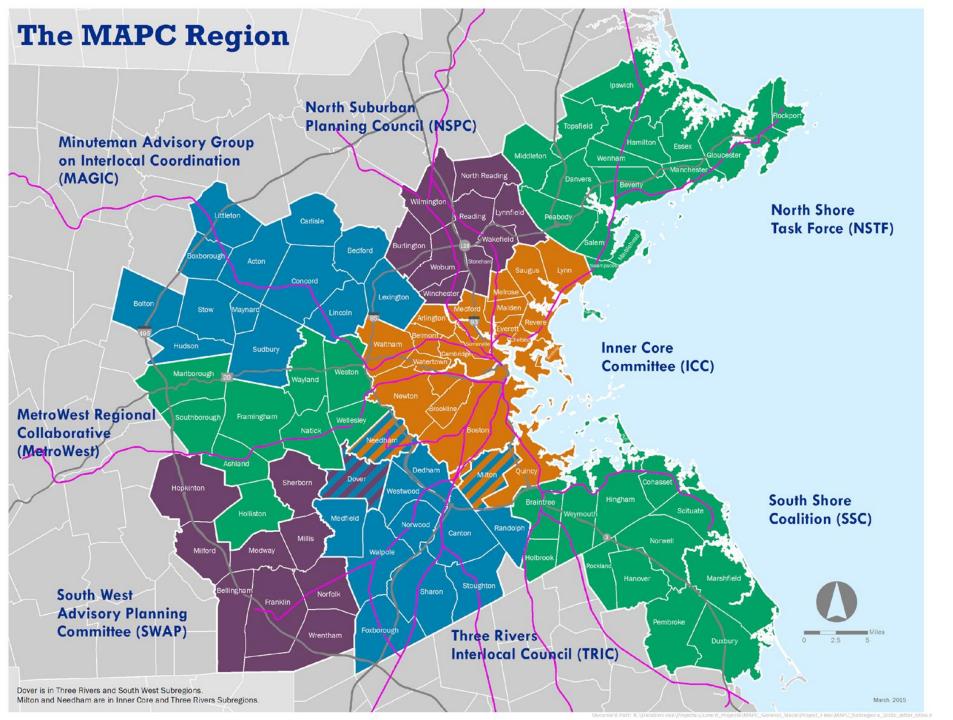


How to Vote on the 2021 IECC

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 Introduction
- 2 Update and Next Steps in the IECC Code Cycle
- 3 How to Vote
- 4 Exciting Energy Efficiency Code Proposals
- 5 Q & A

