including, but not limited to, fans, pumps, and cooling energy.

C405.8.2 Lighting system electric load. This category shall include all electricity for interior and exterior lighting used in occupant spaces and common areas.

C405.8.3 Plug loads. This category shall include all electricity use by devices, electric appliances and equipment connected to convenience receptacle *outlets*.

C405.8.4 Process loads. This category shall include all electricity used by any single load associated with activities within the *building*, such as, but not limited to, data centers, manufacturing equipment and commercial kitchens, that exceed 5% of the total energy use of the whole *building*."

C405.8.5 Miscellaneous loads. This category shall include all electricity use for all other *building* operations and other operational loads."

(31) ***Section C408 System commissioning*** is hereby deleted in its entirety and amended to read as follows:

~~**SECTION C408**~~
~~**SYSTEM COMMISSIONING**~~
~~**C408.1 General.** This section covers the commissioning of the building mechanical systems in Section C403 and electrical power and lighting systems in Section C405.~~
~~**C408.2 Mechanical systems commissioning and completion requirements.** Prior to passing the final mechanical inspection, the *registered design professional* shall provide evidence of mechanical systems *commissioning* and completion in accordance the provisions of this section. Construction document notes shall clearly indicate provisions for *commissioning* and completion requirements in accordance with this section and are permitted to refer to specifications for further requirements. Copies of all documentation shall be given to the owner and made available to the *code official* upon request in accordance with Sections C408.2.4 and C408.2.5.~~
~~**Exception:**~~
~~The following systems are exempt from the commissioning requirements:~~

1. Mechanical systems in buildings where the total mechanical equipment capacity is less than 480,000 Btu/h (140 690 W) cooling capacity and 600,000 Btu/h (175 860 W) heating capacity.

2. Systems included in Section C403.3 that serve dwelling units and sleeping units in hotels, motels, boarding houses or similar units.

C408.2.1 Commissioning plan. A *commissioning plan* shall be developed by a *registered design professional* or approved *agency* and shall include the following items:

1. A narrative description of the activities that will be accomplished during each phase of commissioning, including the personnel intended to accomplish each of the activities.

2. A listing of the specific equipment, appliances or systems to be tested and a description of the tests to be performed.

3. Functions to be tested, including, but not limited to calibrations and economizer controls.

4. Conditions under which the test will be performed. At a minimum, testing shall affirm winter and summer design conditions and full outside air conditions.

5. Measurable criteria for performance.

C408.2.2 Systems adjusting and balancing. HVAC systems shall be balanced in accordance with generally accepted engineering standards. Air and water flow rates shall be measured and adjusted to deliver final flow rates within the tolerances provided in the product specifications. Test and balance activities shall include air system and hydronic system balancing.

C408.2.2.1 Air systems balancing. Each supply air outlet and *zone* terminal device shall be equipped with means for air balancing in accordance with the requirements of Chapter 6 of the *International Mechanical Code*. Discharge dampers are prohibited on constant volume fans and variable volume fans with motors 10 hp (18.6 kW) and larger. Air systems shall be balanced in a manner to first minimize throttling losses then, for fans with system power of greater than 1 hp (0.74 kW), fan speed shall be adjusted to meet design flow conditions.

Exception:

Fans with fan motors of 1 hp (0.74 kW) or less.

C408.2.2.2 Hydronic systems balancing. Individual hydronic heating and cooling coils shall be equipped with means for balancing and measuring flow. Hydronic systems shall be proportionately balanced in a manner to first minimize throttling losses, then the pump impeller shall be trimmed or pump speed shall be adjusted to meet design flow conditions. Each hydronic system shall have either the capability to measure pressure across the pump, or test ports at each side of each pump.

Exceptions:

1. Pumps with pump motors of 5 hp (3.7 kW) or less.

2. Where throttling results in no greater than five percent of the nameplate horsepower draw above that required if the impeller were trimmed.

C408.2.3 Functional performance testing. Functional performance testing specified in Sections C408.2.3.1 through C408.2.3.3 shall be conducted.

