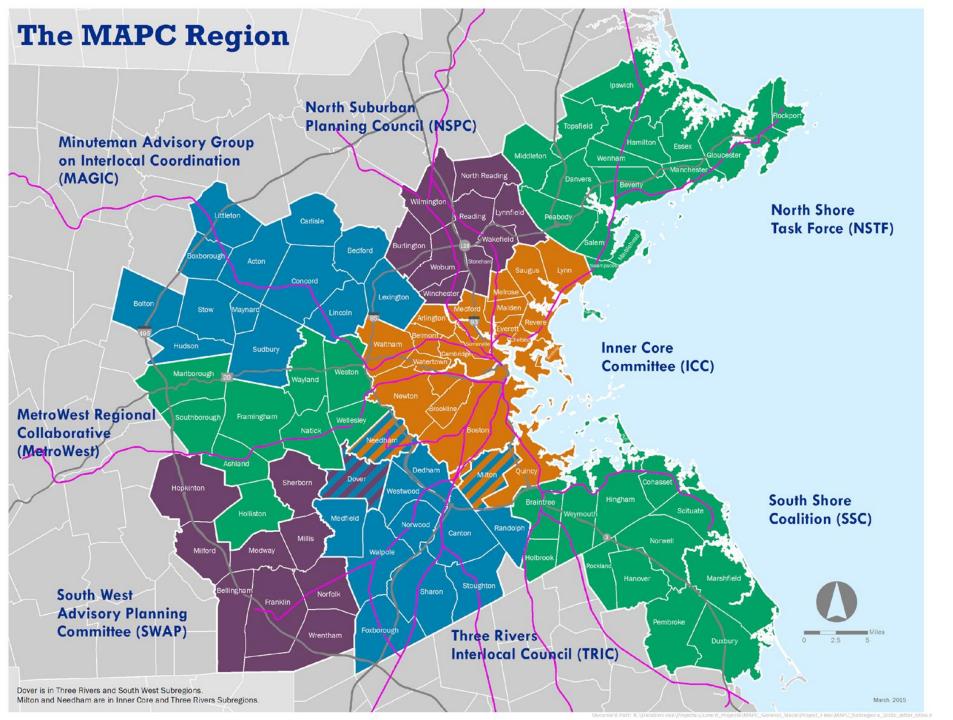


Energy Codes to Know About and the 2021 IECC

MAPC's Codes for Climate Webinar Series and Zero to 101 Initiative







101 municipalities

1,440 square miles

Nearly 3.2 million residents

1.8 million jobs (2010 Census)

CLEAN ENERGY EXPERTISE



1) Regional Energy Projects

- Green Municipal Aggregation
- Municipal and Community Solar
- LED Streetlight Retrofit Program
- Solar Hot Water

- Green Mobility Program
- ESCO Procurement
- Energy Resiliency



2) Climate and Energy Planning

- Community energy and climate data, baselining, planning, and strategizing
- Connecting municipalities with incentives + plug-and-play programs
- Net Zero planning, guidance & education

3) Energy Technical Assistance

- Peak Demand Management
- Green Communities
- Methane Leaks
- Data Analysis

- Solar Permitting and Zoning
- State and Local Policy
- Grant Writing
- Codes for Climate





Agenda



- 1 Code Proposals to Watch NRDC
- 2 Top Code Proposals for Energy Efficiency EECC
- 3 Update and Next Steps in the IECC Code Cycle
- 4 Upcoming Local Code Efforts
- 5 Q & A

