



MASSACHUSETTS
**DEPARTMENT OF
ENERGY RESOURCES**

MA Stretch Code & Specialized Code

Summary of energy code updates
effective 14 February 2025



3 tiers of Energy Code

available to MA towns & cities:

Massachusetts "Opt-In" Energy Codes

Stretch Code

IECC 2021
w/ key MA amendments:
225 CMR Chapter 22 (residential)
225 CMR Chapter 23 (commercial)

61% population
New Construction,
Major Alterations &
Additions

253 municipalities

Specialized Code

IECC 2021
w/ key MA amendments:
**225 CMR Chapter 22 +
Appendix RC** (residential)
**225 CMR Chapter 23 +
Appendix CC** (commercial)

30% population
New Construction Only
Reference Stretch Code for
existing buildings

48 municipalities

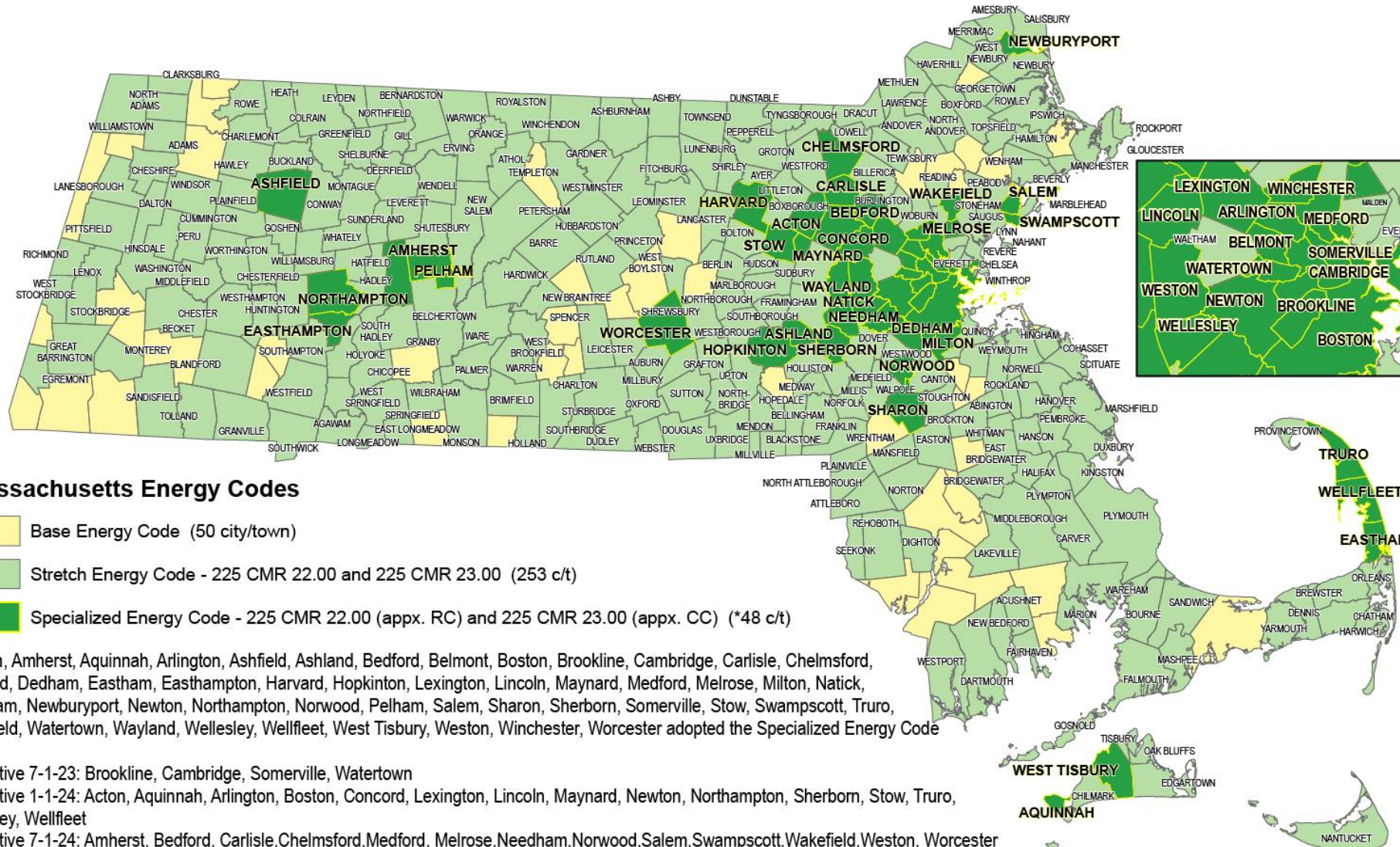
Base Code

IECC 2021 (10th edition*)
w/ MA amendments:

9% population

50 municipalities

Massachusetts Building Energy Code Adoption by Municipality



Massachusetts Energy Codes

- Base Energy Code (50 city/town)
- Stretch Energy Code - 225 CMR 22.00 and 225 CMR 23.00 (253 c/t)
- Specialized Energy Code - 225 CMR 22.00 (appx. RC) and 225 CMR 23.00 (appx. CC) (*48 c/t)

