

## Who Is Mass Save®?



- Mass Save® is an initiative sponsored by Massachusetts' gas and electric utilities and energy efficiency service providers, including
  - The Berkshire Gas Company
  - Cape Light Compact
  - Eversource Energy
  - Liberty Utilities
  - National Grid
  - Unitil
- The Sponsors of Mass Save work closely with the Massachusetts Department of Energy Resources to provide a wide range of services, incentives, trainings, and information promoting energy efficiency that help residents and businesses manage energy use and related costs.

WE ARE MASS SAVE®:



EVERSOURCE



Liberty

NATIONAL GRID



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## Residential Stretch Code

Massachusetts Energy Code Technical Support Program



## The 2023 Massachusetts Energy Code



Energy Code  
Technical Support  
Program

**NEW**

Municipal Opt-In Specialized Stretch Code

Stretch Code

Base Code

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## Overview of Changes



Energy Code  
Technical Support  
Program

1 Jan. 2023

- Maximum HERS Index decrease from 55 to 52 ⚡
- Large additions and alterations must follow ERI path
- HRV/ERV required
- Specialized Stretch Code available for adoption

1 July 2024

- Maximum HERS Index decrease from 52 to 42 ⚡



All-electric homes qualify for a three-point increase in maximum HERS Index

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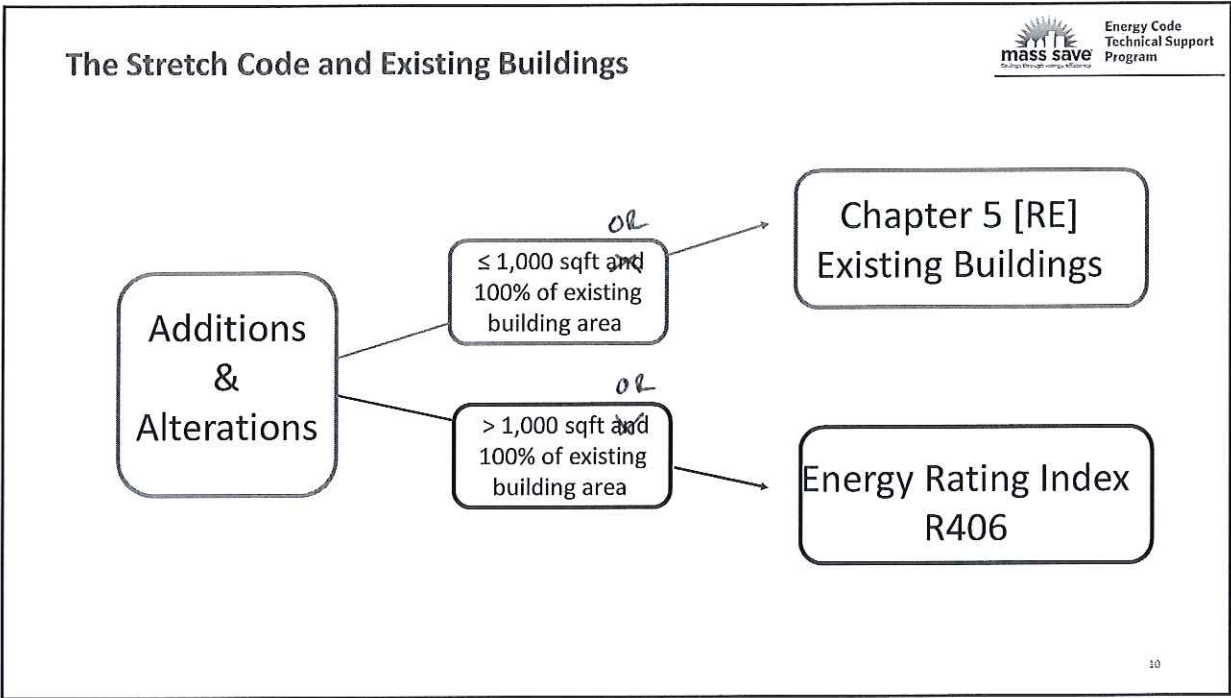


TABLE R406.5 MAXIMUM ENERGY RATING INDEX

Energy Code Technical Support Program

Clean Energy Application	New Construction Starts January 1, 2023, until June 30, 2024	New Construction Permits After July 1, 2024	Major- Alterations, Additions, or Change of Use. Starts January 1, 2023
Mixed-Fuel Building	52	42	52
Solar Electric Generation*	55	42	55
All-Electric Building	55	45	55
Solar Electric* and All-Electric Building	58	45	58

\*Solar Electric Generation = Solar photovoltaic array rated at 4kW or higher

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## R 401 Scope Compliance Options for Stretch Code



Energy Code  
Technical Support  
Program

### New Construction

#### R401.2.2 Passive House

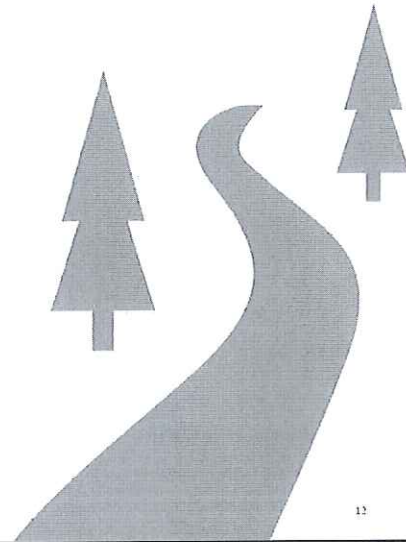
- The Passive House Building Certification Option requires compliance with Section R405 and R404.4.

