



Watertown City Council

Administration Building
149 Main Street
Watertown, MA 02472
Phone: 617-972-6470

ELECTED OFFICIALS:

Mark S. Sideris,
Council President

Vincent J. Piccirilli, Jr.,
Vice President &
District C Councilor

John M. Airasian,
Councilor At Large

Caroline Bays,
Councilor At Large

John G. Gannon,
Councilor At Large

Anthony Palomba,
Councilor At Large

Nicole Gardner,
District A Councilor

Lisa J. Feltner,
District B Councilor

Emily Izzo,
District D Councilor

CITY COUNCIL MEETING

TUESDAY, OCTOBER 25, 2022 AT 7:00 PM

**RICHARD E. MASTRANGELO COUNCIL CHAMBER
ADMINISTRATION BUILDING, 149 MAIN STREET**

AGENDA

ACCESS INFORMATION:

- A. The meeting will be televised through WCATV (Watertown Cable Access Television): <http://vodwcatv.org/CablecastPublicSite/?channel=3>
- B. The Public may join the virtual meeting online: <https://watertown-ma.zoom.us/j/92991331344>
- C. Public may join the virtual meeting audio only by phone: (877) 853-5257 or (888) 475-4499 (Toll Free) and enter Webinar ID: 929 9133 1344
- D. The Public may comment through email: vpiccirilli@watertown-ma.gov

-
- 1. ROLL CALL
 - 2. PLEDGE OF ALLEGIANCE
 - 3. PUBLIC FORUM
 - 4. EXAMINATION OF RECORDS OF PREVIOUS MEETINGS
 - A. Minutes of the City Council Meeting - October 11, 2022
 - 5. PRESIDENT'S REPORT
 - A. Motion to Move Budget Priority Guidelines from November 8, 2022 to November 22, 2022
 - 6. PRESENTATIONS OF PETITIONS, PROCLAMATIONS, AND SIMILAR PAPERS AND MATTERS
 - A. Confirmation of Proclamation Honoring Thomas J. Tracy on His Retirement as City Auditor and Interim City Manager
 - 7. INFORMATIONAL PRESENTATIONS
 - A. Informational Presentation by the Charles River Watershed Association
 - 8. MOTIONS, ORDINANCES, ORDERS, AND RESOLUTIONS
 - A. Resolution in Support of the Fair Share Amendment

- B. Resolution Authorizing Acceptance and Expenditure of Gifts of Funds in the Amount of \$55,475 to the Watertown Food Pantry from Numerous Donors Since March 30, 2022.
 - C. Consideration and Approval of a Revised Version of House Bill 2009 An Act Authorizing the City of Watertown to Adopt an Affordable Housing Linkage Fee.
 - D. First Reading on a Proposed Amendment to the Fiscal Year 2023 Budget.
9. REPORTS OF COMMITTEES
- A. Committee on Federal, State, and Regional Government Report Regarding the Review of Watertown's Election Processes and Procedures
ACTION ITEM:
That the City Council Endorse Having Attorney Lauren Goldberg Provide Training for the Election Commissioners, the City Council, and the City Clerk's Office
 - B. Confirmation of the Committee on Personnel and City Organization Report Regarding the Development of a Process for Selecting Candidates for the Position of Municipal Policy Analyst
10. NEW BUSINESS
11. COMMUNICATIONS FROM THE CITY MANAGER
- A. Update on the Massachusetts Municipal Opt-in Specialized Stretch Code
 - B. Request for Confirmation of Appointment to the Cable Access Corporation – Board of Directors
12. REQUESTS FOR INFORMATION/REVIEW OF LIST OF PENDING MATTERS
13. ANNOUNCEMENTS
14. PUBLIC FORUM
15. RECESS OR ADJOURNMENT



Watertown City Council

Administration Building
149 Main Street
Watertown, MA 02472
Phone: 617-972-6470

ELECTED OFFICIALS:

Mark S. Sideris,
Council President

Vincent J. Piccirilli, Jr.,
Vice President &
District C Councilor

John M. Airasian
Councilor At Large

Caroline Bays
Councilor At Large

John G. Gannon,
Councilor At Large

Anthony Palomba,
Councilor At Large

Nicole Gardner,
District A Councilor

Lisa J. Feltner,
District B Councilor

Emily Izzo,
District D Councilor

PROCLAMATION HONORING CITY AUDITOR THOMAS J. TRACY ON HIS RETIREMENT

WHEREAS: Thomas J. Tracy, a native of Watertown, was educated in Watertown and through his abilities on the football field earned a scholarship to Holy Cross College in 1978, he went on to follow a family tradition of public service with the Commonwealth of Massachusetts and then the City of Watertown as its City Auditor

WHEREAS: Tom became the Auditor for the Town of Watertown on February 28, 1994 and has served in that capacity with a brief hiatus in 2004 with his reappointment in 2005 and has served this City since. As City Auditor, he has worked with 16 sets of Councilors diligently serving the community with his efforts to build upon sound fiscal policies that have provided success for the City; and

WHEREAS: Through his efforts, Tom was able to assist Michael Driscoll achieve major improvements for the City by ensuring there were funds available to improve Watertown's quality of life: a curbside recycling program; the building of the Senior Center and the Police Station; the renovation of the Library and its expansion, the Public Works Building, three fire stations, City Hall, the Skating Arena, and the parks and playgrounds; and

WHEREAS: Tom worked arduously with Mike Driscoll to achieve a AAA bonding rating from Standard and Poor's which cited the City's very strong economy and budgetary flexibility, liquidity and strong budgetary performance and management conditions on November 13, 2013; and

WHEREAS: Tom served as a member of the Retirement Board and through the use of sound fiscal policies, he and Mr. Driscoll provided the City with a fully funded Retirement program; produced a plan for having a fully funded OPEB Liability system by approximately 2031; created Stabilization

Funds in anticipation of community needs such as those for the new Elementary and High Schools, Land/Open Space; worked to enroll the City in the Group Insurance Program providing quality health services whose costs increased on an average of 2.86% annually since Fiscal Year 2009; and

WHEREAS: Most recently, he worked tirelessly to find the financing for the construction and renovation of the Elementary Schools and was instrumental in accelerating the project's completion by at least a year by leasing St. Jude's School in Waltham; and serves on the School Building Committee, and

WHEREAS: Tom, in his last great civic achievement, was willing to serve as Interim City Manager doing an admirable job, leaves knowing that he has served Watertown well, with honor and dignity; and.

WHEREAS: Tom, in his retirement, can now enjoy his time freely with his wife Julie, his daughters, Erin, Meghan, and Colleen, and his grandchildren, Lara, Claire, Declan, and Connor.

NOW THEREFORE BE IT RESOLVED: That the City Council of Watertown and the community thank Tom for always providing strong support to everyone and extend its heartfelt congratulations to

THOMAS J. TRACY ON HIS RETIREMENT AS WATERTOWN'S CITY AUDITOR AND INTERIM CITY MANAGER

IN WITNESS HEREOF,

I have hereunto set my hand and caused the
Great Seal of the City of Watertown to be
Affixed on this 11th day of October.

Mark S. Sideris, Council President



George J. Proakis
City Manager

CITY OF
WATERTOWN
Office of the City Manager

Administration Building
149 Main Street
Watertown, MA 02472
Phone: 617-972-6465
www.watertown-ma.gov
Citymgr@watertown-ma.gov

To: Honorable City Council

From: George J. Proakis, City Manager 

Date: October 20, 2022

RE: Agenda Item – Informational Presentation by Charles River Watershed Association

Attached please find email correspondence from Steven Magoon, Director of Community Development and Planning/Assistant City Manager. The attached presentation from the Charles River Watershed Association (CRWA) provides some training information for City Officials related to the Charles River, a critical resource in our community. This presentation will conclude with some recommendations for steps that CRWA would advocate for Watertown to take.

Given the above, I respectfully request an Informational Presentation on this matter be placed on the October 25, 2022 City Council Agenda.

Thank you for your consideration in this matter.

cc: Steven Magoon, Director of Community Development and Planning/Assistant City Manager
Charles River Watershed Association
Mark R. Reich, Esquire, KP Law

Hand, JoAnna

From: Magoon, Steve
Sent: Wednesday, October 19, 2022 11:26 AM
To: Hand, JoAnna; Osmond, Marsha; Pronovost, Marilyn
Cc: Proakis, George; Sideris, Mark; Schwab, Laurel; Robert Kearns
Subject: FW: Condensed CRWA Presentation - Watertown City Council
Attachments: Watertown_ElectedOfficialsTraining (2).pdf

Attached is a presentation from the Charles River Watershed Association that provides some training information for City Officials related to the Charles River, a critical resource in our community. This presentation will conclude with some recommendations for steps that CRWA would advocate for Watertown to take. I would respectfully request this to be placed on the Council agenda for an informational presentation. Thanks

Steve Magoon
Acting Deputy City Manager, Director, Community Development and Planning
Watertown Administration Building
149 Main Street
Watertown, MA 02472
Office 617 972-6417
Cell 617 987-1136

From: Robert Kearns <rkearns@crwa.org>
Sent: Tuesday, August 30, 2022 10:59 AM
To: Magoon, Steve <smagoon@watertown-ma.gov>
Subject: Condensed CRWA Presentation - Watertown City Council

Hi Steve,

Thanks again for the feedback and help, here is the condensed presentation.

Best,
Robert

--

Robert Kearns | [he/him/his]

Climate Resilience Specialist

[Charles River Watershed Association](#)

Lands of the Massachusetts, Nipmuc, and Wampanoag tribes

41 West St. Floor 8 | Boston, MA 02111

t 617.540.5650 x 1075

[Twitter](#) | [Facebook](#) | [Instagram](#)



Charles River Watershed Association



How Can Watertown Build Community Resilience?

Tuesday, September 27th, 2022

Presented by:

Dira Johanif, Program Associate for Community Resilience
Robert Kearns, Climate Resilience Specialist



Charles River Watershed Association

Agenda



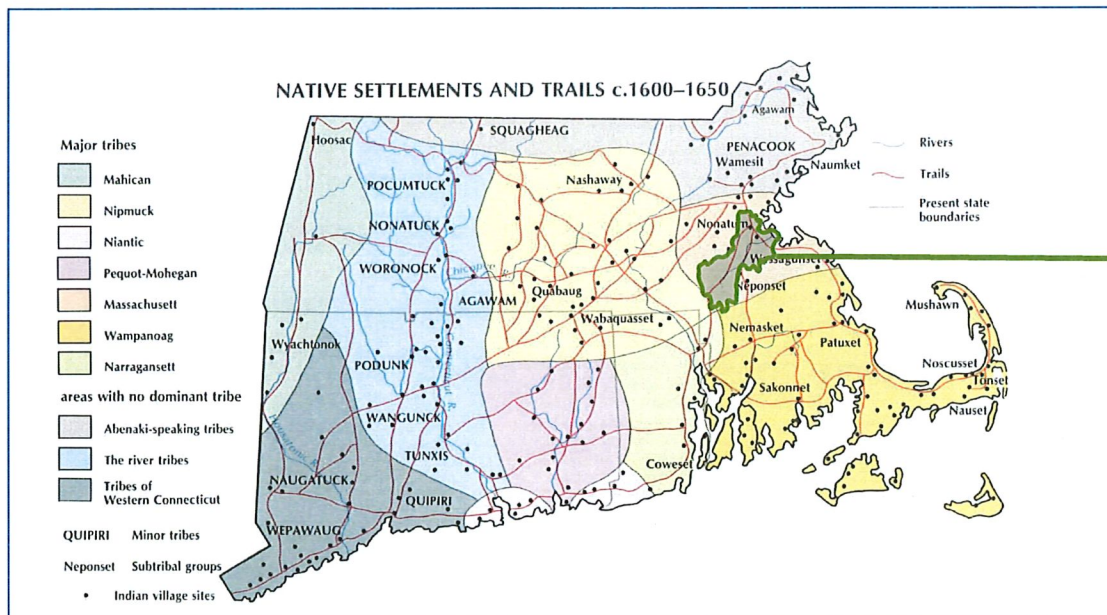
- Introduction
- Background on Climate Change in Watertown
- Next steps/recommendations



Introductions



Charles River Watershed Association



The Charles River Watershed resides on occupied territory of the **Massachusett, Nipmuck** and **Wampanoag** tribes.

Charles River Watershed Association



Charles River Watershed Association

CRWA's mission is to protect, restore, and enhance the Charles River and its watershed through science, advocacy, and law.

- Founded in 1965 by concerned citizens
- One of the oldest watershed associations in the U.S.
- Work with EPA, state agencies, and 35 watershed municipalities
- Program Areas:
 - Climate Resilience
 - Education and Outreach
 - River Restoration
 - River Science
 - Stormwater Solutions



Municipal Vulnerability Preparedness (MVP)



Charles River Watershed Association

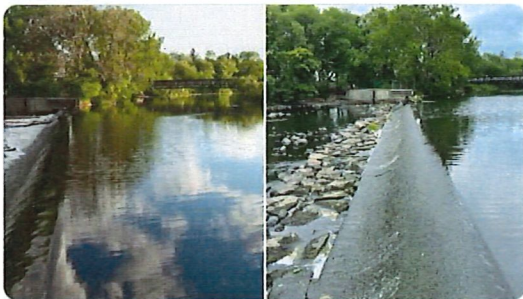
Vulnerabilities identified from Climate Change impacts:

- Intense Storms
- Flooding
- Heat Waves
- Droughts

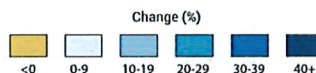
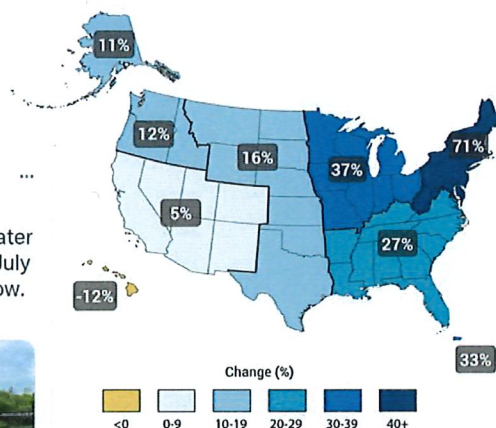


Take a look at the difference of the Charles River water level at the Watertown dam in May 2021 vs. today, July 26, 2022. The drought is especially evident there now.

@charlesriver



Observed Change in Very Heavy Precipitation



Remnants Of Tropical Storm Fred Trigger Flash Flood Warnings For Much Of Mass.

Updated August 19, 2021 By WBUR Newsroom



Cars drive through a flooded Stuart Street during the heavy rain from Tropical Storm Elsa on July 9, 2021. (Jesse Costa/WBUR)

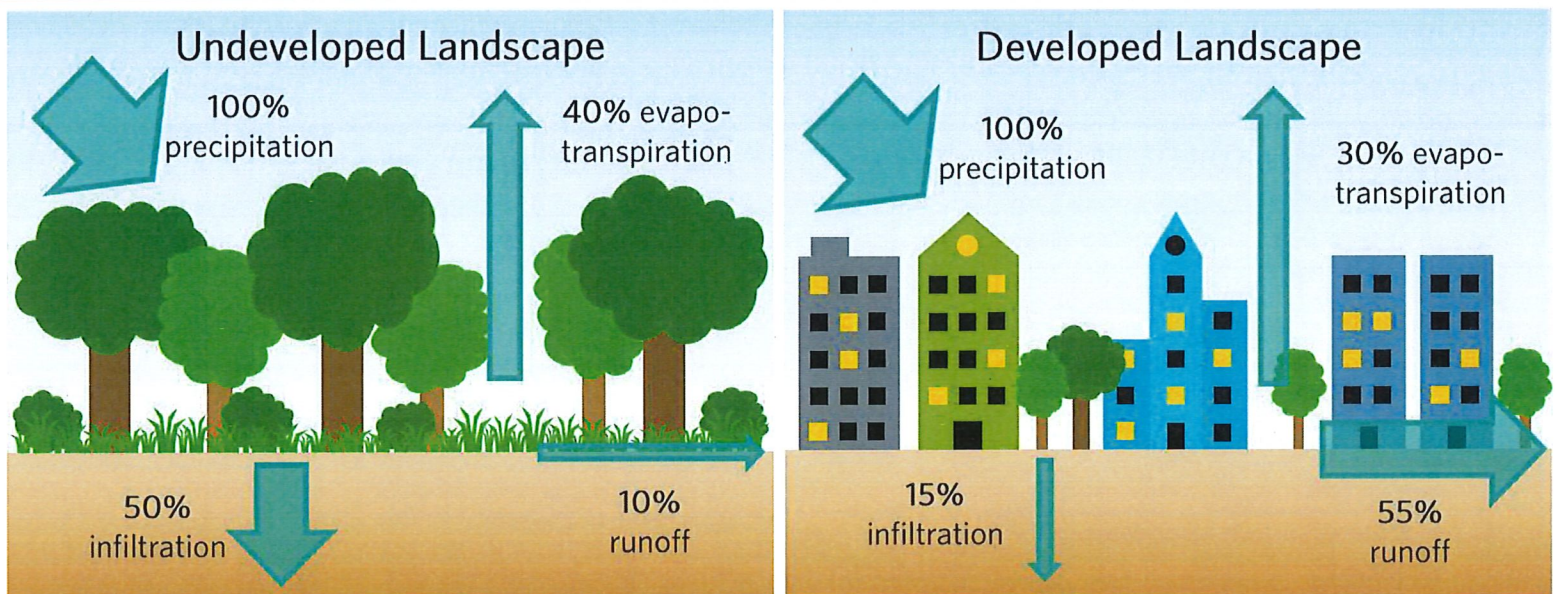
Boston 25 News

Mayor Wu extends heat emergency in Boston as sizzling summer scorcher continues

BOSTON — Mayor Michelle Wu on Monday extended the heat emergency in ... that are in the forecast to start the work week, according to Wu.



Landscapes in the Watershed



Development alters the water cycle, leading to increased runoff and pollution of our local water bodies & flooding!

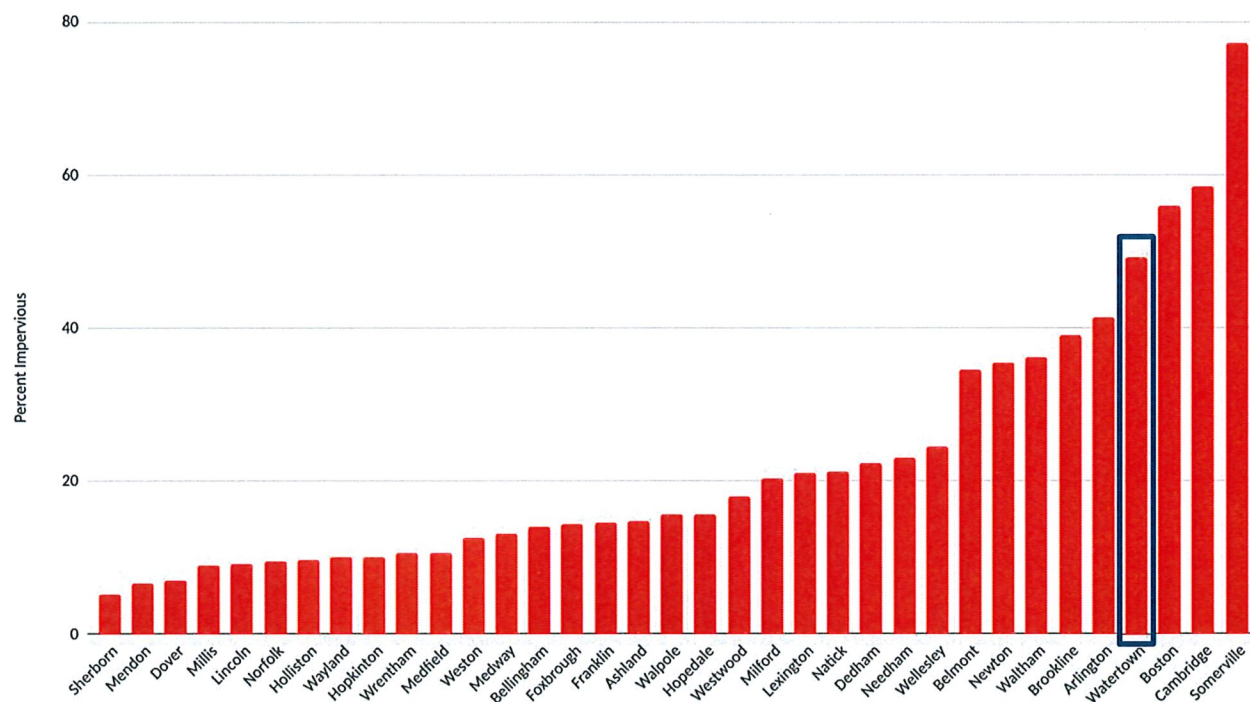
Redevelopment is an opportunity to build climate resilience

Impervious Surface in Watertown

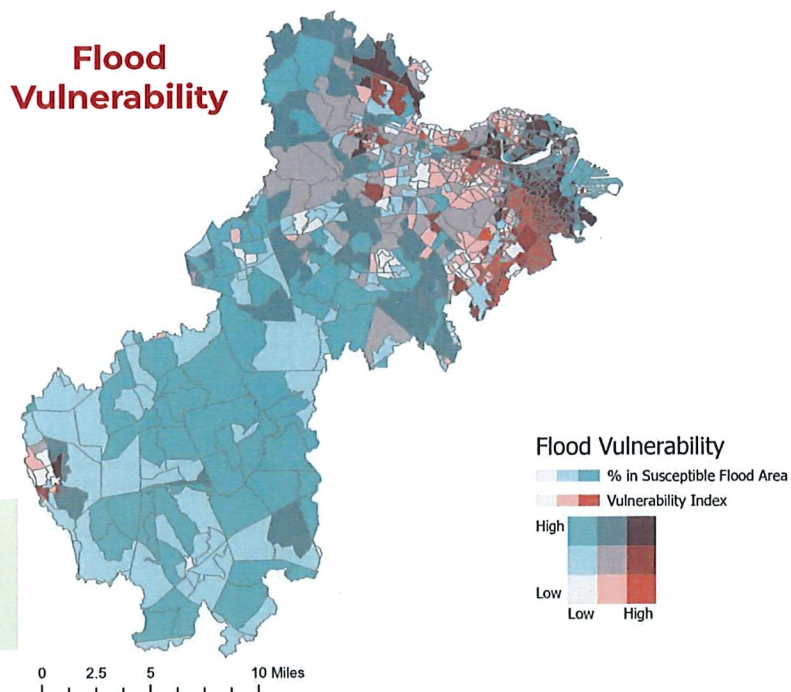
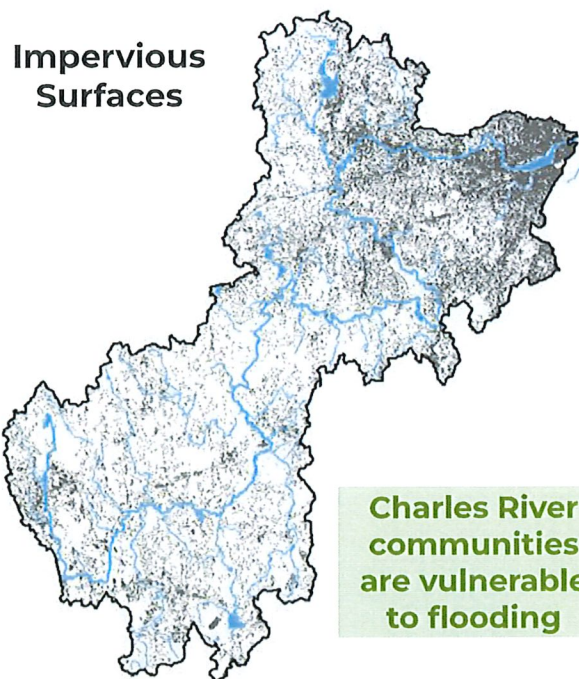


Charles River Watershed Association

Impervious Acres Percentage by Town



Impervious Surface & Flooding



Threats to the Charles River

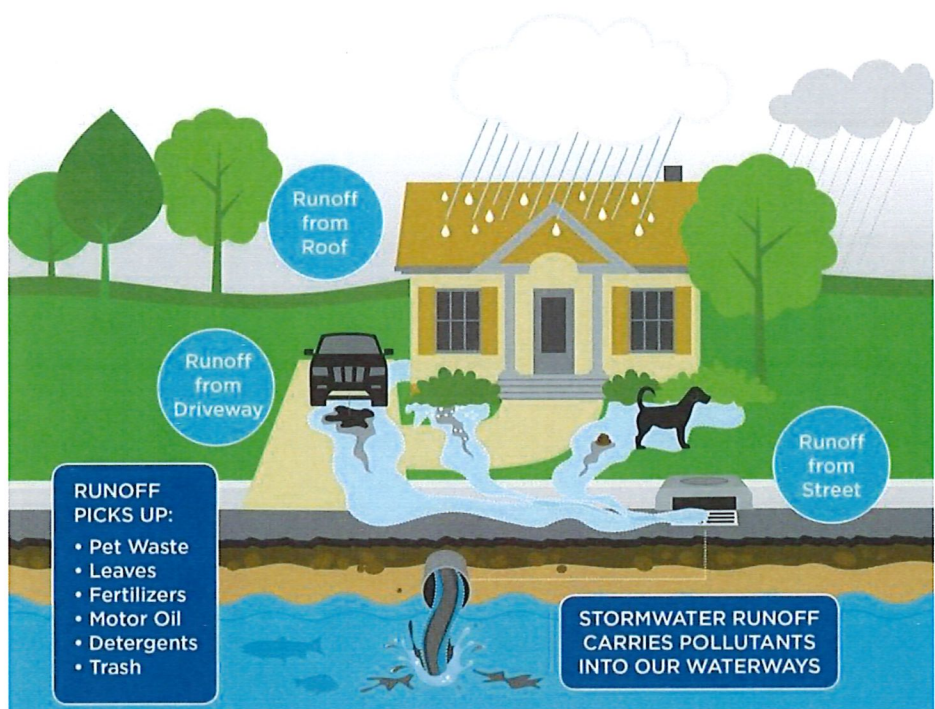


Stormwater Runoff

- Pollution coming from everywhere: **non-point source**
- Stormwater carries pollution into river
- Worsened by leaky pipes

Main pollutant is **PHOSPHORUS**, a nutrient from:

- Leaves decomposing
- Fertilizers
- Detergents



Environmental Justice (EJ) Maps



Charles River Watershed Association



Layers

MA 2020 Environmental Justice Blockgroups

- Minority: the block group minority population is $\geq 40\%$, or the block group minority population is $\geq 25\%$ and the median household income of the municipality the block group is in is $< 150\%$ of the Massachusetts median household income
- Income: at least 25% of households have a median household income 65% or less than the state median household income
- Language isolation: 25% or more of households do not include anyone older than 14 who speaks English very well
- Minority and income
- Minority and English isolation
- Income and English isolation
- Minority, income and English isolation

Areas yellow (Minority) & green (Minority & Income)

Dams Destroy the Charles River Ecosystem



Stagnant Water
Low Dissolved Oxygen
Death of Aquatic Life



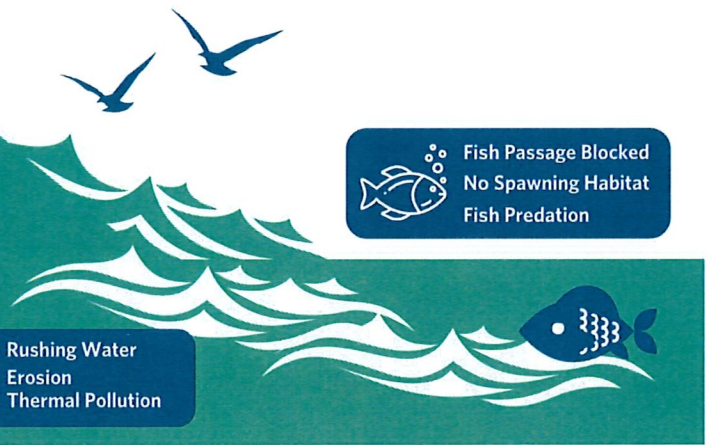
Sediment Accumulates
Excess Nutrients
Invasive Plant Growth



