MIDWEST ENERGY EFFICIENCY ALLIANCE
20 N. Wacker Drive, Suite 1301
Chicago, Illinois 60606
312.587.8390 Main Line
312.587.8391 Fax
www.mwalliance.org

April 3, 2023

Missouri House of Representatives
201 West Capitol Avenue
Jefferson City MO 65101

Re: MEEA's comments on the regulation of construction standards for insulation in new dwellings

Dear Honorable Missouri Legislative Members,

Thank you for the opportunity to speak on the regulation of insulation standards in new Missouri homes. The Midwest Energy Efficiency Alliance (MEEA) is a member-based, non-profit organization promoting energy efficiency to optimize energy generation, reduce consumption, create jobs and decrease carbon emissions in all Midwest communities. We have worked in Missouri and other states to provide technical assistance and education on energy efficient building policies since 2009.

MEEA supports the installation of 1) wood frame wall cavity insulation with R-values greater than 13, 2) exterior continuous insulation, and 3) ceiling insulation with R-values greater than 38. MEEA also supports new homes having maximum air leakage rates of less than five air changes per hour. All these methods are considered best practices for improving energy efficiency in buildings.

Additionally, MEEA supports and promotes the health and safety of homeowners and occupants. Energy codes, just like other types of construction codes (e.g., fire, electrical, mechanical), ensure such health and safety. They do this by providing better indoor air quality and more reliable, resilient homes in times of emergency or extreme weather events, and they also do it by guaranteeing minimum standard safeguards that most homebuyers do not know to ask about or demand (e.g., insulation behind the walls).

Limiting the regulation of insulation standards in new Missouri dwellings would lead to less overall health and safety of Missouri homeowners and occupants, less affordable homes for people to live in, and less opportunity for local jurisdictions to receive access to the more than $1 billion in federal support through the Bipartisan Infrastructure Law and Inflation Reduction Act.

1. Building energy efficiency is a public health and safety matter

The state of Missouri has a responsibility to protect the health and safety of its residents. This includes adopting and enforcing energy codes, which are critical to ensuring that buildings operate as intended. They integrate electrical, heating, cooling, ventilation and building envelope components to provide a safe, healthy and comfortable place to live.[1] One way energy codes do this is by ensuring good indoor air quality. Energy codes call for homes to be well sealed to keep out pollutants and properly ventilated to control incoming air. Insulation and ventilation are crucial, and only energy codes contain provisions that dictate the proper balance

[1] Energy Codes are Life-Safety Codes (https://www.mwalliance.org/sites/default/files/meea-research/codes-life-safety.pdf)

MEEA
MIDWEST ENERGY EFFICIENCY ALLIANCE
20 N. Wacker Drive, Suite 1301
Chicago, Illinois 60606
312.587.8390 Main Line
312.587.8391 Fax
www.mwalliance.org

between these components. Accordingly, homeowners in energy efficient homes report fewer hospital visits for respiratory issues.[2]

Another way energy codes protect health and safety is through moisture management. When moisture infiltrates a building, it can lead to rotting construction materials and harmful mold growth. A well-sealed building envelope and proper insulation, as provided for in energy codes, help keep cold outside air from the warm interior, reducing both condensation and ice damming.[3] Removing energy efficiency standards for homes will undoubtedly have negative health effects on Missouri residents.

Energy codes also enhance peoples' safety. With better insulation (and consequently less use of energy) homes put less demand on the electrical grid, making it more reliable for longer periods of time. This means residents can shelter in place longer and more comfortably during emergencies (e.g., tornadoes, heat waves) and power outages. Overall, energy efficient construction techniques and products protect homes in extreme weather events, especially when utility services are disrupted.[4]

Finally, as mentioned above, energy codes protect homebuyers' health and safety by prescribing minimum standard safeguards that most people do not know to ask about or demand. For example, when people go to buy a home, they do not typically ask the real estate agent about the age or condition of the electrical wiring (and the real estate agent typically won't know the answer) – they simply trust that it was assembled up to code and that it passed all relevant inspections. ***The same goes for insulation and other energy efficiency work***. Most people, when shopping around for a home, do not consider things like how well a home is sealed to keep out air pollutants and moisture or how long a home will stay livable during power outages. It is up to the energy code to ***guarantee*** these safeguards and the health and safety of the occupants.