Net Zero as a Framework for Holistic Climate Planning



Multi-Benefit Outcomes

- Energy
- Economic
- Environmental
- Public Health
- Equity
- Livability

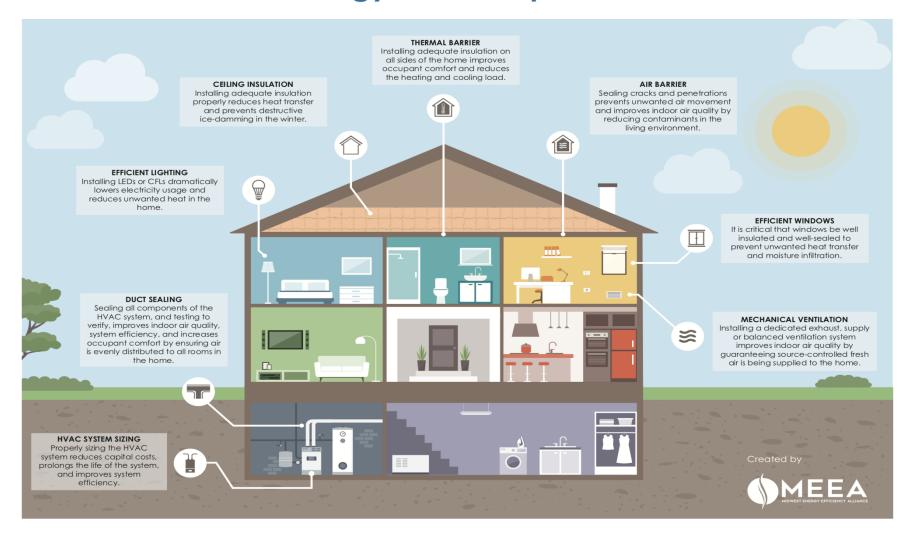


Bringing Net Zero to 101 Cities and Towns and Beyond

Codes for Climate



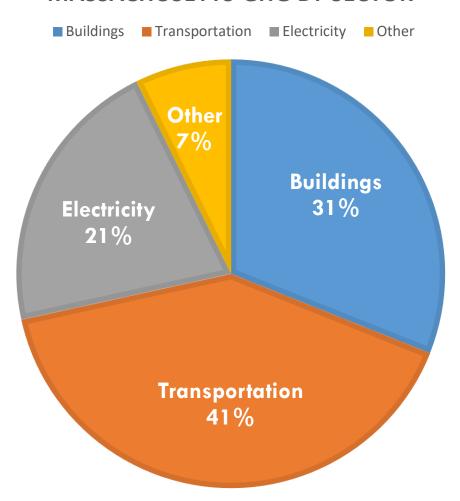
How the Energy Code Improves a Home



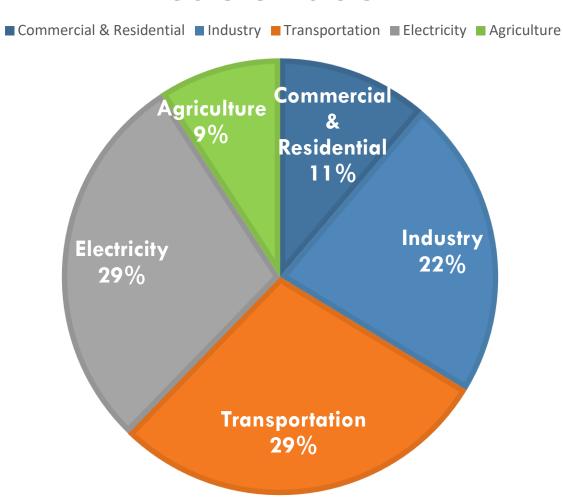
Codes for Climate



MASSACHUSETTS GHG BY SECTOR



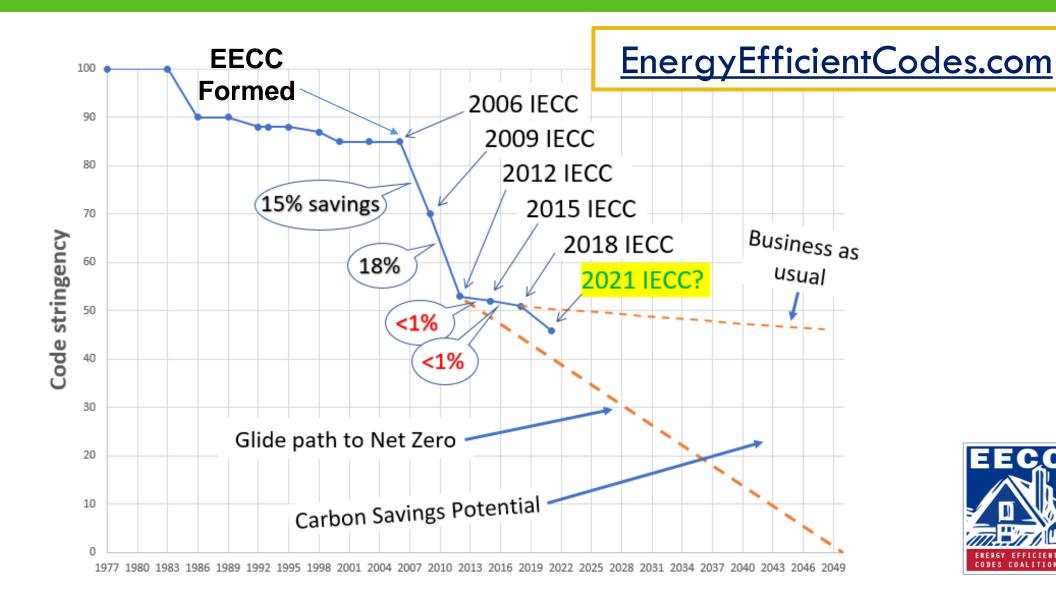
U.S. GHG BY SECTOR



Source: Executive Office of Energy and Environmental Affairs. 2015 Update Massachusetts Clean Energy and Climate Plan for 2020. https://www.mass.gov/files/documents/2017/01/uo/cecp-for-2020.pdf. Environmental Protection Agency. Sources of Greenhouse Gas Emissions. https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions.

