780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2021*

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780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2021*

CHAPTER 1: SCOPE AND ADMINISTRATION (Unique to Massachusetts)

Chapter 1.Delete in its entirety, and replace with the following:

PART 1 - SCOPE AND APPLICATION

SECTION 101 GENERAL

101.1 Adoption and Title. The Board of Building Regulations and Standards ("BBRS") adopts and incorporates by reference, *the International Building Code*-2021 ("IBC"), as periodically amended by errata, the following chapters, as well as 110.R1 through 110.R7 and Appendices A through O. These, together with modifications as set forth, shall collectively comprise 780 CMR, otherwise known as the Massachusetts State Building Code, Tenth Edition, Base Volume.

101.2 Scope. 780 CMR shall be the building code for all towns, cities, state agencies or authorities in accordance with M.G.L. c. 143, §§ 93 through 100. 780 CMR, and other referenced specialized codes as applicable, shall apply to:

1. the construction, reconstruction, alteration, repair, demolition, removal, inspection, issuance and revocation of permits or licenses, installation of equipment, classification and definition of any building or structure and use or occupancy of all buildings and structures or parts thereof except bridges and appurtenant supporting structures which have been or are to be constructed by, or are under the custody and control of the Massachusetts Department of Transportation, the Massachusetts Bay Transportation Authority, the Department of Conservation and Recreation, or the Massachusetts Port Authority or for which said agencies have maintenance responsibility;

2. the rehabilitation and maintenance of existing buildings;

3. the standards or requirements for materials to be used in connection therewith, including but not limited to provisions for safety, ingress and egress, energy conservation and sanitary conditions; and fire prevention and protection practices; and

4. other powers and duties found in M.G.L. c. 143, §§ 93 through 100, but not listed herein.

101.2.1 Residential Code. Detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories above grade plane in height and their accessory structures, and other buildings as described in 780 CMR may comply with 780 CMR 51.00: *Massachusetts Residential Code.*

101.3 Intent. The purpose of 780 CMR is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, sanitation, adequate light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment, and to provide safety to fire fighters and emergency responders during emergency operations.

101.4 Referenced Codes and Standards. Referenced Codes and Standards include the specialized codes of M.G.L. c. 143, § 96 and other codes and regulations listed in 101.4.1 through 101.4.16, 780 CMR 35, and 780 CMR 51, and shall be considered part of 780 CMR to the prescribed extent of each such reference.

Work regulated by the specialized codes of M.G.L. c. 143, § 96 shall be designed, installed, and inspected by individuals authorized to do so in accordance with the specialized codes. However, the impact of work regulated by the specialized codes of M.G.L. c. 143, § 96 and other codes and regulations on work governed by 780 CMR and within the jurisdiction of the *building official*, shall be subject to inspection by the *building official.*

101.4.1 Gas and Fossil Fuel Burning Appliances. Reference to the International Fuel Gas Code shall be considered reference to 248 CMR: *Board of State Examiners of Plumbers and Gas Fitters*. Gas fired appliances are governed by 248 CMR. Oil fired appliances are governed by 527 CMR 1.00: *Massachusetts Comprehensive Fire Safety Code*.

101.4.2 Mechanical. The installation of mechanical systems shall generally be governed by the *International Mechanical Code – 2021 ("IMC").* The scope of this adoption shall be governed by Sections 101 and 102 of the IMC, no other aspect of Chapter 1 of the IMC is adopted. However, this adoption shall not be deemed to apply to work governed by the Specialized Codes pursuant to M.G.L. c. 143, §96, including but not necessarily limited to sheet metal work as defined in M.G.L. c. 112, §237. Notwithstanding this adoption, where a conflict exists between the IMC and any other provision of 780 CMR (including any other referenced standards or codes adopted therein), compliance with 780 CMR shall be required.

101.4.3 Plumbing and Gas. Reference to the *International Plumbing Code* or *International Fuel Gas Code* shall be considered reference to 248 CMR: *Board of State Examiners of Plumbers and Gas Fitters*.

101.4.4 Property Maintenance. The *International Property Maintenance Code* is not adopted. Reference to the *International Property Maintenance Code* shall be considered reference to 780 CMR and within the jurisdiction of the *building official*.

101.4.5 Fire Prevention and Protection. Certain areas of this code are intended to ensure buildings and structures are protected from fire and other dangerous conditions. Where applicable, 527 CMR 1.00: Massachusetts Comprehensive Fire Safety Code may govern such matters. Nothing in this section is intended to alter or expand the current respective jurisdiction of the building official or the fire official. The building official shall enforce 780 CMR and the fire official shall enforce 527 CMR 1.00.In this regard, 780 CMR and its adopted standards may reference specific sections of the 2021 International Fire Code ("IFC"), except that retroactive requirements of the IFC are not adopted. Where a specific section of the IFC is referenced, that section shall not apply if it would overlap or conflict with a specific provision of 527 CMR 1.00. Where possible, 780 CMR shall provide a specific reference to applicable portions of 527 CMR 1.00. However, citations to specific provisions of 527 CMR 1.00 are provided solely as an advisory to assist users of these codes, as said provisions are not governed by 780 CMR and are subject to their own independent enforcement and appellate provisions. Readers should note that 527 CMR 1.00 may be changed after the effective date of this code, thus any references are subject to change.

The following statutes are generally enforced by the head of the fire department, whose decisions would be appealed through the automatic sprinkler appeals board:

1. **M.G.L. c. 148, § 26A1/2**: certain high-rise buildings constructed prior to 01/01/1975;
2. **M.G.L. c. 148, § 26G**: certain non-residential structures that exceed 7,500 square feet;
3. **M.G.L. c. 148, § 26G1/2**: bars, nightclubs, dance halls, and discotheques with a capacity of 100 or more persons; and
4. **M.G.L. c. 148, § 26H** (if adopted through local option): lodging or boarding houses with six or more persons boarding or lodging.

The following statute is enforced by the head of the fire department, and shall be appealed through the Building Code Appeals Board:

1. **M.G.L. c. 148, § 26A**: certain high-rise buildings

The following statute is enforced by the head of the fire department, and shall be appealed through a court of competent jurisdiction:

1. **M.G.L. c. 148, § 26I** (if adopted through local option): certain multiple dwelling units

Where a statute requires enforcement by a *building official* but no appellate language is provided, decisions of said official shall be appealed to a court of competent jurisdiction and not the Building Code Appeals Board

101.4.6 Energy. 780 CMR 13.00 *Energy Efficiency* shall apply to all matters governing the design and construction of buildings for energy efficiency.
Exception: Where a municipality has adopted the Stretch energy code or Specialized opt-in energy code then 225 CMR 23.00 shall apply.

101.4.7 Architectural Access. Any reference in 780 CMR to accessibility shall be considered reference to 780 CMR Chapter 11 as amended, and to 521 CMR: *Architectural Access Board*. 521 CMR is enforced by the building official.

101.4.8 Environmental Protection. See 310 CMR: *Department of Environmental Protection* and 314 CMR: *Division of Water Pollution Control*.

101.4.9 Elevators. Any reference in 780 CMR to elevators and conveying systems shall be considered reference to 780 CMR 30 as amended, and to 524 CMR: *Board of Elevator Regulations*.

101.4.10 Electrical. Any reference in 780 CMR to the International Electrical Code shall be considered reference to 527 CMR 12.00: *Massachusetts Electrical Code (Amendments)*.

101.4.11 Sheet Metal. See 271 CMR: *Board of Examiners of Sheet Metal Workers*.

101.4.12 International Residential Code. Any reference in 780 CMR to the International Residential Code shall be considered reference to 780 CMR 51.00 through ~~120.00~~ 115.00

101.4.13 Transit and Commuter Rail Stations. Such stations shall comply with 780 CMR and NFPA 130-2014, chapters 2, 3, 4, and 5. Any references to NFPA 101 and NFPA 220 shall mean reference to 780 CMR. Where conflict exists between 780 CMR and the referenced standard, compliance with the referenced standard shall be required.

101.4.14 Residential Contracting. Residential contracting is regulated by M.G.L. c. 142A and 201 CMR 18.00. See the Office of Consumer Affairs and Business Regulation for more information

101.4.15 International Swimming Pool and Spa Code. – The design and construction of swimming pools, spas and hot tubs shall comply with 780 CMR Chapter 31 Section 3109 as amended, and to the *International Swimming Pool and Spa Code - 2021*. The scope of this adoption shall be governed by Section 101.2 of the *International Swimming Pool and Spa Code*, however, the remainder of Chapter 1 of that code is not adopted.

101.4.16 Existing buildings. See 780 CMR 34 and the provisions of the 2021 *International Existing Building Code as amended. 780 CMR 34* shall apply to matters governing the repair, alteration, change of occupancy, addition to and relocation of existing buildings. The *building official* enforces the Existing Building Code as amended.

101.5 BBRS Advisory Committees. BBRS technical advisory committees support requests from the BBRS as it deems necessary in accordance with M.G.L. c. 143.

SECTION 102 APPLICABILITY

Concurrency Period. Applications for building permits and related construction and other documents filed through June 30, 2025, may comply either with 780 CMR effective October 11, 2024, or with the Ninth Edition version of 780 CMR in effect immediately prior to amendment, but not a mix of both. After June 30, 2025, concurrency with the Ninth Edition ends, and all applications for building permits and related construction and other documents shall comply with 780 CMR as amended effective October 11, 2024 only.

102.1 General. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different sections of 780 CMR specify different materials, methods of construction or other requirements, the most restrictive shall govern.

Exception: Where enforcement of a provision of 780 CMR would violate the conditions of a listing or manufacturer's instructions, the conditions of the listing and manufacturer's instructions shall apply.

102.2 Other Laws. The provisions of 780 CMR do not purport to override or nullify any provision of state or federal law. The Massachusetts General Laws and the Code of Massachusetts Regulations are often referenced throughout 780 CMR. It is the code user's responsibility to determine all applicable laws and regulations relevant to 780 CMR or any portion thereof.

102.2.1 Municipal Bylaws or Ordinances. 780 CMR applies state-wide. When municipal bylaws and ordinances conflict with 780 CMR, 780 CMR shall govern unless the bylaws or ordinances were promulgated in accordance with M.G.L. c. 143, § 98.

102.3 Application of References. References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of 780 CMR.

102.4 Referenced Codes and Standards. The codes and standards referenced in 780 CMR shall be considered part of the requirements of 780 CMR to the prescribed extent of each such reference. Where differences occur between provisions of 780 CMR and referenced codes and standards, 780 CMR shall apply.

102.5 Partial Invalidity. In the event that any part or provision of 780 CMR is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

102.6 Existing Structures. The legal occupancy of any structure existing on the date of adoption of 780 CMR shall be permitted to continue without change, except as is specifically covered in 780 CMR or as deemed necessary by the *building official* for the general safety and welfare of the public.

102.6.1 Laws in Effect. Unless specifically provided otherwise in 780 CMR, and narrow to the provisions of 780 CMR, any existing building or structure shall be presumed to meet the provisions of the applicable laws, codes, rules or regulations, bylaws or ordinances in effect at the time such building or structure was constructed or altered. The existing building or structure shall be allowed to continue to be occupied pursuant to its last lawful use and occupancy, provided that the building or structure has been maintained by the owner in accordance with 780 CMR.

102.6.2 Laws Not in Use. In cases where applicable codes, rules or regulations, bylaws or ordinances were not in use at the time of such construction or alteration, the building or structure shall be maintained by the *owner* in accordance with 780 CMR.

102.6.3 Less Stringent. In cases where the provisions of 780 CMR are less stringent than the applicable codes, rules or regulations, bylaws or ordinances at the time of such construction or substantial alteration, the applicable provisions of 780 CMR shall apply, providing such application can be reasonably demonstrated not to result in danger to the public, as determined by the *building official*.

102.6.4 Existing Means of Egress, Lighting and Ventilation. The *building official* may cite any of the following conditions in writing as a violation and order the abatement within a time frame deemed necessary by the *building official* to make the building environment safe, healthy, or otherwise comply with 780 CMR:

a. Inadequate number of means of egress.
b. Egress components with insufficient width or so arranged to be inadequate for the safe egress of the occupants, including signage and lighting.
c. Inadequate lighting and ventilation.

Where full compliance for means of egress, lighting and ventilation are not practical, the *building official* may accept compliance alternatives, engineering, or other evaluations that adequately address the deficiency.

102.7 Moved Structures. Buildings or structures moved into or within the jurisdiction of the Commonwealth shall comply with the provisions of 780 CMR 34.00: *Existing Building Code*, provided that any new system shall comply as far as practicable with the requirements for new structures and provided further that the siting and fire separation distance comply with the requirements for new structures.

102.8 Maintenance of Existing Buildings and Structures. All buildings and structures and all parts thereof, both existing and new, and all systems and equipment therein which are regulated by 780 CMR shall be maintained in a safe, operable, and sanitary condition. All service equipment, life safety/fire protection systems, means of egress, devices and safeguards which are required in a building or structure, or which were required by a previous statute in a building or structure, when erected, altered, or repaired, shall be maintained in good working order.

> **102.8.1 Owner Responsibility**. The owner shall be responsible for compliance with the provisions of 780 CMR. Lack of compliance with *102.8 Maintenance of Existing Buildings and Structures* may be grounds for enforcement by the *building official* pursuant to 780 CMR Section *114.* Violations

PART 2 – ADMINISTRATION AND ENFORCEMENT

SECTION 103 ENFORCEMENT

103.1 Municipal and State Enforcement. Reference to the Department of Building Safety shall be considered reference to the *building official*. 780 CMR shall be enforced by the *building official*, and in accordance with M.G.L. c. 143, §§ 3, 3A, 3Y, and 3Z and M.G.L. c. 22, the *building official* shall include the building commissioner or inspector of buildings, local inspector, and state building inspector.

SECTION 104 DUTIES AND POWERS OF BUILDING OFFICIAL

104.1 General. The *building official* is hereby authorized and directed to enforce the provisions of 780 CMR in accordance with M.G.L. c. 143, §§ 3 and 3A. The State Building Inspector, shall enforce 780 CMR as to any building or structure within any city or town that is owned in whole or in part by the Commonwealth or any departments, commissions, agencies, or authorities of the Commonwealth.

104.2 Applications and Permits. The *building official* shall receive applications, review construction documents, and issue permits for the construction, reconstruction, alteration, repair, removal or demolition of a building or structure; or to change the use or occupancy of a building or structure; or to install or alter any equipment or life safety systems for which provision is made or the installation of which is regulated by 780 CMR.

104.3 Notices and Orders. The *building official* shall issue all necessary notices or orders to ensure compliance with 780 CMR.

104.4 Inspections. The *building official* shall make all of the required inspections, or the building official shall have the authority to accept reports of inspection by approved agencies or individuals. Reports of such inspections shall be in writing and shall be certified by a responsible officer of such approved agency or by the responsible individual. The *building official* is authorized to engage such expert opinion as deemed necessary to report upon unusual technical issues that arise, subject to the approval of the appointing authority.

> **104.4.1 Coordination of Inspections**. Whenever in the enforcement of 780 CMR, or another code or ordinance, the responsibility of more than one enforcement official is involved, it shall be the duty of the enforcement officials involved to coordinate their inspections and administrative orders as fully as practicable so that the owners and occupants of the building or structure shall not be subjected to visits by numerous inspectors or multiple or conflicting orders. Whenever an enforcement official observes an apparent or actual violation not within the official's authority, the official shall report the findings to the official having jurisdiction.

104.5 Identification. The *building official* shall carry proper identification when inspecting structures or premises in the performance of duties under 780 CMR.

104.6 Right of Entry. Where it is necessary to make an inspection to enforce the provisions of 780 CMR, or where the *building official* has reasonable cause to believe that there exists in a structure or upon a premises a condition which is contrary to or in violation of 780 CMR which makes the structure or premises unsafe, dangerous or hazardous, the *building official* is authorized to enter the structure or premises at reasonable times to inspect or to perform the duties imposed by 780 CMR, provided that if such structure or premises be occupied that credentials be presented to the occupant and entry requested. If such structure or premises is unoccupied, the building official shall first make a reasonable effort to locate the owner or other person having charge or control of the structure or premises and request entry. If entry is refused, the *building official* shall have recourse to the remedies provided by law to secure entry, including, but not limited to requesting an administrative search warrant. See also M.G.L. c. 143, §§ 6 and 50.

104.7 Department Records. The *building official* shall keep official records of applications received, permits and certificates issued, fees collected, reports of inspections, and notices and orders issued. Such records shall be retained in the official records for the period required for retention of public records.

104.8 Liability. All claims of liability relative to *building officials* shall be governed by M.G.L. c. 258.

104.9 Approved Materials and Equipment. Materials, equipment and devices approved by the *building official* shall be constructed and installed in accordance with such approval.

> **104.9.1 Used Materials and Equipment**. The use of used materials which meet the requirements of 780 CMR for new materials is permitted. Used equipment and devices shall not be reused unless approved by the *building official*.

104.10 Modifications. Wherever there are practical difficulties involved in carrying out the provisions of 780 CMR, the *building official* shall have the authority to grant modifications for individual cases, upon application of the owner or owner's representative, provided the *building official* shall first find that special individual reason makes the strict letter of 780 CMR impractical and the modification is in compliance with the intent and purpose of 780 CMR and that such modification does not lessen health, accessibility, life and fire safety, or structural requirements. The details of action granting modifications shall be recorded and entered in the files of the *building official*.

> **104.10.1 Flood hazard areas and coastal dunes**. The *building official* shall not grant modifications to any provision related to flood hazard areas and coastal dunes as established by 780 CMR without the granting of a variance to such provisions by the Building Code Appeals Board.

104.11 Alternative Materials, Design and Methods of Construction and Equipment. The provisions of 780 CMR are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by 780 CMR, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the *building official* finds that the proposed design is satisfactory and complies with the intent of the provisions of 780 CMR, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in 780 CMR in quality, strength, effectiveness, fire resistance, durability and safety.

> **104.11.1 Research Reports**. Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in 780 CMR, shall consist of valid research reports from approved sources.
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> **104.11.2 Tests**. Whenever there is insufficient evidence of compliance with the provisions of 780 CMR, or evidence that a material or method does not conform to the requirements of 780 CMR, or in order to substantiate claims for alternative materials or methods, the *building official* shall have the authority to require tests as evidence of compliance to be made at no expense to the enforcement authority. Test methods shall be as specified in 780 CMR or by other recognized test standards. In the absence of recognized and accepted test methods, the *building official* shall approve the testing procedures. Tests shall be performed by an approved agency. Reports of such tests shall be retained by the *building official* for the period required for retention of public records.

104.12 Matters Not Provided For. In recognition of the inherent difficulty of drafting a functional code that contemplates every situation that may arise in the area of building safety, this section provides the *building official*, the Building Code

Appeals Board, or the BBRS itself, with reasonable discretion to ensure that all life safety issues that may arise in the enforcement of 780 CMR may be appropriately addressed. Matters not specifically provided for in 780 CMR regarding structural, egress, fire, energy, sanitary or other requirements essential to occupant safety shall be determined by the *building official* or, in the case of an appeal, the Building Code Appeals Board. The details of action granting modifications shall be recorded and entered in the files of the *building official*. For highly specialized buildings and structures that conform to unique code requirements or nationally recognized standards not required in 780 CMR, registered design professionals shall provide sufficient information to the *building official* to support their approval.

SECTION 105 PERMITS

105.1 Required. It shall be unlawful to construct, reconstruct, alter, repair, remove or demolish a building or structure; or to change the use or occupancy of a building or structure; or to install or alter any equipment or life safety systems for which provision is made or the installation of which is regulated by 780 CMR without first filing an application with the *building official* and obtaining the required permit.

105.2 Work Exempt from Permit. While other kinds of permits may be required for work governed by other laws, by-laws, rules and the specialized codes of M.G.L. c. 143, § 96, such as electrical, plumbing, and sheet metal, a permit pursuant to 780 CMR is not required for the following activities:

1. One-story detached accessory structures used as tool and storage sheds, playhouses and similar uses, provided the floor area is not greater than 120 $ft.^2$ (11 m^2).
2. Fences not over seven feet (2,134 mm) high.
3. Oil derricks.
4. Retaining walls that are not over four feet (1,219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge or impounding Class I, II or IIIA liquids.
5. Water tanks supported directly on grade if the capacity is not greater than 5,000 gallons (18,925 L) and the ratio of height to diameter or width is not greater than 2:1.
6. Sidewalks and driveways not more than 30 inches (762 mm) above adjacent grade, and not over any basement or story below and are not part of an accessible route.
7. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.
8. Temporary motion picture, television and theater stage sets and scenery.
9. Prefabricated swimming pools accessory to a Group R-3 occupancy that are less than 24 inches (610 mm) deep, are not greater than 5,000 gallons (18,925 L) and are installed entirely above ground.
10. Shade cloth structures constructed for nursery or agricultural purposes, not including service systems.
11. Swings and other playground equipment accessory to detached one- and two-family dwellings.
12. Window awnings in Group R-3 and U occupancies, supported by an exterior wall that do not project more than 54 inches (1,372 mm) from the exterior wall and do not require additional support.
13. Non-fixed and movable fixtures, cases, racks, counters and partitions not over five feet nine inches (1,753 mm) in height.
14. Greenhouses covered exclusively with plastic film. This exemption does not apply if the greenhouse is to be used for large assemblies of people or uses other than normally expected for this purpose.
15. Repair of any component or components of a fire protection system, where such does not affect system performance and compatibility. No permit pursuant to 780 CMR is required for routine or corrective maintenance.

105.2.1 Emergency Repairs. Where replacements and repairs governed by 780 CMR shall be performed in an emergency situation, the permit application shall be submitted within the next working business day to the *building official*.

NOTE: Pursuant to the terms of the specialized codes of M.G.L. c. 143, § 96, this exemption might not apply to emergency repairs conducted under those specialized codes.

105.2.2 Repairs. Application or notice to the building official is not required for ordinary repairs to structures. A permit is required for work including but not limited to: the substantial cutting away of any wall, partition or portion thereof, the removal or cutting of any structural beam or load-bearing support, or the removal or change

of any required means of egress, or rearrangement of parts of a structure affecting the egress requirements or mechanical systems or other work affecting public health or general safety under the jurisdiction of 780 CMR.

105.3 Application for Permit. To obtain a permit, the *owner* or authorized agent shall file a permit application on a form furnished by the *building official* for that purpose. Such applications shall:

1. Identify and describe the work to be included by the permit for which application is made.
2. Describe the land on which the proposed work is to be performed by legal description, street address or similar description that will readily identify and definitely locate the proposed building or work.
3. Indicate the use and occupancy for which the proposed work is intended. If the work involves a care facility or residence licensed by a state agency, indicate the agency name and appropriate licensing regulation on the permit. (For example: Department of Developmental Services, 115 CMR.)
4. Be accompanied by construction documents and other information as required in section 107. Construction documents shall list any additional building features required by a Massachusetts state agency for its facilities that go beyond the requirements in 780 CMR.
5. State the valuation of the proposed work. The *building official* has authority to request from the applicant a detailed substantiation of the valuation.
6. Be signed by the *owner* or authorized agent.
7. Give such other data and information as required by the *building official* in accordance with 780 CMR.
8. If applicable, include the registration number and information of home improvement contractors or subcontractors for residential contracting services, in accordance with M.G.L. c. 142A, §§ 9(a) and 13.

105.3.1 Action on Application. The *building official* shall examine or cause to be examined applications for permits and amendments, and shall issue or deny the permit in writing, within 30 days of filing. If the application or the construction documents do not conform to the requirements of 780 CMR and all pertinent laws under the *building official*'s jurisdiction, the *building official* shall deny such application in writing, stating the reasons therefore. The *building official*'s signature shall be attached to every permit.

Failure to act upon the application within 30 days could result in a complaint being registered against the Building Official with his or her appointing authority, the Building Official Certification Committee, or an appeal may be filed with the Building Code Appeals Board for lack of action.

The following requirements, where applicable, shall be satisfied before a permit is issued:

1. Zoning: in accordance with M.G.L. c. 40A or St. 1956, c. 665.
2. Railroad Right-of-way: in accordance with M.G.L. c. 40, § 54A.
3. Water Supply: in accordance with M.G.L. c. 40, § 54.
4. Debris Removal: in accordance with M.G.L. c. 40, § 54.
5. Workers Compensation Insurance: in accordance with M.G.L. c. 152, § 25C(6).
6. Hazards to Air Navigation: in accordance with M.G.L. c. 90, § 35B.
7. Construction in coastal dunes: in accordance with flood construction requirements of 780 CMR.

105.3.1.1 – Reserved

105.3.1.1.1 – Reserved

105.3.2 Time Limitation of Application. An application for a permit for any proposed work shall be deemed to have been abandoned 180 days after the date of filing, unless such application has been pursued in good faith or a permit has been issued, except that the *building official* is authorized to grant one or more extensions of time for additional periods not exceeding 90 days each. The extension shall be requested in writing and justifiable cause demonstrated.

105.4 Validity of Permit. The issuance or granting of a permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of 780 CMR or of any other law or ordinance. Permits presuming to give authority to violate or cancel the provisions of 780 CMR or other laws or ordinances shall not be valid. The issuance of a permit based on

construction documents and other data shall not prevent the *building official* from requiring the correction of errors in the construction documents and other data. The *building official* is also authorized to prevent occupancy or use of a structure where in violation of 780 CMR.

105.5 Expiration. Every permit issued shall become invalid unless the work on the site authorized by such permit is commenced within 180 days after its issuance, or if the work authorized on the site by such permit is suspended or abandoned for a period of 180 days after the time the work is commenced. The *building official* is authorized to grant, in writing, one or more extensions of time, for periods not more than 180 days each. The extension shall be requested in writing prior to the 180 day expiration date and justifiable cause demonstrated.

105.6 Suspension or Revocation. The *building official* is authorized to suspend or revoke a permit issued under the provisions of 780 CMR wherever the permit is issued in error or on the basis of incorrect, inaccurate, or incomplete information, or in violation of any ordinance or regulation, or any of the provisions of 780 CMR.

105.7 Placement of Permit. The permit or copy shall be kept on the site of the work until the completion of the project.

105.8 Notice of Start. The *building official* may require to be notified at least one business day before the start of work.

105.9 Independent Structural Engineering PEER Review. As a condition for the issuance of a building permit, the structural design of the following described structures shall be reviewed by a registered design professional to verify that the design of the primary structure is conceptually correct and that there are no major errors in the design:

1. High rise buildings.
2. Structures of unusual complexity or design as determined by the BBRS. A *building official* may apply to the BBRS for such a determination on a specific structure.

This requirement shall not preclude an owner from obtaining an independent structural engineering design review of a primary structure, other than those listed in this section.

105.9.1 Review Requirements. The independent structural engineering peer review shall be conducted as determined by the Board of Building Regulations and Standards.

105.9.2 Disputes. Disputes between the structural engineer responsible for the design of the building or structure and the independent structural engineering reviewer shall be resolved by the BBRS or a board established by the BBRS.

SECTION 106 FLOOR AND ROOF DESIGN LOADS

106.1 Live Loads Posted. Where the live loads for which each floor or portion thereof of a commercial or industrial building is or has been designed to exceed 50 psf (2.40 kN/m^2), such design live loads shall be conspicuously posted by the owner in that part of each story in which they apply, using durable signs. It shall be unlawful to remove or deface such notices

106.2 Issuance of Certificate of Occupancy. A certificate of occupancy required by 780 CMR 111 shall not be issued until the floor load signs required by section 106.1 have been installed.

106.3 Restrictions on Loading. It shall be unlawful to place, or cause or permit to be placed, on any floor or roof of a building, structure, or portion thereof, a load greater than is permitted by 780 CMR.

SECTION 107 CONSTRUCTION DOCUMENTS AND CONSTRUCTION CONTROL

107.1 General. Submittal documents consisting of *construction documents*, statement of special inspections, geotechnical report and other data shall be submitted in two or more sets with each permit application. The *construction documents* shall be prepared by a *registered design professional* where required by statute. Where special conditions exist, the *building official* is authorized to require additional *construction documents* to be prepared by a registered design professional. The *construction*

documents, computations, and specifications for in ground pools shall be prepared and designed by a *registered design professional.*

Exception: The *building official* is authorized to waive the submission of *construction documents* and other data not required to be prepared by a registered design professional if it is found that the nature of the work applied for is such that review of construction documents is not necessary to obtain compliance with 780 CMR. This exception shall not apply to in ground pools.

107.1.1 Professional Seal and Signature. All plans and specifications shall bear a seal and signature of the responsible registered design professional in accordance with M.G.L. c. 143, § 54A. See the applicable licensing board for any policy on electronic seal and signature for registered design professionals.

107.2 Construction Documents. *Construction documents* shall be in accordance with sections 107.2.1 through 107.2.9.

107.2.1 Information on Construction Documents. *Construction documents* shall be dimensioned and drawn upon suitable material. Electronic media documents are permitted to be submitted when approved by the *building official*. *Construction documents* shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of 780 CMR and relevant laws, ordinances, rules and regulations, as determined by the *building official*.

107.2.2 Fire Protection System Drawings. Drawings for the fire protection system(s) shall be submitted to indicate conformance to 780 CMR Chapter 9 and the applicable Referenced Standard. -The Tier 1 *construction documents* shall be approved prior to the issuance of the permit and the Tier 2 documents, including shop drawings, shall be submitted and approved prior to the start of the system installation. The drawings shall contain all information as required by the referenced installation standards in 780 CMR 9.00: *Fire Protection Systems*.

107.2.3 Means of Egress. The *construction documents* shall show in sufficient detail the location, construction, size and character of all portions of the means of egress in compliance with the provisions of 780 CMR. In other than occupancies in Groups R-2, R-3, and I-1, the *construction documents* shall designate the number of occupants to be accommodated on every floor, and in all rooms and spaces.

Although not a portion of a Means of Egress, in Residential Use Groups, the *construction documents* shall show *Emergency Escape and Rescue* elements, when applicable.

107.2.4 Exterior Wall Envelope. *Construction documents* for all buildings shall describe the exterior wall envelope in sufficient detail to determine compliance with 780 CMR, including fire resistance ratings when required. The *construction documents* shall provide details of the exterior wall envelope as required, including flashing, intersections with dissimilar materials, corners, end details, control joints, intersections at roof, eaves or parapets, means of drainage, water-resistive membrane and details around openings. The *construction documents* shall include manufacturer's installation instructions that provide supporting documentation that the proposed penetration and opening details described in the *construction documents* maintain the weather resistance of the exterior wall envelope. The supporting documentation shall fully describe the exterior wall system which was tested, where applicable, as well as the test procedure used.

107.2.5 Energy Compliance submittal. The *construction documents* submitted with the application for permit shall be accompanied by the energy provisions of 780 CMR 13.00: *Energy Efficiency* or 225 CMR 22.00 and 23.00 where the municipality has adopted the Stretch energy code or Specialized stretch energy code.

107.2.6 – Reserved

107.2.7 - Reserved

107.2.8 Manufactured Buildings and Modular Homes. Document submittal for the erection or placement of said structures shall be as follows:

1. Site specific plans and specifications.
2. Plan Identification Number Assignment Form with BBRS number. This is to confirm plans have been approved by the Office of Public Safety and Inspections and shall include a stamp showing approval and signature.
3. Plans shall be stamped on every page by a third-party inspection agency.
4. Every page showing calculations by a registered design professional shall be provided with their stamp and signature.
5. Energy compliance certificate.
6. Set manuals are required to be on site at time of project set and shall be specific to the project.
   Exception: If all connection details are provided on the plans then the set manual is not required.
7. The Installer's information shall accompany the plan submittal package along with proof of approved certification from the manufacturer.

In accordance with 780 CMR Chapter 110.R3.8.1.1 and 110.R5.1.3.1 a "*Homeowner exemption*" may not be utilized to receive a permit to install, erect, or oversee the field erection of manufactured buildings.

107.2.9 Site Plan or Plot Plan. The *construction documents* submitted with the application for permit shall be accompanied by a site plan showing to scale the size and location of new construction and existing structures on the site, distances from lot lines, the established street grades and the proposed finished grades and, as applicable, flood hazard areas, floodways, and design base flood elevations; and it shall be drawn in accordance with an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot. The *building official* is authorized to waive or modify the requirement for a site plan when the application for permit is for alteration or repair or when otherwise warranted.

107.2.9.1 Design Flood Elevations. Where design flood elevations are not specified, they shall be established in accordance with section 1612.3.1.

107.3 Examination of Documents. The *building official* shall examine or cause to be examined the application documents and shall ascertain by such examinations whether the construction indicated and described is in accordance with the requirements of 780 CMR and other pertinent laws or ordinances under the building official's jurisdiction.

107.3.1 Fire Department Review. For permits that include fire protection systems under 780 CMR 4.00: *Special Detailed Requirements Based on Use and Occupancy*, 780 CMR 9.00: *Fire Protection Systems*, or 780 CMR 34.00: *Existing Buildings*, *construction documents* shall be filed with the *building official* who shall cause them to be filed with the head of the local fire department for review. The fire department shall have ten working days after receiving the documents to complete its review. Upon the fire department's written request, the *building official* may grant one or more extensions up to a total review period maximum of 30 days. If the fire department review is not received within the allotted timeframe the *building official* may, upon review, deem the documents in compliance with 780 CMR. If the head of the local fire department believes such *construction documents* to be non-compliant with 780 CMR or the reference standards, he or she shall notify the *building official* in writing citing relevant sections of non-compliance with 780 CMR or the section of the referenced standards adopted in 780 CMR 35.00: *Referenced Standards*. See M.G.L. c. 148, § 28A.

107.3.2 Approval of Construction Documents. When the *building official* issues a permit, "hard copy" paper *construction documents* shall be approved in writing or by a stamp stating, "Reviewed for Code Compliance." One set of *construction documents* so reviewed shall be retained by theR *building official*, and one such stamped set shall be returned to the applicant, shall be kept at the site of work and shall be open to inspection by the *building official* or a duly authorized representative.
Applications containing electronic *construction documents* will be considered "Reviewed for Code Compliance" when marked electronically by the permit issuer.

107.3.3 Previous Approvals. 780 CMR shall not require changes in the *construction documents*, construction or designated occupancy of a structure for which a lawful permit has been heretofore issued or otherwise lawfully

authorized, and the construction of which has begun and pursued in good faith within 180 days after the effective date of 780 CMR and has not been abandoned.

107.3.4 Phased Approval. The *building official* is authorized to issue a permit for the construction of foundations, selective demolition, or any other part of a building or structure before the construction documents for the whole building or structure have been submitted, provided adequate information and detailed statements have been filed complying with pertinent requirements of 780 CMR. The holder of such permit for the foundation or other parts of a building or structure shall proceed at the holder's own risk with the building operation without assurance that a permit for the entire structure will be granted.

107.3.5 Deferred Submittals. For the purposes of this section, deferred submittals are defined as those portions of the design that are not submitted at the time of the application and that are required to be submitted to the *building official* within a specified period. Deferral of any submittal items shall have the prior approval of the *building official*. The deferred submittal items shall not be installed until the deferred submittal documents have been approved by the *building official*.

107.4 Amended Construction Documents. Work shall be installed in accordance with the approved *construction documents*. Any changes made during construction that are not in compliance with the approved *construction documents* shall be resubmitted for approval as an amended set of *construction documents* prior to the commencement of the proposed work.

107.5 Retention of Construction Documents. One set of approved *construction documents* shall be retained by the building official in accordance with M.G.L. c. 66, § 8.

107.6 Construction Control.

107.6.1 General. This section shall apply to the construction controls, professional services and contractor services required for buildings and structures needing registered design professional services.

The following structures are exempt from the requirements of this section:

1. Any building containing less than 35,000 cubic feet of enclosed space, measured to the exterior surfaces of walls and roofs and to the top of a ground supported floor, or in the case of a crawl space, to the bottom surface of the crawl space. In the case of basement floors or levels, the calculation of enclosed space shall include such spaces. For additions to existing buildings, the volume of enclosed space shall include the entire existing building and all proposed additions.
2. Any one or two-family dwelling or any accessory building thereto.
3. Any building used exclusively for agricultural purposes. See Appendix C: Group U – Agricultural Buildings for occupancy and other limitations.
4. Retaining walls less than ten feet in height at all points along the wall as measured from the base of the footing to the top of the wall.
5. Structures where the *building official* determines that the scope of work is minor in nature and not needing registered design professional services.

Notwithstanding these exemptions, registered design professional services shall be required for activities which are deemed to constitute the practice of architecture or engineering as defined in M.G.L. c. 112, §§ 60A or 81D, except as provided in M.G.L. c. 143, § 54A and any legally required profession or as provided in M.G.L. c. 112, § 81R. Where work is performed by licensed trades people pursuant to M.G.L. c. 112, § 81R, shop drawings or plans and specifications prepared to document that work shall not be required to bear the seal or signature of a registered design professional. In lieu of a seal and signature the *building official* may require that the registered design professional review and approve shop or record drawings for general conformance to the design concept.

107.6.1.1 Specialized Structures. Telecommunication towers, wind turbine towers, and similar structures are engineered structures and shall be subject to the requirements of section 107.6.

107.6.1.2 Townhouse Buildings Greater Than 35,000 cubic feet. See 780 CMR 107.6: *Construction Control*.

107.6.2 Registered Design Professional Services.

107.6.2.1 Design. All plans, computations and specifications involving new construction, alterations, repairs, expansions, or additions or change in use or occupancy of existing buildings shall be prepared by or under the direct supervision of a registered design professional and shall bear his or her signature and seal (see section 107.1.1) Said signature and seal shall signify that the plans, computations, and specifications meet the applicable provisions of 780 CMR and accepted engineering practices. Any alternative means and methods which deviate from prescriptive requirements of 780 CMR shall be submitted to the *building official* for approval in a narrative form separate from the plans.

107.6.2.2 Construction. The registered design professionals who are responsible for the design, plans, calculations, and specifications, their designee or the registered design professionals who have been retained for construction phase services, shall perform the following tasks:

1. Review, for conformance to 780 CMR and the design concept, shop drawings, samples, and other submittals by the contractor in accordance with the requirements of the *construction documents.*
2. Perform the duties for registered design professionals in 780 CMR 17.00: *Special Inspections and Tests*.
3. Be present at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the work and to determine if the work is being performed in a manner consistent with the *construction documents* and 780 CMR.

The permit application shall not be deemed completed until all of the *construction documents* required by 780 CMR have been submitted. Documentation indicating that work complies with the plans and specifications shall be provided at the completion of each phase when required by the *building official*. Upon completion of the work, the registered design professional shall file a final document to the *building official* indicating that, to the best of his or her knowledge and belief, the work has been performed in accordance with the approved plans and 780 CMR. Forms for construction control, when required by the *building official,* shall be those required by the Board of Building Regulations and Standards.

107.6.2.3 Special Inspections and Tests. Special inspections and tests shall be provided in accordance with 780 CMR 17.00: *Special Inspections and Tests*. The applicant shall submit a statement of *special inspections* in accordance with 780 CMR Section 107.1 as a condition for permit issuance. This statement shall be in accordance with 780 CMR Section 1704.3. Copies of the test results shall be submitted to the *building official.*

107.6.2.4 Non Structural System Test and Inspection. Tests and inspections of non-structural systems shall be performed in accordance with applicable engineering practice standards, referenced standards listed in 780 CMR 35.00: *Referenced Standards*, or as otherwise specified in 780 CMR. Copies of the test results shall be submitted to the *building official.*

107.6.3 Construction Contractor Services. The actual construction of the work shall be the responsibility of the general contractor as identified on the approved permit and shall involve the following:

1. Execution of all work in accordance with the approved *construction documents*.
2. Execution and control of all means and methods of construction in a safe and satisfactory manner in accordance with all applicable local, state, and federal statutes and regulations.
3. Upon completion of the construction, certification in writing to the responsible registered design professional that, to the best of the contractor's knowledge and belief, construction has been done in substantial accord with section 107.6 and with all pertinent deviations specifically noted. The *building official* may require a copy of this certification.

107.6.4 Project Representation. When the building official determines that an applications for unusual designs or magnitude of construction are filed, or where reference standards require special architectural or engineering inspections, he or she may require that the project representative be a registered design professional in addition to those registered design professionals required elsewhere in accordance with 780 CMR section 107.6. This representative shall keep daily records and submit reports as may be required by the *building official*. This project representation requirement shall be determined prior to the issuance of the permit and may be a prerequisite for permit issuance. Refusal by the applicant to provide such service if required by the *building official* shall result in the denial of the permit. All fees and costs related to the performance of project representation shall be borne by the owner.

107.6.5 Building Official Responsibility. Nothing contained in section 107.6 shall have the effect of waiving or limiting the *building official's* authority to enforce 780 CMR with respect to examination of the contract documents, including plans, computations and specifications, and field inspections.

SECTION 108 TEMPORARY STRUCTURES AND USES

108.1 General. The *building official* is authorized to issue a permit for temporary structures and temporary uses. Such permits shall be limited as to time of service, but shall not be permitted for more than 180 days. The *building official* is authorized to grant extensions for demonstrated cause.

108.2 Conformance. Temporary structures and uses shall conform to the structural strength, fire safety, means of egress, accessibility, light, ventilation and sanitary requirements of 780 CMR as necessary to ensure public health, safety, and general welfare. (See 780 CMR 3103)

108.3 Fire Department Review. Temporary structures and uses shall be approved by the building official in consultation with the head of the local fire department.

108.4 Termination of Approval. The building official is authorized to terminate for cause and with written notice such permit for a temporary structure or use and to order the temporary structure or use to be discontinued.

108.5 State of Emergency. Upon declaration by the governor of a state of emergency under St. 1950. C. 639, or of an emergency detrimental to the public health under M.G.L. c. 17, § 2A, a building or space within a building may be used as a temporary emergency use for purposes of housing and/or caring for persons in accordance with procedures established for such purpose as contained in 780 CMR. See also780 CMR 31.00: *Special Construction* – Most specifically 780 CMR *3113 TEMPORARY EMERGENCY USE.*

SECTION 109 FEES

109.1 Payment of Fees. A permit shall not be valid until the fees prescribed by law have been paid, nor shall an amendment to a permit be released until the additional fee, if any, has been paid in the amount established by the applicable governing authority.

109.2 Schedule of Permit Fees. For state building permit fees, see 801 CMR 4.02: *Fees for Licenses, Permits, and Services to be Charged by State Agencies*. For municipal building permit fees, refer to the municipality.

109.3 Building Permit Valuations. The applicant for a permit shall provide an estimated value of project cost at time of application. If, in the opinion of the *building official*, the valuation is underestimated on the application, the permit shall be denied, unless the applicant can show detailed estimates to meet the approval of the *building official*. Final building permit valuation shall be set by the *building official*.

109.4 Work Commencing Before Building Permit Issued. Any person who commences any work on a building or structure governed by 780 CMR before obtaining the necessary building permit shall be in violation of 780 CMR and subject to penalties. See 780 CMR 114.

Exception: Emergency repairs as found in section 105.2.1.

109.5 Related Fees. Payment of the building permit fee shall not relieve the applicant or holder of the permit from the payment of other fees that are prescribed by law.

