

Massachusetts Building Code Updates for 2023

Ann Berwick, Co-Director of Sustainability

Presentation to Newton City
Council Zoning and Planning
Committee
December 12, 2022



Background

- **Current Stretch Codes**—Incorporated into the updated Base Codes; no longer a stretch.
- **Specialized Codes**—A new thing, required by recent State climate legislation.
- Why it matters:
 - Cities and towns **can't pass their own** building codes.
 - Buildings emit **65%** of Newton's greenhouse gas emissions.
- Adoption of updated residential and commercial Stretch Codes—**automatic** for “Green Communities.”
- Residential and commercial **Specialized Codes**—**require a City Council vote.**

Introduction to Building Codes

- **Residential Codes:** detached one- and two-family dwellings and attached single-family dwellings, such as townhouses.
- **Commercial Codes:** all other buildings, including all mixed use and residential buildings.

Introduction to the Specialized Code

- The Specialized Stretch Codes must be **available for adoption by December 24, 2022.**
- DOER recommends that the requirements of the Specialized Code take effect beginning on the **January 1 or July 1 that is at least six months after** the City Council vote.

Updated Residential Stretch Code and Specialized Code

- **Specialized Code: preferences all-electric homes and homes < 4,000 sf.**
- **All-electric homes** of any size: Specialized Code = Stretch Code.
- **Fossil fuel homes:** If $\leq 4,000$ sf, Specialized Code is only **slightly more stringent** than the updated Stretch Code.
- **Fossil fuel homes:** If $> 4,000$ sf, Specialized Code is **significantly more stringent** than the updated Stretch Code (all-electric or HERS 0 with pre-wiring for electrification, onsite solar).
- The HERS numbers for larger alterations, additions, or changes of use are the same as the HERS numbers for the updated Stretch Code prior to July 1, 2024; smaller home changes continue to follow the Base Code.

Building Size	On-site fuel type	Updated Stretch Code Jan 1, 2023	Updated Stretch Code July 1, 2024	Specialized Code	Renewable generation: Updated Stretch Code	Renewable Generation: Specialized Code	Current Stretch Code (same as updated Base Code)
≤4,000 sf	All-electric	HERS 55	HERS 45 or Passive House	HERS 45 or Passive House	Panels optional/solar-ready required	Panels optional/solar-ready required	HERS 60
≤4,000 sf	Fossil fuels	HERS 52	HERS 42 or Passive House	HERS 42 or Passive House + pre-wiring (& sufficient service & space)	Panels optional/solar-ready required	Solar PV if HERS pathway (except shaded sites; Passive House required to be solar ready)	HERS 55
>4,000 sf	All-electric	HERS 55	HERS 45 or Passive House	HERS 45 or Passive House	Panels optional/solar-ready required	Panels optional/solar-ready required	HERS 60
>4,000 sf	Fossil fuels	HERS 52	HERS 42 or Passive House	HERS 0 or Phius Zero + pre-wiring (& sufficient service & space)	Panels optional/solar-ready required	Solar PV if HERS pathway, or other renewables	HERS 55

Updated Commercial Stretch Code

Building Categories and Pathways

Specifies four categories of buildings, with various compliance pathways available to different categories:

- Offices, residential, schools over 20,000 sf, and certain types of adjacent buildings (must use TEDI or Passive House);
- High-ventilation buildings such as labs and hospitals, multi-family buildings;
- Small commercial buildings (any small building use except multi-family);
- Larger multi-family buildings.

Passive House pathway available as an option for all building types.

Updated Commercial Stretch Code

Efficiency, Electrification

- **Reduces demand for heating and cooling** relative to current Stretch Code, by focusing on:
 - Energy efficiency requirements
 - Full or partial electrification depending on compliance pathway chosen
- **Strengthened requirements** for:
 - Air leakage
 - Thermal bridges
 - Economizers
 - Ventilation energy requirements
- Full or partial **electrification of space heating**, depending on the compliance pathway chosen.
- Full electrification of space heating for highly glazed buildings.

Updated Commercial Stretch Code

Building Additions

- Unlike current Stretch Code, the updated Stretch Code **applies to building additions, alterations, and changes of use or occupancy**, not just new construction.
 - But continues to allow building additions that are <20,000 sf to follow the Base Code.
- **Eliminates an existing exception** in the Base Code, which allows exterior walls that have any amount of insulation to remain non-code compliant.

Commercial Specialized Code

Multi-family Buildings and Others

- Maintains **same energy efficiency requirements** as the updated Stretch Code for all building categories **except multi-family**.
- Multi-family buildings must:
 - Follow updated Stretch Code requirements;
 - Be electrification-ready;
 - Follow Passive House compliance pathway.

Commercial Specialized Code

Buildings other than multi-family buildings have choice of three compliance pathways:

- **All-electric buildings:** only electric equipment meeting minimum efficiency standards.
- **Mixed-fuel buildings:** minimum efficiency requirements for space and water heating, solar PV if on-site solar potential, preparation for future electrification.
 - Not clear, but appears that large water heaters, commercial restaurant cooking, and commercial drying equipment used for manufacturing and process loads are excepted.
- **Zero Energy Buildings:** net-zero energy on an annual basis, except for energy required for back-up power and EV charging. Demonstrated only with on-site renewable generation; must meet minimum energy efficiency requirements prior to use of renewable offsets.

Updated Building Codes: EV Requirements

	Updated Stretch Code	Specialized Code
Residential	One space per home pre-wired for charging	Same as updated Residential Stretch Code
Commercial	20% of new business and residential spaces pre-wired for charging for Groups R & B*, 10% for others	Same as updated Commercial Stretch Code

* See <https://codes.iccsafe.org/content/IBC2021P2/chapter-3-occupancy-classification-and-use> for long list of uses in Groups R & B, e.g., hotels, halfway houses, barber shops, print shops.