Efficiency Improvements of IECC





IECC Partners







Energy Efficient Codes Coalition







Proposals to Watch

2021 IECC



Net Zero Appendix (RE223)

- Adds an optional appendix that would get homes to zero NOW, by building off the ERI pathway
- Many jurisdictions are taking action on climate policies, and this proposal gives a simple, effective way to make progress
- Allows compliance through a combination of onsite power production, community renewables and renewable purchase or leasing contracts

CLIMATE ZONE	ENERGY RATING INDEX not including onsite power OPP	ENERGY RATING INDEX including Adjusted onsite power OPP (as proposed)
1	43	0
2	45	0
3	47	0
4	47	0
5	47	0
6	46	0
7	46	0
8	45	0

Electrification Readiness (RE147)

- Key components to fighting climate change: efficiency (using less electricity) and decarbonization (reducing a building's emissions)
- Direct burning of fossil fuels = 10% of total US emissions
- This proposal requires homes with gas or propane water heaters, dryers, and conventional cooking equipment to include circuits nearby for future electrification
- Significantly cheaper to do at the time of construction

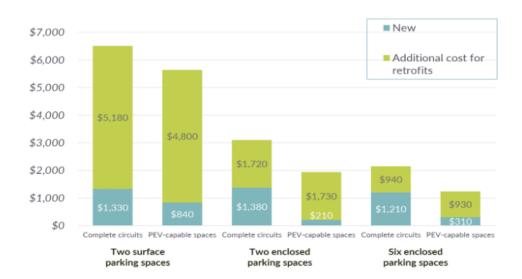
Electric Vehicle Readiness (CE217, Parts 1 and 2)

- Requires new homes and commercial buildings to have EV ready (circuitry is installed) and EV capable (space in the electrical system) spaces
- Would make installing a future EV charging station 3-4 times less expensive

Why Adopt EV Infrastructure Building Codes?

Cost Savings Modeled for the City of Oakland







Lighting Improvements (RE7, RE145)

- Aiming to improve the lighting efficiency in homes, and add occupancy
- RE7 raises the efficiency to 65 lumens per watt, essentially equivalent to an LED bulb
- RE145 would require automatic sensor controls for at least one fixture in bathrooms, garages, laundry rooms, and utility rooms – reducing energy use of those fixtures by ~30%



Water Heating (RE126)

- Water heating is the second-largest energy use in a home, after space heating
- Proposal offers a list of options for a builder to choose from
- Goal to install electric equipment paired with renewable energy, or higher efficiency gas equipment

More Info

- Watch for upcoming blogs, voting guides, etc.
- More webinars
- Want personalized technical support for voting? Let us know!
- Lauren Urbanek LUrbanek@nrdc.org



Update on Top Priority Proposals for the 2021 IECC

October 17, 2019

Bill Fay, Energy Efficient Codes Coalition

Status Check

Status Check: 2021 IECC Provisions

- IECC-Residential Committee favored moderate improvements in energy efficiency and the elimination of loopholes; Commercial Committee favored proposals approaching 10% improvement
- Both Committees rejected most major rollbacks
- Public Comments submitted on ~120 proposals.
- Public Comment Hearings ~ Oct 26-30 (RE & CE)



Our Breakdown of High Priority Proposals

High-Priority Proposals

- 11 Big Energy Savers
- 19 Individual Improvements, Envelope & Systems
- 20 Other Code Improvements
- 28 Biggest Efficiency Rollbacks/Trade-offs



Breakdown

- The 30 Energy/Carbon Saving proposals account for over 90% of the potential savings that can be achieved from the slate of over 300 proposals that were submitted this year.
- The next 20 will improve code compliance (i.e., when builders know that their duct efficiency will be tested, they do a better job sealing the ducts), prepare us for the future (i.e., EV readiness), and even guide jurisdictions to Net Zero residential buildings (NBI's appendix proposal).
- And, of course, we need to defeat the 28 efficiency rollback and tradeoff proposals.



Residential Proposals

Adopting a 2021 IECC that includes the 50 pro-efficiency proposals and rejects the 28 rollback/tradeoff proposals will:

- improve the efficiency of residential and commercial buildings by 10% and
- reduce nationwide annual carbon emissions by nearly 50 MMT (million metric tons) by 2030.