Net Zero as a Framework for Holistic Climate Planning



Multi-Benefit Outcomes

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

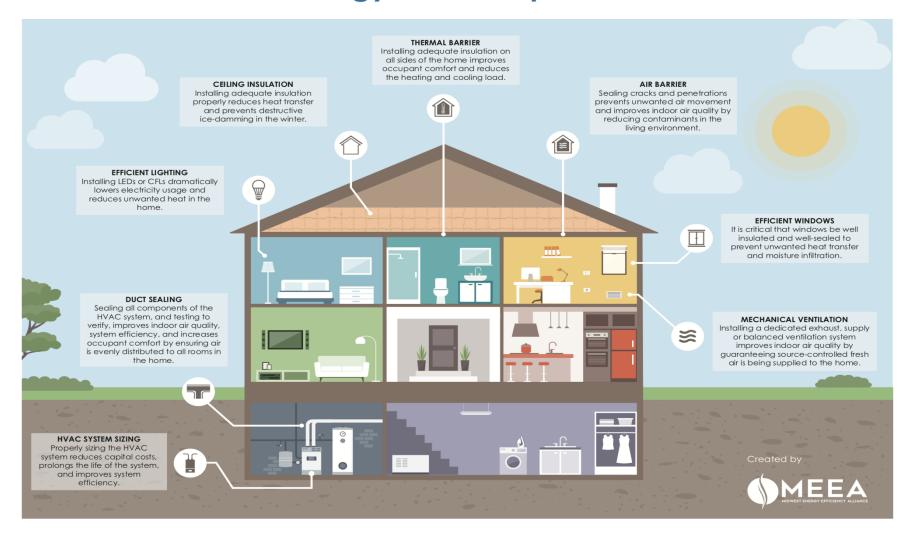


Bringing Net Zero to 101 Cities and Towns and Beyond

Codes for Climate



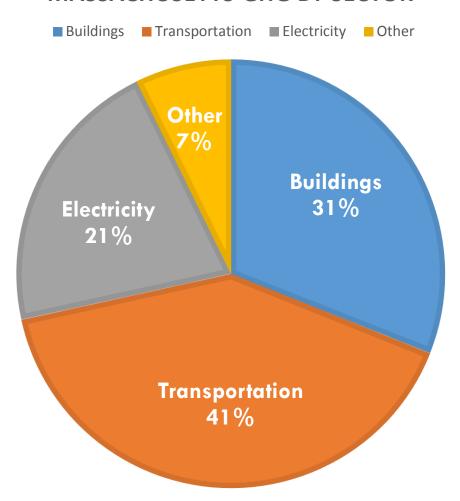
How the Energy Code Improves a Home



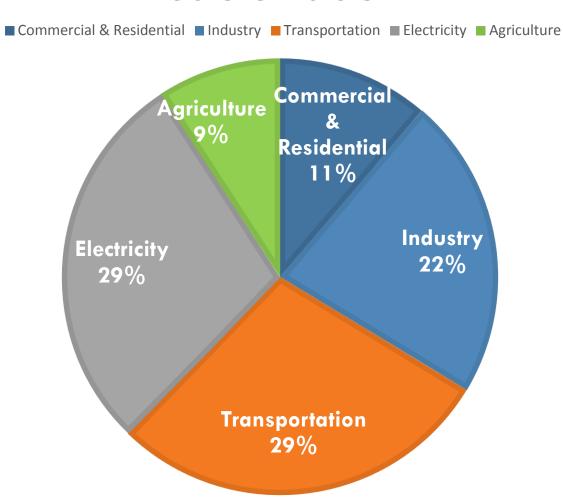
Codes for Climate



MASSACHUSETTS GHG BY SECTOR



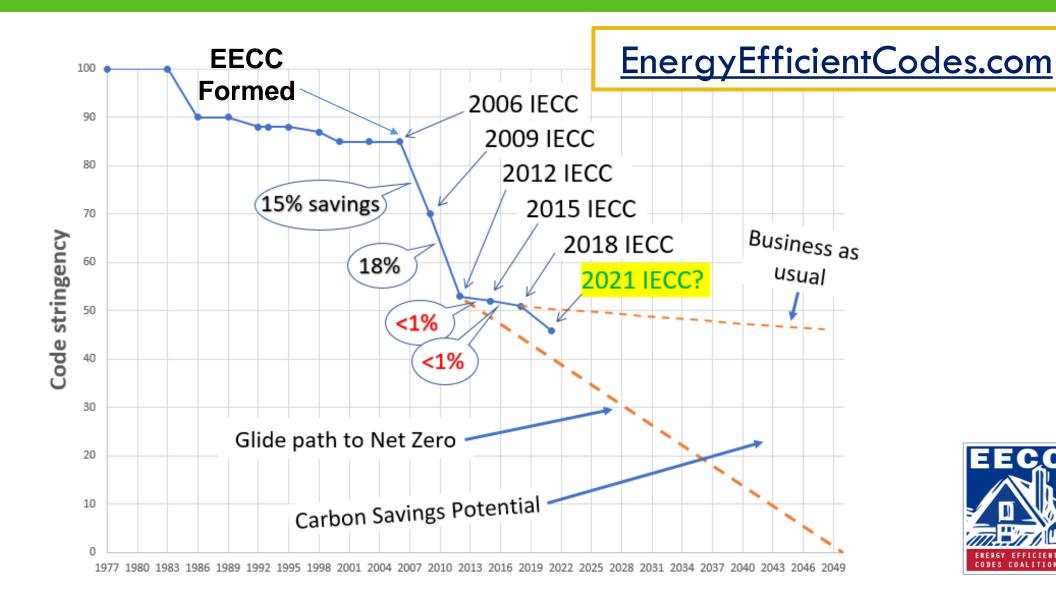
U.S. GHG BY SECTOR



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







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 18th – December 5th Voting Guide in advance 3-Week Online Voting Window

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 18 – December 5

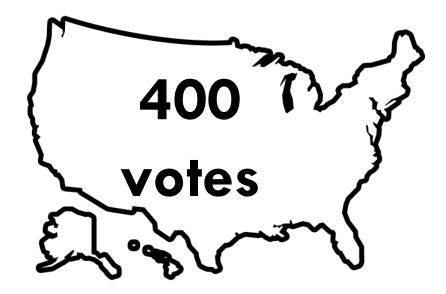
Members vote online



Results of MA Registration Efforts



Target:



Municipal Voters:



IECC Voting Window



2
П
8
5
5
U

FEMBER

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
18	19	20	21	22
			Newton Workshop	
25	26	27	28	29
			Thanksgiving	
2	3	4	5	