#### R401.2.3 Energy Rating Index

- The Energy Rating Index (ERI) Option requires compliance with Section R406, R403.6 and R404.4.

#### R401.2.4 Appendix RC Opt-in Stretch Code

- Residential Buildings and dwelling units covered by this chapter may elect to comply with the requirements of IECC Appendix RC and R404 as amended.



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Table 406.2 Requirements - Energy Rating Index



Energy Code  
Technical Support  
Program

**Formally  
Listed As  
Mandatory  
Requirements**

**Now in  
One Table**

Section	Title
<b>General</b>	
R401.3	Certificate
<b>Building Thermal Envelope</b>	
R402.1.1	Vapor retarder
R402.2.3	Eave Baffle
R402.2.4.1	Access hatches and doors
R402.2.10.1	Crawl space wall insulation installation
R402.4.1.1	Installation
R402.4.1.2	Testing
<b>Mechanical</b>	
R403.1	Controls
R403.3	Ducts (except R403.3.2, R403.3.3, and R403.3.6)
R403.4	Mechanical system piping insulation
R403.5.1	Heated water circulation and temperature maintenance systems
R403.5.3	Drain water heat recovery units
<b>R403.6.1</b>	<b>Heat or energy recovery ventilation (HRV/ERV)</b>
R403.7	Equipment sizing and efficiency rating
R403.8	System serving multiple dwelling units
R403.9	Snow and ice melt systems
R403.10	Energy consumption of pools and spas
R403.11	Portable spas
R403.12	Residential pools and permanent residential spas
<b>Electrical Power and Lighting Systems</b>	
R404.1	Lighting equipment

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## R406.6.2 Documentation for Permit Application Energy Rating Index



### Prior to the issuance of a building permit:

1. A **HERS compliance report** which includes a BERS Approved HERS index score of 55 or lower, or otherwise complies via renewable trade-offs
2. A **description of energy features**
3. A **statement** that the rating index score is “**based on plans**”

Home Energy Rating Certificate																																			
Property 100 Main Street Boston, MA 02107	HERS Rating Type: Confirmed Rating Date: 4/21/17 Registry ID: 5166332	Certified Energy Rater: Rating Number: 0145400000 Massachusetts HARDWARE																																	
<b>HERS Index: 58</b>		<b>Estimated Annual Energy Cost</b>																																	
<b>General Information</b>		<table border="1"> <thead> <tr> <th>Item</th> <th>Index</th> <th>Cost</th> <th>Percent</th> </tr> </thead> <tbody> <tr> <td>Heating</td> <td>13.6</td> <td>\$172</td> <td>50%</td> </tr> <tr> <td>Cooling</td> <td>1.9</td> <td>\$12</td> <td>3%</td> </tr> <tr> <td>Hot Water</td> <td>12.2</td> <td>\$167</td> <td>11%</td> </tr> <tr> <td>Lighting/Appliances</td> <td>22.8</td> <td>\$124</td> <td>36%</td> </tr> <tr> <td>Renewables</td> <td>-8.6</td> <td>\$-4</td> <td>0%</td> </tr> <tr> <td>Service Charges</td> <td>50</td> <td>\$0</td> <td>0%</td> </tr> <tr> <td><b>Total</b></td> <td><b>50.5</b></td> <td><b>\$335</b></td> <td><b>100%</b></td> </tr> </tbody> </table>		Item	Index	Cost	Percent	Heating	13.6	\$172	50%	Cooling	1.9	\$12	3%	Hot Water	12.2	\$167	11%	Lighting/Appliances	22.8	\$124	36%	Renewables	-8.6	\$-4	0%	Service Charges	50	\$0	0%	<b>Total</b>	<b>50.5</b>	<b>\$335</b>	<b>100%</b>
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Heating: Fuel fired air distribution, Propane, 95.0 AFUE Cooling: Fuel fired air distribution, Propane, 95.0 AFUE Air conditioner, Electric, 15.0 SEER Duct Leakage to Outside: 94.00 CFM50 Ventilation System: Exhaust Only, 42 cfm, 20.0 watts Programmable Thermostat: Multi-zone, Low/High		This Home meets or exceeds the minimum score for the following Massachusetts Stretch Energy Code: * Compliance is determined by the rater.																																	
<b>Building Shell Features</b>		Performance System Dev																																	
Ceiling R-Value: R-48.0	Slab: None	124 Btu/day ft <sup>2</sup>																																	
Roof R-Value: 16	Exposed Floor: R-55.0	R-value: 14.50																																	
Insulated Ceiling: 16	Window Type: Single-pane	SHGC: 0.190																																	
Above-Grade Walls: R-13.0	Infiltration Rate: 14.0	Air: 14.0 CFM50																																	
Foundation Walls: R-10.0	Attic: None	Blower Door Test																																	
<b>Lights and Appliance Features</b>		124 Btu/day ft <sup>2</sup>																																	
Percent Interior Lighting: 100.00	Range/Oven Fuel: Propane	R-value: 14.50																																	
Percent Garage Lighting: 100.00	Clothes Dryer: Electric	124 Btu/day ft <sup>2</sup>																																	
Refrigerator (Btu/h): 717	Clothes Dryer Eff: 3.47																																		
Dishwasher (Btu/h): 240	Ceiling Fan (b/h/ft <sup>2</sup> ): 0.00																																		

