

October X, 2022

Commercial Consensus Committee Members
International Code Council
500 New Jersey Avenue, NW
6th Floor,
Washington, DC 20001

Re: Public Comment Draft #1 for IECC-C

Dear Commercial Consensus Committee Members,

As environmental and climate focused organizations, we applaud the Commercial Consensus Committee for approving a strong draft of the Commercial 2024 International Energy Conservation Code (IECC-C). The provisions adopted into Public Comment Draft #1 for IECC-C are critical for achieving the energy and carbon reductions we need to keep temperature rise below 1.5°-degrees Celsius and avoid the worst impacts of climate change. We believe the proposed draft includes many, but not all, requirements to equitably transition to a carbon free economy and help our nation meet its climate goals. We believe that the draft IECC-C 2024 was notably missing several key requirements, including:

- **Electric-ready requirements, electrification incentives and an all-electric Appendix:** For new construction starting in 2025 to be considered “high performance,” the requirement that the building be able to receive electric equipment is paramount. Building electrification and decarbonization policies are widely under consideration to transition away from onsite fossil fuel combustion in buildings as the nation’s electrical grid becomes cleaner and the impact of burning of fossil fuels in our buildings becomes clearer. The IECC-C needs to encourage the electrification of our nation’s buildings by requiring buildings to be electric-ready, introducing incentives for electrification by introducing more stringent efficiency requirements for mixed-fuel buildings and including an all-electric Appendix
- **Cool roof requirements:** The IECC-C needs to be updated to include reflective roof requirements for Climate Zones 4, 5, and cities in Zone 6. Across these three climate zones, reflective roofs are superior to their dark counterparts from a financial, climate, health, and environmental justice perspective. For Zones 4 and 5, and cities in Zone 6, reflective roofs offer high returns from initial costs over the lifetime of the roof.¹ Reflective roofs can reduce the urban heat island effect, smog, heat deaths, and costs, building a strong public health case for their deployment in Climate Zones 4, 5, and cities in Zone 6. More generally, reflective roofs can improve health outcomes by reducing indoor and outdoor extreme heat. In addition to the public health considerations, the case for adopting reflective roofs in Zones 4 and 5 and for cities in Zone 6 is compelling because of its impact on climate, reflective roofing product cost and performance improvements.

¹ Lawrence Berkeley National Laboratory “Economic comparison of white, green, and black roofs in the United States” 2013.

- **Building envelope backstop:** Currently, the total building performance method in the draft IECC-C 2024 allows for unlimited trade-offs between building envelope and other building systems. Studies have concluded that weaker building envelopes can permanently limit building energy performance, even as lighting and HVAC components are upgraded over time, because retrofitting the envelope is less likely and more expensive. This issue has been raised by states and jurisdictions around the country. Language to limit the envelope trade-offs on projects following performance path of compliance (aka the envelope backstop) is included in ASHRAE 90.1 with the adoption of addendum cr. The IECC-C should institute a similar envelope backstop that preserves design flexibility and minimizes documentation effort while improving the long-term building performance.
- **An improved definition for renewable biomass:** The International Code Council (ICC) should model the definition of renewable biomass on current policies for transportation fuels in California, Washington and Oregon, Green-e's renewable fuel standard, and requirements for renewable fuels in Europe. The revised renewable fuel definition proposed by NBI is easier to enforce, technology neutral, and will ensure the renewable energy requirement proposed for inclusion in the 2024 IECC-C will prevent increased localized criteria air pollution while still reducing carbon emissions from the building.
- **Alignment of multifamily requirements:** Currently there are large discrepancies in terms of system design, control and stringency between a three-story multifamily building (regulated by the residential code) and a four-story multifamily building (regulated by the commercial code). This leads to market confusion, enforcement inconsistencies, and large potential untapped energy savings. The IECC-C should revise the window and lighting requirements to close these gaps and create a common set of window requirements for multifamily buildings.
- **More stringent energy credit requirements in Section C406:** The additional energy efficiency credit flexibility and increased requirement for energy savings proposed in Section C406 are important. However, the proponent's cost-effectiveness analysis supported higher requirements for energy efficiency credits, as described in a detailed Technical Brief by the Pacific Northwest National Laboratory.² The credit requirements in the final approved proposal were based on only a 9.33% nominal discount rate; using this discount rate alone in determining cost-effective code criteria is unsupportable. The 2024 IECC-C should adopt requirements as originally submitted, based on the published cost-effectiveness analysis.

We applaud the IECC-C for incorporating the following measures into the draft 2024 code:

- **Electric Vehicle Infrastructure Requirements:** Preparing our buildings for safe and convenient electric vehicle (EV) charging infrastructure is critical to the deployment of EVs. The transportation sector is the single largest source of carbon emissions in the nation and near complete electrification of the transportation sector is necessary to achieve the carbon emission reductions needed to avoid the worst impacts of climate change. We therefore applaud the IECC-C for joining over 40 cities and states across the country³ in adopting EV infrastructure requirements by including EV infrastructure requirements in the 2024 IECC-C

² Technical Brief by the Pacific Northwest National Laboratory

https://www.energycodes.gov/sites/default/files/2021-07/TechBrief_EnergyCredits_July2021.pdf

³ "State and Local Electric Vehicle and Solar Building Energy Policies". U.S. DOE Building Energy Codes Program. 30 June 2022. https://public.tableau.com/app/profile/doebecp/viz/Top100MetroDatabase-PrimaryCityCode-V4/MetroCityCommercialGrayHR_1

so that municipalities across the nation can address their climate goals and meet the growing demand for EV chargers.