* Acton, Amherst, Aquinnah, Arlington, Ashfield, Ashland, Bedford, Belmont, Boston, Brookline, Cambridge, Carlisle, Chelmsford, Concord, Dedham, Eastham, Easthampton, Harvard, Hopkinton, Lexington, Lincoln, Maynard, Medford, Melrose, Milton, Natick, Needham, Newburyport, Newton, Northampton, Norwood, Pelham, Salem, Sharon, Sherborn, Somerville, Stow, Swampscott, Truro, Wakefield, Watertown, Wayland, Wellesley, Wellfleet, West Tisbury, Weston, Winchester, Worcester adopted the Specialized Energy Code

- Effective 7-1-23: Brookline, Cambridge, Somerville, Watertown
- Effective 1-1-24: Acton, Aquinnah, Arlington, Boston, Concord, Lexington, Lincoln, Maynard, Newton, Northampton, Sherborn, Stow, Truro, Wellesley, Wellfleet
- Effective 7-1-24: Amherst, Bedford, Carlisle, Chelmsford, Medford, Melrose, Needham, Norwood, Salem, Swampscott, Wakefield, Weston, Worcester
- Effective 1-1-25: Ashfield, Ashland, Belmont, Dedham, Eastham, Easthampton, Harvard, Hopkinton, Milton, Sharon, Wayland, West Tisbury
- Effective 7-1-25: Natick, Newburyport, Pelham (9-1-25), Winchester

Residential Low-Rise Stretch Code

Compliance Pathways:

New Construction Permits - IECC/Stretch Code Chapter 4:

New Dwelling units	HERS rating
Group R1 transient use e.g. hotel/motel	Prescriptive (REScheck)
Any building	Passive House (Phius or PHI)

Existing Building Permits - IECC/Stretch Code Chapter 5:

Major additions, Major alterations, Change-of-use	HERS rating
Small additions, Small alterations, <i>Historic buildings</i> , Group R1: alterations, additions	Prescriptive (REScheck)
Any building	Passive House (EnerPHit, PHI or Phius)

Significant Updates:

Residential Low-Rise

The following are some of the more notable changes from the 2023 Stretch Code found in the **2025 Stretch Code update**:

HERS rating updates:

1. **HERS credit for embodied carbon** in new construction: 3 HERS points for either insulation or concrete
2. **ADU HERS maximum** for Accessory Dwelling Units: HERS 52-58
3. **HERS ratings for existing building** permits in Chapter 5 are relaxed: HERS 65-75
4. **Exception for historic homes** allows them to follow the prescriptive path

Prescriptive path updates:

5. **Ceiling R-value** reduced from R-60 to R-49
6. **SHGC for windows** – no maximum required

Updates to Residential HERS Rating Requirements

TABLE R406.5 MAXIMUM ENERGY RATING INDEX

Clean Energy Application	Maximum HERS Index score ^{a,b}				
	New construction until June 30, 2024	New construction permits after July 1, 2024	New Construction with R406.5.2 embodied carbon credit	Accessory Dwelling Units	Major alterations, additions, or change of use ^c
<i>Mixed-Fuel Building</i>	52	42	45	52	52 65
Solar Electric Generation	55	42	45	55	55 70
<i>All-Electric Building</i>	55	45	48	55	55 70
Solar Electric & <i>All-Electric Building</i>	58	45	48	58	58 75

^a Maximum HERS rating prior to onsite renewable electric generation in accordance with Section R406.5

^b The building shall meet the mandatory requirements of Section R406.2, ~~and the building thermal envelope shall be greater than or equal to the levels of efficiency and SHGC in Table R402.1.2 or Table R402.1.4 of the 2015 International Energy Conservation Code.~~

^c Alterations, Additions or Change of use covered by Section R502.1.1 or R503.1.5 are subject to this maximum HERS rating, ~~except for Historic Buildings which may opt to follow R503.1.1 for alterations, additions, and change of use.~~

Summary of Other Updates:

Stretch code: Residential Low-Rise

1. **R403.6 Ventilation requirements:** Now reference AHRI standard 1060.
2. **R404.4 EV ready spaces:** Now allows NACS(Tesla) or J1772 EV charger, or NEMA electric outlet.
3. **R405.2 Passive House certification:** Revised language/corrected wording for PHI and Phius certifications.
4. **R405.3 Near Passive House documentation:** Compliance path for projects narrowly failing Passive House certification.

Stretch code: Existing Building Alterations

1. **R501.2 & R506 Adds EnerPHit compliance option** for existing building permits.
2. **R503.1.1 Exception allows min. of R-3.7/inch insulation** in exposed cavities.



Specialized Code - updates

Specialized Code – Residential Low Rise

HERS updates similar to Stretch code: Embodied Carbon Credit and ADU specific HERS Rating limit

TABLE RC102.2 MAXIMUM HERS RATING INDEX^a

FUEL USAG E	HERS INDEX not including OPP	HERS INDEX not including OPP, with embodied carbon credit^b	Accessory Dwelling Unit HERS INDEX not including OPP	HERS INDEX including OPP
All Electric	45	48	55	0
Mixed- Fuel	42	45	52	0

Commercial Specialized Code

(225 CMR Chapter 23 Appendix CC)

Commercial SPECIALIZED CODE has a number of modest scoping updates:

CC102.1 Definitions. Six (6) additional definitions are added to the Specialized Code in order to better convey the code requirements.

