Shaping Tomorrow's Built Environment Today

180 Technology Parkway, NW • Peachtree Corners, GA 30092-2977 • Tel: 404.636.8400 • Fax: 404.321.5478
www.ashrae.org

Ginger Scoggins
2023-2024 ASHRAE President

Engineered Designs, Inc.
1151 SE Cary Pkwy., Ste. 200
Cary, NC 27518
Phone: (919) 851-8481
Email: gscoggins@engineereddesigns.com

February 12, 2024

The Honorable Linda Ichiyama
The Honorable Mahina Poepoe
House Committee on Water and Land
Hawai‘i State Capitol
415 South Beretania St.
Honolulu, HI 96813

Letter sent via email to:
repichiyama@capitol.hawaii.gov
reppoepoe@capitol.hawaii.gov

Re: House Bill 2089 “Relating to the State Building Code”

Dear Chair Ichiyama and Vice Chair Poepoe:

I am writing on behalf of ASHRAE, the American Society of Heating Refrigerating, and Air Conditioning Engineers, to **oppose the goals of Hawai‘i House Bill 2089**, titled “Relating to the State Building Code” that sits before you in the House Committee on Water and Land. ASHRAE, founded in 1894, is a global professional society of more than 53,000 members, including more than 250 in Hawai‘i , that focuses on building systems, energy efficiency, indoor air quality, resiliency, and sustainability. Through our research, standards writing, publishing, certification, and continuing education, ASHRAE shapes tomorrow’s built environment today.

House Bill 2089, though well intentioned, would see Hawai‘i change from a three-year update cycle for the state’s building energy codes to a six-year cycle. The stated intent behind this legislation is to reduce housing costs. However, the underpinning idea, that Hawai‘i ’s adoption of modern energy codes and standards is responsible for high housings costs, and that ceasing to adopt up-to-date energy codes and standards would bring down housing costs, is incorrect. The actual outcome of skipping every other iteration of the International Energy Conservation Code and ASHRAE’s Standard 90.1 *Energy Standard for Buildings Except Low-Rise Residential Buildings*, which are published on a three-year cycle that syncs up with HI’s code updates, would be:

- Energy efficiency gains left on the table.
- Business owners, homeowners, and tenants pay higher utility bills.
- Thousands of tons of unmitigated greenhouse gas emissions.
- Greater difficulty meeting Hawai‘i ’s 2030 and 2045 climate targets.
- Inability to access some federal funding opportunities.
- Missing out on job creation associated with energy code adoption.
- No meaningful reduction in housing or construction costs.

I wish to expand upon these points to show and substantiate how hamstringing updates to the state's building energy code would be detrimental to the people of Hawai'i while also failing to deliver on the bill's intentions.

Energy Efficiency Gains Will Be Left on the Table:
Building energy standards establish minimum efficiency requirements for new construction, ensuring reductions in energy use and greenhouse gas emissions over the long life of a structure. The two energy codes in question, the 2021 edition of the International Energy Conservation Code and the 2019 edition of ASHRAE's 90.1 *Energy Standard for Buildings Except Low-Rise Residential Buildings* deliver substantial energy efficiency gains over their predecessors. Over the last two decades, each new edition of these resources delivers ever greater energy efficiency gains.[1] The 2019 edition of ASHRAE's 90.1 energy code is about 4.3% more efficient than the preceding edition.[2] Subsequently, on a national level, building energy codes represent an opportunity to reduce utility bills by over $130 billion and avoid 900MMT of CO_2 emissions by 2040[3] On a state level, in Hawai'i the adoption of the newest editions of these minimum energy efficiency requirements is expected to result in a reduction of 8,132 metric tons of CO_2 emissions in the first year alone, according to DOE studies conducted by the Pacific Northwest National Laboratory (PPNL).[4][5]

Business Owners, Homeowners, and Tenants Will Pay Higher Utility Bills While Also Releasing Thousands of Tons of Unnecessary Greenhouse Gas Emissions:
The reduction in utility bills from energy efficiency gains can be substantial. Per the PNNL studies, a combined energy cost savings for Hawai'i home and building owners of nearly $3 million is expected in the first year, and over $1 billion in cost savings is expected in a 30 year cumulative period.[6][7] In terms of Hawai'i 's individual homeowners, the average residential home's downpayment would be expected to increase by only $288 while the homeowner would see a $896 yearly reduction in their utility bills; they would be cashflow positive immediately.[8] For commercial construction in Hawai'i we would expect to see similar reductions in utility bills while *also achieving less expensive construction costs*. This is possible due to the cost savings delivered by LED lighting and through better insulation allowing for less expensive HVAC units.

