



MEMORANDUM

To: Sam Anderson, Caleb Oakes
From: John Nunnari
Date: 10/04/19
Re: State of Massachusetts Building Codes

History of National Building Codes

Beginning in the early part of the 20th century, three nonprofit organizations were responsible for the development of the three separate model building codes that were used throughout the United States. The Building Officials and Code Administrators International, Inc. (BOCA) wrote the building code used primarily in the mid-atlantic and northeastern states. The International Conference of Building Officials (ICBO) wrote the building code used primarily in the mid-western and northwestern states, and finally the Southern Building Code Congress International, Inc. (SBCCI) wrote the building code used primarily in the remaining Southern states.

During the mid 1950's and 1960's, advancements in building techniques and building technologies precipitated the need for the three organizations to continually update their code language. In the late 1970's and early 1980's, with the advent of computer-aided drafting and the Internet, the barriers that previously hindered effective intrastate practice by design and construction companies began to be disappear. By the mid 1980's both design and construction companies that hailed from states such as Maine were now effectively managing design and construction projects in states as far away as California or Hawaii. Although the design and construction industry was quick to accept the notion that intrastate work was good for business, the technical differences that existed between the three regional models codes still posed problems. Questions began to arise as to why did there really need to be any difference at all? Why couldn't there be just one standard for all states to follow?

In 1994, the nation's three model code groups, BOCA, ICBO and SBCCI, all agreed the time had come for a single set of codes. With an agreement between all three organizations to discontinue the printing of their individual codes, they pooled their efforts to develop a single set of comprehensive and coordinated national model construction codes that could be used without regional limitations. This group effort led to the formation of the International Code Council (ICC). Today, ICC is a non-profit organization dedicated to the continual development of a single family of comprehensive and coordinated codes. This single family of codes is known as the International Family of Codes (I-codes) and includes; International Building Code, International Residential Code, International Fire Code, International Plumbing Code, International Mechanical Code, International Fuel Gas Code, International Energy Conservation Code, International Private Sewage Code, ICC Performance Code, ICC Electrical Code, International Property Maintenance Code, International Zoning Code, International Existing Buildings Code, and the International Urban-Wildlife Code.

By its efforts to create a single set of codes, the ICC anticipated positive responses from the design and construction industry. With a consistent set of requirements throughout the United States the previous question of, "Why can't there just be one standard for all states to follow?" was answered. By eliminating regional differences in code language, the design and construction companies who were engaged in intrastate work now had the ability to effectively manage their projects, and more importantly, they would have the ability to go after new projects without the fear of distance being a factor. In terms of the research and development, a single uniform standard would allow for greater



innovations in the development of new building products. Manufactures could now direct their research dollars to a broader base of products rather than focusing on the development of three versions of the same product. A uniform educational standard and certification process could now be implemented on a national level. This would benefit the building industry by replacing the patchwork of educational processes that existed on each state's level by providing continuity among all. Finally, ICC hoped that with a single set of codes, states and individual localities that were still writing their own codes, or amending the old model codes, might begin to adopt the International Family of Codes. This anticipated uniform adoption would lead to more consistency in code enforcement, and potentially, a higher quality of construction.

The ICC developed a national process that ensured all issues and concerns of a regulatory nature whether it disaster mitigation, energy conservation, accessibility, innovative technology or fire protection, would have a single forum for discussion, consideration and resolution. By combining their collective efforts into one, the three model code organizations could now direct their energies toward wider code adoption, better code enforcement and enhanced membership services.

As of 2019 these collective efforts have resulted in all 50 states plus Washington, D.C. and the Department of Defense now using the International Building Code.

Status of Amendments to Current 9th Edition of the 780 CMR

The current 9th edition of our states building code, the 780 CMR, for commercial and residential construction are based on the 2015 I-codes. ICC publishes new editions of their I-codes on a three year cycle.

In March 2019, the Board of Building Regulations and Standards (BBRS) voted to move a package of amendments forward to the Administration for the required Executive Order 518 and 562 review. In addition, the BBRS also voted for the amendment package to go into full effect on January 1, 2020. On July 25, 2019, the E.O. 518 process for Building Code Coordinating Council review was completed. As of today, the amendment package is with Administration and Finance for their review per E.O. 562.

