



August 12, 2022

Department of Energy Resources (DOER)
100 Cambridge Street, Suite 1020
Boston, MA 02114
Email: stretchcode@mass.gov

Re: **Building Code Comments**

Dear Commissioner Woodcock, Secretary Card, and Secretary Kennealy,

On behalf of the Boston Society of Architects (BSA), I am writing to support DOER in developing a specialized stretch energy code that ensures the Commonwealth can meet building sector emissions targets while also making buildings a core climate mitigator and protector of our health.

The BSA is the second largest AIA chapter in the country, representing over 4,500 architects, designers and those in the design and building professions. Our members are already hard at work designing net zero buildings throughout the Commonwealth and beyond. These buildings are better for our environment, the people that occupy them and for our future. We want to help ensure that Massachusetts building codes reflect its commitment to a carbon free future.

First, we want to thank DOER for the revisions that were made to the specialized stretch energy code after the 1200 comments that were submitted in March on the straw proposal. Thank you for listening to the Commonwealth residents by making several key improvements in the revised code language which include:

1. Incorporating the industry-standard definition of net zero building and the optional pathway found in 2021 Base Code Appendix, also known as the Zero Code, advanced by AIA 2030 and endorsed by the national AIA.
2. Requiring multi-family projects greater than 12,000 sf to meet Passive House standards.
3. Forming a Technical Advisory Committee with expertise in building codes and climate resilient buildings.

The climate bill signed by the Governor yesterday is will accelerate the transition to clean energy and it is a great step for Massachusetts! This bill is necessary, but also insufficient to accelerate the scale of net zero construction and renovations. A statewide opt-in net zero building code is urgently needed to transform buildings from polluters to protectors of our health and the climate. **A robust opt-in specialized stretch code is needed to electrify ALL buildings, new construction and renovations.** Below are our broad recommendations, followed by more specific ones.

- A. The definition of net zero needs to specify that net zero be met on day one of building operation.
Relying on building modifications to achieve net zero over time is far more expensive and disruptive, and results in greater carbon emissions. We must achieve carbon neutrality goals today, we cannot afford to wait.

- B. Electrification is critical to get to net zero and it is especially important that it be included in the special opt-in stretch code. We recognize that there will need to be exceptions for certain building types (such as laboratories and healthcare facilities) and for certain building systems (such as back-up heating and power), but most building types and building systems can readily achieve all-electric today. Our members have designed many all-electric buildings. In addition, studies (such as the Built Environment Plus MA is Ready for Net Zero Report and the DOER's own Stretch Code Technical Analysis) have shown that all-electric solutions are viable and cost effective today. As noted above, it is far more expensive and disruptive to retrofit buildings in the future.

- C. Embodied Carbon must be addressed.
The deleted embodied carbon provisions must be restored and more broadly applied. Embodied carbon had only been mentioned under the pathway for commercial buildings and large-scale multifamily, and within that pathway, only for curtain wall buildings. But even that language and any requirements related to embodied carbon reporting and/or reductions seems now to have been removed in the most current draft. In order to meet our state and local climate goals, we must reduce the embodied carbon in all buildings, *under all pathways*. More than half of GHG emissions are related to materials management across all sectors and as building operations become more efficient, embodied carbon becomes more significant. The path to a true zero carbon built environment includes both reducing operating energy/carbon and the embodied energy/carbon in the materials we build with.

The BSA also submits the following, more specific comments:

- 1. Clarify that thermal bridging requirements found in the stretch code and the specialized opt-in stretch code also apply to the base code. These requirements are currently missing from the base code.

- 2. Clarify and define modeling protocols for TEDI metrics to avoid confusion in reporting.

- 3. Consider clarifying the design parameters (such as ASHRAE 99% outdoor air temperature and zero internal plug loads, or 25% of installed heating system capacity) for the 25% percent electrification requirement for heating systems.

4. Provide more flexibility in ventilation rates (currently limited to 135% of ASHRAE 62.1 values) and add a reference to ASHRAE 170 ventilation rates for healthcare facilities. Studies show that ventilation is a key health indicator for building occupants and placing a stringent cap on this will not allow for the healthiest outcomes.
5. For building change of use, the code should consider the impact of embodied carbon increase versus operational carbon reduction. (For example, if a building changes from office to lab and is required to replace the entire building envelope, this may do more damage related to embodied carbon increase than the benefit it offers in operational carbon reduction.
6. Allow more flexibility in terms of means and methods when requiring a building to be wired for future electrification. Right now the code is very restrictive on where and how a building would be electric ready and that may not reflect the manner in which the building will actually make this switch. Restrictive requirements work for things like replacing a range in a kitchen, but not for large commercial building heating systems. For example, a large commercial building would ideally replace gas fired boilers in a mechanical room with heat pumps located on the roof (not an electric resistance boiler in the mechanical room).
7. Change the thresholds for capturing renovations in the new requirements to the percent of area being renovated and not the cost of the construction. The measure of the cost of construction benefits wealthier communities and larger projects to the detriment of lower-income communities who are already overburdened with environmental justice issues.

Adopting a strong net zero code is a critical step in the fight against climate change. We must take bold and decisive action now in order to ensure a healthier and more sustainable future. The building professions have the ability to make these changes now and the building code must reflect the seriousness and urgency of these issues. Thank you for your work and for your consideration of our comments.

Sincerely,



Anda French AIA
President 2022, BSA