SECTION 110 INSPECTIONS

110.1 General. Construction or work for which a permit is required shall be subject to inspection by the *building official* and such construction or work shall remain accessible and exposed for inspection purposes until approved. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of 780 CMR or of other laws or ordinances. Inspections presuming to give authority to violate or cancel the provisions of 780 CMR or of other laws or ordinances shall not be valid. It shall be the duty of the permit applicant to cause the work to remain accessible and exposed for inspection purposes and that all work shall be conducted, installed, protected, and completed in a workman like and acceptable manner so as to secure the results intended by 780 CMR. Neither the *building official* nor the applicable enforcement authority shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

110.2 Preliminary Inspection. Before issuing a permit, the *building official* is authorized to examine or cause to be examined buildings, structures, and sites for which an application has been filed.

110.3 Required Inspections. The *building official* shall conduct inspections during construction at intervals sufficient to ensure compliance with the provisions of 780 CMR which may include inspections set forth in sections 110.3.1 through 110.3.10 (See also 110.4). The *building official* shall inform the applicant of the required points of inspection at the time of permit issuance. The building official may designate specific inspection points in the course of construction that require the contractor or builder to give the *building official* one business day notice prior to the time when those inspections need to be performed. The *building official* shall make the inspections within two business days after notification.

NOTE – **Manufacturer's Installation Instructions**. Manufacturer's installation instructions shall be provided when required by the *building official*.

110.3.1 Footing and Foundation Inspection. Footing and foundation inspections shall be made after excavations for footings are complete and any required reinforcing steel is in place. For concrete foundations, any required forms shall be in place prior to inspection. Materials for the foundation shall be on the job, except where concrete is ready mixed in accordance with ASTM C 94 the concrete need not be on the job.

110.3.2 Concrete Slab and Under-floor Inspection. Concrete slab and under-floor inspections shall be made after in-slab or under-floor reinforcing steel and building service equipment, conduit, piping accessories and other ancillary equipment items are in place, but before any concrete is placed or floor sheathing installed, including the subfloor.

110.3.3 Lowest Floor Elevation. In flood hazard areas, upon placement of the lowest floor, including the basement, and prior to further vertical construction, the elevation certification required in section 1612.4 shall be submitted to the *building official.*

110.3.4 Frame Inspection. Framing inspections shall be made after the roof deck or sheathing, all framing, fire-blocking/fire-stopping and bracing are in place and pipes, chimneys and vents to be concealed are complete, and the rough electrical, plumbing, heating, wires, pipes, and ducts are approved.

110.3.5 Lath and Gypsum Board Inspection. Lath and gypsum board inspections shall be made after lathing and gypsum board, interior and exterior, is in place, but before any plastering is applied or gypsum board joints and fasteners are taped and finished.

Exception: Gypsum board that is not part of a fire-resistance-rated assembly or a shear assembly.

110.3.5.1 Fire-resistance-rated Construction Inspection. Where fire-resistance-rated construction is required between dwelling units or due to location on property, the *building official* shall require an inspection

of such construction after lathing or gypsum board or gypsum panel products are in place, but before any plaster is applied, or before board or panel joints and fasteners are taped and finished.

110.3.6 Fire- and Smoke-resistant Penetrations. Protection of joints and penetrations in fire-resistance-rated assemblies, smoke barriers and smoke partitions shall not be concealed from view until inspected and approved.

110.3.7 Energy Efficiency Inspections. Inspections shall be made to determine compliance with 780 CMR13.00: *Energy Efficiency* and shall include, but not be limited to, inspections for: envelope insulation R and U values, fenestration U values, duct system insulation R values, and HVAC and water-heating equipment efficiency.

110.3.8 Other Inspections. In addition to the inspections specified above, the building official is authorized to make or require other inspections of any construction work to ascertain compliance with the provisions of 780 CMR and other laws that are enforced by the *building official*.

110.3.9 Special Inspections. For special inspections, see780 CMR 17.00.

110.3.10 Final Inspection. Final inspection shall be made after the permitted work is complete and prior to final occupancy of the building or structure.

110.3.10.1 Flood hazard documentation. If located in a flood hazard area, documentation of the elevation of the lowest floor as required in section 1612.4 shall be submitted to the *building official* prior to the final inspection.

110.4 Inspection Agencies. The *building official* is authorized to accept reports of approved inspection agencies, provided such agencies satisfy the requirements as to qualifications and reliability.

110.5 Inspection Requests. It shall be the duty of the holder of the permit or their duly authorized agent to notify the *building official* when work is ready for inspection. It shall be the duty of the permit holder to provide access to and means for inspections of such work that are required by 780 CMR. The *building official* may require the permit holder or his or her representative to attend these inspections.

110.6 Approval Required. Work shall not continue beyond the point indicated in each successive inspection without first obtaining the approval of the *building official*. Upon notification, the *building official,* shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed, or notify the permit holder or his or her agent wherein the same fails to comply with 780 CMR. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the *building official*.

110.7 Periodic Inspections. After receiving an application by the *owner* or owner's designee, the *building official* shall inspect existing buildings and structures, and parts thereof, in accordance with Table 110: *Schedule for Periodic Inspections of Existing Buildings*. Such buildings shall not be occupied or continue to be occupied without a valid Certificate of Inspection. Lack of a current Certificate of Inspection may be enforced in accordance with *780 CMR Section 114.3 Enforcement.* Periodic inspections required by this section do not apply to residences operated or licensed by the Massachusetts Department of Developmental Services and subject to 780 CMR 51.00: *Massachusetts Residential Code*

Table 110: Schedule for Periodic Inspection of Existing Buildings [1, 3, 4, 5]
(See Chapters 3: *Use and Occupancy Classification* and 4: *Special Detailed Requirements Based on Use and Occupancy* for complete descriptions of use groups.)

Use Group	Use Group Description	Use Group Description	Minimum Inspections[3]	Maximum Certification Period
A-1[1]	Movie theaters or theaters for performing acts (stage and scenery)	> 400 occupant load ≤ 400 occupant load	Semi-annual	One year

			Semi-annual	One year
A-2[1]	Restaurants, Night Clubs or similar uses	> 400 occupant load[1] ≤ 400 occupant load[1]	Semi-annual[1] Annual[1]	One year One year
A-3[1]	Lecture halls, dance halls, churches and places of religious worship, recreational centers, terminals, etc.	> 400 occupant load < 400 occupant load	Semi-annual Annual	One year One year
A-4[1]	Low density recreation and similar uses.		See note 3 & 5.	Five years
A	Special amusement buildings or portions thereof.		See note 3.	One year
B	Special amusement buildings or portions thereof.		See note 3.	One year
E	Educational, and "E" Use day care		see note 3.	One year
I-1	Group home		see note 3.	One year
I-2	Residents incapable of self-preservation: hospitals, nursing home, mental hospitals, certain day care facilities.		See note 3.	Two years[2]
I-3	Residents restrained: prisons, jails, detention centers, etc.		see note 3.	Two years
I-4	Adult and/or child day care facilities.		See note 3.	One year
R-1	Hotels, motels, boarding houses, etc.		see note 3.	One year
R-1	Detoxification facilities		see note 3.	Two years
R-2	Multi-family		see note 3 &5.	Five years
R-2	Dormitories and R-2 Congregate Living		see note 3	One year
R-2	Summer Camps for children.		Annual	One year
R-3	Residential facilities licensed by DDS or DMH		Annual	One year
Other R Uses	NON-Primarily Owner occupied residential facilities utilized as a *short term rental: Use Group as determined in Section 310*.		Annual	One year
R-3	Primarily owner occupied One and/or Two family dwellings used as a *Lodging House* for *short term rentals*.		See Note 5.	Five Years
Chapter 51 Residential Code	Primarily owner occupied One and Two family dwellings used as a *Lodging House* for *short term rentals* per 780 CMR Chapter 51.		See Note 5.	Five Years
R-4	Residential care/assisted living facilities (< 16 persons)		Annual	One Year
Any	Facilities licensed by the Alcohol Beverage Control Commission where alcoholic beverages are served and consumed.		Annual[4] as per M.G.L. c. 10, § 74	One year as per M.G.L. c. 10, § 74
Any	House museums (as recognized by Massachusetts Historical Commission)		Annual	One year
Any	Fire escapes, etc. per 780 CMR 10.00: *Means of Egress*		Five years	Five years

NOTES:

1. When appropriate the inspection for the Certificate of Inspection should include and be timed to satisfy the requirements of M.G.L. c. 10, § 74.
2. One year for facilities licensed or operated by the Department of Mental Health ("DMH").
3. Application shall be made prior to the expiration of the existing Certificate of Inspection.
4. Certificates of inspection for establishments intending to sell alcoholic beverages to be consumed on the premises shall be governed by M.G.L. c. 10, § 74 and the inspection schedule in section 110.7. The building official may issue a temporary inspection certificate, once co-signed by the building official and by the head of the fire department, effective to a date certain for the establishment.
5. It is the responsibility of building owner to meet the inspection requirements in this table for continued use and occupancy. The maximum certification period specified in the table is intended to provide administrative flexibility. For uses allowing more than a one year maximum certification period, the *building official* shall determine the certificate validity term. (For example, an R-2 apartment building could be certified for one, two, three, four or five years.)

110.7.1 Proof of Maintenance required by 780 CMR 102.8. Documentation of the maintenance of the existing building features listed in 102.8 shall be provided to the building official prior to or at the time of the periodic inspection. The building official may request proof of maintenance of additional building features regulated by 780 CMR. At a minimum, provide the following documentation:

1. copy of the latest fire extinguisher inspection report (or invoice)

2. copy of the latest fire sprinkler test report

3. copy of the latest standpipe test report (when applicable)

4. copy of the latest fire alarm test report (including emergency lighting see #6)

5. copy of the latest 90-minute emergency lighting test for lighting and exit signs (if battery powered)

6. copy of the latest "kitchen hood" suppression system test report (if applicable)

7.copy of the latest generator test report (if applicable)

8.copy of the exterior stair/balcony/fire escape 5 year certificate (if applicable)

9.report showing compliance with NFPA 80, (when applicable)

SECTION 111 CERTIFICATE OF OCCUPANCY AND USE

111.1 Use and Occupancy. No building or structure shall be used, or occupied, and no change in the existing occupancy classification of a building or structure or portion thereof shall be made, until the *Building Commissioner/Inspector of Buildings*, or where applicable, *State Building Inspector*, has issued a Certificate of Occupancy and Use as provided herein. A *Local Inspector* shall not sign or issue Certificates of Occupancy and Use. Issuance of a Certificate of Occupancy and Use shall not be construed as approval of a violation of the provisions of 780 CMR or of other laws or ordinances. Conformance to all applicable specialized codes of M.G.L. c. 143, § 96, and, when applicable, submittal of a certificate of compliance for Title 5 in accordance with 310 CMR 15.00: *The State Environmental Code, Title 5*-are requirements of the issuance of the Certificate of Occupancy and Use.

All new non-residential buildings larger than 10,000 square feet and any major reconstruction, alteration or repair of all such buildings must provide building commissioning or acceptance testing documentation showing building performance as designed consistent with the energy provisions of 780 CMR 13.00: *Energy Efficiency* or 225 CMR 22.00 and 23.00 where the municipality has adopted the Stretch energy code or Specialized stretch energy code. Such commissioning must be completed before the issuance of a certificate of occupancy.

EXCEPTION: Certificates of Occupancy and Use are not required for work exempt from permits under section 105.2.

111.1.1 Buildings or Structures Hereafter Altered. When a building or structure: a.) is changed in whole or in part; b.) is altered to change from one use group to another; c.) is changed to a different use within the same use group; or, d.) increases the maximum live load capacity or the occupancy load capacity: the building or structure shall not be occupied or used until a new Certificate of Occupancy and Use is issued by the *Building Commissioner/Inspector of Buildings*, or where applicable, *State Building Inspector*. The Certificate of Occupancy and Use shall be issued certifying that the work has been completed in accordance with the provisions of the approved permits and of the applicable codes for which the permit is required.

111.1.2 Certificate of Completion: When work completed under a permit pursuant to 780 CMR does not trigger a new Certificate of Occupancy and Use, a final inspection shall be performed, and if the work performed is in compliance with the approved application and 780 CMR, a Certificate of Completion may be issued by the *building official*, designating that the work has been completed in accordance with the provisions of the approved permit and no further inspections are necessary.

111.1.3 Massachusetts Licensed Care Facilities. Certificate of Occupancy and Use inspections for Massachusetts licensed care facilities, including, inspection of special building features required by the licensing agency, shall be limited to verifying compliance with the provisions of 780 CMR.

111.2 Certificate Issued. When a Certificate of Occupancy and Use is required, and after the *building official* inspects the building or structure and finds no violations of the provisions of 780 CMR or other laws enforced by the *building official* having jurisdiction pursuant to MGL 143 § 3A, the *Building Commissioner/Inspector of Buildings* or where applicable *State Building Inspector* shall issue a Certificate of Occupancy and Use within ten days. The Certificate shall contain the following:

1. The building permit number.
2. The address of the structure.
3. The name and address of the owner when the permit was issued.
4. A description of that portion of the structure for which the certificate is issued.
5. A statement that the described portion of the structure has been inspected for compliance with the requirements of 780 CMR for the occupancy and division of occupancy and the use for which the proposed occupancy is classified.
6. The name of the *Building Commissioner/Inspector of Buildings* or *State Building Inspector*.
7. The edition of the code under which the permit was issued.
8. The use and occupancy, in accordance with the provisions of 780 CMR 3.00: *Use and Occupancy Classification*.
9. The type of construction as defined in 780 CMR 6.00: *Types of Construction*.
10. The design occupant load.
11. If an automatic sprinkler system is provided, whether the sprinkler system is required.
12. Any special stipulations and conditions of the building permit.
13. If the facility is licensed by an Agency of the Commonwealth, the name of the agency and the name and number of any relevant Code of Massachusetts Regulations that apply regarding building features.

111.3 Temporary Occupancy. The *Building Commissioner/Inspector of Buildings* or where applicable, *State Building Inspector* is authorized to issue a temporary Certificate of Occupancy and Use before the completion of the entire work covered by the permit, provided that such portion or portions shall be occupied safely. The *Building Commissioner/Inspector of Buildings* or where applicable, *State Building Inspector* shall set a time period, not to exceed 180 days, during which the temporary Certificate of Occupancy and Use is valid. Upon written request from the permit holder, the issuer may extend the temporary occupancy permit for additional 30 day periods or a period at the discretion, and within the jurisdiction, of the issuing *Building Commissioner/Inspector of Buildings* or where applicable, *State Building Inspector*. *Local Inspectors* shall not sign or issue temporary Certificates of Occupancy and Use.

111.4 Revocation. The *Building Commissioner/Inspector of Buildings* or where applicable, *State Building Inspector* s authorized to, in writing, suspend or revoke a Certificate of Occupancy and Use or Certificate of Completion issued under the provisions of 780 CMR whenever the Certificate is issued in error, or on the basis of incorrect information supplied by the permit holder, or where it is determined that the building or structure or portion thereof is in violation of any ordinance or regulation enforced by the *building official* or any of the provisions of 780 CMR within their jurisdiction.

111.5 Posting. Buildings and structures shall be posted for occupancy as noted in this section.

111.5.1 Posting of Use and Occupancy. A copy of the Certificate of Occupancy and Use shall be posted at the main entry or be made readily available for inspection.

111.5.2 Required Egress Posting. A suitably designed placard, approved by the *building official* shall be posted by the owner on all floors of every building and structure, except High Hazard, Factory, and 1-3 use occupancies, as defined in 780 CMR 3.00: *Use and Occupancy Classification*. In addition to the per floor requirement, all rooms used as a place of assembly or as an R-l sleeping space shall have the required egress posting. Said placard shall be securely fastened to the building or structure in a readily visible place, showing the *means of egress* paths per floor.

111.5.3 Place of Assembly Posting. A placard suitably designed in contrasting colors and approved by the *building official*, shall be posted by the owner in every room where practicable of every building and structure and part thereof designed for use as a place of public assembly (A-Use Groups). Said placard shall designate all of the occupant loads approved for each configuration within each room or space.

111.5.4 Replacement of Posted Signs. All posting signs shall be furnished by the owner and shall be of permanent design; they shall not be removed or defaced, and if lost, removed or defaced, shall be immediately replaced.

111.5.5 Periodic Posting Inspection. The *building official* may periodically inspect all existing buildings and structures except one- and two-family dwellings for compliance with 780 CMR in respect to posting; or may accept the report of such inspections from a registered design professional or others certified by the BBRS; and such inspections and reports shall specify any violation of the posting requirements of 780 CMR.

SECTION 112 SERVICE UTILITIES – Reserved

SECTION 113 APPEALS

113.1 General. Appeals of orders, decisions, determinations, and failures to act made by any state or local agency, or any person or state or local agency charged with the administration or enforcement of the state building code or any of its rules and regulations, except the specialized codes of M.G.L. c. 143, § 96, relative to the application and interpretation of 780 CMR shall be addressed by the Building Code Appeals Board in accordance with M.G.L. c. 143, § 100. Applications for filing an appeal shall be in a form acceptable to the Board.

113.2 Limitations on Authority. Reserved

113.3 Qualifications. Reserved

113.4 Local and Regional Boards of Appeals. Pursuant to MGL 143 100, The appeals board may establish a local board of appeals in a city or town or a regional board of appeal for more than two or more cities or towns consisting of not less than three nor more than five members. The appeals board may require as a condition precedent to appeal to the appeals board that said appeal be first heard by such local or regional board of appeals. Such local or regional board of appeals may establish rules for its own procedure and shall have the same powers and duties relative to appeals as the building code appeals board. A copy of any decision by a local board of appeal shall be transmitted to the board within ten days after the rendering of such decision

113.4.1 Review. Any person, including the Building Code Appeals Board, aggrieved by a decision of the local board of appeals, whether or not a previous party to the decision, or any municipal officer or official board of the municipality, may, not later than 45 days after the mailing of the decision of the local board, apply to the Building Code Appeals Board for a hearing de novo, in accordance with section 113. All local appeal decisions are to be reviewed by the BBRS.

SECTION 114 VIOLATIONS

114.1 Unlawful Acts. It shall be unlawful for any person, firm, or corporation to erect, construct, alter, extend, repair, move, remove, demolish, occupy or change the use or occupancy of any building, structure, equipment regulated by 780 CMR, or cause the same to be done in conflict with or in violation of any of the provisions of 780 CMR.

114.2 Notice of Violation. The *building official* is authorized to serve a notice of violation or order on the person responsible for the erection, construction, alteration, extension, repair, moving, removal, demolition or occupancy of a building or structure in violation of the provisions of 780 CMR, or in violation of a permit or certificate issued under the provisions of 780 CMR. Such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation.

114.2.1 Notice Service and Content. The initial notice of violation may be verbal, but shall be followed in writing within 48 hours. For the purposes of an Appeal, the date of the written notice of violation shall be the official date of

service. Every notice or order authorized pursuant to 114.2 shall be in writing and shall be served on the person responsible:

1. Personally, by any person authorized by the building official; or
2. By any person authorized to serve civil process by leaving a copy of the order or notice at the responsible party's last and usual place of business or abode; or
3. By sending the party responsible or his or her agent authorized to accept service of process in the Commonwealth a copy of the order by registered or certified mail return receipt requested, if he or she is within the Commonwealth;
4. By electronic means by which receipt can be verified; or
5. If the responsible party's last and usual place of business or abode is unknown, by posting a copy of this order or notice in a conspicuous place on or about the premises in violation and by publishing it for at least three out of five consecutive days in one or more newspapers of general circulation wherein the building or premises affected is situated.

114.3 Enforcement. Violations to 780 CMR shall be enforced in accordance with the applicable provisions of M.G.L. c. 143, M.G.L. c. 148, and M.G.L. c. 148A.

114.4 Violation Penalties. Any person who violates a provision of 780 CMR or fails to comply with any of the requirements thereof or who erects, constructs, alters or repairs a building or structure, or makes a change of use in violation of the approved construction documents or directive of the building official, or of a permit or certificate issued under the provisions of 780 CMR, shall be subject to penalties as prescribed by M.G.L. c. 143, § 94(a), M.G.L. 148, or M.G.L. c. 148A.

SECTION 115 STOP WORK ORDER

115.1 Authority. Whenever the *building official* finds any work regulated by 780 CMR being performed in a manner either contrary to the provisions of 780 CMR or dangerous or unsafe, the *building official* is authorized to issue a stop work order.

115.2 Issuance. The initial stop work order may be verbal but shall be in writing within 48 hours and shall cite the time and date of the verbal order and be given to the owner of the property involved, or to the owner's agent, or to the person performing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order, and the conditions under which the cited work will be permitted to resume.

115.3 Unlawful Continuance. Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be subject to penalties as prescribed by M.G.L. c. 143, § 94(a). Each day during which a violation exists shall constitute a separate offense.

SECTION 116 UNSAFE STRUCTURES AND EQUIPMENT

116.1 General. The provisions of this section are established by and work in conjunction with the requirements of M.G.L. c. 143, §§ 6 through 12.

116.2 Standards for Making Buildings Safe or Secure. Any owner of a building who has been notified that said building shall be made safe or secure under section 116, shall:

1. Remove all materials determined by the head of the fire department or *building official* to be dangerous in case of fire.
2. Secure all floors accessible from grade utilizing one of the following methods so long as such method is approved by the head of the fire department and *building official* in writing:
   a. Secure all window and door openings continuously until such time as the building is reoccupied, in accordance with the U.S. Fire Administration, National Arson Prevention Initiative Board Up Procedures;
   b. Provide 24 hour watchman services, continuously until such time as the building is reoccupied; or
   c. Provide a monitored intruder alarm system at the perimeter of all floors accessible from grade, continuously until such time as the building is reoccupied.

Said owner, as the case may be, shall notify the *building official* that the approved method chosen to secure the building has been incorporated. Said owner shall allow the *building official* to enter the building for an inspection to ascertain that the building is secured and made safe. Said owner shall allow the head of the fire department to enter the building. The *building official* shall be supplied with records of maintenance and operation if the provisions of section 116.2 items 2b. or 2c. are used.

3. Maintain any existing fire alarms or sprinkler systems unless written permission is obtained from the head of the fire department in accordance with M.G.L. c. 148, § 27A to shut off or disconnect said alarms or systems.
4. Maintain utilities unless written permission is obtained from the *building official* to disconnect said utilities, a copy of which shall be forwarded to the head of the fire department. Permission to disconnect utilities shall not be granted if it will result in inadequate heat to prevent freezing of an automatic sprinkler system or inadequate utilities to maintain any other protection systems.
5. The requirements of section 116.2 items 1. Through 4. Do not prevent a *building official* from issuing other orders or taking expeditious, temporary security measures in emergency situations pending the completion of the requirements of section 116.2 items 1. Through 4.

For the purposes of section 116, an "emergency situation" shall be defined as: an unexpected incident, which by its very nature may present a threat to public safety personnel who may be required to affect a rescue effort or conduct fire extinguishment operations.

Upon refusal or neglect of said owner to comply with such notice, any *building official* acting under the authority of M.G.L. c. 143, §§ 6 through12, shall enforce section 116.2 item 2a. or other equivalent procedure approved by the head of the fire department, continuously until such time as the building is reoccupied.

Any building which has been made to conform to the provisions of 780 CMR section 116.2 during vacancy may be reoccupied under its last permitted use and occupancy classification, provided that any systems which were disconnected or shut down during the period of vacancy are restored to fully functional condition and subject to 780 CMR section 105 and M.G.L. c. 40A. The *building official* shall be notified in writing prior to re-occupancy. If said building is changed in use or occupancy or otherwise renovated or altered it shall be subject to the applicable provisions of 780 CMR 34.00: *Existing Building Code*.

116.3 Marking or Identifying Certain Buildings That Are Especially Unsafe in the Case of Fire. Any *building official* who determines that a building is especially unsafe in case of fire under section 116 shall notify the head of the fire department about the existence of said building.

CHAPTER 2: DEFINITIONS

202 Add or revise definitions as follows:

AGRICULTURE. Defined by M.G.L. c. 128, § 1A. Specifically, "farming" or "agriculture" shall include farming in all of its branches and the cultivation and tillage of the soil, dairying, the production, cultivation, growing and harvesting of any agricultural, aquacultural, floricultural or horticultural commodities, the growing and harvesting of forest products upon forest land, the raising of livestock including horses, the keeping of horses as a commercial enterprise, the keeping and raising of poultry, swine, cattle and other domesticated animals used for food purposes, bees, fur-bearing animals, and any forestry or lumbering operations, performed by a farmer, who is hereby defined as one engaged in agriculture or farming as herein defined, or on a farm as an incident to or in conjunction with such farming operations, including preparations for market, delivery to storage or to market or to carriers for transportation to market.

BASE FLOOD ELEVATION. The elevation of the base flood, including wave height, relative to the National Geodetic Vertical Datum ("NGVD"), North American Vertical Datum ("NAVD") or other datum specified on the Flood Insurance Rate Map ("FIRM"). For AO zones the base flood elevation shall be the elevation of the highest adjacent grade plus the depth specified on the FIRM or the elevation of the highest adjacent grade plus two feet if no depth is specified.

BOARDING HOUSE. A building arranged or used for lodging for compensation, with or without meals.

BUILDING OFFICIAL. The building commissioner/inspector of buildings, local inspector or state building inspector charged with the administration and enforcement of 780 CMR in accordance with M.G.L. c. 143, §§ 3 and 3A.

COASTAL DUNE. Any natural hill, mound or ridge of sediment landward of a coastal beach deposited by wind action or storm overwash. Coastal dune also means sediment deposited by artificial means and serving the purpose of storm damage prevention or flood control. For purposes of 780 CMR, a coastal dune is one that has been determined to be significant to the interests of flood control and/or storm damage prevention as defined in the Wetlands Protection Act, M.G.L. c. 131, § 40. Coastal Dunes are subject to the construction requirements of Appendix G.

COASTAL WETLAND RESOURCE AREA. Any coastal wetland resource area subject to protection under the Wetlands Protection Act, M.G.L. c. 131, § 40, and the Wetlands Protection Act Regulations, 310 CMR 10.00. Coastal Wetland Resource Areas include barrier beaches, coastal beaches, coastal dunes, rocky intertidal shores, tidal flats, land subject to coastal storm flowage, coastal banks, land containing shellfish, lands subject to tidal action, and lands under an estuary, salt pond or certain streams, ponds, rivers, lakes or creeks within the coastal zone that are anadromous/catadromous fish runs. See Appendix G for all construction requirements in these areas.

COMBUSTIBLE LIQUID.A liquid having a closed cup flash point at or above 100°F (38°C). Combustible liquids shall be subdivided as follows:

Class II. Liquids having a closed cup flash point at or above 100°F (38°C) and below 140°F (60°C).
Class IIIA. Liquids having a closed cup flash point at or above 140°F (60°C) and below 200°F (93°C).
Class IIIB. Liquids having a closed cup flash point at or above 200°F (93°C).
EXCEPTIONS: The category of combustible liquids shall not apply to:

1. Compressed gases or cryogenic fluids.
2. Class II and III liquids that are not heated to or above their flash points and:
    a. that have no fire point when tested in accordance with ASTM D92, up to the boiling point of the liquid or up to a temperature at which the sample being tested shows an obvious physical change; or

b. that are in a water-miscible solution or in a dispersion with a water and inert (non-combustible) solids content of more than 80% by weight, which do not sustain combustion when tested using 49 CFR 173 Appendix H or the UN Recommendation on the Transport of Dangerous Goods.

DESIGN FLOOD. See Base Flood.

DESIGN FLOOD ELEVATION. See Base Flood Elevation.

ELECTRIC VEHICLE SERVICE EQUIPMENT (EVSE) Level -2 (220 – 240V). The conductors, including the ungrounded, grounded, and equipment grounding conductors, and the Electric Vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the Electric Vehicle. Informational note: defined as in 527 CMR 12 section 625.2.

FIRE AREA. The aggregate area of a building, regardless of subdivisions by fire barriers, fire walls, or horizontal assemblies.

FLOOD HAZARD AREA. The greater of the following two areas:

1. The area within a flood plain subject to a 1-percent or greater chance of flooding in any year as identified on a community's current effective Flood Insurance Rate Map ("FIRM") or Flood Hazard Boundary Map ("FHBM"), whichever is applicable.
2. If a community has received preliminary FIRM and Flood Insurance Study ("FIS") from FEMA, and has been issued a Letter of Final Determination ("LFD") from FEMA, the area designated as a flood hazard area on the community's preliminary FIRM, and FIS as of the date of the LFD.

HIGH-RISE BUILDING. A building more than 70 feet in height above grade plane.

HIGHER EDUCATION LABORATORY. Laboratories in Group B occupancies used for educational purposes above the 12th grade. Storage, use and handling of chemicals in such laboratories shall be limited to purposes related to testing, analysis, teaching, research or developmental activities on a nonproduction basis.

JURISDICTION. The Board of Building Regulations and Standards.

LABORATORY SUITE. A fire-rated, enclosed laboratory area providing one or more *laboratory work areas* within a occupancy that includes ancillary uses such as offices, bathrooms and corridors that are contiguous with the laboratory area, and are constructed in accordance with Section 428. *Laboratory suites* are classified within the occupancy group that contains similar uses having similar hazards and risks to building occupants. Interchangeable with the term "laboratory unit".

LABORATORY WORK AREA. A room or space for testing, analysis, research, instruction, or similar activities that involve the use of chemicals.

LODGING HOUSE. A one-family dwelling with five or fewer guest rooms where one or more occupants are primarily permanent in nature and compensation is provided for the guest rooms. A building licensed as a "lodging house" in accordance with M.G.L. c. 140, §§ 22 through31 shall comply with 780 CMR requirements according to its appropriate use and occupancy classification.

NATIVE LUMBER. Native lumber is wood processed in the Commonwealth of Massachusetts by a mill registered in accordance with 780 CMR 110.R4. Such wood may be ungraded but is stamped or certified in accordance with 780 CMR 110.R4.

NIGHT CLUB. An assembly occupancy with a high occupant load density that is generally characterized by at least two of the following: low lighting levels; music generating above-normal sound levels; nighttime operating hours; tables and seating that create ill-defined aisles; a specific area designated for dancing; or service facilities for beverages with limited food service. For night club construction requirements see section 432.

OFFICE. The Office of Public Safety and Inspections.

OFFICIAL INTERPRETATION. A written interpretation made by the BBRS, under authority of M.G.L. c. 143, § 94, or by the Building Code Appeals Board under authority of M.G.L. c. 143, § 100 of any provision of 780 CMR, or its referenced standards, except the specialized codes.

OWNER. Every person who alone or jointly or severely with others (a) has legal title to any building or structure; or (b) has care charge or control of any building or structure in any capacity including but not limited to agent, executor, executrix, administrator, administration, trustee or guardian of the estate of the holder of legal title; or (c) lessee under a written letter agreement; or (d) mortgagee in possession; I(e) agent, trustee or other person appointed by the courts. Each such person is bound to comply with the provisions of 780 CMR.

REGISTERED DESIGN PROFESSIONAL. An individual who is licensed or otherwise authorized to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the Commonwealth.

REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. See registered design professional.

SPECIALIZED CODES. Codes, rules or regulations pertaining to building construction, reconstruction, alteration, repair or demolition promulgated by and under the authority of various boards authorized by the general court. See M.G.L. c. 143, § 96.

SPECIAL INSPECTOR. A qualified person employed or retained by an approved agency and approved by the building official as having competence necessary to inspect a particular type of construction requiring special inspection. The Registered Design Professional in Responsible Charge is also permitted to serve as the special inspector if approved by the building official.

STATE BUILDING INSPECTOR. An "inspector" as described in M.G.L. c. 143,§ 3A.

SUBSTANTIAL REPAIR OF A FOUNDATION. When work to repair or replace a foundation results in the repair or replacement of a portion of the foundation with a perimeter along the base of the foundation that equals or exceeds 50% of the perimeter of the base of the foundation measured in linear feet, or repair or replacement of 50% of the piles, columns or piers of a pile, column or pier supported foundation, the building official shall determine it to be substantial repair of a foundation. Applications determined by the building official to constitute substantial repair of a foundation shall require all existing portions of the entire building or structure to meet the requirements of Section 1612.

SUMMER CAMPS FOR CHILDREN. Premises with residential facilities operated solely between April and October for recreational and other purposes. For requirements see Section 431.

TEMPORARY EMERGENCY USES. A building or space within a building that is used for purposes other than originally designed or intended. A temporary emergency use may only be used pursuant to the provisions of section 108. A Temporary Emergency Use building or space within a building shall be approved for such use by the municipal or state building official in consultation with the other appropriate municipal and state officials in accordance with Section 3117.

TEMPORARY OVERNIGHT SHELTER. See Section 3116.

TRANSFORMER VAULT. An underground structure or room in which power transformers, network protectors, voltage regulators, circuit breakers, and meters are housed.

202 Delete the following definition:

GREENHOUSE

780 CMR: MASSACHUSETTS AMENDMENTS TO THE *INTERNATIONAL BUILDING CODE 2021*

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION

Revise sections as follows.

304.1. Replace "*higher education laboratories*" with "*laboratory suites*".

304.4 Laboratory suites. *Laboratory suites* shall comply with Section 428.

305.2 Group E, day care facilities. Change "2½ years" to "2years, nine months"

306.2 Moderate-hazard factory industrial, Group F-1. Add\revise the following to list.

Cultivation of cannabis products (requiring dedicated lighting and/or atmospheric conditions)
Energy storage systems (ESS) in dedicated use buildings not classified as Use Group H
Energy storage systems not exceeding the maximum allowable quantities of 527 CMR 1.00. Engines (including rebuilding)
Greenhouses used for the purpose of manufacturing and/or processing cannabis products

[F] 307.1.1 Uses other than Group H. Add\revise the following items.

8. See Appendix C the storage or utilization of materials for agricultural purposes on the premises.
9. Energy storage systems not exceeding the maximum allowable quantities of 527 CMR 1.00.
17. Group B laboratory suite occupancies complying with Section 428 a 527 CMR 1.00.

307.1.1 17. Group B *laboratory suite* occupancies complying with Section 428 and 527 CMR 1.00 Chapter 26.

308.2.4 Five or fewer persons receiving custodial care. Delete the words or Section P2904 of the International Residential Code at the end of section and **Add** the following exception.

EXCEPTION: DDS group home facilities of five or fewer persons receiving custodial care. See Section 310.5. 308.3 Institutional Group I-2.

308.5.1 Classification as Group E. Change "2½ years" to "2.9 years" and **Add** the following exception.

EXCEPTION: Day care licensed as Family Child Care Homes and Large Family Child Care Homes under M.G.L. c. 15D shall comply with the International Residential Code.

310.2 Residential Group R-1. Add the following to the list.

One- and two-family houses available for rent (transient) with more than five guest rooms or more than 10 occupants.

310.4 Residential Group R-3. Add\revise the following to the list.
Boarding houses (nontransient) with 16 or fewer occupants
Boarding houses (transient) with ten or fewer occupants
Congregate living facilities (transient) with 10 or fewer occupants
Lodging houses (transient)
One- and two-family houses available for rent (transient) with five or fewer guest rooms and 10 or fewer occupants.

DDS facilities in conformance with the occupant safety requirements of 115 CMR 7.00: Standards for All Services and Supports.

310.4.2 Lodging houses. Delete the words or Section P2904 of the International Residential Code at the end of section.

310.5 Residential Group R-4. Add the sentence The persons receiving care are capable of self-preservation after Section 310.5.1 or 310.5.2.

Add\revise the following list.
Assisted living facilities (See also M.G.L. c. 19D for provisions related to certain assisted living 23 facilities administered by the Executive Office of Elder Affairs.)
Residential board and care facilities pursuant to 104 CMR 28.00: Licensing and Operational Standards for Community Programs and housing no more than 12 people

Delete from list.
Congregate care facilities

Revise as follows.
Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in 780 CMR.

312.1 General. Change this code to 780 CMR and **Revise** the following list.
Agricultural buildings (See Appendix C for applicable requirements.)
Fences more than 7 feet (2134 mm) in height measured from the ground surface to top of post

Add to list.

Greenhouses

CHAPTER 4: SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

[F] 403.4.5 Emergency communication coverage. Revise as follows.

In-building, two-way emergency responder communication coverage shall be provided in accordance with 780 CMR Chapter 9.

404.2 Use. Change *International Fire Code* to 527 CMR 1.00: Chapter 12.

[F] 404.3 Automatic sprinkler protection. Delete exception number 1.

406.5.2.2 Add subsection as follows.
Where barriers, textile, scrim, or other covering is added to an exterior wall of an open parking garage, the material shall be evaluated to verify that it does not obstruct natural ventilation. If the material is found to obstruct natural ventilation, the portion of the exterior wall obstructed shall not be included in the calculation of the open perimeter for the purposes of determining an open parking garage.

406.6.4 Mechanical-access enclosed parking garages. Revise as follows.
Mechanical-access enclosed parking garages and buildings containing *automated-type parking*, or portions thereof, shall be in accordance with Sections 406.6.4.1 through 406.6.4.4.

406.6.4.4 Access for fire service and maintenance personnel. Revise as follows.
Access for fire service and maintenance personnel shall be provided in accordance with Chapter 10 and as follows:
1. Fire service access doors shall be provided in exterior wall facing fire department vehicle access roads (which are defined and regulated by 527 CMR 1.00: Chapter 18), spaced no more than 150 ft apart.
2. Access shall be provided to each level of parking and the lowest level of the garage or structure.
3. Horizontal walkways for access shall be provided at intervals of 19.5 ft (6m) vertically and 98.5 ft (30 m) horizontally. 3. Travel distance to the exterior or to an enclosed stair shall not exceed 400 ft (122m).
4. A minimum of one exterior door shall be provided at grade for every stair.

406.7 Motor fuel-dispensing facilities. Revise as follows.
Motor fuel-dispensing facilities shall comply with 527 CMR 1.00: Chapter 42 and Sections 406.2 and 406.7.

406.8 Repair garages. Revise as follows.
Repair garages shall be constructed in accordance with 527 CMR 1.00: Chapter 30 and Sections 406.2 and 406.8. This occupancy shall not include motor fuel-dispensing facilities, as regulated in Section 406.7.

[F] 406.8.3 Automatic sprinkler system. Change Section 903.2.9.1 to this code.

407.1 General. Add subsection as follows.
407.1.1 M.G.L. requirements. Hospitals, nursing homes, and convalescent homes shall be constructed of at least Type IB construction in accordance with M.G.L. c. 111, §§ 51 and 71.

407.4 Means of egress. Change Sections 403 and 404 of the *International Fire Code* to 527 CMR 1.00.

[F] 408.11 Automatic sprinkler system. Change to Section 903.2.6 this code.

410.2.6 Scenery. Revise as follows.
Combustible materials used in sets and scenery shall meet the fire propagation performance criteria of Test Method 1 or Test Method 2, as appropriate, of NFPA 701, in accordance with 527 CMR 1.00: Chapter 12. Foam plastics and materials containing foam plastics shall comply with Section 2603 and 527 CMR 1.00: Chapter 32.

410.5 Means of egress. Revise as follows and **Delete** points 1, 2, and 3.
Except as modified or as provided for in this section, the provisions of Chapter 10 shall apply.

[F] 412.5.1 Occupancy classification. Change the *International Fire Code* to 527 CMR 1.00: Chapter 43 for such occupancy.

SECTION 413 Revise title to **COMBUSTIBLE STORAGE & BULK MERCHANDISING**

413.2 Attic, under-floor and concealed spaces. Revise exception and **Add** subsections as follows.

Exception: Neither fire-resistance-rated construction nor opening protectives are required in any of the following locations where not required by 780 CMR 7.

413.3 Bulk Merchandising. Unless otherwise noted in this section, the requirements for bulk merchandising retail buildings shall be in accordance with the requirements for high-piled combustible storage, and as set forth for Group M and Section 414.

413.4 Construction documents. At the time of building permit application for new structures designed to accommodate high-piled storage or for requesting a change of occupancy/use, and at the time of application for a storage permit, plans and specifications shall be submitted for review and approval. In addition to the information required by this code, the storage permit submittal shall include the information specified in this section. The construction documents shall include all of the following:

1. Floor plan of the building showing locations and dimensions of high-piled storage areas.
2. Usable storage height for each storage area.
3. Number of tiers within each rack, if applicable.
4. Commodity clearance between top of storage and the sprinkler deflector for each storage arrangement.
5. Aisle dimensions between each storage array.
6. Maximum pile volume for each storage array.
7. Location and classification of commodities in accordance with Chapter 32 of the International Fire Code.
8. Location of commodities that are banded or encapsulated.
9. Location of required fire department access doors.
10. Type of fire protection systems.
11. Location of valves controlling the water supply of ceiling and in-rack sprinklers.
12. Type, location and specifications of smoke removal and curtain board systems.
13. Dimension and location of transverse and longitudinal flue spaces.
14. Additional information regarding required design features, commodities, storage arrangement and fire protection features within the high-piled storage area shall be provided at the time of permit, where required by the building official.

413.4.1 Approved construction documents. Following approval of the construction documents, a copy of the approved plans shall be maintained on the premises in an approved location.
413.5 Approved storage layout. A floor plan, of legible size, shall be provided, mounted on a wall and protected from damage. The floor plan shall be mounted in an approved location and show the following:

1. Locations, dimensions and rack layout of high-piled storage areas.
2. Design storage height for each storage area.
3. Types of commodities.
4. Commodity clearance between top of storage and the sprinkler deflector for each storage arrangement.
5. Aisle dimensions between each storage array.
6. For palletized and solid-piled storage, the maximum pile volume for each storage array.
7. Location and classification of commodities in accordance with Section 3203 of the International Fire Code.
8. Location of required fire department access doors.
9. Location of valves controlling the water supply of ceiling and in-rack sprinklers.

413.6 Fire safety and evacuation plan. A fire safety and evacuation plan shall be submitted at the time of permit application to the head of the fire department for review and approval in accordance with 527 CMR 1.00. A copy of the approved fire safety and evacuation plan shall be maintained on the premises in an approved location.

413.6.1 The evacuation plan shall detail procedures, define roles and responsibilities of employees, and shall include an egress plan indicating routes of travel to all exits. The evacuation plan shall be used to ensure the safe evacuation of all customers and employees. All employees shall be instructed and periodically trained with respect to their duties, as required by 527 CMR 1.00: Chapter 10.

413.6.2 The certificate of use and occupancy shall not be issued until the fire safety and evacuation plan has been reviewed and approved by the head of the fire department.

413.6.3 Any changes to the evacuation plan shall not be effected until a revised plan has been submitted to and approved by the head of the fire department.

413.7 Hose Connections. A Class I automatic, wet standpipe system shall be provided in accordance with NFPA 14. Hose connections shall be located around the interior perimeter of the building within five feet of all required fire department access doors, adjacent to the latch side of the door. Hose connections shall be installed to accommodate 200 feet of travel distance to any point in the building.

413.7.1 Where the most remote portion of the building exceeds 200 feet of travel distance from the required access doors, additional hose connections shall be provided in locations approved by the head of the fire department. Hose connections shall be readily accessible and marked for fire department use only.