Items included in this amendment package include the following:

- **Change to Chapter 1: Scope and Administration of Amendments:** This change would adopt all of NFPA 130, 2014 Edition. At present, the building code adopts four chapters of NFPA 130, 2014 edition. This model standard governs "fire protection and life safety requirements for underground, surface, and elevated fixed guideway transit and passenger rail systems." In practice, this entire standard is utilized in its entirety when subject installations take place. Since there was no reason to limit its adoption to only four chapters, a more general adoption would reduce confusion;
- **Change to Chapter 1: Scope and Administration of Amendments:** This change would remove specific designations for members of subcommittees established in the Building Code;
- **Changes to Chapter 12: Interior Environments (Micro Units):** This regulation governs the interior requirements for buildings and structures, including minimum size requirements. The purpose of this change is to reduce the minimum size of housing units, following the lead of other municipalities (including Seattle and New York City) in order to increase the supply of affordable housing. As drafted, this regulation will allow smaller units with features to compensate for the reduced size, including lighting and requirements for



common spaces. Minimum room widths and heights are not changed to ensure compliance with fair housing and accessibility requirements.

- Changes to Chapter 26: Plastics: This change is a direct result of the June 2017 Grenfell Towers fire in England. Chapter 26 governs the use of plastics, which can often be an inexpensive building material, but can also represent certain tradeoffs in durability and, in some cases, flammability. In this instance, the subject regulation, in concert with a national model code, the 2015 International Building Code, governs when certain plastics may be used on the exterior wall assembly of buildings. It does this by stating when a building may be exempt from another adopted model standard, NFPA 285, which effectively bars many materials from the use in exterior wall assemblies. This regulation was recently amended on an emergency basis, based on a determination by the State Fire Marshall that one of these exceptions, in non-high rise buildings which are fully covered by sprinkler protection, is insufficient to protect from an immediate and serious fire risk that could lead to loss of property as well as personal injury or death. Due to a scrivener's error which occurred during the last non-emergency update, one exception found in model code, for one story buildings, was not included. One story buildings do not suffer from the same dangers as larger buildings, and this exception is found in the model code used in the rest of the country. Accordingly, this amendment will restore that exception.
- Changes to Chapter 51: Adoption of the 2018 International Residential Code Appendix Q – Tiny Houses: This regulation change proposes adopting a small portion of a model code, Appendix Q of the 2018 International Residential Code (the Building Code currently adopts the 2015 International Residential Code), which provides new rules for those wishing to construct smaller houses, known as “tiny houses.” These rules will allow the construction of these smaller homes, which help provide affordable housing, by relaxing some rules on dimensions, safe access to and egress from lofts. These rules have been vetted nationally and are believed to facilitate construction of these “tiny houses” without sacrificing health and safety.
- Changes to Chapter 110: Special Regulations: These regulations include the standards for concrete testing laboratories, whose work ensures the safety and effectiveness of this critical building component. The proposed change would reduce the requirements for individuals to become a full time laboratory supervisor.
- Changes to Chapter 110 R.3: Approving Manufactured Buildings: The purpose of 780 CMR 110.R3 is to provide rules for manufactured buildings, manufactured building components and manufactured homes, which are buildings that are constructed in multiple parts, largely out of state. The changes proposed would restore language used in the 8th edition of the building code, whose language was deemed to provide more public safety requirements and ensure the accountability of manufacturers of these buildings. Additional changes have been proposed to ensure prompt resolution of any problems, as well as proper education and certification of those responsible for installations.
- Adoption of 2018 International Energy Conservation Code (IECC) as the base energy code for MA (replacing the 2015 IECC): MGL c.143, §94(o) requires MA , *“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. The energy*



provisions of the state building code shall be updated within 1 year of any revision to the International Energy Conservation Code”;

- Changes to Chapter 115 Appendix AA: Minor amendments to the current version of the Stretch Energy Code: Would mainly update the ANSI/ASHRAE/IESNA 90.1 standard that pertain to minimum requirements for energy-efficient design of most buildings, except low-rise residential buildings;
- A new EV charging station requirement for Use Groups A-1, B, E, I, M and R-1: Would require one EV space for any building within these Use Groups that have more than 15 parking spaces. EV is not required for one and two family construction
 - A-1 Use Group – typically includes assembly uses, usually with fixed seating, intended for the production and viewing of the performing arts or motion pictures including, but not limited to: motion picture theaters, symphony and concert halls, television and radio studios admitting an audience and theaters
 - B Use Group – typically includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following: airport traffic control towers, ambulatory care facilities, animal hospitals, kennels and pounds, banks, barber and beauty shops, car wash, civic administration, clinic – outpatient, dry cleaning and laundries: pick-up and delivery stations and self-service, educational occupancies for students above the 12th grade, electronic data processing, food processing establishments and commercial kitchens not associated with restaurants, cafeterias and similar dining facilities not more than 2,500 square feet (232 m²) in area, laboratories: testing and research, motor vehicle showrooms, post offices, print shops, professional services (architects, attorneys, dentists, physicians, engineers, etc.), radio and television stations, telephone exchanges
 - E Use Group – typically the use of a building or structure, or a portion thereof, by six or more persons at any one time for educational purposes through the 12th grade.
 - I Use Group – typically the use of a building or structure, or a portion thereof, in which care or supervision is provided to persons who are or are not capable of self-preservation without physical assistance or in which persons are detained for penal or correctional purposes or in which the liberty of the occupants is restricted.
 - M Use Group – typically includes, among others, the use of a building or structure or a portion thereof for the display and sale of merchandise, and involves stocks of goods, wares or merchandise incidental to such purposes and accessible to the public. Mercantile occupancies shall include, but not be limited to, the following: department stores, drug stores, markets, motor fuel-dispensing facilities, retail or wholesale stores, sales rooms
 - R Use Group – typically includes, among others, the use of a building or structure, or a portion thereof, for sleeping purposes when not classified as an Institutional Group I or when not regulated by the International Residential Code. Residential occupancies shall include, but not be limited to, the following: boarding houses,