CC105.2 On-site renewable energy. Recognizing that **high ventilation buildings** on constrained urban sites will not have significant roof area (due to extra HVAC equipment) or surrounding area to install on-site renewable energy systems, Exception 2 is added to reduce the requirements of this section for this building type.

CC105.3 Additional Efficiency Requirements. Updates to new testing standards (no increase or decrease in performance). Adds an exception for **district energy systems** (both heat recovery enabled and non heat recovery enabled) as these testing standards are not applicable to the large DES equipment typically used.

CC106 Additional electric infrastructure. Adds a new exception that allows **district energy systems** that are operating under an order of conditions by DOER relief from electrification requirements of mixed fuel pathway of Specialized Code. This is available to both heat recovery enabled and non-heat recovery enabled DES systems.



Stretch Code - Commercial (and all other) updates

Commercial Stretch Code Updates (225 CMR Chapter 23)

Commercial STRETCH CODE has a number of modest scoping updates:

C103 Construction Documents: Adds/clarifies where various compliance and documentation tools are used for thermal bridge derating, with updated guidance on use of COMcheck. Also adds documents for District Energy System projects seeking eligibility for a DOER order of conditions.

C202 Definitions: 3 definitions are added in support of new code references to **District Energy**. Also, adds several new technical terms related to **ventilation energy recovery** and **efficient electrification**, and adds SAE J3400, the NACS/Tesla charging standard, as an option for **EV charging**.

C401.2.4 Mixed use buildings: Exception added to allow **parking garages or other low-energy spaces** not intended to be conditioned for human comfort to follow the Prescriptive Compliance pathway. Designers and energy modelers were previously having a difficult time applying the Targeted or Relative Performance pathways to these portions of a larger building.

Commercial Stretch Code Envelope Updates

Commercial STRETCH CODE updates to Envelope (C402):

C402.1.4.1.1 & C402.2.1.1 Tapered, above-deck insulation based on thickness: It was brought to our attention that the best way to determine the average insulation R-value of a sloped/tapered section of insulation was by taking the value at a point 1 inch thicker than the minimum thickness of the assembly.

C402.1.5.1 Low glazed wall system buildings: Provides an exception that lowers the performance requirements in order to more easily allow existing buildings to undertake a **change-of-use from commercial to residential**. Additionally, the Exception's reference is changed from R405 to C407.4 to stay within the commercial chapter.

C402.4 Fenestration. Addresses an existing issue for designers and builders on how to determine the U-factor on revolving doors since these values are not provided by the manufacturers.

C402.4.6.2 Calculated performance. This is amended to allow for non-standard product sizes to be properly calculated. This was requested by energy modelers.

C402.5.1.2 Air barrier construction: IECC 2021 amended with item 5, to ensure that proper air sealing occurs around the perimeter of all electrical/communication boxes set in walls.

Commercial Stretch Code

Mechanical Updates

Commercial STRETCH CODE updates to Mechanical and Electrical (C403 & C405):

C403.3.2 Approved Software Calculation Tables (8) and (9); Updates the reference tables for VRF air conditioners (table 8) and heat pumps (table 9) from IECC 2021 to IECC 2024 versions to reflect recent changes in the testing standards used.

C403.7.4. Energy Recovery Systems. Enthalpy Recovery Ratio and Sensible Energy Recovery Ratios are better defined in these sections per feedback from various HVAC public comments. The required values and ventilation rates are fine-tuned per this feedback as well.

C405.13 EV Ready Spaces. Adds Tesla (NACS) standard as a charging option.

Commercial Stretch Code

C406 Credit Options

Commercial STRETCH CODE updates to credit options (C406):

C406.1 Additional energy efficiency credit requirements. **Embodied carbon credits** are added as additional options to the commercial code in response to several requests received in public comments.

C406.13 Low GWP concrete mix. This section is added to provide an embodied carbon credit incentive in accordance with C406.1.

C406.14 Net zero GWP insulation. This section is added to provide an embodied carbon credit incentive in accordance with C406.1.

C406.2.3. Renewable space heating. This section is amended to state that electric resistance shall not be used except for defrost function, and to note that the COP value at 5F shall be the COP of the outdoor unit of the cold-climate air source heat pump.

Commercial Stretch Code

District Energy Systems

Commercial STRETCH CODE updates to District Energy Systems (C407.2):

C407.2.1 Electrification and documentation for highly ventilated buildings. An exception is added that allows District Energy Systems (DES) that include an **inter-building heat recovery** function (a DES that is able to use excess heat from one building for useful heating in other buildings) to be exempted from the partial electrification requirement for highly ventilated buildings. Examples of DES's that are planning to include inter-building heat recovery include: Harvard University, Tufts University, and some state-owned systems, and typically requires conversion of building HVAC systems to be compatible. This has received strong support from various DES stakeholders.

Commercial Stretch Code

Passive House & HERS

Commercial STRETCH CODE updates to Passive House + HERS performance paths (C407.3 & C407.4):

C407.3 Passive House. DOER received a lot of feedback on the specific wording for both Phius and PHI compliance, in addition to a large amount of support for a “third option” for compliance. This “third option” will allow projects to proceed through funding and final occupancy, where projects narrowly fail to meet the full Passive House certification standards but still exceed other building code performance pathways.

