

Mr. Keith Lambert  
Director, Bureau of Construction Codes  
Michigan Department of Licensing and Regulatory Affairs  
611 W Ottawa St.  
Lansing, MI 48933

July 5th, 2022

Re: Michigan's 2021 Energy Conservation Code Adoption

Dear Director Lambert,

The undersigned organizations write in support of the inclusion of the following effective energy efficiency and electrification provisions in the update of Michigan's commercial and residential energy conservation codes:

1. Maintain the 2021 International Energy Conservation Code (IECC) with no weakening amendments for both commercial and residential codes
2. Add back in the energy monitoring requirement in the commercial code
3. Require electric vehicle (EV) readiness in residential code

These provisions will lower costs for Michigan residents and businesses, increase household resilience from extreme weather events, and help reduce climate impacts from the building sector. This is crucial for ensuring Michigan's building codes are equitable, delivering benefits to people facing poor housing quality, high energy burdens, and disproportionate health impacts in their homes and communities resulting from our reliance on fossil fuels.

At a time of global disruption and uncertainty impacting energy prices, the solutions we propose are forward thinking and will improve the state's energy independence and reduce cost-volatility associated with fossil fuels.

In addition, our recommendations would grow jobs in Michigan. According to the Clean Jobs Midwest report, in 2019, "clean energy jobs grew more than twice as fast as overall employment across the Midwest," with Michigan in particular adding thousands more jobs in renewable energy generation than fossil fuels.<sup>1</sup>

### **1. Maintain 2021 IECC with No Weakening Amendments for Both Commercial and Residential Codes**

We applaud the Bureau for adopting the 2021 IECC residential code in full. As the Bureau moves forward with the code adoption process, we ask that you maintain the full adoption of the 2021 IECC and adopt no amendments that would weaken its efficiency provisions.

As a recent US Department of Energy (DOE) analysis shows, adopting the 2021 IECC is cost-effective and "will provide statewide energy savings of 10.7% across all climate zones compared to the current [Michigan] state energy code. This equates to \$327 in annual utility bill savings for the average Michigan household."<sup>2</sup> Much of these savings come from improvements

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<sup>1</sup> <https://www.cleanjobsmidwest.com/state/michigan>

<sup>2</sup> [Michigan Residential Code Cost Effectiveness 2021](#)

in envelope requirements in the 2021 code such as continuous exterior wall insulation and high air-tightness requirements.

Improved thermal envelopes not only save Michiganders money, but also provide a comfortable and healthy interior environment. An efficient building shell is a key mechanism for improving the comfort of the occupant and meeting the occupant's needs and preferences by reducing unwanted temperature variations. Building envelope improvements are also a key mechanism to protect residents against the extreme weather events we already experience due to climate change.<sup>3</sup> Effective insulation and air sealing provide essential “hours of safety” during severe weather events and power outages, resulting in critical extra days before the onset of life-threatening conditions from extreme temperatures.<sup>4</sup> This aspect of greater efficiency is called “passive survivability” and provides an important health and safety rationale for stronger energy codes with robust building shell provisions.

One key improvement in building shell efficiency included in the 2021 IECC is the requirement to have continuous wall insulation. Requiring continuous insulation benefits homeowners in multiple ways. First, it saves energy versus a cavity only option. More importantly, continuous insulation is an integral part of a holistic approach to insulation which doesn't simply view each section separately, but recognizes that the entire insulation system (walls, floors and ceilings) work together to maximize energy savings. Continuous insulation also provides additional comfort and resilience in the home by eliminating thermal bridges. Thermal bridges are areas of the envelope where cavity insulation doesn't reach (for example, at the studs) which allow heat to flow, which, in turn, undermines the R-value of the walls. Moreover, thermal bridges are areas that are susceptible to moisture. Continuous insulation eliminates this concern. The additional R-5 in the 2021 IECC typically amounts to 1" or less of exterior insulation. At current retail prices of \$15/32 sq. ft (contractors should be able to make bulk purchases at a lower cost<sup>5</sup>), this will add no more than \$750 to the cost of a home; which is a small price to pay for additional energy savings, increased comfort and reduced risk of moisture.

The efficiency improvements in the 2021 IECC also help Michigan combat climate change by reducing building sector greenhouse gas emissions. The DOE estimates that adopting the 2021 IECC in Michigan will “reduce statewide CO2 emissions over 30 years by 11,460,000 metric tons, equivalent to the annual CO2 emissions of 2,493,000 cars on the road .”<sup>6</sup>

## **2. Add Back the Energy Monitoring Requirement into the Commercial Code**

Unfortunately, the draft commercial code released by LARA removed a key section from the IECC commercial energy conservation code – Section C405.12 to C405.12.5, which requires energy monitoring for buildings over 25,000 square feet. The undersigned organizations and communities strongly oppose this weakening amendment. You can't manage what you don't measure. The ability to understand how much energy your building is using is key to the operation and maintenance of buildings, particularly for large complex buildings that are regulated under the commercial code. Energy monitoring also increases awareness of, and engagement with, energy efficiency measures and other energy and emissions savings opportunities. Energy monitoring has been shown to reduce energy consumption in buildings by

<sup>3</sup> [Extreme weather events have increased significantly in the last 20 years](#)

<sup>4</sup> [Hours of Safety in Cold Weather - RMI](#) and <https://www.urbangreencouncil.org/babyitscoldinside>