2. Building energy efficiency makes homes more affordable to <u>live in</u>

In August of last year, it was discovered that at least 20 million U.S. homes had fallen behind on their utility bill payments.[5] Since before Covid-19, the amount owed to utility companies has doubled for approximately one out of every six homes nationwide.[6] Electricity inflation rose by 15.2% in July 2022 compared to the same period the previous year.[7] In August 2022, natural gas was trading at around $9.35 per Metric Million British Thermal Unit (MMBtu), more than twice the cost it was the year before.[8] All these happenings ultimately force homeowners and occupants to make tough decisions – pay the rent or mortgage or pay to keep the power on; pay for groceries or pay to keep the power on. Of note, energy efficient homes are 32% less likely to

[2] Occupant Health Benefits of Residential Energy Efficiency, E4TheFuture (https://e4thefuture.org/wp-content/uploads/2016/11/Occupant-Health-Benefits-Residential-EE.pdf)
[3] Energy Codes are Life-Safety Codes (https://www.mwalliance.org/sites/default/files/meea-research/codes-life-safety.pdf)
[4] The Important Role of Energy Codes in Achieving Resilience (https://www.iccsafe.org/wp-content/uploads/19-18078_GR_ANCR_IECC_Resilience_White_Paper_BRO_Final_midres.pdf)
[5] New York Post, 20 million US homes can't pay utility bills as "tsunami of shutoffs" looms, August 25, 2022 (https://nypost.com/2022/08/25/20-million-us-homes-cant-pay-utility-bills-as-shutoffs-loom/)
[6] *Id.*
[7] *Id.*
[8] *Id.*

MIDWEST ENERGY EFFICIENCY ALLIANCE
20 N. Wacker Drive, Suite 1301
Chicago, Illinois 60606
312.587.8390 Main Line
312.587.8391 Fax
www.mwalliance.org

default on mortgages[9] and a more energy efficient home is cheaper to maintain, reducing the impact of those tough decisions.

Well-insulated homes help solve this problem. Home insulation provides resistance to heat flow and thereby lowers heating and cooling costs.[10] The heat that is lost during the colder months must be replaced by heating systems, and the heat gained during the warmer months must be removed by cooling systems. However, when a home is properly and sufficiently insulated, the overall heat flow is decreased – heating and cooling ***systems do not need to run as much, and homeowners and occupants do not need to pay as much***. Due to the annual costs of energy, the amount of money people save from energy efficiency only accumulates year after year, for the life of the home.

As a final note, if homeowners are not required to build to any updated code standards, home*buyers* will end up spending more. As described above, most buyers simply trust that a home has been built up to code and properly inspected. They do not independently verify that electrical wiring is safe, that fire sprinklers work, or that insulation is sufficient for health and safety. If there are no improved code standards in place for these types of work, homebuyers will need to pay additional costs to ensure that homes are safe. These costs could be in the form of paying for additional third-party inspections at every home they visit, and they have the potential to add up very quickly.

3. Local governments are in the best position to know the wants and needs of their communities

The way that Missouri law is written (providing for no mandatory statewide energy code), local jurisdictions are *meant and expected to* adopt whatever type of building energy standards they (and their residents) want. At least 14 counties and 108 cities in Missouri currently have standards in place that go beyond the insulation regulations of the 2006 IECC.[11] Notable examples include Kansas City, Springfield, and St. Louis City.

Kansas City - As referenced above, Kansas City adopted the *full, unamended* 2021 IECC last year, the strongest energy code in the state. In doing so, it has provided its homeowners and occupants with significant savings on their utility bills for years to come. According to a determination by the U.S. Department of Energy (DOE), updating to the unamended 2021 IECC would result in a national average of 9.4% energy savings and 8.7% energy cost savings compared to the 2018 IECC.[12] Of course, those savings will be even higher if updating from an even older code. The adoption of the 2021 IECC also helps Kansas City meet its climate goal of achieving carbon neutrality by 2040.[13]

Springfield - Springfield, Missouri also updated its building energy standards last year to the 2018 IECC. Compared to the city's previous residential code per the home specifications outlined by

[9] Home Energy Efficiency and Mortgage Risks, Institute for Market Transformation (https://www.imt.org/resources/home-energy-efficiency-and-mortgage-risks/#:~:text=The%20IMT%2Dfunded%20study%2C%20by,controlling%20for%20other%20loan%20determinants.)
[10] Insulation, Energy Saver (https://www.energy.gov/energysaver/insulation)
[11] Energy Codes by Jurisdiction, Missouri Department of Natural Resources (https://dnr.mo.gov/energy/energy-efficiency/codes-jurisdiction)
[12] U.S. DOE's Determination of Efficiency (https://www.energycodes.gov/determinations)
[13] Kansas City, Missouri Climate Protection and Resiliency Plan (https://www.kcmo.gov/home/showpublisheddocument/9561/638066074662570000)

MEEA
MIDWEST ENERGY EFFICIENCY ALLIANCE
20 N. Wacker Drive, Suite 1301
Chicago, Illinois 60606
312.587.8390 Main Line
312.587.8391 Fax
www.mwalliance.org

the Springfield Building Department,[14] this will reduce homeowners' energy use by an average of nine percent per year, saving them $142 annually on their energy bills.[15] Even when factoring in increased costs, this update proves to be cost-effective. A homeowner with a 30-year mortgage will realize a positive cash flow after 17 months.[16] The energy savings and cost-effectiveness of the 2018 IECC are even more favorable for larger homes with more volume. For instance, when using the standard U.S. DOE model home (2,400 sf) located in Springfield, a homeowner would reduce their energy use by 20%, save an average of $408, and see a positive cashflow in around six months.