C407.4 HERS Index for multi-family buildings. The HERS ratings are relaxed to incentivize the use of embodied carbon credits, and ease the requirements on for major alterations, additions or change-of use projects. This has received broad and very positive feedback. A note has been added to Table C407.4 allowing historic buildings to follow the prescriptive compliance pathway. Finally, references to residential chapters in the footnotes are updated to reference commercial chapters at the request of designers.

Commercial Stretch Code

HERS Rating Requirements

TABLE C407.4 MAXIMUM ENERGY RATING INDEX

Building Clean Energy Application Sources	Maximum HERS Index score ^a			
	New Construction until June 30, 2024	New construction permits after July 1, 2024	New Construction with R406.5.2 embodied carbon credit ^c	Major alterations, additions, or Change of use ^b
<i>Mixed-Fuel Building</i>	52	42	45	52 55
Solar Electric Generation	55	42	45	55 58
<i>All-Electric Building</i>	55	45	48	55 58
Solar Electric & <i>All-Electric Building</i>	58	45	48	58 61

^a Maximum HERS rating prior to onsite renewable electric generation in accordance with Section C407.4

^b Alterations, Additions or Change of use covered by Sections C502, C503 or C505 ~~R502-1.1 or R503-1.5~~ are subject to this maximum HERS rating, except for Historic buildings which may opt to follow the prescriptive compliance pathway in C401 as applicable.

^c New multi-family and mixed-use buildings may follow Sections R406.5.2 – R406.5.4 from 225 CMR 22 (Residential Stretch code) to demonstrate eligibility where applicable.

Commercial Stretch Code

Existing Buildings (Chapter 5)

Commercial STRETCH CODE updates to existing building alterations, additions and change-of-use permits (IECC Chapter 5):

C502.3.7 Air Infiltration Testing. Clarifies that air infiltration testing on additions is for the addition only.

C503.1 General. Clarifies how and when **Alterations** trigger the requirements of Chapter 4. Most of the text is from IECC 2021, but item 7 is added to allow limited openings into walls without having to then upgrade the entire structure.

C503.2.4 Derating and Thermal Bridges. This new provision allows thermal bridges that are inaccessible to not have to count toward derating calculations.

C505.1 General. This **Change-of-use** text from IECC 2021 is amended to add the term “total modeled annual” before both “fossil fuel use” and “energy use”. The unamended text was vague and created some confusion. This update allows many tenant fit outs to occur without triggering the entire building envelope to be upgraded. Further, an exception is added that allows new windows (and upgrading the thermal quality of the connection of the window to surrounding wall) without triggering a whole envelope upgrade.

C506 EnerPHit Standard. Added in response to stakeholders requesting that the EnerPHit Standard (a PHI version of Passive House for existing buildings) be sanctioned within the code.

TIMELINE:

Updates effective February 14, 2025

- **Summer 2024:** Posted draft guidelines for public comment
- **Fall 2024:** Submitted Draft regulations to Joint TUE committee and posted on the DOER website for public review
- **Fri 14 Feb 2025:** Secretary of State promulgated updated regulations

UPDATES TO TECHNICAL GUIDANCE

- Timeline for updated Technical Guidance documents is late March 2025 through June 2025
- New Technical guidance materials:
 - Calculation of embodied carbon credits (R406 HERS & C406 options)
 - Templates for District Energy Systems - DOER order of conditions application
 - Revised/expanded case studies for residential additions/alterations



MASSACHUSETTS
**DEPARTMENT OF
ENERGY RESOURCES**

Thank You!

Upcoming Trainings:



Feb
26
2025

Residential Stretch Code Mandatory Requirements Part 2

Timing: Wednesday, February 26th @ 1:00pm – 2:00pm EDT

Location: Online - Webinar

This is a one hour webinar covering the Residential Stretch Code-Mandatory Requirements.

[View Details](#)

*On-line
training
tomorrow!*

email anytime for help:

stretchcode@mass.gov

or

psdtraininghelpma@psdconsulting.com

Go here to find more info on more trainings:

www.masssave.com/en/trade-partners/events-and-trainings-calendar?page=1

Updates to Specialized Multi-Family Incentives for Passive House

Building Type	Fuel Type	Stretch Code	Specialized Code
New Multi-Family 4+ stories & >12,000 sf	All Electric	HERS 45 or TEDI or Passive House	Passive House
	Mixed Fuel	HERS 42 or TEDI or Passive House	Passive House + wiring for electrification



↓

Incentive structure for
Multi-Family (5 units or more)

- \$5,000** : Feasibility study
- \$500/unit** : Energy modeling
- \$750/unit** : Pre-Certification
- \$3,000/unit** : Certification

↓

= \$3,750 per unit



Stretch Code - Residential detailed updates

Updates to Residential Prescriptive Insulation R (& U) Values

TABLE R402.1.3 INSULATION MINIMUM R-VALUES AND FENESTRATION REQUIREMENTS BY COMPONENT^a

CLIMATE ZONE	FENESTRATION U-FACTOR ^f	SKYLIGHT U-FACTOR	GLAZED FENESTRATION SHGC ^{d,e}	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE ^b	FLOOR R-VALUE	BASEMENT ^{c,g} WALL R-VALUE	SLAB ^d R-VALUE & DEPTH	CRAWL SPACE ^{c,g} WALL R-VALUE
5 and Marine 4	0.30 ⁱ	0.55	0.40 NR	60 49	30 or 20&5ci or 13&10ci or 0&20	13/17	30	15ci or 19 or 13+5ci	10ci, 4 ft	15ci or 19 or 13+5ci