- **Mandatory Renewable Requirements:** In 2020, 21% of the electricity used in the United States was sourced from renewable energy, primarily wind, an intermittent source of energy.⁴ The Inflation Reduction Act of 2022 (IRA), which provides reliable tax credits for renewable energy until at least 2032, is estimated to double the deployment of renewable energy technology by making it more cost effective than ever.⁵ The proposed code, which requires new commercial buildings to place renewables on the building site, will support more reliable distributed energy generation and aligns with the incentives being provided in the IRA. The requirements in the draft IECC-C 2024 will economically benefit individuals and communities as the country transitions towards a low-carbon economy, increase the resilience of communities during disruptions to centrally supplied power, reduce the impact of utility-scale renewables on critical wildlife habitat, and reduce building carbon emissions and improve air quality by ensuring that approximately 10% of a building's energy use is from renewable energy sources. In addition, this proposal will expand good paying jobs in one of the nation's fastest growing employment sectors.
- **Energy Storage-Readiness:** We believe that the energy storage-ready provisions proposed for the 2024 IECC-C, which ensure that either an energy storage system is installed or that there is both sufficient physical space and electrical capacity for that energy storage system, are critical bolstering the economy, presenting a cost savings opportunity for building owners, increasing resilience to power outages, and aiding in the transition to a carbon-free grid. The IRA of 2022 is estimated to double the deployment of renewable energy technology, ensuring that 67% of our energy will be carbon-free by 2035. As the U.S. rapidly deploys renewables, buildings must be prepared to aid in this transition by storing energy to match grid demands. That is why the IRA includes tax credits which will reduce the capitol costs of energy storage systems by 30%. Ensuring buildings are energy storage-ready will allow more customers to take advantage of federal incentives, reduce their utility bills, make their buildings more resilient and aid in the transition to a carbon-free economy.
- **Grid Integration requirements and incentives:** As electricity systems transform to include more variable renewable energy, from 20% of electricity supply in 2020 to an estimated 67% by 2035 due to the passage of the IRA, demand flexibility is increasingly critical to both grid operation and further transformation of the grid to include more renewables. Building systems that can use energy when it is abundant, clean, and low-cost not only help decarbonize the entire energy system, but these systems also insulate their owners from future increases in demand charges and peak hour energy rates – a current and accelerating trend. Requiring buildings to have grid integrated HVAC and water heater controls and incentivizing building owners to use these controls by signing up for demand responsive programs as proposed in Section C406 are therefore important requirements in the 2024 IECC-C.
- **Incentivizing HVAC performance through Total System Performance Ratio:** This proposed addition of HVAC Total System Performance Ratio (TSPR) in Section C409 to the 2024 IECC-C is an important tool for the energy code to continue to drive the energy

⁴ Renewables Became the Second-Most Prevalent U.S. Electricity Source in 2020 , U.S. Energy Information Administration, <https://www.eia.gov/todayinenergy/detail.php?id=48896>.

⁵ Esposito, Daniel. "Inflation reduction act benefits: Clean Energy Tax Credits could double deployment." Forbes Magazine. 23 Aug. 2022, <https://www.forbes.com/sites/energyinnovation/2022/08/23/inflation-reduction-act-benefits-clean-energy-tax-credits-could-double-deployment/?sh=6e7381c76727>

performance of commercial buildings and help communities meet their climate goals. The addition of the TSPR metric, which evaluates overall system efficiency instead of individual component efficiency, incentivizes buildings to install HVAC system types that can cost-effectively reduce the total energy consumption of a building. The additional stretch code option provided in the proposal will allow jurisdictions that want to cost-effectively meet their climate goals to take advantage of TSPR metric to mandate more efficient HVAC system choices in their energy code.

- **Thermal bridging requirements:** Thermal bridging can reduce the thermal performance of the opaque building envelope by between 20-70%.⁶ The proposed addition of thermal bridging requirements to the 2024 IECC-C is therefore crucial to improving the performance of buildings and ensuring the energy code can eventually achieve net-zero performance to meet climate goals.
- **Existing Building Credits:** Requiring existing buildings undergoing major renovations or additions to make efficiency improvements when it is cost effective to do so is crucial element towards meeting our climate goals. The new language in the 2024 IECC-C is a reasonable strategy as the costs for this proposal are the same as the costs for C406 requirements for new construction, but savings for each package are much higher since the rest of the building will nearly always have specifications that fall short of the latest energy code.
- **Expanded energy monitoring requirements:** There are currently over 40 benchmarking regulations across the U.S. (38 local jurisdictions and four states) – with size thresholds as low as 10,000 sf. These regulations require the reporting of energy use and are being used as a steppingstone toward regulation of building performance – either through audit and retro-commissioning requirements or building performance standards. The proposed requirement in the 2024 IECC-C to expand monitoring to more buildings and require monitoring of EV energy use separate from building energy use will ensure that buildings are equipped to comply with these policies.

We sincerely applaud the Commercial Consensus Committee for approving a strong draft 2024 IECC-C and hope that the Committee considers additional requirements to help our country meet its climate goals. Thank you for your leadership and for the opportunity to comment.

Signed,

⁶ BC Housing, Thermal Bridging Guide, Version 1.5, 2020, <https://www.bchousing.org/research-centre/library/residential-design-construction/building-envelope-thermal-bridging-guide>