St. Louis City - Finally, St. Louis City has adopted the 2018 IECC. Due to this update, new homebuyers in St. Louis are expected to reduce their annual energy use by 27% and energy costs by approximately $580 annually.[17] When factoring in increased costs, this update proves to be cost effective. A homeowner with a 30-year mortgage will realize a positive cash flow after eleven months, and a life-cycle cost savings of over $7,700.[18] Additionally, the clean energy sector currently supports more than 14,400 jobs in the St. Louis Metro area, which is more than one third of all clean energy jobs in the state. Of those jobs, 83% are in the energy efficiency sector, and the vast majority are interdependent with the building industry, whether it be HVAC, insulation, or lighting.[19] These are good jobs in a vital, growing sector of St. Louis' economy. In fact, the clean energy sector grew at a rate of 5.3% from 2015 to 2016 in Missouri – over three times faster than all other sectors in the state.[20] With over 40% of energy being consumed by the building sector, building energy codes are the foundation upon which most clean energy jobs are built.

Prohibiting jurisdictions from adopting new energy standards and enforcing currently adopted standards that go beyond the 2006 IECC effectively rolls back energy codes in several Missouri jurisdictions. These municipalities have worked incredibly hard to get to where they are today. They have done the research, the outreach, and the education necessary to understand what they can accomplish and how. They have set advanced goals for themselves to achieve better and cleaner buildings, and they have committed to achieving those goals by adopting stronger building energy standards. Moreover, they have done all this work in order to make Missouri a better place to live and work, to make Missouri attractive for businesses and funding, and to make Missouri a leader in energy conservation and innovation. To effectively "roll back" the results of this hard work would be to wash away years of dedication, energy and cost savings, and all-around progress.

4. Energy conservation efforts must be made if Missouri wants to receive federal funding

[14] Modeling based on a 1,547 sq. ft., one-story home with a conditioned crawl space
[15] "Springfield Residential Energy Savings Advanced 2006 to 2018 IECC" fact sheet, MEEA
[16] *Id.*
[17] MEEA conducted an REM/Design analysis using DOE model home specifications (St. Louis 2009 IECC to 2018 IECC home), determined energy savings and multiplied that number by Ameren residential energy costs. Assumed 36% electric heat and 64% gas heat based on NREL database for MO.
[18] Based on the U.S. DOE methodology for residential cost-effectiveness in energy codes. https://www.energycodes.gov/development/residential/methodology. Incremental Costs of $3,274 were derived from the following sources: PNNL, RS Means, St. Louis Home Depot, and local energy raters.
[19] Clean Jobs Missouri (http://www.cleanjobsmissouri.org/)
[20] Clean Energy Trust, Clean Jobs Midwest (https://www.cleanjobsmidwest.com/state/missouri)

MEEA
MIDWEST ENERGY EFFICIENCY ALLIANCE
20 N. Wacker Drive, Suite 1301
Chicago, Illinois 60606
312.587.8390 Main Line
312.587.8391 Fax
www.mwalliance.org

Over one billion dollars in federal funds will be made available through the Bipartisan Infrastructure Law and the Inflation Reduction Act for advancements in building energy efficiency.[21] By prohibiting the adoption of insulation standards above those of the 2006 IECC, the state of Missouri would be *denying* its local jurisdictions any opportunity to receive that federal funding. Of course, this would be unproductive, and even detrimental, to the state's overall economy.

5. Utilities, such as Ameren Missouri, can assist in programs to increase energy code compliance

From 2019 to 2021, Ameren Missouri (Ameren) partnered with MEEA to conduct a code support program. It began as an energy codes compliance collaborative, consisting of various stakeholders and industry professionals within Ameren's territory who met to discuss key compliance challenges and opportunities to increase compliance. The collaborative addressed both residential and commercial energy codes. Then, the program started to include more educational trainings, as well as a circuit rider who traveled around the state and provided proactive one-on-one education and resources to improve compliance.

MEEA now continues this program statewide in partnership with the U.S. DOE, but both Ameren and Spire have expressed interest in renewing their involvement due to the potential for claimed savings and having a new, meaningful way to engage with customers. However, if Missouri counties and cities are prohibited from adopting and enforcing updated codes, valuable programs like this will be unnecessary.

If you have any questions about this testimony, noted reports and references or general impact and analysis of building energy codes, please contact Maddie Liput, Building Policy Manager for MEEA at mliput@mwalliance.org. Thank you for your consideration.

Sincerely,

Stacey Paradis

Stacey Paradis, Executive Director

[21] The upcoming IRA funding includes: 1) $330 million to adopt residential codes that meet or exceed 2021 IECC/ASHRAE 90.1 (2019) for commercial and 2) $670 million for state/local governments to adopt the Zero Energy Provisions of the 2021 IECC. Funding through the IRA also requires enforcement and annual measurement of compliance with these standards.