413.7.2 When approved by the head of the fire department the following exceptions shall be permitted:

1. Hose connections may be omitted when the following fire department building access and fire hydrant coverage is provided: minimum 20 feet wide, unobstructed access roadways located within 20 feet of the building on at least three sides, compliant with applicable provisions of 527 CMR 1.00: Chapter 18; minimum ten feet wide, unobstructed access route between the access roadway and the fire department access doors; and, fire hydrants in locations approved by the head of the fire department.

2. In lieu of a Class I standpipe system, a Class II automatic, wet standpipe system in accordance with NFPA 14 shall be permitted when the following fire department building access and fire hydrant coverage is provided: minimum 20 feet wide, unobstructed access roadways located within 50 feet of the building on at least three sides, compliant with applicable provisions of 527 CMR 1.00: Chapter 18; minimum ten feet wide, unobstructed access route between the access roadway and the fire department access doors; and, fire hydrants in locations approved by the head of the fire department. The hose connections shall be located as described above for the Class I standpipe system. Occupant hose shall not be required, and the hose connections shall be marked for fire department use only.

413.8 Fire department access doors. Fire department access doors shall be provided for fire department emergency access. Fire department access doors may be used as occupant egress doors. Access doors shall comply with all the following provisions:

1. Located adjacent to fire department access roadways,
2. Provided with an approved exterior fire department accessible key cylinder operable lock device,
3. Provided with approved fire department identification signs, and
4. Provided such that all points of the floor area are accessible within 200 feet of travel distance.

413.9 Fire department vehicle access. Fire department vehicle access comply with the provisions of 527 CMR 1.00: Chapter 18 and shall be provided on at least two sides of the building with such access to be approved by the head of the fire department prior to any construction.

413.9.1 Fire hydrants shall be provided in locations approved by the head of the fire department.

413.10 Means of Egress. Exit access travel distance shall be limited to 200 feet.

413.10.1 For bulk merchandising buildings, if the only means of customer entrance is through one exterior wall of the building, two thirds of the required egress width shall be located in this wall. At least one half of the required exits shall be located so as to be reached without passing through checkout stands. In no case shall checkout stands or associated railings or barriers obstruct exits, required aisles, or approaches thereto.

413.11 Fire protection systems. Fire protection systems shall be installed in accordance with Chapter 9 of this code and the International Fire Code. There are specific sprinkler criteria included in the IFC that apply to high-piled combustible storage. Also, provisions on sprinklers and fire alarm systems related to these occupancies in Chapter 9.

413.12 Hazardous material storage. Hazardous material storage shall be compliant with this code and 527 CMR 1.00: Chapter 60.

414.2 Control areas. Control areas shall comply with Sections 414.2.1 through 414.2.5 and the *International Fire Code*.

Exception: *Laboratory suites* in accordance with Section 428 and 527 CMR 1.00 Chapter 26.

[F] 416.1 General. Change *International Fire Code* to 527 CMR 1.00: Chapter 43.

[F] 416.2.3 Ventilation. Change *International Fire Code* to 527 CMR 1.00: Chapter 43 and the International Mechanical Code.

[F] 416.4 Spray booths. Change *International Fire Code* to 527 CMR 1.00: Chapter 43.

[F] 419.1 Artificial decorative vegetation. Change *International Fire Code* to 527 CMR 1.00: Chapter 12.

[F] 420.4 Automatic sprinkler system. Revise as follows.
Group R occupancies shall be equipped throughout with an automatic sprinkler system in accordance with 780 CMR. Group I-1 occupancies shall be equipped throughout with an automatic sprinkler system in accordance with 780 CMR 1.00. Quick-response or residential automatic sprinklers shall be installed in accordance with Section 903.3.2.

[F] 421.1 General. Add the words and 527 CMR 1.00: Chapter 63 to end of section.

[F] 422.4 Automatic sprinkler systems. Change Section 903.2.2 to 780 CMR.

[F] 426.1 General. Change *International Fire Code* to 527 CMR 1.00: Chapter 40.

[F] 426.1.4 Explosion control. Change *International Fire Code* to 527 CMR 1.00.

[F] 427.1 General. Change *International Fire Code* to 527 CMR 1.00: Chapter 63.

[F] 427.2.3 Gas cabinets. Change *International Fire Code* to 527 CMR 1.00: Chapter 63.

428. Revise section 428 as follows.

SECTION 428 LABORATORY SUITES

[F] 428.1 Scope. Laboratories complying with the requirements of Sections 428.1 through 428.4 shall be permitted to exceed the maximum allowable quantities of *hazardous materials* in *control areas* set forth in Tables 307.1(1) and [F] 307.1(2), and Table 414.2.2 without requiring classification as a Group H occupancy. Except as specified in Section 428, such laboratories shall comply with all applicable provisions of this code, including subsection 101.4.5.

Add following section.

428.1.1 Compliance options. Laboratories shall comply with one or more of the following:

1. **Laboratory Suites Method**. Laboratories shall be permitted to exceed the maximum allowable quantities of *hazardous materials* in *control areas* set forth in Tables 307.1(1), 307.1(2), and Table 414.2.2 without requiring classification as a Group H occupancy when also complying with the requirements of Section 428. This includes compliance with NFPA 45: Table 5.1.1 as amended in subsection 428.6 and Table 9.1.1(b).
2. **Control Area Method.** Laboratories are permitted to comply with the maximum allowable quantities of *hazardous materials* in *control areas* set forth in Table 307.1(1), 307.1(2), and Table 414.2.2 without requiring classification of Group H occupancy.
3. **Use Group H Method.** Laboratories are permitted to exceed the maximum allowable quantities of hazardous materials in control areas when classified as Group H.

428.1.1.1 The maximum number of laboratory suites and control areas shall be in accordance with subsection 428.3.4.

[F] 428.1.2 Application. Change Chapters 38 and 50 through 67 of the *International Fire Code* to 527 CMR 1.00.

Add subsections as follows.

428.2 Classification. *Laboratory suites* shall be classified in accordance with NFPA 45 subsection 4.2.1 and Table 9.1.1(b).

428.2.1 Higher Education Laboratories. *Laboratory suites* under direct supervision of an instructor that are used for purposes of instruction for students beyond the twelfth grade shall be classified as Class C or Class D *laboratory suites*.

428.2.2 Educational Laboratories. Laboratories in educational facilities for students through the 12th grade shall comply with the requirements for Group E occupancies. The laboratory suite provisions of Section 428 shall not be applied to laboratories in Group E occupancies.

Revise sections as follows.

428.3 Laboratory suite construction. Where *laboratory suites* are provided, they shall be constructed in accordance with this section. The number of *laboratory suites* and maximum allowable quantities of *hazardous materials* in *laboratory suites* shall be in accordance with NFPA 45: Table 5.1.1 as amended in subsection 428.6 and NFPA 45: Table 9.1.1(b).

Revise/add subsections as follows.

[F] 428.3.1 Separation from other nonlaboratory areas. Change reference to Table 428.3 to instead reference NFPA 45: Table 5.1.1 as amended in subsection 428.6.

[F] 428.3.2 Separation from other laboratory suites. Change to NFPA 45: Table 5.1.1 as amended in subsection 428.6.

[F] 428.3.3 Floor assembly fire resistance. Delete exception.

[F] 428.3.4 Maximum number. Change references to Table 428.3 in 2 places to instead read NFPA 45: Table 5.1.1 as amended in subsection 428.6.

[F] 428.3.5 Means of egress. *Means of egress* shall be in accordance with Chapter 10 and *NFPA 45: 5.3.1 and 5.3.2.*

428.3.6.1 Where required by the *International Mechanical Code* or NFPA 45, standby or emergency power shall be provided.

[F] 428.3.7 Ventilation. *Ventilation* shall be in accordance with Chapter 7 of NFPA 45, the *International Mechanical Code*, and ASHRAE 62.1.

428.3.7.1 Laboratory ventilation systems exhausting air from areas in use, in which flammable gases, vapors, or particulate matter are actively being released shall be continuously ventilated under normal conditions and shall be provided with standby power.

428.3.8 Liquid-tight floor. Portions of *laboratory suites* where *hazardous materials* are present shall be provided with a liquid-tight floor. The liquid-tight floor shall comply with NFPA 45: 5.1.5.1 and 5.1.5.2.

> **Exception:** Containment of water discharged from the automatic fire sprinkler system is not required to be included.

[F] 428.3.9 Automatic sprinkler systems. Add and 903.2.11.7 to end of section.

[F] 428.4 Maximum allowable quantity in each laboratory suite. The maximum allowable quantities of *hazardous materials* in each *laboratory suite* shall be in accordance with NFPA 45 Table 9.1.1(b).

428.5 Documentation. In addition to all other documents required by 780 CMR, the building management company, or a designated representative, must submit the following documents with the permit documents. These shall be reviewed with the Building and Fire Official and updated accordingly to receive a Certificate of Occupancy.

1. Emergency Action Plan
2. Hazardous Materials Management Plan 3. Hazardous Materials Inventory Statement

It is it responsibility of the building management company, or designated representative, to keep these documents current.

428.6 Amendments to NFPA 45: Table 5.1.1.

Where NFPA 45: Table 5.1.1 is referenced, said table shall be followed as amended below:

SEPARATION REQUIREMENTS AND HEIGHT ALLOWANCES FOR LABORATORY SUITES

Laboratory Suite Fire Hazard Class [a]	Permitted Stories	Number of Laboratory Suites Permitted per Story[e]		Fire Separation[b]

A	Above Grade Plane	1-3	4		2 hours
		4+	Not Permitted		Not Permitted
	Below Grade Plane	Not Permitted	Not Permitted		Not Permitted
B	Above Grade Plane	1-3	4		1 hour
		4-6	4		2 hours
		7+	Not Permitted		Not Permitted
	Below Grade Plane	Not Permitted	Not Permitted		Not Permitted
C	Above Grade Plane	1-3	4		1 hour [c]
		4-6	4		1 hour [c]
		7-15	2		2 hours
		16+	Not Permitted		Not Permitted
	Below Grade Plane	1	2		1 hour [c]
		2	1		1 hour [c]
		3+	Not Permitted		Not Permitted
D	Above Grade Plane	1-6	6		1 hour [c]
		7-20	4		2 hours
		21+	Not Permitted		Not Permitted
	Below Grade Plane	1	2		1 hour [c]
		2	1		1 hour [c]
		3+	Not Permitted		Not Permitted

a. Refer to NFPA 45 Table 9.1.1(b) for laboratory suite classification.

b. Separation in this table refers to fire separation from laboratory suite(s) to nonlaboratory areas or fire separations from laboratory suite(s) of equal or lower hazard classification.

c. A single Class C or Class D laboratory suite on a floor shall not be required to have fire separation.

d. The total number of laboratory suites per story shall not exceed the maximum number of laboratory suites permitted for the most restrictive laboratory suite fire hazard class.

SECTION 429: RESERVED

Add Sections 430 through 433 as follows.

SECTION 430 MOTION PICTURE AND TELEVISION PRODUCTION FACILITIES

430.1 Scope. This section addresses building code regulations for motion picture and television industry soundstages, production facilities, and approved production locations. All requirements not specified in this section shall conform to 780 CMR.

430.2 Referenced Standard. Except as otherwise noted in section 430.0, the buildings, structures and sites associated with motion picture and television industry soundstages, production facilities, and approved production locations shall be in accordance with NFPA 140 except NFPA101 does not apply. In addition, these facilities, shall meet 527 CMR 1.00: Chapter 32 and any other applicable Massachusetts specialized codes, see section 101.4.

430.3 Definitions. Definitions in NFPA 140 shall apply along with any additional terms that are defined by other reference standards.

430.4 Sound Stages and Approved Production Facilities.

430.4.1 Fire Protection. See NFPA 140, section 5.11.

430.4.2 Fire Department Building Access. See 527 CMR 1.00: Chapters 18 and 32.

430.4.3 Fire Hydrants. At least one fire hydrant shall be located on each side of the building. The head of the fire department shall determine fire hydrant locations. See 527 CMR 1.00: Chapters 18 and 32.

430.4.4 Portable Fire Extinguishers. Portable fire extinguishers shall be provided installed in accordance with NFPA 10 as listed in 780 CMR 35.00: Referenced Standards.

430.4.5 Automatic Sprinkler System. An automatic sprinkler system shall be designed and installed in accordance with the Extra Hazard, Group 2 requirements of NFPA 13 throughout all buildings having a soundstage, production studio or approved production facility. The automatic sprinkler system shall additionally meet the provisions of section 903, as applicable.

430.4.6 Fire Alarm Systems.

430.4.6.1 Manual Fire Alarm System. A manual fire alarm system meeting the requirements of subsection 907.3 shall be installed in all buildings having a soundstage, production studio, or which are approved production facilities.

430.4.6.2 Alarm Notification Appliances. Alarm notification appliances shall be provided in accordance with 780 CMR 9.00. With the approval of the head of the local fire department, the alarm notification appliances may be deactivated during videotaping, filming or broadcasting of programs as long as the building is equipped with a fully operating, approved and supervised automatic sprinkler system in accordance with NFPA 13.

430.4.6.3 Supervision. The automatic sprinkler system and fire alarm system shall be supervised in accordance with 780 CMR 9.00: Fire Protection Systems.

430.5 Means of Egress. Means of egress shall be in accordance with 780 CMR 10.00: Means of Egress except NFPA 140, sections 4.10.2 and 4.10.3, shall govern where there is conflict with 780 CMR 10.00: Means of Egress. Means of egress shall be appropriate for the intended use and subject to the approval of the building official in consultation with the head of the fire department.

430.6 Approved Production Locations.

430.6.1 Permits. A building permit is required for structures undergoing construction, reconstruction, and modification. Other permits may be required from the local fire department or as applicable to any specialized code.

430.6.2 Foamed Plastic Materials. Foamed plastic materials affixed to the building or structure and used for decorative purposes shall meet the requirements of NFPA140, Chapter 5.

430.6.3 Structural Loads. Buildings or structures shall be evaluated for increased loading caused by sets, scenery, and other equipment in accordance with 780 CMR.

430.6.4 Fire Department Access. See 527 CMR: 1.00: Chapters 18 and 32.

430.6.5 Means of Egress. See 780 CMR 10.00: Means of Egress.

430.7 Operating Features.

430.7.1 Audience Life Safety. When a live audience is present for a production, the provisions for life and means of egress shall be subject to the approval of the local building official in consultation with the head of the local fire department.

430.7.2 Notification in Event of Emergency. The production company shall provide the head of the local fire department an emergency notification procedure for the production location activities for review and approval. See 527 CMR: 1.00: Chapter 32.

SECTION 431: SUMMER CAMPS FOR CHILDREN

431.1 New and Existing Occupancies. This section shall apply to existing and new summer camps for children. The use of such accommodations for purposes of inspection and certification shall be considered as being similar to a dormitory in Use Group R-2.

431.2 Means of Egress. All one-story, one-room buildings having 1,000 ft.2 or fewer and having 25 occupants or fewer shall require only one means of egress provided that: 1. the length of travel does not exceed 50 feet from any point in the building to the outside at grade; and 2. the minimum width for aisles and corridors shall be three feet.

431.2.1 Emergency Escape. Every sleeping room shall have at least one exterior door or openable window to permit emergency exit or rescue; the windows shall conform to the following requirements: 1. shall be openable from the inside without the use of separate tools; 2. the sill height shall not be more than 36 inches above the finish floor and with a maximum six foot drop from the window sill to grade below the window; and 3. provide a minimum net clear opening area 5.7 ft.2 . The minimum net clear opening dimensions shall be 20 X 24 inches in either direction.

431.3 Fire Protection. Smoke detectors shall be required for existing and new residential units in accordance with section 907. When applicable, carbon monoxide ("CO") detectors shall be required in summer camps for children. In new construction of summer camps for children, and where applicable, CO detectors shall be hard-wired and interconnected or otherwise be of an acceptable wireless type and conform to location requirements and listing requirements as set forth in 780 CMR, 527 CMR 1.00: Chapter 13 or 248 CMR: Board of State Examiners of Plumbers and Gas Fitters, as applicable (see 248 CMR 5.09(7)). For existing summer camps for children undergoing alterations, additions, etc., refer to 780 CMR34.00: Existing Buildings Code.

For existing day care centers, located on the premises of summer camps for children, CO detectors shall conform to the requirements of 780 CMR, 527 CMR: Board of Fire Prevention Regulations or 248 CMR: Board of State Examiners of Plumbers and Gas Fitters, as applicable.

EXCEPTION: Tents and other temporary shelters which are designed to sleep less than eight persons and which have an open side consisting of greater than 1/6 of the perimeter of the shelter or which have built-in provisions for emergency escape.

431.4 Mechanical. If camps are heated, then the building shall conform to all applicable code sections and specialized codes.

431.5 Enforcement and Inspections. Enforcement shall be by the building official who shall inspect and certify the summer camps yearly, prior to season opening.

SECTION 432: NIGHTCLUBS

432.1 General. All buildings containing a nightclub with an occupant load 50 or greater shall comply with the provisions of this section and other applicable provisions of 780 CMR.

432.2 Sprinkler Protection. An approved automatic sprinkler system shall be provided throughout buildings containing a nightclub in accordance with section 903.3.1.1.

432.3 Foam Plastics and Interior Finishes. Foam plastics shall not be used in nightclubs as interior finish except as provided in section 803.4 and shall not be used as interior trim except as provided in sections 806.5 or 2604.2. This section shall apply both to exposed foam plastics and to foam plastics used in conjunction with a textile or vinyl facing or cover.

432.4 Entertainment System Response. The activation of any fire protection system element (signaling system, detection, sprinklering, etc.) shall automatically cause immediate:
1. illumination of all areas and components of the required means of egress, and additionally;
2. full activation of all other house lighting; and
3. stopping of any and all sounds and visual distractions (public address systems, entertainment and dance lighting, music, etc.) that conflict/compete with the fire protective signaling system.

432.5 Main Exit. The main entrance egress system shall be sized such that the width of all required means of egress elements is a minimum of 72 inches (nominal) or as determined by section 1029.2, whichever is greater. The main entrance/exit door system shall consist of a pair of side-hinged swinging type doors without a center mullion and shall be equipped with panic hardware.

432.5.1 Alternative Egress. The building official may allow an alternative means of compliance where conditions exist which would preclude the installation of a 72-inch egress system. This approval is contingent upon the submission of an egress analysis from a registered design professional which determines that there is adequate means of egress. As a condition of an alternative egress approach, low level exit pathway marking shall be provided in accordance with sections 1024.2 through 1024.5.

SECTION 433: INDOOR AGRICULTURE FOR CANNABIS

433.1 Scope. The provisions of this section shall apply to buildings or structures defined as indoor agriculture or portions thereof containing indoor agriculture with relation to Cannabis. This section shall not be deemed to impose, impact, or override any requirements on buildings or structures or portions thereof not utilized for Cannabis Cultivation or Extraction.

433.2 Definitions.

CANNABIS. The plant or any product derived from the plant, of the family cannabaceae; also known as marijuana or hemp, as further defined by MGL Ch. 94G sec. 1 and MGL Ch. 128 sec. 116-123.

CULTIVATION. To prepare, or prepare and use, soil or another growing medium for the raising of crops.

EXTRACTION. The process by which a substance is withdrawn from another substance by physical or chemical means.

EXTRACTION ROOM. A room where extraction occurs.

GREENHOUSE. A structure or thermally isolated area of a building that maintains a specialized sunlit environment used for and essential to the cultivation, protection or maintenance of plants.

INDOOR AGRICULTURE. The science or practice of farming, including cultivation for the growing of crops, and/or the rearing of animals to provide food, wool, and/or other products, conducted within a building or structure.

433.3 Cannabis Cultivation or Extraction. Indoor agriculture buildings used for cannabis cultivation or extraction shall comply with this section and other codes, as explicitly referenced.

433.3.1 Fire Protection and Life Safety Systems. Fire protection and life safety systems shall be provided in accordance with Chapter 9 for Group F-1 unless otherwise modified in this section, excluding greenhouse classified as Group U.

433.3.2 Means of Egress. Means of egress shall be in accordance with Chapter 109 10 of the International Building Code, as amended, for Group F-1 unless otherwise modified in this section.

433.3.3 Ventilation for Light Fixtures. Light fixture ductwork shall be installed in accordance with the manufacturer and the International Mechanical Code.

433.3.4 Odor Control. The use of ozone generators used for odor control shall comply with 527 CMR 1.00: Chapter 38 and 310 CMR 7.00: Air Pollution Control.

433.3.5 Carbon Dioxide Enrichment Equipment. The design, installation, and maintenance of equipment utilized for a carbon dioxide enrichment process with more than 100 lbs. (45.4 kg) of carbon dioxide or utilizing any quantity of carbon dioxide having a remote fill connection shall comply with this section.

433.3.5.1 Equipment. Pressure relief, vent piping, fill indicators, fill connections, vent terminations, piping systems, and the storage, use, and handling of the carbon dioxide shall be in accordance with 527 CMR 1.00: Massachusetts Comprehensive Fire Safety Code.

433.3.5.2 Gas Detection System. A gas detection system complying with 527 CMR 1.00: Massachusetts Comprehensive Fire Safety Code shall be provided in rooms or indoor areas in which the carbon dioxide enrichment process is located, in rooms or indoor areas in which container systems are located, and in other areas where carbon dioxide could accumulate. The system shall be designed in compliance with Subsection 38.5.3.2.2 of NFPA 1. Alternative methods of protection may be approved by the Inspector for greenhouses utilizing positive pressure.

433.3.5.3 Pressurization and Ventilation. See Subsection 38.5.3.3 of NFPA 1.

433.3.5.4 Signage. See Subsection 38.5.3.4 of NFPA 1.

433.3.5.5 Container Refilling. Carbon dioxide containers located indoors shall not be refilled unless filled from a remote connection located outdoors and comply with 527 CMR 1.00: Chapter 38.

433.3.5.6 Interior Finish, Contents, and Furnishings.

433.3.5.6.1 To be in Accordance with Chapter 8.

433.3.5.6.2 Hanging of plastic from ceiling or from suspended overhead structures to create wall dividers shall not be permitted.

433.3.5.7 Processing or Extraction. Processes or extraction involving hazardous materials or their by-products which have a hazard rating of more than 2, according to NFPA 704, and the use and storage of hazardous materials, shall comply with 527 CMR 1.00: Massachusetts Comprehensive Fire Safety Code.

433.3.5.7.1 General Location. See Subsection 38.6.1.1.2 of NFPA 1.

433.3.5.7.2 Exception. Extraction shall not be located in any building containing Use Groups A, E, I, R, or ambulatory health care.

433.3.5.7.3 Means of Egress. For extraction rooms using hazardous materials, each room shall be provided with exit access door(s) in accordance with Chapter 10 and complying with Subsection 38.6.1.1.4 of NFPA 1.

433.3.5.7.4 Signage. See Subsection 38.6.1.5 of NFPA 1.

433.3.5.7.5 Liquefied Petroleum Gas (LPG) Extraction or Processes. Facilities using liquefied petroleum gas solvents shall comply with this section and 527 CMR 1.00: Chapters 38 and 60.

433.3.5.7.5.1 An exhaust system approved by the Inspector and the head of the Fire Department shall be provided for LPG extractions.

433.3.5.7.5.2 Operations shall be conducted in compliance with Subsection 38.6.2.2.3 of NFPA 1 and 527 CMR 1.00: Massachusetts Comprehensive Fire Safety Code.

433.3.5.7.5.3 Electrical work shall be performed in accordance with 527 CMR 12.00: Massachusetts Electrical Code (Amendments) and Subsection 38.6.2.3 of NFPA 1.

433.3.5.7.5.4 Extraction Room Gas Detection System. An approved continuous gas detection system shall be provided in the extraction room in accordance with subsection 38.6.2.4 of NFPA 1 and 527 CMR 1.00: Massachusetts Comprehensive Fire Safety Code.

433.3.5.7.5.5 Protection. See Subsection 38.6.2.5 of NFPA 1.

433.3.5.7.5.6 Facility Piping Systems. LPG liquid piping systems shall be in compliance with 527 CMR 1.00: Chapter 38 and 248 CMR 4.00: Massachusetts Fuel Gas Code. [see 248 CMR 4.03(2)]

433.3.5.7.5.7 Storage and Handling. The storage, use, and handling of LPG shall be in compliance with this code and 527 CMR 1.00: Massachusetts Comprehensive Fire Safety Code.

433.3.5.7.6 Flammable and Combustible Liquid Extraction and Processes. Facilities using flammable and combustible liquid solvents shall comply with this section and 527 CMR 1.00: Chapters 38 and 60.

433.3.5.7.6.1 Exhaust. Extraction and post oil processing operations, including dispensing of flammable liquids between containers, shall be performed in one of the following locations: 1. A chemical fume hood in accordance with 780 CMR and 527 CMR 1.00: Chapter 38; or 2. An approved exhaust system installed in accordance with the International Mechanical Code.

433.3.7.5.6.1.1 Exception: Unheated processes at atmospheric pressure using less than 16 oz. (473 ml) of flammable liquids.

433.3.7.5.6.2 Classified electrical systems shall conform with 527 CMR 12.00: Massachusetts Electrical Code (Amendments).

433.3.7.5.6.3 Electrical components within the chemical fume hood or exhausted enclosure shall adhere to Subsection 38.6.3.2.4 of NFPA 1.

433.3.7.5.6.4 Storage and Handling. The storage, use, and handling of flammable liquids shall be in compliance with this code and 527 CMR 1.00: Chapter 38.

433.3.5.7.7 Carbon Dioxide Extraction or Processing. Facilities using carbon dioxide solvents shall comply with subsection 38.6.4 of NFPA 1 and 527 CMR 1.00: Chapter 38.

433.3.5.7.8 Transfilling. Filling LPG extraction equipment supply containers shall be in compliance with 527 CMR 1.00: Chapter 38.

CHAPTER 5: GENERAL BUILDING HEIGHTS AND AREAS

501.1 Add two notes, as follows:

Note 1. Site plans are required to comply with 527 CMR 1.00.

Note 2. Refer to 101.4 regarding M.G.L. pertaining to automatic fire sprinkler requirements and minimum construction type requirements.

503.1.4 Add the following sentence to end of section.

The occupied roof shall comply with the applicable provisions for the occupancy as required by this code.

503.1.4 Delete Exception Number 2.

507.8.1.1.1 Change *International Fire Code* to 527 CMR 1.00.

507.8.1.1.2 Change *International Fire Code* to 527 CMR 1.00.

507.8.1.1.3 Change *International Fire Code* to 527 CMR 1.00.

507.12 Add the phrase , and emergency voice communication system in accordance with Section 907, after Section 903.3.1.1.

Replace 508.4.1 as follows:

508.4.1 Occupancy classification. Separated occupancies shall be individually classified in accordance with Section 302.1. Each separated space shall comply with this code based on the occupancy classification of that portion of the building. The most restrictive provisions of Chapter 9 that apply to the separate occupancies shall apply to the building.

[F] 508.5.7 Change Section 903.2.8 to Chapter 9 at end of section.

509.4.2.1 Delete in its entirety.

CHAPTER 6: TYPES OF CONSTRUCTION (no amendments)

CHAPTER 7: FIRE AND SMOKE PROTECTION FEATURES (no amendments)

CHAPTER 8: INTERIOR FINISHES

806.1 General. Delete item 4.

Replace 806.2 with the following:

806.2 Combustible Decorative Materials. In all occupancies, curtains, draperies, fabrics, and similar decorative materials suspended from the walls or ceiling, shall comply with 527 CMR 1.00.

Replace 806.3 with the following:

806.3 Occupancy-based requirements. Occupancy-based requirements for combustible decorative materials, and decorative vegetation, shall comply with 527 CMR 1.00.

CHAPTER 9: FIRE PROTECTION SYSTEMS

901.1 Add five notes, as follows:

> Note 1. In subsections 904.2, 907.1.1, 909.7, 909.8, 909.9, 909.10, 909.19 the term "fire official" or "building official" is to be substituted with the terms "*building official* in consultation with the fire official". The fire official may appeal a *building official* action per Chapter 1.
> Note 2. In subsection 903.1.1, the term "fire code official" is to be substituted with the term "*building official* and fire official".
> Note 3. In subsection 918, the term "fire code official" is to be substituted with the term "*fire official*".
> Note 4. Reference to the International Fire Code shall be applied in accordance with subsection 101.4.5 of this code.
> Note 5: Reference to the International Fire Code shall mean the International Fire Code in the following sections: Table 903.2.11.6, 905.1, Table 906.1, 906.1#5, 907.2.15, 910.2.2.

901.2 Revise the exception as follows:

> **Exceptions:** Any *fire protection or life safety system* or portion thereof not required by this code shall be permitted to be installed for partial or complete protection provided that such system shall meet the requirements as set forth in the applicable NFPA standard in Chapter 35.

901.2.1 Add section 901.2.1 as follows:

901.2.1 Alternative Fire Protection Designs. Where alternative fire protection designs, which vary from any prescriptive requirements of this Chapter, are to be utilized, the owner shall engage an independent registered design professional, to review said alternative design. The scope of the review shall include, but not be limited to:

a. Design assumptions, methodologies, and resulting proposed system designs, to determine whether or not:
   i. the proposed fire protection systems and any other systems which are affected by the alternative design, are consistent with the objectives and prescriptive provisions of this Chapter;
   ii. they all conform to accepted engineering practice.

b. Preparation of a written report to the building official as to the appropriateness of the proposed design specifically listing any variances from the prescriptive provisions of this Chapter and describing, in detail, the design provisions used to achieve compliance. If the reviewing engineer concurs with the proposed design, the owner shall make application for a variance, to the Appeals Board per Chapter 1. In addition to all supporting information and materials, the reviewing engineering's report required per this exception shall be included in the application for variance. A permit shall not be issued until the variance, if required, has been granted, or unless the permit is issued in part per Chapter 1.

When a variance is granted per this exception for a bulk merchandising retail building as defined in Chapter 4 and when the condition is common to future buildings of the owner, the BBRS, upon request of the owner, may provide that the variance shall be applicable to such future buildings. If such request is made, a quorum of the BBRS shall hear the appeal. Each such application to a future building will be subject to determination as prescribed per Chapter 1 by the building official in consultation with the fire official.

901.2.2 Add section as follows:

901.2.2 Submittal Process. This process includes the three tiers of the minimum document submittal requirements. This process does not preclude the permit applicant from submitting additional documents; for example, shop drawings along with the construction documents at time of permit application.

1. **Tier One, Construction Documents**. Prior to issuance of a Building permit, construction documents for the fire protection system must be submitted in accordance with section 107. The construction documents shall contain sufficient information to completely describe each of the fire protection system(s) for which a Building permit is to be issued. The construction documents shall include the following:

Fire Protection Narrative. A Registered Design Professional shall coordinate into a single document, a narrative report which contains the integrated operational aspects of the systems and features identified below. This professional is not required to assume design responsibility for each system. The responsibility for the design of these systems remains with the Design Professional of Record for the individual fire protection system.

Part A - Integrated Systems Provide a summary outlining the integration of fire protection systems provided.

i. Design Methodology for the protection of the occupancy and hazards in accordance with this code and applicable NFPA Standards and,
ii. Input/Output Matrix of sequence of operations of all fire and life safety systems and operations, including integrated fire and life safety systems; and,
iii. Testing criteria to be used for final system acceptance.

Part B - Individual System Information Provide a summary outlining the following information for each system provided, with identification of specific permit documents conveying the details of the system being narrated.

1. Fire Department Access Roadways.
   a. Site access
   b. Building access
   c. Fire alarm control panel/Remote annunciator panels/Fire Command Center location
   d. Hydrant Locations
   e. Fire department connection type(s) and location.
   f. Fire command center location.
2. Automatic Sprinkler System.
   a. Type/description and design layout of the automatic sprinkler system(s).
   b. Automatic sprinkler system(s) control equipment location.
   c. Fire protection system(s) equipment identification and operation signs.
3. Standpipe Systems.
   a. Type/description and design layout of the automatic standpipe system(s).
   b. Standpipe system hose valve(s) type and location.
4. Water Supply / Fire Pumps / Fire Department Connections.
5. Alternative Automatic Fire-Extinguishing Systems.
   a. Type/description and design layout of special suppression system(s).
   b. Special suppression system(s) control equipment location.
   c. Special suppression system(s) equipment room location.
6. Fire Alarm and Detection Systems.
   a. Type/description and design layout of the fire protective signaling system(s).
   b. Fire alarm and signaling system(s) control equipment and remote annunciator locations.
   c. Fire protection system(s) equipment identification and operation signs.
   d. Fire protection system(s) alarm/ supervisory signal transmission method and location.
   e. Door Release Systems and
   f. Elevator recall systems.
7. Fire Command Center.
8. Mass Notification System.
9. Carbon Monoxide Detection a. Type/description and location of any carbon monoxide protection.
10. Emergency Alarm Systems
    a. Fire protection system(s) equipment identification and operation signs.
11. Gas Detection Systems.
12. Emergency Responder Communication Coverage
    a. Emergency Responder Radio Coverage type/location.
13. Smoke Control Systems / Smoke & Heat Removal
    a. Type/description and design layout of the smoke control or exhaust system(s).
    b. Smoke control or exhaust system(s) control equipment location.

14. Fire Extinguishers.

2 **Tier Two, Shop Drawings**. Prior to installation of fire protection systems, shop drawings, where applicable, shall be submitted in accordance with section 107.1.2 and shall contain, but not be limited to; detailed design layout, equipment specifications, and system sequence of operation identified in the input/output matrix. Shop drawings shall note the name(s), license number(s), and license expiration date(s) of the contractor(s) installing the fire protection systems and be reviewed and accepted by the Registered Design Professional in accordance with Section 107.

3 **Tier Three, Record Drawings**. As built plans shall be provided to the owner for all fire protection and life safety systems as reviewed and accepted by the registered design professional of record or legally recognized professional performing Construction Control. Where changes to original shop drawings are minor, a list of as-built changes shall be permitted to be submitted where sealed and reviewed and approved by the registered design professional of record or legally recognized professional performing Construction Control in accordance with 780 CMR per Chapter 1.

901.3 Revise section as follows:

901.3 Maintenance. All fire protection systems shall be maintained in accordance with 527 CMR 1.00 and the requirements of the applicable reference standards listed in Chapter 35.

The owner of every building or structure shall be responsible for the care and maintenance of all fire protection systems, including equipment and devices, to ensure the safety and welfare of the occupants.

No person shall shut off, disconnect, obstruct, remove or destroy, or cause or permit to be shut off, disconnected, obstructed, removed or destroyed, any part of any sprinkler system, water main, hydrant or other device used for fire protection or carbon monoxide detection and alarm in any building owned, leased or occupied by such person or under his control or supervision, without first procuring a written permit so to do from the head of the fire department of the city or town wherein such building is situated in accordance with M.G.L. c. 148, § 27A.

When installations of fire protection systems are interrupted for repairs or other necessary reasons, the owner shall immediately advise the local fire department and shall diligently prosecute the restoration of the protection. The local fire department shall also be advised when the system is put back in service.

901.5 Revise section as follows:

901.5 Acceptance Tests. Fire protection systems shall be tested in accordance with the requirements of this code, 527 CMR 1.00 and NFPA Standards and approved testing criteria and operational sequence as submitted in Section 901.2.1, Tier One, Item a. When required, the tests shall be conducted in the presence of the building official and fire official or their designee. The building official may authorize the fire official as designee. The fire official may authorize the building official as designee. Tests required by this code, the *International Fire Code* and the standards listed in this code shall be conducted at the expense of the owner or the owner's authorized agent. It shall be unlawful to occupy portions of a structure until the required fire protection systems within that portion of the structure have been tested and *approved*.

901.5.1 Add subsection as follows:

901.5.1 Certificate of Occupancy. Prior to the issuance of a Certificate of Occupancy and prior to witness of acceptance testing the following documents must be submitted to the building and fire officials, or designees.

1. Certification from the registered design professional, or other legally recognized professional, responsible for the construction documents per Section 107.6, stating that the *fire protection systems* have been installed in accordance with applicable codes and standards, in accordance with the approved construction documents and that the record drawings indicate any deviations, if any.
2. Confirmation by the *owner* that they have received the as-built record drawings.

3. Material, Test, Performance, and Completion Certificates, properly executed by the installing contractor in accordance with the applicable NFPA standards.
4. Successful integrated testing documentation of active fire and life safety systems as required by 901.6.2.
5. NFPA 4 documentation for high-rise buildings and buildings with smoke control systems as required by 901.6.2.

901.6 Revise section as follows:

901.6 Supervisory service. Where required, fire protection systems shall be monitored by an approved supervising station in accordance with NFPA 72.

901.6.4 Revise section as follows:

901.6.4 Group H. Supervision and monitoring of emergency alarm, detection and automatic fire-extinguishing systems in Group H occupancies shall be in accordance with this code and the International Fire Code.

901.7 Revise section as follows:

901.7 Fire Areas. For the purpose of this chapter, fire area shall be defined as: "The aggregate area of a building, regardless of subdivisions by fire barriers, fire walls, or horizontal assemblies."

901.8 Revise section as follows:

901.8 Signs. All signs required by this code or by reference standard to identify fire protection equipment, equipment rooms and equipment locations shall be constructed of durable materials, be permanently installed and be readily visible. Letters and numbers shall contrast with the sign background, shall be at least two inches in height and shall have an appropriate width-to-height ratio to permit the sign to be read easily from a distance of ten feet. The sign and location shall be approved by the local fire department.

903.1.2 Add section as follows:

903.1.2 Elevator Machine Rooms, Hoistways and Pits. Sprinklers shall be provided in elevator machine rooms, hoistways and pits in accordance with 524 CMR.

903.2 Revise the section and the exceptions as follows:

903.2 Where required. Approved automatic sprinkler systems in new buildings and structures shall be provided in the locations described in Sections 903.2.1 through 903.2.12.

EXCEPTIONS: Automatic sprinkler systems shall not be required in the following rooms or areas where such rooms or areas are protected with an approved automatic smoke detection system and notification in accordance with section 907 that will respond to visible or invisible particles of combustion.

1. Spaces or areas in telecommunications buildings used exclusively for telecommunications equipment, associated electrical power distribution equipment, batteries and standby engines, provided that those spaces or areas are equipped throughout with an automatic smoke detection system in accordance with Section 907.2 and are separated from the remainder of the building by not less than l-hour fire barriers constructed in accordance with Section 707 or not less than 2-hour horizontal assemblies constructed in accordance with Section 711, or both.
2. Noncombustible and limited combustible concealed spaces and plenums that contain electrical, data, communications and other cables that are of the types and in the configurations permitted in such spaces by 527 CMR 12.00.
3. Transformer Vaults where all the following conditions are satisfied:
   a. The cable within the vault is flame retardant or limited combustible.
   b. The dielectric fluid is a limited combustible fluid.

c. The vault is enclosed in three hour fire resistance rated construction.
d. The vault is at grade or no more than one level below grade. Access to the vault is directly from the exterior or via a dedicated two hour passageway.
e. The vault is protected with automatic smoke detection connected to the building fire alarm system which notifies the fire department upon activation.
f. The room is limited to the sole use of the transformer equipment and is limited in size to accommodate said equipment only. Storage is prohibited in the vault enclosure.
g. The vault is provided with spill containment.
h. An emergency fire plan has been developed with and approved by the fire department.
i. Continuous ventilation is provided for the vault enclosure in accordance with the ventilation requirements of NFPA 30.
j. The ventilation equipment is dedicated to serve the vault only.
k. Standby emergency power, in addition to the normal power source, is provided for the ventilation equipment.
l. The vault is no larger in area than 2,400 sq. ft.

4. Transformer Vaults where an alternative suppression system is provided for the vault in accordance with Section 904 and 903.2 exception 4. Conditions i., j., and k. are met.

NOTE: Also see Subsections 903.3.1.1.1, 903.1.1.2, 903.3.1.2.1, 903.3.1.2.2 and 903.3.1.2.3.

TABLE 903.2 OCCUPANCY AUTOMATIC SPRINKLER REQUIREMENTS			
Building having occupancy	Provide automatic fire sprinkler system throughout building if one of the following conditions will exist (see Note a)		
	Fire Area	Building occupant load	Occupancy location
A-1	>0 ft^2	> 0	Any level
A-2 [Nightclub]	>5,000 ft^2	≥ 50	Any floor other than the level of exit discharge for A-2 Use.
A-2 [all others]	>5,000 ft^2	≥ 100	Any floor other than the level of exit discharge for A-2 Use.
A-3	>5,000 ft^2	≥ 300	Any floor other than the level of exit discharge for A-3 Use.
A-4	>7,500 ft^2	≥ 300	Any floor other than the level of exit discharge for A-4 Use.
A-5	See Note b		
Assembly occupancies on roofs	See Note c		
Multiple fire areas of Group A-1, A-2, A-3, or A-4	See Note d		
B [Ambulatory Health Care]	See Note e		
B	>12,000 ft^2	---	---
E [other than the level of exit discharge]	See Note f		
E [all others]	>12,000 ft^2	---	---
F-1 [Upholstered furniture or mattresses]	See Note g		
F-1 [Distilled spirits]	See Note g		
F-1 [Woodworking Operations]	See Note g		
F-1 [all others]	>12,000 ft^2	---	More than three (3) stories above grade plane
H [Pyroxylin Plastics]	See Note h		
H-5	See Note i		
H [all others]	>0 ft^2	> 0	Any level

I[a]	>0 ft^2	> 0	Any level
M [bulk merchandising]	>0 ft^2	> 0	Any level
M [upholstered furniture display/sale]	>0 ft^2	> 0	Any level
M [storage of merchandise in high-piled or rack storage arrays]	See Note j		
M [all others]	>12,000 ft^2	---	More than three (3) stories above grade plane
R[a]	>0 ft^2	> 0	Any level
S-1 [upholstered furniture or mattresses/storage]	>2,500 ft^2	--	More than three (3) stories above grade plane
S-1 [with commercial motor vehicles]	>5,000 ft^2	---	More than three (3) stories above grade plane
S-1 [with repair garage, building two or more stories above grade]	>10,000 ft^2	---	1. In basement; or 2. More than three (3) stories above grade plane
S-1 [with repair garage, building one story above grade]	>12,000 ft^2	---	In basement
S-1 [with commercial motor vehicles repair]	>5,000 ft^2	---	1. In basement; or 2. More than three stories above grade plane
S-1 [with tire storage]	See Note k		
S-1 [with distilled spirits or wine]	See Note k		
S-1 [with upholstered furniture and mattresses]	See Note k		
S-1 [all others]	>12,000 ft^2	---	More than three (3) stories above grade plane
S-2	See Notes l & m		

Note a:

1. For Use Group R and I-1 buildings with an aggregate building area of 12,000 ft^2 or more, and mixed use buildings containing R-Uses, the sprinkler system shall be designed and installed throughout the structure in accordance with NFPA 13.
2. Buildings of entire R-Use, other than R-1 Occupancies and R-2 Dormitories, having no more than three dwelling units and also less than a 12,000 ft^2 Fire Area shall be permitted to have an automatic fire suppression system installed in accordance with section 903.3.1.3; provided that every automatic sprinkler system shall have at least one automatic water supply, or a stored water supply source, in accordance with NFPA 13D where the minimum quantity of stored water shall equal the water demand rate times 20 minutes.
3. An automatic sprinkler system installed in accordance with section 903.3.1.3 shall be permitted in Group R-3 occupancies.
4. An automatic sprinkler system installed in accordance with section 903.3.1.3 shall be permitted in Group R-4 Condition 1 occupancies.
5. An automatic sprinkler system installed in accordance with section 903.3.1.2 shall be permitted in Group R-4 Condition 2 occupancies.
6. An automatic sprinkler system installed in accordance with section 903.3.1.3 shall be permitted in care facilities with five or fewer individuals in a single-family dwelling.
7. Townhouses are required to be protected by automatic sprinkler systems.

