CHARLES D. BAKER
GOVERNOR

KARYN E. POLITO
LIEUTENANT GOVERNOR

JAY ASH
SECRETARY OF HOUSING AND ECONOMIC DEVELOPMENT

Commonwealth of Massachusetts
Division of Professional Licensure
Office of Public Safety and Inspections

1 Ashburton Place, Rm 1301 • Boston • Massachusetts • 02108

JOHN C. CHAPMAN
UNDERSECRETARY OF CONSUMER AFFAIRS AND BUSINESS REGULATION

CHARLES BORSTEL
COMMISSIONER, DIVISION OF PROFESSIONAL LICENSURE

BOARD OF BUILDING REGULATIONS AND STANDARDS

NOTICE OF MEETING

In accordance with the provisions of G.L. c. 30A § 20, notice is hereby given that the Board of Building Regulations and Standards will convene a regular monthly meeting on:

February 13, 2018 @ 1:00 p.m. until approximately 4 p.m.

Division of Professional Licensure (DPL) Office
50 Maple Street in Milford 01757-3698
Milford is a secure facility. Please allow time to be checked-in at the front desk.

Posted on February 5, 2018 @ 10 a.m.

It is anticipated that the topics shown below will be discussed at the aforementioned meeting:

AGENDA

Roll Call, by BBRS Chair:

John Couture, Chair	☐ present ☐ absent	Robert Anderson, or designee	☐ present ☐ absent
Kerr Dietz, Vice Chair	☐ present ☐ absent	Peter Ostroskey, or designee	☐ present ☐ absent
Richard Crowley, Second Vice Chair	☐ present ☐ absent	Michael McDowell	☐ present ☐ absent
Steve Frederickson	☐ present ☐ absent	Susan Gleason	☐ present ☐ absent
Kevin Gallagher	☐ present ☐ absent	Lisa Davey	☐ present ☐ absent
Cheryl Lavalley	☐ present ☐ absent		

Regular Meeting:

1. **Review\Vote** approval of January 9, 2018 BBRS draft meeting minutes.
2. **Review\Vote** approval of January 3, 2018 BOCC draft meeting minutes.
3. **Review** comments received relative to Code Change Proposals presented @ the November, 2017 Public Hearing and **Vote** on any desired changes.

- **Proposed Coastal A Zone Amendments** – The proposal intends to re-insert ***Coastal A Zone Provisions*** into varied sections of the International Building Code (IBC) and International Residential Code (IRC). Proposals and comments received are attached to this agenda.
- **Proposed House Keeping Amendments Associated with Flood Hazard Provisions** – The proposal intends clarify certain flood hazard requirements of the International Existing Buildings Code (IEBC) and International Residential Code (IRC). Proposals are attached to this agenda.

- **Proposed Amendment to Concrete Testing Lab Personnel Certifications** – The proposal intends to revise certification classifications for certain concrete testing lab personnel as established by Chapter 110.R1. Proposal attached to agenda.
- **Proposed Amendment to Section 1203.2** – The proposal intends to revise certain energy conservation\insulation requirements of the International Building Code (IBC), International Residential Code (IRC) and International Existing Building Code (IEBC). Proposals are attached to this agenda.
- **Proposed Amendment to Section 110.R3.6.2** – The proposal intends to revise the referenced sections of the manufactured buildings regulations concerning certain plan submittals. Proposal attached to agenda.
- **Proposed Amendment to Chapter 110.R3** – The proposal intends to revise certain sections of Chapter 110.R3 concerning construction trailer requirements. Proposal attached to agenda.
- **Proposed Amendment to Construction Supervisor License Requirements** – The proposal intends to revise certain sections of Chapters 1 and Chapter 110.R5 concerning the new for construction supervisor license supervision. Proposal attached to agenda.
- **Proposed Amendment to Construction Supervisor License Continuing Education Requirements** – The proposal intends to revise sections of Chapter 110.R5 concerning continuing education requirements. Proposal and comments received are attached to agenda.
- **Proposed Amendment to Section AJ102.3.2 and AJ102.3.3** – The proposal intends to revise the referenced sections of the International Residential Code concerning certain smoke and c\o detection requirements. Proposal attached to agenda.
- **Proposed Amendment to Reconsider EV Charging Stations** – The proposal intends to revise certain sections of the International Energy Conservation Code to require fit-up for EV. Proposal and comments received are attached to agenda.

4. **Discuss** follow-up actions regarding manufactured buildings program.
- **Establish Working Group Membership**

5. **Discuss** proposals, procedures and timelines for May Public Hearing.
- **2018 International Energy Conservation Code**
- **Tiny Houses**
- **Micro Units**
- **Solar Readiness**
- **NFPA 241**
- **NFPA 130**
- **Swimming Pool & Spa Code**

6. **Discuss** March, June & July meeting schedule.

7. **Discuss\Interpret** sprinkler requirements for new transient lodging facilities, including bed and breakfast facilities, and newly created rooms that would be leased to transient lodgers.
8. **Review\Vote** request for interpretation of sprinklers in large, renovated (*enlarged*) single- or two-family homes, exceeding 14,400 square feet.

9. **Update** concerning recent construction fires and NFPA 241 construction control related issues.

10. **Discuss** the Fire Prevention Association of Massachusetts (FPAM).
- Lt. Chris Towski

11. **Discuss** reflected light issues.

12. **Discuss\Vote** fire service access elevator narrative requirements.

13. **Consider\Vote** approval of 53 new CSLs issued in the month of December, 2017.

14. **Discuss\Vote** CSL Average Passing Score/Medical/Military/Continuing Education Requirements.
    - None this month

15. **Discuss** other matters not reasonably anticipated 2 business days in advance of meeting.

DRAFT 9TH ED RESIDENTIAL CODE PROPOSED AMENDMENTS REINSERTING COASTAL A ZONE REFERENCES

Insert (or delete) the following language:

R107.1.4 Information for construction in flood hazard areas. For buildings and structures located in whole or in part in flood hazard areas as established by Table R301.2(1), construction documents shall include:

1. Delineation of flood hazard areas, floodway boundaries and flood zones and the design flood elevation, as appropriate.
2. The elevation of the proposed lowest floor, including basement; in areas of shallow flooding (AO Zones), the height of the proposed lowest floor, including basement, above the highest adjacent grade.
3. The elevation of the bottom of the lowest horizontal structural member in coastal high hazard areas (V Zones) and in Coastal A Zones where such zones are delineated on flood hazard maps identified in Section 322.1.1.
4. If design flood elevations are not included on the community's Flood Insurance Rate Map (FIRM), the building official and the applicant shall obtain and reasonably utilize any design flood elevation and floodway data available from other sources.

R301.2.4 Revise subsection as follows:

R301.2.4 Floodplain construction. Buildings and structures constructed in whole or in part in flood hazard areas (including AO, A, Coastal A or V Zones) or *coastal dunes* as established in Section R322.1.1, and substantial improvement and restoration of substantial damage of buildings and structures in flood hazard areas or *coastal dunes*, shall be designed and constructed in accordance with Section R322. Buildings and structures that are located in more than one flood hazard area or *coastal dune* shall comply with the most restrictive provisions of all those flood hazard areas and *coastal dunes*. Buildings and structures located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24.

R322.1 Replace the section as follows:

R322.1 General. Buildings and structures constructed in whole or in part in flood hazard areas and *coastal dunes,* and substantial improvement and restoration of substantial damage of buildings and structures in those areas shall be designed and constructed in accordance with the provisions contained in this section. Buildings and structures located in more than one flood hazard area and *coastal dunes* shall comply with the most restrictive provisions. Buildings and structures located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24. See Section R105.3.1.1 for substantial improvements and damage and see Section R309 for garage requirements. Flood hazard areas include the following:

1. AO zones, where shallow flooding exists without waves,
2. A zones, ~~and~~
3. Coastal A zones, where wave heights are greater than or equal to 1 1/2 feet but less than 3 feet, and
4. ~~3.~~ V zones, where high velocity wave action exists and wave heights are greater than or equal to 3-feet.

