SECOND COMMITTEE SUBSTITUTE FOR ORDINANCE NO. 240434

Amending Chapter 18, Article XIV, Section 18-367, Code of Ordinances, entitled "Adoption of International Energy Conservation Code (2021); amendments," by providing an additional path of compliance that accomplishes Strategies B-2 and B-3 of the 2022 Climate Protection & Resiliency Plan through a nationally recognized system for calculating a home's energy performance; allowing for previously approved building plans to be approved under the additional compliance path; and providing a method to further improve energy performance over time.

..body

WHEREAS, Committee Substitute for Ordinance No. 220364 ("Ordinance") adopting the 2021 International Energy Conservation Code with amendments ("KCMO Energy Code") was passed by the City Council on October 13, 2022; and

WHEREAS, the effective date of the Ordinance was July 1, 2023, but it also provided a mandatory date for the implementation of the KCMO Energy Code of September 29, 2023; and

WHEREAS, the existing compliance paths in the KCMO Energy Code shall remain unchanged and intact, with the exceptions of the amendments below for full use and this ordinance adds an additional compliance path; NOW, THEREFORE,

BE IT ORDAINED BY THE COUNCIL OF KANSAS CITY:

Section 1. That Chapter 18, Article XIV, Section 18-367, Code of Ordinances of the City of Kansas City, Missouri, is hereby amended to read as follows:

Sec. 18-367. Adoption of International Energy Conservation Code (2021); amendments.

The International Energy Conservation Code (2021), promulgated by the International Code Council, is adopted and incorporated in this article by reference as if fully set forth, except as it is amended by the following provisions of this section. Provisions of this article are in addition to the provisions of the International Energy Conservation Code. The following provisions coinciding with provisions of the International Energy Conservation Code supersede, or delete, when indicated, the corresponding provisions of the International Energy Conservation Code.

In addition, the IECC Appendix CC: Zero Energy Commercial Building Provisions is an option for builders to voluntarily implement.

All references within the model codes to any building, electrical, gas, mechanical, plumbing, sewage disposal, elevator, energy conservation, or existing building code shall be construed to be a reference to the respective building, electrical, gas, mechanical, plumbing, sewage disposal, elevator, energy conservation, or existing building code specifically adopted by reference in articles II through XIV of this chapter.

Chapter 1 [CE], SCOPE AND ADMINISTRATION is deleted. See Article I of this chapter.

C405.12 Electrical for future use on new buildings with electrical services

1. Provide 2-inch conduit run up to attic for future photovoltaic systems.

2. Provide 2-inch conduit run into parking areas for future electric vehicle charging stations.
Exception: If conduit run installed to attic or garage includes wiring that is capable of handling the electrical load for the intended use provided in number 1 or number 2 above, the conduit does not need to meet the 2-inch requirement.

Chapter 1 [RE], SCOPE AND ADMINISTRATION is deleted. See Article I of this chapter.

Table R402.4.1.1. Under 'Walls'. Amend first sentence to read: "Corners and headers shall be sealed and the junction of the foundation and sill plate shall be sealed."

R403.3.7, Exception. In IRC projects building framing cavities may be used as ducts or plenums where sealed to prevent leakage through the thermal envelope.

R404.4 Electrical for future use on new buildings with electrical services

1. Provide 2-inch conduit run up to attic for future photovoltaic systems.
2. Provide 2-inch conduit run into garage areas for future electric vehicle charging stations.
Exception: If conduit run installed to attic or garage includes wiring that is capable of handling the electrical load for the intended use provided in number 1 or number 2 above, the conduit does not need to meet the 2-inch requirement.

The following sections are amended /added to the referenced model code:

R401.2 Application. Amend to read: "Residential buildings shall comply with Section R401.2.5 and one of Sections R401.2.1, R401.2.2, R401.2.3, or R401.2.4; OR residential buildings shall comply with Section R401.2.6 only."