Applications: Small Additions / Alterations / Historic Buildings

Updates to Residential Prescriptive changes

R503.1.1 Revise Exception 2 as follows:

R503.1.1 Building envelope. Building envelope assemblies that are part of the *alteration* shall comply with Section R402.1.2 or R402.1.4, Sections R402.2.1 through R402.2.12, R402.3.1, R402.3.2, R402.4.3 and R402.4.5.

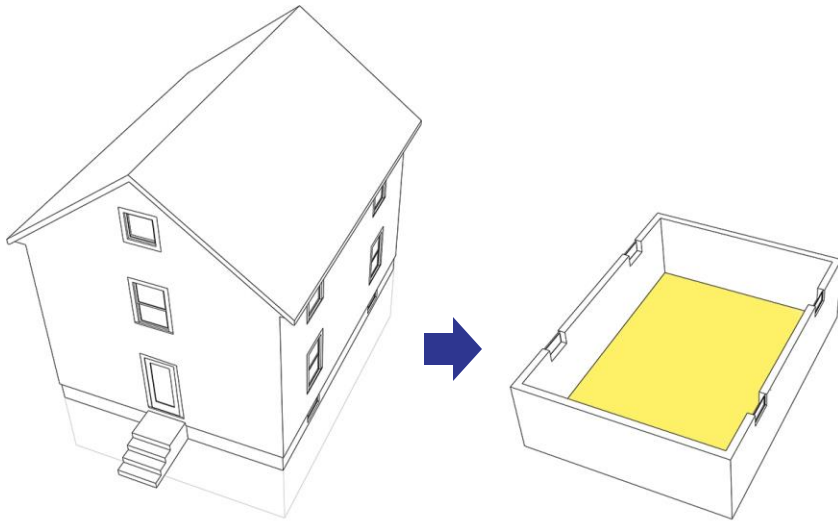
Exception: The following alterations shall not be required to comply with the requirements for new construction provided that the energy use of the building is not increased:

1. Storm windows installed over existing fenestration.
2. Existing ceiling, wall or floor cavities exposed during construction provided that these cavities are filled with insulation with a minimum of R-3.7 per inch for the depth of the cavity.
3. Construction where the existing roof, wall or floor cavity is not exposed.
4. Roof recover.
5. Roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above or below the sheathing.
6. Surface-applied window film installed on existing single pane fenestration assemblies to reduce solar heat gain provided that the code does not require the glazing or fenestration assembly to be replaced.

This exception for **Alterations** also applies to **Major Alterations**, **Additions**, or **Change of Use** that would otherwise trigger a HERS rating on Table 406.5 but are determined to be **Historic Buildings** by a governing authority.

Updates to Residential

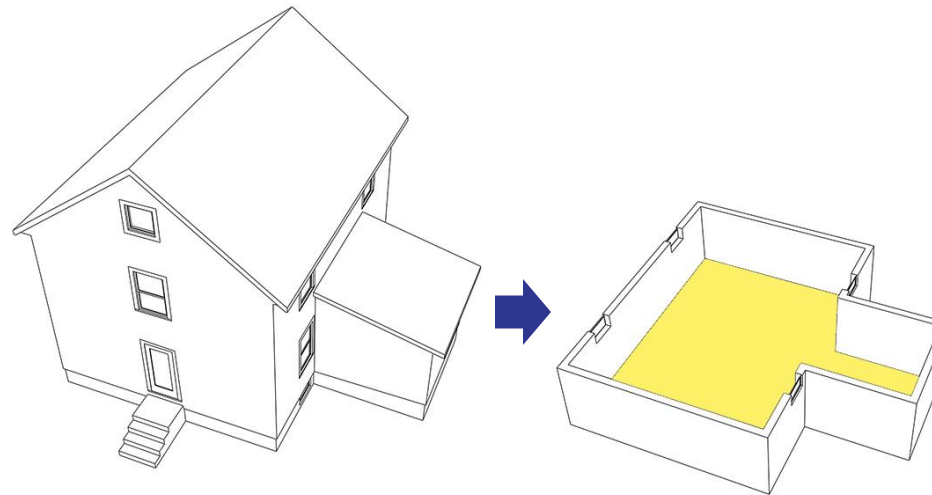
Clarifying When a HERS Rating **is/isn't** Required



An existing house with an unconditioned basement will be remodeled. The basement is 1,200 SF and will be insulated and fully conditioned. This does **NOT** trigger a HERS rating because the existing basement is not growing in SF.