Note b: Group A-5. An automatic sprinkler system shall be provided in concession stands, retail areas, press boxes, and other accessory use areas in excess of 1,000 ft^2.

For spaces under grandstands or bleachers;
Enclosed spaces under grandstands or bleachers shall be equipped with an automatic sprinkler system in accordance with Section 903.3.1.1 where either of the following exist:
1. The enclosed area is 1,000 square feet or less and is not constructed in accordance with Section 1030.1.1.1.

2. The enclosed area exceeds 1,000 square feet.
Note c: Assembly occupancies on roofs. Where an occupied roof has an Assembly Occupancy with an occupancy load exceeding 1. 100 for Group A-2, or; 2. 300 for all other Group A occupancies. All floors between the occupied roof and the level of exit discharge shall be equipped with an automatic sprinkler system in accordance with sections 903.3.1.1 or 903.3.1.2. EXCEPTION: Open parking garages in Type I or Type II construction.
Note d: Multiple fire areas. An automatic sprinkler system shall be provided where multiple fire areas of GroupA-1, A-2, A-3 or A-4 occupancies share exit or exit access components and the combined occupant load of these fire areas is 300 or more.
Note e: Group B ambulatory health care facilities. An automatic sprinkler system shall be installed throughout all fire areas containing a Group B ambulatory health care facility occupancy when either one of the following conditions exists at any time: 1. Four or more care recipients are incapable of self-preservation. 2. One or more care recipients who are incapable of self-preservation are located at other than the level of exit discharge serving such an occupancy. In buildings where ambulatory care is provided on levels other than the level of exit discharge, and automatic sprinkler system shall be installed throughout the entire floor where such care is provided as well as all floors below, and all floors between the level of ambulatory care and the nearest level of exit discharge, including the level of exit discharge.
Note f: Group E. An automatic sprinkler system shall be provided as follows: 1. Throughout all Group E fire areas greater than 12,000 ft^2 in area. 2. The Group E fire area is located on a floor other than a level of exit discharge serving such occupancies. 3. The Group E fire area has an occupant load of 300 or more.
Note g: Group F-1 (Woodworking Operations). An automatic sprinkler system shall be installed throughout buildings that contain woodworking operation(s) in excess of 2,500 ft^2(232 m^2) in area Group F-1 [Distilled Spirits]. An automatic sprinkler system shall be installed throughout a Group F-1 fire area used for the manufacture of distilled spirits. Group F-1 [Upholstered furniture or mattresses]. An automatic sprinkler system shall be installed throughout a Group F-1 fire area that exceeds 2,500 square feet used for the manufacturing of upholstered furniture or mattresses.
Note h: Pyroxylin Plastics. An automatic sprinkler system shall be provided in buildings, or portions thereof, where cellulose nitrate film or pyroxylin plastics are manufactured, stored or handled in quantities exceeding 100 pounds.
Note i: Group H-5. An automatic sprinkler system shall be installed throughout buildings containing Group H-5 occupancies. The design of the sprinkler system shall be not less than that required by 780 CMR for the occupancy hazard classifications in accordance with Table 903.2.5.2. Where the design area of the sprinkler system consists of a corridor protected by one row of sprinklers, the maximum number of sprinklers required to be calculated is 13.
Note j: High-piled storage. An automatic sprinkler system shall be provided in accordance with the IFC, and applicable provisions of 527 CMR in all buildings of Group M where storage of merchandise is in high-piled or rack storage arrays.
Note k: Bulk storage of tires. An automatic sprinkler system shall be provided throughout buildings and structures where the area for the storage of tires exceeds 20,000 ft^3 (566 m^3), in accordance with section 903.3.1.1. Group S-1 Distilled spirits or wine. An automatic sprinkler system shall be provided throughout a Group S-1 fire area used for the bulk storage of distilled spirits or wine. Group S-1 upholstered furniture and mattresses. An automatic sprinkler system shall be provided throughout a Group S-1 fire area where the area used for the storage of upholstered furniture or mattresses exceeds 2,500 square feet (232 m2).

Exception: Self-service storage facilities not greater than one story above grade plane where all storage spaces can be accessed directly from the exterior.
Note l: Group S-2. An automatic sprinkler system shall be provided for Group S-2 occupancies as follow: 1. Throughout buildings classified as Group S-2 Enclosed Parking in accordance with Section 406.6 exceeding 12,000 square feet. 2. Throughout Group S-2 Enclosed Parking located beneath other groups in accordance with Section 406.6. EXCEPTION: Enclosed parking garages located beneath R-3 occupancies. 3. Where the fire area of the open parking garage in accordance with Section 406.5 exceeds 48,000 square feet (4460 m2). 4. Mechanical access enclosed parking garages.
Note m: Commercial Parking Garages. An automatic sprinkler system shall be provided throughout buildings having storage of commercial motor vehicles where the aggregate area used for parking exceeds 5,000 ft^2 (464m^2).

903.2.1 Replace with the following:

903.2.1 Massachusetts Sprinkler Laws: The following information is provided for reference. These provisions are not enforceable under the building code but are enforceable through the respective law.
a. The following M.G.L. Chapter 148 statutes are enforced by the head of the fire department, and must be appealed through the automatic sprinkler appeals board:
i. M.G.L c. 148 §26A1/2: certain high-rise buildings constructed prior to 01/01/1975;
ii. M.G.L c. 148 §26G: certain non-residential structures that exceed 7,500 square feet;
iii. M.G.L c. 148 §26G1/2: Existing bars, nightclubs, dance halls, and discotheques with a capacity of 100 or more persons; and
iv. M.G.L c. 148 §26H (if adopted through local option): lodging or boarding houses with six or more persons boarding or lodging
b. M.G.L. c. 148 §26A: certain high-rise buildings. This statute is enforced by the head of the fire department, and must be appealed through the Building Code Appeals Board:
c. M.G.L. c. 148 §26I (if adopted by the local jurisdiction): certain multiple dwelling units. This statute is enforced by the head of the fire department, and must be appealed through a court of competent jurisdiction:
d. M.G.L. c. 272 §86 through §86d. Certain stables, as required by law. This provision is enforced by the head of the fire department, or his designee, and must be appealed through a court of competent jurisdiction.

903.2.2 Add section as follows:

903.2.2. Occupancies Other than Groups I and R: As required by Table 903.2.

903.2.3 Add section as follows:

903.2.3 Group I and R Occupancies: As required by Table 903.2.

903.2.4: Replace with the following: RESERVED

903.2.5: Revise as follows:

Delete 903.2.5 and 903.2.5.1. Retain 903.2.5.2.

903.2.5.3 through 903.2.10: Replace with the following: RESERVED.

Delete 903.2.4 through 903.2.5. Delete 903.2.5.3 through 903.2.10"

903.2.11.7 Laboratory suites. An automatic fire sprinkler system shall be installed for Class A, B, C, or D *laboratory suites* in accordance with NFPA 13 for ordinary hazard group 2.

903.2.12 Strike "of the International Fire Code".

903.3.1.3 Revise subsection as follows:

903.3.1.3 NFPA 13D sprinkler systems. *Automatic sprinkler systems* installed in one- and two- family dwellings; Group R-3; Group R-4, Condition 1; and *townhouses buildings containing no more than 2 contiguous units*, shall be permitted to be installed throughout in accordance with NFPA 13D.

903.3.1.3.1 Add subsection as follows:

903.3.1.3.1 Modified NFPA 13D. R-2 Buildings containing no more than 3 dwelling units and less than 12,000 gsf in the aggregate, shall be permitted to install an automatic sprinklers system in accordance with NFPA 13D provided the water supply, automatic or stored, is capable of providing the water demand for a period of 20 minutes.

903.3.5.2 Revise subsection as follows:

903.3.5.2 Combination Services. A single combination water supply shall be permitted provided that the domestic and/or commercial demand is added to the sprinkler demand as required by NFPA 13, NFPA 13D or NFPA 13R as applicable.

903.4 Exception #1 revise as follows:

903.4 Sprinkler system supervision and alarms.
Exceptions:
1. *Automatic sprinkler systems* protecting buildings sprinklered throughout in accordance with 903.3.1.3.

903.4.1 Revise subsection as follows:

903.4.1 Monitoring. Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to one of the following NFPA 72 locations. The *owner* has the choice of which single option to employ.

1. UL listed or FM approved central supervising station, or
2. Approved proprietary supervising station or approved remote supervising station, or
3. Alarm signals to an approved Auxiliary Fire Alarm System in accordance with NFPA 72, with supervisory signals supervised by method a or b identified above, or at a constantly attended location approved by the local fire department, having personnel on duty trained to recognize the type of signal received and to take prescribed action. This shall be permitted to be a location different from that at which alarm signals are received.

903.4.2 Revise subsection as follows:
2 Alarms. An approved audible and visual device, located on the exterior of the building in an approved location, shall be connected to each *automatic sprinkler system.* Such sprinkler waterflow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Activation of the sprinkler waterflow alarm devices shall activate a fire alarm system installed throughout the building in accordance with Section 907**.**

903.4.2.1 Add subsection as follows:

903.4.2.1 Where and automatic sprinkler system is required by this code, a fire alarm system shall be provided. The manner of installation shall be consistent with NFPA 72 and Section 907.

903.4.4 Add subsection as follows:

903.4.4 Transmission of Alarm Signals. In all cases, alarm signals shall transmit within 180 seconds to the fire department having jurisdiction.

904.12 Revise section as follows:

> **904.12 Aerosol fire-extinguishing systems.** Aerosol fire-extinguishing systems shall be installed, maintained, periodically inspected and tested in accordance with NFPA 2010, and their listing. Such devices and appurtenances shall be listed and installed in compliance with manufacturers' instructions. Records of inspections and testing shall be maintained.

904.15 Add section as follows:

> **904.15 Water Spray Fixed Systems.** Water spray fixed systems shall be installed, maintained, periodically inspected and tested in accordance with NFPA 15 and the listings contained therein.

905.3.6 Revise subsection as follows: Strike "International Fire Code", add text from the International Fire Code.

> **905.3.6 Helistops and heliports.** Buildings with a rooftop helistop or heliport shall be equipped with a Class I or III standpipe system extended to the roof level on which the helistop or heliport is located. All portions of the helistop or heliport area shall be within 150 feet (45 720 mm) of a 2 1/2-inch (63.5 mm) outlet on the standpipe system.

905.3.9 Add subsection as follows:

> **905.3.9 High-piled Combustible Storage.** A class I automatic wet or manual standpipe system shall be provided in all exit passageways of areas containing high-piled combustible storage.

906.1 Revise #4 as follows:

> **906.1 Where required.**
>
> 4. On each floor of structures under construction in accordance with Chapter 33.

906.4 Revise section as follows: add "527 CMR 1.00" and "Strike 906.4.1 and 906.4.2 of the International Fire Code, as applicable".

> **906.4 Cooking grease equipment fires.** Fire extinguishers provided for the protection of cooking grease equipment shall be of an approved type compatible with the automatic fire-extinguishing system agent. Cooking equipment involving solid fuels or vegetable or animal oils and fats shall be protected by a Class K-rated portable extinguisher in accordance with Sections 906.1, Item 2, and 527 CMR 1.00.

906.4.1 Add subsections as follows.

> **906.4.1 Portable fire extinguishers for solid fuel cooking appliances.** Solid fuel cooking appliances, whether or not under a hood, with fireboxes 5 cubic feet (0.14 m3) or less in volume shall have a minimum 2.5-gallon (9 L) or two 1.5-gallon (6 L) Class K wet-chemical portable fire extinguishers located in accordance with Section 906.1.

906.4.2 Add subsections as follows.

> **906.4.2 Class K portable fire extinguishers for deep fat fryers.** Where hazard areas include deep fat fryers, listed Class K portable fire extinguishers shall be provided as follows:
> 1. For up to four fryers having a maximum cooking medium capacity of 80 pounds (36.3 kg) each: one Class K portable fire extinguisher of a minimum 1.5-gallon (6 L) capacity.
>
> 2 For every additional group of four fryers having a maximum cooking medium capacity of 80 pounds (36.3 kg) each: one additional Class K portable fire extinguisher of a minimum 1.5-gallon (6 L) capacity shall be provided.

3. For individual fryers exceeding 6 square feet (0.55 m2) in surface area: Class K portable fire extinguishers shall be installed in accordance with the extinguisher manufacturer's recommendations.

907.1.2 Revise subsection as follows

907.1.2 Fire alarm shop drawings. Shop drawings for fire alarm systems shall be prepared in accordance with Section 901.2.2 and NFPA 72 and submitted for review and approval prior to system installation.

907.2 Revise section as follows.

907.2 Where required—new buildings and structures. An approved fire alarm system installed in accordance with the provisions of this code and NFPA 72 shall be provided in new buildings and structures in accordance with Sections 907.2.1 through 907.2.24, and in buildings equipped with an automatic sprinkler system, and provide occupant notification in accordance with Section 907.5, unless other requirements are provided by another section of this code.

907.2.5 Revise section as follows.

907.2.5 Group H. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group H-5 occupancies and in occupancies used for the manufacture of organic coatings. An automatic smoke detection system shall be installed for highly toxic gases, organic peroxides and oxidizers.

907.2.8.3.1 Add subsection as follows:

907.2.8.3.1 Annunciation. In buildings that are not equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or Section 903.3.1.2, the smoke detectors in guestrooms shall be connected to the buildings fire alarm systems for the purpose of notifying the guestroom occupants and shall be annunciated by guestroom at a constantly attended location from which the fire alarm system is capable of being manually activated.

907.2.9.1 Exception #2 Revise as follows:

907.2.9.1 Manual fire alarm system.
Exceptions:
2. Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1, or 903.3.1.2 or 903.3.1.3 and the occupant notification appliances will automatically activate throughout the notification zones upon a sprinkler water flow.

907.2.10.1 Add subsection as follows:

907.2.10.1 Group S-1. A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group S-1 occupancies where one of the following conditions exists:

1. The area of boat storage exceeds 5,000 SF.

907.2.11 Revise section and add exception as follows:

907.2.11 Single- and multiple-station smoke alarms. Listed single- and multiple-station smoke alarms complying with UL [2]17 8th edition or later shall be installed in accordance with Sections

Exception: Addressable System Option. A fully addressable fire alarm system complying with UL 268 seventh edition or later is permitted where system smoke detectors and alarm notification devices can perform the functions as required in sections 907.2.11 through 907.2.11.7 and NFPA 72.

907.2.11.3 Add subsection as follows:

> **907.2.11.3 Other sleeping areas.** Where rooms or spaces are used for sleeping purposes in other than Use Group R or I occupancies, single- or multiple-station smoke alarms shall be installed and maintained regardless of occupant load at all of the following locations:
> 1. On the ceiling or wall outside of each separate sleeping area in the immediate vicinity of bedrooms or sleeping areas.
> 2. In each room or area used for sleeping purposes.
> 3. In each story, including basements but not including crawl spaces and uninhabitable attics.

907.2.11.4 Revise subsection as follows:

> **907.2.11.4 Installation near cooking appliances.** Smoke alarms shall be installed in accordance with their listing and NFPA 72.

907.2.11.3 through 907.2.11.7 Revise the section numbers as follows

> **907.2.11.3** Installation near cooking appliances.
>
> **907.2.11.4** Installation near bathrooms.
>
> **907.2.11.5** Interconnection.
>
> **907.2.11.6** Power source.
>
> **907.2.11.7** Smoke detection system.

907.2.13.2 Revise subsection as follows.

> **907.2.13.2 Fire department communication system.** Where a wired communication system is approved in lieu of an in-building two-way emergency responder communication coverage system in accordance with Section 918, the wired fire department communication system shall be designed and installed in accordance with NFPA 72 and shall operate between a fire command center complying with Section 911, elevators, elevator lobbies, emergency and standby power rooms, fire pump rooms, areas of refuge and inside interior exit stairways. The fire department communication device shall be provided at each floor level within the interior exit stairway.

907.2.15 Delete Exception

907.2.23 Revise subsection as follows:

> **907.2.23 Energy storage systems.** An automatic smoke detection system or radiant-energy detection system shall be installed in, areas containing stationary battery systems. A radiant-energy detection system shall be installed to protect open parking garages or roof-top installations.

907.2.24 Add section as follows:

> **907.2.24 Other sleeping areas.**

907.2.24.1 Add subsections as follows:

> **907.2.24.1** Where a building is not classified as R or I, but there are rooms or areas used for sleeping, single- and multiple-station smoke alarms shall be installed in accordance with 907.2.11.

907.2.24.2 Add subsections as follows:

907.2.24.2 Buildings containing sleeping areas shall be equipped with occupant notification throughout, in accordance with 907.5.

907.5.2.2.6 Add subsection as follows:

907.5.2.2.6 Evacuation. Where the head of the fire department or his/her designee determines that partial or selective evacuation is not desired but rather total evacuation is required, then a distinctive signal in lieu of a voice alarm is permitted.

907.5.2.3 Revise subsection as follows:

907.5.2.3 Visible alarms. Visible alarm notification appliances shall be provided in accordance with Sections 907.5.2.3.1 through 907.5.2.3.3. Also refer to 521 CMR for visible alarm requirements in buildings, or portions thereof, open to the public.

907.6.6.1 Revise subsection as follows:

907.6.6.1 Transmission of alarm signals. Transmission of alarm signals shall be in accordance with NFPA 72 and Section 903.4.4.

909.2 Revise section as follows:

909.2 General design requirements. Buildings, structures or parts thereof required by this code to have a smoke control system or systems shall have such systems designed in accordance with the applicable requirements of Section 909 and the generally accepted and well-established principles of engineering relevant to the design. The construction documents shall include sufficient information and detail to adequately describe the elements of the design necessary for the proper implementation of the smoke control systems. These documents shall be accompanied by sufficient information and analysis to demonstrate compliance with these provisions. An independent third party review is required for smoke control system designs incorporating performance analysis under section 909 (design fire analysis, rational analysis, timed egress analysis), or the smoke control methods of sections 909.6, 909.7, or 909.8 or other alternative design method selected by the registered design professional. The independent third party reviewer shall prepare a written report documenting the review, and submit it to the registered design professional and the building and fire officials. If all parties concur that the analyses are appropriate, the design may be approved pursuant to section 104.11.

909.6.3 Revise subsection as follows:

909.6.3 Pressurized stairways and elevator hoist-ways. Where stairways or elevator hoistways are pressurized, such pressurization systems shall comply with Section 909 as smoke control systems, in addition to the requirements of Sections 909.20 and 909.21 of this code.

909.15 Revise section as follows:

909.15 Control Diagrams. Identical control diagrams showing all devices in the system and identifying their location and function shall be maintained current and kept on file with the fire official and shall be kept on site adjacent to the fire alarm panel in a format and manner *approved* by the fire chief.

909.16 Add exception as follow:

909.16 Fire fighter's smoke control panel.
Exception: Existing buildings with an existing dedicated smoke control panel that has been maintained in original working order.

909.18.8.3.1 Revise subsection as follows:

909.18.8.3.1 Report filing. Identical copies of the final report shall be filed with the fire official, filed with the Building Official and shall be maintained in an approved location at the building.

909.19 Revise section as follows:

909.19 System acceptance. Buildings, or portions thereof, required by this code to comply with this section shall not be issued a certificate of occupancy until such time that the fire code official determines that the provisions of this section have been fully complied with and that the fire department has received satisfactory instruction on the operation, both automatic and manual, of the system and a written maintenance program complying with the requirements of 527 CMR 1.00: 11.8 has been submitted and approved by the fire code official.

909.20 Revise section as follows.

909.20 Smokeproof enclosures. Where required by Section 1023.12, a smokeproof enclosure shall be constructed in accordance with this section. A smokeproof enclosure shall consist of an interior exit stairway or ramp that is enclosed in accordance with the applicable provisions of Section 1023 and an open exterior balcony, ventilated vestibule or pressurized stair and pressurized entrance vestibule meeting the requirements of this section. Where access to the roof is required by this code, such access shall be from the smokeproof enclosure where a smokeproof enclosure is required.

909.20.7.1.1 Add subsection as follows:

909.20.7.1.1 Intake Duct Detection. An intake duct smoke detector shall be installed just downstream of the fresh air fan. Activation of this detector shall annunciate at the control panel and shall shut down the fan for that particular smoke proof enclosure.

909.20.7.3 Revise section as follows:

909.20.7.3 Acceptance and testing. Before the mechanical equipment is approved, the system shall be tested in the presence of the building official, the fire official or their designees to confirm that the system is operating in compliance with these requirements. The building official may authorize fire official as designee. The fire official may authorize building official as designee.

909.22 through 909.22.6 Add section and subsections as follows:

909.22 Maintenance. Smoke control systems shall be maintained to ensure to a reasonable degree that the system is capable of controlling smoke for the duration required. The system shall be maintained in accordance with the manufacturer's instructions and Sections 909.22.1 through 909.22.5.

909.22.1 Schedule. A routine maintenance and operational testing program shall be initiated immediately after the smoke control system has passed the acceptance tests. A written schedule for routine maintenance and operational testing shall be established.

909.22.2 Written Record. A written record of smoke control system testing and maintenance shall be maintained on the premises. The written record shall include the date of the maintenance, identification of servicing personnel, and notification of any unsatisfactory condition and the corrective action taken, including parts replaced.

909.22.3 Testing. Operational testing of the smoke control system shall include all equipment such as initiating devices, fans, dampers, controls, doors and windows.

909.22.4 Dedicated Smoke Control Systems. Dedicated smoke control systems shall be operated for each control sequence semiannually. The system shall also be tested under standby power conditions.

909.22.5 Nondedicated Smoke Control Systems. Dedicated smoke control systems shall be operated for each control sequence annually. The system shall also be tested under standby power conditions.

909.22.6 Components bypassing weekly test. Where components of the smoke control system are bypassed by the preprogrammed weekly test required by Section 909.12.1, such components shall be tested semiannually. The system shall be tested under standby power conditions.

912.4.3 Revise section as follows.

912.4.3 Physical protection. Where fire department connections are subject to impact by a motor vehicle, vehicle impact protection shall be provided in accordance with Sections 912.4.3.1 or 912.4.3.2.

912.4.3.1 Add subsections as follows:

912.4.3.1 Guard Posts. Guard posts shall comply with all of the following requirements: 1. Constructed of steel not less than 4 inches (102 mm) in diameter and concrete filled. 2. Spaced not more than 4 feet (1219 mm) between posts on center. 3. Set not less than 3 feet (914 mm) deep in a concrete footing of not less than a 15-inch (381 mm) diameter. 4. Set with the top of the posts not less than 3 feet (914 mm) above ground. 5. Located not less than 3 feet (914 mm) from the protected object.

912.4.3.2 Add subsections as follows:

912.4.3.2 Other barriers. Barriers, other than posts specified in 912.4.3.1, that are designed to resist, deflect or visually deter vehicular impact commensurate with an anticipated impact scenario shall be permitted where approved.

912.6 Replace "International Plumbing Code" with 248 CMR 10.00: *Uniform State Plumbing Code*.

912.7 Add section as follows:

912.7 Connections. Fire department connections shall be such that attachment to any one water sprinkler connection will serve all sprinklers, and attachment to any one standpipe connection will serve all standpipes within the building.

913.6 Add section as follows:

913.6 Second Power Source. All electric driven fire pumps shall be provided with emergency power from an on-site emergency generator system set when the fire pump is installed as protection for a building or structure with any one of the following characteristics:

1. High-rise building
2. Use Group H
3. Use Group I having surgery or treatment areas for nonambulatory patients.

915.1 Revise section as follows:

915.1 General. Carbon monoxide detection shall be installed in new buildings in accordance with Sections 915.1 through 915.7. Carbon monoxide detection shall be installed in existing buildings in accordance with 527 CMR 1.00: 13.7.

915.1.1 Revise section as follows:

915.1.1 Where required. Carbon monoxide detection shall be provided where any of the conditions in Sections 915.1.2 through 915.1.6 exist.

915.1.3 Revise the exception as follows:

915.1.3 Fuel burning, forced-air furnaces.
Exception: Carbon monoxide detection shall not be required in *dwelling units, sleeping units* and class- rooms if a carbon monoxide detector is provided in the first room or area served by each main duct leaving the furnace, the carbon monoxide alarm signals are automatically transmitted to an approved location, and notification is provided in accordance with 915.6.

915.2 Revise section as follows:

915.2 Locations. Where required by Section 915.1.1, carbon monoxide detection shall be installed in the locations specified in Sections 915.2.1 through 915.2.4, or 915.2.5.

915.2.4 Add subsections as follows:

915.2.4 Newly installed fuel-fired equipment. Carbon monoxide detection shall be installed in accordance with the provisions of 248 CMR 10.

915.2.5 Add subsections as follows:

915.2.5 Technical options. Carbon monoxide detection shall be installed in accordance with the technical options in Section 13.7 of 527 CMR 1.00.

915.3.1 Add subsection as follows:

915.3.1 Interconnection. Where more than one listed carbon monoxide alarm or combination smoke/carbon monoxide detector is required to be installed within a dwelling unit, or E- or I-use area, they shall be interconnected in such a manner that the activation of the carbon monoxide alarm or combination smoke/carbon monoxide detector shall activate the carbon monoxide audible notification devices throughout the individual dwelling unit, or affected area, by detector or separate notification device.

915.6 Revise section as follows.

915.6 Notification. Carbon Monoxide Alarm notification shall be provided in accordance with NFPA 72.

915.7 Add new section number as follows:

915.7 Maintenance. Carbon monoxide alarms and carbon monoxide detection systems shall be maintained in accordance with 527 CMR 1.00 and NFPA 72.

916.2 Revise section as follows.

916.2 Permits. Permits shall be required as set forth in Chapter 1 of this code.

916.2.1 Revise subsection as follows:

916.2.1 Construction documents. Documentation of the gas detection system design and equipment to be used that demonstrates compliance with the requirements of this code and the International Fire Code shall be provided with the application for permit as part of the Tier One Document Submittal.

916.10.1 Delete this subsection.

918.1 Revise section as follows:

918.1 General. Emergency responder radio coverage shall be provided in accordance with sections 9168.2 through 9168.6.3 and NFPA 72 and NFPA 1221.

918.2 through 918.6.1 Add sections and subsections as follows:

918.2 Emergency responder communication coverage in buildings. Approved in-building, two-way emergency responder communication coverage for emergency responders shall be provided in all buildings. In-building, two-way emergency responder communication coverage within the building shall be based on the existing coverage levels of the public safety communication systems utilized by the jurisdiction, measured at the exterior of the building. This section shall not require improvement of the existing public safety communication systems.

Exceptions:

1. Where approved by the building official and the fire code official, a wired communication system in accordance with Section 907.2.13.2 shall be permitted to be installed or maintained instead of an approved radio coverage system.
2. Where it is determined by the fire code official that the radio coverage system is not needed.
3. In facilities where emergency responder radio coverage is required and such systems, components or equipment required could have a negative impact on the normal operations of that facility, the fire code official shall have the authority to accept an automatically activated emergency responder radio coverage system.

918.3 Permit required. A construction permit for the installation of or modification to in-building, two-way emergency responder communication coverage systems and related equipment is required as specified in Section 105.1. Maintenance performed in accordance with this code is not considered a modification and does not require a permit.

918.4 Technical requirements. Equipment required to provide in-building, two-way emergency responder communication coverage shall be listed in accordance with UL 2524. Systems, components and equipment required to provide the in-building, two-way emergency responder communication coverage system shall comply with Sections 918.4.1 through 918.4.2.8.

918.4.1 Emergency responder communication coverage system signal strength. The building shall be considered to have acceptable in-building, two-way emergency responder communication system coverage where signal strength measurements in 95 percent of all areas and 99 percent of areas designated as critical areas by the fire code official on each floor of the building meet the signal strength requirements in Sections 918.4.1.1 through 918.4.1.3.

918.4.1.1 Minimum signal strength into the building. The minimum inbound signal strength shall be sufficient to provide usable voice communications throughout the coverage area as specified by the fire code official. The inbound signal level shall be a minimum of -95dBm throughout the coverage area and sufficient to provide not less than a Delivered Audio Quality (DAQ) of 3.0 or an equivalent Signal-to-Interference-Plus-Noise Ratio (SINR) applicable to the technology for either analog or digital signals.

918.4.1.2 Minimum signal strength out of the building. The minimum outbound signal strength shall be sufficient to provide usable voice communications throughout the coverage area as specified by the fire code official. The outbound signal level shall be sufficient to provide not less than a DAQ of 3.0 or an equivalent SINR applicable to the technology for either analog or digital signals.

918.4.1.3 System performance. Signal strength shall be sufficient to meet the requirements of the applications being utilized by public safety for emergency operations through the coverage area as specified by the fire code official in Section 918.4.2.2.

918.4.2 System design. The in-building, two-way emergency responder communication coverage system shall be designed in accordance with Sections 918.4.2.1 through 918.4.2.8 and NFPA 1221.

918.4.2.1 Amplification systems and components. Buildings and structures that cannot support the required level of in-building, two-way emergency responder communication coverage shall be equipped with systems and components to enhance the radio signals and achieve the required level of in-building, two-way emergency responder communication coverage specified in Sections 918.4.1 through 918.4.1.3. In-building, two-way emergency responder communication systems utilizing radio-frequency-emitting devices and cabling shall be approved by the fire code official. Prior to installation, all RF-emitting devices shall have the certification of the radio licensing authority and be suitable for public safety use.

918.4.2.2 Technical criteria. The fire code official shall maintain a document providing the specific technical information and requirements for the in-building, two-way emergency responder communication coverage system. This document shall contain, but not be limited to, the various frequencies required, the location of radio sites, the effective radiated power of radio sites, the maximum propagation delay in microseconds, the applications being used and other supporting technical information necessary for system design.

918.4.2.3 Standby power. In-building, two-way emergency responder communication radio coverage systems shall be provided with dedicated standby batteries or provided with 2-hour standby batteries and connected to the facility generator power system in accordance with Chapter 27. The standby power supply shall be capable of operating the in-building, two-way emergency responder communication coverage system at 100-percent system capacity for a duration of not less than 12 hours.

918.4.2.4 Signal booster requirements. If used, signal boosters shall meet the following requirements:
1. All signal booster components shall be contained in a National Electrical Manufacturer's Association (NEMA) 4-type waterproof cabinet.
2. Battery systems used for the emergency power source shall be contained in a NEMA 3R or higher-rated cabinet.
3. The signal booster system and battery system shall be electrically supervised and monitored by a supervisory service, or when approved by the fire code official, shall sound an audible signal at a constantly attended location.
4. Where a donor antenna exists, isolation shall be maintained between the donor antenna and all inside antennas to not less than 20dB greater than the system gain under all operating conditions.
5. Active RF-emitting devices used for in-building, two-way emergency responder communication coverage systems shall have built-in oscillation detection and control circuitry.
6. The installation of amplification systems or systems that operate on or provide the means to cause interference on any in-building, two-way emergency responder communication coverage network shall be coordinated and approved by the fire code official.

918.4.2.5 System monitoring. The in-building, two-way emergency responder communication coverage system shall be monitored by a listed fire alarm control unit, or where approved by the fire code official, shall sound an audible signal at a constantly attended on-site location. Automatic supervisory signals shall include the following:
1. Loss of normal AC power supply.
2. System battery charger(s) failure.
3. Malfunction of the donor antenna(s).
4. Failure of active RF-emitting device(s).
5. Low-battery capacity at 70-percent reduction of operating capacity.
6. Failure of critical system components.
7. The communications link between the fire alarm system and the in-building, two-way emergency responder communication coverage system.
8. Oscillation of active RF-emitting device(s).

918.4.2.6 Additional frequencies and change of frequencies. The in-building, two-way emergency responder communication coverage system shall be capable of modification or expansion in the event frequency changes are required by the FCC or other radio licensing authority, or additional frequencies are made available by the FCC or other radio licensing authority.

918.4.2.7 Design documents. The fire code official shall have the authority to require "as-built" design documents and specifications for in-building, two-way emergency responder communication coverage systems. The documents shall be in a format acceptable to the fire code official.

918.4.2.8 Radio communication antenna density. Systems shall be engineered to minimize the near-far effect. In-building, two-way emergency responder communication coverage system designs shall include sufficient antenna density to address reduced gain conditions.
Exception: Systems where all portable devices within the same band use active power control features.

918.5 Installation requirements. The installation of the in-building, two-way emergency responder communication coverage system shall be in accordance with NFPA 1221 and Sections 918.5.2 through 918.5.5.

918.5.1 Mounting of the donor antenna(s). To maintain proper alignment with the system designed donor site, donor antennas shall be permanently affixed on the building or where approved, mounted on a movable sled with a clearly visible sign stating "MOVEMENT OR REPOSI-TIONING OF THIS ANTENNA IS PROHIBITED WITHOUT APPROVAL FROM THE FIRE CODE OFFICIAL." The antenna installation shall be in accordance with the applicable requirements in the International Building Code for weather protection of the building envelope.

918.5.2 Approval prior to installation. Amplification systems capable of operating on frequencies licensed to any public safety agency by the FCC or other radio licensing authority shall not be installed without prior coordination and approval of the fire code official.

918.5.3 Minimum qualifications of personnel. The minimum qualifications of the system designer and lead installation personnel shall include both of the following:

1. A valid FCC-issued general radio operators license.
2. Certification of in-building system training issued by an approved organization or approved school, or a certificate issued by the manufacturer of the equipment being installed.

These qualifications shall not be required where demonstration of adequate skills and experience satisfactory to the fire code official is provided.

918.5.4 Acceptance test procedure. Where an in-building, two-way emergency responder communication coverage system is required, and upon completion of installation, the building owner shall have the radio system tested to verify that two-way coverage on each floor of the building is not less than 905 percent. The test procedure shall be conducted as follows:
1. Each floor of the building shall be divided into a grid of 20 approximately equal test areas.
2. The test shall be conducted using a calibrated portable radio of the latest brand and model used by the agency talking through the agency's radio communications system or equipment approved by the fire code official.
3. Failure of more than one test area shall result in failure of the test.
4. In the event that two of the test areas fail the test, in order to be more statistically accurate, the floor shall be permitted to be divided into 40 equal test areas. Failure of not more than two nonadjacent test areas shall not result in failure of the test. If the system fails the 40-area test, the system shall be altered to meet the 905 percent coverage requirement.
5. A test location approximately in the center of each test area shall be selected for the test, with the radio enabled to verify two-way communications to and from the outside of the building through the public agency's radio communications system. Once the test location has been selected, that location shall represent the entire test area. Failure in the selected test location shall be considered to be a failure of that test area. Additional test locations shall not be permitted.
6. The gain values of all amplifiers shall be measured and the test measurement results shall be kept on file with the building owner so that the measurements can be verified during annual tests. In the event that the measurement results become lost, the building owner shall be required to rerun the acceptance test to reestablish the gain values.
7. As part of the installation, a spectrum analyzer or other suitable test equipment shall be utilized to ensure spurious oscillations are not being generated by the subject signal booster. This test shall be conducted at the time of installation and at subsequent annual inspections.
8. Systems shall be tested using two portable radios simultaneously conducting subjective voice quality checks. One portable radio shall be positioned not greater than 10 feet (3048 mm) from the indoor antenna. The second portable radio shall be positioned at a distance that represents the farthest distance from any indoor antenna. With both

portable radios simultaneously keyed up on different frequencies within the same band, subjective audio testing shall be conducted and comply with DAQ levels as specified in Sections 918.4.1.1 and 918.4.1.2.

918.5.5 FCC compliance. The in-building, two-way emergency responder communication coverage system installation and components shall comply with all applicable federal regulations including, but not limited to, FCC 47 CFR Part 90.219.

918.6 Maintenance. The in-building, two-way emergency responder communication coverage system shall be maintained operational at all times in accordance with Sections 918.6.1 through 918.6.4.

918.6.1 Testing and proof of compliance. The owner of the building or owner's authorized agent shall have the in-building, two-way emergency responder communication coverage system inspected and tested annually or where structural changes occur, including additions or remodels that could materially change the original field performance tests. Testing shall consist of the following:
1. In-building coverage test as described in Section 918.5.4.
2. Signal boosters shall be tested to verify that the gain is the same as it was upon initial installation and acceptance or set to optimize the performance of the system.
3. Backup batteries and power supplies shall be tested under load of a period of 1 hour to verify that they will properly operate during an actual power outage. If within the 1-hour test period the battery exhibits symptoms of failure, the test shall be extended for additional 1-hour periods until the integrity of the battery can be determined.
4. All active components shall be checked to verify operation within the manufacturer's specifications. At the conclusion of the testing, a report, which shall verify compliance with Section 918.5.4, shall be submitted to the fire code official.

918.6.2 Additional frequencies. The building owner shall modify or expand the in-building, two-way emergency responder communication coverage system at his or her expense in the event frequency changes are required by the FCC or other radio licensing authority, or additional frequencies are made available by the FCC or other radio licensing authority. Prior approval of an in-building, two-way emergency responder communication coverage system on previous frequencies does not exempt this section.

918.6.3 Nonpublic safety system. Where other nonpublic safety amplification systems installed in buildings reduce the performance or cause interference with the in-building, two-way emergency responder communication coverage system, the nonpublic safety amplification system shall be corrected or removed.

918.6.4 Field testing. Agency personnel shall have the right to enter onto the property at any reasonable time to conduct field testing to verify the required level of radio coverage.

CHAPTER 10: MEANS OF EGRESS

1001.2.1 and 1001.2.2 Add subsections as follows:

> **1001.2.1 Maintenance of Exterior Stairs and Fire Escapes**. Exterior stairways and fireescapes shall be kept free of snow and ice and those constructed of materials requiring the application of weather protecting products, shall have these products applied in an approved manner and shall be applied as often as necessary to maintain the stairways and fire escapes in safe condition. Weather resistant structural fasteners and connections shall tie the stairways and fire escapes directly into the building structural system.
>
> **1001.2.2 Testing and Certification**. All exterior bridges, steel or wooden stairways, fire escapes and egress balconies shall be examined and/or tested, and certified for structural adequacy and safety every five years, by a registered design professional, or others qualified and acceptable to the building official; said professional or others shall then submit an affidavit to the building official.

[F] 1002.1 Maintenance. Change *International Fire Code* to 527 CMR 1.00.

[F] 1002.2 Fire safety and evacuation plans. Revise section as follows.
Fire safety and evacuation plans shall be provided for all occupancies and buildings where required by the International Fire Code. Such fire safety and evacuation plans shall comply with 527 CMR 1.00.

1006.2.2.4 Electrical rooms. Revise section as follows.

The location and number of exit or exit access doorways shall be provided for electrical rooms in accordance with 527 CMR 12.00 for electrical equipment rated 1,000 volts or less, and 527 CMR 12.00 for electrical equipment rated over 1,000 volts. Panic hardware shall be provided where required in accordance with Section 1010.2.9.2.

1006.3.4 Single exits. Delete exception number 3 and **Add** the following sentence to current exception number 4 when provided with an automatic sprinkler system in accordance with 903.3.1.1 or 903.3.1.2. Renumber remaining subsections.

1006.3.4.1 Mixed occupancies. Add subsection as follows.

> **1006.3.4.1.1** Mixed residential occupancies permitted to have one exit by 1006.3.4.1 shall be provided with an automatic sprinkler system in accordance with Table 903.2 and Section 903.3.1.1

1010.2.7 Stairway doors. Add the following sentence to exception number 3.

> For Group R-2 and R-3 structures that contain three or fewer dwelling units, doors are permitted to be locked from the stairway side, provided they are openable from the egress side, but do not need to comply with the aforementioned simultaneous unlocking provisions.

1010.2.8 Add sections as follows.

1010.2.8 Exterior Doors and Locks to Apartment Houses. In accordance with M.G.L. c. 143, § 3R, at least one of the doors of the main common entryway into every apartment house having more than three apartments shall be designed or equipped as to close automatically and lock automatically with a lock, including a lock with an electrically-operated striker mechanism, a self-closing door and associated equipment. Such associated equipment shall include an intercom system tied independently to each apartment and where from each apartment the electrically operated striker mechanism can be released; additionally, where the number of apartments in a given building, irrespective of fire/party wall separation, is ten or more apartments, a closed circuit security camera system shall also be incorporated in such manner that from each apartment, apartment occupants can utilize their personal television sets to observe who is seeking entrance to the building. The intercom and closed circuit security camera systems shall be designed and listed for the weather and temperature conditions to which they will be exposed.

EXCEPTIONS:
1. Buildings exempted as noted in M.G.L. c. 143, § 3R.
2. The required intercom and TV connections can be supplanted with other audio and visual technology that serves the same purpose, provided such information is readily available for all dwelling units.
3. If all audio and visual information is sent to a constantly attended station occupied by staff trained in what parties are allowed into the building then providing such audio and visual information to each dwelling unit is not required.

1010.2.13 Delayed egress. Revise section as follows.

Delayed egress locking systems shall be permitted to be installed on doors serving the following occupancies in buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.

1013.1.1 Add section as follows.

1013.1.1 Transformer Vaults. In addition to having exit signage complying with section 1013, generally, transformer vaults shall have installed:
1. additional exit signage such that the top of the sign is within 18 inches of the floor and adjacent to the opening side of the door; and
2. a means for illuminating the egress path to the exit door(s) of the transformer vault, by means of one of the following: a. emergency lighting, in accordance with section 1008; or b. luminous egress path markings, in accordance with sections 1025.2 through 1025.5.

1015.7.1 Add section as follows.

1015.7.1 Skylights. Skylights shall support a minimum of 40 lbs/SF or have a paraphet or guard at least 42" in height.

1015.9 Add section as follows.

1015.9 Inner courts. Any inner court not protected by a roof shall be provided with a paraphet or guard at least 42" in height.

1027.5 Location. Revise exception as follows.

Exception: Exterior exit stairways and ramps serving individual dwelling units of Group R-3 shall have a minimum fire separation distance of 5 feet (1525 mm) when the building is fully sprinklered throughout in accordance with 903.3.1.1 or 903.3.1.2.

1029.4 Add section as follows.

1029.4 Guards shall be provided for inner courts in accordance with 1015.9.

1031.2 Where required. Revise exception as follows.

Exceptions: 1. Basements, without sleeping rooms, with a ceiling height of less than 80 inches (2032 mm) shall not be required to have emergency escape and rescue openings.