C408.2.3.1 Equipment. Equipment functional performance testing shall demonstrate the installation and operation of components, systems, and system-to-system interfacing relationships in accordance with approved plans and specifications such that operation, function, and maintenance serviceability for each of the commissioned systems is

confirmed. Testing shall include all modes and *sequence of operation*, including under full-load, part-load and the following emergency conditions:
1. All modes as described in the *sequence* of *operation*;
2. Redundant or *automatic* back-up mode;
3. Performance of alarms; and
4. Mode of operation upon a loss of power and restoration of power.
Exception:
Unitary or packaged HVAC equipment listed in Tables C403.2.3(1) through C403.2.3(3) that do not require supply air economizers.
C408.2.3.2 Controls. HVAC control systems shall be tested to document that control devices, components, equipment, and systems are calibrated, adjusted and operate in accordance with approved plans and specifications. Sequences of operation shall be functionally tested to document they operate in accordance with *approved* plans and specifications.
C408.2.3.3 Economizers. Air economizers shall undergo a functional test to determine that they operate in accordance with manufacturer's specifications.
C408.2.4 Preliminary commissioning report. A preliminary report of commissioning test procedures and results shall be completed and certified by the *registered design professional* or *approved agency* and provided to the building owner. The report shall be identified as "Preliminary Commissioning Report" and shall identify: 1. Itemization of deficiencies found during testing required by this section that have not been corrected at the time of report preparation.
2. Deferred tests that cannot be performed at the time of report preparation because of climatic conditions.
3. Climatic conditions required for performance of the deferred tests.
C408.2.4.1 Acceptance of report. *Buildings*, or portions thereof, shall not pass the final mechanical inspection until such time as the *code official* has received a letter of transmittal from the *building* owner acknowledging that the *building* owner has received the Preliminary Commissioning Report.
C408.2.4.2 Copy of report. The *code official* shall be permitted to require that a copy of the Preliminary Commissioning Report be made available for review by the *code official*.
C408.2.5 Documentation requirements. The *construction documents* shall specify that the *documents* described in this section be provided to the *building* owner within 90 days of the date of receipt of the *certificate of occupancy*.
C408.2.5.1 Drawings. Construction documents shall include the location and performance data on each piece of equipment.
C408.2.5.2 Manuals. An operating and maintenance manual shall be provided and include all of the following:
1. Submittal data stating equipment size and selected options for each piece of equipment requiring maintenance.
2. Manufacturer's operation manuals and maintenance manuals for each piece of equipment requiring maintenance, except equipment not furnished as part of the project. Required routine maintenance actions shall be clearly identified.
3. Name and address of at least one service agency.
4. HVAC controls system maintenance and calibration information, including wiring diagrams, schematics, and control sequence descriptions. Desired or field-determined

~~setpoints shall be permanently recorded on control drawings at control devices or, for digital control systems, in system programming instructions.~~

~~5. A narrative of how each system is intended to operate, including recommended setpoints.~~

~~**C408.2.5.3 System balancing report.** A written report describing the activities and measurements completed in accordance with Section C408.2.2.~~

~~**C408.2.5.4 Final commissioning report.** A report of test procedures and results identified as "Final Commissioning Report" shall be delivered to the building owner and shall include:~~

~~1. Results of functional performance tests.~~

~~2. Disposition of deficiencies found during testing, including details of corrective measures used or proposed.~~

~~3. Functional performance test procedures used during the commissioning process including measurable criteria for test acceptance, provided herein for repeatability.~~

~~**Exception:**~~

~~Deferred tests which cannot be performed at the time of report preparation due to climatic conditions.~~

~~**C408.3 Lighting system functional testing.** Controls for automatic lighting systems shall comply with Section C408.3.~~

~~**C408.3.1 Functional testing.** Testing shall ensure that control hardware and software are calibrated, adjusted, programmed and in proper working condition in accordance with the construction documents and manufacturer's installation instructions. The construction documents shall state the party who will conduct the required functional testing. Where required by the code official, an approved party independent from the design or construction of the project shall be responsible for the functional testing and shall provide documentation to the code official certifying that the installed lighting controls meet the provisions of Section C405. Where occupant sensors, time switches, programmable schedule controls, photosensors or daylighting controls are installed, the following procedures shall be performed:~~

~~1. Confirm that the placement, sensitivity and time-out adjustments for occupant sensors yield acceptable performance.~~

~~2. Confirm that the time switches and programmable schedule controls are programmed to turn the lights off.~~

~~3. Confirm that the placement and sensitivity adjustments for photosensor controls reduce electric light based on the amount of usable daylight in the space as specified.~~

"**C408 System Commissioning** shall be in conformance with Section 3604 of the adopted *International Building Code*, entitled 'Commissioning, Operations and Maintenance'."