Residential Proposals

While 78 Top Priorities are firm, the attached and voting recommendations chart will be revised for EECC's Final Online Voting Guide because:

- Some of the 78 proposals may be withdrawn or resolved at the PCH in Las Vegas.
- Our online voting recommendations will be far simpler than the attached guide because the PCH will limit the online voting ballot from a number of potential voting options to two for each proposal.
- When GMVRs vote online in November, they can either vote to "Disapprove" (D) each proposal or to approve it "As Submitted" (AS), "As Modified by the Committee" (AMC), or "As Modified by Public Comment" (AMPC, followed by the PC#).





points to 2015 ERI values weakened in 2018 IECC

Priority Votes to Win a 10%+ Efficiency Boost in the 2021 IECC





The 11 Top Energy Savers

Significant Efficiency Packages & Equalizing Compliance Paths

Residential					Comme	rcial
RE209 Efficiency by Pac	Vote AS kages. Builders sele	Saves 4-14%		CE113 Up-to-Date ASH	Vote AS	Saves 5% oment Tables Replace
RE206 RE207 Builders choose 5		Saves 5 or 10% neasures from dozens of = 5 or 10% boost. RE206	0000	CE226 CE229	Vote AMC Vote AMC Vote AMC Vote AMC	More-Efficient Points- BasedTables Replace IECC Commercial Chapter's "Additional Efficiency Options"
RE192	Vote AS C Stringency, Lowe	Equal ERI Path ers ERI scores by 5-8		CE219 CE220	Vote AS	two additioal efficiency

Code Compliance improved w/two add options, instead of one.

20 Individual Energy Savers

Smaller Efficiency Measures Add Up

Residential	Commercial
RE29 Vote AS	CE63 Vote CE64 AS
Vote RE32 AS	CE68 Vote CE69 AS
Vote AS	CE61 Vote AS
RE34 Vote AMC	CE66 Vote AS
Vote AS	CE35 Vote AMC
RE35 Vote AS Better Window U-Factors in Climat Zones 2-4.	CE53- Vote PC1 AMPC1 or D Better Window U-Factors.

Individual Energy Savers - continued Vote Vote **RE37 CE162 AMC** AS Adds .40 SHGC requirement to windows in CZ5 Improves/Clarifies Dwelling Unite lighting efficiency Vote Vote RE7 **CE49** AS AS Boosts Performance Path Efficiency by 5% Better Lighting Efficiency. Vote **CE140** Boosts Performance Path Efficiency by 5%

20 Beneficial, But Hard to Measure Improvements

Boosting Code Compliance; Preparing for the Future & Net Zero Buildings

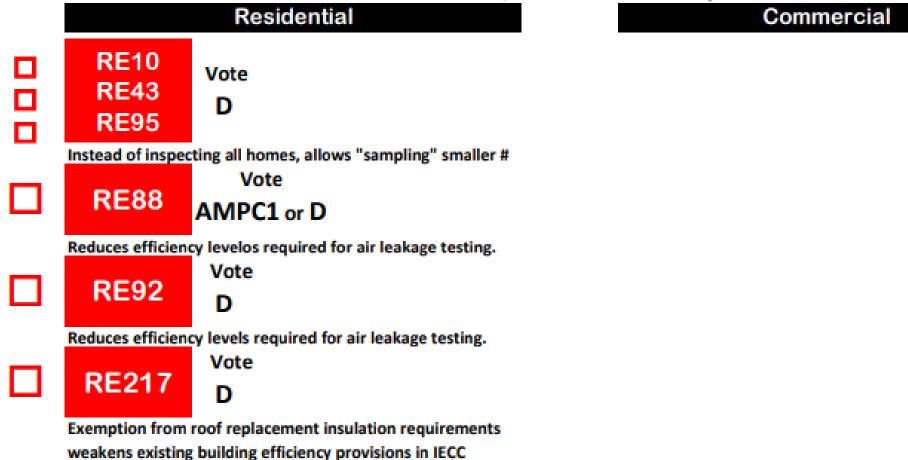
Residential	Commercial	
Vote AS or AMPC1 Limiting Trade-Offs by Adding Thermal Backstop	CE96 Vote CE97 AMC Air Leakage Testing Required to Improve Compliance	
Vote AMPC1 or AS Improves Existing Thermal Backstop to 2018 IECC	CE111 Vote CE215 AMC CE216 Fault Detection Syst. prevent energy	CE12 Vote Pt 2 AMPC2 Above-Code Programs Must Meet Efficiency Backstop
RE112 Vote AS	CE99 AMC	Vote AMPC1 Energy Storage Space Required - CA Solar-Ready Zone
Vote AS Setting a Maximum Trade-Off Cap on Duct Leakage	CE217 Vote Pts 1&2 AMPC1/AS Making Commercials Buildings EV-Ready/Capable	Vote AMC/AMPC1 Energy Storage Space Required - CA Solar-Ready Zone Vote Vote
Vote AMPC1 Install Electric Receptacles Near Gas/Propane Equipment	Vote AMPC1 Energy Storage Space Required - CA Solar-Ready Zone	AMC Improves Lighting efficacy for plant growth
RE223 Vote AMPC 1 and/or 2	CE9 Vote AS	
Zero Energy Residential Buildings Appendix	 "Energy Conservation" added to Alternative Compliance Path Consideration CE12 Vote	
	Pt 2 AMPC2 Above-Code Programs Must Meet Efficiency Backstop	26