Temperatures Rise
Evaporation
Cyanobacteria Blooms



Rushing Water
Erosion
Thermal Pollution



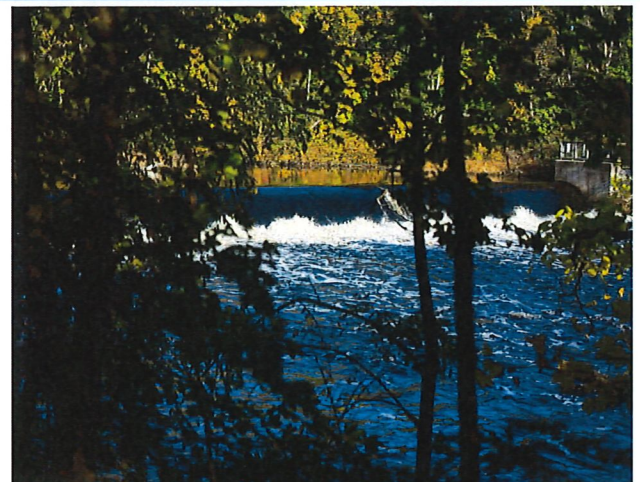
Fish Passage Blocked
No Spawning Habitat
Fish Predation

DCR's Watertown Dam



Charles River Watershed Association

- 56 year old significant hazard potential dam in fair condition
- Has fish ladder but does not pass female American Shad, Rainbow Smelt
- CRWA building grassroots support to convince DCR to remove the dam
 - Local angler, environmental, faith, conservation, hunting and scouting communities
- With removal no change in flooding downstream, 6ft reductions in flooding upstream
- **Dam does not provide flood control or operate as such**
- Feasibility Study 2018- 2021
 - Dam removal found to be feasible



Dam Today - Before Downstream View



Dam Removal Rendering After



Charles River Climate Compact and Flood Model



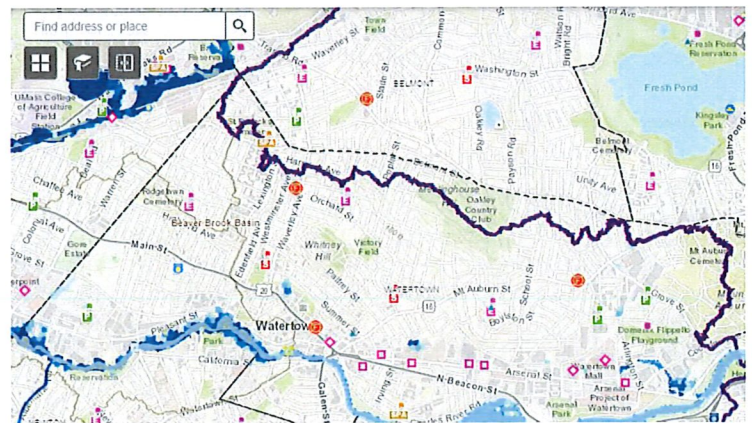
Charles River Watershed Association

Founded August 2019

- Bring together Charles River watershed communities to work on climate adaptation by sharing information and experiences and taking a watershed/regional view of adaptation strategies.
 - Challenge of lack of information about local impacts
 - Opportunity to coordinate with neighboring municipalities
 - Meet bi-monthly on Zoom
- Result: Flood Model Developed in partnership with CRWA and Weston & Sampson - funded by the MA EEA MVP Action Grant program

Computer Flood model: predicts where flooding will occur under future climate scenarios

- Identifies and tests nature-based solutions and how it can reduce flooding impacts



Watertown areas of concern: Increased flooding along the Charles River path, and on Howard and Pleasant Streets
Flooding in the basement of the library and the old police station

Watertown is an active member



Goals for Watertown

- 1. Advocate to DCR to remove Watertown Dam and Restore the Charles River*
- 2. Adopt a robust tree ordinance*
- 3. Adopt a stormwater utility*



Watertown City Council

Administration Building

149 Main Street

Watertown, MA 02472

Phone: 617-972-6470

ELECTED OFFICIALS:

Mark S. Sideris,
Council President

Vincent J. Piccirilli, Jr.,
Vice President &
District C Councilor

John M. Airasian
Councilor At Large

Caroline Bays
Councilor At Large

John G. Gannon,
Councilor At Large

Anthony Palomba,
Councilor At Large

Nicole Gardner,
District A Councilor

Lisa J. Feltner,
District B Councilor

Emily Izzo,
District D Councilor

RESOLUTION IN SUPPORT OF THE FAIR SHARE AMENDMENT

WHEREAS: The best way to help working families and build a stronger economy for us all is to make sure that we have quality public schools for our children, an affordable public higher education, and a reliable transportation system; and

WHEREAS: Students need a well-rounded education, founded on a rich and varied curriculum that includes science, technology, engineering, and math (STEM), music, art, and athletics; and

WHEREAS: Major investments in public education are needed to help students recover academically, socially, and emotionally from the COVID-19 pandemic; and

WHEREAS: Tuitions and fees at our public colleges are among the highest in the country, and students are forced to take on enormous debt to receive a degree; and

WHEREAS: New state revenue is necessary to improve our public schools from Pre-K through college, and make public higher education affordable again; and

WHEREAS: Massachusetts needed new investments in our transportation and public education systems even before the COVID-19 pandemic, and now those investments are needed more than ever to lift our economy into an equitable and long-lasting recovery; and

WHEREAS: Our Commonwealth's highest-income residents, who have seen their collective net worth skyrocket in recent years, pay a lower percentage of their income in state and local taxes than do the rest of us, and clearly have the ability to pay a little more for the investments we all need.

THEREFORE, BE IT RESOLVED: That the City Council of the City of Watertown supports the proposed Fair Share Amendment that would create an additional tax of four percentage points on annual income above one million dollars and dedicate the funds raised by this tax to quality public education,

affordable public colleges and universities, and for the repair and maintenance of roads, bridges, and public transportation.

Council Member

I hereby certify that at a regular meeting of the Town Council for which a quorum was present, the above Resolution was adopted by a vote ___ for, ___ against, and ___ present on October 25, 2022.

Marilyn W. Pronovost, Council Clerk

Mark S. Sideris, Council President



George J. Proakis
City Manager

CITY OF
WATERTOWN
Office of the City Manager

Administration Building
149 Main Street
Watertown, MA 02472
Phone: 617-972-6465

To: Honorable City Council

From: George J. Proakis, City Manager *GJP*

Date: October 20, 2022

RE: Agenda Item – Approval of Gift Expenditures

I am very pleased to share the enclosed correspondence from Patrick George, Acting Director of Senior Services indicating the Watertown Food Pantry continues to receive generous support of both food and cash donations from various individuals, groups, businesses, and foundations. The total cash gifts of \$55,475 was received from March 30, 2022 – October 7, 2022. The city is grateful for all the community support.

Pursuant to Massachusetts General Laws Chapter 44, Section 53A, any expenditure of gifts of funds needs the approval of the City Manager and City Council.

I respectfully request the attached Resolution approving these gift expenditures be placed on the October 25, 2022, City Council Agenda.

Thank you for your consideration and action in this matter.

cc: Patrick George, Acting Director of Senior Services
Kathy Cunningham, Watertown Food Pantry Coordinator
Melissa Morrissey, City Treasurer/Collector

Resolution #

R – 2022 -

Resolution approving the Acceptance and Expenditure of Gifts of Funds

WHEREAS: From time to time, this community is the beneficiary of a gift donated towards improving the quality and spirit of its inhabitants' lives; and,

WHEREAS: The Watertown Food Pantry continues to receive generous support of both food and cash donations from various individuals, groups, businesses and foundations; and,

WHEREAS: Total cash gifts of \$55,475 was received from various individuals, groups, businesses, and foundations from March 30, 2022 – October 7, 2022, and,

WHEREAS: Donations are used to purchase food from our partners, including the Greater Boston Food Bank, Fair Foods, Boston Area Gleaners, and various local grocers.

NOW THEREFORE BE IT RESOLVED: that the City Council of the City known as the City of Watertown, hereby accepts and appropriates, pursuant to Massachusetts General Laws Chapter 44, Section 53A, monetary gifts from various individuals, groups, and foundations.

Council Member

I hereby certify that at a meeting of the City Council for which a quorum was present, the above resolution was adopted by a vote of ____ for, ____ against and ____ present on October 25, 2022.

Council Clerk

Mark Sideris, Council President



CITY OF WATERTOWN
Council on Aging
SENIOR CENTER

31 MARSHALL STREET
WATERTOWN, MASS. 02472-3403
TELEPHONE: (617) 972-6490
FAX: (617) 972-6493
www.watertown-ma.gov

Patrick George
Acting Director of Senior Services

Helen Dempsey, Chairperson

MEMORANDUM

To: George J. Proakis, City Manager
From: Patrick George, Acting Director of Senior Services
Date: October 7, 2022
Subject: **Donations to the Watertown Food Pantry**

The Watertown Food Pantry continues to receive generous support of both food and cash donations, the total gifts received for the period of 3/30/2022 – 10/7/2022 amount to \$55,475.00.

Donors include various individuals, groups, businesses, and foundations. Sincere appreciation to the Watertown Community Foundation for processing credit card donations and to the Friends of Watertown COA/Senior Center for accepting donations on behalf of the Watertown Food Pantry.

Donations of \$1,000.00 or more are noted below:

\$1,000	William Aldridge and Kathleen Dorries
\$1,000	The Chaisson Family Foundation
\$1,000	Music for Food
\$1,350	Walden Local Meat
\$2,500	Pepe's Pizza Watertown
\$3,000	Payson Park Church
\$3,268	Project Bread Walk for Hunger Team Gerald Missal
\$5,000	Ottavio Forte
\$5,000	Lodge Piave Fiume 1036 Sons of Italy
\$20,000	Cambridge Savings Charitable Foundation Inc.

Donations are used to purchase food from our partners, including the Greater Boston Food Bank, Fair Foods, Boston Area Gleaners, and various local grocers. We are grateful for all the community support and the tireless efforts of Food Pantry Coordinator Kathy Cunningham and her volunteer team.

I respectfully request your assistance in presenting this information to the Honorable City Council for its review and action.

Please contact me with any questions. Thank you.



George J. Proakis
City Manager

CITY OF
WATERTOWN
Office of the City Manager

Administration Building
149 Main Street
Watertown, MA 02472
Phone: 617-972-6465
www.watertown-ma.gov
Citymgr@watertown-ma.gov

To: Honorable City Council

From: George J. Proakis, City Manager 

Date: October 20, 2022

RE: Agenda Item – Consideration and Approval of a Revised Version of House Bill 5009 An Act authorizing the City of Watertown to Adopt an Affordable Housing Linkage Fee

Attached please find email correspondence from State Representative Steven Owens regarding the subject. I am attaching a clean and redlined edited version of the bill for your review and approval. The redline reflects The Commonwealth's necessary edits to the legislation and contains explanatory comments for the City. Because the City of Watertown has a restrictive home rule vote and the edits are substantive, subsequent approval from the Watertown City Council is needed.

Therefore, given all of the above, I respectfully request your favorable consideration on this matter at the October 25, 2022 City Council Meeting.

cc: Steven Magoon, Director of Community Development and Planning/Assistant City Manager
Mark R. Reich, Esquire, KP Law

Hand, JoAnna

From: Proakis, George
Sent: Thursday, October 20, 2022 3:43 PM
To: Hand, JoAnna; Osmond, Marsha
Subject: FW: H.5009 Watertown linkage fees
Attachments: H5009 CLEAN for Watertown approval.docx; H5009.docx

Last minute request . . . can we get this on the agenda for Tuesday?

-gp

From: Owens, Steven - Rep. (HOU) <Steven.Owens@mahouse.gov>
Sent: Thursday, October 20, 2022 3:37 PM
To: Proakis, George <gproakis@watertown-ma.gov>; Sideris, Mark <msideris@watertown-ma.gov>
Subject: Fwd: H.5009 Watertown linkage fees

Please see the attached redlined version of the linkage fee bill.

Get [Outlook for iOS](#)

From: Garlick, Denise - Rep. (HOU) <Denise.Garlick@mahouse.gov>
Sent: Thursday, October 20, 2022 3:31:34 PM
To: Owens, Steven - Rep. (HOU) <Steven.Owens@mahouse.gov>
Cc: Christopoulos, Ellena (HOU) <Ellena.Christopoulos@mahouse.gov>; Lane, Isabel (HOU) <Isabel.Lane@mahouse.gov>;
Fedor, Collin B. (HWM) <Collin.Fedor@mahouse.gov>
Subject: H.5009 Watertown linkage fees

Representative Owens,

I am writing in regards to H5009 *An Act authorizing the city of Watertown to adopt an affordable housing linkage fee*.

I am attaching a clean and redlined edited version of the bill for you and city's review and approval. The redline reflects our necessary edits to the legislation and contains explanatory comments for the city.

Because the city of Watertown has a restrictive home rule vote and the edits are substantive, we need subsequent approval from the Watertown city council.

1. Could you and the city please review the redline and clean drafts of H5009 and let us know if you approve?
2. If you and the city do approve, could you please obtain and forward us a certified (raised seal) copy of the city clerk's attestation of a city council vote approving the "clean" version of the language, attached.

Please do not hesitate to reach out if you have any questions.

I very much look forward to your reply.

Sincerely,
Denise

CLEAN for city approval

An Act authorizing the city of Watertown to adopt an affordable housing linkage fee.

SECTION 1. (a) The city of Watertown may, by ordinance, require the payment of an affordable housing linkage fee for any non-residential development, including the commercial portion of a mixed-use project and excluding any development for governmental uses, that: (1) requires zoning relief, including without limitation, a special permit, special permit with site plan review or site plan approval; and (2) contains a single use or combination of uses exceeding a square foot threshold to be determined from time to time by the Watertown city council. For purposes of this act, development shall include the construction, enlarging, expansion, substantial rehabilitation or change of use of non-residential property.

(b) The ordinance shall specify the dollar amount of the linkage fee. The linkage fee initially shall not exceed \$18 per square foot and may be adjusted over time based upon changes in the Consumer Price Index for all urban consumers, CPI-U, compiled by the United States Bureau of Labor Statistics. The ordinance shall specify an initial square foot threshold of 30,000 square feet. The amount of any linkage fee and the square foot threshold shall be reviewed at least every 5 years and reset as required based upon recommendation of the city manager and approval of the city council.

(c) The city may create a distinct and separate revolving fund account into which affordable housing linkage fees shall be paid, and no such fee shall be paid to the city's general treasury or used as general revenues pursuant to section 53 of chapter 44 of the General Laws. The funds in this revolving fund account shall be administered and expended by the trustees of a

H.5009 *An Act authorizing the city of Watertown to adopt an affordable housing linkage fee.*

CLEAN for city approval

municipal affordable housing trust fund established by the city council pursuant to section 55C of chapter 44 of the General Laws.

SECTION 2. This act shall take effect upon its passage.

HOUSE No. 5009

The Commonwealth of Massachusetts

PRESENTED BY:

Steven C. Owens and John J. Lawn, Jr.

To the Honorable Senate and House of Representatives of the Commonwealth of Massachusetts in General Court assembled:

The undersigned legislators and/or citizens respectfully petition for the adoption of the accompanying bill:

An Act authorizing the city of Watertown to adopt an affordable housing linkage fee.

PETITION OF:

NAME:	DISTRICT/ADDRESS:	DATE ADDED:
<i>Steven C. Owens</i>	<i>29th Middlesex</i>	<i>6/30/2022</i>
<i>John J. Lawn, Jr.</i>	<i>10th Middlesex</i>	<i>6/30/2022</i>
<i>William N. Brownsberger</i>	<i>Second Suffolk and Middlesex</i>	<i>7/1/2022</i>

HOUSE No. 5009

By Messrs. Owens of Watertown and Lawn of Watertown, a petition (accompanied by bill, House, No. 5009) of Steven C. Owens, John J. Lawn, Jr. and William N. Brownsberger (with the approval of the city council) that the city known as the town of Watertown be authorized to adopt an affordable housing linkage fee for non-residential development. Housing. [Local Approval Received.]

The Commonwealth of Massachusetts

In the One Hundred and Ninety-Second General Court
(2021-2022)

An Act authorizing the city of Watertown to adopt an affordable housing linkage fee.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

SECTION 1. The general court finds that:

Commented [A1]: This language is non-instructive and should be stricken.

- ~~—— (a) the city of Watertown is undergoing a period of substantial growth in large-scale commercial development, and this growth is attracting an increasing number of workers and residents to the city;~~
- ~~—— (b) this growth is further increasing the demand for affordable housing for low, moderate and middle income households;~~
- ~~—— (c) the city, recognizing the need for affordable housing, enacted an inclusionary zoning ordinance, adopted the Community Preservation Act, and recently authorized the formation of a municipal affordable housing trust;~~

10 ~~—— (d) even with use of these important tools, more resources are needed to mitigate the~~
11 ~~increased affordable housing demand caused by new large-scale commercial development;~~

12 ~~—— (e) the city of Watertown has, through an outside economic study, documented the nexus~~
13 ~~between commercial development and affordable housing demand, projected the cost of meeting~~
14 ~~this additional demand, and analyzed linkage fees that would be proportionate to the impact of~~
15 ~~such development; and~~

16 ~~—— (f) the purpose of this act is to assist the city in meeting the increased demands with~~
17 ~~respect to administration and planning, and ensure that commercial developers are assessed a fair~~
18 ~~share of the impacts of such future development, by authorizing fees that will be dedicated to~~
19 ~~affordable housing production.~~

20 SECTION 21.

21 ~~—— (a) The city of Watertown may, by ordinance, require the payment of an affordable~~
22 ~~housing linkage fee for any non-residential development, including the commercial portion of a~~
23 ~~mixed-use project and excluding any development for governmental uses, that: (1) requires~~
24 ~~zoning relief, including without limitation, a special permit, special permit with site plan review,~~
25 ~~or site plan approval; and (2) contains a single use or combination of uses exceeding a square~~
26 ~~foot threshold to be determined from time to time by the Watertown city council. For purposes of~~
27 ~~this act, development shall include the construction, enlarging, expansion, substantial~~
28 ~~rehabilitation, or change of use of non-residential property.~~

29 (b) The ordinance shall specify the dollar amount of the linkage fee, which. The linkage
30 fee initially shall not exceed \$18 per square foot and may be adjusted over time based upon
31 changes in the Consumer Price Index ~~All Urban Consumers for all urban consumers, (CPI-U.)~~

32 compiled by the U.S. United States Bureau of Labor Statistics. The ordinance shall specify an
33 initial square foot threshold of 30,000 square feet. The level-amount of any linkage fee and the
34 square foot threshold shall be reviewed at least every 5 years and reset as required based upon
35 recommendation of the city manager and approval of the city council.

Commented [A2]: This change makes the language consistent with language in the first sentence of subsection (b).

36 (c) The city may create a distinct and separate revolving fund account into which
37 affordable housing linkage fees shall be paid, and no such fee shall be paid to the city's general
38 treasury or used as general revenues pursuant to section 53 of chapter 44 of the General Laws.
39 The funds in this revolving fund account shall be administered and expended by the trustees of a
40 municipal affordable housing trust fund established by the city council pursuant to section 55C
41 of chapter 44 of the General Laws.

42 SECTION 32. This act shall take effect upon its passage.



Watertown City Council

Administration Building
149 Main Street
Watertown, MA 02472
Phone: 617-972-6470

ELECTED OFFICIALS:

Mark S. Sideris,
Council President

Vincent J. Piccirilli, Jr.,
Vice President &
District C Councilor

John M. Airasian,
Councilor At Large

Caroline Bays,
Councilor At Large

John G. Gannon,
Councilor At Large

Anthony Palomba,
Councilor At Large

Nicole Gardner,
District A Councilor

Lisa J. Feltner,
District B Councilor

Emily Izzo,
District D Councilor

Report of the Committee on State, Federal and Regional Government Meeting Date: October 6, 2022

The Committee convened on Thursday October 6, 2022 at 5:30pm in the Louis P. Andrews upper conference room, third floor. Present were Nicole Gardner, Chair; Anthony Palomba, Vice Chair; and Emily Izzo, Secretary. Present also were Council President Mark Sideris, Council Vice President Vinnie Piccirilli, Councilor Lisa Feltner, City Clerk Janet Murphy, City Auditor Tom Tracy, Veterans Services Officer Patrick George, Head Clerk Noelle Gilligan, Principal Account Clerk Stephen Addonizio, Election Commissioners Jonathan Hecht, Christopher Dunn, and Adam Brewster, former election commissioner Debbie Dugan and members of the public who participated over zoom. The purpose of the meeting was to review our election process and procedures.

Nicole Gardner, Chair, began the meeting by stating there had been questions raised about our election process. Councilor Gardner suggested that the FSR Committee, Clerk's office and Election Commissioners work together as a team to address where we are and where do we want to go? The goal would be to ensure the elections process is working as well as possible, ensure that the staff and process have the support they need, and ensure that we are all collaborating and communicating well.

In recent years there have been increased attacks on voting throughout the country, covid has caused significant changes and complexity in the elections process, causing City Clerks and their staff increased pressure and workload. Election Day is no longer just one day anymore, rather an entire month. In addition, Janet Murphy, our City Clerk and Chief Election Officer, is new to Watertown and to how elections are run in cities vs. towns. The Clerk's staff has not been increased to reflect the changes in voting processes, and is down one person currently.

Councilor Gardner had spoken with Attorney Lauren Goldberg from KP Law, which is the firm Watertown uses for legal counsel. Attorney Goldberg is an expert on election laws and implementation of the laws. She used to be counsel in the elections division of the Secretary of the Commonwealth's office and she currently assists city and town clerks in implementing state election laws. She has also worked with Watertown on our Charter Review process and so knows our City. Councilor Gardner suggested we work with Attorney Goldberg and opened it up to the committee for comments. Councilor Palomba suggested might consider working with another attorney as well.

Councilor Gardner proposed that Attorney Goldberg to run a training for the Watertown Clerk's office, Election Commissioners, and members of the FSR Committee. This would be open to all interested Councilors. The topics to be

covered include first, what is the law, and how is it implemented, and second, what are the roles of the Clerk's office, Election Commissioners, and the City Council. Topics would include registration, qualifying of candidates, ballot content, requirements for absentee, early voting, and voting by mail, polling locations, what happens on election day and what happens when there is a recount? Councilor Gardner asked if anyone thinks other topics should be covered? Councilor Palomba suggested we include how to increase voter participation. Councilor Gardner suggested we could also include how to increase accessibility as well as voting rates. Council President Sideris suggested we work on defining the roles and responsibilities first and then address the goals. Councilor Izzo suggested another topic could be communication to voters on redistricting and polling locations, as parts of Watertown have been redistricted both at the municipal as well as the state level and many voters are not even aware of this or why they are redistricted. Former election Commissioner Dugan suggested we could also include ballot security at the mail in ballot drop box. Clerk Janet Murphy said Attorney Goldberg is great at explaining election topics. Councilor Gardner also noted that we could try and get a sense from the community on how they perceive voting, and how do we engage with those who don't vote. Overall the Committee agreed with the training proposal.

Councilor Palomba expressed concern that there is an election coming up quickly in November and this seems like it will be a 3-4 month process. Councilor Gardner said the Clerk's office is currently short staffed and the voting process has already begun for the November general election. She suggested the training should be planned for after the November election. The Committee agreed.

Member of the public, Diane Tiernan raised the issue of signage, she wants to be sure the signage is clear as to locations, as she had witnessed someone in the September primary give up on voting because of a locked door, and there was not proper signage as to where the right entrance was. Election Commissioner Adam Brewster wanted to make sure there is an intention to capture the training this so successors will not make mistakes and this new updated process will become the norm. Former Commissioner Dugan asked if the City Council can work with the State Legislature to make primaries earlier, perhaps in June? Councilor Gardner said she would be happy to ask that question of the state delegation. Councilor Izzo asked if there is a way to work with the schools so that election day is not on the same day as a school day? Clerk Murphy explained that there will be no school for the general election in November, and they had been working with the Watertown schools on making sure schools would be closed on election days. However, there was a mix-up with the September primary which ended up resulting in election day and the first day of school falling on the same date. Commissioner Dunn explained that it has been wonderful to work with Clerk Murphy as well as former Clerk Flynn and their staff; he said communication with them was more than adequate and the office has always been cooperative.

Attachment A: Inactive Voters

Attachment B: Boards of Registrars & Election Commission

⇒ **Action Item:** Councilor Palomba made a motion, seconded by Councilor Izzo, to recommend that the City Council endorse bringing Attorney Lauren Goldberg in for a training for the Election Commissioners, City Council, and the City Clerk's office. Voted 3-0.

The meeting adjourned at 6:14pm.

Report prepared by Emily Izzo.



CITY OF WATERTOWN

Office of the City Clerk

Administration Building

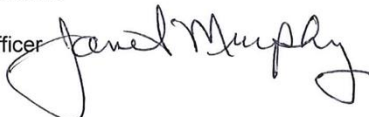
149 Main Street

Watertown, Massachusetts 02472

Janet M. Murphy
City Clerk/Chief Election Officer

Telephone (617) 972-6486
Fax (617) 972-6595

TO: George Proakis/Election Commissioners/City Councilors

FROM: Janet M. Murphy, City Clerk and Chief Election Officer 

DATE: 7 October 2022

SUBJ: Inactive Voters

As a follow-up to yesterday's FSR Committee Meeting, I wanted to provide you with some information concerning the recent inactivation of voters, as I know that several of you have questions.

Per state and federal law, any voter who fails to respond to the annual street listing (aka census), must be made inactive and sent a confirmation notice. In June, approximately 12,000 voters were inactivated, as they did not have a current census year. Unlike the census, which is sent to the voter household only, the confirmation mailing is sent to each individual voter. As a result of that mailing, more than 4,000 voters have been reactivated and are now "active voters" on our rolls. Additionally, per their response to the notice, I have been able to delete more than 1,600 voters that no longer live here. There is currently an additional 547 inactive voters who are eligible to be deleted (meaning they did not respond to the notice and have not voted in 2 consecutive biennial state election cycles.) We also received back approximately 500 confirmation cards that were "undeliverable", due to the person no longer living at that address or at their forwarding address on file. We are making good progress on getting our voting list cleaned up.

If a voter is inactive on Election Day, they must show an ID and sign an affidavit of continuous residence, swearing that they still live in the city. During the Primary election, we realized that the affidavit form that they must sign was too complicated and time consuming to complete. We have switched to a new, streamlined form to make this process easier and faster for the voter.

There are several ways that a person can reactivate their status and I am hoping that you will be able to get the word out to your constituents so that they can take some action prior to Election Day. They can print out and complete a blank census form and return it to us so that we may update their census year. (These forms are on our Elections and Voting page of the city website.) They can reregister to vote (online, by mail or in person). If they request a Vote by Mail or Absentee ballot, they become active. If they voted in the September primary, they are now active.

We included this information in the recent City Manager's newsletter that was sent out with tax bills and will be issuing public media blasts throughout the next 5 weeks. I'm hoping that you will be able to help us spread this information to the public so that they can be proactive and update their status prior to last day to register for the November election, which is Saturday, October 29th at 5:00 PM. The Clerk's Office will be open for voter registration.

Only a census form can update your census year. Please urge your voters to respond every year to the census so that they remain active voters on our rolls.

Thank you for your assistance in getting this information out. If I can answer any questions at all, please let me know.