CHAPTER 11: ACCESSIBILITY

1101.1 Revise as follows:

> **1101.1 Scope**. In accordance with M.G.L. c. 22, § 13A all public buildings shall be designed to be accessible to, and functional and safe for the use by, physically disabled persons, and conform to the requirements of 521 CMR. In accordance with M.G.L. c. 143, § 3, 521 CMR shall be enforced by the building official or the state inspector, as applicable.

1101.2 through **1112.5.2 Delete** these sections.

CHAPTER 12: INTERIOR ENVIRONMENT (no amendments)

CHAPTER 13: ENERGY EFFICIENCY

CHAPTER 1 [CE] SCOPE AND ADMINISTRATION SECTION C103 CONSTRUCTION DOCUMENTS

Add the following to Section C103.2: **C103.2 Information on construction documents.**

14. Solar Ready roof zone in accordance with Appendix CB.
15. EV Ready Spaces locations in accordance with C405.13

Add the following Section C103.2.2:

C103.2.2 COMcheck submittal. The construction documents submitted with the application for permit shall be accompanied by completed COMcheck Envelope, Lighting and Mechanical Compliance Certificates, and a Plan Review Inspection Checklist for the purposes of demonstrating compliance with the energy provisions of 780 CMR 13.00: Energy Efficiency.

CHAPTER 2 [CE] DEFINITIONS Add the following definitions:

ELECTRIC VEHICLE. An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, electric motorcycles, and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array, or other source of electric current. Informational note: defined as in 527 CMR 12 section 625.2.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE): The conductors, including the ungrounded, grounded, and equipment grounding conductors, and the Electric Vehicle connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the Electric Vehicle. Informational note: defined as in 527 CMR 12 section 625.2.

ELECTRIC VEHICLE READY PARKING SPACE ("EV READY SPACE"): A designated parking space which is provided with wiring and electrical service sufficient to provide 240 volt AC Level 2 or equivalent EV charging, as defined by Standard SAE J1772 for EVSE servicing light duty Electric Vehicles.

CHAPTER 3 [CE] GENERAL REQUIREMENTS SECTION C301 CLIMATE ZONES

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

CHAPTER 4 [CE] COMMERCIAL ENERGY EFFICIENCY SECTION C401 GENERAL Revise Section C401.2 as follows:

C401.2 Application. Commercial buildings shall comply with Section C401.2.1, or C401.2.2, C401.2.3 or C401.2.4

C401.2.1 International Energy Conservation Code. Commercial buildings shall comply with one of the following:

1. Prescriptive Compliance. The Prescriptive Compliance option requires compliance with Sections C402 through C406 and Section C408. Dwelling units and sleeping units in Group R-2 buildings without systems serving multiple units shall be deemed to be in compliance with this chapter, provided that they comply with Section R406.

2. Total Building Performance. The Total Building Performance option requires compliance with Section C407.

Exception: Additions, alterations, repairs and changes of occupancy to existing buildings complying with Chapter 5.

C401.2.2 ASHRAE 90.1. Commercial buildings shall comply with the requirements of ANSI/ASHRAE/IESNA 90.1 as modified by C402.1.5, C402.3, C405.3, C405.4, C405.13 and C406.

Add the following row to ASHRAE 90.1 Normative Appendix G Performance Rating Method, Section G Table G3.1.1-1.

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

Building Area Types	Baseline Building Gross Above-Grade-Wall Area
Multi-family	24%

Add section.
C401.2.3 APPENDIX CC. Commercial buildings may elect to comply with the requirements of IECC Append–x CC - ZERO ENERGY COMMERCIAL BUILDING PROVISIONS

Add section.
C401.2.4 MA Stretch energy code. Commercial buildings may elect to comply with the requirements of CMR 225 22 or 23 – MASSACHUSETTS STRETCH ENERGY CODE, or, the MUNICIPAL OPT-IN SPECIALIZED STRETCH ENERGY CODE promulgated by the Massachusetts Department of Energy Resources.

Add section.
C401.2.2 Performance rating method for source energy. ANSI/ASHRAE/IESNA 90.1 APPENDIX G PERFORMANCE RATING METHOD, Section G1.1

Exception: When Appendix G is used for the comparison of building energy consumption only, the comparison may be performed on site energy basis.

C402.1.5 Component performance alternative. Building envelope values and fenestration areas determined in accordance with Equation 4-2 shall be an alternative to compliance with the U-, F- and Cfactors in Tables C402.1.4 and C402.4 and the maximum allowable fenestration areas in Section C402.4.1. Fenestration shall meet the applicable SHGC requirements of Section C402.4.3. Buildings following ANSI/ASHRAE/IESNA 90.1 shall comply with this section.

Exception: Buildings demonstrating a vertical UA equal or lower than a prescriptive UA calculated in accordance with TABLE C402.1.4

A + B + C ≤ Zero **(Equation 4-2)**

Where:
A = Sum of the (UA Dif) values for each distinct assembly type of the building thermal envelope, other than slabs on grade and below-grade walls.
UA Dif = UA Proposed – UA Table.
UA Proposed = Proposed U-value × Area Proposed.
UA Table = (U-factor from Table C402.1.3, C402.1.4 or C402.4) × vertical fenestration Area baseline.
B = Sum of the (FL Dif) values for each distinct slab-on-grade perimeter condition of the building thermal envelope.
FL Dif = FL Proposed – FL Table.
FL Proposed = Proposed F-value × Perimeter length.
FL Table = (F-factor specified in Table C402.1.4) × Perimeter length.
C = Sum of the (CA Dif) values for each distinct below-grade wall assembly type of the building thermal envelope.
CA Dif = CA Proposed – CA Table.
CA Proposed = Proposed C-value × Area.
CA Table = (Maximum allowable C-factor specified in Table C402.1.4) × Area.

C402.3 Rooftop solar readiness (Mandatory). Follow Appendix CB: Solar-ready zone – Commercial.

Modify Vertical fenestration U-factors in TABLE C402.4:
TABLE C402.4 BUILDING ENVELOPE FENESTRATION MAXIMUM U-FACTOR AND SHGC REQUIREMENTS

Vertical fenestration U-factor
Fixed fenestration 0.30
Operable fenestration 0.32

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

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

SECTION C403 BUILDING MECHANICAL SYSTEMS

SECTION C404 SERVICE WATER HEATING

SECTION C405 ELECTRICAL POWER AND LIGHTING SYSTEMS C405.2.4

Daylight-responsive controls. Daylight responsive controls complying with Section C405.2.4.1 shall be provided to control the general lighting within daylight zones in the following spaces:

1. Spaces with a total of more than 100 watts of general lighting within primary sidelit daylight zones complying with Section C405.2.4.2.
2. Spaces with a total of more than 300 watts of general lighting within sidelit daylight zones complying with Section C405.2.4.2.
3. Spaces with a total of more than 100 watts of general lighting within toplit daylight zones complying with Section C405.2.4.3.

C405.13 Electric Vehicle Ready Parking Spaces ("EV Ready Spaces") (Mandatory). Group A-1, B, E, I, M and R buildings with new parking spaces shall provide EV Ready Spaces in accordance with Table C405.13. Installed wiring suitable for 6.6kW or higher SAE J1772-2017 AC Level II EVSE shall be connected to the service panel and run to within 6 feet (1828mm) of any qualifying parking space. Conductors and outlets for EVSE shall be sized and installed in accordance with the MA electrical code.

Table C405.13 EV-READY SPACE REQUIREMENTS

# of Parking Spaces	Minimum # of EV Ready Spaces
10	
2 - 6	1
7 – 13	2
14 - 20	3
21 - 40	4
41 plus	10%, but not more than 16 spaces

The branch circuit shall be identified as "EV READY" in the service panel or subpanel directory, and the termination location shall be marked as "EV READY". The circuit shall terminate in a NEMA receptacle or a Society of Automotive Engineers (SAE) standard J1772 electrical connector.

Exceptions:
1. Parking spaces and garage spaces intended exclusively for storage of vehicles for retail sale or vehicle service are excluded from the EV-ready space percentage calculation.
2. This requirement will be considered met if all spaces which are not EV Ready are separated from the meter by a public right-of-way.

3. One or more AC Level II spaces may be substituted with multiple AC Level I spaces provided with wiring for a minimum 20amp, 120-volt EVSE, with a ratio of at least 3 AC Level I spaces for each AC Level II space required.
4. Any parking facility with4 or more spaces providing installed Direct Current fast charging EVSE with a minimum charging speed of 150 kW to each space.
5. Parking spaces specifically designated for medium or heavy-duty vehicles are excluded from the EV-ready space percentage calculation.

C405.13.1 Add Section C405.13.1 as follows:

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

TABLE C405.13.1 EV-READY PERFORMANCE REQUIREMENTS

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

C405.13.2 Add Section C405.13.2 as follows:

C405.13.2 Identification. Construction documents shall indicate the branch circuit termination point and proposed location of future EVSE. Construction documents shall also provide information on amperage of future EVSE, wiring schematics, Automatic Load Management Systems, and electrical load calculations to verify that the electrical panel service capacity and electrical system, including any on-site distribution transformers, have sufficient capacity to simultaneously charge all EVs at all required EV ready spaces.

SECTION C406 ADDITIONAL EFFICIENCY REQUIREMENTS (Note revised format in IECC2021 to a points table, so needs extensive formatting revisions to replicate existing MA amendments)

C406.1 Additional energy efficiency credit requirements. New buildings shall achieve a total of 15 credits from Tables C406.1(1) through C406.1(5) where the table is selected based on the use group of the building and from credit calculations as specified in relevant subsections of Section C406.
Where a building contains multiple-use groups, credits from each use group shall be weighted by floor area of each group to determine the weighted average building credit. Credits from the tables or calculation shall be achieved where a building complies with one or more of the following:
1. More efficient HVAC performance in accordance with Section C406.2.
2. Reduced lighting power in accordance with Section C406.3.
3. Enhanced lighting controls in accordance with Section C406.4.
4. On-site supply of renewable energy in accordance with Section C406.5.
5. Provision of a dedicated outdoor air system for certain HVAC equipment in accordance with Section C406.6.
6. High-efficiency service water heating in accordance with Section C406.7.
7. Enhanced envelope performance in accordance with Section C406.8.
8. Reduced air infiltration in accordance with Section C406.9

9. Where not required by Section C405.12, include an energy monitoring system in accordance with Section C406.10.
10. Where not required by Section C403.2.3, include a fault detection and diagnostics (FDD) system in accordance with Section C406.11.
11. Efficient kitchen equipment in accordance with Section C406.12.
12. Renewable space heating in accordance with Section C406.13.
13. Type IV heavy timber construction in accordance with Section C406.14.

C406.13. Renewable space heating. All space heating shall be provided with cold-climate air source heat pumps having rated coefficient of performance (COP) of at least 1.75 at 5 degrees Fahrenheit source air. (10 points)

C406.14 Heavy Timber construction. In buildings with 4 stories or more of Type IV heavy timber construction either above grade, or above a podium. (8 points)

SECTION C407 TOTAL BUILDING PERFORMANCE SECTION

C407 BUILDING PERFORMANCE CERTIFICATION METHODS

C407.1 Scope. The following sections C407.1.1 or C407.1.2 are approved performance certification methods to demonstrate compliance without calculation of a standard reference design.

Exception: Energy used to recharge or refuel vehicles that are used for on-road and off-site transportation purposes, or energy losses from use of behind-the-meter energy storage, should not be included in determining building performance.

C407.1.1 HERS Index (HERS) for multi-family buildings. For residential units within a building up to 5 stories above grade plane, a HERS rater verified HERS Index (HERS) score of 52 or less for each finished unit, together with a completed and HERS rater verified set of ENERGY STAR Multifamily New Construction (MFNC) program. Checklists may be used.

C407.1.2 Passive House Institute US (PHIUS) or Passive House Institute (PHI) certification. Projects design certified (precertified) through PHIUS or PHI, with a certified Passive House Consultant or certified Passive House Designer verified "as-built" report demonstrating compliance with the PHIUS or PHI standard.

C407.2 Mandatory requirements. Compliance with this section requires compliance with Sections C402.3 and C405.

C407.3 HERS-based compliance. Compliance based on an HERS analysis requires that the rated design be shown to have an HERS Index less than or equal to 52 when compared to the HERS reference design prior to credit for onsite renewable electric generation. The Home Energy Rating Index (HERS) shall be determined in accordance with RESNET/ICC standard 301.

C407.4 Compliance software tools. Software tools used for determining ERI shall be Approved Software Rating Tools in accordance with RESNET/ICC 301. Where calculations require input values not specified by Sections R402, R403, R404 and R405, those input values shall be taken from RESNET/ ICC 301. Software tools for determining Passive House certification shall be approved software tools by PHIUS or PHI.

C407.5 Documentation. Documentation verifying that the methods and accuracy of compliance software tools conform to the provisions of this section shall be provided to the building official, in accordance with Sections C407.5.1 through C407.5.2

C407.5.1 HERS Documentation. Prior to the issuance if a building permit, the following items must be provided to the Building Official:
1. A HERS compliance report which includes a proposed HERS index score of 52 or lower;
2. A description of the unit's energy features;
3. A statement that the rating index score is "based on plans".

Prior to the issuance of a certificate of occupancy, the following items must be provided to the Building official:
4. A copy of the final certificate indicating that the HERS rating index score for each unit is verified to be 52 or less;
5. A completed HERS rater verified ENERGY STAR Thermal Enclosure System Rater Checklist.

C407.5.2 Documentation. Compliance with Phius or PHI shall be in accordance with C407.5.2.1 or C407.5.2.2

C407.5.2.1 Phius Documentation. When using WUFI Passive or other Phius approved software:

1. Prior to the issuance of a building permit, the following item(s) must be provided to the Building Official:
    a. A Phius 2021 (or newer) Verification Report which demonstrates project compliance with Phius 2021 (or newer) performance requirements.
    b. A statement from the CPHC that the verification report results accurately reflect the plans submitted.
    c. Evidence of project registration from Phius.

OR

    a. A Design Certification Letter from Phius.

2. Prior to the issuance of a final certificate of occupancy, the following items must be provided to the building official:
    a. Design Certification Letter from Phius.
    b. An updated Verification Report by the CPHC which reflects "as-built" conditions and test results that demonstrate project compliance with Phius (blower door and ventilation results).
    c. A statement from the CPHC that the envelope meets the Phius hygrothermal requirements found in Appendix B of the Phius 2021 Certification guidebook
    d. A statement from the Phius Certified Verifier or Rater that the project test results and other Phius verification requirements are met.
    e. A copy of the Phius workbook listing all testing results and as-built conditions.

OR

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

AND

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

C407.5.2.2 Passive House International (PHI) Documentation.

1. If using PHI Passive House software, prior to the issuance of a building permit, the following item(s) must be provided to the Building Official:
    a. A PHPP compliance report which demonstrates project compliance with current PHI performance requirements;
    b. A statement from the Certified Passive House Consultant/Designer (CPHC/D) that the PHPP results and compliance report accurately reflect the plans submitted;
    c. Evidence of project registration from a Certified Passive House Certifier.
    OR
    a. A Design Certification Letter from a Certified Passive House Certifier.

2. Prior to the issuance of a final certificate of occupancy, the following items must be provided to the building official:
    a. A Design Certification Letter from a Certified Passive House Certifier.
    b. An updated PHPP compliance report which reflects "as-built" conditions and test results (blower door and ventilation results) that demonstrates project compliance with PHI performance requirements;
    c. A copy of the Passive House Verifier's or Rater's test results;
    d. A statement from the CPHD that the project test results meet the model performance requirements, all the mandatory limits and any other mandatory requirements.

OR

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

AND

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

C407.6 Verification by approved agency. Verification of compliance with Section C407 shall be completed by an approved third party. For compliance using an HERS certification, verification of compliance shall be completed by the certified HERS rater. For compliance using PHIUS or PHI, verification of compliance shall be completed by a certified Passive House Verifier or Certifier.

CHAPTER 5 [CE] EXISTING BUILDINGS

SECTION C503 ALTERATIONS

C503.1 General. Alterations to any building or structure shall comply with the requirements of Section C503, and Sections C402, C403, C404, C405 of the code for new construction. Alterations shall be such that the existing building or structure is not less conforming to the provisions of this code than the existing building or structure was prior to the alteration. Alterations to an existing building, building system or portion thereof shall conform to the provisions of this code as those provisions relate to new construction without requiring the unaltered portions of the existing building or building system to comply with this code. Alterations shall not create an unsafe or hazardous condition or overload existing building systems.

Alterations complying with ANSI/ASHRAE/IESNA 90.1 need not comply with Sections C402, C403 and C404.

CHAPTER 14: EXTERIOR WALLS (no amendments)

CHAPTER 15: ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

[P] 1502.1 General. Delete the words Chapter 11 of the *International Plumbing Code* replace with *248 CMR.*

[P] 1502.2 Secondary (emergency overflow) drains or scuppers. Delete the words Chapter 11 of the *International Plumbing Code* replace with *248 CMR.*

CHAPTER 16: STRUCTURAL DESIGN

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 the elevation of the proposed lowest floor, including the basement.
3. In flood hazard areas other than coastal high hazard areas, the elevation to which any nonresidential building will be dry floodproofed.
4. In coastal high hazard areas the proposed elevation of the bottom of the lowest horizontal structural member of the lowest floor, including the basement.

1604.11 and Table 1604.11 Add section and table as follows: 1604.11 Snow, Wind and Earthquake Design Factors. Ground snow load, p_g, basic wind speed, V, and earthquake response accelerations for the maximum considered earthquake, S_S and S_1, for each city and town in the Commonwealth shall be as given in Table 1604.11.

TABLE 1604.11 SNOW LOADS, WIND SPEEDS, AND SEISMIC PARAMETERS

	SNOW LOADS		BASIC WIND SPEED, V^4 (mph)				SEISMIC PARAMETER S (g)		PEAK GROUND ACCELE-RATION
City/Town	Ground Snow Load, P_g (psf) / Mean Elevation (feet)	Minimum Flat Roof Snow Load, P_f[1] (psf)	Risk Category I	Risk Category II	Risk Category III	Risk Category IV	S_s	S_1	P_{ga}
Abington	35	30	113	123	131	136	0.224	0.059	
Acton	50	35	108	117	126	130	0.302	0.070	
Acushnet	30	30	120	129	138	142	0.192	0.053	
Adams[2]	60[3]/1535	40	104	111	119	125	0.168	0.058	
Agawam	35	35	106	115	124	129	0.168	0.055	
Alford[2]	40	40	104	112	120	125	0.165	0.055	
Amesbury	50	30	107	116	125	129	0.356	0.077	
Amherst	40	35	105	114	123	128	0.171	0.057	
Andover	50	30	108	117	126	130	0.355	0.076	
Aquinnah (Gay Head)	25	25	124	134	143	147	0.161	0.048	
Arlington	40	30	109	119	128	132	0.286	0.067	
Ashburnham	60[3]/1151	35	106	114	123	128	0.288	0.069	
Ashby	60[3]/929	35	106	114	123	128	0.333	0.074	
Ashfield	50[3]/1338	40	104	112	120	126	0.167	0.057	
Ashland	40	35	109	119	128	132	0.235	0.062	
Athol	60	35	105	113	122	127	0.211	0.062	
Attleboro	35	30	114	124	132	137	0.206	0.057	
Auburn	50	35	108	118	127	131	0.199	0.058	
Avon	35	35	112	123	131	136	0.226	0.060	
Ayer	50	35	107	116	125	129	0.322	0.072	
Barnstable	30	25	122	130	138	144	0.160	0.049	
Barre	50[3]/893	35	106	115	124	129	0.202	0.060	
Becket[2]	60[3]/1566	40	104	113	120	125	0.162	0.055	
Bedford	50	30	108	118	127	131	0.309	0.070	
Belchertown	40	35	106	115	124	129	0.173	0.056	
Bellingham	40	35	110	121	129	134	0.209	0.058	
Belmont	40	30	109	119	128	132	0.280	0.067	
Berkley	30	30	116	126	135	139	0.204	0.055	
Berlin	50	35	108	117	127	131	0.246	0.064	
Bernardston	60	35	104	112	120	126	0.183	0.060	
Beverly	50	30	109	119	127	132	0.312	0.070	
Billerica	50	30	108	117	126	130	0.333	0.073	
Blackstone	40	35	111	121	130	135	0.203	0.057	
Blandford	50[3]/1273	40	105	114	122	127	0.162	0.055	
Bolton	50	35	108	117	126	130	0.273	0.067	

	SNOW LOADS		BASIC WIND SPEED, V^4 (mph)				SEISMIC PARAMETERS (g)		PEAK GROUND ACCELE-RATION
City/Town	Ground Snow Load, P_g (psf) / Mean Elevation (feet)	Minimum Flat Roof Snow Load, P_f[1] (psf)	Risk Category I	Risk Category II	Risk Category III	Risk Category IV	S_s	S_1	P_{ga}
Boston	40	30	110	120	128	133	0.270	0.065	
Bourne	30	25	120	129	137	142	0.180	0.052	
Boxborough	50	35	108	117	126	130	0.296	0.069	
Boxford	50	30	108	117	126	130	0.354	0.076	
Boylston	50	35	108	117	126	130	0.229	0.062	
Braintree	35	30	112	122	130	135	0.238	0.061	
Brewster	25	25	122	130	139	145	0.150	0.048	
Bridgewater	30	30	115	125	133	138	0.210	0.057	
Brimfield	40	35	108	117	126	131	0.177	0.056	
Brockton	35	30	113	123	132	137	0.220	0.059	
Brookfield	50	35	108	117	126	130	0.184	0.057	
Brookline	40	30	110	120	128	133	0.263	0.065	
Buckland[2]	60	40	104	112	120	125	0.169	0.058	
Burlington	50	30	108	118	127	131	0.314	0.071	
Cambridge	40	30	110	120	128	133	0.272	0.066	
Canton	40	35	111	122	130	135	0.231	0.060	
Carlisle	50	30	108	117	126	130	0.320	0.072	
Carver	30	30	117	127	135	140	0.198	0.055	
Charlemont[2]	60[3]/987	40	104	112	120	125	0.169	0.058	
Charlton	50	35	109	118	127	131	0.187	0.057	
Chatham	25	25	124	132	140	146	0.140	0.046	
Chelmsford	50	30	108	117	125	130	0.346	0.075	
Chelsea	40	30	110	120	128	133	0.278	0.066	
Cheshire[2]	60[3]/1453	40	104	112	119	125	0.167	0.057	
Chester	60	40	105	113	121	126	0.162	0.055	
Chesterfield	50[3]/1165	40	105	113	121	126	0.164	0.056	
Chicopee	35	35	106	115	124	129	0.167	0.055	
Chilmark	25	25	125	134	143	147	0.158	0.047	
Clarksburg[2]	60[3]/1504	40	104	111	119	125	0.171	0.059	
Clinton	50	35	108	117	126	130	0.257	0.065	
Cohasset	35	30	112	122	130	136	0.239	0.061	
Colrain[2]	60	40	104	112	120	125	0.175	0.059	
Concord	50	35	108	118	127	131	0.297	0.069	

	SNOW LOADS		BASIC WIND SPEED, V^4 (mph)				SEISMIC PARAMETERS (g)		PEAK GROUND ACCELE-RATION
City/Town	Ground Snow Load, P_g (psf) / Mean Elevation (feet)	Minimum Flat Roof Snow Load, P_f[1] (psf)	Risk Category I	Risk Category II	Risk Category III	Risk Category IV	S_s	S_1	P_{ga}
Conway	50	40	104	113	121	126	0.169	0.057	
Cummington[2]	60[3]/1396	40	104	113	120	126	0.164	0.056	
Dalton[2]	60[3]/1527	40	104	112	120	125	0.165	0.057	
Danvers	50	30	109	118	127	132	0.322	0.071	
Dartmouth	30	30	120	129	138	142	0.191	0.053	
Dedham	40	35	110	120	129	134	0.244	0.062	
Deerfield	50	35	105	113	121	126	0.174	0.058	
Dennis	30	25	122	130	138	144	0.156	0.049	
Dighton	30	30	116	126	135	139	0.202	0.055	
Douglas	40	35	110	120	129	133	0.196	0.057	
Dover	40	35	110	120	129	134	0.240	0.062	
Dracut	50	30	107	116	125	129	0.371	0.078	
Dudley	50	35	109	119	128	133	0.186	0.056	
Dunstable	50	35	107	115	124	129	0.375	0.078	
Duxbury	30	30	115	125	133	138	0.206	0.056	
E. Bridgewater	35	30	114	124	133	137	0.214	0.058	
E. Brookfield	50	35	108	117	126	130	0.188	0.058	
E. Longmeadow	35	35	107	116	125	130	0.171	0.055	
Eastham	25	25	122	130	139	144	0.150	0.048	
Easthampton	40	35	105	114	123	128	0.165	0.056	
Easton	35	30	113	123	131	136	0.219	0.059	
Edgartown	25	25	125	134	143	147	0.151	0.047	
Egremont[2]	40	40	104	112	120	125	0.165	0.055	
Erving	50	35	105	113	121	126	0.182	0.059	
Essex	50	30	109	118	127	132	0.321	0.071	
Everett	40	30	109	119	128	133	0.283	0.067	
Fairhaven	30	30	120	130	138	143	0.189	0.052	
Fall River	30	30	118	128	136	140	0.198	0.054	
Falmouth	30	25	122	131	140	145	0.168	0.049	
Fitchburg	60	35	106	115	124	128	0.300	0.070	
Florida[2]	60[3]/1784	40	104	111	119	125	0.169	0.058	
Foxborough	35	35	112	122	131	136	0.215	0.058	
Framingham	40	35	109	119	128	132	0.241	0.063	

	SNOW LOADS		BASIC WIND SPEED, V^4 (mph)				SEISMIC PARAMETER S (g)		PEAK GROUND ACCELE-RATION
City/Town	Ground Snow Load, P_g (psf) / Mean Elevation (feet)	Minimum Flat Roof Snow Load, P_f[1] (psf)	Risk Category I	Risk Category II	Risk Category III	Risk Category IV	S_s	S_1	P_{ga}
Franklin	40	35	111	121	130	135	0.213	0.058	
Freetown	30	30	117	127	135	139	0.201	0.055	
Gardner	60[3]/1073	35	106	114	123	128	0.252	0.066	
Georgetown	50	30	108	117	125	130	0.356	0.076	
Gill	50	35	104	113	120	126	0.185	0.060	
Gloucester	50	30	109	119	128	132	0.305	0.070	
Goshen	50[3]/1349	40	104	113	121	126	0.165	0.056	
Gosnold	30	25	123	132	142	146	0.174	0.050	
Grafton	50	35	109	119	128	132	0.211	0.059	
Granby	35	35	106	114	123	128	0.168	0.056	
Granville	50	40	106	114	123	128	0.165	0.054	
Great Barrington[2]	50	40	104	113	120	125	0.164	0.055	
Greenfield	50	35	104	113	120	126	0.176	0.058	
Groton	60	35	107	116	125	129	0.343	0.075	
Groveland	50	30	108	116	125	130	0.361	0.077	
Hadley	40	35	105	114	123	128	0.169	0.056	
Halifax	30	30	116	125	134	138	0.209	0.057	
Hamilton	50	30	109	118	127	131	0.326	0.072	
Hampden	35	35	107	116	126	130	0.172	0.055	
Hancock[2]	50[3]/1595	40	104	111	119	124	0.171	0.057	
Hanover	35	30	114	124	132	137	0.221	0.059	
Hanson	35	30	114	124	132	137	0.216	0.058	
Hardwick	50	35	107	115	125	129	0.184	0.058	
Harvard	50	35	107	116	125	130	0.298	0.070	
Harwich	25	25	123	131	139	146	0.146	0.047	
Hatfield	40	35	105	114	122	127	0.168	0.056	
Haverhill	50	30	107	116	125	129	0.369	0.078	
Hawley[2]	60[3]/1482	40	104	112	120	125	0.167	0.057	
Heath[2]	60[3]/1526	40	104	112	120	125	0.171	0.058	
Hingham	35	30	112	122	130	135	0.239	0.061	
Hinsdale[2]	60[3]/1591	40	104	112	120	125	0.164	0.056	
Holbrook	35	30	112	123	131	136	0.229	0.060	
Holden	50	35	108	116	126	130	0.220	0.061	

	SNOW LOADS		BASIC WIND SPEED, V[4] (mph)				SEISMIC PARAMETERS (g)		PEAK GROUND ACCELE-RATION
City/Town	Ground Snow Load, P_g (psf) / Mean Elevation (feet)	Minimum Flat Roof Snow Load, P_f[1] (psf)	Risk Category I	Risk Category II	Risk Category III	Risk Category IV	S_s	S_1	P_{ga}
Holland	40	35	108	117	127	131	0.177	0.056	
Holliston	40	35	110	120	129	133	0.225	0.060	
Holyoke	35	35	106	114	123	128	0.166	0.055	
Hopedale	40	35	110	120	129	134	0.210	0.059	
Hopkinton	40	35	109	119	128	133	0.224	0.061	
Hubbardston	50[3]/990	35	106	115	124	129	0.226	0.063	
Hudson	50	35	108	117	127	131	0.260	0.065	
Hull	35	30	112	122	130	135	0.248	0.062	
Huntington	50	40	105	114	122	127	0.162	0.055	
Ipswich	50	30	108	118	126	131	0.335	0.073	
Kingston	30	30	116	126	134	139	0.205	0.056	
Lakeville	30	30	117	127	135	139	0.201	0.055	
Lancaster	50	35	107	116	126	130	0.271	0.067	
Lanesborough[2]	50[3]/1433	40	104	111	119	125	0.168	0.057	
Lawrence	50	30	107	116	125	129	0.368	0.077	
Lee[2]	50	40	104	112	120	125	0.163	0.055	
Leicester	50[3]/903	35	108	117	126	131	0.199	0.059	
Lenox[2]	50[3]/1228	40	104	112	120	125	0.165	0.056	
Leominster	60	35	107	115	125	129	0.284	0.068	
Leverett	40	35	105	114	122	127	0.175	0.058	
Lexington	40	30	109	118	127	132	0.296	0.069	
Leyden[2]	60[3]/867	40	104	112	120	125	0.179	0.059	
Lincoln	40	35	109	118	127	131	0.286	0.068	
Littleton	50	35	108	117	126	130	0.320	0.072	
Longmeadow	35	35	107	116	125	129	0.170	0.055	
Lowell	50	30	107	116	125	129	0.360	0.076	
Ludlow	35	35	107	115	125	129	0.170	0.055	
Lunenburg	60[3]/452	35	107	115	124	129	0.318	0.072	
Lynn	40	30	109	119	128	133	0.295	0.068	
Lynnfield	50	30	109	118	127	131	0.320	0.071	
Malden	40	30	109	119	128	132	0.288	0.068	
Manchester	50	30	109	119	128	132	0.309	0.070	
Mansfield	35	30	113	123	131	136	0.213	0.058	

	SNOW LOADS		BASIC WIND SPEED, V^4 (mph)				SEISMIC PARAMETERS (g)		PEAK GROUND ACCELE-RATION
City/Town	Ground Snow Load, P_g (psf) / Mean Elevation (feet)	Minimum Flat Roof Snow Load, P_f[1] (psf)	Risk Category I	Risk Category II	Risk Category III	Risk Category IV	S_s	S_1	P_{ga}
Marblehead	40	30	109	119	128	133	0.299	0.069	
Marion	30	30	120	129	138	142	0.186	0.052	
Marlborough	50	35	108	118	127	131	0.249	0.064	
Marshfield	35	30	115	125	133	138	0.214	0.057	
Mashpee	30	25	121	130	139	144	0.165	0.049	
Mattapoisett	30	30	120	130	138	143	0.186	0.052	
Maynard	50	35	108	118	127	131	0.282	0.068	
Medfield	40	35	110	120	129	134	0.229	0.061	
Medford	40	30	109	119	128	132	0.287	0.067	
Medway	40	35	110	120	129	134	0.219	0.060	
Melrose	40	30	109	119	128	132	0.297	0.069	
Mendon	40	35	110	120	129	134	0.207	0.058	
Merrimac	50	30	107	116	124	129	0.363	0.077	
Methuen	50	30	107	116	125	129	0.372	0.078	
Middleborough	30	30	117	126	134	139	0.203	0.055	
Middlefield	60[3]/1449	40	104	113	120	126	0.162	0.056	
Middleton	50	30	108	118	127	131	0.334	0.073	
Milford	40	35	110	120	129	133	0.214	0.059	
Millbury	50	35	109	118	127	132	0.203	0.059	
Millis	40	35	110	120	129	134	0.224	0.060	
Millville	40	35	111	121	129	135	0.200	0.057	
Milton	40	30	111	121	129	134	0.246	0.062	
Monroe[2]	60[3]/1932	40	104	111	119	125	0.171	0.059	
Monson	40	35	108	116	126	130	0.173	0.055	
Montague	50	35	105	113	121	127	0.177	0.058	
Monterey	50[3]/1491	40	104	113	120	126	0.162	0.055	
Montgomery	40	40	105	114	122	127	0.163	0.055	
Mount Washington[2]	40	40	104	113	120	125	0.165	0.054	
Nahant	40	30	110	120	128	133	0.283	0.067	
Nantucket	25	25	128	137	147	150	0.123	0.043	
Natick	40	35	109	119	128	133	0.246	0.063	
Needham	40	35	110	120	129	133	0.249	0.063	
New Ashford[2]	50[3]/1900	40	104	111	119	124	0.170	0.058	

	SNOW LOADS		BASIC WIND SPEED, V^4 (mph)				SEISMIC PARAMETERS (g)		PEAK GROUND ACCELE-RATION
City/Town	Ground Snow Load, P_g (psf) / Mean Elevation (feet)	Minimum Flat Roof Snow Load, P_f[1] (psf)	Risk Category I	Risk Category II	Risk Category III	Risk Category IV	S_s	S_1	P_{ga}
New Bedford	30	30	120	129	138	142	0.190	0.053	
New Braintree	50[3]/826	35	107	115	125	129	0.190	0.058	
New Marlborough	50	40	105	113	121	126	0.163	0.054	
New Salem	50[3]/721	35	105	114	122	127	0.189	0.059	
Newbury	50	30	108	116	125	130	0.348	0.075	
Newburyport	50	30	107	116	125	130	0.350	0.076	
Newton	40	30	109	119	128	133	0.264	0.065	
Norfolk	40	35	111	121	130	135	0.219	0.059	
North Adams[2]	60[3]/1250	40	104	111	119	124	0.171	0.058	
North Andover	50	30	108	116	125	130	0.365	0.077	
North Attleborough	35	30	113	123	131	136	0.207	0.057	
North Brookfield	50[3]/804	35	107	116	125	130	0.190	0.058	
North Reading	50	30	108	118	127	131	0.332	0.073	
Northampton	40	35	105	114	123	128	0.167	0.056	
Northborough	50	35	108	118	127	131	0.231	0.062	
Northbridge	40	35	109	119	128	133	0.207	0.059	
Northfield	60	35	104	112	120	126	0.193	0.061	
Norton	35	30	114	124	132	137	0.210	0.057	
Norwell	35	30	114	123	132	136	0.226	0.059	
Norwood	40	35	111	121	129	135	0.232	0.061	
Oak Bluffs	25	25	124	133	142	146	0.157	0.048	
Oakham	50[3]/907	35	107	116	125	129	0.203	0.060	
Orange	60	35	105	113	122	127	0.199	0.061	
Orleans	25	25	122	130	139	145	0.148	0.048	
Otis	50[3]/1506	40	105	113	121	126	0.162	0.055	
Oxford	50	35	109	119	128	132	0.191	0.057	
Palmer	40	35	107	116	125	130	0.173	0.056	
Paxton	50[3]/1054	35	108	116	126	130	0.206	0.060	
Peabody	50	30	109	119	127	132	0.310	0.070	
Pelham	40	35	105	114	123	128	0.177	0.057	
Pembroke	30	30	115	124	133	138	0.215	0.058	
Pepperell	60	35	107	115	124	128	0.369	0.077	

	SNOW LOADS		BASIC WIND SPEED, V[4] (mph)				SEISMIC PARAMETERS (g)		PEAK GROUND ACCELE-RATION
City/Town	Ground Snow Load, P_g (psf) / Mean Elevation (feet)	Minimum Flat Roof Snow Load, P_f[1] (psf)	Risk Category I	Risk Category II	Risk Category III	Risk Category IV	S_s	S_1	P_{ga}
Peru[2]	60[3]/1846	40	104	112	120	125	0.164	0.056	
Petersham	50[3]/770	35	106	114	123	128	0.202	0.060	
Phillipston	60[3]/1088	35	106	114	123	128	0.220	0.063	
Pittsfield[2]	50[3]/1124	40	104	112	119	125	0.166	0.056	
Plainfield[2]	60[3]/1615	40	104	112	120	125	0.165	0.057	
Plainville	40	35	112	123	131	136	0.208	0.057	
Plymouth	30	30	117	127	135	140	0.196	0.055	
Plympton	30	30	116	126	134	139	0.205	0.056	
Princeton	50[3]/959	35	107	116	125	129	0.233	0.063	
Provincetown	25	25	118	127	135	140	0.181	0.053	
Quincy	40	30	111	121	130	135	0.245	0.062	
Randolph	35	30	112	122	130	135	0.233	0.061	
Raynham	35	30	115	125	133	138	0.209	0.057	
Reading	50	30	109	118	127	131	0.319	0.071	
Rehoboth	35	30	115	125	134	138	0.202	0.056	
Revere	40	30	110	119	128	133	0.282	0.067	
Richmond[2]	50	40	104	112	120	125	0.168	0.056	
Rochester	30	30	119	129	137	142	0.191	0.053	
Rockland	35	30	113	123	131	136	0.224	0.059	
Rockport	50	30	109	119	127	132	0.306	0.070	
Rowe[2]	60[3]/1516	40	104	111	119	125	0.170	0.058	
Rowley	50	30	108	117	126	130	0.344	0.074	
Royalston	60[3]/944	35	105	113	122	127	0.230	0.064	
Russell	40	40	105	114	122	127	0.163	0.055	
Rutland	50[3]/977	35	107	116	125	129	0.214	0.061	
Salem	50	30	109	119	128	132	0.307	0.070	
Salisbury	50	30	107	116	125	129	0.348	0.076	
Sandisfield	50[3]/1410	40	105	114	122	127	0.162	0.054	
Sandwich	30	25	119	129	137	142	0.176	0.051	
Saugus	40	30	109	119	128	132	0.298	0.069	
Savoy[2]	60[3]/1883	40	104	112	120	125	0.166	0.057	
Scituate	35	30	113	123	131	136	0.229	0.060	
Seekonk	35	30	115	125	134	138	0.201	0.056	

	SNOW LOADS		BASIC WIND SPEED, V^4 (mph)				SEISMIC PARAMETERS (g)		PEAK GROUND ACCELE-RATION
City/Town	Ground Snow Load, P_g (psf) / Mean Elevation (feet)	Minimum Flat Roof Snow Load, P_f[1] (psf)	Risk Category I	Risk Category II	Risk Category III	Risk Category IV	S_s	S_1	P_{ga}
Sharon	35	35	112	122	130	135	0.222	0.059	
Sheffield[2]	40	40	104	113	120	125	0.164	0.054	
Shelburne	50	40	104	112	120	125	0.171	0.058	
Sherborn	40	35	109	120	128	133	0.236	0.062	
Shirley	60	35	107	116	125	129	0.307	0.071	
Shrewsbury	50	35	108	118	127	131	0.222	0.061	
Shutesbury	40	35	105	114	122	127	0.180	0.058	
Somerset	30	30	117	127	136	140	0.200	0.055	
Somerville	40	30	109	119	128	133	0.277	0.066	
South Hadley	35	35	106	114	123	128	0.167	0.056	
Southampton	40	35	105	114	123	128	0.164	0.055	
Southborough	40	35	109	119	128	132	0.237	0.062	
Southbridge	40	35	109	118	127	132	0.182	0.056	
Southwick	40	35	106	115	124	128	0.166	0.055	
Spencer	50	35	108	117	126	130	0.193	0.058	
Springfield	35	35	106	115	124	129	0.168	0.055	
Sterling	50	35	107	116	125	129	0.255	0.065	
Stockbridge[2]	50	40	104	112	120	125	0.164	0.055	
Stoneham	40	30	109	119	127	132	0.306	0.070	
Stoughton	35	35	112	122	131	136	0.225	0.059	
Stow	50	35	108	117	126	130	0.280	0.067	
Sturbridge	40	35	108	118	127	131	0.181	0.056	
Sudbury	40	35	109	118	127	131	0.268	0.066	
Sunderland	40	35	105	113	122	127	0.172	0.057	
Sutton	50	35	109	119	128	133	0.199	0.058	
Swampscott	40	30	109	119	128	133	0.295	0.068	
Swansea	30	30	117	127	135	139	0.200	0.055	
Taunton	35	30	115	125	134	138	0.206	0.056	
Templeton	60[3]/1003	35	106	114	123	128	0.233	0.064	
Tewksbury	50	30	108	117	126	130	0.348	0.075	
Tisbury	25	25	124	133	142	146	0.160	0.048	
Tolland	50	40	105	114	123	127	0.163	0.054	
Topsfield	50	30	108	118	126	131	0.339	0.074	
Townsend	60	35	106	115	124	128	0.355	0.076	

	SNOW LOADS		BASIC WIND SPEED, V^4 (mph)				SEISMIC PARAMETER S (g)		PEAK GROUND ACCELE-RATION
City/Town	Ground Snow Load, P_g (psf) / Mean Elevation (feet)	Minimum Flat Roof Snow Load, P_f[1] (psf)	Risk Category I	Risk Category II	Risk Category III	Risk Category IV	S_s	S_1	P_{ga}
Truro	25	25	119	128	136	141	0.167	0.051	
Tyngsborough	50	30	107	116	124	129	0.375	0.078	
Tyringham[2]	50	40	104	113	120	125	0.162	0.055	
Upton	40	35	109	119	128	133	0.211	0.059	
Uxbridge	40	35	110	120	129	134	0.200	0.059	
Wakefield	50	30	109	118	127	132	0.311	0.070	
Wales	40	35	108	117	127	131	0.176	0.055	
Walpole	40	35	111	121	130	135	0.225	0.060	
Waltham	40	30	109	119	128	132	0.273	0.066	
Ware	40	35	107	115	125	129	0.179	0.057	
Wareham	30	30	119	129	137	142	0.188	0.053	
Warren	40	35	107	116	125	130	0.180	0.057	
Warwick	60[3]/915	35	105	113	121	126	0.206	0.062	
Washington[2]	60[3]/1751	40	104	112	120	125	0.163	0.056	
Watertown	40	30	109	119	128	133	0.272	0.066	
Wayland	40	35	109	119	128	132	0.261	0.065	
Webster	50	35	109	119	128	133	0.187	0.056	
Wellesley	40	35	109	119	128	133	0.250	0.063	
Wellfleet	25	25	120	129	137	143	0.160	0.050	
Wendell	50[3]/960	35	105	113	122	127	0.186	0.059	
Wenham	50	30	109	118	127	131	0.327	0.072	
W. Boylston	50	35	108	117	126	130	0.230	0.062	
W. Bridgewater	35	30	114	124	132	137	0.213	0.057	
W. Brookfield	40	35	107	116	125	130	0.183	0.057	
W. Newbury	50	30	107	116	125	129	0.362	0.077	
W. Springfield	35	35	106	115	124	129	0.167	0.055	
W. Stockbridge[2]	40	40	104	112	120	125	0.166	0.056	
W. Tisbury	25	25	124	133	142	146	0.160	0.048	
Westborough	50	35	109	118	127	132	0.230	0.062	
Westfield	40	35	106	114	123	128	0.165	0.055	
Westford	50	35	107	116	125	129	0.338	0.074	
Westhampton	50	40	105	114	122	127	0.164	0.056	
Westminster	60[3]/1007	35	106	115	124	128	0.262	0.067	

	SNOW LOADS		BASIC WIND SPEED, V^4 (mph)				SEISMIC PARAMETER S (g)		PEAK GROUND ACCELE-RATION
City/Town	Ground Snow Load, P_g (psf) / Mean Elevation (feet)	Minimum Flat Roof Snow Load, P_f[1] (psf)	Risk Category I	Risk Category II	Risk Category III	Risk Category IV	S_s	S_1	P_{ga}
Weston	40	35	109	119	128	132	0.269	0.066	
Westport	30	30	119	128	137	141	0.195	0.053	
Westwood	40	35	110	121	129	134	0.238	0.062	
Weymouth	35	30	112	122	130	135	0.236	0.061	
Whately	50	35	105	113	121	127	0.169	0.057	
Whitman	35	30	114	124	132	137	0.219	0.058	
Wilbraham	35	35	107	115	125	129	0.170	0.055	
Williamsburg	50	40	105	113	121	127	0.165	0.056	
Williamstown[2]	50	40	103	111	119	124	0.173	0.059	
Wilmington	50	30	108	118	126	131	0.327	0.072	
Winchendon	60	35	105	113	122	127	0.269	0.068	
Winchester	40	30	109	119	127	132	0.296	0.069	
Windsor[2]	60[3]/1857	40	104	112	120	125	0.165	0.057	
Winthrop	40	30	110	120	129	133	0.274	0.066	
Woburn	50	30	109	118	127	132	0.305	0.070	
Worcester	50	35	108	117	127	131	0.210	0.060	
Worthington	60[3]/1386	40	104	113	120	126	0.163	0.056	
Wrentham	40	35	112	122	130	135	0.213	0.058	
Yarmouth	30	25	123	131	139	145	0.152	0.048	

NOTES:
1. The design flat roof snow load shall be the larger of the calculated flat roof snow load using P_g or the value of P_f listed in this table.
2. Special Wind Region. Local conditions may cause higher wind speeds than the tabulated values. See ASCE/SEI 7.
3. Increase P_g listed by 0.021 x (Site Elevation - Mean Elevation) when the Site Elevation exceeds the Mean Elevation.
4. Commentary: The basic wind speed, V, is equivalent to the formally defined ultimate wind speed, V_{ult}, in 780 CMR. V_{asd} refers to allowable stress wind speeds.