How to Vote on the 2021 IECC

What You Need To Vote

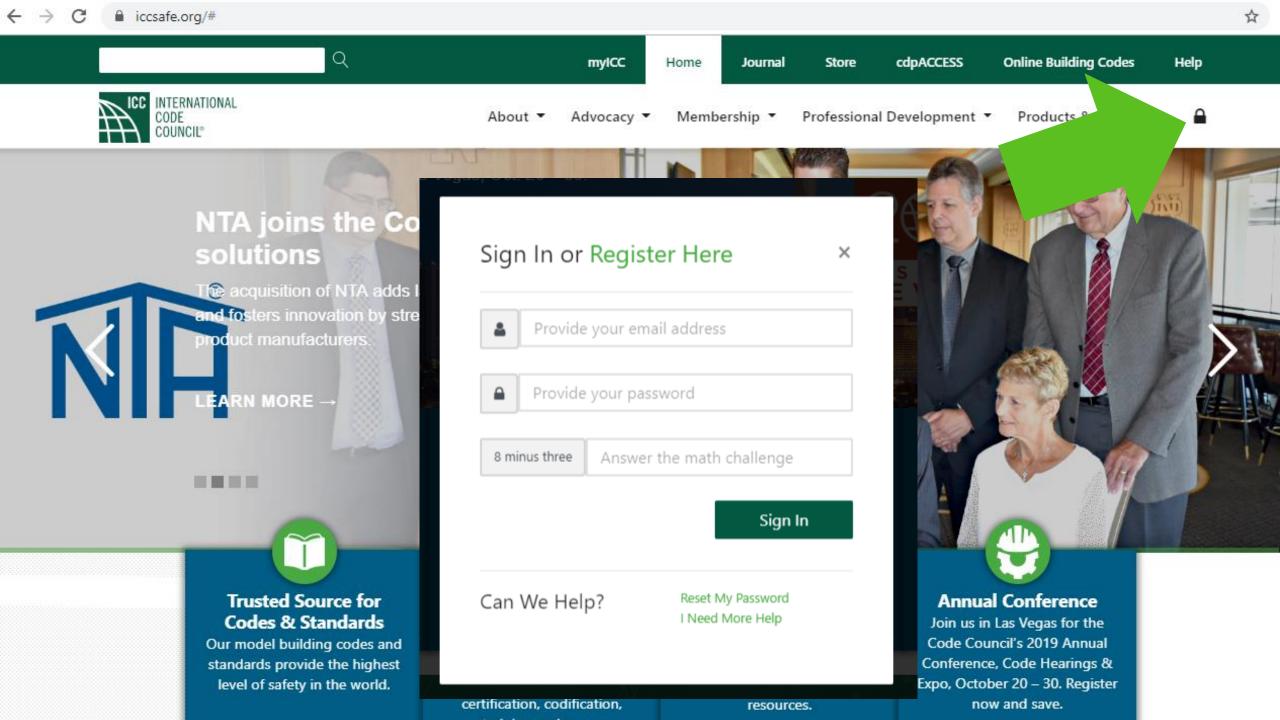


- A computer with internet connection
- 40 to 60 minutes to sit down and vote
- EECC's voter guide
- A username, password and PIN to CDP Access

ENERGY-EFFICIENT CODES COALITION			FFICIENT OALITION	Summary of IECC RE (Residential) Proposals and Online Voting Recommendations		
			N	The IECC is the nation's model building energy code and is revised every three years. Online voting by ICC Governmental Member Voting Representatives is the culmination of years of work by numerous stakeholders and determines the content of the next version of the IECC. To vote on these proposals, go to www.cdpaccess.com and vote between 11/18/19 and 12/5/19.		
Detailed Online Voting Recommendations Final Post-PCH Version November 8, 2019		e Voting wind draw ations	This Guide has been prepared by the EECC to provide a brief outline of the RE Proposals (for residential buildings) and EECC's voting recommendations for ICC Governmental Member Voting Representatives for purposes of the ICC's Online Voting process. We strongly encourage Voting Representatives to vote on all of the proposals listed below if possible. Previous hearings, including the recent Public Comment Hearings, have pared down the proposals for consideration by online voters. This document does not include those proposals that have been resolved through the consent agenda or where EECC offers no voting recommendation (see earlier versions of EECC's guides for info on these proposals) and only includes the voting options available to online voters. For more information, see www.energyefficientcodes.com .			
		re re co	The summaries and recommendations below reflect careful consideration by the EECC Technical Committee and, as such, represent the EECC's views at this time. Included for many of the proposals is a brief analysis and support for EECC's recommendations. This document is not intended as a substitute for reviewing and assessing the actual proposals and public comments as published by ICC, and we encourage a full review. EECC makes no representations or warranties as to this document or its use. See also EECC's separate summary for CE proposals, which addresses commercial and some additional residential building proposals.			
Prop.	Cmtee	PCH	EECC Vote	Proposal Summary	EECC Analysis, Support for	
# RE7	AS	Result AMPC1	AMPC1	Improves lighting efficacy requirements to 65 lumens/watt for lamps and 45 lumens/watt for luminaires; renames high-efficacy lamps as high- efficacy light sources; excludes kitchen appliance lighting fixtures.	Recommendation and Notes Substantial energy savings. See also RE145.	
RE10	AS	D	D	Adds new definition of <i>sampling</i> , a process where <100% of units are randomly inspected and/or tested to code requirements.	By definition, sampling a few homes for compliance does not guarantee that every home complies with the IECC. Sampling results should not be allowed to demonstrate code compliance.	
RE20	D	AMPC1	AM PC1	Requires certificate to include the applicable code edition and compliance path selected.	This is useful information for code compliance and future homeowners.	
RE21	D	D	AS	Requires certificate to include area-weighted average efficiency values where available, sizes of HVAC equipment, and ERI score (both with and without on- site generation).	Further improves the permanent certificate of energy-related information required to be posted in each home by providing additional useful information for the future use of the homeowner.	
		1				

© Energy Efficient Codes Coalition

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





The acquisition of NTA adds lab and testing capabilities, and fosters innovation by streamlining time-to-market for product manufacturers.

LEARN MORE -



Trusted Source for Codes & Standards

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



Building Safety Experts

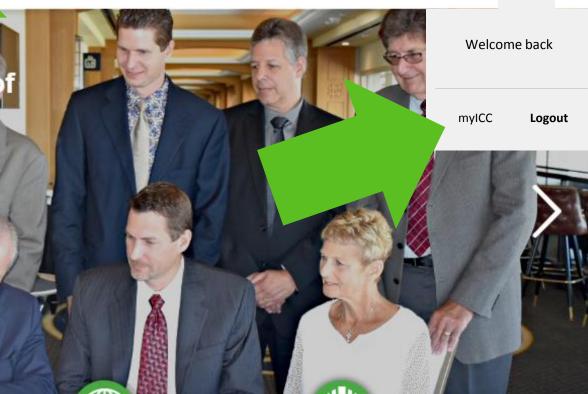
Our Family of Companies delivers a wide array of building safety services, including evaluation, accreditation, certification, codification,