BOARDS OF REGISTRARS & ELECTION COMMISSIONS

William Francis Galvin
Secretary of the Commonwealth
Elections Division
One Ashburton Place, Room 1705
Boston, MA 02108
617-727-2828
800-462-8683
www.sec.state.ma.us/elections
elections@sec.state.ma.us

Revised 2017

TABLE OF CONTENTS

I. Introduction.....	2
II. Appointment and Structure	2
Board of Registrars Including City/Town Clerks.....	2
Board of Registrars Excluding the City Clerk.....	3
Election Commissions.....	3
Party Enrollment.....	3
Qualifications	4
Vacancies	4
Assistant Registrars.....	5
III. Registration	5
Registration Functions.....	5
Functions Required of Registrars	6
Registration Sessions.....	7
Special Registration Provisions.....	8
IV. Local Lists.....	8
V. Certification of Signatures	8
Receipt of Petitions.....	8
Candidate Information.....	9
Enrollment Certificates & Certificates of Voter Registration.....	9
Certification of Names	10
Review of Non-Certified Signatures	11
Return of Certified Petitions	12
VI. Absent Voting Duties.....	12
Permanently Disabled Voters	13
Voters Admitted to Healthcare Facilities	13
Supervised Absentee Voting.....	13
VII. Appointment of Election Officers.....	13
Election Officers in Cities	13
Election Officers in Towns.....	14
VIII. Objections and Challenges	14
IX. Recounts.....	14

I. INTRODUCTION

Every city and town must have a board of registrars or election commission whose responsibilities include registering voters, making local listings of residents, certifying nomination papers and petitions, processing absent voter applications, and administering election recounts. This booklet describes how such boards and commissions are appointed, how they are structured, and how they function.

II. APPOINTMENT AND STRUCTURE

In most towns, the board of registrars is comprised of four members: three members appointed by the board of selectmen, and the town clerk acting as an ex officio member. Boards of registrars in cities and towns with city-type charters may or may not include the city clerk. Some cities and towns may have election commissions instead of boards of registrars. G.L. c. 51, § 15; G.L. c. 51, § 16A; G.L. c. 51 § 17.

Boards of Registrars Including City/Town Clerks

The board of registrars in cities and towns, except those which accept either section 16A or 17 of chapter 51, or which are under a special act (for example: Boston and Cambridge), is a four member board of which one member is the city or town clerk. In cities, the other three members are appointed by the mayor, with the approval of the city council or board of aldermen. In towns, the other three members are appointed by the selectmen from lists submitted by town committees of the two leading political parties.

Before making appointments to the board of registrars, the selectmen or appointing authority must solicit lists of qualified individuals from the two leading political parties. If no local party committees are organized, the state parties should be contacted. If no list is submitted within 45 days after the party chairman is notified by the selectmen or appointing authority by certified mail, appointments may be made without reference to the list.

Registrars have overlapping terms. One member of the board of registrars shall be appointed each February or March for a three year term beginning on April 1st of that same year. The clerk automatically becomes a member of the board when sworn in as city or town clerk.

The board must always contain, as nearly as possible, representatives of the two leading political parties as defined in section 1 of chapter 50 of the General Laws (Democrats and Republicans) and can contain no more than two members of each of those parties. G.L. c. 51, § 18.

The party enrollment of the clerk affects the membership of the board, but the city or town clerk need not be enrolled in a political party. If the election or appointment of a clerk would cause more than two members to be from the same party, the appointed member of the registrars with the shortest term left to serve and enrolled in the same

party as the clerk would be removed by the mayor or selectmen (after written complaint, notice and hearing) and a new member would be appointed from a different party than that of the clerk. G.L. c. 51, § 19.

Boards of Registrars Excluding the City Clerk

In cities which have accepted section 17 of chapter 51, the board of registrars consists of four members appointed by the mayor with the approval of the city council to equally represent the two leading political parties. When a city changes from a board that includes the clerk as a member, the city clerk shall cease to be a member of the board as soon as the first two registrars are appointed.

When a city chooses to have a board which does not include the clerk, the first two registrars shall be appointed in February or March, one for a three year term and the other for a four year term to begin on April 1st. These two registrars fill the vacancies created by the removal of the city clerk from the board, as well as the annual expiration of one of the registrar's appointed term. The remaining two registrars from the previous board shall continue in office until their original terms expire. As registrars' terms expire, each new appointment shall be for a four year term to begin on April 1st. G.L. c. 51, § 17.

Election Commissions

In any city (except Cambridge) or town that accepts the provisions of section 16A of chapter 51, there shall be a board of election commissioners who shall have all the powers, duties and responsibilities of the registrars of voters.

If a city or town accepts the provisions of section 16A, the three members of the board of registrars already in existence when the election commission is established shall become the election commissioners. The town clerk shall cease to be a member immediately and a new member must be appointed for a four year term to begin April 1st.

The commission itself shall consist of four members equally representing the two leading political parties. Appointments shall be made by the mayor with the approval of the board of alderman, by the city manager, or by the selectmen.

In towns, such appointments are made from a list containing the names of three voters from that town submitted by the town committee of the political party from which the position is to be filled. If no list is submitted within 45 days after the selectmen or appointing authority have notified the party chairman by mail, the appointments may be made by the selectmen or appointing authority without reference to any list.

Party Enrollment

A registrar's or commissioner's party enrollment status is determined by reviewing his or her enrollment status two years prior to appointment. Any party enrollment status required for appointment must have been maintained continuously for two years. G.L. c. 4, § 12.

Qualifications

The General Laws specify qualifications for registrars and list other offices they may or may not hold. Additionally, there are other positions registrars should avoid due to possible conflict of interest.

Registrars and assistant registrars must meet the following qualifications:

- A registrar must be a registered voter of the city or town where appointed, unless regularly employed by the registrars. G.L. c. 51, § 25.
- A registrar must hold no other office in the city or town in which he or she is a registrar, either by election or by direct appointment by the mayor, selectmen, or city/town manager. Nor may a registrar hold any office by election or appointment under the government of the United States or of the Commonwealth, except in towns with less than 2,000 residents. G.L. c. 51, § 25.
- A registrar must subscribe an oath to faithfully perform the duties of a registrar. G.L. c. 51, § 23.

If a registrar accepts any appointed or elected office, he or she may no longer serve as a registrar, and the registrar's seat is deemed to have been vacated upon the acceptance of the office. A registrar may run for and hold office as a member of a home rule charter commission or town meeting member. This law does not prohibit a registrar or assistant registrar from being a candidate for a public office, but if a registrar or assistant registrar becomes a candidate for public office, there may be other implications, such as those with the state ethics laws. A registrar or assistant registrar may be a justice of the peace, notary public, or officer of the state militia. G.L. c. 51, § 25.

Registrars should not serve as election workers. If a registrar has served as an election worker, that registrar should recuse himself or herself from any recount in that election. It should be kept in mind that in such a case, the appointing authority should temporarily fill any vacancy in the board, so as to maintain the representation of the political parties for the recount. It is sound practice to avoid conflicts of interest such as those which might occur if a person were both an election officer and a registrar.

Pursuant to section 5 of chapter 55 of the General Laws, registrars cannot serve as chairman, treasurer, or other principal officer of any political committee.

Vacancies

Board vacancies which occur between the regularly appointed terms may be filled either by appointment or temporary appointment. An appointment may be made in the same manner as the original appointment, but only for the remainder of the vacated original term.

In cities, vacancies are filled by the mayor with the approval of the city council or board of aldermen. In towns, vacancies are filled by the selectmen from a list of three voters from that town submitted by the town committee of the political party from which the position is to be filled. G.L. c. 51, § 15.

A temporary appointment to fill a position for a limited time may be made by the mayor or selectmen upon written request of a majority of the board. This type of appointment may be made in cases where the vacancy occurs because of a registrar's absence from the city or town, retirement, death, or inability to perform his or her duties. G.L. c. 51, § 20.

Assistant Registrars

Registrars may appoint assistant registrars for one year terms, which begin on April 1st, to assist the registrars. The assistant registrars must equally represent the two leading political parties. Unenrolled voters may be appointed assistant registrars as long as there is an equal number of Democrats and Republicans. G.L. c. 51, § 22.

Registrars may also appoint temporary assistant registrars from time to time to assist in street listing and in the registration of voters. Temporary assistant registrars must equally represent the two leading political parties. If they are regularly employed by the registrars, they need not be registered voters of the city or town.

Assistant registrars may perform the duties of registrars under the direction of the registrars. Assistant registrars are subject to the same obligations and penalties as registrars. G.L. c. 51, § 24.

Registrars may appoint absent registration officers to assist them in registering physically disabled voters. Absent registration officers must equally represent the two leading political parties. G.L. c. 51, § 22A.

All acts of a single registrar, assistant registrar, or absent registration officer are subject to acceptance of the full board of registrars. G.L. c. 51, § 33.

III. REGISTRATION

Registrars are responsible for the entire registration process, for maintaining registration records, and for sending certain records to the secretary of the commonwealth.

Registration Functions

At voter registration sessions, registrars are required to receive affidavits of voter registration from registrants who reside in their city or town and from those who reside in any other city or town in the commonwealth. For applications for other municipalities, the registrars must submit such completed affidavits to the registrars in the registrant's city or town. G.L. c. 51, § 42F.

Upon receipt of a completed affidavit of voter registration, the registrars shall add the name of the voter to the annual register. The affirmation by the registrant of the facts contained on the affidavit of registration, signed under the penalties of perjury, is sufficient for registration purposes and the registrars should not request additional evidence of a voter's domicile during the initial registration process. If the registrars are not satisfied with the facts set forth in the affidavit, they may require further evidence of

domicile at a post-registration hearing after issuing a formal complaint and summons. G.L. c. 51, §§ 44, 46, 47, 47B, 48, 49.

Functions Required of Registrars

Registrars must post copies of sections 7, 8, and 9 of chapter 56 of the General Laws (“Aiding or abetting false oath, etc.,” “Illegal registration,” “Misconduct at registration”) at every registration site. G.L. c. 51, § 12.

The registrars must accept all completed voter registration affidavits received from registration agencies, from individuals and organizations conducting voter registration, through the mail, and by hand delivery. All registration forms are supplied by the secretary of the commonwealth. There are forms for voter registration agency use (two-part forms) and mail-in forms. G.L. c. 51, §§ 36, 42, 42F.

When registering individuals at the board of registrars’ office or office of the city or town clerk, registrars must use the two-part agency forms and give the registrant a copy of the voter registration affidavit, including the hinge at the top of the form. G.L. c. 51, § 36.

Registrars must register all eligible individuals who will be 18 on or before the date of the next election. Registrars must pre-register all eligible individuals who are 16 or 17 years old. G.L. c. 51, §§ 1, 44, 47A.

If after reviewing an affidavit of voter registration, it appears to the registrars that the applicant is not qualified to be a registered voter or the affidavit is incomplete, the registrars must notify the applicant that they have not been registered to vote and give them an opportunity to remedy the defects in the affidavit. G.L. c. 51, § 47.

The registrars must send duplicate copies of affidavits of registration to the registrars in the city or town where the voter was last registered if in Massachusetts or to the secretary of state where the voter was last registered if the previous residence was in another state. This is done by entering the voter’s previous address into VRIS. G.L. c. 51, §§ 38, 46A.

If a voter is seeking to register in a different community, the registrars must allow the voter to register using the agency form and the registrars thereafter must transmit the original affidavit to the voter’s home community within 5 calendar days. The registrars must be sure to write their 3 letter city or town code in the red box in the lower right hand corner. G.L. c. 51, §§ 36, 42F.

The registrars must preserve original affidavits of registration for two years after the form is superseded or the voter is deleted. Registrars must also preserve for all other written applications, complaints, certificates, voter lists, and affidavits received by them and all other documents relative to listing and voter registration for two years. G.L. c. 51, § 41.

Registrars must ensure that candidates for public office or persons acting on their behalf do not solicit votes or distribute campaign literature in any office where voter registration is being conducted. G.L. c. 51, § 52A.

Registrars must change a voter's party enrollment upon a request signed under the pains and penalties of perjury and thereafter, notify the voter that the change has been made. G.L. c. 53, § 38.

If at any time after the registration of a voter, the registrars have probable cause to believe that the voter has made a false statement in his affidavit of registration, they may prepare a complaint setting forth the basis of their beliefs and summon the voter to appear before them for a hearing. G.L. c. 51, § 47B.

The registrars must summon a person to a hearing before them upon receipt by the board of a signed and sworn complaint alleging that person is illegally or incorrectly registered to vote. The complaint must be made in writing and received at least 14 days before an election in a city and four days before an election in a town. G.L. c. 51, § 48.

The registrars must examine under oath anyone summoned before the board to answer a complaint about his or her voter registration. If after examination, the registrars are satisfied that the person is not a qualified voter or the person fails to appear before them, they shall strike his name from the register. Any member of the board of registrars may administer oaths to witnesses who appear before the board. G.L. c. 51, § 49; G.L. c. 233, § 8.

The registrars must submit the number of voters enrolled in each party, political designation, and the number of those unenrolled, by precinct, to the secretary of the commonwealth within 10 days after the last day to register to vote for every state and presidential primary, general election and on or before February 1st of each even numbered year. This is done through entering all registrations into VRIS promptly upon receipt of the registration forms. G.L. c. 53, § 38A.

Registration Sessions

Registrars must hold sessions for voter registration as provided in town by-laws, city ordinances, and the General Laws. The registrars may also hold other voter registration sessions at locations they deem necessary, including mobile registration units, to allow voters to register. In addition, they may hold sessions in any school in the state.

Registrars must post or publish sessions of voter registration. G.L. c. 51, §§ 26, 32, 42D.

The last day to register to vote before any election or annual town meeting is 20 days before that election or meeting. The last day to register for a special town meeting is 10 days before that meeting. Voters may still register after the deadline, but they will not be eligible to vote in that election if they were not already registered in the same city or town. G.L. c. 51, § 26.

On the last day for voter registration, the board of registrars must hold a continuous voter registration session from 9 a.m. to 8 p.m., except in towns of fewer than 1,500 voters where the hours must be at least 2 p.m. to 4 p.m. and 7 p.m. to 8 p.m. G.L. c. 51, § 28.

Special Registration Provisions

If the city or town accepts the provisions of section 42C of chapter 51 of the General Laws, the registrars must hold a voter education and registration session at each high school or vocational school in their city or town, as part of an educational assembly for all seniors, one day each year between April 1st and May 15th. This section applies only upon its acceptance by city council or town meeting. G.L. c. 51, § 42C.

Any legal resident of the commonwealth who was included in the definition of “specially qualified voter” (see section on absentee voting) throughout the 7 days immediately preceding the final time for registration, or who becomes a U.S. citizen after the final time for registration, may appear before a registrar or assistant registrar of the city or town where they reside and register as a voter up until 4:00 P.M. on the day before a primary, preliminary, or election. A voter registered under these circumstances must be issued a certificate of “Supplementary Registration” that they must present to election officers at the polls in order to vote. G.L. c. 51, § 50.

IV. LOCAL LISTS

Registrars must assist the city or town clerk in compiling information for the annual street list, the annual register, and the voter lists. This process begins in January or February of each year with the distribution of the local census forms. For more information on local lists and the registrars’ duties in compiling them, please see the booklet published by the Elections Division entitled “Local Lists.”

V. CERTIFICATION OF SIGNATURES

Registrars are responsible for certifying signatures on nomination papers and petitions, issuing party enrollment certificates and certificates of voter registration, investigating objections and challenges to local nomination papers, and certifying absent voter applications. Signatures on nomination papers, initiative petitions, referendum petitions, recount petitions, public policy petitions, and local ballot question petitions must be certified as names of registered voters in the city or town where they are filed. In many cities and towns, the town clerk or other office employees perform most certification functions. G.L. c. 53, §§ 7, 22A; G.L. c. 54, § 135; 950 C.M.R. §§ 55.02, 55.04.

Receipt of Petitions

The date and time of all petitions received in the office of the registrars should be noted in the appropriate space on each paper or petition.

A line in red ink must be marked through any unused signature lines at the time the petitions are being submitted to insure that signatures are not added after papers are certified.

The registrars must issue a written receipt when they receive any petitions. The receipt should include the date and time received, the number of pages submitted, and the name and contact information of the person submitting the papers or petitions. The registrars must provide a copy of the receipt to the filer and retain a copy for their records. The papers should be certified in the order in which they were submitted to the registrars' office. G.L. c. 53 §§ 7, 46; 950 C.M.R. § 55.02(1).

Candidate Information

Most nomination papers include gray areas in which the candidate's name and other information must be entered prior to circulation. The candidate's name, residential address (including street number, street name, and city or town), office, and district must be listed on the nomination papers before signatures can be gathered. In partisan elections, the candidate's party enrollment or political designation must be provided as well. On state nomination papers, registrars must draw a red line through any missing information in the gray areas, so that candidates cannot add the information afterward.

Registrars must review nomination papers for the district name when they are being submitted for certification. If the district designation is incorrect, the registrars must allow the candidate to correct it before the signatures are certified. The candidate and registrar must initial the change and explain the reason for the change in writing. Three copies must be made (one for the registrars, one for the candidate, and one attached to the nomination papers). No other information on the papers may be changed. If the district name is blank, the candidate cannot add any information to the blank space and the registrars must draw a red line through it. G.L. c. 53, §§ 7, 8, 45, 46.

Enrollment Certificates and Certificates of Voter Registration

In the candidate's city or town of residence, the registrars must complete an enrollment certificate (for a party candidate) or a certificate of voter registration (for a non-party candidate).

Party candidates must fulfill certain enrollment requirements. For primaries, candidates must be enrolled members of the party whose nomination they seek, except newly registered voters, throughout the 90 days preceding the filing deadline with the secretary of the commonwealth's office. The candidate cannot have been enrolled in any other party during the one-year period before the filing deadline for that election. If these requirements are met, the registrars can fill out the certificate for a voter in their community. The enrollment certificate must be signed or stamped by at least 3 of the registrars or election commissioners and must state the name, address, and party of the candidate, as registered. G.L. c. 53, § 48; 950 C.M.R. § 55.03(5).

Non-party candidates must have been "unenrolled" during the 90 days preceding the deadline for filing nomination papers with the secretary of the commonwealth. Non-party candidates must file a certificate of voter registration, signed by the registrars in the city or town where they are registered to vote. The certificate must be signed by at least 3 registrars or voters or election commissioners, include the candidate's name and address

as registered, and must be filed no later than the last day for filing nomination papers with the secretary's office. G.L. c. 53, § 9; 950 C.M.R. § 55.03(5).

Certification of Names

A voter signing nomination papers must sign in person as registered or "substantially as registered." The regulations provide that a name is "signed substantially as registered" if it can reasonably be determined to be that of a registered voter.

G.L. c. 53, § 7; 950 C.M.R. § 55.03 (1), (2), (3) and (4).¹

Signatures should be certified if:

- A middle initial is inserted or omitted;
- A common or known nickname is used;
- Two initials are used with a surname;
- One initial is used with a surname if no other registered voter with that initial lives at that address;
- "Jr." or "Sr." is inserted or omitted;
- Ditto marks are used to indicate a correct address;
- The name is printed.

Signatures should not be certified if:

- The first name is different from the first name on the voter list;
- The address is different, even if only by one house number, or if a post office box rather than a street address appears;
- The name is not that of a registered voter at that address;
- The name is illegible;
- The signer is enrolled in the wrong party (for primary nomination papers or recount petitions); (For primary nomination papers the voter must be enrolled in the proper party or unenrolled (independent) at the time of certification. For primary recount petitions, the voter must be enrolled in the proper party as of the last day to register before the primary)
- The signer is registered in a different voting district or community;
- The signer already signed a nomination paper for the same candidate or petition (including the earlier stage of a state initiative petition). (Only the first signature submitted for that candidate should be certified.

G.L. c. 53, § 7.

The registrars must place a check next to the names of qualified voters and use the proper symbols designated by the Secretary indicating the reason for disqualifying any signatures. The symbols are printed on the back of each sheet. G.L. c. 53, § 7.

¹ See *4, 568 Registered Voters v. City Clerk*, 392 Mass 424, 425 n. 5, 465 N.E. 2d 1209, 1210 n. (1984); *McCarthy v. Secretary of the Commonwealth*, 371 Mass. 667, 682-85, 359 N.E. 2d 291, 301-03 (1977) and *Hilsinger v. State Ballot Law Commission*, Nos. 39934 & 39958 (Mass. Super., Suffolk Apr. 28, 1980).

The ward and/or precinct numbers need not be filled in by voters or circulators. The column is included for the registrars' convenience in certifying signatures. G.L. c. 53, §§ 7, 46; 950 C.M.R. § 55.02(4).

Registrars must certify a name even if it is alleged that it was forged or obtained by fraud. In cases alleging forgery or fraud, an objection may be filed and a hearing will be held before the State Ballot Law Commission for state nominations and petitions and before the local boards of registrars for local nominations and petitions. The registrars may also bring it to the attention of the secretary's office for referral to the appropriate law enforcement agency. 950 C.M.R. § 55.03(2)(b).

On each nomination paper and petition, there is a box for the registrars to complete their certification. At least three registrars must sign their names in the space provided to certify the petitions. A facsimile stamp may be used by the person designated by the registrars to certify the petition on their behalves. G.L. c. 53, §§ 7, 46; 950 C.M.R. § 55.02(7).

The registrars must indicate the number of names certified on each page in words as well as numerals, in the space indicated on the nomination papers. 950 C.M.R. § 55.02(5), (6).

Registrars may limit the number of signatures they certify to 2/5ths more than the number necessary for nomination. For a local primary or preliminary election the registrars need only certify 1/5th more than the number of signatures necessary for nomination. G.L. c. 53, § 7; 950 C.M.R. § 55.02(8).

Review of Non-Certified Signatures

If a candidate for an office on the state primary or state election ballot does not have enough certified signatures, or if the candidate has less than 10% in excess of the number of signatures required for nomination, he or she may apply in writing to the registrars for a review of the noncertified signatures.

In order to request a review, the candidate must leave the nomination papers in the custody of the appropriate city or town clerk.

A candidate requesting such review must do so in writing and must include a list of all signatures not previously certified which they want reviewed. A request for a review must be made no later than 48 hours after the last day for registrars to certify nomination papers.

Upon receipt of such request, the registrars must review the signatures appealed and correct any errors or mistakes in certification.

After the review, if the registrars find signatures that should have been certified and were not initially certified, the registrars must make the correction in the check box beside the signature and initial the correction. Next, the registrars must change the number certified to the correct number in the certification area on the rear of the paper and initial it. Then

the registrars must attach a letter to each paper that a change was made on indicating the change in number (for example: “The review has resulted in the number of certified signatures changing from 8 to 9.”). This letter must be signed by a majority of the board of registrars or a facsimile stamp.

Review and corrections must be completed no later than 24 hours before the final hour for filing certified nomination papers with the secretary of the commonwealth.
G.L. c. 55B, § 6.

There is no review process for non-certified signatures on municipal nomination papers or ballot question petitions.

Return of Certified Papers or Petitions

Registrars shall return certified nomination papers and petitions only to persons who present acceptable identification and who sign their names and addresses on the registrars’ records. Acceptable identification includes:

- The receipts issued by the registrars at the time of submission;
- Written authorization signed by the candidate or organization sponsoring the petition;
- Telephone authorization by the candidate’s or organization’s headquarters; or
- Personal recognition by the registrars. 950 C.M.R. § 55.04.

VI. ABSENT VOTING DUTIES

The clerk must transmit applications for absentee ballots to the registrars for them to certify that the signatures on the absentee ballot applications appear to be genuine and affirm that the application is for a qualified voter. Once this has been done, the registrars must return the application to the city or town clerk. If someone applies for an absentee ballot in the presence of the registrars, assistant registrars, or clerk, and seeks to vote in their presence, the person accepting the application must examine the application, execute the certificate, and allow the registered voter to mark the ballot at the office during the same visit. If the registrars find that the applicant is not a qualified registered voter they must send the person a written notice of that finding. G.L. c. 54, § 91.

Registrars may investigate anyone applying for an absentee ballot as a “specially qualified voter.” A specially qualified voter is a Massachusetts citizen who is not registered to vote and:

- Whose current residence is outside the United States and whose last residence in the United States was in Massachusetts; or
- Whose current or most recent residence is in Massachusetts and who is absent from his or her city or town of residence due to active duty military service; or
- Who is the dependent family member of a Massachusetts citizen who is specially qualified due to military service; or
- Whose current residence is in Massachusetts and who is absent from the commonwealth (for example: college students out of state); or

- Who is confined in a correctional facility or jail for reasons other than a felony conviction.

Permanently Disabled Voters

Registrars must send completed absentee ballot applications to certified permanently disabled voters at least 28 days before the primary, preliminary, or general election. Certified permanently disabled voters are persons who have filed a certificate issued by a physician certifying to the person's disability with the city or town clerk. G.L. c. 54, § 86.

Voters Admitted to Healthcare Facilities

If a voter was admitted to a healthcare facility after noon of the fifth day before the election, that voter may request a ballot be delivered to them up until the close of polls. If the registrars are unable to deliver a ballot to the voter, the voter may designate someone of his or her choice to bring them the ballot. The voter must still be in the healthcare facility on the day of the election and they must specify in writing who they want to deliver the ballot to them – the person delivering the ballot cannot be a candidate. G.L. c. 54, § 91B.

Supervised Absentee Voting

At least 28 days before any election, the registrars may designate in writing certain health care facilities for supervised absentee voting. When a location has been designated for supervised absentee voting, the registrars must arrange a time before each election for such voting. The registrars must bring all necessary materials to the facility for supervised absentee voting, including absentee ballot applications, ballots, absentee ballot envelopes, and any other accompanying paperwork. After the voter completes the absentee voting process at the designated health care facility, the registrars must return the voted ballots and any other materials back to the city or town clerk. G.L. c. 54, §§ 91B, 92.

VII. APPOINTMENT OF ELECTION OFFICERS

Election Officers in Cities

By April 15th of each year, the registrars must notify the chairmen of the city and ward political party committees in writing that they may submit lists of party members by June 1st for appointment of election officers.

On or before June 30th the registrars must submit to the mayor or other appointing authority the persons chosen from the lists provided who, in the opinion of the registrars, are qualified to act as poll workers. G.L. c. 54, § 11B.

If no list is submitted, the mayor shall appoint any qualified registered voters of the city.

Election Officers in Towns

The selectmen are required to notify the chairmen of the town party committees by April 15th that they may submit lists of party members by June 1st for appointment of election officers.

No later than June 30th, the registrars shall submit to the selectmen the names of the persons on the lists provided by the parties who appear to be qualified to act as election officers. Not earlier than July 15th, nor later than August 15th, the selectmen shall appoint election officers to each precinct, using the list provided by the registrars. If no lists were submitted by either party, the selectmen shall appoint any qualified registered voters of the town.

If the selectmen fail to make appointments by August 15th, the registrars shall appoint election officers from the lists of party members submitted by the party committees. If no list was submitted, the registrars may appoint any qualified registered voters.

G.L. c. 54, § 12.

VIII. OBJECTIONS AND CHALLENGES

Objections to certificates of nomination, nomination papers, or withdrawals for local offices or objections to petitions for local ballot questions shall be filed with the city or town clerk and transmitted to the board of registrars. The board must render a decision on any matter referred to them. G.L. c. 55B, § 7.

Persons dissatisfied with the registrars' decisions may have these decisions reviewed by filing a complaint with the Superior Court. G.L. c. 55B, § 6.

IX. RECOUNTS

The board of registrars is charged with the responsibility for presiding over recounts. The basic steps in the conduct of a recount are printed below:

1. Examine the petition and statement attached to the petition and certify the names of qualified voters on the recount petitions.
2. Arrange for the recount without unnecessary delay, but not before the deadline for filing recount petitions has passed. For any office or question on the state primary or state election ballot, except a state-wide office, the registrars must set the date for not more than 6 days after the last day for filing a recount petition for a primary and not more than 10 days after the last day for filing a recount petition for an election.
3. Give each candidate for the office to be recounted at least 3 days written notice of the time and place of the recount.
4. Appoint recount workers.

5. Administer all recounts and supervise the actual recount in person.
6. Make rulings on whether protested ballots should be counted.
7. Certify the result of the recount. Decisions of the board of registrars are subject to court review if a complaint is filed in Superior Court.



Watertown Town Council

Administration Building
149 Main Street
Watertown, MA 02472
Phone: 617-972-6470

ELECTED
OFFICIALS:

Mark S. Sideris,
Council President

Vincent J. Piccirilli,
Jr.,
Vice President &
District C Councilor

John Airasian
Councilor At Large

Caroline Bays
Councilor At Large

Lisa J. Feltner,
District B Councilor

John G. Gannon
Councilor At Large

Nicole Gardner
District A Councilor

Emily Izzo
District D Councilor

Anthony Palomba,
Councilor At Large

Screening Committee for the Municipal Policy Analyst Meeting Minutes of Thursday, September 29, 2022

The purpose of the meeting was to develop a process for selecting policy analyst candidate finalists, for subsequent interview by the City Council. PCO Chair Bays called the meeting to order at 5:17 pm.