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## MA Residential Amendments ERI Documentation – Final



### Prior to the issuance of a certificate of occupancy:

1. A **copy of the final certificate** indicating that the HERS rating index score for each unit is verified to be 55 or less or otherwise complies via renewable trade-offs
2. Completed **HERS rater verified ENERGY STAR Thermal Enclosure Checklist**
3. A **copy of the certificate**, as required by Section R401.3 for each unit listing the final HERS index score of the dwelling unit

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ENERGY STAR Thermal Enclosure Checklist			
1. Heating System	2. Cooling System	3. Hot Water System	4. Ventilation System
5. Ductwork	6. Windows	7. Doors	8. Attic
9. Basement	10. Crawlspace	11. Foundation	12. Blower Door Test
13. Lighting	14. Appliances	15. Renewable Energy	16. Service Charges
17. Total HERS Index	18. Final HERS Index	19. Rater Signature	20. Date

Energy Code Certificate	
<b>Building Thermal Envelope</b>	<b>Mechanical Systems</b>
Ceiling R-value: _____	Duct R-value: _____
Roof R-value: _____	Duct leakage rate: _____
Wall R-value: _____	Heating equip eff: _____
Slab R-value: _____	Cooling equip eff: _____
Bsm wall R-value: _____	<b>Home Energy Rating</b>
Crawl wall R-value: _____	Final HERS Index: _____
Floor R-value: _____	
Window U-factor: _____	
Window SHGC: _____	
Air infiltration rate: _____	

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## R404.4 Wiring for Electric Vehicle Charging Spaces ("EV Ready Spaces")



- EV Ready Spaces shall be provided in accordance with Table R404.4
  - The dedicated branch circuit shall be identified as "EV READY" in the service panel or subpanel directory, and the termination location shall be marked as "EV READY".
    - The circuit shall terminate in a NEMA receptacle or a Society of Automotive Engineers (SAE) standard J1772 electrical connector.



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**TABLE R404.4 EV READY SPACE REQUIREMENTS**



Type of Building	Number of spaces
1 & 2 Family Dwellings and Townhomes	At Least 1 50 Amp Circuit per Dwelling Unit
All Other R-use Buildings	At least 20% of spaces served with a 40-Amp, 208/240-volt circuit with a minimum capacity of 9.6 kVA.

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## Municipal Specialized Opt-in Code



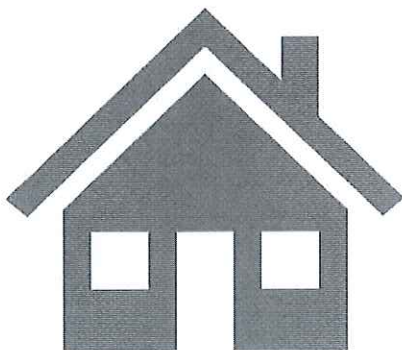
The Specialized Stretch Code...

- Includes net-zero building performance standards
- Is designed to achieve MA GHG emissions limits
- Requires compliance with the Stretch Code
- Requires pre-wiring for future electrification of space and water heating for homes with fossil fuels
- Is adopted at the local level but is NOT required for participation in Green Communities



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## Appendix RB: Solar Ready Provisions – Scope



- RB101.1 General
  - These provisions shall be applicable for all **R-use buildings** new construction, except additions 1,000 sqft and under.
- Exceptions
  - Buildings and dwelling units
    - Complying with Appendix RC: Sections RC102 (Zero Energy Pathway) or RC105 (Mixed-fuel Pathway)
    - With roof is shaded for more than 70% of daylight hours annually

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## APPENDIX RB: SOLAR-READY PROVISIONS



New in 2021:

**Applies to all R-use Buildings 3 stories and below**

### Shading

- The solar-ready zone shall be set back from any permanently affixed object, such as a chimney on the building that is located south, east, or west of the solar-ready zone
- Setback must be at least 2X the object's height
- Objects may include taller portions of the building, parapets, chimneys, antennas, signage, rooftop equipment, trees and roof plantings

### Capped roof penetration sleeve

- A capped roof penetration sleeve shall be provided adjacent to a solar-ready zone located on a roof slope of not greater than 1 in 12.
- Sleeve shall be sized to accommodate the future photovoltaic system conduit, but not less than 1.25" in diameter



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