R322.1.1 Replace the subsection as follows:

R322.1.1 Base flood elevation, flood maps, delineations and definitions. For base flood elevation and mapping resources see the following:

1. Flood hazard areas and base flood elevations are identified on a community's current effective Flood Insurance Rate Map (FIRM) or Flood Hazard Boundary Map (FHBM), whichever is applicable, and further defined in the current effective Flood Insurance Study (FIS) where applicable.
2. Floodways are delineated on a community's current effective FIRM or Flood Boundary & Floodway Map, whichever is applicable, and further defined in the current effective FIS.
3. If a community has received a preliminary FIRM and FIS from FEMA, and has been issued a Letter of Final Determination (LFD) from FEMA, the community shall use the preliminary FIRM and FIS to determine applicable flood zones, base flood elevations and floodways as of the date of the LFD.
4. Coastal A zones are delineated on the National Flood Hazard Layer (available on FEMA's Map Service Center).
5. ~~4.~~ *Coastal wetlands resource areas* are defined on the "Map of Coastal Wetland Resources for Building Officials."

R322.1.4 Revise the subsection as follows:

R322.1.4 Establishing the design flood elevation. The design flood elevation in Massachusetts shall be as follows:

1. For AO Zones the design flood elevation shall be the elevation of the highest adjacent grade plus the flood depth specified on the FIRM plus one (1) foot or the elevation of the highest adjacent grade plus three (3) feet if no flood depth is specified. See Section R322.2 for requirements.
2. For A Zones the design flood elevation shall be the base flood elevation plus one (1) foot. See Section R322.2 for requirements.
3. For Coastal A Zones and V Zones the design flood elevation shall be the base flood elevation plus two (2) feet. See Section R322.3 for requirements.
4. For coastal dunes see Section R322.4 for requirements.

DRAFT 9TH ED RESIDENTIAL CODE PROPOSED AMENDMENTS REINSERTING COASTAL A ZONE REFERENCES

R322.1.9 Revise the subsection as follows:

R322.1.9 Manufactured homes. The bottom of the frame of new and replacement *manufactured homes* on foundations that conform to the requirements of Section R322.2 or R322.3 and R322.4, as applicable, shall be elevated to or above the elevations specified in Section R322.2 (*flood hazard areas* including AO and A Zones) or R322.3 in coastal high-hazard areas (V Zones and Coastal A Zones) and R322.4 in *coastal dunes*. The anchor and tie-down requirements of the applicable state or federal requirements shall apply. The foundation and anchorage of *manufactured homes* to be located in identified floodways shall be designed and constructed in accordance with ASCE 24.

R322.3 through R322.3.7 Revise the section and subsections as follows:

R322.3 Coastal high-hazard areas (including V Zones and Coastal A Zones). Buildings and structures constructed in whole or in part in V and Coastal A Zones shall be designed and constructed in accordance with Sections R322.3.1 through R322.3.6.

R322.3.1 Location and site preparation. New buildings and buildings that are determined to be substantially improved pursuant to Section R105.3.1.1 shall be located landward of the reach of mean high tide.

R322.3.2 Elevation requirements.

1. Buildings and structures, shall be elevated so that the bottom of the lowest portion of horizontal structural members supporting the lowest floor, with the exception of pilings, pile caps, columns, grade beams and bracing, is elevated to the design flood elevation.
2. Basement floors that are below *grade* on all sides are prohibited.
3. The use of fill for structural support is prohibited.
4. Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways. Fill is prohibited unless such fill is constructed and/or placed to avoid diversion of water and waves toward any building or structure.
5. Walls and partitions enclosing areas below the design flood elevation shall meet the requirements of Sections R322.3.4 and R322.3.5.
6. For lateral additions in V Zones that are not a substantial improvement, only the addition shall be elevated so that the bottom of the lowest horizontal structural member of the lowest floor with the exception of pilings, pile caps, columns, grade beams and bracing, is located at an elevation that is at least the design flood elevation.

R322.3.3 Foundations. Buildings and structures erected in coastal high-hazard areas and Coastal A Zones shall be supported on pilings or columns and shall be adequately anchored to such pilings or columns. The space below the elevated building shall be either free of obstruction or, if enclosed with walls, the walls shall meet the requirements of Section R322.3.4. Pilings shall have adequate soil penetrations to resist the combined wave and wind loads (lateral and uplift). Water-loading values used shall be those associated with the design flood. Windloading values shall be those required by this code. Pile embedment shall include consideration of decreased resistance capacity caused by scour of soil strata surrounding the piling. Pile systems design and installation shall be certified in accordance with Section R322.3.6. Spread footing, mat, raft or other foundations that support columns shall not be permitted where soil investigations that are required in accordance with Section R401.4 indicate that soil material under the spread footing, mat, raft or other foundation is subject to scour or erosion from wave-velocity flow conditions. If permitted, spread footing, mat, raft or other foundations that support columns shall be designed in accordance with ASCE 24. Slabs, pools, pool decks and walkways shall be located and constructed to be structurally independent of buildings and structures and their foundations to prevent transfer of flood loads to the buildings and structures during conditions of flooding, scour or erosion from wave-velocity flow conditions, unless the buildings and structures and their foundations are designed to resist the additional flood load.

Exception: In Coastal A Zones, stem wall foundations supporting a floor system above and backfilled with soil or gravel to the underside of the floor system shall be permitted provided the foundations are designed to account for wave action, debris impact, erosion and local scour. Where soils are susceptible to erosion and local scour, stem wall foundations shall have deep footings to account for the loss of soil.

DRAFT 9TH ED. BASE CODE PROPOSED AMENDMENTS REINSERTING COASTAL A ZONE REFERENCES

Insert the following definitions in Chapter 2.

COASTAL A ZONE. Area within a *special flood hazard area*, landward of a V zone or landward of an open coast without mapped *coastal high hazard areas*. In a coastal A zone, the principal source of flooding must be astronomical tides, storm surges, seiches or tsunamis, not riverine flooding. During the base flood conditions, the potential for breaking wave height shall be greater than or equal to 1 ½ feet (457 mm). The inland limit of the coastal A zone is the Limit of Moderate Wave Action on the National Flood Hazard Layer (available on FEMA's Map Service Center).

LIMIT OF MODERATE WAVE ACTION. Line shown on the National Flood Hazard Layer to indicate the inland limit of the 1 ½ - foot (457 mm) breaking wave height during the base flood.

1603.1.7 Revise subsection as follows:

> **1603.1.7 Flood design data.** For buildings located in whole or in part in *flood hazard areas* as established in Section 1612.3, the documentation pertaining to design, if required in Section 1612.5, shall be included and the following information, referenced to the datum of the *base flood elevation*, shall be shown, regardless of whether flood loads govern the design of the building:

1. Flood design class assigned according to ASCE 24.
2. In *flood hazard areas* other than *coastal high hazard areas* or *coastal A zones*, the elevation of the proposed lowest floor, including the basement.
3. In *flood hazard areas* other than *coastal high hazard areas* or *coastal A zones*, the elevation to which any nonresidential building will be dry floodproofed.
4. In *coastal high hazard areas* and *coastal A zones*, the proposed elevation of the bottom of the lowest horizontal structural member of the lowest floor, including the basement.

1612.4 Revise section as follows:

> **1612.4 Design and construction.** The design and construction of buildings and structures located in flood hazard areas, including coastal high hazard areas and coastal A zones, shall be in accordance with Chapter 5 of ASCE 7 and ASCE 24. ~~*In using ASCE 24-14, delete all references to coastal A zone standards.*~~ For minimum elevation requirements for lowest floor, bottom of lowest horizontal structural member, utilities, flood-resistant materials and wet and dry floodproofing refer to tables in ASCE 24 which are to be amended as shown below. The design and construction of buildings and structures located in coastal dunes shall be in accordance with Appendix G.