1605.1 Add the following lines before Exceptions

For allowable stress design of structural steel in buildings and other structures, allowable stress design load combinations from ASCE 7, Section 2.4 that include the effects of wind or earthquake loads shall not be used. Instead two-thirds (2/3) of strength design load combinations from ASCE 7, Section 2.3 that include the effects of wind or earthquake loads shall be used

1605.2 Delete subsection.

1607.12.2 Delete subsection.

1608.2 Revise section as follows:

1608.2 Ground Snow Loads. The ground snow loads to be used in determining the design snow loads for roofs shall be determined in accordance with Table 1604.11.

FIGURE 1608.5.1

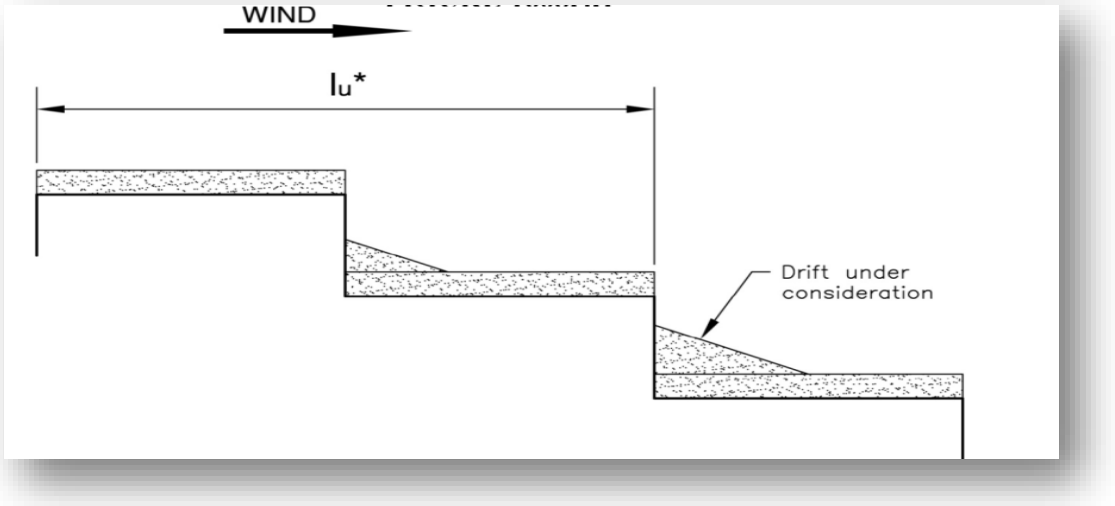
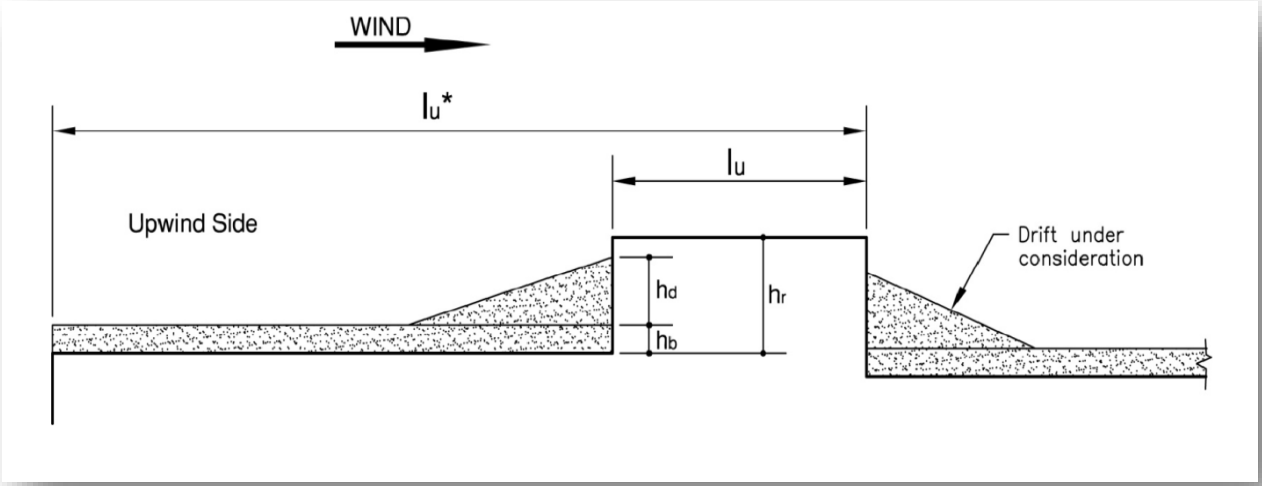


FIGURE 1608.5.2



1608.4 through 1608.11 Add sections as follows:

1608.4 Curved Roofs. Section 7.4.3 of ASCE 7 applies to curved roofs only. The effective loaded area of a curved roof shall be that area of the surface of the roof where the tangents to the surface have a slope of 50º or less. The total uniform snow load for curved roofs shall be P*f* multiplied by the total horizontal projected area of the roof. This total load shall be applied uniformly over the effective loaded area of the roof.

1608.5 Drifts on Multiple Level Roofs. For multiple stepped roofs similar to that shown in Figure 1608.5.1, the sum of all the roof lengths upwind above the drift under consideration, l_u*, in Figure 1608.5.1, shall replace l_u in Figure 7.7-2 of ASCE 7. For multiple level roofs similar to that shown in Figure 1608.5.2, if the total calculated height of a drift and the underlying uniform snow layer on the upwind side of a higher roof ($h_d + h_b$) is equal to or greater than $0.7(h_b + h_c)$, then the length, l_u*, as shown in Figure 1608.5.2, shall be used in place of l_u in Figure 7.7-2 of ASCE 7.

1608.6 Very High Roof Separations. When the ratio h_r/L_T is greater than 1.0, where L_T is the dimension in feet of the upper roof perpendicular to the wind flow (perpendicular to l_u in Figure7.7-2 of ASCE 7) and $h_r = h_b + h_c$, the drift surcharge load on the lower roof due to drifting of snow from the upper roof may be reduced. The reduced height of the drift surcharge, h_{dr}, shall be not less than: $h_{dr} = h_r (2 - h_r/L_T)$, except that when h_r/L_T is greater than 2.0, hdr shall be equal to zero.

1608.9 Sliding Snow. In addition to the sliding snow load on a lower roof as required in section 7.9 of ASCE 7, the lower roof shall be designed for a windward drift surcharge at the wall separating the upper and lower roofs in accordance with Figure 1608.5.1 and Figure 7.7-2 of ASCE 7. The sliding snow load and the windward drift surcharge need not be considered to act concurrently.

1609.3 Replace the first paragraph with the following: 1609.3 Basic Wind Speed. The basic wind speed, V in mph, shall be determined in accordance with Table 1604.11. The basic wind speed, V, for the special wind regions indicated near mountainous terrain and near gorges shall be in accordance with the local jurisdiction requirements. The basic wind speeds, V, determined by the local authority having jurisdiction shall be in accordance with Chapter 26 of ASCE 7.

1610 Replace section as follows:

SECTION 1610 LATERAL SOIL AND HYDROSTATIC LOADS 1610.1 General. Basement, foundation, and retaining walls shall be designed to resist lateral loads due to soil and water pressure. Lateral soil pressure on said walls shall be determined in accordance with the principles of soil mechanics and as provided in 780 CMR 18.00. Floors or similar elements below the water table shall be designed to resist the upward pressure of the water.

EXCEPTION: Uninhabitable spaces with concrete floors on the ground with an under-slab drainage system, including sump pits and sump pumps, designed to keep the water level a minimum of one foot below the bottom of the floor slab need not be designed to resist water pressure.

1610.2 Seismic Loads on Foundation Walls and Retaining Walls. Exterior foundation walls and retaining walls shall be designed to resist an allowable earthquake force, F_w, for horizontal backfill surface, equal to:

$F_w = 0.1(S_S)(F_a)(\gamma_t)(H)^2$

where S_S is the maximum considered earthquake spectral response acceleration from Table 1604.11, F_a is the site coefficient from Table 1613.3.3(1), γ_t is the total unit weight of the soil, and H is the height of the wall measured as the difference in elevation of finished ground surface or floor in front of and behind the wall. The resultant allowable earthquake force from the backfill shall be distributed as an inverted triangle over the height of the wall.

Surcharges that are applied over extended periods of time shall be included in the total static lateral soil pressure and their earthquake lateral force shall be computed and added to the force determined above. The point of application of the earthquake force from extended duration surcharge shall be determined on an individual case basis.

If the backfill or the existing soil behind the backfill consists of loose saturated granular soil, the potential for liquefaction of the backfill or existing soil adjacent to the wall during seismic loading shall be evaluated in accordance with the requirements of section 1806.4.
If the backfill or existing soil beyond the backfill is potentially subject to liquefaction, the increase in design lateral load on the foundation wall or retaining wall shall be determined by a registered design professional.
For wall strength design, a load factor of 1.43 shall be applied to the allowable earthquake force calculated above

1612.1 Revise section as follows:

1612.1 General. Within flood hazard areas as established in section 1612.3, all new construction of buildings, structures and portions of buildings and structures, including substantial improvement and restoration of substantial damage to buildings and structures, and substantial repair of a foundation shall be designed and constructed to resist the effects of flood hazards and flood loads. For buildings that are located in more than one flood hazard area, the provisions associated with the most restrictive flood hazard area shall apply.

Replace subsection 1612.2 with the following:

1612.2 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–. For minimum elevation requirements for lowest floor, bottom of lowest horizontal structural member, utilities, flood-resistant materials and wet and dry flood-proofing 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.
Exceptions: Existing non-residential structures and non-residential portions of existing mixed use structures in Coastal A Zones shall be allowed to meet the A Zone requirements.

1612.3 Revise section as follows:

1612.3 Establishment of Flood Hazard Areas. See 780 CMR 2.00 for definition of flood hazard areas.

1612.4 Revise subsection 1.3 as follows:

1.3. For dry floodproofed nonresidential buildings, construction documents shall include a statement that the dry floodproofing is designed in accordance with ASCE 24 and shall include the flood emergency plan specified in Chapter 6 of ASCE 24 and certified as-built level of protection.

ASCE 24 Tables for flood-resistant materials and dry and wet-floodproofing - REVISED

		Flood Design Class 1	Flood Design Class 2	Flood Design Class 3	Flood Design Class 4
Minimum Elevation of Lowest Floor (A Zone)	All A Zones not Identified as Coastal A Zones	BFE +2 ft	BFE +2 ft	BFE +2 ft	BFE + 3 ft
Minimum Elevation of Lowest Horizontal Structural Member	All V Zones and Coastal A Zones	BFE + 3 ft	BFE + 3 ft	BFE + 3 ft	BFE + 3 ft
Minimum Elevation Below Which Flood-Damage-Resistant Materials Shall be Used	All A Zones not Identified as Coastal A Zones	BFE +2 ft	BFE +2 ft	BFE +2 ft	BFE + 3 ft
-	All V Zones and Coastal A Zones	BFE + 3 ft	BFE + 3 ft	BFE + 3 ft	BFE + 3 ft
Minimum Elevation** of Utilities and Equipment	All A Zones not Identified as Coastal A Zones	BFE +2 ft	BFE +2 ft	BFE +2 ft	BFE + 3 ft
	All V Zones and Coastal A Zones	BFE + 3 ft	BFE + 3 ft	BFE + 3 ft	BFE + 3 ft
Minimum Elevation of Dry Flood-proofing of non-residential structures and non-residential portions of mixed used buildings	All A Zones not Identified as Coastal A Zones	BFE +2 ft	BFE +2 ft	BFE +2 ft	BFE + 3 ft
	All V Zones and Coastal A Zones	Not Permitted	Not Permitted	Not Permitted	Not Permitted
Minimum Elevation of Wet Floodproofing***	All A Zones not Identified as Coastal A Zones	BFE +2 ft	BFE +2 ft	BFE +2 ft	BFE +3 ft
	Zone V	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, except in V zones where protection of utilities and equipment below the indicated elevation is not accepted.					
***Only if permitted by ASCE 24-14 section 6.3.1.					

1613.1 Revise section as follows: 1613.1 Scope. Every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7, excluding Chapter 14 and Appendix 11A, but including Massachusetts Amendments to Tables 12.2-1 and 12.14-1. The seismic design category for a structure is permitted to be determined in

accordance with section 1613 or ASCE 7, but seismic design category A shall not be used in the Commonwealth. Any structure that could satisfy the requirements of seismic design category A in section 1613 or ASCE 7 shall be assigned to seismic design category B for purposes of implementing 780 CMR.

1613.1 Revise section as follows and add the following commentary to the end of section: 1613.1 Scope. Every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with Chapters 11, 12, 13, 15, 17 and 18 of ASCE 7, as applicable, including Massachusetts Amendments. The seismic design category for a structure is permitted to be determined in accordance with section 1613 or ASCE 7. Any structure that could satisfy the requirements of seismic design category A in section 1613 or ASCE 7 shall be assigned to seismic design category B for purposes of implementing 780 CMR.

Commentary on Provisions. Section 1613 presents criteria for the design and construction of buildings and nonbuilding structures subject to earthquake ground motion. The specified earthquake loads rely on post-elastic energy dissipation in the structure, and because of this fact, the provisions for design, detailing and construction shall be satisfied even for structures and members for which load combinations containing earthquake load produce lesser effects than other load combinations.

The purpose of section 1613 is to minimize the hazard to life of occupants of all buildings and nonbuilding structures, to increase the expected performance of high occupancy assembly and education buildings as compared to ordinary buildings, and to improve the capability of essential facilities to function during and after an earthquake. Because of the complexity of and the great number of variables involved in seismic design (e.g. variability in ground motion, soil types, dynamic characteristics of the structure, material strength properties, and construction practice), section 1613 presents only minimum criteria in general terms. These minimum criteria are considered to be prudent and economically justified for the protection of life safety in buildings subject to earthquakes and for improved capability of essential facilities to function immediately following an earthquake.

Absolute safety and prevention of damage, even in an earthquake event with a reasonable probability of occurrence, cannot be achieved economically in most buildings. The “design earthquake” ground motion specified in section 1613 may result in both structural and nonstructural damage. For most buildings designed and constructed according to the minimum requirements of section 1613, it is expected that structural damage from a major earthquake may be repairable, but the repair may not be economically feasible. For ground motions larger than the design earthquake, the intent of section 1613 is that there will be a low likelihood of building collapse.

1613.2.1 Revise subsection as follows: 1613.2.1

Mapped Acceleration Parameters. The parameters S_S and S_1 shall be determined from Table 1604.11.

NOTE: The following amendments pertain to **ASCE 7. ASCE 7, TABLE 12.2-1**.

Revise as follows:

Note p. Replace “ordinary moment frame” with “ordinary steel moment frame.”

Limitations: Amend as follows:

Seismic Force-Resisting System	Seismic Design Category
A.3	B is NP
A.4	B is NP
A.9	B and C are NP
A.10	B is NP
A.11	B is NP
A.13	B and C are NP
A.14	B is NP
A.17	B and C are limited to 35 ft. and note 1.
B.6	B is NP

B.7	B is NP
B.18	B and C are NP
B.19	B is NP
B.20	B is NP
B.24	B and C are limited to 35 ft. and note 1.
C.7	B is NP
E.3	B and C are NP
F	B is NP
H	B and C are limited to 100 ft. and 65 ft., respectively and note 2

NOTE 1: Permitted only at exterior walls and firerated walls and not permitted for buildings in Risk Category IV and not permitted for buildings where the seismic weight of any laterally supported level (floor or roof) exceeds 25 psf.

NOTE 2: Connections, including connections to foundations, shall be designed for two times the computed forces and moments resulting from seismic loads, in combination with other loads, as applicable, but need not be designed for forces greater than the expected nominal yield strength ($R_yF_yA_g$) of diagonal braces in braced frames or 1.1 times the expected flexural capacity of beams ($1.1R_yM_p$) in moment frames. Columns that are part of the seismic forceresisting system shall satisfy the requirements of section D1.4a of ANSI/AISC 341 Seismic Provisions for Structural Steel Buildings. K-Braced Frames shall not be permitted. Beams in V-Type and Inverted VType Braced Frames shall meet the following additional requirements:
a. A beam that is intersected by braces shall be continuous between columns.
b. A beam that is intersected by braces shall be designed to support the effects of all tributary dead and live loads from load combinations stipulated by 780 CMR16.00 assuming that braces are not present.
c. Top and bottom flanges of the beam at the point of intersection of braces shall be designed to support a horizontal force perpendicular to the longitudinal axis of the beam that is equal to two percent of the nominal beam flange strength: F_yb_{ftbf}.

ASCE 7, TABLE 12.14-1 Revise as follows: Limitations: Amend as follows:

Seismic Force-Resisting System	**Seismic Design Category**
A.3	B is NP
A.4	B is NP
A.9	B is NP
A.10	B is NP
A.11	B is NP
A.15	See note 1.
B.6	B is NP
B.7	B is NP
B.18	B is NP
B.19	B is NP
B.20	B is NP
B.24	See note 1.

NOTE 1: Permitted only at exterior walls and fire-rated walls and not permitted for buildings in Risk Category IV and not permitted for buildings where the seismic weight of any laterally supported level (floor or roof) exceeds 25 psf.

CHAPTER 17: SPECIAL INSPECTIONS AND TESTS (no amendments)

CHAPTER 18: SOILS AND FOUNDATIONS

1801.2 Add section as follows:

> **1801.2 Foundation Types Not Covered by the Code.** Types of foundations not specifically covered by the provisions of 780 CMR 18.00, and ground modification treatments to improve soils with inadequate load bearing capacity or settlement characteristics, may be permitted subject to approval by the building official. A report shall be submitted to the building official that identifies the foundation as a type not covered by existing code provisions, and contains sufficient data and analyses to substantiate the adequacy of the proposed foundation. The report shall be prepared by a registered design professional knowledgeable in the design of the proposed type of foundation or ground modification. The building official may require that an independent peer review be performed to evaluate the adequacy of the proposed design.

1803.1 Revise section as follows:

> **1803.1 General.** Geotechnical investigations shall be conducted in accordance with Section 1803.2 and reported in accordance with Section 1803.6. Where required by the building official or where geotechnical such investigations involve in-situ testing, laboratory testing or engineering calculations, such investigations shall be conducted by a registered design professional.

1803.2 Revise section as follows:

> **1803.2 Investigations Required**. Geotechnical investigations shall be conducted in accordance with sections 1803.3 through 1803.5.
>
> > **EXCEPTIONS:** The building official shall be permitted to waive the requirement for a geotechnical investigation:
> >
> > 1. Where satisfactory data from adjacent areas is available that demonstrates an investigation is not necessary to meet the requirements of 780 CMR 18.00;
> > 2. For unoccupied structures that do not pose a significant risk to public safety in the event of failure; or
> > 3. For structures used for agricultural purposes.

1803.5.4 Delete the exception.

1803.5.11 In two locations replace “C” with “B, C.”

1803.5.12 In two locations replace “D” with “B, C, D.”

1803.6 Add item 11 as follows:

> 11. Magnitude and distribution of lateral soil and ground water pressures, including seismic loads, on foundation and retaining walls.

1805.4.2 Revise section as follows:

1805.4.2 Foundation drain. A drain shall be placed around the perimeter of a foundation that consists of gravel or crushed stone containing not more than 10- percent material that passes through a No. 4 (4.75 mm) sieve. The drain shall extend a minimum of not less than 12 inches (305 mm) beyond the outside edge of the footing. The thickness shall be such that the bottom of the drain is not higher than the bottom of the base under the floor, and that the

top of the drain is not less than 6 inches (152 mm) above the top of the footing. The top of the drain shall be covered with an approved filter membrane material. Where a drain tile or perforated pipe is used, the invert of the pipe or tile shall not be higher than the floor elevation. The top of joints or the top of perforations shall be protected with an approved filter membrane material. The pipe or tile shall be placed on not less than 2 inches (51 mm) of gravel or crushed stone complying with Section1805.4.1, and shall be covered with not less than 6 inches (152 mm) of the same material.

1805.4.2 Add exception as follows:

> **EXCEPTION:** The foundation drain may be omitted if determined not to be necessary by a registered design professional.

1805.5 Add section as follows:

> **1805.5 Impacts on Groundwater Levels.** Below-grade structures, their appurtenances and foundation drains shall be designed and constructed so as not to cause changes to the temporary or permanent groundwater level if such changes could adversely impact nearby structures or facilities including deterioration of timber piles, settlement, flooding or other impacts.

1806.2 Replace the text "Table 1806.2" with "Table 1806.2 or Table 1806.2a," and add Table 1806.2a as follows:

TABLE 1806.2a PRESUMPTIVE ALLOWABLE VERTICAL BEARING PRESSURES

Material Class	Description	Notes	Consistency in Place	Net Bearing Pressure (tons/ft^2)[1,2,3]
1a	Massive bedrock: Granite, diorite, gabbro, basalt, gneiss	4	Hard, sound rock, minor jointing	100
1b	Quartzite, well-cemented conglomerate	4	Hard, sound rock moderate jointing	60
2	Foliated bedrock: slate, schist	4	Medium hard rock, minor jointing	40
3	Sedimentary bedrock: cementation shale, siltstone, sandstone, limestone, dolomite, conglomerate	4	Soft rock, moderate jointing	20
4	Weakly-cemented sedimentary bedrock: compaction shale or other similar rock in sound condition	4	Very soft rock	10
5	Weathered bedrock: any of the above except shale.	5	Very soft rock, weathered and/or major jointing and fracturing	8
6	Slightly-cemented sand and/or gravel, glacial till (basal or lodgement), hardpan	6	Very dense	10
7	Gravel, widely-graded sand and gravel; and granular ablation till	6	Very dense Dense Medium dense Loose Very loose	8 6 4 2 NOTE 9
8	Sands and non-plastic silty sands with little or no gravel (except for Class 9 materials)	6, 7	Dense Medium dense	4 3

Material Class	Description	Notes	Consistency in Place	Net Bearing Pressure (tons/ft^2)[1,2,3]
			Loose Very loose	1 NOTE 9
9	Fine sand, silty fine sand, and non-plastic inorganic silt	6, 7	Dense Medium dense Loose Very loose	3 2 1 NOTE 9
10	Inorganic sandy or silty clay, clayey sand, clayey silt, clay, or varved clay; low to high plasticity	8	Hard Stiff Medium Soft	4 2 1 NOTE 9
11	Organic soils: peat, organic silt, organic clay	8,9		NOTE 9

NOTES:

1. Net bearing pressure shall consist of the bearing pressure applied at the bottom of the foundation, including the weight of the foundation and any soil immediately overlying the foundation, minus the pressure calculated for a height of soil extending from the bottom of the foundation to the lowest ground surface level immediately adjacent to the foundation.
2. Where the load-bearing layer directly below the foundation is underlain by a weaker layer, the bearing pressure on the weaker layer shall be checked by assuming that the load is spread uniformly at an angle of 30º with the vertical, or by using another suitable method to determine the bearing pressure on the weaker layer.
3. The bearing strata shall be adequately protected against disturbance. If the bearing materials are disturbed from any cause, for example, by flow of water, freezing or construction activities, the extent of the disturbance shall be evaluated by a registered design professional to determine appropriate remedial measures or reduced allowable bearing pressures.
4. The allowable bearing pressures may be increased by an amount equal to ten percent for each foot of depth below the surface of sound rock; however, the increase shall not exceed two times the value given in the table.
5. Weathered shale and/or weathered compaction shale shall be included in Material Class 10. Other highly weathered rocks and/or residual soils shall be treated as soil under the appropriate description in Material Classes 6 to 10. Where the transition between residual soil and bedrock is gradual, a registered design professional shall make a judgment as to the appropriate bearing pressure.
6. Allowable bearing pressures may be increased by an amount equal to five percent for each foot of depth of the bearing area below the minimum required in section 1806.0; however, the bearing pressure shall not exceed two times the value given in the table. For foundation bearing areas having a least lateral dimension smaller than three feet, the allowable bearing pressure shall be 1/3 of the tabulated value times the least dimension in feet.
7. Evaluate susceptibility to liquefaction in accordance with section 1806.4.
8. Evaluate long-term settlement due to consolidation for these materials.
9. A registered design professional shall be engaged to provide recommendations for these special cases.

1806.3 Revise section as follows:

1806.3 Lateral Load. Where foundations are required to resist lateral loads, the allowable values of sliding friction, adhesion and passive pressure for design shall be determined by a registered design professional.

1806.3.1 through 1806.3.4 Delete subsections and replace with subsection 1806.3.1 as follows:

1806.3.1 Increase for Poles. Isolated poles for uses such as flagpoles or signs and poles used to support buildings that are not adversely affected by a 1/2-inch (12.7 mm) motion at the ground surface due to short-term lateral loads shall be permitted to be designed using lateral bearing pressures equal to two times the tabular values of Table 1806.2.

1806.4 Add sections 1806.4 through 1806.4.4 as follows:

1806.4 Liquefaction. The potential for liquefaction induced by the design earthquake in saturated clean to silty sands and non-plastic silts (Soil Classes 8 and 9 in Table 1806.2a) shall be evaluated as indicated in sections 1806.4.1 through 1806.4.4.

1806.4.1 Standard Penetration Test. For cases with a generally flat ground surface, the susceptibility to liquefaction may be evaluated using Figure 1806.4 on the basis of Standard Penetration Test ("SPT") blow counts, N (blows per foot) values that have been corrected for hammer efficiency to be SPT N60 (blows per foot) values. N60-values are intended to be used with Figure 1806.4 and SPT N-values measured in the field should only be corrected for hammer energy. Hammer type shall be as described in ASTM Standard Method D6066. If the type of hammer is not known, Figure 1806.4 may be used assuming the SPT N-values were determined using a 140- lb donut drop weight and SPT N-values shall be corrected with a hammer efficiency correction factor (CE) of 0.75.

Figure 1806.4 is intended to be a screening tool for Site Classes A through D, determined in accordance with section 1613.5.2. The figure is based on Maximum Considered Geometric Mean Earthquake (MCEG) Peak Ground Accelerations (PGAs) at outcropping Site Class B rock of 0.25 g, 0.18 g, and 0.12 g and site amplification factors (FPGA) of 1.35, 1.44, and 1.56, respectively for Site Class D, and a factor of safety of 1.1. Refer to Table 1604.11 or USGS earthquake hazard data for PGA specific to where the site is located. This figure is based on observed behavior of clean sand, and is conservative for other (more silty) materials. Soils that do not screen out using Figure 1806.4 shall be evaluated for liquefaction per section 1803.5.12.

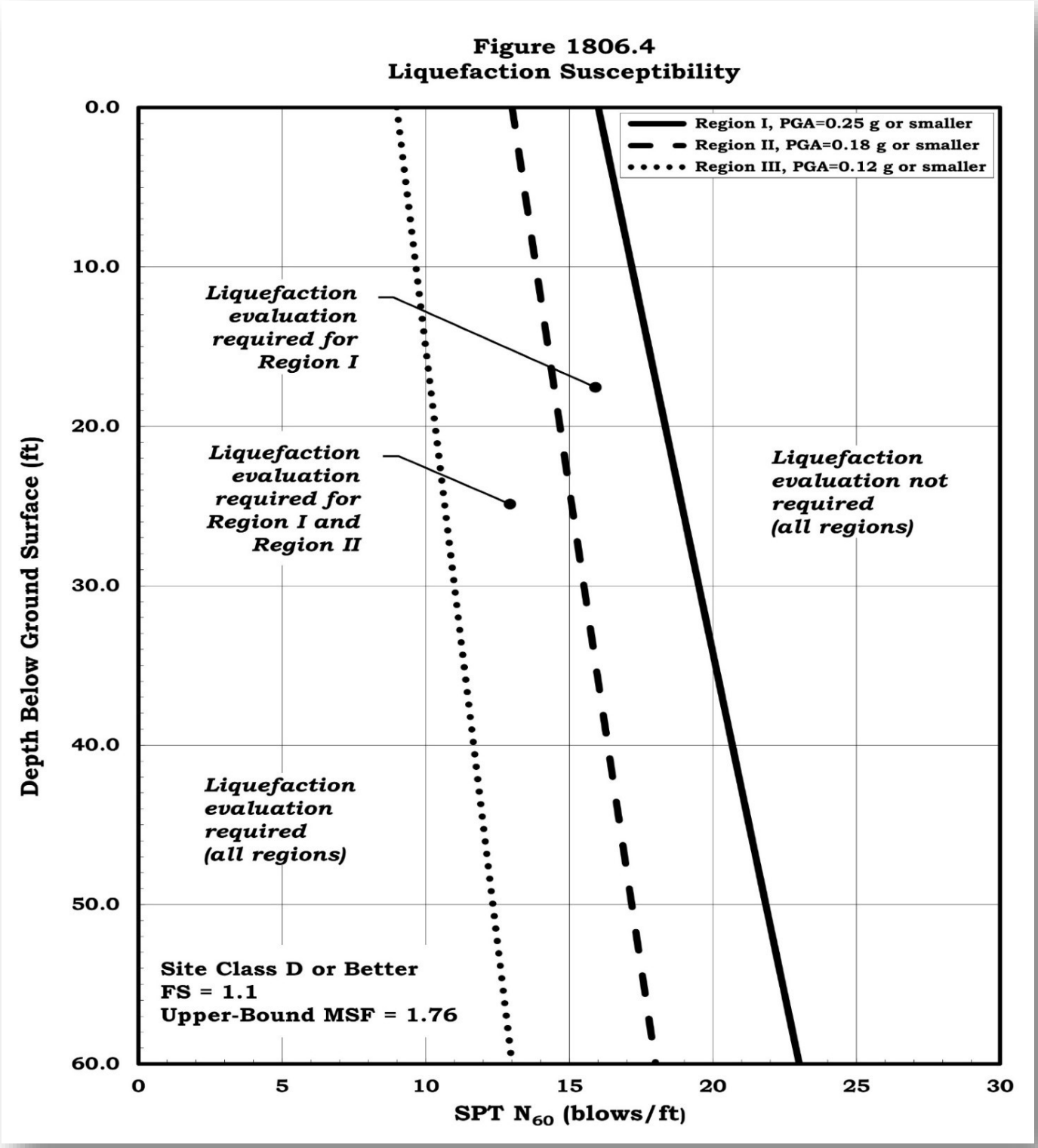
If the SPT N60-values plot above or to the right of the applicable line in Figure 1806.4, the soil shall be considered not susceptible to liquefaction. Liquefaction for soils below a depth of 60 feet (18 m) from final grade need not be considered for level ground. For pressure-injected footings, the tenfoot (3-m) thickness of soil immediately below the bottom of the driven shaft shall be considered not susceptible to liquefaction.

1806.4.2 Compacted Fills. Compacted granular fills shall be considered not susceptible to liquefaction provided that they are systematically compacted to at least 93% of the maximum dry density determined in accordance with ASTM Standard Method D1557.

1806.4.3 Evaluation by a Registered Design Professional. Soils that do not meet the criteria in section 1806.4.1 or 1806.4.2 shall be considered potentially susceptible to liquefaction. For these cases, studies shall be performed by a registered design professional in accordance with section 1803.5.12.

1806.4.4 Lateral Sliding. For sites underlain by the saturated soils identified in section 1806.4, and where the ground surface at the site or adjacent to the site is sloping such that lateral sliding (slope instability) may occur, studies by a registered design professional shall be made to establish the safety against sliding and lateral deformations as a result of the design earthquake.

Figure 1806.4
Liquefaction Susceptibility



1807.1.6 Revise subsection as follows:

1807.1.6 Prescriptive Design of Concrete and Masonry Foundation Walls. Concrete and masonry foundation walls shall be permitted to be designed and constructed in accordance with this section, provided that they are laterally supported at the top and bottom, not subject to net hydrostatic pressures or surcharge loadings, and the backfill adjacent to the walls is not subjected to heavy compaction loads.

1807.2 through 1807.2.3 Replace section and subsections with 1807.2 through 1807.2.6 as follows:

1807.2 Retaining Walls. Retaining walls shall be designed in accordance with sections 1807.2.1 through 1807.2.6. The requirements of this section shall apply to any type of retaining structure or system that has any portion of its exposed face inclined steeper than one horizontal to one vertical, including conventional retaining walls, crib and bin wall systems, reinforced or mechanically stabilized earth systems, anchored walls, soil nail walls, multi-tiered systems, boulder walls or other types of retaining structures. The requirements of this section do not apply to slope facings, armor or riprap placed for the sole purpose of protection against surface erosion.

1807.2.1 Design. Retaining walls shall be designed to resist the static and seismic pressures of the retained materials, water pressures, and dead and live load surcharges to which such walls are subjected, and to ensure stability against excessive movements, overturning, sliding, excessive foundation pressure, and water uplift. Retaining walls that support an unbalanced height of retained material greater than six feet (1.83 m), or any retaining system or slope that could impact public safety or the stability of an adjacent structure shall be designed by a registered design professional.

1807.2.2 Design Lateral Soil Loads. Retaining walls shall be designed for the lateral soil loads set forth in section 1610, including seismic lateral pressure, or the lateral loads determined by a registered design professional based on a geotechnical investigation performed in accordance with section 1803.

1807.2.3 Safety Factor. Retaining walls shall be designed to resist sliding and overturning with a minimum factor of safety of 1.5 in each case. The load combinations of section 1605 shall not apply to this requirement. Instead, design shall be based on 0.7 times nominal earthquake loads, 1.0 times other nominal loads, and investigation with one or more of the variable loads set to zero. The safety factor against lateral sliding shall be taken as the available soil resistance at the base of the retaining wall foundation divided by the net lateral force applied to the retaining wall.

EXCEPTION: Where earthquake loads are included, the minimum factor of safety for retaining wall sliding and overturning shall be 1.1.

1807.2.4 Overall Stability. The overall global stability of a retaining wall, considering potential failure surfaces extending through the materials located below, in front of and behind the wall shall be evaluated.

1807.2.5 Discrete Elements. For retaining walls constructed of discrete elements, such as unmortared masonry, rock, boulders, or stacked modular units, the elements shall be bonded or fastened together to prevent dislodgement under static and seismic loading conditions where dislodgement of the elements could pose a risk to public safety.

1807.2.6 Wall Drainage. Retaining walls shall be designed to support a hydrostatic head of water pressure equal to the full height of the wall, unless a drainage system is provided to reduce or eliminate hydrostatic pressure on the wall. Drainage systems shall be designed with sufficient permeability and discharge capacity, and shall be provided with appropriate filters and other design features to prevent blockage due to siltation, clogging, or freezing.

1808.2 Revise section as follows:

1808.2 Design for Capacity and Settlement. Foundations shall be designed to provide adequate load bearing capacity while limiting settlement, heave and lateral movement to tolerable levels. Foundations in areas with expansive soils shall be designed in accordance with the provisions of section 1808.6.

FIGURE 1808.7.1 FOUNDATION CLEARANCES FROM SLOPES

FIGURE 1808.7.1 Insert H @ Vertical Dimension Line.

1809.14 Insert section as follows.

1809.14 Ground Improvement. *Ground Improvement*, for purposes of this Section, shall be defined as a system that uses elements of aggregate, concrete, grout, or other mixture of cementitious materials and/or aggregates, or other materials that are significantly stiffer than the ground being improved, installed into the ground upon which building foundation units such as footings, slabs or mats are supported, to improve the engineering properties of the bearing strata. The *Ground Improvement* system includes the elements and all strata and materials within the zone of influence beneath the foundation units.

This Section provides requirements for the design, testing and construction of *Ground Improvement* systems.

1809.14.1 Design. *Ground Improvement* for foundation unit support shall be designed by a *registered design professional,* referred to in this Section as the *Ground Improvement Designer*.

1809.14.1.1 Design Determinations. *Ground Improvement* design shall include the determination of the following, at a minimum:

1. Applied loads on the *Ground Improvement* system including the following:

a. Compression, tensile and lateral loads, static and dynamic.

b. Downdrag.

2. Load distribution and strain compatibility between *Ground Improvement* elements and the surrounding soil being improved, considering all loading conditions.

3. Lateral confinement and the potential for element bulging or necking.

4. Seismic response including kinematic movements, and potential for liquefaction and its impact on bearing, settlements and confinement.

5. Allowable geotechnical capacity (vertical, and lateral if applicable) of individual *Ground Improvement* elements and groups of elements.

6. Allowable structural capacity (axial, flexure, and shear) of individual *Ground Improvement* elements consistent with the allowable stresses for the materials listed in Table 1810.3.2.6.

7. Structural compatibility between *Ground Improvement* elements and the supported foundation units including:

a. Confirmation of the thickness and characteristics of any granular Load Transfer Pad to separate the foundation units from the elements and the improved ground, as applicable.

b. Evaluation of potential impacts of concentrated reaction loads imposed by the elements on supported foundation units including floor slabs.

c. Minimum number and configuration of elements to establish vertical, lateral and rotational stability of isolated and strip footings.

8. Short-term and long-term settlements of foundations and other structural units bearing above *Ground Improvement* systems.

9. Potential impacts of *Ground Improvement* element installations on previously-installed elements and on existing facilities in the proximity of element installations.

1809.14.1.2 Rigid Inclusions. Rigid Inclusions, for purposes of this Section, shall be defined as *Ground Improvement* elements comprised of or containing concrete, cement grout or materials of similar stiffness.

Ground Improvement using Rigid Inclusions shall conform to the following additional requirements.

1. The allowable geotechnical load capacity of Rigid Inclusions shall not exceed fifty (50) percent of the demonstrated maximum load capacity as determined by load testing in accordance with Section 1809.14.2.

2. The allowable geotechnical load capacity of a foundation unit shall not exceed forty (40) percent of the ultimate load capacity of the modified bearing strata beneath the unit, considering the combined contribution of the ultimate bearing capacity of the subsurface strata and the demonstrated maximum load capacity of the *Ground Improvement* elements.

3. The allowable geotechnical load capacity of a foundation unit shall be equal to or greater than the foundation unit's bearing area multiplied by the design foundation bearing pressure indicated on the foundation design drawing(s) or otherwise specified by the registered design professional responsible for the foundation unit structural design.

4. A Load Transfer Pad consisting of a minimum of 6 in. of ¾ in. crushed stone, or other material and thickness with equivalent load-deformation characteristics and shear resistance, shall be provided between tops of Rigid Inclusions and the underside of foundation units. If thicker than 8 inches, the resistance of the Load Transfer Pad to punching by the elements shall be demonstrated by analysis or testing.

5. Determination of allowable load capacity of Rigid Inclusions by load testing such that anticipated foundation settlements are tolerable and protective of the integrity of the supported structure.

1809.14.1.3 Design Documentation. Documentation of *Ground Improvement* design shall be prepared by the *Ground Improvement* Designer and provided to the Building Official and the building owner, which includes the following at a minimum.

1. Detailed description of the proposed *Ground Improvement* elements and other system components.

2. Key assumptions used in system design.

3. Element allowable design load and minimum diameter.

4. Subsurface conditions within zone of influence below foundation units including bearing strata, design element penetration into bearing strata, and proportion of capacity anticipated to be achieved in friction and end-bearing.

5. Potential impacts of the presence of soft, organic or compressible soils.

6. Process, equipment, materials and criteria for element installations.

7. Measures to achieve and to confirm element shaft integrity, and accommodate the presence of soft or organic soils.

8. Requirements for load testing.

9. Description of the results, including calculations, of design determinations required in Sections 1809.14.1.1 and 1809.14.1.2.

10. *Ground Improvement* design drawing(s) including layout and dimensions of supported foundation units; foundation unit design structural loads and allowable bearing pressures; element locations, diameters and allowable design loads; and minimum element spacing.

1809.14.2 Rigid Inclusion Load Testing. Load testing of Rigid Inclusions shall be performed at on-site location(s) representative of the subsurface conditions at production element locations, to determine the allowable design load in vertical compression and adequate element performance for the *Ground Improvement* system. Testing shall be performed in accordance with the following requirements:

1. Load in Bearing Stratum. The load reaching the top of the bearing stratum under the maximum test load shall not be less than the following:

a. For end-bearing elements: 100% of the allowable design load.

b. For friction elements: 150% of the allowable design load.

c. For elements designed for a combination of end-bearing and friction, the required test load reaching the bearing stratum shall be based on the predominant support mode.