Professional Development

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

Annual Conference

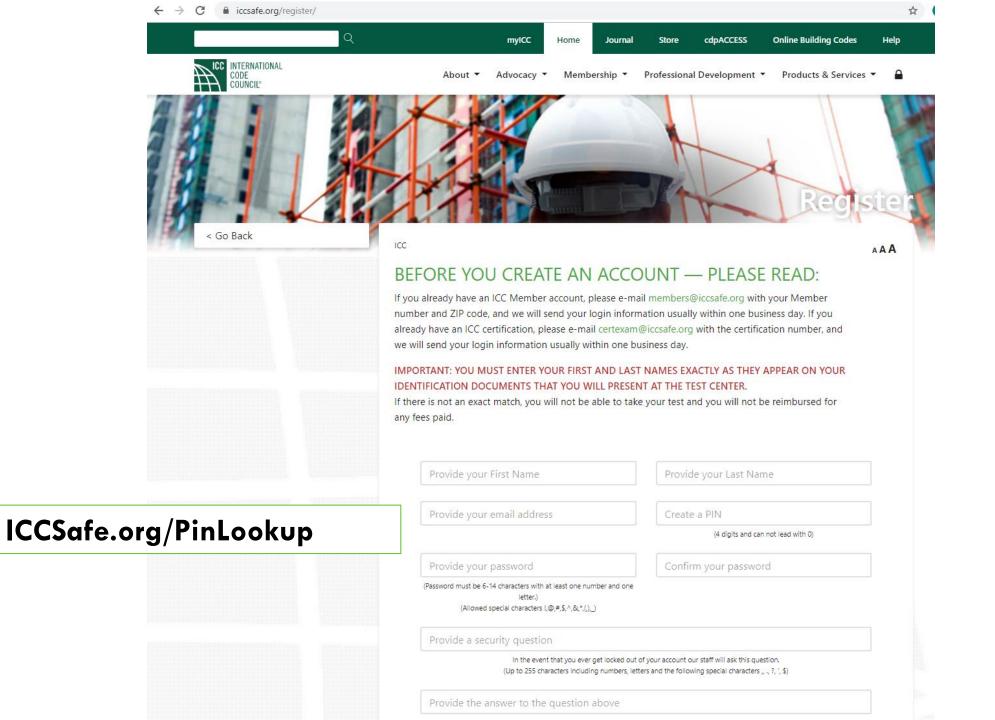
Join us in Las Vegas for the Code Council's 2019 Annual Conference, Code Hearings & Expo, October 20 – 30. Register now and save.







How cdpACCESS® works



Steps to Vote



- Log into CDP Access
 - You will need a username, password, PIN, and DOB
- Navigate to the Online Vote
- Locate the Code Proposals You Wish to Vote For
 - Organized by residential and then commercial proposals. Within these categories, in numerical order
 - Can use the search bar for individual proposals
- Save Your Progress
- Submit
- Verify

Understanding Proposals for Vote



Prop. #	Cmtee Result	PCH Result	EECC Vote Recommendation	Proposal Summary
RE7	AS	AMPC1	AMPC1	Improves lighting efficacy requirements to 65 lumens/watt for lamps and 45 lumens/watt for luminaires; renames high-efficacy lamps as high- efficacy light sources; excludes kitchen appliance lighting fixtures.
RE10	AS	D	D	Adds new definition of sampling, a process where <100% of units are randomly inspected and/or tested to code requirements.

Version of the Proposal:

AS: As Submitted

AM: As Modified by Committee

AM PC 1: As Modified by Public Comment 1

14 Jan 2019 - 1:32 PM EST

Disapproved

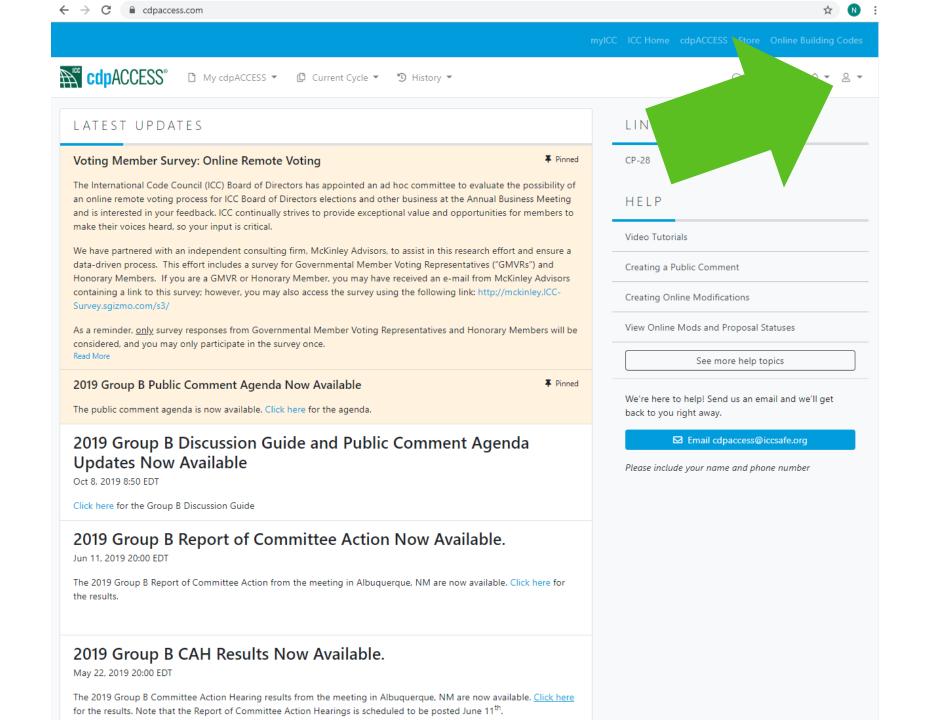
None

5237

ADM7-19

Ready for Final Admin

David Bonowitz







☐ My cdpACCESS ▼ ☐ Current Cycle ▼ ⑤ History ▼



Registered User

User

Settings

Login History

Invitations

Notifications

My Votes

Logout

PROFILE SETTINGS

Profile Settings

User Name	Nicole Sanches	
Email Address	nsanches@mapc.org	
Voter status for OGCV	Not Eligible - you are not validated to vote during the OGCV session. Please contact members@iccsafe.org if you feel this is in error.	