R401.2.6 KCMO Compliance Path.

The KCMO Compliance Path requires compliance with Section R409.

R409 KCMO Compliance Path:

1. Submit a Home Energy Rating System (HERS) "Projected Report" based on the building plans showing an index score of 60 or better (better means a score of 60 or lower) by a RESNET certified Energy Rater with each permit application, along with a statement by the applicant that they are utilizing the KCMO Compliance Path.

2. 3rd Party Inspections and Testing performed during construction by a RESNET certified Energy Rater as required to generate a HERS Index number per ANSI/RESNET/ICC Standard 301 and required to be submitted prior to Temporary or Full Certificate of Occupancy, including but not limited to:
   a. Insulation Inspection(s)
   b. Duct Leakage Testing
   c. Whole House Leakage Testing

3. As a condition of Temporary or Full Certificate of Occupancy, verify the score of 60 or lower by submitting a Final RESNET Certified Compliance report including the RESNET Registry ID by a RESNET certified Energy Rater.

4. As a condition of Temporary or Full Certificate of Occupancy, post a permanent certificate inside the building which lists:

a. the predominant R-values of insulation installed in ceilings, roof, wall, and foundation components;

b. the U-factors and solar heat gain coefficient (SHGC) of fenestration;

c. the results of the duct and whole house leakage tests;

d. the types, sizes and efficiencies of heating, cooling and service water-heating equipment; and

e. if on-site photovoltaic panel systems have been installed, the array capacity, inverter efficiency, panel tilt and orientation.

5. The building thermal envelope shall be greater than or equal to levels of efficiency and solar heat gain coefficients in Table R402.1.1 or R402.1.3 of the *2009 International Energy Conservation Code*. The prevalent values from such Table R402.1.1 are as follows:

Fenestration U-Factor	Skylight U-Factor	Ceiling R-Value	Wood Frame Wall R-Value	Mass Wall R-Value	Floor R-Value	Basement Wall R-Value	Slab R-Value & Depth	Crawl Space Wall R-Value
0.35	0.60	38	13	5/10	19	10/13	10, 2ft	10/13

(see 2009 IECC for full tables, footnotes, and alternatives)

6. Air Barrier and Insulation Installation Criteria are per Table R409.1 (attached)

7. The rated design must meet the requirements of the sections indicated within Table R409.2 (attached)

When utilizing this R409 KCMO Compliance Path in conjunction with a Master Building Plan, the submitted HERS Projected Report must contemplate the most energy intensive combined variables of the plan options to include directional orientation. Subsequent builds of the same Master Building Plan are not required to repeat item 1.

No additional documentation shall be required for plan review and/or permitting to verify energy code compliance under this R409 KCMO Compliance Path.

R502 Additions. Amend to read: Additions shall be in accordance with Section R502.2 or R502.3. New additions and change of space conditioning projects may use any one of the three exceptions listed under Section R502.2 Change in Space Conditioning or may choose to use the R409 KCMO Compliance Path to be brought into full compliance with this code."

Section 2. That previously approved Buildings Plans under the KCMO Energy Code shall have an opportunity to change to the R409 KCMO Compliance Path if so designated in writing and with the submission of required documents outlined in Section 1 within 30 days of the effective date of this ordinance.

Section 3. That previously approved Building Plans that were submitted as complete applications prior to September 29, 2023 (the mandatory implementation date of Ordinance) and subsequently approved by the City, are eligible for use and permits when using the R409 KCMO Compliance Path. In such instances, applicant shall submit a letter detailing the previously approved Building Plan they are using, and that any conflicting energy notes on that plan are now voided and replaced with the details of the documentation, inspections and testing required for the R409 KCMO Compliance Path as outlined in Section 1.

Further, regardless of chosen compliance path, all residential plan reviews are subject to City Code Section 2-2300, Permitting Standards.