DRAFT 9TH ED. BASE CODE PROPOSED AMENDMENTS REINSERTING COASTAL A ZONE REFERENCES

		Flood Design Class 1	Flood Design Class 2	Flood Design Class 3	Flood Design Class 4
Minimum Elevation* of Lowest Floor (Zone A: ASCE 24-14 Table 2-1)	Zone A	BFE + 1 ft	BFE + 1 ft	BFE + 1 ft	BFE + 2 ft or 500-year flood elevation, whichever is higher
Minimum Elevation of Bottom of Lowest Horizontal Structural Member (ASCE 24-14 Table 4-1)	Zone V/ Coastal A	BFE + 2 ft	BFE + 2 ft	BFE + 2 ft	BFE + 2 ft or 500-year flood elevation, whichever is higher
Minimum Elevation Below Which Flood-Damage-Resistant Materials Shall be Used (Table ASCE 24-14 5-1)	Zone A	BFE + 1 ft	BFE + 1 ft	BFE + 1 ft	BFE + 2 ft or 500-year flood elevation, whichever is higher
	Zone V/ Coastal A	BFE + 2 ft	BFE + 2 ft	BFE + 2 ft	BFE + 2 ft or 500-year flood elevation, whichever is higher
Minimum Elevation** of Utilities and Equipment (ASCE 24-14 Table 7-1)	Zone A	BFE + 1 ft	BFE + 1 ft	BFE + 1 ft	BFE + 2 ft or 500-year flood elevation, whichever is higher
	Zone V/ Coastal A	BFE + 2 ft	BFE + 2 ft	BFE + 2 ft	BFE + 2 ft or 500-year flood elevation, whichever is higher
Minimum Elevation of Dry Floodproofing of non-residential structures and non-residential portions of mixed-use buildings (ASCE 24-14 Table 6-1)	Zone A	BFE + 1 ft	BFE + 1 ft	BFE + 1 ft	BFE + 2 ft or 500-year flood elevation, whichever is higher
	Zone V/ Coastal A	Not Permitted	Not Permitted	Not Permitted	Not Permitted
Minimum Elevation of Wet Floodproofing*** (ASCE 24-14 Table 6-1)	Zone A	BFE + 1 ft	BFE + 1 ft	BFE + 1 ft	BFE + 2 ft or 500-year flood elevation, whichever is higher
	Zone V/ Coastal A	Not Permitted	Not Permitted	Not Permitted	Not Permitted

*Flood Design Class 1 structures shall be allowed below the minimum elevation if the structure meets the wet floodproofing requirements of ASCE 24-14 Section 6.3.

**Unless otherwise permitted by ASCE 24-14 Chapter 7.

***Only if permitted by ASCE 24-14 Section 6.3.1.

Note: In V zones location of utilities and equipment to the indicated level is required. Protection of utilities and equipment below the indicated level is not accepted.

The Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

Charles D. Baker
GOVERNOR

Karyn E. Polito
LIEUTENANT GOVERNOR

Matthew A. Beaton
SECRETARY

Tel: (617) 626-1000
Fax: (617) 626-1081
http://www.mass.gov/envir

January 30, 2018

Mr. Richard Crowley, Chair
Mr. Robert Anderson, Chief of Inspections
Board of Building Regulations and Standards
Office of Public Safety and Inspections
One Ashburton Place – Room 1301
Boston, MA 02108

Dear Mr. Crowley, Mr. Anderson, and Members of the Board—

I am writing to express my strong support for a proposed amendment to the 9th Edition of the State Building Code that is before the Board of Building Regulations and Standards.

The amendment under your consideration proposes standards that require new or substantially modified buildings in the Coastal A Zone, which is a high-hazard flood zone subject to breaking waves between 1.5 and 3 feet, to be elevated and supported on piles, or similar foundations. These standards are based on the 2015 International Building Code which, as you know, is the global standard for comprehensive building safety and fire prevention. In 2010, the 8th Edition State Building Code adopted the 2009 International Building Codes (I-Code) standard which included provisions requiring that new or substantially modified buildings in V Zones—the coastal high hazard area subject to breaking waves 3 feet and higher—to be elevated 2 feet above the mapped Base Flood Elevation. The 2015 I-Code standards for Coastal A Zones reflect data and information from post-storm damage assessments that find that typical A Zone construction practices (e.g., wood-frame, light gauge steel or masonry walls on shallow footings or slabs, etc.) are subject to damage when exposed to less than 3-foot breaking waves.

The 2015 I-Code incorporates by reference the American Society of Civil Engineers' Standards for Flood Resistant Design and Construction (2005 and 2014) and specifies that new (or

substantially modified) buildings in Coastal A Zones must be elevated above Base Flood Elevation and use open foundations (pile or pier) designed to resist flood conditions including waves, high velocity flow, erosion and scour, and floodborne debris.

My Office of Coastal Zone Management (CZM) and the Flood Hazard Management Program of my Department of Conservation and Recreation (DCR) have worked closely with the Board on these proposed revisions. To develop consistent, accurate, and accessible maps of Coastal A Zones boundaries for the entire coast, CZM and DCR worked with a consultant to generate a statewide set of Coastal A Zone Maps. These maps were developed with best practices and available data and information including flood studies, Flood Insurance Rate Maps, and FEMA official operating guidance. The Coastal A Zone standards were originally proposed for the first release of the 9th Edition; however, in coordination with the Governor's Office, EEA, and EOPSS, it was agreed that the proposed standards would be put on hold until FEMA completed a formal review and adoption of the maps depicting the Coastal A Zone / Limit of Moderate Wave Action line for the entire Massachusetts coast. In September 2017, FEMA formally adopted the revised the Coastal A Zone / Limit of Moderate Wave Action line and have incorporated the final maps and data into their National Flood Hazard data Layer. These maps are now widely accessible to the public along with similar hazard data and information. The mapped Coastal A Zone totals about 30 square miles which is less than 11% of the mapped A Zone in coastal communities. Of that area, about 9 square miles is upland (3% of mapped A Zone in coastal communities) and the rest is open water, salt marsh and wetland.

The standards represent the current state of building best practices and we believe that adopting the proposed amendment is in the best interest of the Commonwealth and will reduce risks from storm surge, flooding, and other impacts from coastal storms and increase the resilience of property, public safety, and local/regional economies. The significant and widespread impacts from the recent winter Nor'easter serve as a stark reminder of the vulnerability of our coastal areas under today's and future conditions. We must not defer the adoption and implementation of these standards any longer.

Sincerely,

Matthew A. Beaton
Secretary

goulston&storrs
counsellors at law

Timothy W. Sullivan
tsullivan@goulstonstorrs.com
(617)574-4179 (tel)
(617) 574-7872 (fax)

January 3, 2018

Board of Building Regulations and Standards
One Ashburton Place, Room 1301
Boston, Massachusetts 02108

Re: Concerns Regarding Proposed Coastal A Zone Amendments

Chairman Crowley and Members of the Board:

Thank you for allowing us an opportunity to comment on the proposed Amendments to incorporate a Coastal A Zone and associated restrictions into the 9th Edition of the State Building Code.

As you may know, we represent many owners of properties in waterfront areas throughout the Commonwealth, including New England Development, who has large holdings in Nantucket and Newburyport. Our client is therefore invested in building storm-resistant structures that are resilient to storm surge and flooding damage. Accordingly, our client supports the Board's efforts to ensure that construction standards continue to evolve in response to changing climatic conditions in order to mitigate risks to property and public safety.

We are, however, concerned with the significant impacts that these changes will have on waterfront development in the Commonwealth and would suggest that the proposed changes be developed in the context of the broader policy goals of the Commonwealth and integrated within the existing regulatory framework in order to prevent, in effect, a moratorium on waterfront development.

We would like the opportunity to meet with you and your staff to discuss our concerns and to assist in developing an approach that responds to coastal and industry issues. In the interim, we have attached bullet points summarizing our concerns, some of which are highlighted below. Ultimately, we request that you continue your consideration of the proposed Coastal A Zone changes to the State Building Code until the impacts of such changes are more completely understood and addressed, especially with respect to the points described below and in the attached.

A few specific concerns:

- As we understand the proposed changes, new "Coastal A Zone" standards are adopted by reference to the Flood Insurance Rate Maps (FIRMs), which will **extend V Zone construction standards to certain coastal areas currently**

designated as A Zones by FEMA. We have serious concerns as to the impact of the proposed Coastal A Zone standards, particularly as to their effect on waterfront commercial development. We note that the FIRMs are established for the purpose of delineating boundaries for residential flood insurance rates. While commercial properties are not offered the benefit of such flood insurance, **the proposed Coastal A Zone changes to the State Building Code would subject commercial properties to the same developmental parameters as residential properties** (e.g., with respect to design and elevation, as described below).

- **We are also concerned with the lack of certainty as to the boundary and geographic scope of the proposed Coastal A Zone**. The landward boundary of the proposed Coastal A Zone (the "LiMWA") that is reflected in FEMA's National Flood Hazard Layer is not current (i.e., it does not incorporate all of the map revisions affecting the LiMWA that have been adopted to date). Further, because prior requests for map revisions (e.g., LOMRs) pre-date the LiMWA, it is not clear how this data layer can be updated. As a result, it is impossible to conclusively determine whether a property will be affected by the proposed changes.