Present were Screening Committee members Councilors Caroline Bays, Chair, John Gannon, Nicole Gardner, and Vinnie Piccirilli. Councilor Lisa Feltner was also in attendance.

As a first order of business, the Screening Committee agreed unanimously that Councilor Bays will serve as Chair of the Screening Committee.

The Committee agreed unanimously to the following process:

Confirming potential candidates. Watertown Personnel Director Gayle Shattuck will write to all applicants on Monday October 3rd, asking them to confirm back to us if they are still interested and available for this position.

Developing interview questions.

A. Committee members will send their list of proposed interview questions to Chair Bays by close of business Monday, October 3rd.

B. Chair Bays will obtain an HR review of the questions to ensure appropriateness.

C. Chair Bays will send the consolidated and scrubbed list of interview questions to all City Council members by close of business Wednesday, October 5th.

D. City Council members will be invited to propose additional questions back to Chair Bays by Monday, October 10th.

E. Chair Bays will again obtain HR review.

F. The Screening Committee will meet on Thursday, October 13th. At that meeting the Committee will finalize the list of interview questions.

Selecting candidates for first round interviews.

A. Committee members will bring their assessment of all candidates to our next meeting, Thursday, October 13th, using the following rubric:

- 1) yes
- 2) maybe
- 3) no

B. The Committee will go into Executive Session in order to review their assessments of candidates and select applicants to be interviewed by the Screening Committee.

C. At a minimum, all candidates that are rated “1” by all 4 Committee members will be interviewed. Others may pass through to first round interviews depending on the depth and quality of the field.

D. The Committee expects to send 2-3 finalists through for final interviews by the City Council in a special City Council meeting. Finalists’ resumes and applications will be sent in advance.

At 6:16 p.m. the Committee voted unanimously to adjourn.

Respectfully submitted by Nicole Gardner, Secretary



George J. Proakis
City Manager

CITY OF
WATERTOWN
Office of the City Manager

Administration Building
149 Main Street
Watertown, MA 02472
Phone: 617-972-6465
www.watertown-ma.gov
citymgr@watertown-ma.gov

To: Honorable City Council

From: George J. Proakis, City Manager 

Date: October 20, 2022

RE: Update on the Massachusetts Municipal Opt-in Specialized Stretch Code

Attached please find email correspondence regarding the subject from Silas Fyler, Project Manager, Department of Public Buildings.

I will bring this up under Communications from the City Manager at the October 25, 2022 City Council Meeting and respectfully request the matter be referred to Committee for policy consideration and guidance by the Honorable City Council.

cc: Silas Fyler, Project Manager, Department of Public Buildings
Steven Magoon, CD&P Director/Assistant City Manager
Mark R. Reich, Esquire, KP Law

Hand, JoAnna

From: Silas Fyler <silas.fyler@watertown.k12.ma.us>
Sent: Wednesday, October 19, 2022 12:58 PM
To: Hand, JoAnna
Cc: Osmond, Marsha
Subject: Re: Agenda Item - Manager's update on the Massachusetts Municipal Opt-in Specialized Stretch Code
Attachments: 225 CMR 22 MA Residential Front end amendments clean Final.pdf; 225 CMR 23 MA Commercial Front end amendments clean Final.pdf; Stretch and Specialized code Regulation Summary 09222022-1.pdf

Hi JoAnna,

As part of the Climate Energy Action Plan (See section BE2.1) the Energy Managers Office is responsible for moving forward on the States new Stretch Code and Specialized Stretch Code. As a Green Community, Watertown has already adopted the presently active Stretch Code and will automatically be committed to the new Stretch Code. However, the Specialized Stretch Code will require a City Council vote to opt-in.

When a municipality votes to adopt the Specialized Code, the Department of Energy and Resources (DOER) recommends that the requirements take effect for new building permit applications beginning on the next January 1st or July 1st, whichever is a minimum of 6 months after the municipal vote. In order for Watertown to have the Specialized Code active by July 1st 2023, the City Council will have to vote by no later than December 31st 2022. If the vote is after December 31st 2022 then the active date is January 1st 2024.

In general the Specialized Stretch Code extends the new Stretch Code to require all new residential and commercial buildings to be either fossil fuel free or to be fully wired for electrification with solar installed.

DOER recently finalized the wording for both of the new codes and submitted them to the Joint Committee on Telecommunications, Utilities, and Energy (TUE) for review. The TUE Committee now has 30 days from DOER submission to call for a public hearing on the proposed regulations and issue a report back to DOER. I am expecting that there will be no significant changes and will become law shortly thereafter. To make this more challenging, DOER must have the Specialized Stretch Code rules available for adoption by December 24, 2022.

Obviously the timeline for the City Council to be able to vote on the Specialized Stretch Code will be tight. Is it possible to have the City Council review the version as it stands now so that when a fully executed version is posted, the City Council could be ready to vote before its last meeting in December?

I have attached DOER's summary of the new Stretch Code and Specialized Stretch Code as well as the detailed rules for your review.

Thanks,

Silas Fyler (he/him)
Project Manager
Department of Public Buildings
Watertown, MA

On Wed, Oct 19, 2022 at 11:31 AM Hand, JoAnna <jhand@watertown-ma.gov> wrote:

Hi Silas,

Do you have a memo and/or background materials to submit to council? The matter will be referred to Committee for policy consideration and guidance by the Honorable City Council. I will need this no later than Noon tomorrow for next week's agenda.

Regards,

JoAnna Hand

City Manager's Office

149 Main Street

Watertown, MA 02472

Tel. 1-617-972-6465 | www.watertown-ma.gov

When writing or responding, please remember that any email sent or received by an employee of the Watertown Public Schools is subject to the Massachusetts Public Records Law, M.G.L. c.66. This email message (including any attachments) is for the sole use of the intended recipient(s) and may contain confidential information covered under the Family Educational Rights & Privacy Act (FERPA) and/or other student records laws. If you are not the intended recipient, or the employee or agent responsible for delivering it to the intended recipient, you are not authorized to read, retain, print, copy, disseminate or otherwise use this email (or any attachments) or any part thereof. If you have received this email (and any attachments) in error, please contact the sender and delete all copies from your system.

Massachusetts Stretch Code and Specialized Code for Low-Rise Residential

(Note: please see 225 CMR 23 for Commercial, Multi-family and all other construction)

The Massachusetts Stretch energy code (Stretch Code) first became available for municipal adoption in 2009 as Appendix 110.aa and then 115.aa as part of the building code in 780 CMR. In 2021 the Massachusetts legislature passed new legislation moving authority for updates to the Stretch Code to the Department of Energy Resources and 225 CMR.

This code takes effect on January 1, 2023 and is designed to align with the forthcoming MA 10th edition building code promulgated under 780 CMR. Building permit applications for projects received on or after Jan. 1, 2023 in Stretch Code communities shall comply with this code.

As with the 10th edition building code, this energy code is based on modified versions of the 2021 code books as published by the International Code Council (ICC). Specifically, the 2021 International Energy Conservation Code (IECC 2021) as amended.

This section (225 CMR 22) covers low-rise residential buildings. All other buildings are covered by 225 CMR 23. 225 CMR 22 and 23 in combination form the Stretch Code – and must be adopted together and not in part.

Municipalities may also elect to adopt the combination of Appendix RC of 225 CMR 22 (Low rise residential) and Appendix CC of 225 CMR 23 (all other buildings) which together form the Municipal Opt-in Specialized code (Specialized Code).

For communities that have adopted the Stretch Code, the following 225 CMR 22 amendments to the IECC 2021 apply together with 225 CMR 23 for all other buildings.

For communities that adopt the Specialized Code, the following 225 CMR 23 amendments apply in combination with Appendix RC, along with 225 CMR 23 and Appendix CC for all other buildings.

In both the Stretch Code and the Specialized Code these amendments to the IECC 2021 replace Chapter 13 – Energy Efficiency of 780 CMR in the Base energy code.

Please remember that the Massachusetts amendments posted online are *unofficial versions* that are made available for convenience. Official versions of the Massachusetts amendments may be purchased from the State House Bookstore at www.sec.state.ma.us/spr/ and the IECC 2021 can be purchased from the ICC at www.iccsafe.org

225 CMR 22: MASSACHUSETTS FRONT-END AMENDMENTS TO THE INTERNATIONAL ENERGY
CONSERVATION CODE 2021

**MASSACHUSETTS STRETCH ENERGY CODE – 2023 Residential low-rise
amendments to IECC2021**

IECC 2021 and IRC 2021 CHAPTER 11: ENERGY EFFICIENCY

CHAPTER 1 [RE] SCOPE AND ADMINISTRATION

SECTION R103 CONSTRUCTION DOCUMENTS

R103.2 Insert after Subsection R103.2(8) the following:

10. EV Ready Space locations in accordance with Section R404.4.
11. Solar-Ready Zone in accordance with Appendix RB, or Solar Zone Area when complying with Appendix RC for fossil-fuel heated homes.

CHAPTER 2 [RE] DEFINITIONS

R202 GENERAL DEFINITIONS

R202 Add the following definitions:

ALL-ELECTRIC BUILDING. A building with no on-site *combustion equipment* for fossil fuel use or capacity including fossil fuel use in space heating, water heating, cooking, or drying appliances.

CLEAN BIOMASS HEATING SYSTEM. Wood-pellet fired central boilers and furnaces where the equipment has a thermal efficiency rating of 85% (higher heating value) or greater; and a particulate matter emissions rating of no more than 0.08 lb PM_{2.5}/MMBtu heat output.

COMBUSTION EQUIPMENT. Any *equipment or appliance* used for space heating, *service water heating*, cooking, clothes drying and/or lighting that can use *fuel gas, fuel oil* or solid fuel and that is not a *clean biomass heating system*.

ELECTRIC VEHICLE. An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, electric motorcycles, and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array, or other source of electric current.

Informational Note: defined as in 527 CMR 12.00: Massachusetts Electrical Code (Amendments) section 625.2.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). The conductors, including the ungrounded, grounded, and equipment grounding conductors, and the *Electric Vehicle* connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the *Electric Vehicle*.

Informational Note: defined as in 527 CMR 12.00: *Massachusetts Electrical Code (Amendments) section 625.2.*

ELECTRIC VEHICLE READY PARKING SPACE (“EV Ready Space”). A designated parking space which is provided with wiring and electrical service sufficient to provide AC level II or equivalent EV charging, as defined by Standard SAE J1772 for *EVSE* servicing light duty *Electric Vehicles*.

ENTHALPY RECOVERY RATIO. Change in the enthalpy of the outdoor air supply divided by the difference between the outdoor air and entering exhaust air enthalpy, expressed as a percentage.

HIGH-EFFICACY LAMPS. Light-emitting diode (LED) lamps with an efficacy of not less than the following:

1. 60 lumens per watt for lamps over 40 watts.
2. 50 lumens per watt for lamps over 15 watts to 40 watts.
3. 45 lumens per watt for lamps 15 watts or less.

MIXED-FUEL BUILDING. A *building* that contains *combustion equipment* or includes piping for such *equipment*.

POTENTIAL SOLAR ZONE AREA. The combined area of any low-sloped roofs and any steep-sloped roofs oriented between 90 degrees and 300 degrees of true north where the annual solar access is 70 percent or greater. Annual solar access is the ratio of “annual solar insolation with shade” to the “annual solar insolation without shade”. Shading from obstructions located on the roof or any other part of the building shall not be included in the determination of annual solar access.

CHAPTER 3 [RE] GENERAL REQUIREMENTS

SECTION R301 CLIMATE ZONES

R301 Replace Section R301 as follows:

R301.1 General. Massachusetts is in *climate zone 5A*

CHAPTER 4 [RE] RESIDENTIAL ENERGY EFFICIENCY

SECTION R401 GENERAL

R401 Replace Section R401 as follows:

R401.1 Scope. This chapter applies to *residential buildings*. Municipalities which have adopted the Stretch Energy Code shall use the energy efficiency requirements of this chapter, or Chapter 51 where applicable for existing buildings. Municipalities which have adopted the Municipal Opt-in Specialized Stretch energy code shall comply with R401.2.4 including both the requirements of Appendix RC and this chapter.

R401.2 Application. Residential buildings shall comply with Section R401.2.5 and either Sections R401.2.2, R401.2.3 or R401.2.4. R-use buildings without individually separate dwelling units (such as single-room occupancy buildings) may comply with Section R401.2.1. The option selected for compliance shall be identified in the certificate required by Section R401.3.

Exception: Additions under 1,000 sf, *level 1 and level 2 alterations*, and repairs to existing buildings complying with Chapter 5 [RE].

R401.2.1 Prescriptive Compliance Option. The Prescriptive Compliance Option requires compliance with Sections R401 through R404 and R408.

R401.2.2 Passive House Building Certification Option. The Passive House Building Certification Option requires compliance with Section R405 and R404.4.

R401.2.3 Energy Rating Index Option. The Energy Rating Index (ERI) Option requires compliance with Section R406, R403.6 and R404.4.

R401.2.4 Appendix RC. Residential Buildings and dwelling units covered by this chapter may elect to comply with the requirements of IECC Appendix RC and R404 as amended.

R401.2.5 Additional energy efficiency. This section establishes additional requirements applicable to all compliance approaches to achieve additional energy efficiency.

1. For buildings complying with Section R401.2.1, two of the additional efficiency package options shall be installed according to Section R408.2.
2. For buildings electing to be *all-electric buildings*, both R408.2.2 and R408.2.3 shall apply for primary space heating and domestic hot water supply.

R402.1.5.1 Add Subsection R402.1.5.1 as follows:

R402.1.5.1 Approved software for Total UA alternative: The following software is approved for demonstrating Total UA compliance:

REScheck-Web for IECC2021 Massachusetts stretch code available at
<http://www.energycodes.gov/rescheck>

R402.4.1.1 Modify Table R402.4.1.1 to amend the Insulation Installation Criteria as follows:

TABLE R402.4.1.1 AIR BARRIER AND INSULATION INSTALLATION

COMPONENT	INSULATION INSTALLATION CRITERIA
General requirements	All insulation shall be installed at Grade I quality in accordance with ICC/RESNET 301. Air-permeable insulation shall not be used as a sealing material.

R403.3.5 Insert the following to the end of Subsection R403.3.5:

Postconstruction or rough-in testing and verification shall be done by a HERS Rater, HERS Rating Field Inspector, or an applicable BPI Certified Professional. A written report of the results of the test shall be signed by the party conducting the test and provided to the *code official*.

R403.6 Replace Section R403.6 as follows:

R403.6 Mechanical ventilation.

Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the *ventilation* system is not operating.

Each dwelling unit of a residential building shall be provided with a continuously operating mechanical balanced ventilation system that has been site verified to meet a minimum airflow per:

1. RESNET HERS Index in accordance with RESNET/ICC Standard 301
2. ASHRAE Standard 62.2-2019 or 62.2-2022
3. the following formula for one- and two-family dwellings and townhouses of three or less stories above grade plane:

$$Q = .03 \times CFA + 7.5 \times (N_{br} + 1) - 0.052 \times Q_{50} \times S \times WSF$$

Where: CFA is the conditioned floor area in sq ft

N_{br} is the number of bedrooms

Q_{50} is the verified blower door air leakage rate in cfm measured at 50 Pascals

S is the building height factor determined by this table:

stories above grade plane	1	2	3
S	1.00	1.32	1.55

WSF is the shielded weather factor as determined by this table:

County	WSF
Barnstable	0.60
Berkshire	0.52
Bristol	0.54
Dukes	0.59
Essex	0.58
Franklin	0.52
Hampden	0.49
Hampshire	0.59
Middlesex	0.55
Nantucket	0.61
Norfolk	0.52
Plymouth	0.53
Suffolk	0.66
Worcester	0.59

R403.6.1 Replace Subsection R403.6.1 and Subsections R403.6.1.1 and R403.6.1.2 as follows:

R403.6.1 Heat or Energy Recovery Ventilation.

Heat or energy recovery balanced ventilation systems shall be provided for dwelling units as specified in either Section R403.6.1.1 or R403.6.1.2, as applicable.

R403.6.1.1 Large Systems. Systems with a rated airflow exceeding 300_cfm shall have an enthalpy recovery ratio of not less than 50 percent at cooling design condition and not less than 60 percent at heating design condition, determined in accordance with AHRI 1060 at an airflow not less than the design airflow.

R403.6.1.2 Other Systems. Systems with a rated airflow of 300 cfm or less shall have a sensible recovery efficiency (SRE) of not less than 65 percent at 32°F (0°C) at an airflow not less than the design airflow. SRE shall be determined in accordance with CAN/CSA-C439 and shall be listed. Linear interpolation of listed values for SRE shall be permitted.

R403.6.3 Replace Subsection R403.6.3 as follows:

R403.6.3 Testing and Verification. Installed performance of the mechanical ventilation system shall be tested and verified by a HERS Rater, HERS Rating Field Inspector, or an applicable BPI Certified Professional, and measured using a flow hood, flow grid, Residential IAQ Fault Indicator Display certified to the California Energy Commission, or other airflow measuring device in accordance with either RESNET Standard 380 or ACCA Standard 5.

R403.6.4 – R403.6.7 Add Subsections R403.6.4 – R403.6.7 as follows:

R403.6.4 Air-moving equipment, selection and installation. As referenced in ASHRAE Standard 62.2, Section 7.1, ventilation devices and equipment shall be tested and certified in accordance with HVI 920 (Home Ventilating Institute), or equivalent and the certification label shall be found on the product. Installation of systems or equipment shall be carried out in accordance with manufacturers' design requirements and installation instructions. Where multiple duct sizes and/or exterior hoods are standard options, the minimum size shall not be used.

R403.6.5 Sound Rating. Sound ratings for fans used for whole building ventilation shall be rated at a maximum of 1.0 sone.

Exception: HVAC air handlers and remote-mounted fans need not meet sound requirements. There must be at least 4ft of ductwork between the remote-mounted fan and intake grille.

R403.6.6 Documentation. The owner and the occupant of the dwelling unit shall be provided with information on the ventilation design and systems installed, as well as instructions on the proper operation and maintenance of the ventilation systems. Ventilation controls shall be labeled with regard to their function, unless the function is obvious or unless the function is communicated through a digital user interface provided with the control.

R403.6.7 Air Inlets and Exhausts. All ventilation air inlets shall be located a minimum of 10ft from vent openings for plumbing drainage systems, appliance vent outlets, exhaust hood outlets, vehicle exhaust, or other known contamination sources; and shall not be obstructed by snow, plantings, or any other material. Outdoor forced air inlets shall be covered with rodent screens having mesh openings not greater than ½ inch. A whole house mechanical ventilation system shall not extract air from an unconditioned basement unless approved by a registered design professional. Where wall inlet or exhaust vents are less than seven (7) feet above finished grade in the area of the venting, including but not limited to decks and porches, a metal or plastic identification plate shall be permanently mounted to the exterior of the building at a minimum height of eight (8) feet above grade directly in line with the vent terminal. The sign shall read, in print size no less than one-half (1/2) inch in size, "MECH. VENT DIRECTLY BELOW. KEEP CLEAR OF ALL OBSTRUCTIONS".

Exceptions:

1. Ventilation air inlets in the wall $\geq$ 3 ft. from dryer exhausts and contamination sources exiting through the roof.
2. No minimum separation distance shall be required between local exhaust outlets in kitchens/bathrooms and windows.
3. Vent terminations that meet the requirements of the National Fuel Gas Code (NFPA 54/ ANSI Z223 .1) or equivalent.

R404.4 Add Section R404.4 and Table R404.4 as follows:

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 for *EVSE* servicing *Electric Vehicles*, located within 6 feet (1828 mm) of each *EV ready space*. Conductors and outlets for *EVSE* shall be sized and installed in accordance with the MA electrical code.

TABLE R404.4 EV READY SPACE REQUIREMENTS

Type of Building	Number of parking spaces
1 & 2 family dwellings and town homes	At least 1 50-amp branch circuit per dwelling unit to provide for AC Level II charging
All other R-use buildings	At least 20% of all installed spaces served with a 40-amp, 208/240-volt circuit with a minimum capacity of 9.6 kVA.

Exceptions:

1. In no case shall the number of required *EV Ready Spaces* be greater than the number of parking spaces installed.
2. This requirement will be considered met if all spaces which are not *EV Ready* are separated from the premises by a public right-of-way.
3. R-2 multi-family properties may elect to comply with Commercial EV ready requirements in C405.13
4. One or more SAE Level II spaces may be substituted with multiple SAE Level I spaces provided with wiring for a minimum 20amp, 120-volt EVSE, with a ratio of at least 3 Level I spaces for each Level II space required.

R405. Replace Section R405 in its entirety as follows:

R405 Passive House Building Certification Option. Projects may document compliance with either Phius certification in accordance with R405.2 or PHI certification in accordance with R405.3.

R405.1 Compliance. Projects pre-certified as meeting the Phius CORE 2021 or Phius ZERO 2021 Passive Building Standard – North America, or newer, demonstrated using approved software by Phius, where Phius Design-certification is demonstrated by Phius and a Certified Passive House Consultant (CPHC); or,
Projects pre-certified as meeting the Certified Passive House standard using the current software and program criteria by the Passive House Institute (PHI), where PHI certification is demonstrated by a Certified Passive House Designer and a Certified Passive House Certifier.

R405.2 Phius Documentation. When using WUFI Passive or other Phius approved software:

1. Prior to the issuance of a building permit, the following items must be provided to the Building Official:

- a. A Phius 2021 (or newer) Verification Report which demonstrates project compliance with Phius 2021 (or newer) performance requirements.
- b. A statement from the CPHC that the verification report results accurately reflect the plans submitted.
- c. Evidence of project registration from Phius.

OR

- a. A Design Certification Letter from Phius.

2. Prior to the issuance of a certificate of occupancy, the following item(s) must be provided to the building official:

- a. Design Certification Letter from Phius.
- b. An updated Verification Report by the CPHC which reflects “as-built” conditions and test results that demonstrate project compliance with Phius (blower door and ventilation results).
- c. A statement from the CPHC that the envelope meets the Phius hygrothermal requirements found in Appendix B of the Phius 2021 Certification guidebook
- d. A statement from the Phius Certified Verifier or Rater that the project test results and other Phius verification requirements are met.
- e. A copy of the Phius workbook listing all testing results and as-built conditions.

OR

- a. A Project Certificate demonstrating final certification awarded by Phius.

AND

- f. A statement from the Phius Verifier or Rater of compliance with R404.4: EV ready, and Appendix RB: Solar Ready Provisions.

R405.23 Passive House International (PHI) Documentation.

1. If using PHI Passive House software, prior to the issuance of a building permit, the following items must be provided to the Building Official:

- a. A PHPP compliance report which demonstrates project compliance with current PHI performance requirements;
- b. A statement from the Certified Passive House Consultant/Designer (CPHC/D) that the PHPP results and compliance report accurately reflect the plans submitted;
- c. Evidence of project registration from a Certified Passive House Certifier.

OR

- a. A Design Certification Letter from a Certified Passive House Certifier.

2. Prior to the issuance of a certificate of occupancy, the following item(s) must be provided to the building official:

- a. A Design Certification Letter from a Certified Passive House Certifier.

- b. An updated PHPP compliance report which reflects “as-built” conditions and test results (blower door and ventilation results) that demonstrates project compliance with PHI performance requirements;
- c. A copy of the Passive House Verifier’s or Rater’s test results;
- d. A statement from the CPHD that the project test results meet the model performance requirements, all the mandatory limits and any other mandatory requirements.

OR

- a. A Final Certification Letter from a Certified Passive House Certifier;

AND

- e. A statement from the Passive House Verifier or Rater of compliance with R404.4, and Appendix RB: Solar Ready Provisions.

R406.2 *Revise TABLE R406.2 as follows:*

Delete

R401.2.5	Additional efficiency packages
----------	--------------------------------

And replace with:

R403.6.1	Heat or Energy Recovery Ventilation
----------	-------------------------------------

Delete

R406.3	Building thermal envelope
--------	---------------------------

And replace with:

R404.4	Wiring for Electric Vehicle Charging Spaces
--------	---

R406.3 *Reserve this section:*

R406.3 Building thermal envelope. Reserved.

R406.4 *Replace Section R406.4 with the following:*

R406.4 Energy Rating Index. The Energy Rating Index (ERI) shall be the RESNET certified HERS index determined in accordance with RESNET/ICC 301. Energy used to recharge or refuel a vehicle used for transportation on roads that are not on the building site shall not be included in the *ERI reference design* or the *rated design*.

R406.5 *Replace Section R406.5 and Table R406.5 with the following:*

R406.5 ERI-based compliance. Compliance based on an ERI analysis requires that the *rated proposed design* and confirmed built dwelling be shown to have an HERS index rating less than or equal to the appropriate value indicated in Table R406.5 when compared to the *HERS index reference design* for each dwelling unit prior to credit for onsite renewable electric generation.

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	Major-alterations, additions, or Change of use ^c
<i>Mixed-Fuel Building</i>	52	42	52
Solar Electric Generation	55	42	55
<i>All-Electric Building</i>	55	45	55
Solar Electric & <i>All-Electric Building</i>	58	45	58

^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.

R406.5.1 Add Subsection R406.5.1, as follows:

R406.5.1 Trade-off for Clean energy systems. New construction following Section R406 or existing buildings and additions following IECC chapter 5[RE] may use clean energy trade-offs to increase the maximum allowable HERS rating for each unit separately served by any combination of the following:

1. Solar Electric Generation: Solar photovoltaic array rated at 4kW or higher shall offset 3 HERS points for Level 3 alterations, Change of use to Residential R-use categories or for fully attached additions.
2. *All-Electric Buildings* shall offset 3 HERS points for each dwelling unit in new construction, Level 3 alterations, change of use to Residential R-use categories and fully attached additions.

R406.6 Revise Section R406.6 by replacing the reference to Section R406.6 in the first sentence with reference to Section R406.5.

R407 Reserve this Section:

SECTION R407 Reserved.

R408.2.1 Revise the first sentence of Subsection R408.2.1 by replacing 95 percent with 90 percent to read as follows:

R408.2.1 Enhanced envelope performance option.

The total *building thermal envelope* UA, the sum of *U*-factor times assembly area, shall be less than or equal to 90 percent of the total UA resulting from multiplying the *U*-factors in Table R402.1.2 by the same assembly area as in the proposed building.

R408.2.2 Delete option 1. of Subsection R408.2.2 and renumber option 2. As option 1., and option 3 as option 2.

R408.2.3 Delete option 1. of Subsection R408.2.3 and renumber option 2. As option 1., and option 3 as option 2.

CHAPTER 5 [RE] EXISTING BUILDINGS

R502 ADDITIONS.

R502.1 Revise Subsection R502.2 by replacing the third and fourth sentence as follows:

An *addition* shall be deemed to comply with this code where the *addition* alone complies, where the existing *building* and *addition* comply with this code as a single building, or where the *building* with the *addition* achieves a certified HERS rating in accordance with Table R406.5. *Additions* shall be in accordance with Section R502.1.1, R502.2 or R502.3.

R502.1.1 Add Subsection R502.1.1 as follows:

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 *dwelling unit* to comply with the maximum HERS ratings for alterations, additions or change of use shown in TABLE R406.5.

R502.2 Delete the *Exceptions* in Subsection R502.2.

R502.3.1 Replace the *Exception* in Subsection R502.3.1 as follows:

Exception: New envelope assemblies in additions of less than 1,000 sq ft are exempt from the requirements of Section R402.4.1.2.

R503.1.5 Add new subsection as follows:

R503.1.5 Level 3 Alterations or Change of Use. Alterations that meet the IEBC definition for *Level 3 Alteration*, exceeding 1,000 sq ft or exceeding 100% of the existing *conditioned floor area*, shall require the *dwelling unit* to comply with the maximum HERS ratings for alterations, additions or change of use shown in TABLE R406.5.

R505.1 Delete the *Exception* in Section R505.1.

Appendix RB revise the Appendix RB title as follows:

Appendix RB: Solar-ready Provisions – Detached One- and Two-family Dwellings, Low-rise Residential buildings and Townhouses (Adopted as amended)

RB101.1 Replace Section RB101.1 as follows:

RB101.1 General. These provisions shall be applicable for new construction, except additions under 1,000 sq ft.