Section 4. That the City may endeavor to create a systematic method to reduce the HERS score required in R409 KCMO Compliance Path. Such reductions shall occur no more than once every three years from the effective date of this Ordinance, shall be published at least one year in advance of their effective date(s), shall not exceed a 3 HERS-point reduction over any 3-year period from the prior score, and shall be based on analyzing data from the prior time period's actual HERS scores.

_____

Approved as to form:

_____
Eluard Alegre
Associate City Attorney

KCMO Compliance Path TABLE R409.1		
COMPONENT	**AIR BARRIER CRITERIA**	**INSULATION INSTALLATION CRITERIA**
General requirements	A continuous air barrier shall be installed in the building envelope. Breaks or joints in the air barrier shall be sealed.	Air-permeable insulation shall not be used as a sealing material.
Ceiling/attic	The air barrier in any dropped ceiling or soffit shall be aligned with the insulation and any gaps in the air barrier shall be sealed. Access openings, drop down stairs or knee wall doors to unconditioned attic spaces shall be sealed.	The insulation in any dropped ceiling/soffit shall be aligned with the air barrier.
Walls	Corners and headers shall be sealed and the junction of the foundation and sill plate shall be sealed. The junction of the top plate and the top of exterior walls shall be sealed. Knee walls shall be sealed.	Cavities within corners and headers of frame walls shall be insulated by completely filling the cavity with a material having a thermal resistance, *R*-value, of not less than R-3 per inch. Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier.
Windows, skylights and doors	The space between framing and skylights, and the jambs of windows and doors, shall be sealed.	—
Rim joists	Rim joists shall include the air barrier. The junctions of the rim board to the sill plate and the rim board and the subfloor shall be air sealed.	Rim joists shall be insulated so that the insulation maintains permanent contact with the exterior rim board.
Floors, including cantilevered floors and floors above garages	The air barrier shall be installed at any exposed edge of insulation.	Floor framing cavity insulation shall be installed to maintain permanent contact with the underside of subfloor decking. Alternatively, floor framing cavity insulation shall be in contact with the top side of sheathing, or continuous insulation installed on the underside of floor framing and extending from the bottom to the top of all perimeter floor framing members.
Basement crawl space and slab foundations	Exposed earth in unvented crawl spaces shall be covered with a Class I vapor retarder/air barrier with 6" overlapping joints and be sealed or taped. The edges of the vapor retarder shall extend not less than 6" up stem walls and shall be attached to the stem walls. Penetrations through concrete foundation walls and slabs shall be air sealed. Class 1 vapor retarders shall not be used as an air barrier on below-grade walls.	Crawl space insulation, where provided instead of floor insualtion, shall be permanently fastened to the wall and shall extend downward from the floor to the finished grade elevation and then vertically or horizontally for not less than an additional 24". Conditioned basement foundation wall insulation shall be installed from the top of the basement wall down to 10' below grade or to the basement floor, whichever is less. Slab-on-grade floor insulation, where installed, shall extend downward from the top of the slab on the outside or inside of the foundation wall. Insulation located below grade shall be extended the distance of the proposed design by any combination of vertical insulation, insulation extending under the slab or insulation extending out from the building. Insulation extending away from the building shall be protected by pavement or by not less than 10 inches of soil. The top edge of the insulation installed between the *exterior wall* and the edge of the interior slab shall be permitted to be cut at a 45-degree angle away from the *exterior wall* .
Shafts, penetrations	Duct and flue shafts to exterior or unconditioned space shall be sealed. Utility penetrations of the air barrier shall be caulked, gasketed or otherwise sealed and shall allow for expansion, contraction of materials and mechanical vibration.	Insulation shall be fitted tightly around utilities passing through shafts and penetrations in the building thermal envelope to maintain required *R*-value.