<sup>5</sup>

<https://www.lowes.com/pl/Expanded-polystyrene--Board-insulation-Insulation-accessories-Building-supplies/4294858106?refinement=4294642294>

<sup>6</sup> IBID US DOE [Cost-Effectiveness of the 2021 IECC for Residential Buildings in Michigan](#)

2 to 8% by giving building owners the information they need to understand how much energy is being used and by what building operations. This is because building performance, if not properly monitored and maintained, erodes over time, and energy monitoring ensures that high performance buildings continue to perform as designed over the building's lifetime. In addition, a growing number of communities in Michigan are working to achieve carbon neutrality by 2030. For these communities to be successful they must address the energy use of existing buildings which will be much harder without energy monitoring in place. Additionally, energy monitoring requirements provide tremendous data sets for energy management professionals to study, allowing more improvement in both the predictive energy modeling efforts in the design phase and the retro-commissioning process post building occupancy, which can help to further Michigan's progress toward the 2030 goal.

Given the importance of energy monitoring we recommend Michigan add back in the energy monitoring requirement in the commercial code and strengthen it by requiring end use monitoring of EV chargers so operators can better manage both building and vehicle energy consumption.

### **3. Require EV Readiness for the Residential Code**

The transition to EVs is well underway. The number of EVs on US roads is projected to grow from 1 million vehicles at the end of 2018, to 18.7 million by 2030.<sup>7</sup> Developments in global markets are driving this increase in EV adoption. Michigan's auto manufacturers are working to maintain their leadership in the automotive industry by embracing the transition to EVs. For example, General Motors recently announced it would only produce zero-emission vehicles by 2035.<sup>8</sup> To power this increase in EVs, the U.S. will need 9.6 million charge ports, a substantial portion of which will be installed in single and multi-family residential buildings.<sup>9</sup> Michigan currently only offers 480 publicly accessible charging stations featuring nearly 1,400 charging ports, in addition to 146 private charging stations throughout the state.<sup>10</sup> Without additional EV charging readiness amendments in the state's building code, we miss a key opportunity to help our residents transition to EVs.

A major barrier to the transition to EVs is the lack of charging infrastructure at homes and the potential need for extensive electrical upgrades to accommodate charging. It is more cost-effective to make a building "EV ready" when it is being built or undergoing major renovations than trying to add equipment after the building is constructed. To reduce expensive retrofit costs, and ensure Michiganders have cost-effective access to charging, Michigan's residential building code should incorporate EV-ready provisions that ensure the conduit and infrastructure is in place to support the easy installation of a charger. Approving an EV-ready amendment in the residential code will ensure people have affordable access to charging at their homes and allow customers to easily transition off of gas-powered vehicles when they are ready and able.

Ensuring buildings have EV chargers or are EV-ready is cost effective. Research undertaken by New Buildings Institute indicates that the cost of the added infrastructure to make a home

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<sup>7</sup> [EEI celebrates 1 million electric vehicles on US roads](#)

<sup>8</sup> <https://www.nytimes.com/2021/01/28/business/gm-zero-emission-vehicles.html>

<sup>9</sup> [EEI celebrates 1 million electric vehicles on US roads](#)

<sup>10</sup> [https://www.michigan.gov/whitmer/0,9309,7-387-90499\\_90640-558822--,00.html#:~:text=Michigana%20currently%20offers%20480%20publicly,charging%20stations%20throughout%20the%20state.](https://www.michigan.gov/whitmer/0,9309,7-387-90499_90640-558822--,00.html#:~:text=Michigana%20currently%20offers%20480%20publicly,charging%20stations%20throughout%20the%20state.)

EV-ready is estimated to be \$500 at the time of construction. If a home was not made EV-ready but chose to add an EV charger later with an insufficient supply infrastructure in place, the cost of the retrofit (if the retrofit is feasible) was found to be between \$1,500 to \$3,000. Therefore, adding the infrastructure to make a home EV-ready saves \$1,000 to \$2,500 for the average homeowner who must add an EV charger later.

By adding provisions in the energy code to aid the transition from gas-powered to electric-powered vehicles, Michigan will substantially reduce carbon emissions and other harmful pollutants. More accessible EV charging is also necessary for meeting the administration's carbon emission reduction targets and reducing local air pollution. According to the final MI Healthy Climate Plan, the transportation sector was the second largest source of Michigan's greenhouse gas emissions.<sup>11</sup> EVs can also reduce the health impact of carbon monoxide, nitrogen oxides, and other smog-causing air pollution that is typically released by conventional vehicles. Ensuring affordable access to charging is necessary for making it easier to switch over to EVs and reduce these significant emissions.

Finally, these amendments to the code will help keep Michigan at the forefront of the auto industry and help support our auto workers and the Michigan auto sector as it moves towards a fully electric future.

C.C.:

Governor Gretchen Whitmer

Jen Flood, Office of Governor Whitmer

Kara Cook, Office of Governor Whitmer

Liesl Clark, Department of Environment, Great Lakes, and Energy

Cory Connolly, Department of Environment, Great Lakes and Energy

Orlene Hawks, Department of Licensing and Regulatory Affairs

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Michigan Energy Innovation Business Council

Mike Berkowitz

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<sup>11</sup> MI Healthy Climate Plan,  
<https://www.michigan.gov/egle/about/organization/climate-and-energy/mi-healthy-climate-plan>

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