Failing to adopt up-to-date energy codes and standards by virtue of skipping every other cycle will change the economic and environmental gains associated with updated code and standard adoption into costs that will be borne by Hawai'i residents. This is especially troubling considering that Hawai'i has the highest electricity retail price of any state, and this electricity is largely sourced from fossil fuels.[9]

This Will in Turn Make Meeting Hawai'i 's Climate Goals More Difficult:
Hawai'i has set laudable climate goals that this legislation will, if passed, make it much more difficult to meet. Hawai'i has set a goal of reducing electricity consumption by 4,300 GWh by 2030 through measures such as building retrofits, construction policies, energy saving technologies, and energy saving practices; this legislation runs directly counter to that goal.[10] More generally, Hawai'i is not currently on track to meet its climate goals of reducing emissions 50% below 2005 levels by 2030, and achieving net-zero by 2045.[11] Energy codes and standards and the efficiency gains they deliver are tools in the toolbox that Hawai'i can use to get back on track and keep emissions in line with these goals. Mandating longer lag times between energy code updates can then be seen as an active hinderance toward meeting these climate goals.

Updating Energy Codes is not the Primary Driver of Construction Costs:

---

[1] https://public.tableau.com/app/profile/doebecp/viz/HistoricalModelEnergyCodeImprovement/CombinedHistoricalCodeImprovement_1
[2] https://www.ashrae.org/file%20library/about/government%20affairs/public%20policy%20resources/briefs/climate-change-and-the-built-environment_2023.pdf
[3] https://www.energycodes.gov/sites/default/files/2021-07/EED_1365_BROCH_StateEnergyCodes_states_HAWAII.pdf
[4] https://www.energycodes.gov/sites/default/files/2021-07/HawaiiResidentialCostEffectiveness_2021.pdf
[5] https://www.energycodes.gov/sites/default/files/2021-07/Cost-effectiveness_of_ASHRAE_Standard_90-1-2019-Hawaii.pdf
[6] https://www.energycodes.gov/sites/default/files/2021-07/Cost-effectiveness_of_ASHRAE_Standard_90-1-2019-Hawaii.pdf
[7] https://www.energycodes.gov/sites/default/files/2021-07/HawaiiResidentialCostEffectiveness_2021.pdf
[8] https://www.energycodes.gov/sites/default/files/2021-07/EED_1365_BROCH_StateEnergyCodes_states_HAWAII.pdf
[9] https://www.eia.gov/state/?sid=HI#tabs-1
[10] https://climate.hawaii.gov/hi-mitigation/
[11] https://health.hawaii.gov/cab/files/2023/05/2005-2018-2019-Inventory_Final-Report_rev2.pdf

There are many causes of high housing costs, and it would be outside our area of professional expertise to speak authoritatively on them. However, we can point to many counter examples of states that adopt the newest energy standard on cycle and have substantially lower housing and construction costs than Hawai‘i , indicating that at most energy standards and codes are a marginal factor in Hawai‘i ’s housing crisis. For example, Montana, Florida, and Oregon all update to the newest edition of ASHRAE’s 90.1 energy standard like clockwork. This legislation cites the median price of a single-family home in Hawai‘i as $825,000. This can be compared to $609,900 in Montana, $405,00 in Florida, and $490,200 in Oregon.[12] More generally, we know that there is substantial return on investment when it comes to building codes: up to date model building codes save $11 for every $1 invested through disaster mitigation benefits.[13] Additionally, a study has shown that the lower utility bills delivered by using up-to-date energy codes reduce mortgage default rates by about a third.[14] Finally, numerous case studies have shown that updating to modern and more stringent building safety codes and energy codes is not associated with an increase in housing and construction costs.[15,16,17]

In conclusion, ASHRAE strongly believes that the adoption and enforcement of the most up-to-date building codes and standards creates a safe, healthy, and sustainable built environment for all. Furthermore, ASHRAE believes that the continued timely adoption of our 90.1 energy standard is a crucial component of Hawai‘i ’s climate change mitigation efforts. This legislation, while well intentioned, would unfortunately result in an outdated body of codes and standards in Hawai‘i and create several associated negative externalities to the detriment of the state’s economy, environment, and residents. On behalf of our more than 250 members in Hawai‘i , thank you for your consideration of ASHRAE’s comments.

Sincerely,

Ginger Scoggins
ASHRAE President

Justin Choriki
ASHRAE Hawai‘i Chapter President

Kevin Luoma
ASHRAE Hawai‘i Chapter Government Affairs Chair

[12] https://www.bankrate.com/real-estate/median-home-price/#median-price-by-state
[13] https://www.fema.gov/sites/default/files/2020-11/fema_building-codes-save_brochure.pdf
[14] https://www.imt.org/wp-content/uploads/2018/02/IMT_UNC_HomeEEMortgageRisksfinal.pdf
[15] https://nehrp.gov/pdf/NIST%20GCR%2014-917-26_CostAnalysesandBenefitStudiesforEarthquake-ResistantConstructioninMemphisTennessee.pdf
[16] https://www.sciencedirect.com/science/article/abs/pii/S2212420917302819
[17] https://headwaterseconomics.org/wp-content/uploads/building-costs-codes-report.pdf