Exception:

Buildings and *dwelling units* complying with Appendix RC Sections RC102 or RC105

RB103.1 Replace Section RB103.1 as follows:

RB103.1 General. New R-use buildings including, but not limited to, detached one- and two-family dwellings, and townhouses with not less than 600 square feet (55.74 m²) of roof area oriented between 110 degrees and 270 degrees of true north shall comply with Sections RB103.2 through RB103.8.

Exceptions:

1. New residential buildings with a permanently installed on-site renewable energy system.
2. A building with a solar-ready zone that is shaded for more than 70 percent of daylight hours annually.

RB103.3 Replace International Fire Code with Massachusetts Fire Code in Section RB103.3:

Appendix RC revise the Appendix RC title and notes as follows:

APPENDIX RC

MASSACHUSETTS MUNICIPAL OPT-IN SPECIALIZED STRETCH CODE 2023

RESIDENTIAL LOW-RISE BUILDING PROVISIONS

The provisions contained in this appendix together with referenced sections from the Stretch energy code constitute the Specialized opt-in code for residential low-rise buildings, and may be adopted by a city or town together with the Commercial Specialized code Appendix CC as their stretch energy code. When adopted by the local municipality, the provisions in this appendix are mandatory in combination with the IECC2021 with Massachusetts Stretch code amendments.

User Note:

***About this appendix:** This appendix provides requirements for residential buildings. Where adopted by ordinance as a requirement, Section RC101 language is intended to replace Section R401.2.*

SECTION RC101 COMPLIANCE

***RC101** Replace Section RC101 as follows:*

RC101.1 Compliance. Existing residential buildings shall comply with Chapter 5 of the stretch energy code. New residential buildings shall be *Net Zero Buildings* and comply with Section R404.4 (EV wiring) and either Section R405 (Passive House) or Section R406 (HERS) in accordance with RC101.2, as well as one of the following Specialized code pathways:

1. Section RC102 Zero Energy pathway
2. Section RC103 All-Electric pathway
3. Sections RC104 and RC105 Mixed-Fuel pathway.

RC101.2 Application. New *dwelling units* over 4,000 square feet in *conditioned floor area* shall comply with either RC101.1 option 1. Zero Energy pathway or option 2. All-Electric pathway, and follow either Section RC102 or Section RC103.

R-use buildings with total *conditioned floor area* greater than 12,000 square feet shall comply with the provisions of Section R405 Passive House Building Certification Option, and any of the pathways in Section RC101.1.

RC101.3 Definitions.

NET ZERO BUILDING. A building which is consistent with achievement of MA 2050 net zero emissions, through a combination of highly energy efficient design together with being either a *Zero Energy Building*, or an *All-Electric Building*, or where fossil fuels are utilized, a building fully pre-wired for future electrification and that generates solar power on-site from the available *Potential Solar Zone Area*.

ZERO ENERGY BUILDING. A building which through a combination of highly energy efficiency design and onsite renewable energy generation is designed to result in net zero energy consumption over the course of a year as measured in MMBtus or KWh_{eq}, on a site energy basis, excluding energy use for charging vehicles.

RC102 Replace Section RC102 and Table RC102.2 as follows:

SECTION RC102 ZERO ENERGY PATHWAY

RC102.1 General. New *zero energy buildings* shall comply with Section RC102.2 and demonstrate a certified HERS rating of 0 or less and comply with Section R406, or complete Design Certification to the Phius ZERO standard and comply with Section R405.

RC102.2 Energy Rating Index Zero Energy Score. Compliance with this section requires that the final HERS rated design be shown to have a score less than or equal to the values in Table RC102.2 when compared to the Energy Rating Index (ERI) reference design determined in accordance with RESNET/ICC 301 for both of the following:

1. ERI value not including on-site power production (OPP) calculated in accordance with RESNET/ICC 301.
2. ERI value including on-site power production calculated in accordance with RESNET/ICC 301 with the OPP in Equation 4.1.2 of RESNET/ICC 301.

TABLE RC102.2 MAXIMUM ENERGY RATING INDEX^a

FUEL USAGE	ENERGY RATING INDEX NOT INCLUDING OPP	ENERGY RATING INDEX INCLUDING OPP
All Electric	45	0
Mixed-Fuel	42	0

a. The building shall meet the requirements of Table 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 R402.1.3.

RC103 Add Section RC103 and Table RC103.2 as follows:

SECTION RC103 ALL ELECTRIC PATHWAY

RC103.1 General. New *all electric buildings* shall comply with Section R401.2.5 and either Section RC103.2 to demonstrate a certified final HERS rating of 45 or less, or Section R405 and be pre-certified to the PHI or Phius CORE standard.

All new buildings shall comply with Appendix RB solar ready provisions and Section R404.4 Wiring for Electric Vehicle Charging Spaces

RC103.2 All Electric Energy Rating Index score. Compliance with this section requires that the rated design be shown to have a certified HERS Index score less than or equal to the values in Table RC103.2 when compared to the Energy Rating Index (ERI) reference design determined in accordance with RESNET/ICC 301 and the following:

1. ERI value not including on-site power production (OPP) calculated in accordance with RESNET/ICC 301.

TABLE RC103.2 MAXIMUM ENERGY RATING INDEX^a

FUEL USAGE	ENERGY RATING INDEX NOT INCLUDING OPP
All Electric	45

- a. The building shall meet the requirements of Table 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 R402.1.3.

RC104 Add Section RC104 and Table RC104.2 as follows:

SECTION RC104 MIXED-FUEL PATHWAY

RC104.1 General. This section establishes requirements for new *residential mixed-fuel buildings* with any space heating systems, water heating systems or appliances capable of using fossil fuels such as natural gas, heating oil or propane fuel. All buildings shall comply with either:

1. HERS certification: Sections RC104.2 through RC104.5 and RC105
2. Passive House pre-certification: Section R405 and Section RC104.3

RC104.1.1 Biomass heating. New *residential buildings* using *clean biomass heating systems* may comply with this section. Biomass heating that does not meet the performance standards of *clean biomass heating systems* shall not be permitted as a primary heating system.

RC104.2 Energy Rating Index score. Compliance with this section requires that the rated design be shown to have a HERS Index score less than or equal to the values in Table RC103.2 when compared to the Energy Rating Index (ERI) reference design determined in accordance with RESNET/ICC 301 for both of the following:

1. ERI value not including on-site power production (OPP) calculated in accordance with RESNET/ICC 301.

TABLE RC104.2 MAXIMUM ENERGY RATING INDEX^a

FUEL USAGE	HERS RATING INDEX NOT INCLUDING OPP
Mixed-Fuel building	42

- a. The building shall meet the requirements of Table 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 R402.1.3.

RC104.3 Electric Readiness. Any installed gas, fuel oil or propane furnaces, boilers, water heaters, dryers, or cooking equipment shall comply with the requirements of Sections RC104.3.1 through RC104.3.4. Capacity for the future electric circuits required in this section shall be included in the load calculations of the original installation of electric service to the building and each *dwelling unit*.

RC104.3.1 Space Heating. The building and each *dwelling unit* shall be provided with a designated exterior location(s) in accordance with the following:

1. Natural drainage for condensate from cooling equipment operation or a condensate drain located within 3 feet (914 mm), and
2. A dedicated branch circuit in compliance with IRC Section E3702.11 based on heat pump space heating equipment sized in accordance with R403.7 and terminating within 3 feet (914 mm) of the location with no obstructions. Both ends of the branch circuit shall be labeled "For Future Heat Pump Space Heater."

Exception: Where an electrical circuit in compliance with IRC Section E3702.11 exists for space cooling equipment based on heat pump space heating equipment sized in accordance with R403.7.

RC104.3.2 Household Ranges and Cooking Appliances. An individual branch circuit outlet with a minimum rating of 250-volts, 40-amperes shall be installed within three feet of each gas or propane range or permanently installed cooking appliance.

RC104.3.3 Household Clothes Dryers and Water Heaters. An individual branch circuit outlet with a minimum rating of 250-volts, 30-amperes shall be installed within three feet of each gas or propane household clothes dryer and water heater.

RC104.3.4 Water Heating Space. Any permanently installed domestic hot water heating equipment shall be installed in an indoor space:

- A) with a minimum volume of 700 cubic feet (20,000 L) or the equivalent of one 16-inch (406 mm) by 24-inch (610 mm) grill to a heated space and one 8-inch (203 mm) duct of no more than 10 feet (3048 mm) in length for cool exhaust air.
- B) that is at least 3 feet (914 mm) by 3 feet (914 mm) by 7 feet (2134 mm) high surrounding or within 3 feet (914 mm) of the installed water heater.

RC104.4 On-site Renewable Energy

New buildings shall comply with either RC104.4.1 or RC104.4.2. Buildings following HERS certification shall comply with the requirements of RC105 solar-roof zone. Buildings following the Passive House pre-certification shall comply with Appendix RB solar ready provisions.

RC104.4.1 One- and two- family dwellings and townhouses. One- and two- family dwellings and townhouses shall install an on-site renewable energy system with a nameplate DC power rating measured under standard test conditions, of no less than 4kW per dwelling unit.

Exception:

1. A building where the *potential solar zone area* is less than 300 square feet.

RC104.4.2 Other Group R Occupancies. Buildings in Group R-2, R-3 and R-4 shall install an on-site renewable energy system with a rated capacity of not less than 0.75 W/ft² multiplied by the gross conditioned floor area.

Exceptions:

1. A building with a permanently installed domestic solar water heating system with a minimum solar savings fraction of 0.5.
2. A building where the *potential solar zone area* is less than 300 square feet.

RC104.5 Electric Vehicle Readiness. All buildings shall comply with Section R404.4 Wiring for Electric Vehicle Charging Spaces

RC105 Add Section RC105 as follows:

SECTION RC105 SOLAR-ROOF ZONE

RC105.1 General. New detached one- and two-family dwellings, and townhouses with not less than 600 square feet (55.74 m²) of roof area oriented between 110 degrees and 270 degrees of true north shall comply with Sections RC105.2 through RC105.10.

Exceptions:

1. A building where all areas of the roof that would otherwise meet the requirements of Section RC105 are in full or partial shade for more than 70 percent of daylight hours annually.

RC105.2 Construction document requirements for solar- zone. Construction documents shall indicate the solar zone.

RC105.3 Solar zone area. The total solar zone area shall be not less than 300 square feet (27.87 m²) exclusive of mandatory access or setback areas as required by the *MA Fire Code*. New townhouses three stories or less in height above grade plane and with a total floor area less than or equal to 2,000 square feet (185.8 m²) per *dwelling unit* shall have a solar zone area of not less than 150 square feet (13.94 m²). The solar zone shall be composed of areas not less than 5 feet (1524 mm) in width and not less than 80 square feet (7.44 m²) exclusive of access or setback areas as required by the *MA Fire Code*.

RC105.4 Obstructions. Solar zones shall be free from obstructions, including but not limited to vents, chimneys, and roof-mounted equipment.

RC105.5 Shading. The solar zone shall be set back from any existing or new permanently affixed object on the building or site that is located south, east or west of the solar zone a distance not less than two times the object's height above the nearest point on the roof surface. Such objects include, but are not limited to, taller portions of the building itself, parapets, chimneys, antennas, signage, rooftop equipment, trees and roof plantings.

RC105.6 Capped roof penetration sleeve. A capped roof penetration sleeve shall be provided adjacent to a solar zone located on a roof slope of not greater than 1 unit vertical in 12 units horizontal (8-percent slope). The capped roof penetration sleeve shall be sized to accommodate photovoltaic system conduit and shall have an inside diameter of not less than 1 1/4 inches (32 mm).

RC105.7 Roof load documentation. The structural design loads for roof dead load and roof live load shall be clearly indicated on the construction documents.

RC105.8 Interconnection pathway. Construction documents shall indicate pathways for routing of conduit or plumbing from the solar-ready zone to the electrical service panel or service hot water system.

RC105.9 Electrical service reserved space. The main electrical service panel shall have space to allow installation of a dual pole circuit breaker for solar electric installation.

RC105.10 Construction documentation certificate. A permanent certificate, indicating the solar PV system size in AC and DC KW and or solar thermal size in KW equivalent and other requirements of this section, shall be posted near the electrical distribution panel, water heater or other conspicuous location by the builder or registered design professional.

Referenced Standards: *Add the following Reference Standards:*

a. CSA Group
8501 East Pleasant Valley Road, Cleveland, OH 44131-5516
CAN/CSA-C439-18. Laboratory methods of test for rating the performance of heat/energy-recovery ventilators.

b. AHRI Air-Conditioning, Heating & Refrigeration Institute
2311 Wilson Blvd., Suite 400, Arlington, VA 22201
1060-2018. Performance Rating of Air-To-Air Exchangers for Energy Recovery Ventilation Equipment.

Massachusetts Stretch Code and Specialized Code for Commercial buildings

(Note: please see 225 CMR 22.00 for low-rise Residential construction)

The Massachusetts Stretch energy code (Stretch Code) first became available for municipal adoption in 2009 as Appendix 110.aa and then 115.aa as part of the building code in 780 CMR. In 2021 the Massachusetts legislature passed new legislation moving authority for updates to the Stretch Code to the Department of Energy Resources and 225 CMR.

This code takes effect on July 1, 2023 and is designed to align with the forthcoming MA 10th edition building code promulgated under 780 CMR. Building permit applications for projects received on or after July 1, 2023 in Stretch Code communities shall comply with this code.

As with the 10th edition building code, this energy code is based on modified versions of the 2021 code books as published by the International Code Council (ICC). Specifically, the 2021 International Energy Conservation Code (IECC 2021) as amended.

This section (225 CMR 23) covers all buildings except for low-rise residential buildings which are covered by 225 CMR 22. 225 CMR 22 and 23 in combination form the Stretch Code – and must be adopted together and not in part.

Municipalities may also elect to adopt the combination of Appendix RC of 225 CMR 22 (Low rise residential) and Appendix CC of 225 CMR 23 (all other buildings) which together form the Municipal Opt-in Specialized code (Specialized Code).

For communities that have adopted the Stretch Code, the following 225 CMR 23 amendments to the IECC 2021 apply together with 225 CMR 22 for low-rise residential buildings.

For communities that adopt the Specialized Code, the following 225 CMR 23 amendments apply in combination with Appendix CC, along with 225 CMR 22 and Appendix RC for low-rise residential buildings.

In both the Stretch Code and the Specialized Code these amendments to the IECC 2021 replace Chapter 13 – Energy Efficiency of 780 CMR in the Base energy code.

Please remember that the Massachusetts amendments posted online are *unofficial versions* that are made available for convenience. Official versions of the Massachusetts amendments may be purchased from the State House Bookstore at www.sec.state.ma.us/spr/ and the IECC 2021 can be purchased from the ICC at www.iccsafe.org

225 CMR 23: MASSACHUSETTS FRONT-END AMENDMENTS TO THE INTERNATIONAL ENERGY
CONSERVATION CODE 2021

MASSACHUSETTS STRETCH ENERGY CODE – 2023 Commercial amendments to IECC2021

CHAPTER 1 [CE] SCOPE AND ADMINISTRATION

SECTION C103 CONSTRUCTION DOCUMENTS

C103.2 Insert after Subsection C103.2(13) the following:

14. Solar Ready roof zone in accordance with Appendix CB, or *Potential Solar Zone Area* in accordance with Appendix CC.
15. EV Ready Spaces locations in accordance with Section C405.13
16. For buildings using the Relative Performance Pathway (C407.2) because average ventilation at full occupancy is greater than 0.5 cfm/sf, submit mechanical equipment schedules for all new and/or existing air handling equipment designed to supply any quantity of outdoor air to the space, and an airflow riser diagram encompassing the complete project boundary. Mechanical equipment schedules shall clearly indicate the total design outdoor airflow for each unit. The air riser diagram shall include all supply, exhaust, and return air systems serving the space. The air riser diagram shall also include a summary of the total outdoor air supplied, the total gross square footage served by the ventilation system, and the overall flow rate per area in cfm/sf.
17. For mixed fuel building following Appendix CC, construction documents showing electric HVAC retrofit design prepared by the HVAC engineer. The contract documents shall show future replacement of *combustion equipment* based HVAC system with an equivalent all electric system. Contract documents shall show *combustion equipment* to be replaced, future electric equipment, supporting electric, structural, and architectural infrastructure to be installed during building construction, and space allotments for future equipment.

C103.2.2 Add the following Subsection:

C103.2.2 COMcheck submittal. The construction documents submitted with the application for permit shall be accompanied by completed COMcheck Envelope, Lighting and Mechanical Compliance Certificates, and a Plan Review Inspection Checklist for the purposes of demonstrating compliance with the energy provisions of 225 CMR 23.00: *Stretch Energy Code*.

Exception: Projects documenting compliance following Section C407.2 (ASHRAE 90.1 Appendix G) shall follow applicable reporting requirements.

CHAPTER 2 [CE] DEFINITIONS

SECTION C202 GENERAL DEFINITIONS

C202 Add the following definitions:

ALL-ELECTRIC BUILDING. A building with no on-site *combustion equipment* for fossil fuel use or capacity for including fossil fuel use in space heating, water heating, cooking, or drying appliances.

AUTOMATIC LOAD MANAGEMENT SYSTEMS (ALMS). A control system that allows multiple connected *electric vehicle supply equipment (EVSE)* to share a circuit or panel and automatically manage power at each charger, reducing the total connected electrical capacity of all *EVSE*.

CLASS 3 EXHAUST. Exhaust meeting the definition of Class 3 air in ASHRAE/ASHE Standard 62.1-2019, including air with significant contaminant concentration, significant sensory-irritation intensity, or offensive odor. The Class 3 Exhaust system must be capable of reducing exhaust and makeup airflow rates to 50% of the zone design values or the minimum required to maintain pressurization relationship requirements.

CLASS 4 EXHAUST. Exhaust meeting the definition of Class 4 air in ASHRAE/ASHE Standard 62.1-2019, including laboratory fume hood exhaust, exhaust where energy recovery is not allowed by ASHRAE/ASHE Standard 170 for use in energy recovery systems with leakage potential, and systems exhausting toxic, flammable, paint or corrosive fumes or dust. The Class 4 Exhaust system must be capable of reducing exhaust and makeup airflow rates to 50% of the zone design values or the minimum required to maintain pressurization relationship requirements. Excludes *exempt exhaust*.

CLEAN BIOMASS HEATING SYSTEM. Wood-pellet fired central boilers and furnaces with less than 3 million Btu/hour rated heat input, where the equipment has a thermal efficiency rating of 85% (higher heating value) or greater; and a particulate matter emissions rating of no more than 0.08 lb. PM_{2.5}/MMBtu heat output. Or wood chip fired central boilers and furnaces with less than 3 million Btu/hour rated heat input, where the equipment has a thermal efficiency rating of 80% or greater and a particulate matter emissions rating of no more than 0.10 lb. PM_{2.5}/MMBtu heat output.

COMBUSTION EQUIPMENT. Any *equipment* or *appliance* used for space heating, *service water heating*, cooking, clothes drying and/or lighting that can use *fuel gas*, *fuel oil* or solid fuel and that is not a *clean biomass heating system*.

DEDICATED OUTSIDE AIR SYSTEM (DOAS): A ventilation system that supplies 100 percent outdoor air primarily for the purpose of ventilation and that is a separate system from the zone space-conditioning system.

ELECTRIC VEHICLE. An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, electric motorcycles, and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array, or other source of electric current.

Informational note: defined as in 527 CMR 12 section 625.2.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE): The conductors, including the ungrounded, grounded, and equipment grounding conductors, and the *electric vehicle* connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the *electric vehicle*.

Informational note: defined as in 527 CMR 12 section 625.2.

ELECTRIC VEHICLE READY PARKING SPACE (“EV READY SPACE”): A designated parking space which is provided with wiring and electrical service sufficient to provide AC Level II or equivalent EV charging, as defined by Standard SAE J1772 for *EVSE* servicing light duty *electric vehicles*.

ENTHALPY RECOVERY RATIO. The ratio of change in enthalpy of the entering supply airflow and the leaving supply airflow to the difference in enthalpy between the entering supply airflow and the entering exhaust airflow, with no adjustment to account for that portion of the psychrometric change in the leaving supply airflow that is the result of leakage of entering exhaust airflow rather than exchange of heat or moisture between the airstreams.

EXEMPT EXHAUST. Exhaust for which energy recovery systems are prohibited by the applicable International Mechanical Code.

EXHAUST SOURCE HEAT PUMP. A type of electric heat pump that utilizes ventilation exhaust air as the thermal energy source.

FUEL GAS. A natural gas, manufactured gas, liquified petroleum gas or a mixture of these.

Informational note: Definition of fuel gas is mirrored from 2021 IMC to be useful in defining combustion equipment. It typically refers to natural gas and propane.

FUEL OIL. Kerosene or any hydrocarbon oil having a flash point not less than 100°F (38°C).

Informational note: Definition of fuel oil is mirrored from 2021 IMC to be useful in defining combustion equipment. It typically refers to heating oil products

GLAZED WALL SYSTEM. System consisting of any combination of both vision glass and/or *spandrel sections* to create an above-grade wall that is designed to separate the exterior and interior environments. These systems include, but are not limited to, curtain walls, window walls, and storefront windows.

MIXED-FUEL BUILDING. A *building* that contains *combustion equipment* or includes piping for such *equipment*.

OTHER EXHAUST. Any exhaust that does not fall under the categories of *Exempt Exhaust, Class 4 Exhaust, or Class 3 Exhaust*.

SENSIBLE ENERGY RECOVERY RATIO. The change in the dry-bulb temperature of the outdoor air supply divided by the difference between the outdoor air and entering exhaust air dry-bulb temperatures, expressed as a percentage.

SPANDREL SECTION. The opaque portion of a *glazed wall system* typically used to conceal or obscure features of the building structure or used for visual effect. A spandrel section may consist of, but is not limited to, an exterior exposed cladding layer (glazing or opaque material) with an interior insulated panel.

TENANT SPACE FIT OUT ZONE. Portion of a building in which only the envelope is completed, and the mechanical, lighting, and other interior systems are either incomplete or partially complete at the time of building permitting. Mechanical, lighting, and other interior systems may be completed under either the same building permit or a different building permit from the host building.

THERMAL BRIDGE: Part of the *building envelope* where otherwise uniform thermal resistance is changed by full or partial penetration of the thermal insulation by materials with higher thermal

conductivities and/or where the interior and exterior areas of the envelope are different, such as, but not limited to, parapets and corners.

CLEAR FIELD: A *thermal bridge* that is uniformly distributed throughout an assembly such that accounting for the *thermal bridge* individually is impractical for whole-building calculations.

LINEAR: A *thermal bridge* that is continuous in one direction of the exterior envelope.

POINT A *thermal bridge* that is discrete and countable on an individual basis for whole-building calculations.

CHAPTER 3 [CE] GENERAL REQUIREMENTS

SECTION C301 CLIMATE ZONES

C301 Replace Section C301 as follows:

C301.1 General. Massachusetts is in *climate zone 5A*

CHAPTER 4 [CE] COMMERCIAL ENERGY EFFICIENCY

SECTION C401 – GENERAL

C401.2 Replace Section C401.2 as follows:

C401.2 Application. Commercial buildings shall comply with either Section C401.2.1 or C401.2.2. When constructed for the first time, all requirements imposed on the building housing a *tenant space fit out zone* shall also apply to the *tenant space fit out zone*. Commercial buildings containing multiple use type classifications (mixed-use buildings) shall comply with C401.2.4

C401.2.1 Prescriptive and Performance Compliance. Commercial buildings shall comply with one of the following:

1. **Prescriptive Compliance:** This pathway may only be used for any nonresidential building, or portions thereof when following C401.2.4, up to 20,000-sf. The Prescriptive Compliance pathway requires compliance with Sections C401.3, C402 through C406, and Section C408.
2. **Targeted Performance Compliance:** This pathway shall be used for dormitory, fire station, library, office, school, police station, post office, and town hall buildings, or portions thereof when following C401.2.4, over 20,000-sf which have average ventilation at full occupancy of 0.5 cfm/sf or less. This pathway can also be used for any building of any size. After 1 July 2024, this pathway shall be used for residential buildings, or portions thereof when following C401.2.4, over 12,000-sf, or the building may comply with Section C401.2.2. The Targeted Performance Compliance pathway requires compliance with Section C401.3, Sections C402 through C406, Section C407.1, Section 408, and select sections of ANSI/ASHRAE/IESNA 90.1-2019 Appendix G as described in Section 407.1.
3. **Relative Performance Compliance:** This pathway may be used by buildings not required to use Option 2. The Relative Performance Compliance pathway requires that the Proposed building complies with Sections C401.3, C402.1.5, C402.2.8, C402.3, C402.4, C402.5, C402.6, C402.7, C403.5, C403.7, C405.2.4, C405.13, C406, C407.2, C408, and ANSI/ASHRAE/IESNA 90.1-2019 using the Appendix G compliance pathway as modified in Section C407.2.

Exception: Additions, alterations, repairs and changes of occupancy to existing buildings complying with Chapter 5. This exception does not include *tenant space fit out zones* when constructed for the first time.

C401.2.2 Certified Performance Standard Compliance. Commercial buildings or portions thereof when following C401.2.4 shall comply with one of the following certified performance standards:

1. **Passive House Compliance:** This pathway can be used for any building of any size. The Passive House Compliance pathway requires compliance with Sections C401.3, C402.3, C405, C407.3 and C408.
2. **HERS Compliance:** This pathway can be used for any Group R building with multiple individual *dwelling units*. The HERS pathway requires compliance with Section C401.3, C402.3, C405, C407.4 and C408.

C401.2.4 Add Section C401.2.4 Mixed Use Buildings

C401.2.4 Mixed Use Buildings. Where different building use types within a new building require different Section C401.2 Compliance Pathways, each use type shall separately and individually show compliance with C401.2.1 or C401.2.2 for that respective use type.

C401.4 Add Section C401.4 as follows:

C401.4 Building electrification. Building projects which utilize Section C407.2.1 shall conform with C401.4.1. Building projects which utilize Section C402.1.5.2 shall conform with C401.4.2 except for buildings using the Relative Performance pathway because average ventilation at full occupancy is greater than 0.5 cfm/sf which shall comply with C401.4.1 rather than C401.4.2. Building projects which utilize Section CC104.1, Part 1 shall conform with C401.4.3.

C401.4.1 Partial Space Heating Electrification. Electric air source, *exhaust source*, or ground source heat pumps systems shall supply 25% of the building's peak space heating and ventilation air heating load at the ASHRAE 99.6% winter climatic design condition. Heat pumps used for space and ventilation air heating shall comply with C401.4.4.

C401.4.1.1 The heat pumps shall be controlled to prioritize their primary operation, prior to operation of supplemental fossil-fuel equipment, during non-emergency conditions.

C401.4.2 Full Space Heating Electrification. Electric air source, *exhaust source*, or ground source heat pump systems shall supply 100% of the building's peak space heating and ventilation air heating load at the ASHRAE 99.6% winter climatic design condition. No fossil fuel heating equipment shall be used for space heating or ventilation air heating. Heat pumps used for space and ventilation air heating shall comply with C401.4.4.

C401.4.3 Full Space and Water Heating Electrification. Electric air source, *exhaust source*, or ground source heat pumps systems shall supply 100% of the building's peak space heating and ventilation air heating load at the ASHRAE 99.6% winter climatic design condition. Electric air source, ground source, electric resistance, or solar thermal systems shall supply 100% of the building's service water. No fossil fuel equipment shall be used for space heating, ventilation air heating, or service water heating. Heat pumps used for space and ventilation air heating shall comply with C401.4.4. Heat pump service water heating shall conform to the applicable efficiencies in Section C404.2. Solar thermal service water shall have solar fraction of 0.4 or larger.

C401.4.4 Heat Pump Requirements. Heat pumps used for space heating and ventilation air heating shall comply with C401.4.4.1 through C401.4.4.3.

C401.4.4.1 Heat pump equipment shall conform to the applicable efficiencies in Section C403.3.2.

C401.4.4.2 For buildings with multiple heat pump systems, compliance shall be based on the combined capacity of all heat pump systems serving the building. For purposes of this calculation, the heating capacity of a heat pump system shall not exceed the heating load of that system and the portion of the building served by that system.