22 Major Efficiency Rollbacks/Trade Offs

With the Exception of RE17, RE161, RE40, & RE119, the Residential & Commercial Energy Committees Recommended Disapproval Major Efficieny Roll-Back and Trade Off Proposals While Keeping These 4 Proposals Out of the 2021 IECC Will Require a Simple Majority of Votes, Defeating the Others Will Only Require One-Third.

	Residential	Commercial
	RE17 Vote D	CE1 Vote Pts 1&2 D/D
	RE156 Vote RE176 D Trade-Off Loopholes Reduce Efficiency	CE2 Vote CE3 D Expands IECC's scope beyond energy conservation
	RE208 Vote D	CE5 Vote Pts 1&2 AMPC1 or D Expands IECC's scope beyond energy conservation
0000	RE161 Vote RE166 D RE171	CE6 Vote D
	Weakening changes for skylights, ducts & perf. baseline RE186 Vote RE190 D RE196 Weakening already weak ERI backstop/ERI requirements	CE7 Vote Pts 1&2 D Expands IECC's scope beyond energy conservation
	RE40 Vote D	CE54 Vote Pt 2 D
	Weakens Wall Insulation Based on Framing Factor Vote D Loophole Allows Testing Duct Leakage to Outdoors	Reduces efficiency requirements in Tropical CZs Vote D Appendix requires solar PV w/o efficiency

6 Other Efficiency Rollbacks/Trade Offs





Resources

EECC Website: www.energyefficientcodes.org

ICC Website: www.iccsafe.org

Bill Fay, EECC: Bfay@ase.org



Next Steps in the IECC Code Cycle

2019 IECC Code Cycle





January 1st – March 29th
Registration of
Governmental Members
with ICC

March 29th – September 23rd
Voters for each Governmental
Member ID'd by Primary
Representative