Note: You must log into cdpACCESS with the same email address used for your voter validation if you are a Governmental Voting Representative, or your ICC Member account if you are an ICC Member. Please contact members@iccsafe.org if you have any questions about your membership status or voter validation.

Time Zone

America/New York (GMT -04:00)

■ Save

cdpCMS v2.7.0.1 Copyright © 2019 International Code Council, Inc. All rights reserved.



Voter Guide and Code Proposals to Look For

IECC Partners







Energy Efficient Codes Coalition







Get Out the Vote



Join us in Newton for an In-Person Workshop



RSVP:

https://www.eventbrite.com/e/how-to-vote-on-i-codes-regional-information-session-for-municipal-staff-tickets-80694823389

Nov 21st 3:00 PM

Plan a Voting Pizza Party



Nov 18th – Dec 5th



TIME TO VOTE!

Crossing the finish line and winning a 10%+ improved 2021 IECC

September 17, 2019

30,000 Feet



shutterstock.com + 634306



IMPORTANCE OF THE 2021 IECC



Building Sector Energy Consumption

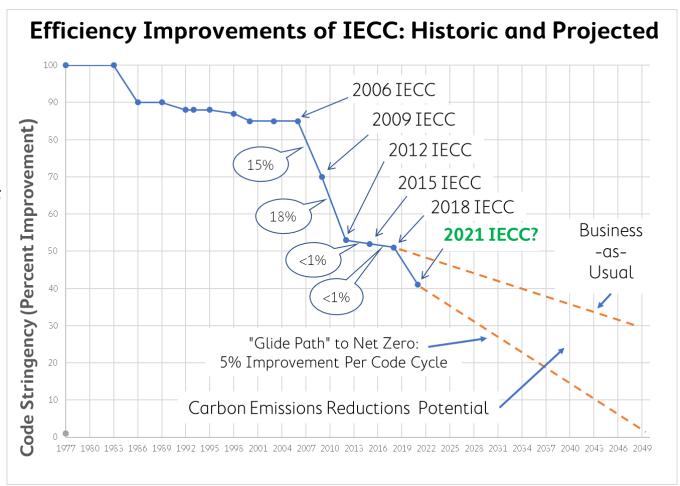
- About 40% of all U.S. energy
- More than 70% of all U.S. electricity
- Accounts for about 40% of carbon emissions



Building Energy Codes Program

- Cumulative savings from 2010 to 2040:
- \$126 billion energy cost savings
- 841 MMT avoided carbon emissions
- **12.82 quads** *primary energy savings*





EMISSIONS REDUCTION POTENTIAL AT STAKE

The Bottom Line:

EECC-sponsored Proposals: 35 MMT CO₂

EECC-endorsed Proposals + 15 MMT CO₂

<u>Total Potential Carbon Emissions Reductions = 50 MMT CO</u>₂



INTO THE WEEDS





2021 IECC DEVELOPMENT PROCESS—THUS FAR

January 14

Residential and Commercial Code Proposals were submitted to ICC

March 4

Proposals Made Available by ICC

By March 29

Governmental Members registered with ICC

April 28 to May 8

ICC Committee Action Hearings, Albuquerque, NM

July 24

Public Comments due to ICC

September 23

Governmental Member Voting Representatives Assigned

October 23 to 30

ICC Public Committee Hearings, Las Vegas, NV

Nov 18 – Dec 5

Online voting via CDP Access

How the committee voted is very impactful.

Determines whether we need a simple majority, or 2/3^{rds} voting majority (to overturn committee's decision)

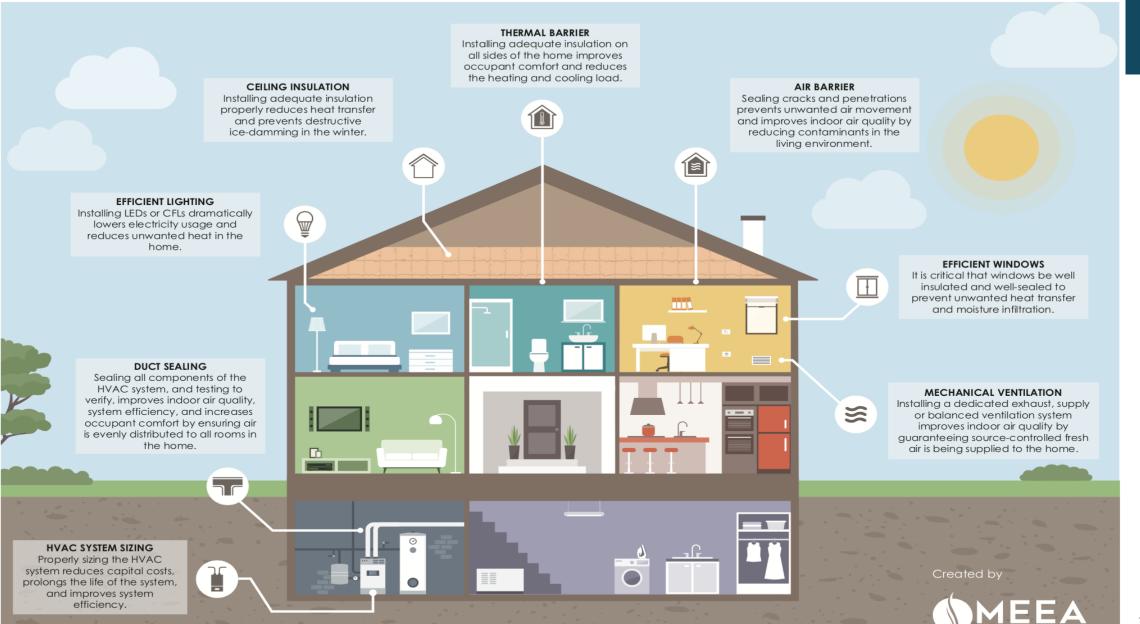
The final BALLOT was set.