congregate living facilities, dormitories, group homes, guest rooms, lodging houses, personal care services and transient.

Status of Amendments to proposed 10th Edition of the 780 CMR

Prior to June 2019, the BBRS and their established technical advisory committees¹ were continuing their review of 2018 I-Codes, and the development of Massachusetts amendments, as the basis for the proposed 10th edition of the 780 CMR.

At the June 2019 BBRS meeting, staff offered a proposal to discontinue all advisory committee work related to amending the 2018 I-codes. Instead, staff suggested that the advisory committees should begin review of the 2021 I-Codes, and propose amendments accordingly. Further, staff recommended that the advisory committees and full board work toward a final promulgation of the 780 CMR with an effective date of January 1, 2021.

During discussion of the proposal the BBRS chairman, John Couture, noted that if the board intends to start anew and move in this direction, that net-zero energy language should also be developed for inclusion.

To that end, the BBRS voted to do the following:

- Stop all work related to the 10th edition based on the 2018 I-codes;
- Direct their advisory committees to begin review of the 2021 I-codes and propose amendments accordingly;
- Direct their Energy Advisory Committee (EAC) to begin developing net-zero energy language for their consideration/inclusion;
- Work with the Administration to ensure the proposed 10th edition is promulgated in such a time frame as to ensure an effective date of January 1, 2021.

As of today, the base 2021 I-code language is still working its way through ICC consensus hearings process and not available for review by the advisory committees. The BBRS did not meet during the month of July, and no updates were provided at the August or September BBRS meetings.

Lastly, with regard to the creation of net-zero energy language, the EAC held its first meeting on September 23, 2019 and the following items were included for discussion on the agenda:

- Existing business: 'Net Zero' code options for BBRS adoption
 - a) Adoption options: Stretch code vs. Base code
 - b) Defining Net-zero: annual energy vs. annual carbon (ghg)
 - c) Defining Net-zero: on-site only vs. on-site & off-site renewables
 - d) Net-zero options: electric only vs. fossil fuels allowed with GHG trade-offs
 - e) Net-zero options: zero peak demand &/or zero annual load
 - f) Net-zero options: multifamily as separate code section
 - g) Net-zero options: incentives for Embodied energy/carbon reductions
 - h) Net-zero options: flood resilience &/or energy resilience

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¹ The technical advisory committees are: Energy, Structural, Geotechnical, Fire Protection/Fire Prevention, Existing Buildings, Convention Center Fire Protection, Rooftop Solar, Construction Supervisors License Exam Transition, and LNG Storage Facility Standards



MEMORANDUM

To: Climate Change Conference Committee
From: John Nunnari
Date: 08/26/20
Re: State of Massachusetts Building Codes – continued

Where we are today?

This memorandum pick up where the October 4th memorandum on the work of the BBRS left off.

At the October 8, 2020 BBRS meeting, the Board voted to the change the membership composition of some of their Technical Advisory Committees (TAC) and offered the following in their reasoning:

“...the proposed revisions for consideration rely on the Board handling policy questions/issues and the advisory committees handling the technical questions/issues with recommendations to the Board. This approach emphasizes the need for hands-on professionals and folks performing the work in the field having real-time experiences on the advisory committees....the review group did discuss that advisory committee recommendations to the Board should include cost analysis.... talked about how the idea of reconstituting the advisory committees included communication from the DPL Commissioner.... state employees should not serve as chairperson on any of the advisory committees.” – excerpted from approved October 8, 2020 BBRS meeting minutes (attached)

The changes to the TAC’s (attached) were opposed by various professional and environmental organizations and implemented over the remaining two months of 2019.

In late October 2019, as part of its three-year code production cycle, ICC held their annual conference related to the creation of the 2021 family of I-Codes. This conference included a net-zero energy code proposal that, if enacted, would become a new Appendix to the 2021 International Energy Conservation Code (IECC). The proposal offered (6) ways all new buildings other than single-family homes, multifamily homes of three stories or fewer, manufactured homes (mobile homes), manufactured houses (modular) and buildings that use neither electricity nor fossil fuel could complying with net-zero provisions (MGL c. 143§94(o) requires the Commonwealth is adopt and fully integrate the latest version of the IECC within one year of its promulgation by ICC).