November

Voting Guide in advance 2-Wk Online Voting Window Tentative: Nov 13 - 27

IECC Code Proposal Process



Committee
Action
Hearings

May

ICC Members
present code
proposals to the
code committees



Code Change
Submission
& Review

Jun - Aug

Proposers edit and members submit comments on proposals



Public Comment Hearings

Oct 23-30

Members who attend vote in person and finalize code proposals



Online Vote

Nov 13-27

Members vote online



Results of MAPC Registration Efforts







82 Govt Members



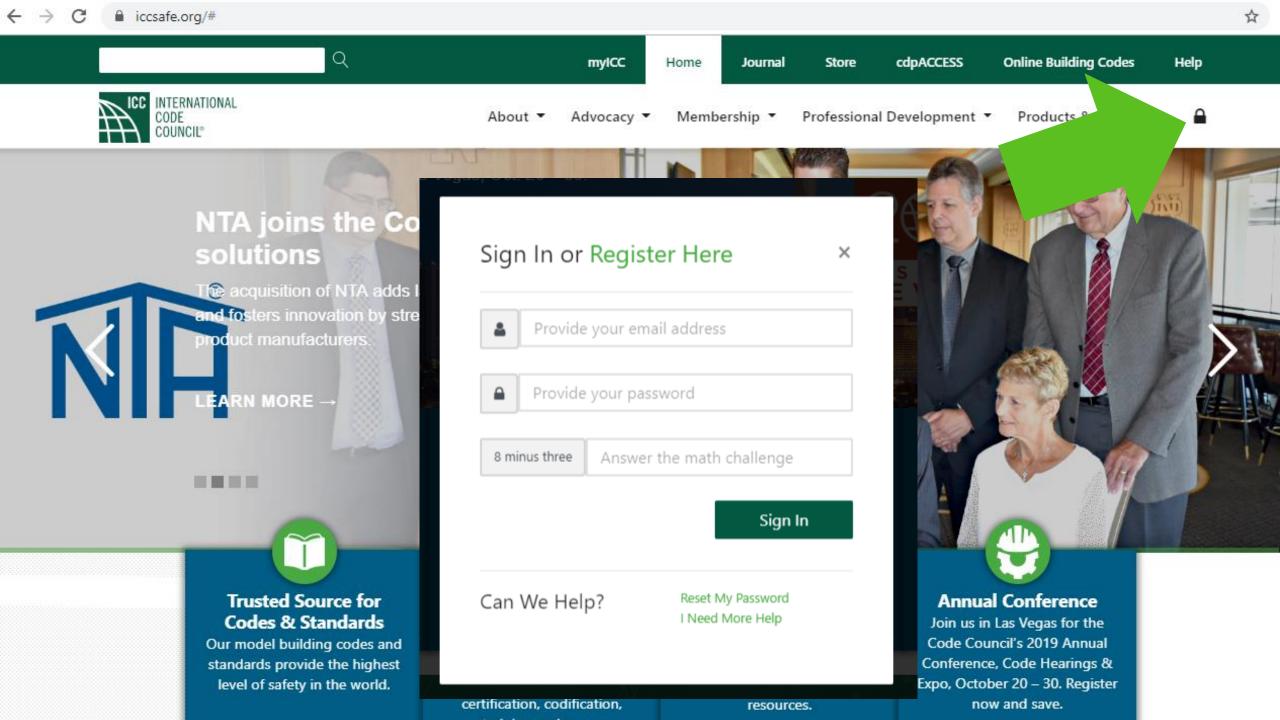
What You Need To Vote



- A computer with internet connection
- 40 to 60 minutes to sit down and vote
- EECC's voter guide
- A username, password and PIN to CDP Access

Prop. #	Recommended Original Proposal Summary		Original Proposal Summary	EECC Evaluation & Summary of Public Comments with Modifications	EECC Notes	
RE7	D	Support D	Replaces specific interior design temperatures with a reference to ACCA manual J, allowing additional flexibility in design.		Current code language promotes better equipment sizing than the proposed change.	
RE8	D	Requires all new 1- and 2-family and multifamily dwellings with roofs oriented between 110°-270° to have solar ready zone of ≥300 sq ft or ≥150 sq ft for homes under 2000 square feet. Exceptions for buildings with onsite renewables or roof areas shaded >70% of the time. Construction documents must		Agree		
RE9	D	Oppose D Support AM PC1	Requires all new 1- and 2-family and multifamily dwellings with roofs oriented between 11.09-270º to have solar ready zone of ≥300 sq ft or ≥150 sq ft for homes under 2000 square feet. Construction documents must indicate the zone and pathways for conduit, pre-wiring, or plumbing chase and the electrical service panel must reserve space for a breaker. Exceptions for buildings with on-site renewables or roof areas shaded >70% of the time.	PC1 – Moves solar ready provisions into a new appendix; adds an exception for buildings with <600 sq. ft. of solar ready zone that is unshaded for more than 70% of daylight hours. PC2 – Move solar ready provisions into a new appendix; adds a scoping exception for buildings with <600 sq. ft. of solar ready zone.	Agree	

Voting Tutorial from ICC: https://www.youtube.com/playlist?list=PL9kEmc8-zghr041qNAc7jc6eRV120ENYx





solutions

equisition of NTA adds lab and testing capabilities. d fosters innovation by streamlining time-to-market for oduct manufacturers.



Trusted Source for Codes & Standards

Our model building codes and standards provide the highest level of safety in the world.



Building Safety Experts

Our Family of Companies delivers a wide array of building safety services, including evaluation, accreditation, certification, codification,

Professional Development

We support the building industry with the latest training, mentoring and education resources.