R502.1.1 Large additions. *Additions to a dwelling unit exceeding 1,000 sq ft or exceeding 100% of the existing conditioned floor area, shall require the **combined** dwelling unit to comply with the maximum HERS ratings for alterations, additions or change of use shown in **Table R406.5.***

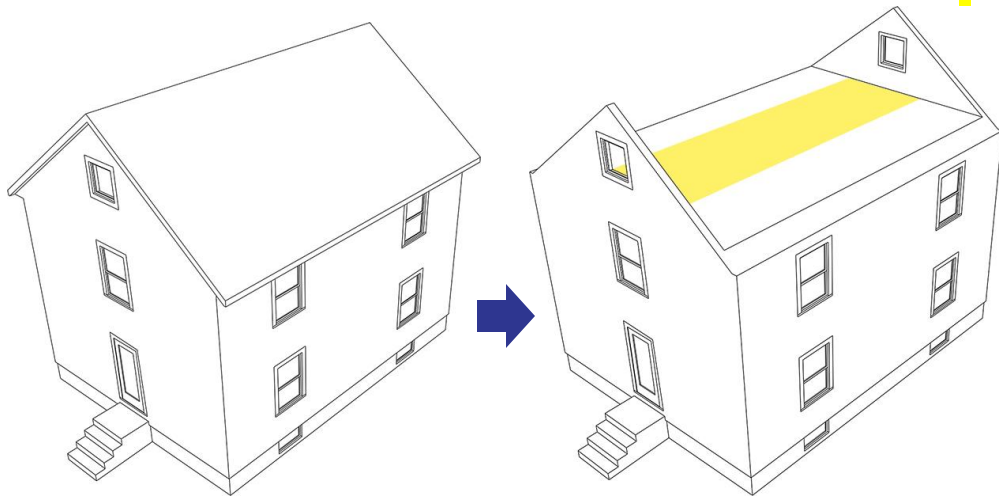
Exception: *Additions that add existing basement or attic spaces to the **conditioned floor area** of an existing dwelling unit due to changing the thermal boundary but not changing the building footprint or roofline do not require a HERS rating.*



If an addition is added to the house with a full basement connecting to the existing basement, and the new larger basement is conditioned, the project **will** require a HERS rating.

Updates to Residential

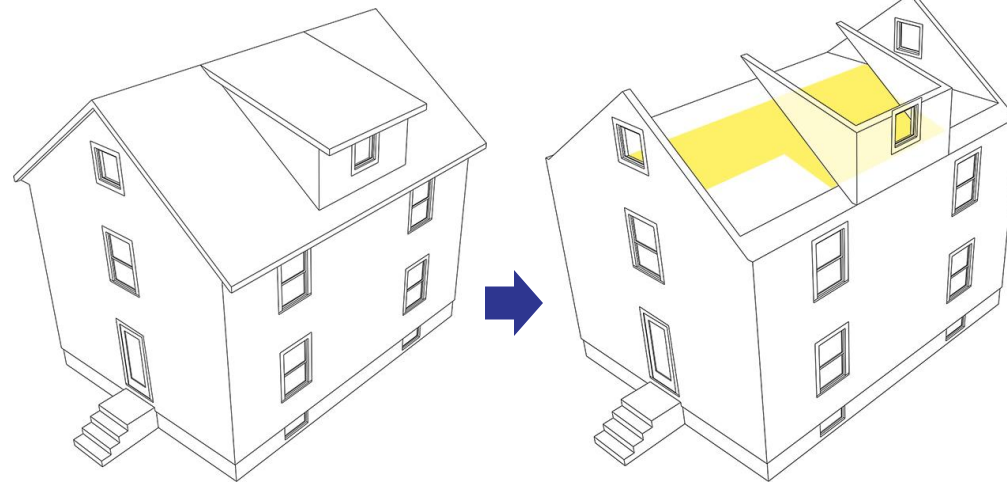
Clarifying When a HERS Rating **is/isn't** Required



An existing attic space, 1200 SF, will be finished and insulated so that it is part of the conditioned building envelope. No changes to the roof will be made to "grow" the space. This does **NOT** trigger a HERS rating.

R502.1.1 Large additions. Additions to a dwelling unit exceeding 1,000 sq ft or exceeding 100% of the existing *conditioned floor area*, shall require the **combined** dwelling unit to comply with the maximum HERS ratings for alterations, additions or change of use shown in **Table R406.5**.

Exception: Additions that add existing basement or attic spaces to the *conditioned floor area* of an existing dwelling unit due to changing the thermal boundary but not changing the building footprint or roofline do not require a HERS rating.



If a dormer is added to the existing roof, thereby increasing the occupiable SF of the existing attic, and the attic is insulated and finished to become part of the conditioned building envelope, this **WILL** trigger a HERS rating.

Updates to Residential

Clarifying When a HERS Rating **is/isn't** Required

R503.1.5 Add new Subsection R503.1.5 as follows:

R503.1.5 Extensive Alterations and Level 3 Alterations. Alterations that meet either of the following criteria shall require the building or *dwelling unit* to comply with the maximum HERS ratings for alterations, additions or change of use shown in Table R406.5:

- 1) Meet the IRC definition for *Extensive Alteration* and that exceeds 1000 sq ft or 100% of the existing conditioned floor area of the dwelling unit for one- and two-family dwellings and multiple single-family dwellings(townhouses).
- 2) Meet the IEBC definition for *Level 3 Alteration* and that exceeds 1000 sq ft or 100% of the existing conditioned floor area of the building area for Group R-2, R-3, and R-4 buildings with three stories or less in height above grade plane, other than one- and two-family dwellings and multiple single-family dwellings(townhouses).