RESIDENTIAL

(32) Section R401.2 Compliances is hereby amended to read as follows:

"**R401.2 Compliance.** Projects shall comply with ~~Sections identified as~~ "mandatory" Sections R401, R402.2 , R402.4, R402.5, R403.1, R403.2.2, R403.2.3, and R403.3

through R403.9 and with either sections identified as "prescriptive" or the performance approach in Section R405."

(33) TABLE R402.1.1 Insulation and Fenestration Requirements by Component is hereby amended to read as follows:

"TABLE R402.1.1
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT

HEATING SYSTEM TYPE	FENESTRATION *U*-FACTOR[b]	SKYLIGHT[b] *U-FACTOR*	GLAZED FENESTRATION SHGC	CEILING *R-VALUE*	WOOD FRAME WALL *R*-VALUE f g	MASS WALL *R*-VALUE[g]	FLOOR *R*-VALUE[e]	*BASEMENT*[c] WALL *R*-VALUE	SLAB[d] *R*-VALUE & DEPTH	CRAWL[c] SPACE WALL *R*-VALUE
Non-Electric heat	0.32	0.55	NR	49	20 or 13 + 5	13/17	30	10/13h 15/19i	10,2 ft	15/19
Electric heat	0.30	0.55	NR	49	20+5	15/19	30	15/19	10,4 ft	15/19

For SI: 1 foot = 304.8mm

a. *R*-values are minimums. *U*-factors and SHGC are maximums. R-19 batts compressed into a nominal 2x6 framing cavity such that the *R*-value is reduced by R-1 or more shall be marked with the compressed batt *R*-value in addition to the full thickness *R*-value.

b. The fenestration *U*-factor column excludes skylights. The SHGC column applies to all glazed fenestration.

c. "15/19" means R-15 continuous insulation on the interior or exterior of the foundation wall or R-19 cavity insulation at the interior of the foundation wall. "15/19" shall be permitted to be met with R-13 cavity insulation on the interior of the foundation wall plus R-5 continuous insulation on the interior or exterior of the foundation wall. "10/13" means R-10 continuous insulation on the interior or exterior of the foundation wall or R-13 cavity insulation at the interior of the foundation wall.

d. R-5 shall be added to the required slab edge *R*-values for heated slabs.

e. ~~Or~~ Insulation ~~sufficient to~~ shall fill the framing cavity, R-19 minimum.

f. First value is cavity insulation, second is insulated sheathing or siding, so "20+5" means R-20 cavity insulation plus R-5 insulated sheathing. If structural sheathing covers 25 percent or less of the exterior, insulating sheathing is not required where structural sheathing is used. If structural sheathing covers more than 25 percent of the exterior, structural sheathing shall be supplemented with insulated sheathing of at least R-2.

g The second *R*-value applies when more than half the insulation is on the interior of the mass wall.

h. All rim joists and adjoining plates shall be air-sealed and insulated using spray foam insulation to R-15 minimum.

i. All rim joists and adjoining plates shall be air-sealed"

(34) TABLE R402.1.3 Equivalent U-Factors is hereby amended to read as follows:

"TABLE R402.1.3
EQUIVALENT *U*-FACTORS[a]

HEATING SYSTEM TYPE	FENESTRATION *U*-FACTOR	SKYLIGHT *U-FACTOR*	CEILING *R-VALUE*	FRAME WALL *U*-FACTOR	MASS WALL *U*-FACTOR[b]	FLOOR *U*-FACTOR	*BASEMENT* WALL *U*-FACTOR	CRAWL SPACE WALL *U*-FACTOR
Nonelectric heat	0.32	0.55	0.026	0.057	0.082	0.033	0.059	0.055
Electric heat	0.30	0.55	0.026	0.048	0.060	0.033	0.050	0.055

a. Non-fenestration *U*-factors shall be obtained from measurement, calculation or an *approved* source.

b. When more than half the insulation is on the interior, the mass wall *U*-factor shall be the same as the frame wall *U*-factor."