- **In actuality, the Coastal A Zone is between 10 and 11% of the mapped A Zone in the Commonwealth, resulting in a total of approximately 30 square miles of Coastal A Zone in the Commonwealth. Recent presentations by state agencies have described the Coastal A Zone as comprising less than 1% of such mapped A Zone, resulting in a total of approximately 2.1 square miles of Coastal A Zone in the Commonwealth.**

- Pursuant to Section 1612.1 of the State Building Code, **buildings that are located in more than one flood zone must comply with the most restrictive provisions of all those flood zones**. The scope of impact of the proposed changes is not 30 square miles, but rather, 30 square miles plus the total area of any building or structure that extends from a less restrictive zone into such Coastal A Zone area.

- The proposed Coastal A Zone standards explicitly prohibit underground parking (even if dry floodproofing is provided), and require that all commercial (non-habitable) construction be located significantly above grade in conformance with the elevation and construction standards applied to residential (habitable) construction, without exception. In addition to elevation requirements, **the changes also prohibit underground parking, often an indispensable component of commercial construction along the coast**.

- The proposed Coastal A Zone standards are inconsistent with the purposes and objectives of several local and state regulations. If adopted, **the changes will lead to numerous regulatory conflicts that can and should be avoided**. For

example, the proposed changes increase pressure to fill wetland resource areas and riverfront areas of tidal rivers to accommodate commercial uses in flood zones, whereas fill is generally discouraged under local and state wetlands protection regulations. Similarly, elevation of commercial (public) spaces 1 to 2 feet above the BFE may result in structures located 5 to 15 feet above existing grade, conflicting directly with the public activation of waterfront required by the Chapter 91 regulations, and potentially actually resulting in greater privatization of waterfront, contrary to the intent of the waterways regime. By requiring additional elevation, the proposed changes also directly conflict with local, state, and federal accessibility requirements, increasing burdens on disabled patrons and residents.

- **The Board's ability to authorize variances from the proposed regulations would do little to ensure project viability**, as project financing is premised on certainty, and few developers would be willing (or able) to finance initial development costs on the hope that they are ultimately successful in obtaining discretionary relief from the Board. To the extent that the proposed changes make waterfront commercial development unviable, loss of a sizable number of construction and permanent jobs and project-based revenue for municipalities would result.

Although the proposed changes raise significant due process, methodological, regulatory and economic concerns, we feel that the goals and objectives of the proposed Amendments can be achieved through attentive coordination between your Board; local, state, and federal regulatory bodies (including local zoning boards, MassDEP's Waterways Division, and access boards); and industry. Recognizing the complexity of these issues, we appreciate the opportunity to work with your staff and others to help develop a comprehensive approach that addresses emerging Coastal A Zone issues in a manner that will minimize slowdowns in waterfront development.

We would look forward to working with your staff and others in the coming weeks and months to develop solutions to these challenging issues.

Thank you.

Very truly yours,

Timothy W. Sullivan, Esq.

cc: John E. Twohig, Esq., New England Development

and forces siting of parking at grade in dead spaces under elevated buildings. The proposed changes also make expansion of water transportation facilities difficult and costly.

- Wetlands Protection. The proposed changes **increase pressure to fill wetland resource areas** and riverfront areas of tidal rivers to accommodate commercial uses in Coastal A Zones, whereas fill is generally discouraged under local and state wetlands protection regulations. The proposed changes also hamper further hazardous waste cleanups on the waterfront.

- Accessibility. By requiring additional elevation, the proposed changes directly conflict with local, state, and federal accessibility requirements, **increasing burdens on disabled patrons and residents**.

- Zoning. The proposed changes also serve to **reduce building heights and "occupiable" floors**, thereby making desirable waterfront projects unviable and limiting development deemed appropriate and desirable by local zoning controls and master planning efforts.

- Historic. By requiring construction designs incompatible with local standards, criteria, and historic aesthetics, **the proposed changes will impact numerous historic resources** located along the commonwealth's coastline, frustrating the intent of historic regulations.

- Executive Order 562. As a result of the many regulatory conflicts that the proposed changes would create, the proposed changes run **counter to Governor Baker's Executive Order 562**, which calls upon state agencies to eliminate regulations that impose unnecessary cost, burden and complexity.

ECONOMIC IMPACTS

- The proposed changes would greatly **increase the cost of construction** along the coast and, if adopted, may stifle many desirable waterfront projects, including projects that would otherwise create much-needed subsidized, low-income, or senior housing, and promote urban renewal.

- As a result, **municipalities would be forced to forgo millions of dollars in projected revenue** from permit fees, real estate taxes, and other project-related revenue streams.

- Abandoning waterfront projects would also result in a **loss of a considerable number of construction and permanent jobs**.

ADDITIONAL CONCERNS

- T**he proposed changes do not allow for technological solutions**, such as installation of wave attenuators to eliminate wave damage.
- Incorporating the proposed Coastal A Zone changes to the State Building Code would produce significant due process, regulatory, and economic impacts that can and should be avoided.

clf
conservation law foundation

For a thriving New England

CLF Massachusetts
62 Summer Street
Boston MA 02110
P: 617.350.0990
F: 617.350.4030
www.clf.org

December 8, 2017

Chairperson Richard Crowley
Board of Building Regulations and Standards
1 Ashburton Place, Room 1301
Boston, MA 02108
ATTN: Robert Anderson

Subject: Proposed Coastal A Zone Amendments

Dear Chairperson Crowley:

Conservation Law Foundation (CLF) strongly supports the reintroduction of Coastal A Zone requirements into the 9th editions base residential and commercial codes. We urge the Board of Building Regulations and Standards (BBRS) to approve this proposal, which will help to address the public safety risks associated with construction in the coastal floodplain.

CLF is a regional environmental advocacy organization committed to preserving New England's natural resources, building healthy communities, and sustaining a vibrant economy. In the face of climate change, achieving these goals is more challenging and important than ever. As our region confronts increases in sea level rise, precipitation, extreme heat, and the intensity of storm events, we need to be proactive in developing resilient infrastructure.

The Massachusetts coastline is highly vulnerable to flood impacts and this risk is only expected to increase over time. Aspects of this proposal that would help to address current and future vulnerabilities include:

- Requiring that residential construction in the Coastal A Zone delineate flood zones in construction documents;
- Requiring that residential construction the Coastal A Zone adhere to a design flood elevation of base flood elevation plus two (2) feet;
- Requiring that construction in the Coastal A Zone be designed to flood resistant construction standards.

These changes will complement the Administration's ongoing initiatives to address climate change pursuant to Executive Order 569 by reducing the vulnerability of our coastal infrastructure to flood impacts.

While this amendment is an important first step towards protecting Massachusetts residents, assets, and infrastructure from current and future flood risks, we encourage BBRS to consider other ways the state construction codes can be amended to more fully protect against the climate conditions we are facing.

Current building codes and standards rely on historic weather data without accounting for changing climate conditions, such as the frequency of future floods, heat waves, and precipitation. Other countries have already begun to recognize the inadequacy of codes in the climate change context. For example, according to the Australian Building Codes Board, the Building Code of Australia is "likely to be deficient in some areas" in the event of "climate changes in accordance with high emissions scenarios." In Canada, there is an ongoing effort to update building codes to reflect climate change. New York City has even recognized that codes that rely on historic weather data are inadequate and dangerous.

In Massachusetts, it is well-documented that we will experience higher temperatures, increased heavy precipitation events, a rising sea level, and more intense storm events. In some cases, we are already experiencing these impacts. This is a statewide public safety concern that we must address now in order to avoid devastating impacts in the future.

Thank you for the opportunity to comment. If you have any questions, please contact Deanna Moran at dmoran@clf.org.

Sincerely,

Deanna Moran

Deanna Moran
Director, Environmental Planning

Anderson, Robert (DPL)

From:	David C. Macartney <dmacartney@comcast.net>
Sent:	Tuesday, January 23, 2018 2:46 PM
To:	Anderson, Robert (DPL)
Cc:	Twohig, John E.
Subject:	Proposed code amendment
Attachments:	Propopsed compromise amendment to Coastal A Zone code changes.pdf; ASCE_Table_Compromise.pdf

Rob,

As you may know, I have been working with Paul J. Moriarty and Associates on behalf of New England Development, specifically on the proposed flood plain amendments to add Coastal A zone requirements to the Ninth Edition building code. Attached is a proposed amendment we would like to submit to the modify those proposed Coastal A Zone flood plain amendments.