C401.4.4.3 For purposes of this calculation, the capacity of *exhaust source heat pumps* shall only include the heating capacity that exceeds the energy recovered by the minimum ventilation heat recovery required by C403.7.4. In addition, for purposes of

this calculation, the capacity of the *exhaust source heat pumps* shall not exceed the heat pump capacity when the exhaust airflow is at 50% of design airflow.

C402.1.3 Delete Subsection C402.1.3 and Table C402.1.3 and mark as Reserved.

C402.1.3 Reserved.

C402.1.5 Replace Section C402.1.5 with the following:

C402.1.5 Component performance alternative. Building envelope values and fenestration areas determined in accordance with C402.1.5.1 or C402.1.5.2 shall be an alternative to compliance with the *U*- factors in Tables C402.1.4 and C402.4 and the maximum allowable fenestration areas in Section C402.4.1. *Fenestration* shall meet the applicable SHGC requirements of Section C402.4.3. Buildings following ANSI/ASHRAE/IESNA 90.1-2019 Appendix G shall comply with this section.

C402.1.5.1 Low glazed wall system buildings. Buildings in which less than or equal to 50% of the total, above-grade wall area of the *building thermal envelope* is a *glazed wall system* shall comply with Equation 4-2a and vision glass used in the *glazed wall system* shall have a maximum whole assembly U factor of U-0.25.

Area-weighted U proposed ≤ 0.1285 (Equation 4-2a)

where:

Area-weighted U proposed = U value for each distinct assembly type of the above grade wall portion of the *building thermal envelope* weighted by vertical area for each distinct assembly type.

C402.1.5.2 High glazed wall system buildings. Buildings in which more than 50% of the total, above-grade wall area of the *building thermal envelope* is a *glazed wall system* shall comply with Equation 4-2b, vision glass used in the *glazed wall system* shall have a maximum whole assembly U factor of U-0.25, and the building complies with Section C401.4.2.

Area-weighted U proposed ≤ 0.1600 (Equation 4-2b)

where:

Area-weighted U proposed = U value for each distinct assembly type of the above grade wall portion of the *building thermal envelope*, weighted by the vertical area for each distinct assembly type.

Exception:

1. Buildings using the Relative Performance pathway because average ventilation at full occupancy is greater than 0.5 cfm/sf shall comply with C401.4.1 rather than C401.4.2.

C402.2.4.1 Delete the exception in Subsection C402.2.4.1:

C402.2.8 Add Subsection C402.2.8 as follows:

C402.2.8 Fireplaces. 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.

C402.3 Replace Section C402.3 with the following:

C402.3 Rooftop solar readiness (Mandatory).

Follow Appendix CB: Solar-ready zone – Commercial.

C402.4 Modify Vertical fenestration U-factors in TABLE C402.4 as follows:

CLIMATE ZONE 5 AND MARINE 4

Vertical fenestration U-factor

Fixed fenestration	0.30
Operable fenestration	0.32

Add Subsection C402.4.6:

C402.4.6 Fenestration Documentation. In accordance with Section 303.1.3 fenestration performance shall be documented according to C402.4.6.1 or C402.4.6.2.

C402.4.6.1 Labeled Performance. The thermal transmittance of glazed fenestration products within the scope of NFRC shall be indicated by labels applied to the products at the manufacturing location or by a label certificate produced by an NFRC Approved Calculation Entity.

C402.4.6.2 Calculated Performance. Fenestration products outside the scope of NFRC may demonstrate compliance by submitting a thermal simulation report prepared by a registered design professional for each product as defined by NFRC 100. Thermal simulations shall be performed in accordance with the NFRC 100-2020 simulation procedures at the size and configuration defined in NFRC 100 Table 4-3.

C402.5 Replace Section C402.5 with the following:

C402.5 Air leakage—thermal envelope. The *building thermal envelope* shall comply with Sections C402.5.1 through Section C402.5.10.1.

C402.5.1 Replace Section C402.5.1 with the following and delete the exception:

C402.5.1 Air barriers. A continuous *air barrier* shall be provided throughout the *building thermal envelope*. The continuous *air barrier* is permitted to be any combination of inside, outside, or within the *building thermal envelope*. The *air barrier* shall comply with Sections C402.5.1.1, and C402.5.1.2. The *air leakage* performance of the *air barrier* shall be verified in accordance with Section C402.5.2.

C402.5.1.1 Replace Section C402.5.1.1 with the following:

C402.5.1.1 Air barrier design and documentation requirements. Design of the continuous *air barrier* shall be documented in the following manner:

1. Materials, assemblies, and systems comprising the continuous *air barrier* and their position within each *building thermal envelope* assembly shall be identified.

2. Joints, interconnections, and penetrations of the continuous *air barrier* materials, assemblies and systems shall be detailed.
3. The continuity of the *air barrier* at building element assemblies that enclose conditioned space or provide a boundary between conditioned space and unconditioned space shall be identified.
4. Documentation of the continuous air barrier shall detail methods of sealing the air barrier such as wrapping, caulking, gasketing, taping or other *approved* methods at the following locations:
 - i. Joints around fenestration and door frames.
 - ii. Joints between walls and floors, between walls at building corners, between walls and roofs including parapets and copings, where above-grade walls meet foundations and similar intersections.
 - iii. Penetrations or attachments through the continuous *air barrier* in building envelope roofs, walls, and floors.
 - iv. Building assemblies used as ducts or plenums.
 - v. Changes in continuous *air barrier* materials and assemblies.
 - vi. Transition from one wall or roof assembly type to another such as, but not limited to, transition between opaque wall system and *glazed wall system*, and transition between a curtain wall *glazed wall system* and a storefront *glazed wall system*.
5. Identify where testing will or will not be performed in accordance with Section C402.5.2. Where testing will not be performed, a plan for field inspections required by C402.5.2.3 shall be provided that includes the following:
 - i. Schedule for periodic inspection(s),
 - ii. Continuous air barrier scope of work,
 - iii. List of critical inspection items,
 - iv. Inspection documentation requirements, and
 - v. Provisions for corrective actions where needed.

C402.5.1.2 *Renumber Section C402.5.1.1 as Section C402.5.1.2 and make the following changes:*

In Part 3, delete “Joints and seams associated with penetrations shall be sealed in the same manner or taped”

In Part 3, replace “from wind stack effect and mechanical ventilation” with “pressure”.

In Part 4, replace “C402.5.10” with “C402.5.1.2.1”.

C402.5.1.2.1 *Add Section C402.5.1.2.1 as follows:*

C402.5.1.2.1 Electrical and communication boxes. Electrical and communication boxes that penetrate the air barrier of the *building thermal envelope*, and that do not comply with C402.5.1.2.1.1, shall be caulked, taped, gasketed, or otherwise sealed to the air barrier element being penetrated. All openings on the concealed portion of the box shall be sealed. Where present, insulation shall rest against all concealed portions of the box.

C402.5.1.2.1.1 *Add Section C402.5.1.2.1.1 as follows:*

C402.5.1.2.1.1 Air-sealed boxes. Where air-sealed boxes are installed, they shall be marked in accordance with NEMA OS 4. Air-sealed boxes shall be installed in accordance with the manufacturer's instructions.

C402.5.1.3 Delete Section C402.5.1.3

C402.5.1.4 Delete Section C402.5.1.4

C402.5.1.5 Delete Section C402.5.1.5

C402.5.2 Replace Section C402.5.2 with the following:

C402.5.2 Air leakage compliance. *Air leakage* of the *building thermal envelope* shall be tested by an *approved* third party in accordance with C402.5.2.1. The measured *air leakage* shall not be greater than 0.35 cfm/ft² (1.8 L/s × m²) of the *building thermal envelope* area at a pressure differential of 0.3 inch water gauge (75 Pa) with the calculated *building thermal envelope* surface area being the sum of the above- and below-grade *building thermal envelope*.

Exceptions:

1. Where the measured *air leakage* rate is greater than 0.35 cfm/ft² (1.8 L/s × m²) but is not greater than 0.45 cfm/ft² (2.3 L/s × m²), the *approved* third party shall perform a diagnostic evaluation in accordance with ASTM E1186. All identified leaks shall be sealed where such sealing can be made without damaging existing building components. A report specifying the corrective actions taken to seal leaks shall be deemed to establish compliance with the requirements of this section where submitted to the code official and the building owner. Where the measured *air leakage* rate is greater than 0.45 cfm/ft² (2.3 L/s × m²), corrective actions must be made to the building and an additional test completed for which the results are 0.45 cfm/ft² (2.3 L/s × m²), or less.
2. As an alternative, buildings or portions of buildings, containing Group R and I occupancies, shall be permitted to be tested by an *approved* third party in accordance with C402.5.2.2. The reported *air leakage* of the *building thermal envelope* shall not be greater than 0.27 cfm/ft² (1.4 L/s × m²) of the *testing unit enclosure area* at a pressure differential of 0.2 inch water gauge (50 Pa).

C402.5.2.1 Add Section C402.5.2.1 as follows:

C402.5.2.1 Whole building test method and reporting. The *building thermal envelope* shall be tested for *air leakage* in accordance with ASTM E3158 or an equivalent *approved* method. A report that includes the tested surface area, floor area, air by volume, stories above grade, and leakage rates shall be submitted to the code official and the building owner.

Exceptions:

1. For buildings less than 10,000 ft² (1000 m²) the entire *building thermal envelope* shall be permitted to be tested in accordance with ASTM E779, ASTM E3158 or ASTM E1827 or an equivalent *approved* method.
2. For buildings greater than 50,000 ft² (4645 m²), portions of the building shall be permitted to be tested and the measured *air leakage* shall be area-weighted by the surface areas of the *building thermal envelope* in each portion. The weighted average tested *air leakage* shall not be greater than the whole building leakage limit. The following portions of the building shall be tested:

- i. The entire *building thermal envelope* area of stories that have any conditioned spaces directly under a roof.
- ii. The entire *building thermal envelope* area of stories that have a building entrance, a floor over unconditioned space, a loading dock, or that are below grade.
- iii. Representative above-grade portions of the building totaling not less than 25 percent of the wall area enclosing the remaining conditioned space.

C402.5.2.2 *Renumber Section C402.5.2 as new Section C402.5.2.2 and make the following changes:*

Add "ASTM E3158," after "ASTM E1827"

Replace "Units shall be tested separately with an unguarded blower door test as follows:" with "Units shall be tested without simultaneously pressurizing adjacent units and shall be separately tested as follows".

In part 2 add "a middle floor unit" between "including a top floor unit" and "a ground floor unit"

In part 2, replace "two units shall be tested" with "three units shall be tested"

Add new Part 3 as follows: "Enclosed spaces with not less than one exterior wall in the building thermal envelope shall be tested in accordance with C402.5.3."

Add the following exception "Exception: Corridors, stairwells, and enclosed spaces having a conditioned floor area not greater than 1,500 ft² shall be permitted to comply with Section C402.5.1.5 and either Section C402.5.1.3 or C402.5.1.4."

C402.5.2.3 *Renumber Section C402.5.1.5 as Section C402.5.2.3 and make the following changes:*

Add "In addition to the requirements of Sections C402.5.2.1 and C402.5.2.2" after "verification criteria" and before "the installation of the continuous air barrier".

In part 2, replace "components and assemblies" with "materials, assemblies, and systems"

In part 2, delete "while the air barrier is still accessible for inspection"

In part 2, replace "Sections C402.5.1.3 and C402.5.1.4" with "Sections C402.5.2.3.1 or C402.5.2.3.2" and add "The air barrier shall remain accessible for inspection and repair"

C402.5.2.3.1 *Renumber Section C402.5.1.3 as new Section C402.5.2.3.1.*

C402.5.2.3.2 *Renumber Section C402.5.1.4 as new Section C402.5.2.3.2.*

C402.5.3 *Renumber Section C402.5.4 as Section C402.5.3 and make the following changes:*

Replace "shall meet the provisions of Table C402.5.4" with "shall comply with Table C402.5.3".

Add "conducted by an accredited, independent testing laboratory" between "Testing shall be" and "in accordance with"

Replace “reference test standard in C402.5.4 by an accredited, independent testing laboratory” with “reference test standard in Table C402.5.3”.

In Exception 1, replace “C402.5.1” with “C402.5.1.2”

In Exception 2, replace “comply with the testing alternative of Section C402.5,” with “are tested for air leakage in accordance with Section C402.5.2”

In Exception 2, replace “Table C402.5.4” with “Table C402.5.3”

Relabel “Table C402.5.4” to “Table C402.5.3”

C402.5.4 Renumber Section C402.5.5 as Section C402.5.4 and make the following changes:

In Part 2.1, delete “Table C402.1.3 or”.

In Part 2.2 replace “Section C402.5.1.1” with “Section C402.5.1.2”.

In Part 2.4 replace “Water lines” with “Piping serving as part of a heating or cooling system”.

C402.5.5 Renumber Section C402.5.6 as Section C402.5.5 and make the following changes:

Replace “Section C402.5.4” with “Section C402.5.3”.

C402.5.6 Renumber Section C402.5.7 as Section C402.5.6.

C402.5.7 Renumber Section C402.5.8 as C402.5.7 and make the following changes:

Replace “infiltration” with “air leakage”.

C402.5.8 Renumber Section C402.5.9 as Section C402.5.8 and make the following changes:

C402.5.9 Renumber Section C402.5.10 as Section C402.5.9.

In part 2 replace “more” with “greater”

In part 2 replace “when” with “where”

C402.5.10 Renumber Section C402.5.11 as Section C402.5.10 and make the following changes:

Replace “and lower the heating setpoint to 55°F (13°C)” with “and lower the heating setpoint to 50°F (10°C)”

In Exception 1, add “operable openings into” before “separately-zoned areas”

In Exception 2, replace “warehouses” with “storage occupancies”

In Exception 3, revise to read: “Doors located in the exterior wall that are part of a vestibule system”.

Add new Exception 4, “Operable openings used as part of a designed system for natural ventilation.”

C402.5.10.1 Renumber Section C402.5.11.1 as Section C402.5.10.1

C402.6 Add Section C402.6 as follows:

C402.6 Approved calculation software tools. The following software tools are sufficient to demonstrate compliance with Sections C401.2.1 Prescriptive Compliance and C402.7.

1. COMcheck-Web available at: <https://www.energycodes.gov/comcheck>

C402.7 Add Section C402.7 and subsections as follows:

C402.7 Derating and Thermal Bridges

C402.7.1 General. In addition to pre-calculated assembly U-factors, C-factors, or F-factors outlined in Appendix A of ASHRAE 90.1 2019, vertical envelope performance shall also take into account effect of *thermal bridges* according to both C402.7.2 and C402.7.3. In addition, the thermal resistance of *spandrel sections* within *glazed wall systems* shall be according to C402.7.4. Together with Appendix A of ASHRAE 90.1 2019, these derated values and *spandrel section* values shall be used when showing compliance with Section C402.1.4 or Section C402.1.5, as applicable.

C402.7.2 Continuous Insulation for Vertical Walls. Installed vertical wall continuous insulation shall be derated using either C402.7.2.1, C402.7.2.2, or C402.7.2.3 to account for the effect of fasteners through the continuous insulation.

C402.7.2.1. Prescriptive Derating. Derate vertical wall continuous insulation using Equation C402.7.2.1 and Derating Factor from C402.7.2.1.1 for portions of wall having brick veneer systems and C402.7.2.1.2 or C402.7.2.1.3 for portions of wall having cladding systems.

(Equation C402.7.2.1)

$$R_{\text{derated}} = R_o \times \text{Derating Factor}$$

Where

R_{derated} :	R value after derating, to be used when showing compliance R402.7.2
R_o :	R value of the continuous insulation prior to derating
Derating Factor:	From C402.7.2.1.1, C402.7.2.1.2, or C402.7.2.1.3

C402.7.2.1.1 Brick Veneer Systems. Wall systems comprised of brick anchors fasteners supporting brick veneer shall use a Derating Factor of 0.7 to account for the *clear field thermal bridge* derating effect of the fasteners. In addition, brick shelf angles shall be derated according to Section C402.7.3 to account for the *linear thermal bridge* derating effect of any brick shelf angles.

C402.7.2.1.2 Cladding Systems. Wall systems comprised of cladding systems shall use Derating Factor per Table 402.7.2.1.2

Table 402.7.2.1.2

Thickness of R _o	Derating Factor
R _o is less than or equal to R-15	Derating Factor = 0.74 – 0.021 x R _o
R _o is greater than R-15	Derating Factor = 0.55 – 0.007 x R _o

C402.7.2.1.3 Cladding Systems with Qualifying Thermal Breaks. If plastic or fiberglass fasteners entirely comprised of material having thermal conductivity of 3 Btu-in/hr-ft²-F or less are used to support external cladding; or, if fasteners having thermal breaks which have a conductivity of 3 Btu-in/hr-ft²-F or less on both ends of the fastener are used to support external cladding, use Derating Factor of 0.8.

C402.7.2.2 Reference Derating. Use pre-solved, derated continuous insulation values contained in Building Envelope Thermal Bridging Guide, version 1.6 or higher, published by BC Hydro Power Smart.

C402.7.2.3. Modelled Derating. Use two or three-dimensional finite element analysis heat transfer model to calculate derated value. A three-dimensional model shall be used when there are *point thermal bridges* or thermal bridging in multiple planes.

C402.7.3. Linear Thermal Bridges. In addition to derating per Section C402.7.2, installed vertical wall insulation U values shall be further derated for *linear thermal bridges* where the vertical wall intersects the following: brick shelf angles, balconies, vertical interior walls, horizontal interior walls, windows, roof, other vertical walls on different plane, and grade_ using Equation C402.7.3.

(Equation C402.7.3)

$$U_{derated} = \frac{PSI * Length}{A_{total}} + U_o$$

Where

U _{derated}	Derated wall U value (Btu/hr-ft ² -F)
PSI	Value from Section C402.7.3.1, C402.7.3.2, or C402.7.3.3 (Btu/hr-ft-F)
Length	Length of linear <i>thermal bridge</i> (ft)
A _{total}	Area of derated wall (ft ²)
U _o	Wall or roof U value prior to <i>linear thermal bridge</i> derating

C402.7.3.1 Prescriptive PSI values. Use PSI values from Table C402.7.3.1

Table C402.7.3.1

Type of Linear Thermal Bridge	PSI-value (Btu/hr - ft – F)
Balcony to exterior vertical wall intersection	1.00
Intermediate floor to exterior vertical wall intersection	0.60
Interior vertical wall to exterior vertical wall intersection	0.50
Fenestration to exterior vertical wall intersection	0.32

Parapet (vertical wall to roof intersection)	0.60
Brick shelf angle	0.35
Vertical wall to grade intersection	0.52
Vertical wall plane transition (building corners and other changes in vertical wall plane)	0.25

C402.7.3.2. Reference PSI Values. Use pre-solved PSI values contained in Building Envelope Thermal Bridging Guide, version 1.6 or higher, published by BC Hydro Power Smart.

C402.7.3.3. Modelled PSI Values. Use a two or three-dimensional finite element analysis to calculate PSI values. A three-dimensional model shall be used when there are *point thermal bridges* or thermal bridging in multiple planes.

C402.7.4 Thermal Resistance of Spandrel Sections. R-factor of opaque *spandrel sections* within *curtain wall* systems shall be accordance with C402.7.4.1, C402.7.4.2, or C402.7.4.3.

C402.7.4.1 Prescriptive R value. Opaque *spandrel sections* within *glazed wall systems* shall at least R-12 insulation. For the purpose of calculating weighted U in accordance with Section C402.1.5, *spandrel sections* shall use default values in Table C402.7.4.1.

Table C402.7.4.1: Default R values for Spandrel Sections

Type	Default R-Value
Thermally broken	3.5
Non-thermally broken	2

C402.7.4.2. Reference R values. Use pre-solved opaque *spandrel sections* R values contained in Building Envelope Thermal Bridging Guide, version 1.6 or higher, published by BC Hydro Power Smart.

C402.7.4.3. Modelled R values. Use a two or three-dimensional finite element analysis to calculate R value of opaque *spandrel section*. A three-dimensional model shall be used when there are *point thermal bridges* or thermal bridging in multiple planes.

C403.5 Modify Section C403.5 as follows

Add "Dedicated outside air systems" as Item 4 of the list of where air or water economizers shall be provided.

Delete exception 5 and renumber subsequent exceptions to reflect deletion

Table C403.5(1). *Show only Climate Zone 5A.*

Table C403.5(2). *Delete this table*

C403.7.4 Replace C403.7.4 as follows

C403.7.4 Energy Recovery Systems. Energy recovery ventilation systems shall be provided as specified in Section C403.7.4.1, as applicable and C403.7.4.2.

C403.7.4.1 Modify Section C403.7.4.1 as follows:

Replace “not less than 60 percent at heating design condition.” with “not less than 75 percent at heating design condition. Outdoor air must be delivered directly to the dwelling unit. The building weighted average sensible energy recovery effectiveness must meet the requirements of C403.7.4.2.”

Delete all the exceptions (exceptions 1 through 4).

C403.7.4.2 *Modify Section C403.7.4.2 as follows:*

Replace “The energy recovery system shall provide an enthalpy recovery ratio of not less than 50% at design conditions” with “The energy recovery system shall result in either 1 or 2, as applicable”

Add 1 and 2 as follows

1. *A sensible recovery ratio of at least 50% at heating design conditions for systems that provide makeup for Class 3 or 4 exhaust. The requirement can be satisfied either for each fan system individually or based on a weighted average of the ventilation air flow for all applicable fan systems in the entire building per Equation C403.7.4.2(1).*

Equation C403.7.4.2(1)

Weighted average sensible energy recovery ratio = [sensible energy recovery ratio for fan system 1 x outside air flow for system 1 + sensible energy recovery ratio for fan system 2 x outside air flow for system 2 + ...]/[outside air flow for system 1 + outside air flow for system 2 + ...]

2. *An enthalpy recovery ratio of not less than 70% at heating and cooling design conditions for all other systems. The requirement can be satisfied either for each fan system individually or based on a weighted average of the ventilation air flow for all applicable fan systems in the entire building per Equation C403.7.4.2(2).*

Equation C403.7.4.2(2)

Weighted average enthalpy energy recovery ratio = [enthalpy recovery ratio for fan system 1 x outside air flow for system 1 + enthalpy recovery ratio for fan system 2 x outside air flow for system 2 + ...]/[outside air flow for system 1 + outside air flow for system 2 + ...]

Delete exceptions 2 (including 2.1 and 2.2), 4, 5, 6, 7, and 8

Renumber exception 3 as exception 2

Renumber exception 9 as exception 3 and change from “20 hours per week” to “10 hours per week”

Renumber exception 10 as exception 4

Renumber exception 11 as exception 5

Revise Tables C403.7.4.2(1) and C403.7.4.2(2) and show only Climate Zone 5A row, as follows:

Table C403.7.4.2(1)

ENERGY RECOVERY REQUIREMENT (Ventilation systems operating less than 8,000 hours per year)

Climate Zone	PERCENT (%) OUTDOOR AIR AT FULL DESIGN AIRFLOW RATE							
	>=10% and <20%	>=20% and < 30%	>=30% and < 40%	>=40% and <50%	>=50% and <60%	>=60% and <70%	>=70% and <80%	>=80%
	Design Supply Fan Airflow Rate (cfm)							
5A	10,000	8,000	2,750	0	0	0	0	0

Table C403.7.4.2(2)

ENERGY RECOVERY REQUIREMENT (Ventilation systems operating note less than 8,000 hours per year)

Climate Zone	PERCENT (%) OUTDOOR AIR AT FULL DESIGN AIRFLOW RATE							
	>=10% and <20%	>=20% and < 30%	>=30% and < 40%	>=40% and <50%	>=50% and <60%	>=60% and <70%	>=70% and <80%	>=80%
	Design Supply Fan Airflow Rate (cfm)							
5A	0	0	0	0	0	0	0	0

C405.2.4 Modify Section C405.2.4 as follows

In item 1, replace "150 watts" with "100 watts"
In item 3, replace "150 watts" with "100 watts"

C405.13 Add Section C405.13 as follows:

C405.13 Electric Vehicle Ready Parking Spaces ("EV Ready Spaces") (Mandatory). New parking spaces shall provide *EV Ready Spaces* in accordance with Table C405.13. Installed wiring suitable for 6.6kW or higher SAE J1772-2017 AC Level II EVSE shall be connected to the service panel and run to within 6 feet (1828mm) of any qualifying parking space. Conductors and outlets for *EVSE* shall be sized and installed in accordance with the MA electrical code.

TABLE C405.13 EV-READY SPACE REQUIREMENTS

Occupancy Classification	Minimum percentage of EV-Ready Spaces	EV Charging Performance Requirements
Group R and Group B	20%	40-amp dedicated branch circuit or larger branch circuit with ALMS in accordance with Table C405.13.1
All Other Occupancies	10%	40-amp dedicated branch circuit or larger branch circuit with ALMS in accordance with Table C405.13.1

Exceptions:

1. Parking spaces and garage spaces intended exclusively for storage of vehicles for retail sale or vehicle service are excluded from the EV-ready space percentage calculation.
2. Any parking facility with 4 or more spaces providing installed Direct Current fast charging EVSE with a minimum charging speed of 150 kW to each space.
3. One or more AC Level II spaces may be substituted with multiple AC Level I spaces provided with wiring for a minimum 20amp, 120-volt EVSE, with a ratio of at least 3 AC Level I spaces for each AC Level II space required.
4. Parking spaces specifically designated for medium or heavy-duty vehicles are excluded from the EV-ready space percentage calculation.

C405.13.1 Add Section C405.13.1 as follows:

C405.13.1 Minimum Charging Performance Requirements. *Automatic Load Management System (ALMS)* may be used to control *electric vehicle* loads for EV-Ready or EVSE-Installed Spaces with AC Level II or Level I charging, subject to the performance requirements in Table C405.13.1. The maximum number of parking spaces that may share a single branch circuit varies based on the percentage of all parking spaces to be provided with *EVSE*.

TABLE C405.13.1 EV-READY PERFORMANCE REQUIREMENTS

Circuit Breaker Amperage	Maximum Parking Spaces that May Share a Branch Circuit with 10%-60% EV Ready spaces	Maximum Parking Spaces that May Share a Branch Circuit with 61-100% EV Ready spaces
40A	1	2
50A	1	2
60A	2	4
70A	3	6
80A	4	8
90A	5	9
100A	6	10

C405.13.2 Add Section C405.13.2 as follows:

C405.13.2 Identification. *Construction documents* shall indicate the branch circuit termination point and proposed location of future EVSE. *Construction documents* shall also provide information on amperage of future EVSE, wiring schematics, *Automatic Load Management Systems*, and electrical load calculations to verify that the electrical panel service capacity and electrical system, including any on-site

distribution transformers, have sufficient capacity to simultaneously charge all EVs at all required *EV ready spaces*.

C406.1 Modify Section C406.1 as follows:

Replace “shall achieve a total of 10 credits” with “shall achieve a total of 15 credits”

Table C406.1(1) Modify Table C406.1(1) as follows:

Delete rows for C406.2.1 and C406.7.3

Replace row for option C406.2.3 with the following

<u>Section</u>	<u>Climate Zone 5A</u>
C406.2.3 Renewable space heating	<u>15</u>

Add the following row for option C406.12:

<u>Section</u>	<u>Climate Zone 5A</u>
C406.12 Heavy Timber Construction	<u>8</u>

Table C406.1(2) Modify Table C406.1(2) as follows:

Delete rows for C406.2.1 and C406.7.3

Replace row for option C406.2.3 with the following

<u>Section</u>	<u>Climate Zone 5A</u>
C406.2.3 Renewable space heating	<u>15</u>

Add the following row for option C406.12:

<u>Section</u>	<u>Climate Zone 5A</u>
C406.12 Heavy Timber Construction	<u>8</u>

Table C406.1(3) Modify Table C406.1(3) as follows:

Delete rows for C406.2.1 and C406.7.3

Replace row for option C406.2.3 with the following

<u>Section</u>	<u>Climate Zone 5A</u>
C406.2.3 Renewable space heating	<u>15</u>

Add the following row for option C406.12:

<u>Section</u>	<u>Climate Zone 5A</u>
C406.12 Heavy Timber Construction	<u>8</u>

Table C406.1(4) Modify Table C406.1(4) as follows:

Delete rows for C406.2.1 and C406.7.3

Replace row for option C406.2.3 with the following

<u>Section</u>	<u>Climate Zone 5A</u>
C406.2.3 Renewable space heating	15

Add the following row for option C406.12:

<u>Section</u>	<u>Climate Zone 5A</u>
C406.12 Heavy Timber Construction	8

Table C406.1(5) *Modify Table C406.1(5) as follows:*

Delete rows for C406.2.1 and C406.7.3

Replace row for option C406.2.3 with the following

<u>Section</u>	<u>Climate Zone 5A</u>
C406.2.3 Renewable space heating	15

Add the following row for option C406.12:

<u>Section</u>	<u>Climate Zone 5A</u>
C406.12 Heavy Timber Construction	8

C406.1.1 *Modify Section C406.1.1 as follows:*

Replace “minimum number of 5 credits” with “minimum number of 10 credits”

C406.2.1 *Delete this section*

C406.2.3 *Replace Section C406.2.3 with the following:*

C406.2.3. Renewable space heating. All space heating shall be provided with cold-climate air source heat pumps having rated coefficient of performance (COP) of at least 1.75 at 5 degrees Fahrenheit source air, or ground source heat pumps.