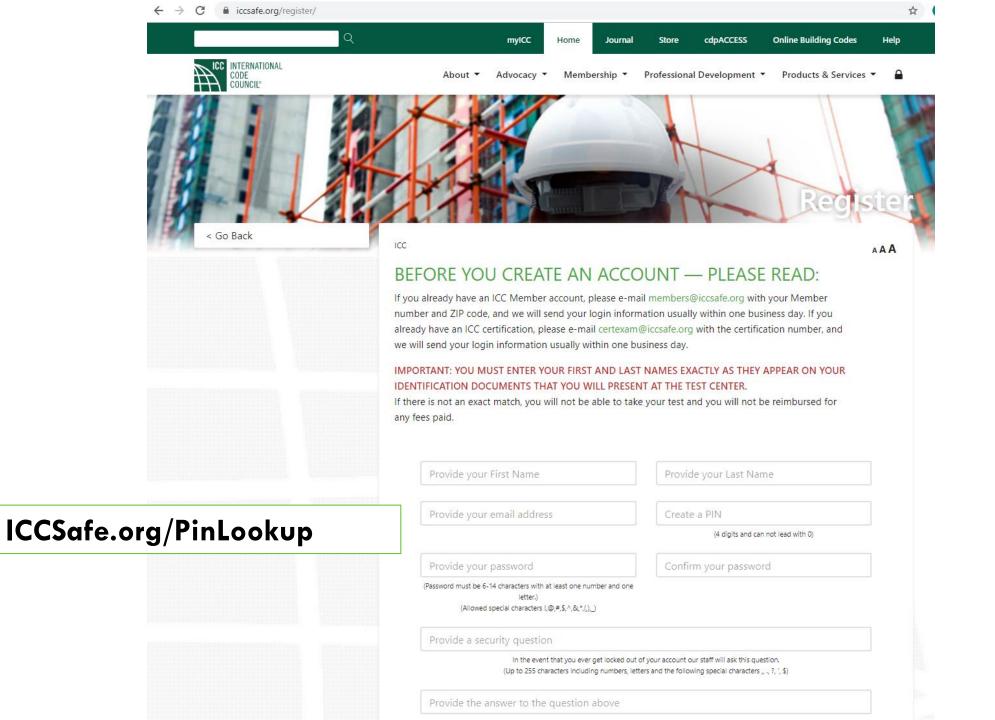
Annual Conference

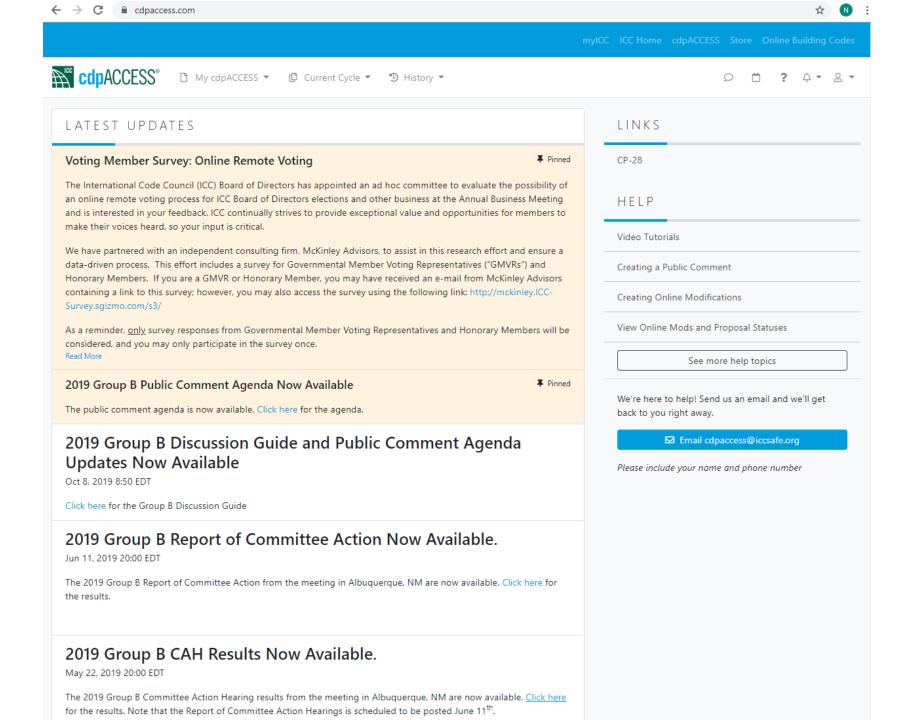
Join us in Las Vegas for the Code Council's 2019 Annual Conference, Code Hearings & Expo, October 20 - 30. Register now and save.





How cdpACCESS® works





14 Jan 2019 - 1:32 PM EST

Disapproved

None

5237

ADM7-19

Ready for Final Admin

David Bonowitz



Local Codes Update

How Can We Improve Buildings?



There are four main ways that Massachusetts municipalities can impact building regulations:

VOTE

COMMENT

ADOPT

ENFORCE

International Energy Conservation Code (IECC) Base Code (MA Building Code CMR 780)

Stretch Energy Code (780 CMR Ch. 15 AA)

Zoning and other local ordinances

Stretch Energy Code (780 CMR Ch. 15 AA)

Zoning and other local ordinances

Base Code (MA Building Code CMR 780)

Stretch Energy Code (780 CMR Ch. 15 AA)