Please contact me if you require anything further at this time.

Best regards,

Dave Macartney
PAUL J.MORIARTY AND ASSOCIATES
Senior Associate

Proposal to Modify Flood Plain Coastal A Zone Amendments

It is proposed to further modify the proposed Basic/Commercial Coastal A Zone provisions by inserting the following items:

Change proposed new Section1612.4 by adding the following exception:

> Exception: In the Coastal A Zone, non-residential structures and non-residential portions of mixed-use buildings, including basements, shall be allowed below the design flood elevation subject to the dry floodproofing requirements of ASCE 24-14, Sec. 6.2

Insert the attached modified summary table of ASCE 24-14 requirements:

DRAFT 9TH ED. BASE CODE PROPOSED AMENDMENTS REINSERTING COASTAL A ZONE REFERENCES

		Flood Design Class 1	Flood Design Class 2	Flood Design Class 3	Flood Design Class 4
Minimum Elevation* of Lowest Floor (Zone A: ASCE 24-14 Table 2-1)	Zone A	BFE + 1 ft	BFE + 1 ft	BFE + 1 ft	BFE + 2 ft or 500-year flood elevation, whichever is higher
Minimum Elevation of Bottom of Lowest Horizontal Structural Member (ASCE 24-14 Table 4-1)	Zone V/ Coastal A	BFE + 2 ft	BFE + 2 ft	BFE + 2 ft	BFE + 2 ft or 500-year flood elevation, whichever is higher
Minimum Elevation Below Which Flood-Damage-Resistant Materials Shall be Used (Table ASCE 24-14 5-1)	Zone A	BFE + 1 ft	BFE + 1 ft	BFE + 1 ft	BFE + 2 ft or 500-year flood elevation, whichever is higher
	Zone V/ Coastal A	BFE + 2 ft	BFE + 2 ft	BFE + 2 ft	BFE + 2 ft or 500-year flood elevation, whichever is higher
Minimum Elevation** of Utilities and Equipment (ASCE 24-14 Table 7-1)	Zone A	BFE + 1 ft	BFE + 1 ft	BFE + 1 ft	BFE + 2 ft or 500-year flood elevation, whichever is higher
	Zone V/ Coastal A	BFE + 2 ft	BFE + 2 ft	BFE + 2 ft	BFE + 2 ft or 500-year flood elevation, whichever is higher
Minimum Elevation of Dry Floodproofing of non-residential structures and non-residential portions of mixed-use buildings (ASCE 24-14 Table 6-1)	Zone A/ Coastal A	BFE + 1 ft	BFE + 1 ft	BFE + 1 ft	BFE + 2 ft or 500-year flood elevation, whichever is higher
	Zone V ~~Coastal A~~	Not Permitted	Not Permitted	Not Permitted	Not Permitted
Minimum Elevation of Wet Floodproofing*** (ASCE 24-14 Table 6-1)	Zone A	BFE + 1 ft	BFE + 1 ft	BFE + 1 ft	BFE + 2 ft or 500-year flood elevation, whichever is higher
	Zone V/ Coastal A	Not Permitted	Not Permitted	Not Permitted	Not Permitted

*Flood Design Class 1 structures shall be allowed below the minimum elevation if the structure meets the wet floodproofing requirements of ASCE 24-14 Section 6.3.

**Unless otherwise permitted by ASCE 24-14 Chapter 7.

***Only if permitted by ASCE 24-14 Section 6.3.1.

Note: In V zones location of utilities and equipment to the indicated level is required. Protection of utilities and equipment below the indicated level is not accepted.

NAIOP
COMMERCIAL REAL ESTATE
DEVELOPMENT ASSOCIATION
MASSACHUSETTS

January 5, 2018

Mr. Richard Crowley, Chair
Board of Building Regulations & Standards
One Ashburton Place
Room 1301
Boston, MA 02108

Re: Opposition to Electric Vehicle and Coastal A Zone Amendments to 9th Edition of State Building Code

Dear Chairman Crowley and Board Members:

NAIOP Massachusetts, The Commercial Real Estate Development Association, appreciates the opportunity to provide feedback on the proposed amendments to the 9th Edition of the State Building Code. NAIOP represents the interests of more than 1700 members involved with the development, ownership, management, and financing of more than 250 million square feet of office, research & development, multifamily, industrial, mixed use, and retail space in the Commonwealth.

Given the significant impact two of the proposed amendments would have on commercial real estate in Massachusetts, NAIOP's comments will address the following proposals:

1) The adoption of Coastal A Zone maps

2) Electric Vehicle mandates requiring all Group A-1, B, E, I, M and R buildings with 4 or more passenger vehicle parking spots to provide EV Ready spaces for a percentage of parking not less than 5% of the first 80 spaces and 3% of all parking spaces more than 80.

Opposition to Electric Vehicle Mandates in Building Code

As NAIOP has repeatedly communicated to Board members when similar amendments have been proposed and voted down by the Board (as recently as May 2017), the **electric vehicle provisions are in direct conflict with MGL c. 143 §95:**

> *Section 95. The powers and duties of the board set forth in section ninety-four shall be exercised to effect the following general objectives:*
>
> *(a)* ***Uniform standards and requirements*** *for construction and construction materials, compatible with accepted standards of engineering and fire prevention practices, energy conservation and public safety. In the formulation of such standards and requirements, performance for the use intended shall be the test of acceptability, in accordance with accredited testing standards.*
>
> *(b) Adoption of modern technical methods, devices and improvements which may* ***reduce the cost of construction and maintenance over the life of the building***

> *without affecting the health, safety and security of the occupants or users of buildings.*
>
> *(c) Elimination of restrictive, obsolete, conflicting and unnecessary building regulations and requirements which may* ***increase the cost of construction and maintenance over the life of the building*** *or retard unnecessarily the use of new materials, or which* ***may provide unwarranted preferential treatment of types of classes of materials, products or methods of construction without affecting the health, safety, and security of the occupants or users of buildings****.*

Clearly, the proposed mandates give preferential treatment to electric vehicles, increase the cost of construction of the building, and will have no impact on the health, safety or security of the occupants or users of the building.

It should be up to the developer or owner, not the Commonwealth, to determine the best technologies to respond to market demand for electric vehicle infrastructure. Furthermore, since the EV charging stations would actually **result in increased energy consumption at the building**, it would appear to be in direct conflict with the above referenced building code statute.

While encouraging residents to purchase electric vehicles may be a worthy goal for the Commonwealth, **the building code is not the appropriate way to encourage the growth of specific sectors of the economy**. Furthermore, while electric vehicles may be popular now, there may be other technologies that surpass them in the coming years. Technological advances may eliminate the need for specific spaces to be dedicated to EVs, portable chargers may become commonplace, and gas stations may become obsolete and instead become dedicated rapid charging centers. If the Baker Administration is committed to growing the electric vehicle industry, then incentives (not mandates) outside of the building code should be considered.

For these reasons, NAIOP urges the Board to reject this and any future electric vehicle mandates as part of the building code.

Coastal A Zone Maps Need Additional Review & Consideration

NAIOP Massachusetts has long been one of the leading business groups advocating for a coordinated approach between the public and private sectors with respect to climate change planning. There is no question that climate change has a significant impact on the overall economy; directly, by damaging structures, and indirectly, by compromising transportation systems, communications, and utilities. NAIOP supported Governor Baker's Executive Order 569, which directed the Administration to develop and implement a statewide comprehensive climate adaptation plan.

We are grateful to Office of Coastal Zone Management Director Bruce Carlisle and his team for taking the time to educate NAIOP members about the proposed Coastal A Zone maps and the impact they will have on commercial property owners and future development in Massachusetts. While his team's December 5, 2017 presentation was extremely informative, it created many questions about the land that will be regulated under these new maps.

First, the use restrictions proposed under the Coastal A zone maps mirror those of V zones and would create numerous regulatory conflicts at the state and local levels. The required elevation of ground floor commercial spaces to 1-2 feet above the Base Flood Elevation (BFE) may result in structures located 5 – 10 feet above existing grade. It is unclear how this would impact the Facilities of Public Accommodation requirements under Chapter 91, which were created with the goal of encouraging a vibrant, accessible waterfront. Furthermore, if allowable height is not increased at the local level through zoning changes, then a project's financial viability may be at risk. Finally, how would owners and developers comply with the increased elevation requirements *and* federal and state accessibility requirements? These are just a few of the significant concerns that have been raised by those who own affected property or are contemplating important economic development projects along the waterfront in these proposed zones.