Some proposals moved to consent agenda

(go into code). Some withdrawn.

Need to assure GMVRs VOTE!

How the Energy Code Improves a Home



2021 IECC PROPOSALS

Residential Proposals

- ✓ Fenestration
- ✓ Lighting and Controls
- ✓ Duct Leakage Testing and Backstop
- ✓ Floors and Walls
- ✓ Mechanical Ventilation

...Plus:



Commercial Proposals

- √ Fenestration
- ✓ Opaque Envelope
- ✓ Air Leakage Testing and Verification
- ✓ Controlled Receptacles
- ✓ Lighting
- ✓ EV-ready Circuitry and EV-capable Wiring
- ✓ Points Options
- ✓ Net-zero Energy "Stretch Codes" Appendix



Examples of Important Proposals



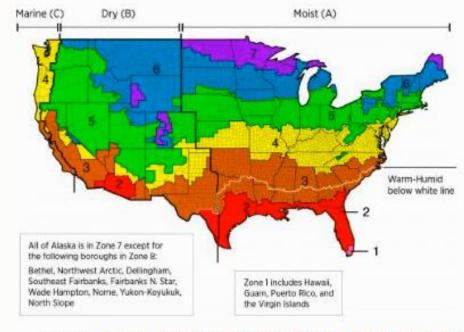
Proposals that Offer Flexibility to Builders PROPOSAL: CE 218

Commercial Options for Section C 406

Existing Section C 406 Options

- 1. Efficient HVAC Equipment
- 2. Reduce Lighting Power Density
- 3. Renewable Energy
- 4. Dedicated Outdoor Air System
- Service Water Heating
- 6. Efficient Fossil Fuel Water Heating
- 7. Enhanced Envelope Performance
- 8. Reduced Air Infiltration

IECC Climate Zones



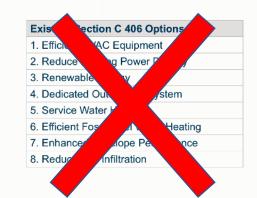


Source: https://basc.pnnl.gov/images/iecc-climate-zone-map

PROPOSAL: CE 218

Commercial Options for Section C 406

Sub-cartion /



Commercial Points Table in CE 218

Table C406.1(4)
Additional Energy Efficiency Credit for Group M Occupancies

Sub-section /							l										
Climate Zone:	1A	1B	2A	2B	3A	3B	3C	4A	4B	4C	5A	5B	5C	6A	6B	7	8
C406.2.1: 5% Heating	NA	NA	NA	NA	1	1	NA	1	1	2	2	2	2	3	2	3	4
C406.2.2: 5% Cooling	5	6	4	4	3	3	1	2	2	1	1	2	NA	1	1	1	NA
C406.2.3: 10% Heating	NA	NA	NA	1	1	1	1	2	2	4	3	4	5	5	3	6	8
C406.2.4: 10% Cooling	9	12	9	8	6	6	3	4	4	1	2	3	NA	2	2	2	1
C406.3 <u>.1</u> : 10% LPA	13	13	15	14	16	14	17	15	15	14	12	14	14	16	16	14	12
C406.5: Renewable	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7	7	6
C406.6: DOAS	3	4	3	3	3	3	1	3	2	2	2	3	2	4	3	4	4
C406.7.1: SWH HR	NA																
C406.7.2: SWH NG eff	NA																
C406.7.3: SWH HP	NA																
C406.8: 85% UA	4	6	3	4	3	3	1	6	4	4	4	5	4	6	5	8	9
C406.9: Low Leak Eny.	1	1	1	2	1	1	NA	3	1	1	3	2	1	7	3	6	3

INSTRUCTIONS

- Find appropriate table based on occupancy type
- Select measure
- 3. Find climate zone



RE 209: RESIDENTIAL Flex Points Proposal

- Flexibility for builders
- Packages instead of individual energy saving measures
- 5 points are required
- Each point represents 1
 % savings; total greater
 than 5% savings





COMMERCIAL PROPOSALS PUSHING THE BUILDING ENVELOPE

Proposal Number(s)	How does it push the building envelope?
CE 35, CE61, CE63, CE64, CE66, CE68, CE69, CE 73 & CE 75	Improves insulation requirements
CE96, CE97 & CE99	Requires air leakage testing and commissioning of air barrier



COMMERCIAL: Understanding how building operates

Providing
Data and
Improving
Building
Operations

Proposal Number	How?
CE 111	Provides data to improve building operations
CE 215	Adds energy monitoring system
CE 216	Allows for control of plug load receptacles

Better Mechanical Systems

Proposal Number	How?
CE 113	Ensures higest efficiency equipment in code
CE 140	Requires efficient ventilation fans in multifamily buildings



CE 162: Residential Lighting Energy Use in Multifamily Buildings

CE 162: Clarifies and improves lighting for apartments and condos





CE 209: Improves lighting efficiency for plants / indoor agricultural lighting

- In many areas, indoor agriculture is fastest growing load on the grid.
- Developed in collaboration with the American Society of Agricultural and Biological Engineers
- Estimate to save 78% over high pressure sodium lamps





Improving RESIDENTIAL Building Efficiency

Proposal Number(s)	How does it improve residential building efficiency?
RE29, RE32, RE33, RE34, RE36	Improves insulation requirements
RE35, RE37	Improves window performance to reduce heat loss and reduce cooling
RE112	Eliminates leaky ducts
RE139	Requires efficient ventilation systems
RE7, RE148	Increases efficiency of interior and exterior lights
RE182, RE184, RE192	Increases the efficiency of building when using Energy Rating Index (i.e. HERS) approach



