

Massachusetts Building Code Updates for 2023

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Council Zoning and Planning
Committee
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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) |
|-----------------|-------------------|----------------------------------|-----------------------------------|--|--|--|--|
| $\leq 4,000$ 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 |
| $\leq 4,000$ 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.

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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.

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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.

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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.

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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.