Second, while the Coastal A Zone maps include 30 square miles of waterfront, if a building is located in more than one flood zone it must comply with the most restrictive flood zone requirements. Therefore, if even a small portion of a building is included in a Coastal A zone, the entire project would be affected – making the total amount of affected area far greater than 30 square miles.

Third, and most importantly, while the Coastal A Zone use restrictions may make sense for single family homes along the beach, the same restrictions should not be used for commercial properties, particularly those in urban areas with structured seawalls. Wave and flood conditions in Coastal A Zones (wave heights of 1.5 – 3ft) are very different from V zones and should not be regulated in the same manner. While exposure to 1.5 ft. waves may be concerning for a small wood frame home, it would have little to no impact on a typical commercial property. Furthermore, the resulting prohibition of underground parking makes little sense for commercial properties (particularly where dry floodproofing would typically be provided).

For these reasons, NAIOP urges the Board not to approve the Coastal A Zone maps at this time. Instead, we urge the Baker Administration to address the many conflicts and uncertainties created by the new maps and to limit the proposed use restrictions only to single family homes.

We would be happy to meet to discuss our concerns with you at your convenience. Thank you for considering our comments.

Sincerely,

Tamara C. Small
Senior Vice President, Government Affairs
NAIOP Massachusetts, The Commercial Real Estate Development Association

Cc: Secretary Mathew Beaton, Executive Office of Energy & Environmental Affairs
Undersecretary Kathleen Theoharides, Executive Office of Energy & Environmental Affairs
Bruce Carlisle, Director, Office of Coastal Zone Management
Commissioner Chuck Borstel, Division of Professional Licensure

Mass Audubon
Advocacy Department

Six Beacon Street, Suite 1025, Boston, MA 02108
617-523-8448 jclarke@massaudubon.org

December 8, 2017

Robert Anderson
Board of Building Regulations and Standards
Office of Public Safety and Inspections
1 Ashburton Place, Room 1301
Boston, MA 02108

Via Email: Robert.Anderson@state.ma.us

Re: **Proposed Addition of Coastal A Zone References as Amendments to Ninth Edition of the Building Code (780 CMR)**

Dear Mr. Anderson and Members of the Board:

Thank you for providing an opportunity to comment on the proposed amendments to the Ninth Edition of the State Building Code (780 CMR). Mass Audubon supports the proposed revisions that insert requirements relative to Coastal A Zones.

Mass Audubon's mission is to protect the nature of Massachusetts for the benefit of both people and wildlife. Climate change is a priority issue affecting the nature of Massachusetts and our communities and infrastructure. Mass Audubon is a strong supporter of the Commonwealth's efforts to address climate change including the *Green Communities Act,* the Governor's Executive Order 569, and the proposed *Comprehensive Adaptation and Management Plan* bill (S.2196). Several of our staff are certified providers in the state's Municipal Vulnerability Preparedness (MVP) program that assists communities in planning for resilience and incorporating those considerations into local hazard mitigation plans.

The proposed amendments to the International Building Code and Residential Building Code will help prevent and reduce hazards to property and life associated with construction in areas at risk of coastal floods, as mapped by the Federal Emergency Management Agency. These amendments are consistent with the Governor's Executive Order and the MVP program. With 85 percent of Massachusetts' 6.7 million residents living within 50 miles of the coast, and hundreds of billions of dollars of properties and development at ever-increasing risks due to accelerated rising sea levels and increasing storm intensities, these proposed code amendments are a common sense measure.

Sincerely,

John J. Clarke
Director of Public Policy and Government Relations

Proposed amendment to the Existing Building Code

MA Amendment 9th Edition:

CHAPTER 34: EXISTING BUILDING CODE

780 CMR 34.00adopts the *International Existing Building Code*-2015 with sections or text modified or added as follows:

[A] 101.2 Scope. The provisions of the *International Existing Building Code*-2015 shall apply to the repair, alteration, change of occupancy, addition to and relocation of existing buildings.
NOTES:
1. If requirements in 780 CMR 34.00 conflict with similar requirements in 780 CMR 1.00, then 780 CMR 1.00controls.
2. When 780 CMR 34.00 references requirements in other I-Codes, see 780 CMR 1.00 for guidance on how to use those I-Codes.
3. Requirements in 780 CMR 34.00 for plumbing, fuel gas, electrical, elevators, fire, or accessibility shall be replaced by the requirements of the Massachusetts specialty codes, as indicated in 780 CMR 1.00.

We propose adding the following # 4:

101.2 Revise section as follows:

[A] 101.2 Scope. The provisions of the *International Existing Building Code*-2015 shall apply to the repair, alteration, change of occupancy, addition to and relocation of existing buildings.
NOTES:

1. If requirements in 780 CMR 34.00 conflict with similar requirements in 780 CMR 1.00, then 780 CMR 1.00controls.
2. When 780 CMR 34.00 references requirements in other I-Codes, see 780 CMR 1.00 for guidance on how to use those I-Codes.
3. Requirements in 780 CMR 34.00 for plumbing, fuel gas, electrical, elevators, fire, or accessibility shall be replaced by the requirements of the Massachusetts specialty codes, as indicated in 780 CMR 1.00.
4. The requirements in this code for construction of existing buildings in flood hazard areas and/or coastal dunes shall not apply and instead applicable sections of the Massachusetts Base Code or Massachusetts Residential Code shall apply.

The reason for this is because the Existing Building Code standards, as written, only require complaince with flood standards when additions, alterations, etc. are considered to be substantial improvements. The MA Residential Code and Base Code have standards that are required for some additions that are not substantial improvements; i.e., lateral additions in V zones and in coastal dunes. These standards and this proposed amendment are consistent with standards in the 8th Edition.

Proposed amendment to Residential Code

MA amendment 9th Edition:

CHAPTER 24: FUEL GAS
For the fuel gas provisions of Chapter 24 see 248 CMR: *The Board of State Examiners of Plumbers and Gas Fitters.* Provisions related to work otherwise governed by this code (780CMR) shall be retained if not in conflict with other sections of this code.

We propose the following change:

CHAPTER 24: FUEL GAS
For the fuel gas provisions of Chapter 24 see 248 CMR: *The Board of State Examiners of Plumbers and Gas Fitters.* Provisions related to work otherwise governed by this code (780CMR) shall be retained if not in conflict with other sections of this code.

Retain this Section:

G2404.7 (301.11) Flood hazard. For structures located in flood hazard areas and coastal dunes, the appliance, equipment and system installations regulated by this code shall be located at or above the elevation required by Section R322 for utilities and attendant equipment.

Exception: The appliance, equipment and system installations regulated by this code are permitted to be located below the elevation required by Section R322 only within flood hazard areas including A and AO Zones for utilities and attendant equipment provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to such elevation.

This one section (G2404.7) relating to flood hazards needs to be retained. This standard is consistent with similar standards in the Base Code and with minimum National Flood Insurance Program standards. This is directly from the 2015 IRC with the added words "and coastal dunes."

Proposed amendment to Residential Code

MA amendment 9th Edition:

CHAPTER 22: SPECIAL PIPING AND STORAGE SYSTEMS
Delete all of chapter 22 and replace with the following:

M2201 Special Piping and Storage Systems. Special laws and/or regulations impact requirements for oil tanks, piping, fittings, connections, installation, and oil pumps and valves. Refer to M.G.L. c. 148, § 13, M.G.L. c. 148, § 37, the Board of Fire Prevention Regulations at 527 CMR, the Board of Boiler Rules at 522 CMR and EPA regulations (as well as this code for tank structural design).

We propose the following change:

CHAPTER 22: SPECIAL PIPING AND STORAGE SYSTEMS
Delete all of chapter 22 and replace with the following:

M2201 Special Piping and Storage Systems. Special laws and/or regulations impact requirements for oil tanks, piping, fittings, connections, installation, and oil pumps and valves. Refer to M.G.L. c. 148, § 13, M.G.L. c. 148, § 37, the Board of Fire Prevention Regulations at 527 CMR, the Board of Boiler Rules at 522 CMR and EPA regulations (as well as this code for tank structural design).