Electrification in the IECC

Beneficial Electrification

- RE 126 encourages higher efficiency water heating sources and requires lower efficiency water heater types to be installed with renewables
- RE 147 Requires electric circuits and receptacles near gas- and propane-fired equipment





Electrification in the IECC

CE 217 Part 1 - Commercial Code

CE 217 Part 2 - Residential Code









Efficiency FIRST, then add renewable energy

Renewables

- RE 223 Zero Energy Ready Appendix
 - OPTIONAL provision for advanced jurisdictions
 - Requires renewables in a way that aligns with rest of the code
- CE 21 updates the definitions of biomassrelated renewable energy so virgin material cannot be used





Vote





OPTIONS for Voting

 Best, most impactful: Use 2021 IECC Comprehensive Voting Guides (one each for Residential and Commercial (117 proposals)



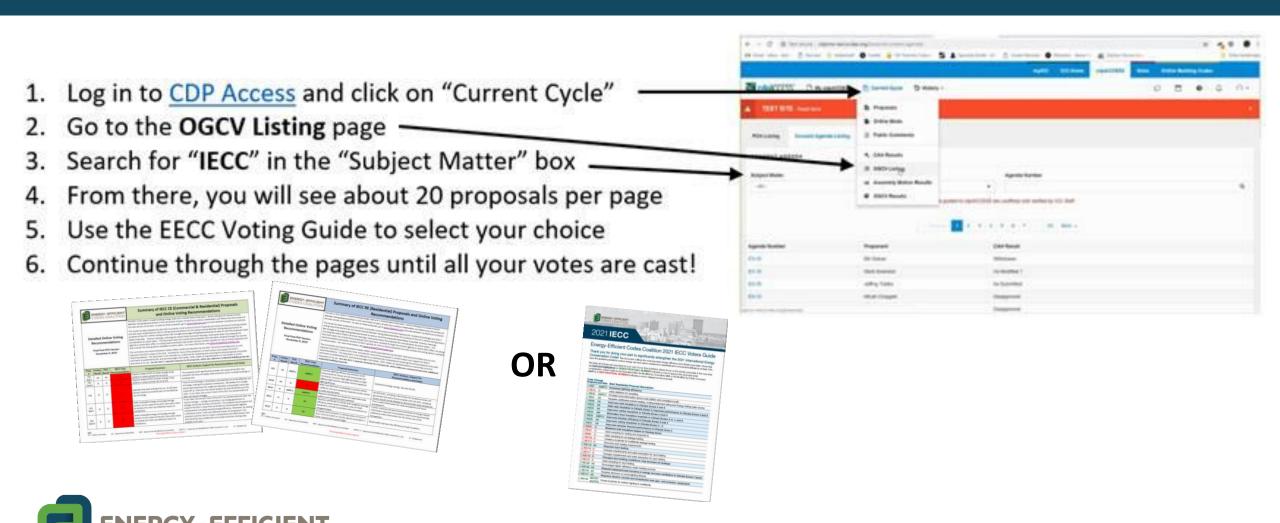
3. Third best (most limited time): Just vote on the blue highlighted proposals



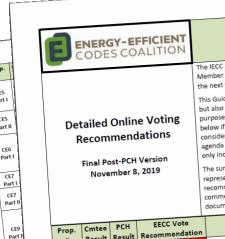


For the full (2,000 page) monograph of all proposals, modifications, and public comments, go to https://cdn-web.iccsafe.org/wp-content/uploads/2019-ICC-PUBLIC-COMMENT-AGENDA-compressed-2019-upload-upload.pdf

The Fastest Way to Vote



2021 IECC COMPREHENSIVE VOTING GUIDES



Prop.

CE5

Part I

CE5

part I

CE6

part

CE17

Part

CE55

CE56

CE57

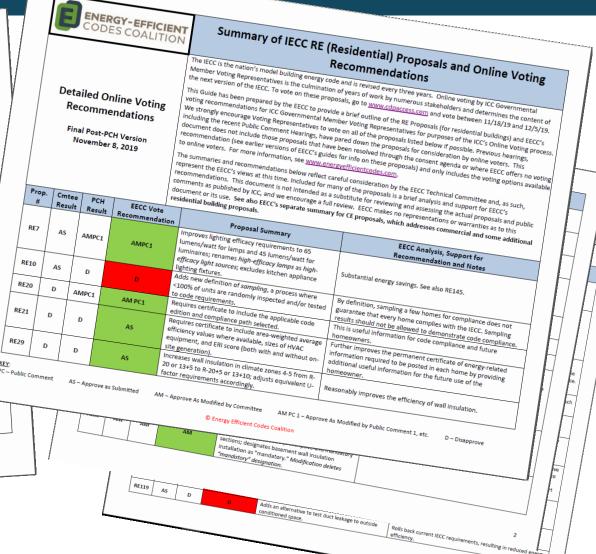
Summary of IECC CE (Commercial & Residential) Proposals and Online Voting Recommendations