C406.7.3 *Delete this section*

C406.9 *Replace Section C406.9 with the following:*

C406.9 Reduced air leakage. *Air leakage* of the *building thermal envelope* shall be tested by an approved third party in accordance with Section C402.5.2.1. The measured *air leakage* shall not exceed 0.20 cfm/ft² (1.1 L/s × m²) of the *building thermal envelope* at a pressure differential of 0.3 inches water gauge (75 Pa), with the calculated surface area being the sum of the above- and below-grade *building thermal envelope*.

C406.12 *Add Section C406.12 as follows:*

C406.12 Heavy Timber construction. In buildings with 4 stories or more of Type IV heavy timber construction either above grade, or above a podium.

C407 Replace Section C407 in its entirety with the following:

C407.1 Targeted Performance

This option requires compliance with Section C407.1.1 through C407.1.2.

C407.1.1 Compliance

Building shall comply with Sections C407.1.1.1 through C407.1.1.6

C407.1.1.1 Building performance modeling

Building performance modeling shall be used to show compliance with C407.1.1.5. The simulation program shall be a computer-based program for the analysis of energy consumption in buildings. The simulation shall include calculation methodologies for the building components being modeled and meet the requirements in ANSI/ASHRAE/IESNA 90.1-2019 Section G2.2.1(a)-(d) and G2.2.4.

C407.1.1.2 Climatic Conditions

The simulation program shall perform the simulation using hourly values of climatic data using representative weather files prescribed by the Massachusetts Department of Energy Resources.

C407.1.1.3 Modeling Building Envelope Infiltration

The air leakage rate of the building envelope shall be modeled following ANSI/ASHRAE/IESNA 90.1-2019 Section G3.1.1.4.

C407.1.1.4 Internal loads, scheduling, and other modeling assumptions

Performance modeling shall use the internal load, scheduling, and other assumptions as prescribed by the Massachusetts Department of Energy Resources.

C407.1.1.5 Thermal energy demand intensity (TEDI) limits

Performance modeling shall show that the building's heating thermal energy demand intensity and cooling thermal energy demand intensity are less than or equal to the values in Table C407.1.5.

Table C407.1.5 Thermal Energy Demand Intensity (TEDI) Limits

Use Type	Heating TEDI (kBtu/sf-yr)	Cooling TEDI (kBtu/sf-yr)
Office, fire station, library, police station, post office, town hall $\geq 125,000$ -sf	1.5	23
Office, fire station, library, police station, post office, town hall between 75,000 and 125,000-sf	$4 - 0.00002 * \text{Area (sf)}$	$18 + 0.00004 * \text{Area (sf)}$
Office, fire station, library, police station, post office, town hall $\leq 75,000$ -sf	2.5	21

K-12 School $\geq$ 125,000-sf	2.2	12
K-12 School between 75,000 and 125,000-sf	$2.7 - 0.000004 * \text{Area (sf)}$	$32 - 0.00016 * \text{Area (sf)}$
K-12 School $\leq$ 75,000-sf	2.4	20
Residential multifamily and dormitory $\geq$ 125,000-sf	2.8	22
Residential multifamily and dormitory between 75,000 and 125,000-sf	$3.8 - 0.000008 * \text{Area (sf)}$	$4.5 + 0.00014 * \text{Area (sf)}$
Residential multifamily and dormitory $\leq$ 75,000-sf	3.2	15
All other $\geq$ 125,000-sf	1.5	23
All other between 75,000 and 125,000-sf	$4 - 0.00002 * \text{Area (sf)}$	$18 + 0.00004 * \text{Area (sf)}$
All other $\leq$ 75,000-sf	2.5	21

C407.1.1.6 Mixed use buildings

For buildings having more than one use type where any use type is more than 10% of the total space conditioned area, each separate use type having more than 10% of the total space conditioned area shall separately and individually show compliance with C407.1.1.5 for that respective use type. Use types having less than or equal to 10% of the total space conditioned area do not have to show separate, individual compliance with C407.1.1.5 but can be incorporated into and treated as the majority use type.

C407.1.2 Documentation

Simulated performance shall be documented, and documentation shall be submitted to rating authority. Documentation shall include all the assumptions used in the performance modeling such that the documentation can be used as a specification checklist for implementation during design and construction. The information shall be submitted in a report and shall include the items described in ANSI/ASHRAE/IESNA 90.1-2019 Appendix G Section G1.3.2 Parts b, g, h, i, j, k, l, n, o, and q, and Section G1.3.3.

C407.2 Relative Performance. This option requires compliance with Section C407.2.1 and C407.2.2

C407.2.1 Electrification and Documentation of Highly Ventilated Buildings. Buildings using the Relative Performance Pathway (C407.2) because average ventilation at full occupancy is greater than 0.5 cfm/sf shall have space heating electrified in accordance with Section C401.4.1 and shall submit design documents showing ventilation system design and air flow rates as required by Section C103.2 part 16.

C407.2.2 Compliance. Building shall comply with ANSI/ASHRAE/IESNA 90.1-2019 Section 4.2 using the Appendix G pathway as modified by C407.2.2.1 and C407.2.2.2.

C407.2.2.1 Modification to ANSI/ASHRAE/IESNA 90.1-2019 Section 4.2.

90.1-2019 Section 4.2 Replace 4.2.1.1 with following:

New buildings shall comply with 4.2.2 through 4.2.5 and normative Appendix G. When using Normative Appendix G, the Performance Energy Index (PEI) of new buildings, additions to existing buildings, and alterations to existing buildings shall be less than or equal to the Performance Energy Index Target (PEI_t) when calculated in accordance with the following:

$$PEI_t = [BBUE + (BPF \times BBRE)]/BBSE$$

- PEI = Performance Energy Index calculated in accordance with Section G1.2
- BBUE = Baseline building unregulated site energy
- BBRE = Baseline building regulated site energy
- BPF = Building performance factor from Table 4.2.1.1 For building area types not listed in Table 4.2.1.1 use "All others". Where a building has multiple area types, the required BPF shall be equal to the area-weighted average of the building area types.
- BBSE = Baseline building site energy (sum of BBUE and BBRE)

90.1-2019 Section 4.2 Revise Table 4.2.1.1 to show only Climate Zone 5A; remove multifamily, office, and school; and adjust the BPFs as follows:

Table 4.2.1.1 Building Performance Factor (BPF)

Building Area Type	Climate Zone 5A
Health care/hospital	0.59
Hotel/motel	0.57
Restaurant	0.62
Retail	0.47
Warehouse	0.41
All others	0.51

C407.2.2.2 Modification to ANSI/ASHRAE/IESNA 90.1-2019 Appendix G

90.1-2019 Section G In all Sections of Appendix G, replace references to "baseline building performance" with "baseline building site energy", replace "proposed building performance" with "proposed building site energy", replace "energy cost savings" with "site energy savings"

90.1-2019 Section G Replace G1.2.2 with following, keeping the exception unchanged:

The site energy of the proposed design is calculated in accordance with the provisions of this appendix using the following formula:

$$\text{Performance energy index (PEI)} = \frac{\text{Proposed building site energy}}{\text{baseline building site energy (BBSE)}}$$

Both the proposed building site energy and the baseline building site energy shall include all end use load components within and associated with the building when calculating the performance energy index.

90.1-2019 Section G Delete G1.3.2 Part m and Part p

90.1-2019 Section G Delete G2.1 Part c

90.1-2019 Section G Revise G2.4.1 as follows

Site recovered energy shall be subtracted from the proposed building site energy when calculating performance. Energy used to recharge vehicles that are used for on-road and off-site transportation purposes, or energy losses from use of behind-the-meter energy storage, should not be included when calculating performance. On-site renewable energy shall not be subtracted from the proposed building site energy when calculating performance.

90.1-2019 Section G Delete G2.4.2

90.1-2019 Section G Add the following row to Section G Table G3.1.1-1.

**TABLE G3.1.1-1 BASELINE BUILDING VERTICAL FENESTRATION PERCENTAGE
OF GROSS ABOVE-GRADE-WALL AREA**

Building Area Types	Baseline Building Gross Above-Grade-Wall Area
Multifamily	24%

Section C407.3 Add Section C407.3 as follows:

C407.3 Passive House. This option requires compliance with Section C407.3.1 and C407.3.2.

C407.3.1 Compliance. Buildings shall be pre-certified as meeting the Phius CORE 2021 or Phius ZERO 2021 Passive Building Standard – North America, or newer, demonstrated using Phius approved software, where Phius Design-Certification is demonstrated by Phius and a Certified Passive House Consultant (CPHC); or, Projects pre-certified as meeting the Certified Passive House standard using the current software and program criteria by the Passive House Institute (PHI), where PHI certification is demonstrated by a Certified Passive House Designer and a Certified Passive House Certifier.

C407.3.2 Documentation. Compliance with Phius or PHI shall be in accordance with C407.3.3.1 or C407.3.3.2

C407.3.2.1 Phius Documentation. When using WUFI Passive or other Phius-approved software:

1. Prior to the issuance of a building permit, the following item(s) must be provided to the Building Official:

- a. A Phius 2021 (or newer) Verification Report which demonstrates project compliance with Phius 2021 (or newer) performance requirements.
- b. A statement from the CPHC that the verification report results accurately reflect the plans submitted.
- c. Evidence of project registration from Phius.

OR

- a. A Design Certification Letter from Phius.

2. Prior to the issuance of a certificate of occupancy, the following items must be provided to the building official:

- a. Design Certification Letter from Phius.
- b. An updated Verification Report by the CPHC which reflects “as-built” conditions and test results that demonstrate project compliance with Phius (blower door and ventilation results).
- c. A statement from the CPHC that the envelope meets the Phius hygrothermal requirements found in Appendix B of the Phius 2021 Certification guidebook
- d. A statement from the Phius Certified Verifier or Rater that the project test results and other Phius verification requirements are met.
- e. A copy of the Phius workbook listing all testing results and as-built conditions.

OR

- a. A Project Certificate demonstrating final certification awarded by Phius.

AND

- f. A statement from the Phius Verifier or Rater of compliance with C405.13: EV ready, and Appendix CB: Solar Ready Provisions.

C407.3.2.2 Passive House International (PHI) Documentation.

1. If using PHI Passive House software, prior to the issuance of a building permit, the following item(s) must be provided to the Building Official:

- a. A PHPP compliance report which demonstrates project compliance with current PHI performance requirements;
- b. A statement from the Certified Passive House Consultant/Designer (CPHC/D) that the PHPP results and compliance report accurately reflect the plans submitted;
- c. Evidence of project registration from a Certified Passive House Certifier.

OR

- a. A Design Certification Letter from a Certified Passive House Certifier.

2. Prior to the issuance of a certificate of occupancy, the following items must be provided to the building official:

- a. A Design Certification Letter from a Certified Passive House Certifier.
- b. An updated PHPP compliance report which reflects “as-built” conditions and test results (blower door and ventilation results) that demonstrates project compliance with PHI performance requirements;
- c. A copy of the Passive House Verifier’s or Rater’s test results;
- d. A statement from the CPHD that the project test results meet the model performance requirements, all the mandatory limits and any other mandatory requirements.

OR

- a. A Final Certification Letter from a Certified Passive House Certifier

AND

A statement from the Passive House Verifier or Rater of compliance with C405.13: EV ready, and Appendix CB: Solar Ready Provisions.

Section C407.4 Add Section C407.4 as follows:

C407.4 HERS Index (HERS) for multi-family buildings

This option requires compliance with Section C407.4.1, C407.4.2, C407.4.3

C407.4.1 Compliance

Each dwelling unit shall have a certified HERS Index (HERS) rating less than or equal to the appropriate value indicated in Table C407.4 when compared to the *HERS index reference design* for each dwelling unit prior to credit for onsite renewable electric generation. Buildings shall meet or exceed ENERGY STAR Multifamily New Construction (MFNC) program requirements. The Home Energy Rating Index (HERS) shall be determined in accordance with RESNET/ICC Standard 301-2019. Software tools used for determining HERS Index shall be Approved Software Rating Tools in accordance with RESNET/ICC 301. Where calculations require input values not specified by Sections R402, R403, R404 and R405, those input values shall be taken from RESNET/ ICC 301.

TABLE C407.4 MAXIMUM ENERGY RATING INDEX

Building Energy Sources	Maximum HERS Index score ^a		
	New construction permits until June 30, 2024	New construction permits after July 1, 2024	Major alterations, additions, or Change of use ^b
Mixed-fuel building	52	42	52
Solar Electric Generation	55	42	55
All-Electric building	55	45	55
Solar Electric & All-Electric building	58	45	58

^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 Section R503.1.5 are subject to this maximum HERS rating.

C407.4.2 Documentation. Documentation verifying that the methods and accuracy of compliance software tools conform to the provisions of this section shall be provided to the *building official* in accordance with C407.4.3.1 and C407.4.3.2:

C407.4.2.1 Prior to issuance of building permit. Prior to the issuance if a building permit, the following items must be provided to the Building Official:

1. Building street address, or other building site identification.
2. Declare the HERS Index on title page and building plans.
3. The name of the individual performing the analysis and generating the compliance report.
4. The name and version of the compliance software tool.
5. Documentation of all inputs entered into the software used to produce the results for the reference design and/or the rated home.
6. A certificate indicating that the proposed design has a HERS Index less than or equal to the appropriate score indicated in Table C407.4 when compared to the ERI reference design. The certificate shall document the building component energy specifications that are included in the calculation, including: component level insulation R-values or U-factors; assumed duct system and building envelope air leakage testing results; and the type and rated efficiencies of proposed

heating, cooling, mechanical ventilation, and service water-heating equipment to be installed. If on-site renewable energy systems will be installed, the certificate shall report the type and production size of the proposed system.

7. When a site-specific report is not generated, the proposed design shall be based on the worst-case orientation and configuration of the rated home.

C407.4.2.2 Prior to issuance of certificate of occupancy. Prior to the issuance of a certificate of occupancy, the following items must be provided to the Building Official:

1. Building street address or other *building site* identification.
2. Declaration of the Final HERS Index on title page and on building plans.
3. The name of the individual performing the analysis and generating the report.
4. The name and version of the compliance software tool.
5. Documentation of all inputs entered into the software used to produce the results for the reference design and/or the rated home.
6. A final confirmed certificate indicating that the confirmed rated design of the built home complies with Sections C407.4. The certificate shall report the energy features that were confirmed to be in the home, including: component-level insulation R-values or U-factors; results from any required duct system and building envelope air leakage testing; and the type and rated efficiencies of the heating, cooling, mechanical ventilation, and service water-heating equipment installed.
7. Documentation that each unit meets or exceeds ENERGY STAR Multifamily New Construction (MFNC) program requirements.
8. Where on-site renewable energy systems have been installed on or in the home, the certificate shall report the type and production size of the installed system.
9. Compliance with C405.13, and either Appendix CB or Appendix CC as applicable

C407.4.3 Verification by approved agency. Verification of compliance shall be completed by a certified HERS rater.

CHAPTER 5 [CE] EXISTING BUILDINGS

C502.1 *Revise Section C502.1 as follows:*

Add the following first sentence “Additions to an existing building where the addition is up to 100% of the size of the existing building and less than 20,000-sf shall comply with Sections C401.3, C402 through C406, and Section C408. Additions which exceed either of these limits shall comply with the applicable pathway for new construction in C401.2.”

C502.2 *Revise Section C502.2 as follows:*

Remove both exceptions

C503.1 *Revise Section C503.1 as follows:*

Replace “the requirements of Section C503” with “the requirements of Sections C503, C402, C403, C404, and C405”

**225 CMR 23: MASSACHUSETTS COMMERCIAL STRETCH ENERGY CODE
AND MUNICIPAL OPT-IN SPECIALIZED CODE 2023**

9/19/2022

Replace Exception 3 with “Where the component performance alternative in Section 402.1.5 is used to comply with this section, the proposed UA shall not be greater than 110 percent of the target UA.”

C505.1 Revise Section C505.1 as follows:

Replace “this code” with “Sections C401.3, C402 through C406, and Section C408”

Appendix CB Adopt unamended

APPENDIX CB: SOLAR-READY ZONE – COMMERCIAL.

**APPENDIX CC - MASSACHUSETTS MUNICIPAL OPT-IN SPECIALIZED ENERGY CODE
2023**

COMMERCIAL BUILDING PROVISIONS

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance. The provisions contained in this appendix together with referenced sections from the Stretch energy code constitute the Specialized opt-in code for commercial buildings, and may be adopted by a city or town together with the Residential Specialized code Appendix RC as their stretch energy code. When adopted by the local municipality, the provisions in this appendix are mandatory in combination with the IECC2021 with Massachusetts Stretch code amendments.

SECTION CC101 GENERAL

CC101.1 Replace Section CC101 as follows:

CC101.1 Purpose. The purpose of this appendix is to form the commercial building provisions of the Massachusetts Municipal Opt-in Specialized Code to supplement the Massachusetts Stretch Energy Code and to provide a compliance pathway for buildings that require renewable energy systems of adequate capacity to achieve net zero carbon.

CC101.2 Replace Section CC101.2 as follows:

CC101.2 Scope. This appendix applies to new buildings that are addressed by the Municipal Opt-in Specialized Code.

Residential buildings and *dwelling units* within mixed use buildings shall comply as follows:

- 1) New *dwelling units* over 4,000 square feet in conditioned floor area in *Mixed Fuel Buildings* shall comply with the Zero Energy pathway and Section CC103 or with residential code Section RC102.
- 2) New R-use buildings over 12,000 square feet in conditioned floor area shall comply in accordance with Table CC101.2.

TABLE CC101.2 MULTI-FAMILY AND R-USE COMPLIANCE

R-Use buildings over 12,000 sf, or R-Use portions over 12,000 sf in mixed-use buildings	Compliance Path options by permit submittal date		
	C407.3 Passive house	C407.1 Targeted Performance	C407.4 HERS Index
Up to 5 stories	Required from Jan 1, 2023		
6 stories and higher	Required from Jan 1, 2024	Optional until Jan 1, 2024	Optional until Jan 1, 2024

Exceptions:

1. Detached one- and two-family dwellings and townhouses as well as Group R-2 buildings three stories or less in height above grade plane, manufactured homes (mobile dwellings), and manufactured houses (modular dwellings). These buildings and dwelling units shall comply with Residential Appendix RC under the Specialized energy code.
2. Buildings that use neither electricity nor fossil fuel.

CC101.3 Add Section CC101.3 as follows:

CC101.3 Compliance. New buildings shall demonstrate compliance with Sections CC101.4, CC101.5 and one of the following pathways:

1. **Zero Energy pathway:** Buildings shall comply with Section CC103 and demonstrate that they are *Zero Energy Buildings* in accordance with Equation CC-1. *Mixed Fuel Buildings* with any capacity for on-site fossil fuel use shall be pre-wired for future electrification of all fuel uses in accordance with Section CC105.
2. **All-Electric pathway:** Buildings shall comply with Section CC104.
3. **Mixed Fuel pathway:** *Mixed Fuel Buildings* other than *Zero Energy Buildings* with any capacity for on-site fossil fuel use shall comply with CC105 and CC106. The following uses shall be excluded when determining whether new buildings will have on-site fossil fuel use:
 - 1) On-site back-up generators using fossil fuels
 - 2) On-site refuelling of vehicles or outdoor equipment using fossil fuels

CC101.4 Add Section CC101.4 as follows:

CC101.4 Minimum building energy efficiency. New buildings shall comply with Section C401.2.1 or C401.2.2. as prescribed in Section C401. Existing buildings shall comply with Chapter 5 as amended.

CC101.5 Add Section CC101.5 as follows:

CC101.5 Minimum electric vehicle ready parking requirements. New parking spaces shall provide *electric vehicle ready spaces* in accordance with Section C405.13 and Table C405.13.

SECTION CC102 DEFINITIONS

CC102 Add the following definitions:

NET ZERO EMISSIONS BUILDING. A building which is consistent with achievement of MA 2050 net zero emissions, through a combination of highly energy efficient design together with being either a *Zero Energy Building*, or an *All-Electric Building*, or where fossil fuels are utilized, the building is fully pre-wired for future electrification and generates solar power on-site from the available *Potential Solar Zone Area*.

POTENTIAL SOLAR ZONE AREA. The combined area of any low-sloped roofs and any steep-sloped roofs oriented between 90 degrees and 300 degrees of true north where the annual solar access is 70 percent or greater. Annual solar access is the ratio of “annual solar insolation with shade” to the “annual solar insolation without shade”. Shading from obstructions located on the roof or any other part of the building shall not be included in the determination of annual solar access.

ZERO ENERGY BUILDING. A building which through a combination of highly energy efficiency design and onsite renewable energy generation is designed to result in net zero energy consumption over the course of a year as measured in MMBtus or KWh_{eq}, on a site energy basis, excluding energy use for charging vehicles.

CC102 Delete the definitions for: Adjusted off-site renewable energy, zero energy performance index (ZEPI PB/EE)

SECTION CC103 ZERO ENERGY PATHWAY MINIMUM RENEWABLE ENERGY

CC103.1 Modify Section CC103.1 as follows (keeping Table CC103.1 unchanged):

Delete “or off-site renewable energy shall be procured”

Equation CC-1 Replace Equation CC-1 with the following:

$$RE_{\text{onsite}} \geq E_{\text{building}} \text{ (Equation CC-1)}$$

where:

RE_{onsite} = Annual site energy production from on-site renewable energy systems (see Section CC103.2).

E_{building} = Building energy use without consideration of renewable energy systems, on-site energy storage, on-site back-up generators, or on-site refuelling of vehicles or outdoor equipment.

When Section C401.2.1(1) is used for compliance with the Section CC101.4, building energy shall be determined by multiplying the gross *conditioned floor area* plus the gross semi-heated floor area of the proposed building by an EUI selected from Table CC103.1.

Use a weighted average for mixed-use buildings.

When any compliance pathway other than Section C401.2.1 Part 1 is used for compliance with CC101.4, building site energy use shall be determined from energy simulations.

CC103.2 Modify Section CC103.2 as follows:

After “approved by the code official” add “Commercial R-use buildings may comply using the Zero Energy Buildings pathways in Appendix RC by certifying that all units meet HERS 0 or lower with on-site renewable generation or by following the on-site renewable energy calculation used in the Phius ZERO certification standard when following the Passive house compliance pathway.”

CC103.3 Delete this section

CC104 Add Section CC104 as follows:

SECTION CC104 ALL ELECTRIC PATHWAY

CC104.1 General. New all-electric buildings shall comply with Sections CC101.4, CC101.5 and with one of the following:

- 1) Section C401.2.1 and Section C401.4.3
- 2) Section C407.3 Passive House
- 3) Exclusively R-use buildings permitted prior to January 2024 may comply with Section C407.4 when all dwelling units have a HERS rating of 45 or less.

CC105 Add Section CC105 as follows:

SECTION CC105 MIXED-FUEL BUILDING PATHWAY

CC105.1 General. This section together with Section CC106 establishes additional minimum requirements for new *mixed-fuel buildings*.

CC105.1.1 Biomass heating. New buildings using *clean biomass heating systems* may comply with this section without meeting CC105.3.1 and CC105.3.2. Buildings with any *combustion equipment* using biomass that does not meet the performance standards of *clean biomass heating systems* shall be deemed *mixed-fuel buildings* and shall comply with this section in full.

CC105.2 On-site renewable energy. New mixed-fuel buildings shall have equipment installed for on-site renewable energy with a rated capacity of not less than 1.5 W/ft² (16.1 W/m²) multiplied by the sum of the gross conditioned floor area of the three largest floors.

Exception: Where the building site cannot meet the requirement in full with an on-site renewable energy system, the building site shall install a partial system designed to utilize not less than 75% of the *Potential Solar Zone Area*.

CC105.3 Additional efficiency requirements. Additional efficiency requirements for compliance with this Section are set forth in Sections RC104.3.1 through RC104.3.3

CC105.3.1 More efficient HVAC equipment performance. Primary heating and cooling *equipment* shall meet the following efficiencies as applicable:

1. Space heating *combustion equipment* shall be rated at greater than or equal to 95 AFUE.
2. All refrigerant-based air conditioning equipment shall be a heat pump with greater than or equal to 10 HSPF rated heating performance and greater than or equal to 16 SEER rated cooling performance.
3. Ground source heat pump systems shall be rated at greater than or equal to 3.5 COP at design temperature.

For multiple cooling systems, all systems shall meet or exceed the minimum efficiency requirements in this section and collectively shall be sized to serve 100 percent of the cooling design load. For multiple heating systems, all systems shall meet or exceed the minimum efficiency requirements in this section and collectively shall be sized to serve 100 percent of the heating design load.

Exception:

Clean biomass heating systems used as the primary heating system.

CC105.3.2 Reduced energy use in service water-heating option. The hot water system shall meet one of the following efficiencies:

1. Greater than or equal to 82 EF *combustion equipment* service water-heating system.
2. Greater than or equal to 2.0 UEF electric service water-heating system.
3. Greater than or equal to 0.4 solar fraction solar water-heating system.
4. *Clean biomass heating system* supplied water-heating system.

CC106 Add Section CC106 as follows:

SECTION CC106 WIRING FOR FUTURE ELECTRIFICATION

CC106.1 Additional electric infrastructure. All *combustion equipment* and end-uses shall be installed in accordance with this section. Capacity for the future electric circuits required in this section shall be included in the load calculations of the original installation of electric service to the building, and each *dwelling unit* for R-use buildings or portions thereof.

CC106.1.1 Electric infrastructure for dwelling and sleeping units. *Combustion equipment* and end-uses serving individual *dwelling units* or *sleeping units* shall comply with Section RC104.4.

CC106.1.2 Combustion water heating equipment. Gas-fired or oil-fired water heaters with a capacity less than 300,000 Btu/h (88 kW) shall be installed in accordance with the following:

1. A dedicated 208/240-volt branch circuit with a minimum capacity of 30 amps shall terminate within 3 feet (914 mm) from the water heater and be accessible to the water heater with no obstructions. Both ends of the branch circuit shall be labeled with the words "For Future Heat Pump Water Heater" and be electrically isolated,
2. A condensate drain that is no more than 2 inches (51 mm) higher than the base of the installed water heater and allows natural draining without pump assistance shall be installed within 3 feet (914 mm) of the water heater,
3. The water heater shall be installed in a space with minimum dimensions of 3 feet (914 mm) by 3 feet (914 mm) by 7 feet (2134 mm) high, and
4. The water heater shall be installed in a space with a minimum volume of 700 cubic feet (20,000 L) or the equivalent of one 16-inch (406 mm) by 24-inch (610 mm) grill to a heated space and one 8-inch (203 mm) duct of no more than 10 feet (3048 mm) in length for cool exhaust air.

CC106.1.3 Cooking ranges, ovens and cooktops. An individual branch circuit outlet with a minimum rating of 250-volts, 40-amperes shall be installed within three feet of each gas or propane range or any permanently installed *combustion equipment* oven or cooktop.