(35) Section R402.2.1 Ceilings with attics spaces is hereby amended to read as follows:

"**R402.2.1 Ceilings with attic spaces.** When Section R402.1.1 would require R-38 in the ceiling, R-30 shall be deemed to satisfy the requirement for R-38 wherever the full height of uncompressed R-30 insulation extends over the wall top plate at the eaves. Similarly, R-38 shall be deemed to satisfy the requirement for R-49 wherever the full height of uncompressed R-38 insulation extends over the wall top plate at the eaves. This reduction shall not apply to the *U*-factor alternative approach in Section R402.1.3 and the total UA alternative in Section R402.1.4. At the eaves, the insulation extending over the exterior wall top plate shall be R-19 minimum."

(36) Section R402.2.3 Eave baffle is hereby amended to read as follows:

"**R402.2.3 Eave baffle and blocks.** For air permeable insulations in vented attics with ventilation from open or box soffits, a baffle shall be installed to provide ventilation from the soffit to the attic adjacent to each soffit or eave vent. In the case of continuous soffit vents, enough baffles shall be installed to maintain the required attic ventilation from the soffit. Baffles shall maintain an opening equal or greater than the size of the vent. The ventilation baffle shall extend over the top of the attic insulation between rafters or trusses, maintaining a minimum 1 inch clear opening below the roof deck and sufficient space for the minimum depth of attic insulation. The baffle shall be permitted to be any solid material. All other spaces between rafters or trusses shall be blocked at the outside edge of the exterior wall top plate, with air impermeable materials so as to contain the attic insulation."

(37) Section R402.2.7.1 Rim insulation requirements is hereby added to read as follows:

"**R402.2.7.1 Rim insulation requirements** All rim plates and rim joist which are part of the thermal envelope shall be air-sealed. All rim plates and rim joist which are part of the thermal envelope shall be insulated using spray foam materials to R-15 minimum when the *basement* walls are insulated to 10/13 in accordance with Table R402.1.1."

(38) Section 402.4.1 Building thermal envelope is hereby amended in its entirety to read as follows:

~~**R402.4.1 Building thermal envelope.** The *building thermal envelope* shall comply with Sections R402.4.1.1 and R402.4.1.2. The sealing methods between dissimilar materials shall allow for differential expansion and contraction.~~
~~**R402.4.1.1 Installation.** The components of the *building thermal envelope* as listed in Table R402.4.1.1 shall be installed in accordance with the manufacturer's instructions and the criteria listed in Table R402.4.1.1, as applicable to the method of construction. Where required by the *code official*, an *approved* third party shall inspect all components and verify compliance.~~
~~**R402.4.1.2 Testing.** The building or dwelling unit shall be tested and verified as having an air leakage rate of not exceeding 5 air changes per hour in Climate Zones 1 and 2, and~~

~~3 air changes per hour in Climate Zones 3 through 8. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascals). Where required by the *code official*, testing shall be conducted by an *approved* third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the *code official*. Testing shall be performed at any time after creation of all penetrations of the *building thermal envelope*.~~

~~During testing:~~

~~1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures;~~

~~2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures;~~

~~3. Interior doors, if installed at the time of the test, shall be open;~~

~~4. Exterior doors for continuous ventilation systems and heat recovery ventilators shall be closed and sealed;~~

~~5. Heating and cooling systems, if installed at the time of the test, shall be turned off; and~~

~~6. Supply and return registers, if installed at the time of the test, shall be fully open.~~

"**R402.4.1 Building thermal envelope.** The building, or effective August 1, 2014, individual dwelling units, shall be tested and verified as having an air leakage rate not exceeding 3 air changes per hour. Testing shall be conducted with a blower door at a pressure of 0.2 inches w.g. (50 Pascals) in accordance with Section 802 of the RESNET Mortgage Industry National Home Energy Rating Standards or City of Fort Collins Building Code Protocol for *New Multifamily Building Air Tightness Testing*. Where required by the *building official*, testing shall be conducted by an *approved* third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the *building official*. Isolation of attached garages from adjoining *conditioned areas* shall be verified in accordance with City of Fort Collins protocols.