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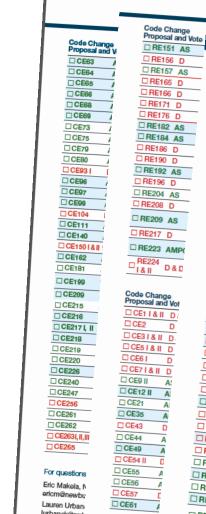
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					EECC Analysis, Support for Recommendation
	mtee	PCH Result	EECC Vote Recommendation	Proposal Summary Expands scope of IECC to cover energy-using	This proposal could significantly broaden the scope of the IECC into uncertain territory and apply code provisions across multiple building
# K CE1 Part I	AS	AS	D	systems in areas outside the structure.	uncertain territory and apply
CE1 Part II	D	D	D	systems in areas outside the structure.	building sites. Time of use of energy is inherently a consideration as to the effectly of energy, making this proposal unnecessary. We believe this chan of energy, making this proposal unnecessary.
CE2	D	D	D	Specifies that load shifting from on- to off-peak periods shall be considered part of the effective use of energy. Adds renewable energy and energy storage	would overemphasize this angle of the control of th
CE3 Part I	D	D	D	systems to the scope of the IECC, and to achieve the most cost-effective means of compliance.	storage, should be the locus of could lead to unanticipated neg scope of the IECC in ways that could lead to unanticipated neg scope of the IECC in ways that could lead to unanticipated neg scope of compliance. This is the scope of compliance in the scope of compliance.
CE3	D	D	D	Adds renewable energy and energy storage systems to the scope of the IECC; also adds inten- to achieve the most cost-effective means of compliance.	a reference to the "most cost-effective means of comparative cost-effectiveness tes proposal could be read to imply a comparative cost-effectiveness tes proposal could be very problematic and create confusion among code adopters and users. D - Disapprove





EECC Top Priorities Voting Guide





Energy-Efficient Codes Coalition 2021 IECC Voters Guide

Thank you for doing your part to significantly strengthen the 2021 International Energy Conservation Code! This document outlines the most important energy efficiency and climate proposals—those that

have the greatest potential to reduce energy use and carbon emissions in residential and commercial buildings by at least 10%.

We think all of these are important for your vote. If your time is limited, please focus on the priority proposals in the rows that We think all of these are important for your vote, if your time is limited, pealed rocus on the priority proposate in a are bold and highlighted. A GREEN PROPOSAL NUMBER indicates a vote to approve the proposal under are bold and nightighted, A GREEN PROPOSAL NUMBER indicates a vote to approve the proposal under consideration, which might be As Submitted (AS), As Modified by Committee (AM) or As Modified by Public Comment

S	Proposalange	
	Proposal and Vote Brief Residential Proposal Description	
s	RE10 D Adds definiting efficiency	
_	Pro-	
	DEC. TOYIQUES MORO Info	
MP(HE20 AMPC1 Provides more information about code edition and compliance path RE21 AS Requires certificates include heating, cooling equipments.	
& D	RE21 AS Requires certificates include heating, cooling equipment sizing and Energy Rating Index scores RE32 AS Adds slab insulation in Climate Zones 4 and 5	
_	RE32 AS Adds slab insulation in Climate Zones 4 and 5 RE33 AS Improves celling insulation in Climate Zones 2 and 3 RE34 AM Eliminates floor insulation loophole in Climate Zones 2 and 3	
	The state of the s	
ot	AM Eliminates floor insulation in Climate Zones 2 and 3	
) /		
	Improves ceiling in Climate Zones 2 and 4	
	RE40 D	- 1
	RE40 D Weakens wall insulation based on framing for the Samples of	- 1
	RE43 D Adds sampling for testing and inspects.	- 1
	D Adds sampling for testing and inspections Adds sampling for testing and inspections	
	Adds sampling for air leakage testing Creates a loopboar leakage testing	- 1
	Changes requirements and adds exemption for duct testing Changes requirements and adds exemption for duct testing	
	Changes requirements and adds exemption for duct testing Changes duct testing conditions, may be a decided as the conditions of the condi	
	Changes duct testing conditions, may increase air leakage RE121 D Adds sampling for duct testing	
	RE126 AS Encourage block	
	RE145 AS Requires planced heat recovery or energy	l
	RE139 AS Requires balanced heat recovery or energy recovery ventilation in Climate Zones 7 and 8 Requires dimmers on some lighting fixtures Requires electric circuits and receptacles as Requires electric circuits and receptacles electric circuits and receptacles electric circuits and receptacles electric circuits and receptacles electric ci	
	RE148 AM PC1	
	RE147 AS Requires electric circuits and receptacles near gas- and propane- equipment AM PC1 and PC2 Closes loophole for exterior lighting in multifamily	
	igning in multifamily	



EECC ONLINE RESOURCES

Visit EECC Online at energyefficientcodes.org for Everything You Need to Know...

- ✓ How-to Vote Videos
- ✓ First-time Voters Webinar
- ✓ Voting Guides
- ✓ Much More



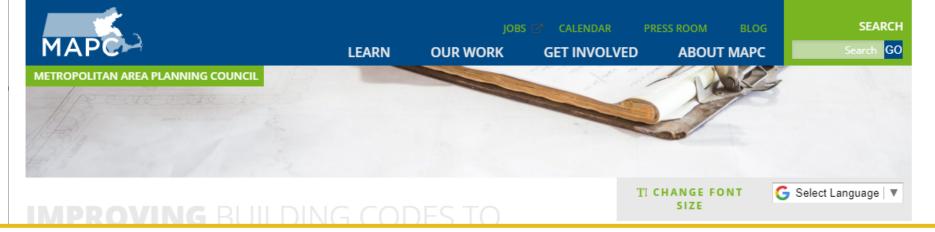




THANK YOU!

Maria Ellingson MEllingson@ase.org

November 13, 2019



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



Questions?

Contact

Nicole Sanches
Clean Energy Coordinator
nsanches@mapc.org
(617) 933-0761

Cammy Peterson

Director of Clean Energy

<u>cpeterson@mapc.org</u>

(617) 933-0791