Exception: Commercial kitchens for cafeteria, restaurant or commercial catering business use

CC106.1.4 Clothes Dryers. An individual branch circuit outlet with a minimum rating of 250-volts, 30-amperes shall be installed within three feet of each gas or propane clothes dryer.

Exception: commercial drying equipment used for manufacturing and process loads

CC106.1.5 Other combustion equipment. *Combustion equipment* not covered by Sections CC106.1.1 and CC106.1.4 and within buildings having average ventilation at full occupancy of 0.5 cfm/sf or less shall be provided with conduit that is continuous between a junction box located within 3 feet (914 mm) of the *appliance* or *equipment* and an electrical panel. The junction box, conduit and bus bar in the electrical panel shall be rated and sized to accommodate a branch circuit with sufficient capacity for an equivalent electric appliance, equipment or end use with an equivalent equipment capacity. The electrical junction box and electrical panel shall have labels stating, "For future electric equipment".

CC106.1.6 Other combustion equipment, highly ventilated buildings. *Combustion equipment* not covered by Sections CC106.1.1 and CC106.1.4 and within buildings having average ventilation at full occupancy of greater than 0.5 cfm/sf shall comply with Section CC106.1.6.1 through CC106.1.6.5.

CC106.1.6.1 HVAC Design and Installed Associated Electric Service. An all-electric HVAC retrofit design shall be prepared by the HVAC engineer for approval by the authority having jurisdiction. The electric service installed with the building shall be sufficient to accommodate the all-electric HVAC retrofit design. The contract documents shall show future replacement of *combustion equipment* based HVAC system with an equivalent all-electric system. Contract documents shall show *combustion equipment* to be replaced, future electric equipment, supporting electric, structural, and architectural infrastructure to be installed during building construction, and space allotments for future equipment.

CC106.1.6.2 Heating, Ventilation, and Air Conditioning (HVAC) Compatibility. HVAC design shall ensure that air, water, or other systems serviced by *combustion equipment* can also be serviced by future electric retrofit equipment without having to upgrade, alter, or update such systems.

CC106.1.6.3 Equipment Efficiencies. Electric retrofit equipment used for space and water heating shall conform to Section C401.4.3.

CC106.1.6.4 Installed Infrastructure. Infrastructure shall be installed as part of building construction to accommodate future electric retrofit in order to minimize cost and disruption during retrofit. Infrastructure to be installed as part of building construction shall include, but is not limited to, power infrastructure to building to accommodate future electric retrofit system, electric service to future distributed equipment within building, conduits to accommodate controls to future distributed equipment within building, and structural and architectural elements to accommodate future retrofit equipment.

CC106.1.6.5 Space for Future Retrofit Equipment. Interior and exterior space shall be allotted to accommodate all future electric retrofit equipment. Where interior or exterior allotted space exceeds the space used for *combustion equipment* to be replaced, and/or does not correspond to the *combustion equipment* locations to be replaced, such space shall be set aside and may not be used for any other purpose. Signage, labels, and borders shall be used to prominently display areas and limits set aside for future equipment to prevent encroachment.

Summary of Proposed New 225 CMR 22.00 and 23.00 (Updated September 22, 2022)

2023 Stretch Energy Code Update and Municipal Opt-in Specialized Code

1. Background

The Stretch energy code (Stretch Code) regulations have since 2009 been published in MA 780CMR chapters 115.aa and previously 780 CMR 110.aa under the jurisdiction of the Board of Building Regulations and Standards. The climate act of 2021 moved the authority for the Stretch Code promulgation to the Department of Energy Resources (DOER) and at the same time required the development of a new Municipal Opt-in Specialized energy code (Specialized Code). These appear as new regulations in 225 CMR 22.00 and 225 CMR 23.00.

- CMR 22.00 covers Residential low-rise construction and
- CMR 23.00 covers Commercial and all other construction (including most multi-family).

This document provides an overview and explanation of these draft regulations. In the following sections, this document summarizes:

- **Section 1: Background and Timeline.**
- **Section 2: Structure.**
- **Section 3: Stretch Code.** The modifications to the Base Energy Code that form the Stretch Code amendments in Residential Low Rise (Section 3.A) and Commercial and all other buildings (Section 3.B).
- **Section 4: Specialized Opt-in Code.** The modifications to the Stretch Code that form the Specialized Code appendices in Residential Low Rise (Section 4.C) Commercial and all other buildings (Section 4.D).

1.1 Timeline for Stretch and Specialized Code adoption

The Stretch code has been available since late 2009 and has already been widely adopted by cities and towns in Massachusetts. As a result, the update to the Stretch code will not require an additional bylaw vote in those existing Stretch code municipalities, some of whom are on their 3rd update already. The Specialized code is a new option and is adopted as a municipal opt-in code similar to the Stretch code process. Cities and towns seeking to adopt will require an active vote by City council or Town meeting to opt-in to the Specialized Code.

1.2 Energy code options

The current energy code options in Massachusetts are as follows:

- **Current Base Energy Code** = IECC 2018 with MA amendments
- **Current Stretch Code** = IECC 2018 with MA amendments + Stretch Code amendments

The current Base Energy Code is being updated along with the rest of the BBRS regulated building codes to a 10th edition MA code that will be based on the International Code Council (ICC) 2021 edition. Combined with the Stretch Code update and new Specialized Code contained in DOER's proposed regulations, this results in a tiered set of 3 energy code options for municipalities as follows:

- **Updated Base Energy Code** = IECC 2021 with MA amendments
- **Updated Stretch Code** = IECC 2021 with MA amendments + Stretch Code amendments
- **Specialized Code** = IECC 2021 with MA amendments + Stretch Code amendments + Specialized Code appendices

2. Structure

The updated Stretch Code as newly incorporated into DOER regulations (225 CMR) is divided into 2 chapters, following the format of the IECC.

- A. 225 CMR 22 - Residential Low-rise Construction Stretch Energy Code
- B. 225 CMR 23 - Commercial (and all other) Construction Stretch Energy Code

The Specialized Code includes additional requirements that form an Appendix to each of the chapters of the Stretch Code.

- C. 225 CMR 22 Appendix RC – Residential Low-rise Construction Specialized Code
- D. 225 CMR 23 Appendix CC – Commercial (and all other) Construction Specialized Code

3. Stretch Code Summary

A. 225 CMR Chapter 22: Residential Low-Rise Construction Stretch Code

Code Compliance Pathways

The current Base Energy Code for residential low-rise construction allows 3 different pathways for code compliance. The current Stretch Code requires code compliance through 2 of those pathways:

- A1. Home Energy Rating Scores (HERS) index certification
- A2. Passive house certification

The updated Stretch Code maintains these 2 pathways for compliance, but amends certain requirements in the HERS (Section R406) and Passive house (Section R405)¹ pathways.

A1. HERS Pathway (Section R406)

The updated Stretch Code lowers the maximum allowable HERS ratings to reflect improvements in energy efficiency as shown in Table 1 below.

TABLE 1: CHANGES TO MAXIMUM HERS INDEX (SEE TABLE R406.5)

On-site Clean Energy Application	Maximum HERS Index score (before renewable energy credit)				
	New construction			Alterations, Additions and Change of use	
	Updated Stretch Code July 1, 2024	Updated Stretch Code (Same as base code)	Current Stretch Code	Updated Stretch Code	Current Stretch Code
None (Fossil fuels)	42	52	55	52	65
Solar		55	60	55	70
All-Electric	45	55	60	55	70
Solar & All-Electric		58	65	58	75

¹ Key sections of the Stretch Code and Specialized Code are referenced in parentheses based on their IECC section number. For example: Updated HERS ratings (Section R406).

As shown in Table 1, the current Stretch Code allows a 5-point higher HERS rating for homes using heat pumps for space and water heating compared to homes using fossil fuels (natural gas, propane or heating oil) for space heating.

The updated Stretch Code maintains differential HERS ratings, and after a phase-in period until July 1, 2024 requiring HERS 45 for all-electric homes and HERS 42 for homes with any use of fossil fuels (Section R406.5). The updated Stretch Code is simplified and emphasizes energy efficiency and electrification by dropping the 5 HERS point credit for rooftop solar and 2 HERS point credit for solar thermal in the current Stretch Code.

The updated Stretch Code also updates HERS requirements for alterations, additions and change of use for existing homes. Additional detail on alterations, additions and change of use can be found in A5 below (Section R503.1.5).

A2. Passive House Pathway (Section R405)

Passive House certification is an optional code compliance pathway in the Base Energy Code and the current Stretch Code. The current Base Energy Code and current Stretch Code allow certification through the Passive House Institute US (Phius) Phius+ 2018 standard or the Passive House International (PHI) standard. The updated Base Energy Code and updated Stretch Code will align with the most recent Phius standards, allowing the Phius CORE 2021 standard (efficiency) or the Phius ZERO 2021 standard (efficiency and renewables). The PHI standard remains unchanged as an option.

New Residential Stretch Code Requirements

A3. Energy or heat recovery ventilation (Section R403.6.1)

The updated Stretch Code adds ventilation requirements through either heat recovery or energy recovery to the HERS Pathway. There is no change to the Passive house Pathway because heat or energy recovery is already required.

A4. Wiring for Electric Vehicle (EV) charging (Section R404.4)

The proposed updated Base Energy Code requires at least 1 space per home or a minimum of 10% of spaces in a new multi-family parking lot be provided with electric wiring to allow for future EV charging. The updated Stretch Code requires the same 1 space per home and increases the requirement to a minimum of 20% of spaces in a new multi-family parking lot.

A5. Existing buildings: Alterations, Additions and Changes of use (Section R503.1.5)

The updated Stretch Code clarifies when alterations to existing homes trigger compliance with different requirements. The requirements are as follows:

- Additions over 1,000 square feet (sf) must follow the HERS Pathway and meet the HERS requirements for Additions in Table 1 above. Additions under 1,000 square feet will continue to follow Base Energy Code.

- Additions that exceed 100% of the conditioned floor area of the existing dwelling unit (ie. more than double the size of the house) must follow the HERS Pathway and meet the HERS requirements for Additions in Table 1 above.
- Level 3 Alterations (over 50% of the home is renovated and reconfigured) as defined in the International Existing Building Code (IEBC 2021) must meet the HERS requirements in Table 1 above. Level 1 and Level 2 alterations will continue to follow the Base Energy Code.

B. 225 CMR chapter 23: Commercial (all other) Stretch Code amendments

Code Compliance Pathways

The current Base Code for commercial construction has multiple code compliance pathways from the IECC as well as the ASHRAE 90.1 standard. The current Stretch Code requires a 10% improvement over the ASHRAE 90.1 Appendix G pathway for buildings over 100,000-sf (limit is 40,000-sf for labs, hospitals, supermarkets, refrigerated warehouses and data centers) but allows smaller commercial buildings to choose from the other Base Code IECC pathways.

The updated Stretch Code includes 5 code pathways for new construction. These new requirements will go into effect on the following schedule:

1. All non-residential commercial buildings: any building applying for permit on or after July 1, 2023 subject to updated stretch code provisions
2. Multi-family commercial buildings follow schedule below:

	Updated Stretch Code July 1, 2023 through June 30, 2024	Updated Stretch Code Beginning July 1, 2024
Targeted Performance	Optional	Optional
HERS	Optional HERS 52/55	Optional HERS 42/45
Passive House	Optional	Optional
Relative Performance	Optional	Not allowed

Allowable use of each pathway is based on the type of building, with 4 major categories of buildings:

B1. TEDI Pathway: Offices, residential, and schools over 20,000-sf are required to use a new Thermal Energy Demand Intensity (TEDI) Pathway. The updated Stretch Code sets forth specific TEDI limits by building type. This uses the same energy software tools as the current ASHRAE 90.1 Appendix G pathway but with significantly more focus on heating, cooling and the building envelope. Building uses adjacent to office and residential use, such as post offices, town hall, and other similar buildings are also covered under this pathway.

B2. 10% better than ASHRAE Appendix G: High ventilation buildings such as labs and hospitals can continue to use a 10% better than ASHRAE appendix G pathway or opt to use the TEDI pathway. Multi-family buildings may follow the ASHRAE appendix G pathway until July 1, 2024. The updated Base Code and updated Stretch Code change the underlying ASHRAE standard 90.1 to the more recent 2019 edition.

B3. Prescriptive pathway: Small commercial buildings (any building use except multi-family) under 20,000-sf will be able to continue to comply through an updated prescriptive pathway, or can opt to use the TEDI pathway. The prescriptive pathway is being updated in the Base Energy Code, and the updated Stretch Code includes additional amendments to improve efficiency beyond Base Energy Code for small buildings.

B4. HERS and Passive House: Multi-family buildings larger than those covered by the residential low-rise code can choose between HERS and Passive House pathways that contain the same energy efficiency requirements as the updated Residential low-rise Stretch Code. The Passive House certification options remain available as an option for all building types.

Mixed-use buildings can use a combination of code pathways as appropriate for different portions of the building, or choose a whole-building approach through the TEDI or Passive House pathways.

Additional Commercial energy efficiency requirements:

B5. Efficient electrification (Section C401.4)

The updated Stretch Code mandates partial electrification of space heating for highly ventilated buildings which follow the ASHRAE Appendix G compliance pathway. The updated Stretch Code mandates full electrification of space heating for buildings not following the ASHRAE pathway which choose to utilize the less stringent curtainwall envelope UA² performance option (See B6 below).

B6. Mandatory envelope “Area-weighted U value”² (Section C402.1.5) (btu/hr-sf-F) of an envelope section

The proposed Base Code and updated Stretch Code updates and simplifies the existing mandatory envelope UA provisions that are currently in the MA Base Code and Stretch Code. Mandatory area-weighted U value provisions replace UA provisions and are simplified and strengthened compared to existing provisions for all buildings not using curtain wall. Mandatory area-weighted U value provisions remain at the same stringency as existing provisions for curtain wall buildings. However, buildings which opt for the curtainwall U value limit are required to have full efficient electrification of space heating (see B5 above).

² ‘Area-weighted U value’ designates the average effective insulation level measured by the ‘U’ value across an exterior area ‘A’ of multiple elements (walls, windows, doors, etc).

B7. Air leakage (Section C402.5)

The updated Stretch Code strengthens the air leakage limit compared to the updated Base Energy Code. Code language of this section adopts proposed IECC 2024 language which clarifies requirements.

B8. Thermal bridges (Section C402.7)

Thermal bridge accounting is added to the updated Stretch Code to more accurately represent the insulation performance of a fully constructed wall or building envelope. Prescriptive and tailored accounting approaches are available.

B9. Economizers (Section 403.5)

Economizer requirements (which permit the use of outside air for free night-time cooling) are expanded in the updated Stretch Code compared to the updated Base Energy Code.

B10. Ventilation energy recovery (Section C403.7)

Ventilation energy recovery requirements are strengthened in the updated Stretch Code compared to the updated Base Energy Code. New provisions are also added to better accommodate high ventilation buildings and toxic exhaust requirements.

B11. Wiring for Electric Vehicle (EV) charging (Section C405.13)

The updated Base code requires wiring for future EV charging to 10% of new parking spaces. The updated Stretch Code raises the minimum number of spaces requiring EV wiring to 20% in Group R and B occupancies³, with 10% for all other occupancies. EV charging can be met with either dedicated electric branch circuits, or with an automatic load management service (ALMS) that allows multiple spaces to be served by a higher amperage circuit, thus improving overall charging capacity at a lower installed cost.

B12. Additional efficiency requirement (Section C406)

Section C406 in the base code mandates certain additional efficiency measures, allowing designers to choose from a number of equivalent efficiency options. The updated Stretch Code modifies the existing IECC 2021 language to further incentivize efficient electrification, primarily by removing fossil fuel options from contributing toward the C406 points system.

B13. Existing buildings**Additions (Section C502)**

The updated Stretch Code allows building additions which are less than 20,000-sf to continue to follow Base Energy Code. Additions greater than 20,000-sf will be required to meet applicable Stretch Code requirements for that building type and size.

³ Group R = Residential use, Group B = Business use – as defined in International Building Code (IBC) chapter 3

Alterations (Section C503)

The current Stretch Code requires commercial building alterations to meet Base Energy Code prescriptive requirements because there is no prescriptive commercial pathway in the current Stretch Code. The updated Stretch Code will require commercial building alterations to follow the new Stretch Code prescriptive pathway but allow for 10% reduced envelope requirement for alterations compared to true new construction.

The updated Stretch Code eliminates an existing exception in Base Energy Code which allows exterior walls which have any amount of insulation to remain non-code compliant, even when the alteration scope includes alterations to the exterior walls. The updated Stretch Code will require that any altered walls be brought up to prescriptive stretch code, although historic buildings remain exempt from these provisions.

Change of use Occupancy (Section C503)

The current Stretch Code requires buildings going through change of use or occupancy to meet Base Energy Code prescriptive requirements because there is no prescriptive commercial pathway in the current Stretch Code. The updated Stretch Code will require buildings of any size which undergo change of use or occupancy to follow the new Stretch Code prescriptive pathway, but allows for a 10% reduced envelope requirement for change of use compared to true new construction.

Historic Buildings (R501.6)

The Stretch Code will maintain R501.6 from Base Code: Provisions of this code relating to the construction, repair, alteration, restoration and movement of structures, and change of occupancy shall not be mandatory for historic buildings provided that a report has been submitted to the code official and signed by the owner, a registered design professional, or a representative of the State Historic Preservation Office or the historic preservation authority having jurisdiction, demonstrating that compliance with that provision would threaten, degrade or destroy the historic form, fabric or function of the building.

4. Specialized Code Summary

Background

4.1 Timeline for Specialized Code adoption

Cities and towns will require an active vote by City council or Town meeting to opt-in to the Specialized Code. The Specialized Code must be available for adoption by December 24, 2022. When a municipality votes to adopt the Specialized Code, DOER recommends that the requirements take effect for new building permit applications beginning on the next January 1st or July 1st, whichever is a minimum of 6 months after the municipal vote. This phase-in period, also utilized by new Stretch Code municipalities, allows an orderly transition for developers, designers and builders as well as additional training time for municipal code officials.

4.2 Designed to achieve Massachusetts GHG emission limits and sub-limits

The Specialized Code is required by statute (*MGL Session Laws of 2021 Chapter 8: Section 31*) to be designed to achieve MA GHG emission limits and sub-limits set every five years from 2025 to 2050. As a result, all compliance pathways under the Specialized Code are designed to ensure new construction that is consistent with a net-zero Massachusetts economy in 2050, primarily through deep energy efficiency, reduced heating loads, and efficient electrification.

Regardless of the on-site renewable potential, the largest emissions impact for many buildings stems from the heating loads and choice of heating fuel for the building. Buildings reliant on fossil fuel combustion equipment have no clear path to zero emissions, while electrically heated buildings do due to the steady increase in renewable and clean energy sources on the ISO-NE electric grid. In drafting the Specialized Code, DOER recognizes that many building construction sites and high-rise building structures do not currently lend themselves to achieving net-zero energy or emissions on-site. For example, 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. Where on-site renewable energy generation is not practical, or is limited relative to the building load and available solar access, there is still potential for siting additional renewable energy in the community, however as renewable sites and procurements become distant from the building site it stretches the feasibility of local building officials to regulate them under the energy code. Accordingly, the Specialized Code requires all new buildings to be designed with electric service and wiring sufficient for future electrification of space and water heating as well as any combustion equipment appliance loads.

4.3 Definition of net-zero building and net-zero building performance standards

The statute stipulates that the specialized code must include both

- a) A definition of net-zero building
- b) net-zero building performance standards

The Specialized Code appendices are a set of **net-zero building performance standards** that adopts a broad **Net-zero Building** definition intended to cover all new buildings in the Specialized Code that is consistent with Executive Office of Energy and Environmental Affairs

2050 Roadmap Study and Buildings Technical Report, which utilized the following definition net zero new construction.

Net Zero new construction is defined as being consistent with the electrification and deep efficiency benchmarks described in the All Options pathway, discussed in the Energy Pathways Report – that is, that the new construction is compatible, as-built, with the Commonwealth’s net-zero emissions economy in 2050. Its focus is on-site emissions; it does not necessitate onsite or offsite renewables, nor the assumption that a building is net-zero energy...These assumptions include enhanced energy efficiency compared to current code and effective elimination of on-site emissions from space heating, domestic hot water, cooking and other process uses. (Buildings Technical Report, p. 39)

Therefore, the Specialized Code adopts a definition of **Net-zero Building** as follows:

A building which is consistent with achievement of MA 2050 net zero emissions, through a combination of highly energy efficient design together with being an all-electric or Zero Energy Building, or where fossil fuels are utilized, a building fully pre-wired for future electrification and that generates solar power on-site from the available Potential Solar Zone Area.

Appendix RC and Appendix CC, which together form the Specialized Code, are Net-zero building performance standards and are summarized in sections C and D below.

C. 225 CMR 22 Appendix RC: Residential low-rise Construction Specialized Code

C1. Requirements by residential building size and fuel.

The Residential low-rise Specialized Code offers 3 pathways to demonstrate energy code compliance with varying sets of additional requirements over and above the updated Stretch code:

- 1. Zero Energy pathway:** (Section RC102)
- 2. All-Electric pathway:** (Section RC103)
- 3. Mixed-Fuel pathway:** (Sections RC104 and RC105)

New homes up to 4,000 sf in size may follow any of the three pathways. New homes over 4,000 sf in size shall follow either pathway 1 or pathway 2. Table 2 below summarizes the low-rise residential Specialized Code requirements by home size and fuel use. All buildings are required to install wiring for electric vehicle (EV) charging in a minimum of 20% of new parking spaces, and one space per home in one and two family homes. Buildings with any combustion equipment designed for fossil fuel use are termed ‘mixed-fuel’ buildings.

TABLE 2: Residential Specialized code requirements summary by building/dwelling unit size

Building Size	Fuel Type	Minimum Efficiency	Electrification	Min. EV wiring	Renewable Generation
Dwelling units up to 4,000 sf	All Electric	HERS 45 or Phius CORE or PHI	Full	1 parking space	Optional
Dwelling units up to 4,000 sf	Mixed-fuel	HERS 42 or Phius CORE or PHI	Pre-wiring	1 parking space	Solar PV (except shaded sites)
Dwelling units > 4,000 sf	All Electric	HERS 45 or Phius CORE or PHI	Full	1 parking space	Optional
Dwelling units > 4,000 sf	Mixed-fuel	HERS 0 or Phius ZERO	Pre-wiring	1 parking space	Solar PV or other renewables
Multi-family >12,000 sf	All Electric	Phius CORE or PHI	Full	20% of spaces	Optional
Multi-family >12,000 sf	Mixed-fuel	Phius CORE or PHI	Pre-wiring	20% of spaces	Optional

C1.2 All Electric building performance standard (Section RC103)

All electric buildings are defined in the updated Stretch Code, and comply with the 2050 net-zero emissions performance standard by meeting the minimum efficiency standards of either HERS 45 or the Passive house pathway and using either air source or ground source heat pumps for primary space heating and heat pump or solar thermal water heating, as well as all electric appliances. All electric buildings are not required to install on-site solar panels but roofs must be solar-ready in accordance with the base and stretch code requirements. This pathway is laid out in Section RC103.

C1.3 Mixed-fuel building performance standard (Sections RC104 & RC105)

C.1.3a Homes and Units less than 4,000-sf

New low-rise buildings using fossil fuels for any on-site use including space heating, water heating, cooking or drying must meet minimum efficiency requirements of HER 42 or the Passive House pathway. In order to demonstrate alignment with the 2050 net-zero emissions mandate, all homes or units using fossil fuels for space heating, water heating, cooking, or drying must install sufficient electrical service, space and wiring to allow for future conversion to all electric buildings.

These mixed-fuel homes and buildings utilizing the HERS pathway are also required to install solar panels that provide no less than 4kw for single family and not less than 0.75 W/ft² for multi-family, to mitigate these near-term emissions, with an exemption for shaded sites. Homes

and buildings utilizing the Passive House pathway are exempt from additional solar install requirements, but must have solar-ready roofs consistent with both the stretch and base code provisions. These requirements are set forth in Sections RC104, and RC105.

C.1.3b Homes and Units greater than 4,000-sf

New low-rise buildings containing one or more dwelling units over 4,000 sf and using fossil fuels for any on-site use including space heating, water heating, cooking, or drying must meet HERS 0 or Phius ZERO requirements described in C1.4 below.

C1.4 Zero Energy Buildings

The Specialized Code also contains a definition of **Zero Energy Building** based on how this term is used in the IECC 2021 in the appendices for both residential and commercial chapters, as follows:

A building which through a combination of highly energy efficient design and onsite renewable energy generation is designed to result in net zero energy consumption over the course of a year as measured in MMBtus or KWh_{eq}, on a site energy basis, excluding energy use for charging vehicles.

This definition is intended to cover exemplary buildings, and building uses for which achieving zero energy on-site is feasible.

C1.4a HERS 0 performance standard (Section RC 102)

For the HERS index pathway, the Specialized Code adopts and modifies the definition of zero energy building published in the IECC 2021 Appendix RC – Residential building Provisions.

Appendix RC uses the HERS rating scale to set a zero energy building at HERS 0 or lower after on-site solar generation is factored in. The required minimum level of energy efficiency without solar in the IECC is currently HERS 47, the Specialized Code adjusts the required minimum energy efficiency level down to HERS 42. The gap between HERS 42 and HERS 0 is made up with renewable energy from on-site power production (OPP) typically with solar panels.

C1.4b Phius ZERO performance standard (Section RC 102)

For the Passive House pathway, the Specialized Code adopts the Phius ZERO building performance standard for zero energy buildings. Phius ZERO certification includes the Phius CORE efficiency requirements while adding a requirement to net out energy use on an annual basis with renewable energy. The Specialized Code excludes contracts for Renewable Energy Credits (RECs) or off-site Renewable Energy Sources which are otherwise allowed under the Phius ZERO certification.

D. 225 CMR 23 Appendix CC: Commercial Construction Specialized Code

D1.1 Energy Efficiency Requirements

The Specialized Code maintains the same energy efficiency requirements as the Updated Stretch Code for all building types except multi-family, including adoption of the ASHRAE 90.1-2019 pathway for high ventilation buildings, TEDI requirements for offices and schools, and a new prescriptive path for small buildings.

Multi-family buildings built to the Commercial Specialized Code must achieve precertification to Passive House standards (either from PHI or Phius). These requirements are phased-in for buildings up to 5 stories required to meet Passive House requirements if applying for permits after January 2023, and taller buildings 6 stories and above required to meet Passive House for permit applications beginning in January 2024.

D1.2. All Electric Building Performance Standard (Section CC104)

This is the simplest compliance pathway under the Specialized Code, requiring the energy efficiency requirements described in D1.1, and requiring that all space heating, water heating, cooking equipment and drying equipment is powered by electricity and meets minimum efficiency standards.

D1.3. Mixed-Fuel Building Performance Standard (Sections CC105 and CC106)

This pathway establishes minimum requirements for new buildings designed with any space heating systems, water heating systems or appliances capable of using fossil fuels such as natural gas, heating oil or propane fuel. While allowing these fossil-fired systems, the Specialized Code requires mitigation of these emissions with the following requirements:

- a) Minimum efficiency requirements for space and water heating, including both fossil fuel and clean biomass boilers and furnaces systems.
- b) Solar development of the available on-site solar potential, specifically through one of 2 options:
 - i. *Not less than 1.5W/ft² for each sq foot of the 3 largest floors (the threshold proposed in solar requirements in the forthcoming IECC2024),*
 - or
 - ii. *not less than 75% of the Potential Solar Zone Area*
- c) Pre-wiring and electrical service provision to the building to allow for future electrification of space and water heating and cooking and drying equipment.

D1.4 Zero Energy Building Performance Standard (Section CC103)

This is the most stringent of the 3 pathways in that it requires net zero energy on an annual basis from the 1st year of construction. The Specialized Code amends the IECC commercial appendix CC: Zero Energy Commercial Building Provisions by simplifying the allowable renewable options. As a result, zero energy may be demonstrated only with on-site generation (typically

solar PV), and all buildings must meet minimum energy efficiency requirements prior to renewable offsets.

The option to show compliance using HERS 0 or Plius ZERO certification as used in the low-rise residential Specialized Code is also eligible under the Zero Energy pathway for multi-family residential buildings.