2. Instrumentation. The test element shall be instrumented using redundant systems of strain gauges, tell-tales, or other methods to enable measurement or computation of the load in the element where it enters the bearing stratum. For foundation elements containing grout or concrete, instrumentation shall be installed to permit direct measurement of the elastic modulus of the element during the test.

3. Loading Procedure. The loading procedure shall be as follows:

a. Apply 25% of the proposed allowable design load every 0.5 hour. Longer time increments may be used, but each time increment should be the same. In no case shall a load be changed if the rate of settlement is not decreasing with time.

b. At 200% of the proposed allowable design load, maintain the load for a minimum of one hour and until the settlement meets the criteria in Section 1809.14.2.4.

c. Remove 50% of the design load every 15 minutes until zero load is reached. Longer time increments may be used, but each should be the same.

d. Measure rebound at zero load for a minimum of one hour.

e. For each load increment or decrement, take readings at the top of the element and on the instrumentation at one, two, four, eight and 15 minutes and at 15- minute intervals thereafter.

f. A load greater than 200% of the proposed allowable design load may be applied at the top of the test element, using the above loading procedure, to ensure that the requirement for minimum load reaching the bearing stratum is fulfilled. Other optional methods may be approved by the Building Official upon submittal in advance of satisfactory justification prepared by a registered design professional.

4. Load Test Evaluation. Provided that the requirement for minimum load reaching the bearing stratum is satisfied, the element allowable design load shall be determined by the *Ground Improvement* Designer. The allowable design load shall not exceed 50 percent of the demonstrated maximum load capacity, defined as the load at which the settlement at the top of the element does not exceed 0.01 in. during one hour, and 43 which provides the minimum factor of safety and settlement control required by the Building Code.

5. Documentation. The results of the load testing, including the testing methodology, system setup, demonstrated maximum load capacity, allowable design load and acceptance criteria shall be documented in a report prepared by the *Ground Improvement* Designer.

1809.14.3 Construction.

1. Elements and other aspects of the *Ground Improvement* system shall be constructed and installed in accordance with the *Ground Improvement* design.

2. Special inspections with documentation shall be performed in accordance with the procedures of Chapter 17, continuously during all construction activities related to *Ground Improvement* including but not limited to materials, load testing, element installation, element cut-offs, subgrade preparation, Load Transfer Pads and any fill placed between elements and footing bottoms.

3. As-built drawing(s) and other information as required to document the *Ground Improvement* system installations and related activities shall be prepared and made available to the Building Official and the building owner, sealed by the *Ground Improvement* Designer. The information shall include, at a minimum, the load test report, the final foundation unit layout, element locations and cut-off elevations, and any deviations between the *Ground Improvement* design and the as-built conditions.

1810.1.2 Revise subsection as follows:

1810.1.2 Use of Existing Deep Foundation Elements. Deep foundation elements left in place that have previously supported a partially or fully demolished structure may be used for support of new construction if satisfactory evidence is submitted by a registered design professional to the building official which indicates that the foundation elements have not been adversely impacted by the demolition, are structurally sound, have adequate load-bearing capacity to support the new design loads, and meet all of the requirements of 780 CMR. The load-bearing capacities of the deep foundation elements shall be determined by one of the following methods:

1. Analyses to determine the actual sustained load that the foundations supported satisfactorily in the previous structure.
2. Analyses based on documented foundation geometry and presumptive bearing value of the supporting soil, where applicable to the foundation type.
3. Load testing or re-driving performed on representative foundation elements. Records of previous pile-driving and load testing may be utilized where such records are deemed adequate by the registered design professional.

1810.3.2.6 Insert the following exceptions:

EXCEPTIONS:
1. Maximum allowable stress for concrete or grout in compression for elements that are cast in place without a permanent casing shall be 0.33 f'c.
2. Maximum allowable stresses for timber foundation elements shall be 80% of the values determined in accordance with the AWC NDS.

1810.3.3.1 Replace subsection as follows:

1810.3.3.1 Allowable Axial Load. The allowable axial load on a deep foundation element shall be determined in accordance with sections 1810.3.3.1.1 through 1810.3.3.1.11. Where the allowable load capacity is not determined by using one of the formulas or analysis methods provided in sections 1810.3.3.1.1 through 1810.3.3.1.11, or the presumptive load- bearing values in section 1806, the allowable load capacity shall be verified by load tests. Dynamic load testing of instrumented driven piles performed in accordance with ASTM D4945 may be used in lieu of static load testing, where the testing program consists of a minimum of three instrumented piles tested to a minimum factor of safety of 2.5 using an analysis procedure that matches the force and velocity traces measured at the top of the pile. Load testing may be waived by the building official based upon submittal of substantiating data prepared by a registered design professional which include load test data or performance records for the proposed deep foundation elements under similar soil and loading conditions.

EXCEPTION: The allowable frictional resistance of cast-in-place elements greater than or equal to 12 inches in diameter obtaining capacity in Material Classes 1 through 6 in Table 1806.2a may be determined by a registered design professional based on analyses incorporating results of testing in similar bearing materials.

1810.3.3.1.1 through 1810.3.3.1.3 Replace as follows:

1810.3.3.1.1 Driving Criteria. For driven piles with a design load capacity not exceeding 50tons (445 kN), the allowable load capacity may be determined based on final driving criteria (net displacement per hammer blow) obtained from an appropriate pile driving formula using a factor of safety not less than 3.5, or from wave equation analysis using a factor of safety not less than2.75. The use of followers shall be allowed only as directed by a registered design professional.

The introduction of fresh hammer cushion material just prior to final penetration is not permitted.

1810.3.3.1.2 Load Tests. Where static load testing is required to determine the allowable load bearing capacity of deep foundation elements in vertical compression, the load tests shall be performed in accordance with ASTM D1143 and the following requirements:

1. **Load in Bearing Stratum**. The load reaching the top of the bearing stratum under themaximum test load shall not be less than the following:
   a. For end-bearing elements: 100% of the allowable design load.
   b. For friction elements: 150% of the allowable design load.
   c. For foundation elements designed for a combination of end-bearing and friction, the required test load reaching the bearing stratum shall be based on the predominant support mode.

2. **Instrumentation**. The test element shall be instrumented using strain gauges, tell-tales, or similar methods to enable measurement or computation of the load in the element where it enters the bearing stratum. For foundation elements containing concrete, instrumentation shall be installed to permit direct measurement of the elastic modulus of the element during the test.
   Instrumentation of the test element is not required for the following cases:
   a. The test element is installed within a casing that extends to within ten feet above the bearing stratum.
   b. Load testing is performed on an existing foundation element, and appropriate consideration is given to potential frictional resistance developed above the bearing stratum during the load test.
   c. The foundation element length does not exceed 30 feet and no appreciable load will be supported above the bearing stratum.

3. **Loading Procedure**. The loading procedure shall be as follows:
   a. Apply 25% of the proposed allowable design load every 0.5 hour. Longer time increments may be used, but each time increment should be the same. In no case shall a load be changed if the rate of settlement is not decreasing with time.
   b. At 200% of the proposed allowable design load maintain the load for a minimum of one hour and until the settlement (measured at the lowest point on the element at which measurements are made) over a one-hour period is not greater than 0.01 in.

c. Remove 50% of the design load every 15 minutes until zero load is reached. Longer time increments may be used, but each should be the same.
d. Measure rebound at zero load for a minimum of one hour.
e. For each load increment or decrement, take readings at the top of the element and on the instrumentation at one, two, four, eight and 15 minutes and at 15-minute intervals thereafter.
f. A load greater than 200% of the proposed allowable design load may be applied at the top of the test element, using the above loading procedure, to ensure that the requirement for minimum load reaching the bearing stratum is fulfilled. Other optional methods listed in ASTM D1143 may be approved by the building official upon submittal in advance of satisfactory justification prepared by a registered design professional.

1810.3.3.1.3 Load Test Evaluation Methods. Provided that the requirement for minimum load reaching the bearing stratum is satisfied, the allowable design load is permitted to be the greater of the following:

1. Allowable design load based on settlement during loading: 50% of the applied test load which causes a gross settlement at the top equal to the sum of: a) the theoretical elastic compression of the element in inches assuming all the load at the top is transmitted to the tip, plus b) 0.15 inch (3.8 mm), plus c) 1% of the tip diameter or width in inches.
2. Allowable design load based on the net settlement after rebound: 50% of the applied test load which results in a net settlement at the top of 0.5 inch (13 mm) after rebound at zero load.

If the allowable design load is not governed by one of the above criteria, the allowable design load shall be equal to 50% of the maximum test load.

If the requirement for minimum test load reaching the bearing stratum is not satisfied, the allowable design load shall not exceed: a) the load reaching the bearing stratum for end- bearing elements and b) two-thirds of the load reaching the bearing stratum for friction elements.

The allowable design load capacity determined from load tests can be applied to other foundation elements of the same type and size that are installed in similar subsurface conditions using the same installation methods and equipment. Where the design is based on a minimum embedment length, minimum penetration resistance, or friction over a minimum surface area, the applicable design value for the production elements shall equal or exceed the value used for the test element.

1810.3.3.1.10 Add subsection as follows:

1810.3.3.1.10 Enlarged Base Piles. For enlarged base piles with compacted concrete bases and design capacities up to 120 tons, that are formed on or in bearing materials of Classes 1 to9 inclusive in Table 1806.2a, the allowable load may be computed by the following formula.

The Class 9 material (fine sand) shall have a maximum of 15% by weight finer than the No. 200 mesh sieve and the fines shall be non-plastic.

$$R = [(B \times E)/C] V^{2/3} \qquad \textbf{(Equation 18-12)}$$

Where:

R = allowable load in pounds.
B = average number of blows required to inject one cubic foot of concrete, during injection of the last batch.
E = energy per blow in foot-pounds.
C = constant.
V = total volume of base concrete in cubic feet.

The values of R, E, and C shall conform to Table 1810.3.3.1 unless other values are determined by load test, in which case the latter values shall control. The value of V shall include an allowance of one standard batch volume of concrete, if concrete is used in the tube during the driving process, plus the additional volume of concrete injected during formation of the base.

During injection of the last batch of concrete in the base, the height of concrete within the drive tube shall not be more than 1/3 of the drive-tube inside diameter.

TABLE 1810.3.3.1

R (tons)	Energy, E (foot-pounds)	C	Standard Batch Volume (ft^3)
over 100	140,000	18	5
51 to 100	100,000	18	5
25 to 50	60,000	30	2

1810.3.3.1.11 Add subsection as follows:

1810.3.3.1.11 Alternate Load Test Procedure for Micropiles. For micropiles designed as friction piles, the friction capacity in compression may be verified by load testing in tension in accordance with ASTM D3689 and the following requirements:

1. The test pile shall be cased or left un-grouted down to the top of the bearing stratum in a manner which will ensure that no friction resistance is developed above the bearing stratum.
2. The maximum design load shall be taken as 50% of the applied test load which results in a movement under load of 0.5 inch (13 mm) at the pile tip. The movement at the pile tip shall be:
   a. measured directly by a tell-tale; or
   b. computed by deducting the theoretical elastic elongation of the pile from the displacement measured at the top of the pile.

1810.3.9.4.1 Insert, after the first sentence of the second paragraph, the following text:

Where the actual cross-section area is greater than the minimum area required by design, the minimum reinforcement ratio can be applied to the minimum design area.

1810.3.9.4.2 Insert, after the first sentence of the second paragraph, the following text:

Where the actual cross-section area is greater than the minimum area required by design, the minimum reinforcement ratio can be applied to the minimum design area.

1810.3.9.5 Revise subsection as follows:

1810.3.9.5 Belled Drilled Shafts. Where drilled shafts are belled at the bottom, the edge thickness of the bell shall not be less than four inches (102 mm). Where the sides of the bell slope at an angle less than 60° (1 rad) from the horizontal, the effects of vertical shear shall be considered.

1810.3.9.6 Revise section as follows.

1810.3.9.6 Socketed drilled shafts. Socketed drilled shafts shall have a permanent pipe or tube casing that extends down to bedrock and an uncased socket drilled into the bedrock, both filled with concrete. Alternatively, slurry may be used under appropriate conditions per Section 1810.4.1.2. 64 Socketed drilled shafts shall have reinforcement or a structural steel core for the length as indicated by an approved method of analysis.

The depth of the rock socket shall be sufficient to develop the full load-bearing capacity of the element with a minimum safety factor of two, but the depth shall be not less than the outside diameter of the pipe or tube casing rock socket. The design of the rock socket is permitted to be predicated on the sum of the allowable load-bearing pressure on the bottom of the socket plus bond along the sides of the socket.

Where a structural steel core is used, the gross cross-sectional area of the core shall not exceed 25 percent of the gross area of the drilled shaft. and suitable confinement shall be provided that extends from the underside of structure to the top of rock. Confinement shall include permanent steel casing conforming to 1810.3.5.3.4 or a reinforcing cage conforming with ACI 318 for composite members.

1810.3.14 Add subsection as follows:

1810.3.14 Spacing. The minimum center-to-center spacing of piles shall be not less than twice the average diameter of a round pile, nor less than 1.75 times the diagonal dimension of a rectangular pile. When driven to or penetrating into rock, the spacing shall be not less than 24 inches (610 mm). When receiving principal support from end-bearing on materials other than rock or through frictional resistance, pile spacing shall be not less than 30 inches (762 mm). For enlarged base piles, the center-to-center spacing with uncased shafts shall be not less than 2.5 times the outside diameter of the drive tube and not less than 42 inches (1,067 mm). The center- to-center spacing of enlarged base piles with cased shafts shall be not less than three times the shaft diameter. For auger-cast piles, the minimum center-to-center spacing between adjacent piles shall not be less than 30 inches (760 mm) or two times the pile diameter, whichever is greater. The minimum center-to-center spacing between adjacent piers designed for friction support shall be not less than two times the shaft diameter.

1810.4.6 Revise subsection as follows:

1810.4.6 Heaved Elements. Deep foundation elements in the vicinity of piles being driven shall be monitored to observe heave of the elements. Accurate reference points shall be established on each element immediately after its installation; for cast-in-place piles with unfilled casings or shells, the reference point shall be at the bottom of the pile. If, following the installation of piles in the vicinity, heaving of ½ inch (13 mm) or more occurs, the heaved element shall be re-driven to develop the required capacity and penetration, or the capacity of the element shall be verified by load testing in accordance with section 1810.3.3.1.2 or by analyses performed by a registered design professional.

1810.4.8 Replace as follows:

1810.4.8 Hollow-stem Augered, Cast-in-place Elements. Where concrete or grout is placed by pumping through a hollow-stem auger, the element shall be formed by advancing a closed-end continuous-flight hollow-stem auger of uniform diameter into a satisfactory bearing material followed by removal of the tip closure and pumping cement grout or concrete through the hollow-stem while the hollow-stem auger is extracted. The installation shall conform to the following requirements:

1. During advancement, the hollow-stem auger shall be rotated at a higher rate than required for advancement, so that the material through which the auger is being advanced is removed by the auger flights and is not displaced laterally by the auger. During withdrawal, if the hollow stem auger is rotated, it shall be rotated in a positive (advancing) direction.
2. The grout or concrete shall be pumped under continuous pressure and in one continuous operation. Grout or concrete pump pressures shall be measured and maintained at all times sufficiently high to offset hydrostatic and lateral earth pressures. The rate of withdrawal of the auger shall be carefully controlled to exclude all foreign matter and ensure that the augered hole is completely filled with grout or concrete as the auger is withdrawn. The actual volume of grout or concrete pumped into each hole shall be equal to, or greater than, the theoretical volume of the augered hole.
3. If the grouting or concreting process of any element is interrupted, or a loss of concreting or grouting pressure occurs, the element shall be re-drilled to five feet (1,524 mm) below the elevation of the tip of the auger when the installation was interrupted or concreting or grouting pressure was lost, or to the bottom of the element if less than five feet, and the installation shall resume from this point.
4. Elements shall not be installed within six diameters (center-to-center) of an element filled with grout or concrete less than 24-hours old except where approved by the registered design professional.
5. The continuous flight auger rig utilized to install augered uncased elements shall be equipped with data logging equipment that automatically monitors and produces a real-time printout of depth, grout or concrete pressure, grout or concrete flow, and rate of auger withdrawal. The automatic monitoring equipment shall immediately indicate to the equipment operator, and record on the printed record, any instance during the

withdrawal of the hollow-stem auger where the rate of auger withdrawal times the theoretical element cross-sectional area exceeds the rate of grout or concrete placement. Printed instrumentation readout for each element shall be provided to the registered design professional's representative upon completion of each element.

CHAPTER 19: CONCRETE

1905.1.7 Revise item 14.1.4 by adding Seismic Design Category B and C, in addition to D, E, and F.

1905.1.7 Add the following items at the end of item 14.1.4:

(d) Pedestals. Plain concrete pedestals shall not be used to resist lateral seismic forces.
(e) Dowels. Reinforcing steel dowels shall extend from the plain concrete footing into the supported pedestals, columns or walls.

CHAPTER 20: ALUMINUM (no amendments)

CHAPTER 21: MASONRY

Add a section as follows:

SECTION 2106.2 Amendments to Chapter 7 of TMS 402/602-16

NOTE: Numbers that follow are section numbers of TMS 402/602-16

7.3.1 Add the following sentence to the end of the section. Masonry walls that are nonparticipating elements, including those in a building classified as Seismic Design Category B, shall be designed and reinforced in accordance with 7.4.1.1, 7.4.3.1 and 7.5.

7.3.2.5.1 Add subsection:

7.3.2.5.1 Vertical Reinforcement at Openings. Two adjacent cells shall be grouted solid at each side of each opening and continuous vertical reinforcement shall be located in either of these two cells. Bars in a grouted cell may be offset horizontally by one cell to mitigate interference due to steel lintels.

7.3.2.5.2 Add subsection: 7.3.2.5.2 Horizontal Shear Reinforcement. Horizontal shear reinforcement shall be provided by horizontal deformed bars in grouted bond beams at a maximum vertical spacing of 48 inches on center. The vertical spacing of horizontal deformed bars in grouted bond beams may be increased to a maximum of 104 inches on center if all of the following conditions are met:

a. Welded wire reinforcement (ladder or truss configuration) shall be provided at a maximum vertical spacing of eight inches on center and placed in a bed joint not less than 3/8 inches thick.
b. The longitudinal side wires of the horizontal shear reinforcement shall be a minimum of 3/16-inch diameter with #9 cross or diagonal wire. Additional joint reinforcement or reinforcing bars in grouted bond courses shall be added to meet the design requirements.
c. Joint reinforcement shall be lapped to develop the full capacity of the reinforcing in the plane of the wall, at corners, and at intersecting shear walls.

7.3.2.11 Revise note (a) to read as follows:

(a) Reinforcement shall be provided in accordance with sections 7.3.2.6(a) and 7.3.2.6(b).

7.5 Add section as follows:

7.5 Nonparticipating Elements. Notwithstanding the requirements of section 7.4 to the contrary, non-participating elements (i.e., those isolated from in-plane force) shall be reinforced in accordance with section 7.4.3, except as follows:
1. Reinforcement shall be provided in both the horizontal and vertical directions, and spacing of vertical bars shall not exceed 72 inches or 1/3 of the horizontal span whichever is less for Seismic Design Categories B and C, and 48 inches or 1/3 of the horizontal span whichever is less for Seismic Design Category D.
2. For exterior walls, and for walls enclosing exits, exit discharges, and elevator shafts, the minimum cross-sectional area of reinforcement in the direction of the span shall be 0.0007 times the gross cross-sectional area of the wall, and shall consist of reinforcing steel bars in grouted cells, grouted bond courses, or grouted collar joints. The maximum spacing of the bars shall be the lesser of 1/3 of the span or 48 inches.

CHAPTER 22: STEEL

2205.1.1 Add subsection as follows:

2205.1.1 Shop Drawings. Complete shop drawings shall be prepared in a manner consistent with industry practice and in advance of the actual fabrication. Such drawings shall clearly distinguish between shop and field connections for bolts and welds, and shall also clearly identify steel grades, bolt types and sizes, weld types and sizes, locations and dimensions and all information necessary for proper fabrication and installation of the steel members.

2211.1.1.3 Add subsection as follows:

2211.1.1.3 Limitations on Cold-formed Steel Framed Shear Walls. The only sheathing materials permitted for cold-formed framed shear walls are steel sheets, wood structural panels, gypsum board panels, and fiberboard panels.

2211.1.1.3.1 Limitations on Gypsum Board Panel and Fiberboard Panel Sheathed Cold Formed Steel Framed Shear Walls. Gypsum board and fiberboard sheathed cold-formed steel framed shear walls are limited as follows:

1. The building shall not be more than 35 feet in height as measured from mean grade plane to mean roof plane.
2. The location of the shear walls shall be limited to exterior walls, fire walls, fire barriers, or fire partitions.
3. The building is not in Risk Category IV.
4. The seismic weight of each level (floor or roof), supported laterally by the shear walls, shall not be more than 25 psf. Where attics are not habitable, the seismic weight of a pitched roof shall include the dead load of the attic floor.

2211.6.1 Add subsection as follows:

2211.6.1 Limitations on Cold-formed Steel Framed Shear Walls. The only sheathing materials permitted for cold-formed framed shear walls are steel sheets, wood structural panels, gypsum board panels, and fiberboard panels.

2211.6.1.1 Limitations on Gypsum Board Panel and Fiberboard Panel Sheathed Cold Formed Steel Framed Shear Walls. Gypsum board and fiberboard sheathed cold-formed steel framed shear walls are limited as follows:

1. The building shall not be more than 35 feet in height as measured from mean grade plane to mean roof plane.
2. The location of the shear walls shall be limited to exterior walls, fire walls, fire barriers, or fire partitions.
3. The building is not in Risk Category IV.
4. The seismic weight of each level (floor or roof), supported laterally by the shear walls, shall not be more than 25 psf. Where attics are not habitable, the seismic weight of a pitched roof shall include the dead load of the attic floor.

CHAPTER 23: WOOD

2303.1.14 Add subsection and table as follows:

2303.1.14.1 Native Lumber. Native lumber shall be acceptable for use in one- and two-family dwellings, barns, sheds, and agricultural and accessory structures. Native lumber shall also be acceptable for use in one- or two-story structures as columns when the design loads are 25% greater than required in 780 CMR 16.00; as joists, principal beams, and girders in floor constructions when the design loads are 15% greater than required in 780 CMR 16.00; and as other elements when the design loads are as required in 780 CMR 16.00.

When native lumber is used, it shall be subject to the following requirements:

1. **Sizing Criteria:** For lumber, sized in accordance with the DOC PS-20, figures for maximum fiber stress and modulus of elasticity for framing grade No. 2 shall be used in establishing span and spacing characteristics for all structural members.
2. **Stress Criteria:** Lumber which is sized in excess of the dimensions established by the DOC PS-20 for the given nominal size referenced shall be allowed to have a maximum fiber stress increase above that provided in section 2303.1.14 item 1 in proportion to the increased bearing capacity of the cross section as provided in Table 2303.1.14.

TABLE 2303.1.14 NATIVE LUMBER - ALLOWABLE STRESSES

Nominal size	Actual lumber size (closest size which does not exceed the size shown) width (in.) x height (in.)	Multiplier factor based on lumber width	Value to be added to multiplier factor for lumber with larger widths than those shown in column two for width increases:	
			> ¼ and ≤ ½ in.	> ½ and ≤ 1 in.
3 x 8	2 ½ x 7 ½ 2 ½ x 7 ¾ 2 ½ x 8	1.0 x Fs 1.07 1.14	0.10	0.20
3 x 10	2 ½ x 9 ½ 2 ½ x 9 ¾ 2 ½ x 10	1.0 1.05 1.11	0.10	0.20
3 x 12	2 ½ x 11 ½ 2 ½ x 11 ¾ 2 ½ x 12	1.0 1.04 1.09	0.10	0.20
3 x 14	2 ½ x 13 ½ 2 ½ x 13 ¾ 2 ½ x 14	1.0 1.04 1.07	0.10	0.20
4 x 10	3 ½ x 9 ½ 3 ½ x 9 ¾ 3 ½ x 10	1.0 1.05 1.11	0.07	0.14
4 x 12	3 ½ x 11 ½ 3 ½ x 11 ¾ 3 ½ x 12	1.0 1.04 1.09	0.07	0.14
4 x 14	3 ½ x 13 ½ 3 ½ x 13 ¾ 3 ½ x 14	1.0 1.04 1.08	0.07	0.14

2303.1.14.2 Native Lumber. Native lumber that has been sized in accordance with the sizing requirements of American Softwood Lumber Standards PS 20-20 and that has not been grade-stamped under the authority of a Lumber Grading Bureau shall be acceptable for use in one and two family dwellings, barns, sheds and agricultural and accessory structures, if the following requirements are met:

1. The native lumber producer is licensed and the mill producing the native lumber is registered in the Commonwealth of Massachusetts in accordance with the requirements in 780 CMR 110.R4.

2. The lumber is sold directly by the landowner or employee of the sawmill that milled the lumber to the owner of the dwelling to be constructed or that person's authorized representative.

3. The lumber conforms with product and inspection standards under American Softwood Lumber Standard PS 20-20.

4. The lumber is certified by an inspector who is certified by an accredited independent third party agency of the American Lumber Standard Committee.

CHAPTER 24: GLASS AND GLAZING

2406.1 Human Impact Loads. **Add** the words See also M.G.L. c. 143, §§ 3T, 3U, and 3V to end of section.

CHAPTER 25: GYPSUM BOARD, GYPSUM PANEL PRODUCTS AND PLASTER (no amendments)

CHAPTER 26: PLASTIC (no amendments)

CHAPTER 27: ELECTRICAL

2701.1 Revise section as follows:

2701.1 Scope. 780 CMR 27.00 governs the electrical components, equipment and systems used in buildings and structures covered by 780 CMR. Electrical components, equipment and systems shall be designed and constructed in accordance with the provisions of 527 CMR 12.00.

2701.1.1 Revise subsection as follows:

[F] 2702.1.1 Stationary generators. Stationary emergency and standby power generators required by 780 CMR shall be listed in accordance with UL 2200. For air quality control for point source generation see 310 CMR 7:00 Air Pollution Control.

2702.2.2 Revise subsection as follows:

[F] 2702.2.2 Elevators and platform lifts. Standby power shall be provided for elevators and platform lifts as required by 780 CMR and 524 CMR.

CHAPTER 28: MECHANICAL SYSTEMS

2801.1 Revise section as follows:

[M] 2801.1 Scope. The provisions of this chapter, the *International Mechanical Code*, the *International Residential Code*, the *International Energy Conservation Code*, 248 CMR: *Board of State Examiners of Plumbers and Gas Fitters* shall govern the design, construction, erection and installation of mechanical appliances, equipment and systems used in buildings and structures covered by this code.

Masonry chimneys, fireplaces and barbecues shall comply with the *International Mechanical Code* and Chapter 21 of this code. Chapter 10 of the *International Residential Code* may be referenced for prescriptive detail. *The International Fire Code*, the *International Property Maintenance Code*, 105 CMR 410: *Department of Public Health*, and the *International Mechanical Code* shall govern the use and maintenance of mechanical components, appliances, equipment and systems.

The *International Existing Building Code*, the *International Mechanical Code*, and 248 CMR: *Board of State Examiners of Plumbers and Gas Fitters* shall govern the alteration, repair, relocation, replacement and addition of mechanical components, appliances, equipment and systems. 271 CMR 6.00: *Board of Examiners of Sheet Metal Workers* governs requirements for the installation, alteration, removal, replacement, repair, or construction of all sheet metal.

[M] 2802 Amendments to *International Mechanical Code.*

Revise Table 403.3.1.1, column "EXHAUST AIRFLOW RATE CFM/FT^2 by inserting 25 in the row entitled "Kitchens" and 20 in the row entitled "Toilet Rooms and bathrooms".

Revise referenced standards of *International Mechanical Code* Chapter 15 as follows:

ASHRAE

15-2022 Safety Standard for Refrigeration Systems 1101.6, 1105.8, 1108.1

34-2022 Designation and Safety Classification of Refrigerants 202, 1102.2.1, 1103.1

UL

UL/CSA 60335-2-40-2022 Household and Similar Electrical Appliances - Safety - Part 2-40: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers 908.1, 916.1, 918.1, 918.2, 1101.2

UL/CSA 60335-2-89-2021 Household and Similar Electrical Appliances - Safety - Part 2-89: Particular Requirements for Commercial Refrigerating Appliances with an Incorporated or Remote Refrigerant Unit or Compressor Table 1101.2

CHAPTER 29: PLUMBING SYSTEMS

2901.1 Revise section as follows:

> **[P] 2901.1 Scope**. The provisions of 248 CMR shall govern the erection, installation, alteration, repairs, relocation, replacement, addition to, use or maintenance of plumbing equipment and systems. Toilet and bathing rooms shall be constructed in accordance with 248 CMR or if applicable, 780 CMR, Section 1210. Plumbing systems and equipment shall be constructed, installed and maintained in accordance with 248 CMR. Private sewage disposal systems shall conform to 310 CMR 15.00: *The State Environmental Code Regulating Septic Systems (Title 5).*

Delete Sections 2902 through 2903.1.5.

CHAPTER 30: ELEVATORS AND CONVEYING SYSTEMS

3001.1 Revise section as follows:

3001.1 Scope. 780 CMR 30.00 governs the design, construction, installation, alteration and repair of elevators and conveying systems and their components.

3001.3 Revise section as follows:

3001.3 Referenced Standards. Except as otherwise provided for in 780 CMR, the design, construction, installation, alteration, repair and maintenance of elevators and conveying systems and their components shall conform to 780 CMR and 524 CMR.

3001.4 Revise section as follows:

3001.4 Accessibility. Passenger elevators required to be accessible or to serve as part of an accessible means of egress shall comply with 780 CMR and 521 CMR.

3001.5 Revise section as follows:

3001.5 Change in Use. A change in use of an elevator from freight to passenger, passenger to freight, or from one freight class to another freight class shall comply with 780 CMR and 524 CMR.

3001.6 Add section as follows:

3001.6 Applicable Requirements. 780 CMR or 524 CMR or the specialized codes may govern requirements associated with elevators and conveying systems. Where there is conflict or duplication of 780 CMR with 524 CMR then the requirement in 524 CMR shall apply. Where construction requirements including but not limited to fire rated construction and egress, are found in 780 CMR 30.00 and are not found in 524 CMR then the requirements of 780 CMR 30.00 shall apply.

3008 RESERVED.

CHAPTER 31: SPECIAL CONSTRUCTION

3101.1 Revise section as follows.

3101.1 Scope. The provisions of this chapter shall govern special building construction including membrane structures, temporary structures, pedestrian walkways and tunnels, automatic vehicular gates, awnings and canopies, marquees, signs, towers, antennas, relocatable buildings, swimming pool enclosures and safety devices, solar energy systems, public use restroom buildings on publicly owned lands in flood hazard areas, and intermodal shipping containers, temporary overnight shelters, and temporary emergency uses.

3103.1 Revise section as follows:

3103.1 General. The provisions of Sections 3103.1 through 3103.4 shall apply to structures erected for a period of less than 180 days. Special event structures, tents, umbrella structures and other membrane structures erected for a period of less than 180 days shall also comply with the applicable sections of Chapter 31 of the *International Fire Code*. Those erected for a longer period of time shall comply with applicable sections of this code.

3104.4 Revise section as follows:

> **3104.4 Contents**. Only materials and decorations conforming to 780 CMR 8.00 and 527 CMR, and approved by the building official in consultation with the fire official shall be located in the pedestrian walkway.

3109.1 Revise section as follows:

> **3109.1 General**. The design and construction of swimming pools, spas and hot tubs shall comply with the *International Swimming Pool and Spa Code*. Swimming pools shall comply with the requirements of this section and other applicable sections of 780 CMR. See M.G.L. c. 140, § 206 for enclosures to public and semi-public outdoor in-ground swimming pools.
>
> **See also:**
> 1. 521 CMR 19.00: *Recreational Facilities*;
> 2. 105 CMR 430.00: *Minimum Standards for Recreational Camps for Children* (State Sanitary Code: Chapter IV) and 105 CMR 435.00: *Minimum Standards for Swimming Pools* (State Sanitary Code: Chapter V).

3111.2 Revise section as follows.

3111.2 Solar thermal systems. Solar thermal systems shall be designed and installed in accordance with this section, 248 CMR, and the *International Mechanical Code*. Where light-transmitting plastic covers are used, solar thermal collectors shall be designed in accordance with Section 2606.12

3111.3.2 Revise section as follows.

> **3111.3.2 Fire classification.** Rooftop-mounted photovoltaic (PV) panel systems shall have a fire classification in accordance with 780 CMR Section 1505.9. Building-integrated photovoltaic (BIPV) systems installed as roof coverings shall have a fire classification in accordance with 780 CMR Section 1505.8.
>
> **3111.3.3 Building-integrated photovoltaic (BIPV) systems.** BIPV systems installed as roof coverings shall be designed and installed in accordance with 780 CMR Section 1507.

3111.3.5 Revise section as follows.

3111.3.5 Ground-mounted photovoltaic systems. Ground-mounted photovoltaic systems shall be designed and installed in accordance with 780 CMR Chapter 16 and 527 CMR 1.00.

3111.3.5.1 Delete section.

3111.3.5.1 Fire separation distances.

3112.6.1 Plastic film. Add note to end of section.

NOTE: In accordance with Chapter 631 of the Acts of 1983 – The provisions of the 780 CMR (*State Building Code*) shall not apply to greenhouses covered exclusively with plastic film; provided, however, that the provisions of chapter forty A of the General Laws shall continue to apply.

3113.2 Revise section as follows.

3113.2 Supplemental information. Supplemental information specific to a relocatable building shall be submitted to the *Building Official*. It shall, as a minimum, include the following in addition to the information required by 780 CMR 105, and 107, and 110.R3:

3114.2 Delete section.

3115.1 General.

Exception. Change Chapter 12 of the *International Fire Code* to 527 CMR 1.00.

3116 TEMPORARY OVERNIGHT SHELTERS

3116.1 through 3116.14 Add sections as follows:

3116.1 Scope and Purpose. The purpose of section 3116 is to establish reasonable standards for the use of facilities designed for other purposes to be safely occupied temporarily as places of overnight accommodation. In this regard, 780 CMR is not intended to serve as a barrier to those seeking to assist individuals in need, but instead to offer a means to ensure that a reasonable degree of life safety is provided.

3116.2 Temporary Overnight Shelters - For purposes of section 3116, a temporary overnight shelter, not requiring a temporary change of use permit, shall be defined as any building, facility, or space therein designed and used primarily as a church or house of worship for religious services or instruction or related activities which is owned or operated by a religious organization and qualified for exemption under 26 U.S.C. § 501(c)(3) (the Internal Revenue Code). The primary use of the building, facility, or space therein is for religious services or instruction but may, on occasion, provide temporary overnight accommodation to a limited number of individuals for a limited period of time as provided for section 3116.

3116.2.1 Other Temporary Overnight Shelters - Other groups or organizations wishing to offer overnight accommodations in buildings designed and constructed for other purposes than described above shall file an application for a temporary change of use in accordance with section 105 and section 111. Temporary overnight shelters, as addressed in section 3116, shall be classified as an R-1 Use. Express administrative and technical requirements found in section 3116 shall override more general requirements found elsewhere in 780 CMR.

3116.3 Request for Approval of Temporary Certificate of Occupancy. In order to operate a temporary overnight shelter, a temporary *Certificate of Occupancy and Use* shall first be issued by the *building official*. Application for a certificate shall be made as follows:

1. The application shall contain information in the form of a written narrative and plans demonstrating that the structure and use meet the following requirements:

a. It has been issued a valid certificate of occupancy for its current use.

b. It is or will be equipped with a functioning sprinkler system or is suitably protected by a hard-wired smoke and/or heat detection and alarm system, and a carbon monoxide detection system in accordance with section 3116.6, Table 3116.6; and sections 3116.7 through 3116.14.

c. It contains adequate means of egress relative to the number of approved overnight occupants and staff.

d. It contains adequate emergency lighting and egress signage for safe exiting.

e. It contains the necessary facilities in accordance with the applicable guidelines promulgated by the *Massachusetts Department of Public Health*.

f. Attestation that the structure meets the requirements of 521 CMR: *Architectural Access Board*.

g. Attestation that the location is equipped with a hard-wired land line phone or voice over internet protocol ("VOIP") device for use in the event of an emergency, including the phone number to be used.

2. The application shall include the following written documentation and legible plans showing:

a. Zoning approval (if applicable).

b. A plot plan (internet accessed satellite maps may be sufficient if properly labeled).

c. A plan for compliance with the applicable guidelines promulgated by the *Massachusetts Department of Public Health.*

d. A fire safety and evacuation plan, including emergency vehicle access routes. The plan shall include, but not be limited to:

i. The identification of the anticipated nightly occupant load.
ii. A diagram of the bed and personal space layout.
iii. The identification of exits and aisles leading thereto.
iv. Outline of procedures for accounting for employees and occupants after evacuation.
v. Outline of procedures for the evacuation of occupants with special needs.
vi. Documentation providing the details for contacting the head of the fire department, prior to the time of shelter activation, with the identification of the preferred and any alternative person responsible for reporting fires and other emergencies to the fire department.
vii. The plan shall show the location of a written, on site list of each day's assignment of personnel responsible for oversight of evacuation and be in a readily accessible location for first (emergency) responders.
viii. The documentation shall provide details for the plan for training of employees relative to emergency evacuation.

e. Identification of an on-site individual responsible for ensuring compliance with section 3116.

3116.3.1 Issuance of a Temporary Certificate of Occupancy and Use - Upon receipt of a completed application, the *Building Official* shall forward the application to the municipal *Fire Official* and Health Official for their review and comment. A site visit shall then be undertaken collectively by the *Building Official*, *Fire Official*, Health Official, the owner, and the applicant, or their respective designees. Said officials shall assess the suitability of the structure for issuance of a temporary *Certificate of Occupancy and Use* and ensure the accuracy and efficiency of the documentation submitted in accordance with section 3116.3 items 1. and 2.

Prior to taking action, the *Building Official* shall review issues noted during the site inspection or deficiencies found within the application with the *Fire Official* and Health Official. The building official shall consider any recommendations made by the Fire Official or Health Official with due regard for their concerns. However, the *Building Official* shall not issue any temporary certificate over the written objection of the head of the fire department or the local board of health.

Promptly after the site visit and consultation with the head of the fire department and health official, the *Building Official* shall either approve the application and issue the temporary *Certificate of Occupancy and Use*, deny the application, or approve the application and issue the temporary *Certificate of Occupancy and Use* with conditions. The *Building Official* may condition the issuance of a Certificate upon anything that he or she determines is necessary to ensure the safety of the occupants of the shelter and consistent with section 3116.1 and items as follows:

1. A temporary *Certificate of Occupancy and Use* shall not be issued for a period to exceed one year. Applications for renewal shall be reviewed in accordance with section 3116.3
2. If issued, the temporary Certificate shall reflect the name of the organization to which it was issued to, the name of the party responsible for the operation of the shelter, the shelter's address, the *Certificate of Occupancy and Use* issuance date and expiration date, any conditions of issuance ordered pursuant to section 3116.3.1 and the maximum allowed occupant load.
3. Said temporary *Certificate of Occupancy* may be revoked by the *Building Official* at any time for a violation of any provision of section 3116, any violation of the applicable General Laws, or for any reason necessary to ensure the safety of the occupants of the structure. The terms of issuance of the Certificate may similarly be modified. Any such action may be appealed to the *Building Code Appeals Board* in accordance with M.G.L. c. 143, § 100.

3116.4 Shelter Operation.

1. The party responsible for the operation of the temporary overnight shelter shall notify the municipal *Building Official* and *Fire Chief* in writing at least 48 hours prior to each period of operation. The notification shall include a statement as to the anticipated number of days the shelter will be in operation and an estimate as to the number of individuals who will be in occupancy per night. Notification shall similarly be made within 24 hours after the use of the shelter has ended.

2. The temporary *Certificate of Occupancy and Use* issued pursuant to section 3116.3.1 shall be conspicuously posted at the main entrance to the shelter.

3. A document shall be posted, in a location approved by the *Building Official* and the head of the fire department, containing an accurate number and names of occupants on a nightly basis and a copy of the evacuation plan referenced section 3116.3 item 2.d. Such document shall also contain the names of all workers and volunteers who are overseeing or assisting in the usage on a nightly basis. The shelter shall be set up and operated in accordance with the documentation submitted pursuant to section 3116.2.3 item 2. and any conditions mandated in the *Certificate of Occupancy and Use*.

3116.5 Access by Public Officials. Access to the shelter for purposes of ensuring compliance with section 3116 shall be granted upon request by the *Building Official*, *Fire Official*, Health Official, Police Chief or their respective designees.

3116.6 Limitations of Use. Use shall be limited as described in this section and Table 3116.6.

1. A temporary overnight shelter identified with a "P" in Table 3116.6 equipped with an interconnected, monitored smoke and carbon monoxide detection and notification fire alarm system as required by 780 CMR 9.00 may operate year-round for the following periods only:

a. Not more than 52 days during a calendar year.
b. Not more than seven consecutive days.

Where the shelter possesses an NFPA 13 fire sprinkler system throughout the building pursuant to the governing edition of NFPA 13 in effect when such system was installed, the temporary overnight shelter can be located anywhere in the building, providing all other requirements of section 3116, inclusive are met. If the building does not have an NFPA 13 fire sprinkler system installed throughout, then the location of the temporary overnight shelter shall conform to the requirements set forth in Table 3116.6. (a partial fire sprinkler system within the temporary overnight shelter is required under certain circumstances as addressed in Table 3116.6)

2. Alternatively, a temporary overnight shelter identified with a "P" in Table 3116.6 may operate year-round for the following periods only:

a. not more than 52 days during a calendar year,
b. not more than 14 consecutive days.

NOTE: In order to achieve compliance with section 3116 a temporary overnight shelter shall be equipped with an interconnected, monitored smoke and carbon monoxide detection and notification fire alarm system as required by 780 CMR 9.00.

3. A temporary overnight shelter identified with a "PS" in Table 3116.6 may operate for the following periods only:
a. not more than 104 days during a calendar year,
b. not more than 30 consecutive days.

NOTE: In order to achieve compliance with section 3116, a temporary overnight shelter shall be equipped with a full NFPA 13 sprinkler system, interconnected and monit

The operating period limitations set forth in section 3116.6 may be exceeded in the event that a state of emergency is declared by the governor in accordance with St. 1950, c. 639 or due to an emergency deemed detrimental to the public health pursuant to M.G.L. c. 17, § 2A.

TABLE 3116.6 LIMITATIONS OF USE

Use Limitations for Temporary Overnight Shelters									
Location in Building		**Building Construction Type**							
	IA	IB	IIA	IIB	IIIA	IIIB	All Types IV	VA	VB
Basement (with direct access to outside)	PS	PS	PS	PS	NP	NP	PS	NP	NP
Basement (without direct access to outside)	P	P	P	P	P	P	P	P	PS
1st Floor	P	P	P	P	P	P	P	P	PS
2nd Floor	P	P	P	P	P	P	P	P	PS
3rd Floor	P	P	P	P	PS	PS	PS	PS	PS
4th Floor and above	PS	PS	PS	PS	PS	PS	PS	PS	NP

P = Permitted, see section 3116.6.
PS = Permitted with sprinklers, see section 3116.6.
NP = Not Permitted.