Testing shall occur after *rough-in* and after installation of penetrations of the *building thermal envelope*, including but not limited to penetrations for utilities, plumbing, electrical, *ventilation* and combustion appliances.

General requirements during testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed beyond the intended weather-stripping or other infiltration control measures.
2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.
3. Interior doors, if installed at the time of the test, shall be open.
4. Exterior doors for continuous *ventilation systems* and heat recovery ventilators shall be closed and sealed.
5. Heating and cooling systems, if installed at the time of the test, shall be turned off.
6. Supply and return registers, if installed at the time of the test, shall be fully open.
7. *Combustion air* inlets shall not be closed or otherwise obstructed.
8. Garage doors to the exterior shall be closed.

In additions or alterations to existing *buildings*, air sealing compliance shall be

considered acceptable when the items listed in Table R402.4.1.1, applicable to the method of construction, are field-verified."

(39) Section R402.5 Maximum fenestration U-factor and SHGC is hereby amended to read as follows:

"**R402.5 Maximum *fenestration U-factor* and *SHGC*.** The area-weighted average maximum *fenestration U-factor* permitted, using trade-offs from Section R402.1.4 or R405 shall be ~~0.48~~ 0.40 for *vertical fenestration* ~~in Climate Zones 4 and 5 and 0.40 in Climate Zones 6 through 8 for vertical fenestration,~~ and 0.75 ~~in Climate Zones 4 through 8~~ for skylights. ~~The area-weighted average maximum fenestration SHGC permitted using tradeoffs from Section R405 in Climate Zones 1 through 3 shall be 0.50.~~

(40)* Section *R403.2.1 Insulation is amended to read as follows:

"**R403.2.1 Insulation. (~~Prescriptive~~Mandatory)** Supply ducts in attics shall be insulated to a minimum of R-8. All other ducts shall be insulated to a minimum of R-6.

Exception:

Ducts or portions thereof located completely inside the building thermal envelope."

(41) Section R403.6 Equipment sizing (Mandatory) is hereby amended to read as follows:

"**R403.6 Equipment sizing (Mandatory)** Heating and cooling systems shall be ~~sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other *approved* heating and cooling calculation methodologies.~~ designed in accordance with *International Residential Code* Section M1401.3 and performance will be verified in accordance with *International Residential Code* Section M1309."

(42) Section R404.1 Lighting equipment (Mandatory) is hereby amended to read as follows:

"**R404.1 Lighting equipment (Mandatory).** A minimum of 75 percent of the lamps in permanently installed lighting fixtures shall be high-efficacy lamps or a minimum of ~~75 percent~~ 50 percent of the permanently installed lighting fixtures shall contain only ~~high-efficacy~~ LED lamps.

Exception: Low-voltage lighting shall not be required to utilize high-efficiency lamps."

(43) Section R404.2 Occupant sensor controls, is hereby added to read as follows:

"**R404.2 Occupant sensor controls.** In multifamily *buildings*, occupant sensor controls shall be provided to automatically reduce connected lighting power by not less than 50 percent during periods when no occupants are present in common corridors and common enclosed stairwells.

Lighting in *means of egress* shall comply with the luminance or uniformity criteria required by the *International Building Code* when occupied.

Exception: *Automatic* power reduction shall not be used to control battery back-up emergency lighting and *exit* signage."

(44) Chapter 5 REFERENCED STANDARDS is hereby amended by adding the following additional referenced standard in alphabetical sequence:

"RESNET® Mortgage Industry National Home Energy Rating Systems Standards
Residential Energy Services Network, Inc.
P.O. Box 4561
Oceanside, CA 92052-4561
http://resnet.us
RESNET® reference standard Grade I and Grade II Insulation
Referenced in Amended 2012 IECC Section C402.2.

Introduced, considered favorably on first reading, and ordered published this 21st day of January, A.D. 2014, and to be presented for final passage on the 4th day of February, A.D. 2014.

_____
Mayor

ATTEST:

_____
City Clerk

Passed and adopted on final reading on the 4th day of February, A.D. 2014.

_____
Mayor

ATTEST:

_____
City Clerk