Retain this Section:

M2201.6 Flood-resistant installation. In flood hazard areas and coastal dunes as established by Table R301.2(1), tanks shall be installed at or above the elevation required in Section R322.2.1 or R322.3.2 or shall be anchored to prevent flotation, collapse and lateral movement under conditions of the design flood.

This one section (M2201.6) relating to flood hazards needs to be retained. This standard is consistent with similar standards in the Base Code and with minimum National Flood Insurance Program standards. This is directly from the 2015 IRC with the added words "and coastal dunes."

Chapter 110.R1, Section 110.R1.5.3 – Personnel – Ninth Edition

1. A professional engineer registered in the Commonwealth with at least five years of experience in responsible charge of work related to structural engineering, construction engineering or construction materials testing;
2. A bachelor's degree in engineering from an accredited institution and an additional total of three years' experience performing tests on concrete and concrete materials which shall include two years as a laboratory technician or supervisor; or
3. At least eight years' experience including five years as a lab technician or supervisor.

A lab supervisor shall have at least five years of experience performing tests on construction materials including concrete and concrete aggregates and be ACI-certified as a Concrete Laboratory Testing Technician-Level 2 and ACI-certified Aggregate Testing Technician – Level 2, and shall maintain such certification.

A field supervisor shall have at least five years of experience performing tests on construction materials including concrete and be ACI-certified as a Concrete Field Testing Technician-Grade 1 and shall maintain such certification.

Chapter 110.R1, Section 110.R1.4.3 – Personnel – Eighth Edition

1. A professional engineer registered in the Commonwealth of Massachusetts with at least five years of experience in responsible charge of work related to structural engineering, construction engineering or construction materials testing; or
2. A bachelor's degree in engineering from an accredited institution and an additional total of three years experience performing tests on concrete and concrete materials which shall include two years as a *laboratory* technician or supervisor; or
3. At least eight years experience including five years of experience as a lab technician or supervisor.

A lab supervisor shall have at least five years of experience performing tests on construction materials including concrete and concrete aggregates and be licensed as an ACI Class 1 Concrete Field Testing Technician.

A field supervisor shall have at least five years of experience performing tests on construction materials including concrete and be licensed as an ACI Class 1 Concrete Field Testing Technician.

All personnel shall be able to demonstrate their ability by oral or written exam to perform the tests and duties normally required in the manner stipulated by ASTM E 329 07.

DOLPHIN
INSULATION, INC.

Chris Alphen
Dolphin Insulation Inc.
Littleton, MA 01460
978-266-1122
chris@dolphin-insulation.com

MASSACHUSETTS STATE BUILDING CODE – CODE AMENDMENT FORM

Dolphin Insulation is applying for modification to the MA Building Code.

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Daniel Bennett
Secretary

The Commonwealth of Massachusetts
Department of Public Safety
Board of Building Regulations and Standards
One Ashburton Place, Room 1301
Boston, Massachusetts 02108-1618

Phone (617) 727-3200
Fax (617) 727-5732
www.mass.gov/dps

Matthew Moran
Commissioner

Richard Crowley
Chairman

Robert Anderson
Administrator

MASSACHUSETTS STATE BUILDING CODE – CODE AMENDMENT FORM

Impacted code:	X 9th Edition Base Code X 9th Edition Residential Code	State Use Only	
Date Submitted:	September 12, 2017	Date Received:	
Code Section:	780 CMR 1203.2	Code Change Number:	
Name of proponent:	Christopher Alphen		
Company / Organization represented, if any: Dolphin Insulation, Inc.		Check ✓ if representing self	
Address (number, street, city, state, ZIP:	410 Great Road, Littleton MA 01460		
Telephone number:	978-266-1122		
Email address:	chris@dolphin-insulation.com		

PLEASE CHECK OFF THE TYPE OF AMENDMENT PROPOSED

☐ Change existing section language ☑ Add new section ☐ Delete existing section and substitute
☐ Delete existing section, no substitute ☐ Other. Explain: _____

PLEASE TYPE THE PROPOSED AMENDMENT BELOW. If you propose to change a section, please copy the original text from either the relevant model code and/or MA amendment. Indicate, with a strikethrough, the text that you propose to delete. Please also indicate any new text in both *italic* and red font. Finally, for each proposal submitted, please provide the justification items requested below. Completed code amendment forms may be emailed to Felix Zemel, Director of Code Development and Manufactured Buildings at felix.zemel@state.ma.us. Please attach additional pages as necessary.

Existing language: See attached documents with details for each section.

Proposed changes:

Background and rationale:

Pros of the proposed change:

Cons of the proposed change:

Estimated impact on life safety:

EXISTING LANGUAGE: 1203.1.2.3

Exceptions:

1. The minimum required net free ventilating area shall be 1/300 of the area of the space ventilated, provided a vapor retarder having a transmission rate not exceeding one perm in accordance with ASTM E 96 is installed on the warm side of the attic insulation and provided 50% of the required ventilating area provided by ventilators located in the upper portion of the space to be ventilated at least three feet (914 mm) above eave or cornice vents, with the balance of the required ventilation provided by eave or cornice vents.
2. Roof assemblies where an expanding spray foam insulation material, providing at least 40% of the total R-value of the required insulation, is in direct contact with the underside of the roof deck and adjacent framing members. If the permeability of the foam material is less than two perm-inch, no vapor barrier is necessary.
3. Roof assemblies where a board foam plastic insulation material, providing at least 40% of the total R-value of the required insulation, is placed on top of the roof deck. If the permeability of the foam material is less than two perm-inch, no vapor barrier is necessary.

PROPOSED CHANGES: To be added to existing language as number 4

4. ***Roof assemblies where cellulose and a vapor smart retarder membrane, providing 100% of the total R-value of the required insulation, is placed in direct contact with the underside of the roof deck and adjacent framing members. When using a vapor smart retarder membrane, whose air permeability at minimum is 0.02L/s-m^2, in combination with densely packed cellulose the configuration is air impermeable and exceeds the air flow standards set forth in ASTME 2178 or E283. CMR R202***

BACKGROUND AND RATIONALE: To offer an additional solution to the application and requirement of closed cell foam on the underside of the sheathing.

PROS OF THE PROPOSED CHANGES: The proposed changes meet all of the moisture management standards and requirements and has no significant combustible potential nor does it have any significant off gassing potential.

CONS OF THE PROPOSED CHANGES: There are none.

ESTIMATED IMPACT ON LIFE SAFETY: Significant positive impact on life safety are achieved. Examples being a significant reduction of highly combustible material and also a significant reduction in off gassing and dangerous smoke development

ESTIMATED IMPACT ON COST: The elimination of several inches of closed cell foam has a significant impact on cost reduction in non-vented roof assemblies.

Proposals to Amend Chapter 110, Section 110.R3.6.2
From April 11, 2017 Meeting Minutes

EXHIBIT I – Message from Modular Home Builders Association, Tom Hardiman.
Board Action: Hold proposal for possible 1st iteration amendment.

Existing language:. **110.R3.6.2 Construction documents.** All documents submitted with the application shall be identified to indicate the *manufacturer*'s name, office address and address of the manufacturing facility and shall contain as a minimum the following information:

7. *Plans* for *product* shall provide or show, but not be limited to, the details listed below including the method of their testing or evaluation, or both. These requirements shall apply to the *plans* for building components only to the extent deemed necessary to permit a proper evaluation of the building component.

- **EXHIBIT AA** – Message from Executive Director Modular Building Institute, Tom Hardiman.
  Board Action: Hold for possible 1st iteration amendment.

From: Tom Hardiman [tom@mbi.org] Sent: Wed 2/8/2017 12:54
To: Anderson, Robert (DPS)
Cc:
Subject: MA BBRS
Message MA BBRS code change form contruction trailer exemption.docx

Mr. Anderson,

Thank you again for the updates the other day. I have reviewed the draft 9th Edition and wanted to submit a proposed comment. I found this form online (attached) which still references Mr. Zemel.

For years, the manufactured buildings program did not require single wide construction site trailers to go through the program. It was specifically mentioned at nearly every meeting we attended with the program staff. As a result, an unknown number of these units are in use in MA today. But that language / exception is not found in the codes. My concern is that with 15 new district reviewers, many won't continue this practice.