This means if a project satisfies both **a** + **b**, then it triggers HERS:

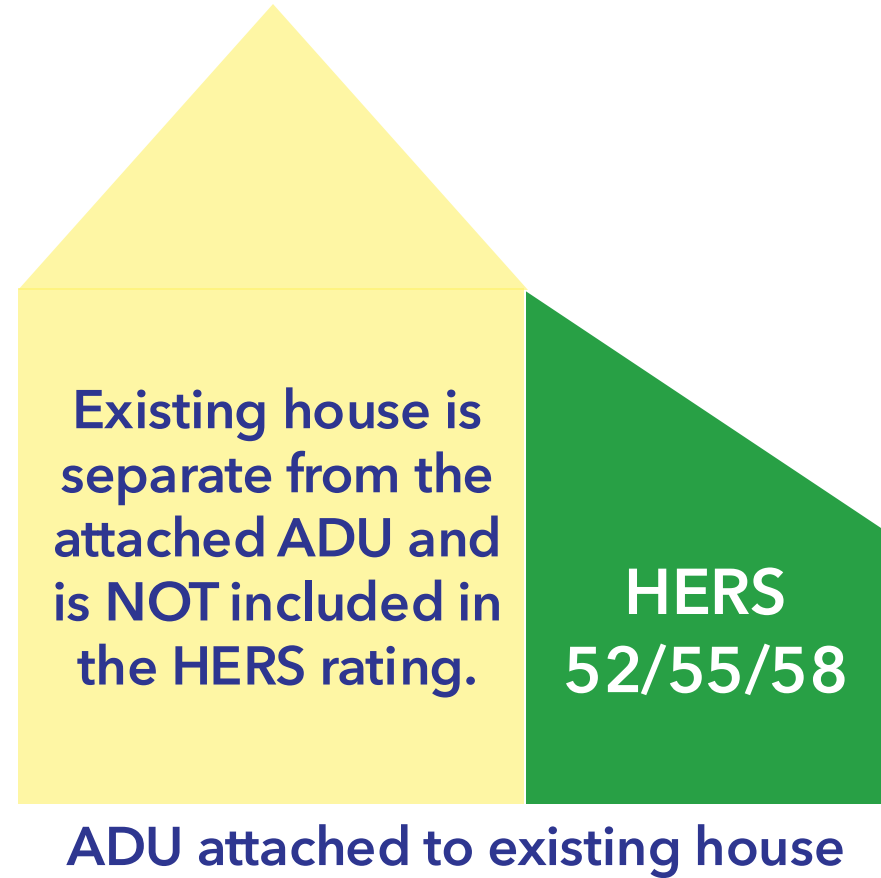
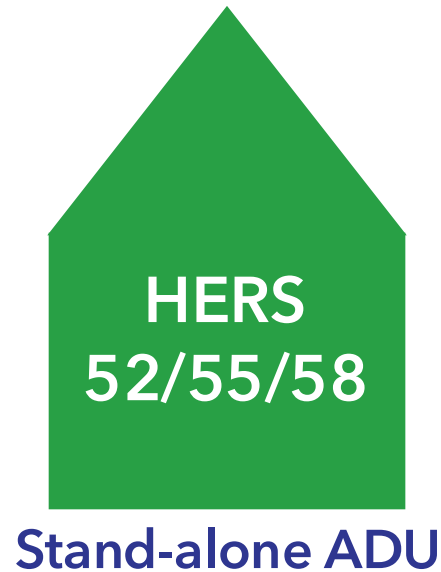
a work area is
>50% of
existing project

+

b Exceeds **1,000 SF**
or
Exceeds **100%** of the existing
conditioned floor area

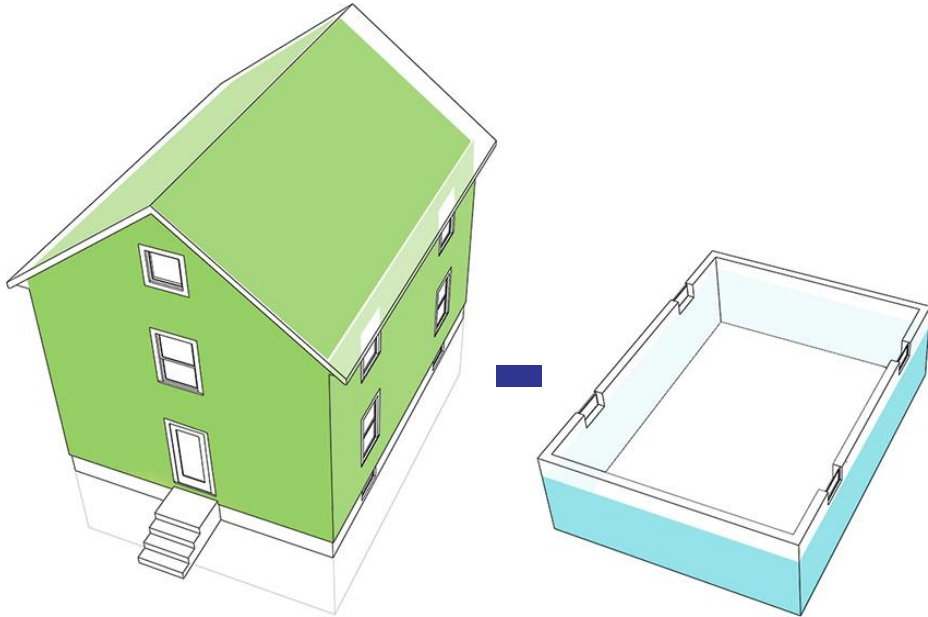
=HERS

Updates to Residential Accessory Dwelling Unit HERS Rating:



