

I appreciate efforts to update the Massachusetts building codes. It feels that Massachusetts is ahead of most of the country with the addition of the specialized code. I particularly like:

- Large improvements in HERS ratings, and incentives for all electric construction.
- Recognition that improved TEDI allows cost effective all electric construction.
- Addition of specialized opt-in code to be consistent across the state.
- Urban infill multi-family housing close to transit can greatly assist in achieving a net-zero economy in 2050 while not meeting a net-zero on-site building definition at the building level.
- Existing buildings: Alterations, Additions and Changes of use to bring additions, and entire structures in some cases, up to code with much improved HERS specification. To prevent multiple small additions circumventing the code, suggest enhancing R502.1.1 to “Additions to a dwelling unit exceeding 1,000 sq ft or exceeding 100% of the **smallest** conditioned floor area **in the previous 10 years**”

But is the specialized code still too incremental? New construction built under any of the codes will hardly be old in 2050, so will these codes still be appropriate in 2050 when cruise ships will be going to the North Pole and we'll be looking back on 2022 as one of the cooler summers in recent memory? I doubt it, so suggest that there be more emphasis on zero energy buildings for new construction in the specialized code:

- The updated codes assume that there will be a green grid revolution in the near future that will power both existing fossil fuel intensive buildings and new construction. We should not be putting all our eggs in the green grid basket since there will likely be grid scale solar, wind, and backup hurdles thrown up by the global warming denier crowd, nor should we be making global warming worse waiting for that revolution. With some exceptions, such as urban infill mentioned above, zero energy building should be required for all new construction to reserve the future green grid for existing buildings (75% of total in 2050).
- The Solar-ready zone area specifications need to be improved to encourage optimizing solar area and exposure before the foundation is poured. Orientation and roof area should not be exceptions except in rare cases where roof orientation and design cannot be sufficiently optimized. The goal should be to get the builder to design and orient the structure to allow enough solar production to be onsite net zero.
- Specifying PV system size in kW or kW/ft<sup>2</sup> does not reflect actual PV performance, but performance should be the relevant specification. Codes should specify estimated annual production in kWh or kWh/ft<sup>2</sup>, which solar installers estimate all the time, and let builder determine roof orientation and PV size to meet the specification.
- I did not see any mention of fireplaces in the residential document. New combustion fireplaces shall have tight-fitting flue dampers or doors, and outdoor combustion air as required by the fireplace construction provisions of MA Construction Codes, as applicable. Where using tight-fitting doors on factory-built fireplaces listed and labeled in accordance with UL 127, the doors shall be tested and listed for the fireplace.

I understand there is a lack of affordable housing in Massachusetts and zero energy codes will increase construction costs, potentially making it harder to supply affordable housing. However, as Pennsylvania Housing Authority results seem to show, those costs are small or even negative. But even if construction costs are a percent or two higher, are we really helping the housing situation over the long term if we

continue to install fossil fuel heating systems that will have to be replaced before the roof shingles? Zero energy means minimal to no electric and heating bills that will offset higher construction costs, which is a win for the homeowner/renter and for combating global warming.

Regards,

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