I am submitting a code change proposal for 110.R3 which spells this out. I am certainly open to modify or tweak this language if necessary.

Let me know if this email is an acceptable method for submitting this change proposal or if I need to submit it elsewhere.

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Daniel Bennett
Secretary

The Commonwealth of Massachusetts
Department of Public Safety
Board of Building Regulations and Standards
One Ashburton Place, Room 1301
Boston, Massachusetts 02108-1618

Phone (617) 727-3200
Fax (617) 727-5732
www.mass.gov/dps

Matthew Moran
Commissioner

Richard Crowley
Chairman

Robert Anderson
Administrator

MASSACHUSETTS STATE BUILDING CODE – CODE AMENDMENT FORM

Impacted code:	☒ 9th Edition Base Code ☐ 9th Edition Residential Code	State Use Only	
Date Submitted:	2/8/2017	Date Received:	
Code Section:	110.R3.6.2.(7) (e)	Code Change Number:	
Name of proponent:	Tom Hardiman		
Company / Organization represented, if any: Modular Home Builders Association		Check ☐ if representing self	
Address (number, street, city, state, ZIP:		944 Glenwood Station Lane Charlottesville, VA 22901	
Telephone number:	**888-811-3288 x 158**		
Email address:	**tom@modular.org**		

PLEASE CHECK OFF THE TYPE OF AMENDMENT PROPOSED

☒ Change existing section language ☐ Add new section ☐ Delete existing section and substitute
☐ Delete existing section, no substitute ☐ Other, Explain: _____

PLEASE TYPE THE PROPOSED AMENDMENT BELOW. If you propose to change a section, please copy the original text from either the relevant model code and/or MA amendment. Indicate, with a strikethrough, the text that you propose to delete. Please also indicate any new text in both *italic* and red font. Finally, for each proposal submitted, please provide the justification items requested below. Completed code amendment forms may be emailed to Felix Zemel, Director of Code Development and Manufactured Buildings at felix.zemel@state.ma.us. Please attach additional pages as necessary.

Existing language:. **110.R3.6.2 Construction documents.** All documents submitted with the application shall be identified to indicate the *manufacturer*'s name, office address and address of the manufacturing facility and shall contain as a minimum the following information:

7. *Plans* for *product* shall provide or show, but not be limited to, the details listed below including the method of their testing or evaluation, or both. These requirements shall apply to the *plans* for building components only to the extent deemed necessary to permit a proper evaluation of the building component.

e. Mechanical Detail Requirements.

i Location of all equipment and appliances. Indicate equipment and appliances listed or *labeled* by approved agencies.
ii Heat loss and heat gain calculations or approved prescriptive method.
iii *Manufacturer*'s name, make, model, number, BTU, input and output rating of all equipment and appliances, as appropriate, or the equal thereof.
iv Duct and register locations, sizes, and materials.
v Clearances from combustible material or surfaces for all ducts, flues and chimneys.
vi Method of providing required combustion air and return air.
vii Location of flues, vents and chimneys and clearances from air intakes and other vents and flues.
viii Details regarding dampers in ducts penetrating fire separations.
ix Complete drawings of fire sprinkler system, standpipe system or smoke/fire alarm system as required.
x Detail of elevator or escalator system, including method of emergency operation.
xi Duct and piping insulation thickness.
xii Ventilation air calculations.

Proposed changes:

7. *Plans* for *product* shall provide or show, but not be limited to, the details listed below including the method of their testing or evaluation, or both. These requirements shall apply to the *plans* for building components only to the extent deemed necessary to permit a proper evaluation of the building component.
    e. Mechanical Detail Requirements *when factory installed.*
        i. Location of all equipment and appliances. Indicate equipment and appliances listed or *labeled* by approved agencies.

        ~~ii. Heat loss and heat gain calculations or approved prescriptive method.~~
        iii. *Manufacturer*'s name, make, model, number, BTU, input and output rating of all equipment and appliances, as appropriate, or the equal thereof.
        iv. Duct and register locations, sizes, and materials.
        v. Clearances from combustible material or surfaces for all ducts, flues and chimneys.
        vi. Method of providing required combustion air and return air.
        vii. Location of flues, vents and chimneys and clearances from air intakes and other vents and flues.

viii. Details regarding dampers in ducts penetrating fire separations.
ix. Complete drawings of fire sprinkler system, standpipe system or smoke/fire alarm system as required.
x. Detail of elevator or escalator system, including method of emergency operation.
xi. Duct and piping insulation thickness.
xii. Ventilation air calculations.

Background and rationale:
Some of these requirements are out of the control of the manufacturer as related site work and installation has not yet occurred. Deletion of the heat loss and heat gain calcs is due to the fact that the hvac system is most often installed after the home is on site

Pros of the proposed change:

Cons of the proposed change:

Estimated impact on life safety

Estimated impact on cost: N/A

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Daniel Bennett
Secretary

The Commonwealth of Massachusetts
Department of Public Safety
Board of Building Regulations and Standards
One Ashburton Place, Room 1301
Boston, Massachusetts 02108-1618

Phone (617) 727-3200
Fax (617) 727-5732
www.mass.gov/dps

Matthew Moran
Commissioner

Richard Crowley
Chairman

Robert Anderson
Administrator

MASSACHUSETTS STATE BUILDING CODE – CODE AMENDMENT FORM

Impacted code:	☒ 9th Edition Base Code ☐ 9th Edition Residential Code	State Use Only	
Date Submitted:	2/8/2017	Date Received:	
Code Section:	110.R3.1.2	Code Change Number:	
Name of proponent:	Tom Hardiman		
Company / Organization represented, if any: Modular Building Institute		Check ☐ if representing self	
Address (number, street, city, state, ZIP:		944 Glenwood Station Lane Charlottesville, VA 22901	
Telephone number:	**888-811-3288 x 158**		
Email address:	**tom@modular.org**		

PLEASE CHECK OFF THE TYPE OF AMENDMENT PROPOSED

☒ Change existing section language ☐ Add new section ☐ Delete existing section and substitute
☐ Delete existing section, no substitute ☐ Other, Explain: _____

PLEASE TYPE THE PROPOSED AMENDMENT BELOW. If you propose to change a section, please copy the original text from either the relevant model code and/or MA amendment. Indicate, with a strikethrough, the text that you propose to delete. Please also indicate any new text in both *italic* and red font. Finally, for each proposal submitted, please provide the justification items requested below. Completed code amendment forms may be emailed to Felix Zemel, Director of Code Development and Manufactured Buildings at felix.zemel@state.ma.us. Please attach additional pages as necessary.

Existing language: **110.R3.1.2 Scope**. R3 shall govern the design, manufacture, handling, storage, transportation, relocation, and installation of *manufactured buildings*, *manufactured building components*, and *modular homes*, and hereinafter referred to as *product*, intended for installation in Massachusetts and/or manufactured in Massachusetts for shipment to any other state in which such *product* and the *labels* thereon are accepted. Subject to local zoning ordinances and by-laws, *product* may be sold for, delivered to, or installed on, building sites located in any jurisdiction of Massachusetts if such *products* have been approved and certified pursuant to R3.

Proposed changes:

110.R3.1.2 Scope. R3 shall govern the design, manufacture, handling, storage, transportation, relocation, and installation of *manufactured buildings*, *manufactured building components*, and *modular homes,* and hereinafter referred to as *product,* intended for installation in Massachusetts and/or manufactured in Massachusetts for shipment to any other state in which such *product* and the *labels* thereon are accepted. Subject to local zoning ordinances and by-laws, *product* may be sold for, delivered to, or installed on, building sites located in any jurisdiction of Massachusetts if such *products* have been approved and certified pursuant to R3.

Exception: buildings 720 sf or less used on construction or industrial sites not open to the general public.

Background and rationale:

These type of units are a necessary part of the overall construction and manufacturing industries, but confusion among local code officals persists as to whether these units are subject to the building codes. Many owners of these products classify them as equipment, as they are also used as security/storage. It has been the past practice of the Manufactured Buildings Program to exclude these single-wide products from inspection for the past decade. However, that per se exception is not specifically included in the building code. The most common size of these single-wide construction offices is 12ft x 60 ft = 720 sf.

Pros of the proposed change:

Cons of the proposed change:

Estimated impact on life safety Limiting this exception to small units not accessible to the general public minimizes any safety concerns while allowing code officals to focus on more signifincat matters.

Estimated impact on cost: N/A