Narrow cavities	Narrow cavities of 1 inch or less that are not able to be insulated shall be air sealed.	Batts to be installed in narrow cavities shall be cut to fit or narrow cavities shall be filled with insulation that on installation readily conforms to the available cavity space.
Garage separation	Air sealing shall be provided between the garage and conditioned spaces.	Floor cavity insulation shall comply with one of the following: 1. Installation shall be installed to maintain permanent contact with the underside of the subfloor decking in accordance with manufacturer instructions to maintain required R-value or readily fill the available cavity space. 2. Floor framing cavity insulation shall be permitted to be in contact with the top side of sheathing separating the cavity and the unconditioned space below. Insulation shall extend from the bottom to the top of all perimeter floor framing members and the framing members shall be air sealed. 3. A combination of cavity and continuous insulation shall be installed so that the cavity insulation is in contact with the top side of the continuous insulation that is installed on the underside of the floor framing separating the cavity and the unconditioned space below. The combined R-value of the cavity and continuous insulation shall equal the required R-value for floors. Insulation shall extend from the bottom to the top of all perimeter floor framing members and the framing members shall be air sealed.
Recessed lighting	Recessed luminaires installed in the *building thermal envelope* shall be sealed with a gasket or caulked between the housing and interior wall or ceiling covering to limit air leakage between conditioned and *unconditioned spaces* , and IC-rated and *labeled* as having an air leakage rate of not greater than 2.0 cfm (0.944 L/s) when tested in accordance with ASTM E283 at a pressure differential of 1.57 psf (75 Pa).	Recessed light fixtures installed in the building thermal envelope shall be buried or surrounded with insulation.
Plumbing, wiring or other obstructions	All holes created by wiring, plumbing or other obstructions in the building thermal envelope shall be air sealed.	Insulation shall be installed to fill the available space and surround wiring, plumbing, or other obstructions, unless the required *R* -value can be met by installing insulation and air barrier systems completely to the exterior side of the obstructions.
Shower/tub on exterior wall	The air barrier installed at exterior walls adjacent to showers and tubs shall separate the wall from the shower or tub.	Exterior walls adjacent to showers and tubs shall be insulated.
Electrical/phone box on exterior walls	The air barrier shall be installed behind electrical and communication boxes. Alternatively, air-sealed boxes shall be installed.	—
HVAC register boots	HVAC supply and return register boots that penetrate building thermal envelope shall be sealed to the subfloor, wall covering or ceiling penetrated by the boot.	—
Concealed sprinklers	Where required to be sealed, concealed fire sprinklers shall only be sealed in a manner that is recommended by the manufacturer. Caulking or other adhesive sealants shall not be used to fill voids between fire sprinkler cover plates and walls or ceilings.	—

TABLE R409.2		
CODE	**SECTION[a]**	**TITLE**
Building Thermal Envelope		
2018 IRC	R702.7	Vapor retarder
2021 IECC	R402.2.3	Eave baffle
2021 IECC	R402.2.4.1	Access hatches and doors
2021 IECC	R402.4.1.2	Testing
Mechanical		
2021 IECC	R403.1 except Sections R403.1.1	Controls
2021 IECC	R403.3 except Sections R403.3.2, R403.3.3, R403.3.6 and R403.3.7	Ducts
2021 IECC	R403.4	Mechanical system piping insulation
2018 IRC	M1505	Mechanical ventilation
2021 IECC	R403.7	Equipment sizing and efficiency rating
Electrical Power and Lighting Systems		
2021 IECC	R404.1 except Section R404.1.1	Lighting equipment
As applicable, projects that include items affected by the following code sections must meet the following:		
2021 IECC	R403.5.1	Heated water calculation and temperature maintenance systems
2021 IECC	R403.5.3	Drain water heat recovery units
2021 IECC	R403.8	Systems serving multiple dwelling units
2021 IECC	R403.9	Snow melt and ice systems
2021 IECC	R403.10	Energy consumption of pools and spas
APSP	14	Portable spas
APSP	15	Residential pools and permanent residential spas

[a] Reference to a code section includes all of the relative subsections except as indicated in the table