Massachusetts State Building Energy Code



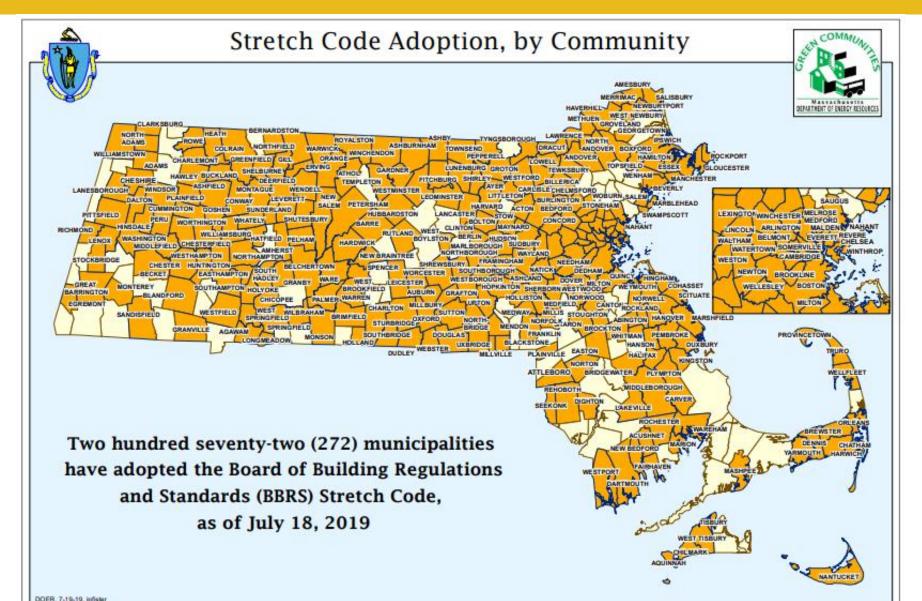
Mass General Law (MGL), Chapter 143, Section 94

"To adopt and fully integrate the latest International Energy Conservation Code as part of the state building code, together with any more stringent energy-efficiency provisions that the board, in consultation with the Department of **Energy Resources, concludes are** warranted."



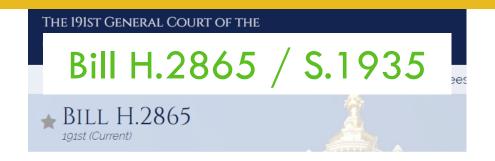
Stretch Energy Code





Efforts to Update the Stretch Code





AN ACT TO ESTABLISH A NET ZERO STRETCH ENERGY CODE

By Representative Gouveia of Acton and Senator Comerford, a joint petition (accompanied by bill, House, No. 2865) of Tami L. Gouveia, Joanne M. Comerford and others for legislation to establish a net zero stretch energy code. Telecommunications, Utilities and Energy.



Bill History Petitioners

Displaying 3 actions for Bill H.2865

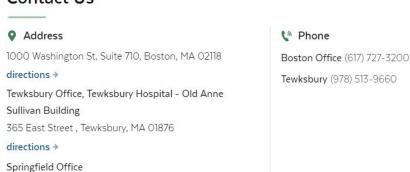
Date ÷	Branch	Action
1/22/2019	House	Referred to the committee on Telecommunications, Utilities and Energy
1/22/2019	Senate	Senate concurred
7/17/2019	Joint	Hearing scheduled for 07/23/2019 from 01:00 PM-05:00 PM in B-1

https://malegislature.gov/Bills/191/H2865



The Board of Building Regulations and Standards (BBRS) monitors Massachusetts building codes and construction supervisor licensing. The Board also licenses concrete testing labs and technicians, approves manufactured buildings and related inspection procedures, approves native lumber producers, and certifies municipal building inspectors.

Contact Us



One Armory Square, Building 15, 2nd Floor, Springfield,

https://www.mass.gov/service-details/board-of-building-regulation-and-standards-bbrs-members-advisory-

committees-and

Mark Your Calendar



Board of Building Regulations and Standards

Public Hearing November 5th

Division of Professional Licensure 1000 Washington Street Boston

Municipalities can send staff and local elected officials to show their appreciation for the board exploring a Net Zero code pathway, and to speak to what energy efficient codes mean to your community.



Questions?



https://www.mapc.org/resource-library/building-codes-climate

CLEAN ENERGY

Building Codes for Climate

Take Action Today to Help Set Higher Efficiency Minimums!

BACKGROUND

Massachusetts municipalities can help support their residents' health and safety through the adoption and enforcement of state building codes. These codes also set forth essential energy policies, setting minimum efficiency requirements for a variety of building practices and technologies used in our cities and towns. With the Green Communities act of 2008 4, Massachusetts created to option for municipalities to adopt a stretch energy code.

QUESTIONS? NEED HELP?

For more information or for help walking through the process, contact **Nicole Sanches** at nsanches@mapc.org or 617-933-0760.

ON THIS PAGE

Codes for Climate

- Stretch Energy Code
- Train Inspectional Services Staff
- · Comment and Vote

Take Action Today

- Important Dates
- Register to Vote

Resources

Contact

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(617) 933-0791