At that time the chairman of the BBRS noted that, in keeping with the BBRS’s long standing position of working to adopt ICC’s codes un-amended, having ICC incorporate the Appendix into their base IECC would be the most preferable method, and that it would be hard for the BBRS to argue against adopting it given its well-established history of support for adopting ICC codes un-amended.

On November 5, 2019, the BBRS held a statutorily required public hearing. A net-zero energy code proposal, intended for inclusion within the proposed 10th edition of the Commonwealth’s 780 CMR, mirroring what was submitted to ICC for their October conference, was submitted.

In December 2019, ICC’s preliminary voting results indicated approval of the net-zero energy code proposal as a new Appendix to the 2021 IECC.



On February 6, 2020, the Energy Advisory Committee (EAC) of BBRS¹ began their work reviewing the net-zero code proposal submitted in November 2019, and have been meeting and discussing this proposal every month since – their next meeting scheduled for September 14, 2020.

On February 7, 2020, along with updates to Appendix 115 AA, the stretch energy code, the 2018 IECC with MA amendments became effective in the Commonwealth. All other BBRS approved changes to Chapter 1: Administration, Chapter 12: Interior Environments (Micro Units), Chapter 26: Plastics, Adoption of the 2018 International Residential Code Appendix Q – Tiny Houses, Chapter 110: Special Regulations, Chapter 110 R.3: Approving Manufactured Buildings and new EV charging station requirement for Use Groups A-1, B, E, I, M and R-1 are all still pending final approval from the Governor's office.

As a reminder, the effective date for the new amendments is today, February 7, 2020, and the six-month concurrency period will end on August 7, 2020.

In April 2020, ICC announced the final results of the 2021 I-code development process, and confirmed approval of a net-zero energy code as a new Appendix to the 2021 IECC.

In May 2020, at a statutorily required public hearing, a second, separate, net-zero energy code proposal was submitted to the BBRS, and is now currently under review by the EAC.

Lastly, please see the attached timeline which outlines the generally agreed upon Fall 2022 timeframe for the promulgation of the 10th edition of the Commonwealth's 780 CMR.

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¹ The technical advisory committees are: Energy, Structural, Geotechnical, Fire Protection/Fire Prevention, Existing Buildings, Convention Center Fire Protection, Rooftop Solar, Construction Supervisors License Exam Transition, and LNG Storage Facility Standards

780 CMR - 10th Edition Adoption Schedule

Sep. '20 ★ ICC language made avail.	Oct. _____	Nov. _____	Dec. _____	Jan. '21 _____	Feb. _____
Technical Advisory Committee (TAC) Review and Reporting					
		* Statutory public hearing			
Mar. _____	Apr. _____	May _____	June _____	July ★ Special public hearing	Aug. _____
BBRS Review of TAC Recommendations & Finalization of DRAFT 10th Ed. 780 CMR					BBRS review of public comments
		* Statutory public hearing			
Sep. _____	Oct. ★ Vote to move to E.O. 562 review	Nov. _____	Dec. _____	Jan. '22 _____	Feb. _____
BBRS review of public comments			E.O. 562 Process : (3) Months of BCCC Review (3) Months of A/F Review		
Mar. _____	Apr. _____	May. ★ E.O. 562 Complete * Statutory public hearing	June ★ BBRS Final Promulgation Vote	July. _____	Aug. _____
				Sec. of State printing code	★ 10th Ed. 780 CMR avail. for use

- Sept. 2020 - ICC makes base 2021 IBC/IRC language available to BBRS & BBRS sends Technical Advisory Committees (TAC)
- Oct. 2020/Jan. 2021- TAC's begin their review & reporting. BBRS requires TAC's work to comply with the following objectives:
 - Examine the feasibility.
 - Determine the cost impacts.
 - Consider legal implications of what the proposal requires.
 - Identify all the technical implications.
- Mar./June 2021- BBRS begins deliberations on TAC recommendations & votes to move board approved draft of 10th edition to July public hearing
- July 2021- Special Public Hearing for general public to offer comments on draft 10th edition
- Aug./Sept. 2021 -BBRS review of public comments - incorporates those they agree with/dispenses those they disagree with
- Oct. 2021- BBRS votes to move code into Exec. Order 562 (Administration Review) process
- Nov. 2021/ Apr. 2022 - E.O. 562 review process undertaken and completed
- May 2022 - Administration gives clearance to promulgate
- June 2022 - BBRS takes final vote to promulgate
- July/Aug. 2022 - 780 CMR - 10th edition state building code (Resid. and Comm.) submitted to Sect. of State for final promulgation
- Aug./Sept. 2022 - Code promulgated