Updates to Residential

Bonus 3 HERS points for Embodied Carbon: net zero insulation



Buildings typically use one or two insulation types for above grade walls and ceilings, and different board insulation products below-grade. In order to achieve insulation that is net zero embodied carbon, typically the carbon storage above grade must exceed the carbon content embodied in the below grade insulation.

TABLE R406.5.3 DEFAULT INSULATION GLOBAL WARMING POTENTIAL VALUES

All values are from Building Emissions Accounting for Materials (BEAM)^a, unless noted.

Insulation Material	Default Global Warming Potential (GWP) in Kg CO ₂ e/ sq.m. RSI-1
Cellular glass – Aggregate	3.93 ^b
Cellulose – Densepack	-2.00
Cellulose – Blown/loosefill	-0.90
Cork – Board	-4.30
EPS/graphite – Board, unfaced, Type II – 15 psi	2.30
EPS/graphite – Board, unfaced, Type IX – 25 psi	3.10
EPS – Board, unfaced, Type I – 10 psi	2.50
EPS – Board, unfaced, Type II – 15 psi	3.40

EPS – Board, unfaced, Type II – 15 psi	3.40
EPS – Board, unfaced, Type I – 10 psi	2.50
EPS/graphite – Board, unfaced, Type IX – 25 psi	3.10

DOER will provide a standard calculation sheet, to enter values from Table R406.5.3 or from product EPDs to show the insulation products used by area (Square meters) and then calculate whether the net GWP is positive or negative. Homes where total insulation is net negative earn the 3 bonus HERS points.

Updates to Residential

Bonus 3 HERS points for Embodied Carbon: Concrete

Many of the concrete ready-mix suppliers in Massachusetts have invested in providing Environmental Product Declarations (EPDs) for their concrete ready-mix products. If a project selects ready-mixes that are lower in embodied carbon than the Eastern Region average, shown in Table R406.5.4 then they qualify for 3 bonus HERS points.

Copies of the relevant concrete EPDs must be shared with the HERS rater and building inspector.

R406.5.4 Documentation for low GWP concrete mix credit. In order to apply the low GWP concrete mix credit for one or more new dwelling units, the HERS rater of the unit must submit specific EPDs for concrete used in the unit. Where multiple concrete mixes are used, a complete calculation to summarize estimated embodied carbon emissions from at least 90% of all concrete materials used in the project is required. The output

CAPE COD READY MIX
ENVIRONMENTAL PRODUCT DECLARATION
Mix LW400 • Carver Plant

This Environmental Product Declaration (EPD) reports the impacts for 1 m³ of ready mixed concrete mix, for use in business-to-business (B2B) communication meeting the following specifications:

- ASTM C94: Ready-Mixed Concrete
- UNSPSC Code 30111505: Ready Mix Concrete
- CSA A23.1/A23.2: Concrete Materials and Methods of Concrete Construction
- CSI Division 03-30-00: Cast-in-Place Concrete


COMPANY
Cape Cod Ready Mix
4053 Main Street
Brewster, MA 02631

PLANT
Carver Plant
334 Tremont Street
Carver, MA 02330

EPD PROGRAM OPERATOR
National Ready Mixed Concrete Association
66 Canal Center Pl, Suite 250
Alexandria, VA 22314

NRMCAEPD: 20125

DATE OF ISSUE
12/28/2023 (valid for 5 years until 12/28/2028)
(Portable plant validity is limited to location specified)



ENVIRONMENTAL IMPACTS


Declared Product:
Mix LW400 • Carver Plant
Description: 4000 3/8 Lightweight
Compressive strength: 4000 PSI at 28 days

Declared Unit: 1 m³ of concrete (1 cyd)

Global Warming Potential (kg CO ₂ -eq)	547 (418)
Ozone Depletion Potential (kg CFC-11-eq)	2,51E-5 (1,92E-5)
Acidification Potential (kg SO ₂ -eq)	3,10 (2,37)
Eutrophication Potential (kg N-eq)	0,57 (0,44)
Photochemical Ozone Creation Potential (kg O ₃ -eq)	66.3 (50.7)
Abiotic Depletion, non-fossil (kg Sb eq)	7,07E-5 (5,40E-5)
Abiotic Depletion, fossil (MJ)	3,133 (2,395)
Total Waste Disposed (kg)	109 (83,1)
Consumption of Freshwater (m ³)	2,74 (2,10)

Product Components: natural aggregate (ASTM C33), lightweight aggregate (ASTM C330), Portland cement (ASTM C150), fly ash (ASTM C618), batch water (ASTM C1602), admixture (ASTM C494), admixture (ASTM C260)

Additional detail and impacts are reported on page three of this EPD



Example **EPD**