3116.7 Reserved.

3116.8 Fire and Life Safety Systems. All temporary overnight shelters are required to install and have operational, an interconnected, monitored smoke and carbon monoxide detection and notification fire alarm system.

3116.9 Monitoring Requirements. Off-premise monitoring of the interconnected smoke and carbon monoxide detection and notification fire alarm system is required and shall conform to the requirements in 780 CMR 9.00.

3116.10 General Installation Requirements and Alarm Signal Precedence. Installation requirements for the interconnected, monitored smoke and carbon monoxide detection and notification fire alarm systems shall be in

accordance with 780 CMR; 527 CMR; the smoke alarm/detector and carbon monoxide alarm/detector manufacturers' requirements; NFPA 72, all as applicable. For alarm signal precedence, see 780 CMR section 915.

3116.11 Location of Fire and CO Detection and Occupant Notification Appliances. Buildings, facilities, or spaces therein intended to be used as a temporary overnight shelter as defined in section 3116.2 shall incorporate, as applicable, smoke and carbon monoxide detection and notification fire alarm systems in: 1. All shelter sleeping areas; 2. All egress routes directly serving the shelter areas; and 3. All common areas directly associated with the shelter areas.

3116.12 Listing. Smoke detectors/alarms and carbon monoxide detectors/alarms shall be listed as required by 780 CMR Chapter 9.

3116.13 Power Source. The primary and secondary power sources for the low voltage or wireless, interconnected, monitored smoke detection and alarm systems shall conform to the applicable requirements of NFPA 72; primary and secondary power requirements for carbon monoxide detectors and alarms shall conform to the applicable requirements of NFPA 72.

3116.14 Automatic Fire Sprinklers. Where fire sprinklers are existing or are required pursuant to **TABLE 3116.6**, as a minimum, such fire sprinkler system(s), complying w/applicable portions of NFPA 13, shall protect:

1. All shelter sleeping areas;
2. All egress routes directly serving the shelter areas; and
3. All common areas directly associated with the shelter areas.

3116.14.1 Where the primary use of the building is not residential, non-residential type sprinklers are permitted to be used to protect the temporary overnight sleeping areas.

SECTION 3117 TEMPORARY EMERGENCY USE

3117.1 General. Except as noted herein, the provisions of section 3117 shall apply to temporary emergency uses.

3117.1.1 Permit Required. Temporary emergency uses shall not be operated or maintained for any purpose without first obtaining a permit from the *Building Official*.

3117.1.2 Temporary emergency uses are a temporary change of occupancy and use of an existing building for emergency situations not foreseen by this code. Every attempt shall be made to provide an equivalent level of fire and life safety throughout the duration of the temporary emergency use.

3117.2 Construction Documents. A written request for the temporary emergency change of occupancy and use is required in accordance with 780 CMR Chapter 1 sections 105, 107 and 111, which, at a minimum, includes but is not limited to the following:

3117.2.1 Permit application documents shall include sufficient information to describe the current conditions of the existing building and the proposed temporary emergency use. Documents shall include, but are not limited to, the following:

1. Address and description of the building.

2. Intended temporary emergency use.

3. Intended length of the temporary emergency use.

4. Emergency action plan for the temporary emergency use as required by 527 CMR 1.00

5. Narrative description of the existing fire and life safety systems in the building.

6. Identification of deficiencies of the temporary emergency use from the code requirements for the intended use (i.e. fire alarm or detection systems, automatic sprinkler systems, means of egress, etc.) If deficiencies are identified, the applicant shall propose a temporary life safety system to effect evacuation in the event of an emergency as well as procedures for notification to first (emergency) responders.

3117.2.1 Life Safety Systems. All temporary emergency uses shall, at a minimum, provide smoke and carbon monoxide detection and notification compliant with 780 CMR Chapter 9 for the intended emergency use, and shall be provided in sleeping areas, in common areas, and areas along the path of egress.

3117.3 Certification. A temporary emergency use shall be so identified by a special *Certificate of Occupancy and Use* as established for such purpose by the municipal or *state building official* in consultation with other appropriate municipal and state officials in accordance with procedures established for such purposes. See the *Office of Public Safety and Inspections* website for an example of this special *Certificate of Occupancy and Use*.

3117.4 Means of Egress. All temporary emergency uses shall conform to the means of egress requirements of 780 CMR 10.00 to the degree practicable as determined by the *Building Official* in consultation with the *Fire Official*.

CHAPTER 32: ENCROACHMENTS INTO THE PUBLIC RIGHT-OF-WAY (no amendments)

CHAPTER 33: SAFEGUARDS DURING CONSTRUCTION

3301.1 Revise section as follows.

3301.1 Scope. The provisions of this chapter shall govern safety during construction and the protection of adjacent public and private properties. Also see 527 CMR for additional fire prevention requirements during construction.

3301.1.1 Add section as follows.

> **3301.1.1** Except as otherwise provided for in 780 CMR, fire safety during construction and the protection of adjacent public and private properties shall comply with the provisions of 527 CMR 1.00 as enforced by the *fire code official*.

3301.3 Add section as follows.

3301.3 Construction documents. *Construction documents* and a schedule for the work to be performed shall be submitted to the *building official* and the *fire code official* in accordance with 780 CMR 1. The *construction documents* shall include the fire safety program, as required by Chapter 16 of 527 CMR 1.00, and shall be submitted to *the fire code official* for approval. Work shall not be performed until such *construction documents* are approved.

3302.3 Change Chapter 33 of the *International Fire Code* to 527 CMR 1.00.

3303.1 Revise section as follows.

3303.1 Construction documents. *Construction documents* and a schedule for demolition shall be submitted pursuant to 780 CMR Chapter 1. Work shall not be performed until such *construction documents* and schedule are approved.

3303.7 Revise section as follows.

3303.7 Fire safety during demolition. Fire safety during demolition shall comply with the applicable requirements of this code and the applicable provisions of 527 CMR 1.00.

[F] 3309.2 Change *International Fire Code* to of this code and 527 CMR 1.00

[F] 3311.3 Detailed requirements. Revise exception as follows.

Exception: Standpipes shall be either temporary or permanent in nature, and with or without a water supply, provided that such standpipes conform to the requirements of Section 905 as to capacity, outlets and materials and are labeled to indicate if they are temporary, permanent, with a water supply or without a water supply.

[F] 3313.1 Where required. Revise section as follows.

An approved water supply for fire protection, either temporary or permanent, approved by the *fire code official*, shall be made available as soon as combustible building materials arrive on the site, on commencement of vertical combustible construction, and on installation of a standpipe system in buildings under construction, in accordance with Sections 3313.2 through 3313.5.

> **Exception:** The *fire code official* is authorized to reduce the fire-flow requirements for isolated buildings or a group of buildings in rural areas or small communities where the development of full fire-flow requirements is impractical.

3313.1.1 Add section as follows.

Where the fire safety plan indicates a water supply or fire flow exceeding the minimum provisions of this code, the fire safety plan shall be enforced.

[F] 3313.2 Combustible building materials. Add the words *compliant with the provisions of 527 CMR 1.00* at the end of second sentence.

[F] 3314.1 Fire watch during combustible construction. Add the words *Building Official or* before *fire code official* at end of section.

CHAPTER 34: EXISTING BUILDING CODE

PART 1—SCOPE AND APPLICATION SECTION 101 SCOPE AND GENERAL REQUIREMENTS

[A] 101.1 Revise section as follows.

[A] 101.1 Title. These regulations shall be known as the *Existing Building Code of Massachusetts*, hereinafter referred to as 780 CMR 34.00

101.2 Scope. The provisions of the *International Existing Building Code*-2021 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 1.00 controls.

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. Any new building system or portion thereof shall conform to 780 CMR for new construction to the fullest extent practicable. However individual components of an existing building system may be repaired or replaced without requiring that system to comply fully with 780 CMR unless specifically required by this code.

104.2.1 Replace section with the following:

104.2.1 Determination of substantially improved or substantially damaged existing buildings and structures in flood hazard areas and substantial repair of a foundation.
For applications for reconstruction, rehabilitation, repair, alteration, addition or other improvement of existing buildings or structures located in flood hazard areas, the building official shall determine where the proposed work constitutes substantial improvement or repair of substantial damage or substantial repair of a foundation. Where the building official determines that the proposed work constitutes substantial improvement or repair of substantial damage or substantial repair of a foundation, and where required by this code, the building official shall require the building to meet the requirements of Section 1612 of the International Building Code.

104.2.2.1 Building Investigation and Evaluation. Revise section as follows.

For any proposed work regulated by 780 CMR 34.00 and subject to section 107 of 780 CMR, as a condition of the issuance of a permit the building owner shall cause the existing building (or portion thereof) to be investigated and evaluated in accordance with the provisions of 780 CMR 34.00. The investigation and evaluation shall be in sufficient detail to ascertain the effects of the proposed work on at least these systems: structural, means of egress, fire protection, energy conservation, lighting, hazardous materials, accessibility, and ventilation for the space under consideration and, where necessary, the entire building or structure and its foundation if impacted by the proposed work. The results of the investigation and evaluation, along with any proposed compliance alternatives, shall be submitted to the *building official* in written report form.

104.10.1 Replace section with the following:

104.10.1 Flood hazard areas and coastal dunes. The building official shall not grant modifications to any provision related to flood hazard areas and coastal dunes as established by 780 CMR without the granting of a variance to such provisions by the Building Code Appeals Board.

104.12 Compliance Alternative. Add section as follows.

Where compliance with the provisions of the code for new construction, required by 780 CMR 34.00, is impractical because of construction difficulties or regulatory conflicts, compliance alternatives may be accepted by the *building official*. The building official may accept these compliance alternatives, archaic materials and assemblies in Resource A of 780 CMR 34.00, or other alternatives proposed. If the compliance alternative involves fire protection systems the *building official* shall consult with the *fire official*. Compliance alternatives, if any are proposed, shall be included with the application for a permit and shall identify all items of noncompliance or partial compliance with the requirements of 780 CMR 34.00, and for approval by the *building official*. The *building official* shall respond to the acceptability of any proposed compliance alternatives within 30 days of the filing of the permit application. Where proposed compliance alternatives are, in the opinion of the *building official*, unacceptable, or where issues of noncompliance remain, the permit applicant shall have the remedies prescribed by section 113 of 780 CMR.

SECTION 202 GENERAL DEFINITIONS

CODE OFFICIAL. See 780 CMR 2.00, building official.

COMPLIANCE ALTERNATIVE. An alternative life-safety construction feature which meets or exceeds the requirements or intent of a specific provision of 780 CMR. The building official is authorized to approve or disapprove compliance alternatives. Compliance alternatives are allowed only for existing buildings.

REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. See 780 CMR 2.00, registered design professional

ROOF RECOVER. The process of installing an additional roof covering over a prepared existing roof covering.

301.1 Applicability. Add the following sentence to end of section.

Automatic sprinkler systems may be required by M.G.L. c. 148, §§ 26A, 26A1/2, 26G, 26G1/2, 26H, or 26I; or by M.G.L. c. 272, §§ 86 through 86D. See sections 101.4.5 and 903.2 of 780 CMR for additional guidance.

302.3 Existing materials. Add the following section and table.

302.3.1 The values contained in Table 302 shall be used as material property values of the existing material listed therein, unless values are obtained from tests, specified by other provisions in this chapter, or values are used, based on available historical information for a particular type of masonry construction, prevailing codes and standards, and assessment of existing conditions.

TABLE 302 MATERIALPROPERTY VALUES

Symbol/Notation	Description	MaximumValue	Notes
f'_m	See Section A104	300 psi	Per section A108.3
Em	Elastic Modulus in Compression	550,000 psi	Based on f'_m = 1,000 psi
f'_{sp}	See Section A104	0 psi	-
v_m	Masonry with running bond lay-up	20 psi	-
v_m	Masonry, fully grouted, with a lay-up other than running bond	20 psi	-
v_m	Masonry, partially grouted or ungrouted, with a lay-up other than running bond	10 psi	-

Add the following sections.

302.6 Masonry Parapets. The following exception applies to requirements in 780 CMR 34.00 for masonry parapets:

EXCEPTION: If the height-to-thickness ratio of an unbraced unreinforced masonry parapet does not exceed 2.5, then bracing is not required. For the purpose of this exception the height shall be measured from either the level of tension anchors or the roof sheathing, whichever is lower.

302.7 Structural Requirements Pertaining to Roofing Work.

1. Structural requirements of parapets of unreinforced masonry required by sections 503.6 and 706.3.1 of 780 CMR 34.00 shall only apply when the intended alteration requires a permit for reroofing and when roof covering is removed from the entire roof diaphragm and not by the 25% roof area trigger found in these sections.

2. Structural requirements of roof diaphragms resisting wind loads in high-wind regions required by sections 503.12 and 706.3.2 of 780 CMR 34.00 when the intended alteration requires a permit for reroofing shall only apply when roof covering is removed from the entire roof diaphragm and the building is located where the ultimate design wind speed is greater than 145 mph and the building is Risk Category IV in accordance with Table 1604.5 of 780 CMR.

EXCEPTION: Buildings that have been demonstrated to comply with the wind load provisions in ASCE 7-88 or later editions.

302.8 Structural Requirements Pertaining to Major Alterations.

1. Structural requirements required by sections 503.8 and 906.5 of 780 CMR 34.00 for unreinforced masonry walls shall apply to buildings in seismic design category B in addition to categories C, D, E, and F found in these sections and shall require roof and floor levels to be anchored to the walls.

2. Structural requirements required by sections 503.6 and 906.6 of 780 CMR 34.00 for unreinforced masonry parapets shall apply to buildings in seismic design category B in addition to categories C, D, E, and F found in these sections.

3. Structural requirements required by sections 503.10 and 906.7 for unreinforced masonry partitions shall apply to buildings in seismic design category B in addition to categories C, D, E, and F found in these sections.

[BS] 304.3.2 Compliance with reduced seismic forces. Add the following exceptions.

EXCEPTIONS:

1. 780 CMR using 50% of prescribed forces when directed here by section 503.4-and 805.3, provided there is no substantial structural alteration.

2. 780 CMR using either:

    a. 50% of prescribed forces when directed here by section 1103.3.1 and when the vertical addition increases the building area less than or equal to 30%; or,

    b. 75% of prescribed forces when directed here by section 1103.3.1 and when the vertical addition increases the building area more than 30% but less than 50%.

SECTION 307 SMOKE ALARMS

Revised sections as follows.

307.1 Fire Detection. Where an *alteration*, *addition*,*change of occupancy* or relocation of a building is made to an *existing building* or structure of a Group R and I-1 occupancy, the *existing building* shall be provided with smoke detection/alarms in accordance with Section 907 of the *International Building Cod*e

Delete exception.

Add sections as follows.

307.1.1: When a dwelling unit has more than 50% of the total combined surface area of the walls and/or ceilings open to framing, then the entire dwelling unit shall be provided with smoke detectors/alarms in accordance with Section 907 of the *International Building Code*.

307.1.2: When a dwelling unit has 50% or less of the total combined surface area of the walls and/or ceilings open to framing, or the work is outside of the dwelling unit, the fire protection shall be maintained at the level provided but shall not be less than required by 527 CMR 1.00.

307.2 Fire Protection Systems in R-2 Uses Which are not Currently Equipped with Sprinklers. When 780 CMR 34.00 requires a smoke detection system in an R-2 Use and does not additionally require an NFPA 13, 13R, or 13D sprinkler system to be installed throughout the building, then subsections 307.2.1 through 307.2.3.1 shall apply.

307.2.1 Heat Detection. If a building fire alarm system is provided, a heat detector shall be provided inside each dwelling unit within six feet of the entrance door servicing common exit areas. The heat detectors shall be connected to the building fire alarm system and cause a general alarm throughout the building upon activation. This shall also apply to the R-2 Use of a mixed use building.

EXCEPTION: Buildings containing three units or fewer and not provided with a building fire alarm system that comply with 307.2.3.1.

307.2.2 Common Area Detection. If a building fire alarm system is provided, smoke detectors shall be provided in the common areas of the building. The common area detectors shall be connected to the building fire alarm system and cause a general alarm throughout the building upon activation. This shall also apply to any common area servicing the R-2 Use of a mixed use building.

EXCEPTION: Buildings containing three units or fewer and not provided with a building fire alarm system that comply with 302.10.3.1.

307.2.3 Dwelling Unit Detection. Interconnected dwelling unit smoke detection shall sound within that dwelling unit only.

EXCEPTION: For buildings of three stories or fewer used exclusively as R-2 Use with six or fewer dwelling units and with at least two means of egress serving each dwelling unit, the fire detection system may comply with the all of the following requirements:

1. Interconnected dwelling unit smoke detection shall sound within that dwelling unit only.
2. Area smoke detection shall be provided throughout common uses spaces including shared means of egress.
3. Heat detection shall be provided inside each dwelling unit within six feet of doors serving common areas.

Upon activation of either the common area smoke detection or the heat detection, a general alarm shall be sounded throughout the building.

307.2.3.1 Buildings with Three Dwelling Units or Fewer. In buildings containing 3 or fewer dwelling units which are not protected with sprinklers and which are not provided with a building fire alarm system, each dwelling unit shall have additional interconnected smoke alarm/detector on the stairway side of all doors leading to common interior stairways. If there is a common basement, a separate interconnected system of smoke detectors/alarms, including smoke detectors/alarms on the stairway side of all doors leading to interior stairways, shall be provided to serve the basement level only.

308.1 Carbon monoxide detection. Change the *International Fire Code* or Section R315 of the *International Residential Code to* Section 915 of the *International Building Code*.

Add following exception.

4. When a dwelling unit has more than 50% of the total combined surface area of the walls and/or ceilings its walls and ceilings open to framing, then the entire dwelling unit shall be provided with carbon monoxide protection in accordance with Section 915 of the *International Building Code*.

Add the following section.

308.2 Change in Occupancy Classification to R, I, or E-Use. Notwithstanding other requirements in 780 CMR 34.00, see applicable provisions of 527 CMR 1.00 for certain carbon monoxide detection requirements when a change of occupancy classification to R, I, or E-Use occurs.

Add following sections.

405.1.1 Repairs to structural concrete. Repairs to structural concrete elements in accordance with this section and ACI 562 shall be permitted. The evaluation, design of repairs to earthquake damage, or rehabilitation of elements of the seismic force-resisting systems shall be in compliance with section 304.3.

405.2.1.2 Repairs for Less than Substantial Damage due to Snow Load Effects. Damaged roof framing components that have sustained less than substantial structural damage caused by or related to snow load effects shall be rehabilitated to comply with the applicable provisions for dead and snow loads in 780 CMR 16.00. Undamaged roof framing components that receive dead or snow loads from rehabilitated components shall also be rehabilitated to comply with the design loads of the rehabilitated design.

[BS] 502.4 Existing structural elements carrying gravity load. Delete the words *in design dead, live or snow load, including snow drift effects, of more than 5 percent* from first sentence and **add** the following sentence to end of section.

The increase in gravity loads or decrease in capacity shall account for the cumulative effects of additions and or alterations since original construction.

Add the following exception.

2. Structural elements whose demand capacity ratio is not increased by more than 5%.

Revise section as follows.

[BS] 503.3 Existing structural elements carrying gravity load.

Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design gravity load shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall be shown to have the capacity to resist the applicable design required by the *International Building Code* for new structures. The increase in gravity loads or decrease in capacity shall account for the cumulative effects of additions and or alterations since original construction.

Exceptions:

Add the words *Insulation shall not be added such that it increases the thermal factor Ct in accordance with ASCE 7-16 Table 7.3-2* to the end of exception number 2 and **add** exception number 3.

3. Structural elements whose demand capacity ratio is not increased by more than 5%.

[BS] 503.7 Anchorage for concrete and reinforced masonry walls. Add B to the Seismic Design Categories.

Revise sections as follows.

[BS] 503.8 Anchorage for unreinforced masonry walls in major alterations. Where the *work area* exceeds 50 percent of the building area, the building is assigned to Seismic Design B, C, D, E, or F, the alteration work shall include installation of wall anchors for exterior unreinforced masonry walls to resist out-of-plane seismic forces specified in Section A113.1.3 of this code at the floor and roof lines, unless an evaluation demonstrates compliance of existing wall anchorage.

[BS] 503.9 Bracing for unreinforced masonry parapets, chimneys, and appendages in major alterations. Where the *work area* exceeds 50 percent of the building area, and where the building is assigned to Seismic Design Category B, C, D, E or F, parapets constructed of unreinforced masonry, unreinforced masonry chimneys and exterior wall appendages shall be removed, have bracing installed, or anchored as needed to resist out-of-plane seismic forces, unless an evaluation demonstrates compliance of such items. Reduced seismic forces shall be permitted.

EXCEPTIONS:

1. If the height-to-thickness ratio of an unbraced unreinforced masonry parapet does not exceed 2.5, then bracing is not required. For the purpose of this exception the height shall be measured from either the level of tension anchors or the roof sheathing, whichever is lower.
2. Chimneys braced by or anchored to the roof structure and extending less than 4 feet above it.

[BS] 503.10 Anchorage of unreinforced masonry partitions in major alterations. Where the *work area* exceeds 50 percent of the building area, and where the building is assigned to Seismic Design Category B, C, D, E or F, unreinforced masonry partitions and nonstructural unreinforced masonry walls within the *work area* and adjacent to egress paths from the *work area* shall be anchored, removed or altered to resist out-of-plane seismic forces specified in Section A113.1.3 of this code, unless an evaluation demonstrates compliance of such items.

Revise section as follows.

[BS] 503.12 Roof diaphragms resisting wind uplift loads in high-wind regions. For Risk Category III and IV Buildings where the intended *alteration* requires a permit for reroofing and involves removal of roofing materials from more than 50 percent of the roof diaphragm of a building or section of a building within a 5-year period located where the ultimate design wind speed is greater than 130 mph (58 m/s) in accordance with Table 1604.11 of 780 CMR, connections of the roof diaphragm to roof framing members, including the building perimeter, shall be evaluated for the wind uplift loads specified in Section 1609 of the *International Building Code*. If the connections in their current condition are not capable of resisting 75 percent of those wind uplift loads, they shall be replaced or strengthened in accordance with the loads specified in Section 1609 of the *International Building Code*.

Exception: Buildings that have been demonstrated to comply with the wind load provisions in 780 CMR 5th Edition or later editions.

Add section as follows.

702.8 Additions and Replacements of Exterior Wall Coverings and Exterior Wall Envelopes. Where an exterior wall covering or exterior wall envelope is added or replaced, compliance with sections 805.2 and 805.3 of this code is required.

Add the following points.

[BS] 705.2.1 Roof recover.

5. For roof replacement and roof recover projects, where the existing roof assembly includes a built-up roof that is adhered to the roof deck, the existing built up roof shall be permitted to remain in place and be restored to good

condition to serve as a sound substrate for the new roof covering, in accordance with the roof manufacturer's requirements.

6. For roof recover projects where there is only one layer of existing roofing present, existing continuous insulation shall be permitted to remain in place, provided all wet or otherwise deteriorated portions of the insulation is removed and replaced.

Revise section as follows.

[BS] 706.2 Addition or replacement of roofing or replacement of equipment. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design gravity load shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. The increase in gravity loads shall account for the cumulative effects of additions since original construction.

Exceptions:

Add the words *Insulation shall not be added such that it increases the thermal factor C_t in accordance with ASCE 7-16 Table 7.3-2 without checking capacity of existing structure* to end of exception number 2 and **add** exception number 3.

3. Structural elements whose demand capacity ratio is not increased by more than 5%.

Revise section as follows.

[BS] 706.3.2 Roof diaphragms resisting wind uplift loads in high-wind regions. For Risk Category III and IV Buildings where roofing materials are removed from more than 50 percent of the roof diaphragm or section of a building within a 5-year period located where the ultimate design wind speed, V_{ult}, determined in accordance with Table 1604.11 of 780 CMR, is greater than 130 mph (58 m/s), connections of the roof diaphragm to roof framing members, including the building perimeter shall be evaluated for the wind uplift loads specified in the *International Building Code*. If the connections in their current condition are not capable of resisting 75 percent of those wind uplift loads, they shall be replaced or strengthened in accordance with the loads specified in the *International Building Code*.

Exception: Buildings that have been demonstrated to comply with the wind load provisions in 780 CMR 5th Edition or later editions.

803.2 Automatic sprinkler systems. Add exception as follows.

EXCEPTION: R-2 structures, of three units undergoing Level 2 alterations, are exempt from the requirements of this section provided that:

1. The *work area* is for a single unit; and
2. No other permits for Level 2 work have been issued for the building in the previous three years.

803.2.2 Groups Add R-3.

Exception Delete the word *municipal* before the word *water*.

Delete the word *municipal* before the word *water* in the following sections.

803.2.4 Windowless stories. Delete the word *municipal* before the word *water*.

803.2.5 Other required automatic sprinkler systems. Point number 2**. Delete** the word *municipal* before the word *water*.

Replace section as follows.

803.2.6 Supervision. Fire sprinkler systems required by this section shall be supervised by the method required in section 903.4.1 (code for new construction) of 780 CMR.

Revise section as follows.

[BS] 805.2 Existing structural elements carrying gravity loads. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design gravity load shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall be shown to have the capacity to resist the applicable design gravity load required by the *International Building Code* for new structures.

Exceptions: Retain exception number 1 **revise** number 2 and **add** number 3 as follows.

Buildings in which the increased dead load is attributable to the addition of a second layer of roof covering weighing 3 pounds per square foot (0.1437 kN/m^2) or less. Insulation shall not be added such that it increases the thermal factor C_t in accordance with ASCE 7-16 Table 7.3-2 without checking capacity of existing structure.

Structural elements whose demand capacity ratio is not increased by more than 5%.

Revise section as follows.

[BS] 805.3 Existing structural elements carrying lateral loads. Except as permitted by Section 503.13, where the *alteration* increases design lateral loads, results in prohibited structural irregularity as defined in ASCE 7, decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall meet the requirements of Sections 1609 and 1613 of the *International Building Code*. Reduced seismic forces shall be permitted.

Exception:

1. Any existing lateral load-carrying structural element whose demand capacity ratio with the alteration considered is not more than 10 percent greater than its demand-capacity ratio with the alteration ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with *International Building Code* Sections 1609 and 1613. Reduced seismic forces shall be permitted. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of additions and alterations since original construction.

Add exception as follows.

2. Buildings in which the increase in the demand-capacity ratio is due entirely to the addition of rooftop-supported mechanical equipment individually having an operating weight less than 400 pounds (181.4 kg) and where the total additional weight of all rooftop equipment placed after initial construction of the building is less than 10 percent of the roof dead load. For purposes of this exception, "roof" shall mean the roof level above a particular story.

904.1.1 High-rise buildings. Delete the *word* municipal before the word *water*.

Revise sections as follows.

[BS] 906.4 Anchorage for concrete and reinforced masonry buildings. For any building assigned to Seismic Design Category B, C D, E or F with a structural system that includes concrete or reinforced masonry walls with a flexible roof diaphragm, the *alteration* work shall include installation of wall anchors at the roof line of all subject buildings and at the floor lines of unreinforced masonry buildings unless an evaluation demonstrates compliance of existing wall anchorage. Reduced seismic forces shall be permitted.

[BS] 906.5 Anchorage for unreinforced masonry walls. For any building assigned to Seismic Design Category B, C, D, E or F with exterior unreinforced masonry walls, the *alteration* work shall include installation of wall anchors to resist out-of-

plane seismic forces specified in Section A113.1.3 of this code at the roof and floor line, unless an evaluation demonstrates compliance of existing wall anchorage.

[BS] 906.6 Bracing for unreinforced masonry parapets, chimneys and appendage. Parapets constructed of unreinforced masonry, unreinforced masonry chimneys and exterior wall appendages in buildings assigned to Seismic Design Category B, C, D, E or F shall be removed, have bracing installed, as needed to resist the reduced *International Building Code*-level seismic forces in accordance with Section 304.3, unless an evaluation demonstrates compliance of such items. Use of reduced seismic forces shall be permitted.

EXCEPTIONS:
1. If the height-to-thickness ratio of an unbraced unreinforced masonry parapet does not exceed 2.5, then bracing is not required. For the purpose of this exception the height shall be measured from either the level of tension anchors or the roof sheathing, whichever is lower.
2. Chimneys braced by or anchored to the roof structure and extending less than 4 feet above it.

[BS] 906.7 Anchorage of unreinforced masonry partitions. Where the building is assigned to Seismic Design Category B, C, D, E or F, unreinforced masonry partitions and nonstructural unreinforced masonry walls within the *work area* and adjacent to egress paths from the *work area* shall be anchored, removed, or altered to resist out-of-plane seismic forces specified in Section A113.1.3 of this code, unless an evaluation demonstrates compliance of such items.

Revise sections as follows.

1002.1 Compliance with the Building Code. Where the character or use of an existing building or part of an existing building is changed to a special use or occupancy as found in 780 CMR 4.00, the special use or occupancy shall comply with the applicable requirements of that chapter. Areas changed to incidental uses shall comply with 780 CMR Table 509.1.

1011.2.1 Fire sprinkler system. Delete exceptions.

[BS] 1103.1 Additional gravity loads. Any existing gravity load-carrying structural element for which an *addition* and its related *alterations* cause an increase in design gravity load shall be replaced or altered as needed to carry the gravity loads required by the *International Building Code* for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *addition* and its related *alterations* shall be considered to be an altered element subject to the requirements of Section 806.2. Any existing element that will form part of the lateral load path for any part of the *addition* shall be considered to be an existing lateral load-carrying structural element subject to the requirements of Section 1103.3.

Exception: Add exception number 2.
Structural elements whose demand capacity ratio is not increased by more than 5%.

CHAPTER 13 PERFORMANCE COMPLIANCE METHODS Delete chapter.

CHAPTER 15 CONSTRUCTION SAFEGUARDS Delete chapter and replace with note that construction safeguards *shall comply with Chapter 33 of the International Building Code.*

CHAPTER 35: REFERENCED STANDARDS

Replace introductory paragraph with the following paragraph:

780 CMR 35.00 lists the standards that are referenced in various sections of this document. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title, and the section or sections of this document that reference the standard. The application of the referenced standards shall be as specified in section 102.4. Where a section of 780 CMR has been amended to cite a different standard (i.e., other than the one listed in 780 CMR 35.00), the referenced standard identified in that section of 780 CMR shall prevail, and the referenced standard identified in 780 CMR 35.00 is no longer applicable or enforceable as a part of that section. Where a section of 780 CMR has been deleted or modified to remove a reference to a specific standard, the referenced standard listed in 780 CMR 35.00 is no longer applicable or enforceable as part of 780 CMR. Buildings, structures, or conditions not addressed in 780 CMR shall comply with section 104.12.

Insert 10 referenced standards as follows:

NFPA 15-2017	*Standard for Water Spray Fixed Systems for Fire Protection*
NFPA 24-2019	*Standard for the Installation of Private Fire Service Mains and their Appurtenances*
NFPA 25-2020	*Standard for the Inspection, Testing, and Maintenance of Water-based Fire Protection Systems*
NFPA 140-2018	*Standard on Motion Picture and Television Production Studio Soundstages, Approved Production Facilities, and Production Locations*
NFPA 130-2020	*Standard for Fixed Guideway Transit and Passenger Rail Systems*
NFPA 241-2022	*Standard for Safeguarding Construction, Alteration, and Demolition Operations*
NFPA 400-2019	*Hazardous Materials Code*
NFPA 2010-2020	*Standard for Fixed Aerosol Fire-Extinguishing Systems*
NFPA 70-2023	*National Electrical Code*

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS

(780 CMR 36.00 THROUGH 50.00: RESERVED)

780 CMR 51.00: MASSACHUSETTS RESIDENTIAL CODE (*Unique to Massachusetts*)

Chapter 1 Delete in its entirety and replace with the following:

PART 1 – SCOPE AND APPLICATION

SECTION 101 GENERAL

R101.1 Adoption and Title. The Board of Building Regulations and Standards ("BBRS") adopts and incorporates by reference the *International Residential Code*, 2021 ("IBC"), as periodically amended by errata, the following chapters, as well as 110.R1 through 115AA. These, together with modifications as set forth, shall collectively comprise 780 CMR 51.00: *Massachusetts Residential Code*, otherwise known as the Massachusetts State Building Code, Tenth Edition, Residential Volume.

R101.2 Scope. 780 CMR shall be the building code for all towns, cities, state agencies or authorities in accordance with M.G.L. c. 143, §§ 93 through 100. 780 CMR, and other referenced specialized codes as applicable, shall apply to:

1. the construction, reconstruction, alteration, repair, demolition, removal, inspection, issuance and revocation of permits or licenses, installation of equipment; of detached one- and two-family dwellings and multiple single-family dwellings (townhouses) not more than three stories above grade plane in height and their accessory structures not more than three stories above grade plane, and other buildings as described in 780 CMR;

2. the rehabilitation and maintenance of existing buildings;

3. the standards or requirements for materials to be used in connection therewith, including but not limited to provisions for safety, ingress and egress, energy conservation and sanitary conditions, and fire prevention practices;

4. other powers and duties found in M.G.L. c. 143, §§ 93 through 100, but not listed herein; and

5. Owner-occupied lodging houses with five or fewer guestrooms.

R101.3 Intent. The purpose of 780 CMR is to establish the minimum requirements to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, stability, sanitation, adequate light and ventilation, energy conservation, and safety to life and property from fire and other hazards attributed to the built environment, and to provide safety to fire fighters and emergency responders during emergency operations.

R101.4 Referenced Codes and Standards. Referenced codes and standards include the specialized codes of M.G.L. c. 143, § 96 and other codes and regulations listed in sections R101.4.1 through R101.4.16 and shall be considered part of 780 CMR to the prescribed extent of each such reference. Work regulated by the specialized codes of M.G.L. c. 143, § 96 shall be designed, installed and inspected by individuals authorized to do so in accordance with the specialized codes. However, the impact of work regulated by the specialized codes of M.G.L. c. 143, § 96 and other codes and regulations on work governed by 780 CMR and within the jurisdiction of the building official, shall be subject to inspection by the building official.

R101.4.1 Gas and Fossil Fuel Burning Appliances. Reference to the International Fuel Gas Code shall be considered reference to 248 CMR: *Board of State Examiners of Plumbers and Gas Fitters*. Gas fired appliances are governed 248 CMR. Oil fired appliances are governed by 527 CMR 1.00: *Massachusetts Comprehensive Fire Safety Code*.

R101.4.2 Mechanical. The installation of mechanical systems shall generally be governed by the International Mechanical Code – 2021 ("IMC"). The scope of this adoption shall be governed by Sections 101 and 102 of the IMC, no other aspect of Chapter 1 of the IMC is adopted. However, this adoption shall not be deemed to apply to

work governed by the Specialized Codes pursuant to M.G.L. c. 143, §96, including but not necessarily limited to sheet metal work as defined in M.G.L. c. 112, §237. Notwithstanding this adoption, where a conflict exists between the IMC and any other provision of 780 CMR (including any other referenced standards or codes adopted therein), compliance with 780 CMR shall be required.

R101.4.3 Plumbing. Reference to the International Plumbing Code or International Fuel Gas Code shall be considered reference to 248 CMR: *Board of State Examiners of Plumbers and Gas Fitters*.

R101.4.4 Property Maintenance. The International Property Maintenance Code is not adopted. Reference to the International Property Maintenance Code shall be considered reference to 780 CMR and within the jurisdiction of the *building official*.

R101.4.5 Fire Prevention and Protection. Certain areas of this code are intended to ensure buildings and structures are protected from fire and other dangerous conditions. Where applicable, 527 CMR 1.00: Massachusetts Comprehensive Fire Safety Code may govern such matters. Nothing in this section is intended to alter or expand the current respective jurisdiction of the building official or the fire official. The building official shall enforce 780 CMR and the fire official shall enforce 527 CMR 1.00. In this regard, 780 CMR and its adopted standards may reference specific sections of the 2021 International Fire Code ("IFC"), except that retroactive requirements of the IFC are not adopted. Where a specific section of the IFC is referenced, that section shall not apply if it would overlap or conflict with a specific provision of 527 CMR 1.00. Where possible, 780 CMR shall provide a specific reference to applicable portions of 527 CMR 1.00. However, citations to specific provisions of 527 CMR 1.00 are provided solely as an advisory to assist users of these codes, as said provisions are not governed by 780 CMR and are subject to their own independent enforcement and appellate provisions. Readers should note that 527 CMR 1.00 may be changed after the effective date of this code, thus any references are subject to change.

The following statute is generally enforced by the head of the fire department, whose decisions would be appealed through the automatic sprinkler appeals board:

M.G.L c. 148, § 26H (if adopted through local option): lodging or boarding houses with six or more persons boarding or lodging

The following statute is enforced by the head of the fire department, and shall be appealed through a court of competent jurisdiction:

M.G.L. c. 148, § 26I (if adopted through local option): certain multiple dwelling units

R101.4.6 Energy. Chapter 11: *Energy Efficiency* of 780 CMR 51.00: *Massachusetts Residential Code* shall apply to all matters governing the design and construction of buildings for energy efficiency.
Exception: Where a municipality has adopted the Stretch energy code or Specialized opt-in energy code then 225 CMR 22.00 shall apply.

R101.4.7 Architectural Access. Any reference in 780 CMR to accessibility shall be considered reference to Massachusetts 780 CMR and 521 CMR: *Architectural Access Board.* 521 CMR is enforced by the *building official*. 521 CMR is not applicable to One and Two Family Dwellings.

R101.4.8 Environmental Protection. See 310 CMR: *Department of Environmental Protection* and 314 CMR: *Division of Water Pollution Control.*

R101.4.9 Elevators. Any reference in 780 CMR to elevators and conveying systems shall be considered reference to 524 CMR: *Board of Elevator Regulations*.

R101.4.10 Electrical. Any reference in 780 CMR to the International Electrical Code shall be considered reference to 527 CMR 12.00: *Massachusetts Electrical Code (Amendments)*.

R101.4.11 Reserved

R101.4.12 International Residential Code. Any reference in 780 CMR to the International Residential Code shall be considered reference to 780 CMR 51.00 through 115.00.

R101.4.13 - Reserved

R101.4.14 Residential Contracting. Residential contracting, as defined by ST. 2009, c 27 § 80, is also regulated by M.G.L. c. 142A and 201 CMR 18.00: *Registration and Enforcement of Home Improvement Contractor Program*. For information including, but not limited to registrations, renewals, and filing of complaints against a Home Improvement Contractor ("HIC"), interested persons are directed to contact the Office of Consumer Affairs and Business Regulation, which administers the program.

R101.4.15 International Swimming Pool and Spa Code. See 780 CMR Chapter 42 as amended and the International Swimming Pool and Spa Code 2021 as amended. The scope of this adoption shall be governed by Section 101.2 of the International Swimming Pool and Spa Code, however, the remainder of Chapter 1 of that code is not adopted.

R101.4.16 Existing buildings. The provisions of 780 CMR Chapter 51, Appendix J shall apply to matters governing the repair, alteration, addition to and relocation of existing buildings. For Changes of Occupancy or Use Group, see 780 CMR Chapters 3 and 34, and the provisions of the International Existing Building Code 2021 as amended.

R101.5 BBRS Advisory Committees. BBRS technical advisory committees support requests from and by the BBRS as it deems necessary in accordance with M.G.L. c. 143.

R102 Applicability Concurrency Period. Applications for building permits and related construction and other documents filed through June 30, 2025, may comply either with 780 CMR effective October 11, 2024 or with the Ninth Edition version of 780 CMR in effect immediately prior to amendment, but not a mix of both. After June 30, 2025, concurrency with the Ninth Edition ends, and all applications for permits pursuant to 780 CMR and related construction and other documents shall comply with 780 CMR as amended effective October 11, 2024 only.

R102.1 General. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable. Where, in any specific case, different sections of 780 CMR specify different materials, methods of construction or other requirements, the most restrictive shall govern.

EXCEPTION: Where enforcement of a provision of 780 CMR would violate the conditions of a listing or manufacturer's instructions, the conditions of the listing and manufacturer's instructions shall apply.

R102.2 Other Laws. The provisions of 780 CMR do not purport to override or nullify any provision of state or federal law. The Massachusetts General Laws and the Code of Massachusetts Regulations are often referenced throughout 780 CMR. It is the code user's responsibility to determine all applicable laws and regulations relevant to 780 CMR or any portion thereof.

R102.2.1 DDS Facilities. Additional building features required by the Massachusetts Department of Developmental Services ("DDS") do not change the classification of residences operated or licensed by DDS as dwellings subject to 780 CMR 51: *Massachusetts Residential Code.* (See also 780 CMR Section 308 and 310 of the Base code)

R102.2.2 Municipal Bylaws or Ordinances. 780 CMR applies state-wide. When municipal bylaws and ordinances conflict with 780 CMR, 780 CMR shall govern unless the bylaws or ordinances were promulgated in accordance with M.G.L. c. 143, § 98.

R102.3 Application of References. References to chapter or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of 780 CMR Chapter 51.00: *Massachusetts Residential Code*.

R102.4 Referenced Codes and Standards. The codes and standards referenced in 780 CMR shall be considered part of the requirements of 780 CMR to the prescribed extent of each such reference. Where differences occur between provisions of 780 CMR and referenced codes and standards, 780 CMR shall apply.

R102.5 Partial Invalidity. In the event that any part or provision of 780 CMR is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions.

R102.6 Existing Structures. The legal occupancy of any structure existing on the date of adoption of 780 CMR shall be permitted to continue without change, except as is specifically covered in 780 CMR or as deemed necessary by the building official for the general safety and welfare of the public.

R102.6.1 Laws in Effect. Unless specifically provided otherwise in 780 CMR, and narrow to the provisions of 780 CMR, any existing building or structure shall be presumed to meet the provisions of the applicable laws, codes, rules or regulations, bylaws or ordinances in effect at the time such building or structure was constructed or altered. The existing building or structure shall be allowed to continue to be occupied pursuant to its last lawful use and occupancy, provided that the building or structure has been maintained by the owner in accordance with 780 CMR.

R102.6.2 Laws Not in Use. In cases where applicable codes, rules or regulations, bylaws or ordinances were not in use at the time of such construction or alteration, the building or structure shall be maintained by the owner in accordance with 780 CMR.

R102.6.3 Less Stringent. In cases where the provisions of 780 CMR are less stringent than the applicable codes, rules or regulations, bylaws or ordinances at the time of such construction or substantial alteration, the applicable provisions of 780 CMR shall apply, providing such application can be reasonably demonstrated not to result in danger to the public, as determined by the *building official*.

R102.6.4 Existing Means of Egress, Lighting and Ventilation. The *building official* may cite any of the following conditions in writing as a violation and order the abatement within a time frame deemed necessary by the building official to make the building environment safe, healthy, or otherwise comply with 780 CMR:

a. Inadequate number of means of egress;
b. Egress components with insufficient width or so arranged to be inadequate for the safe means of egress of the occupants, including signage and lighting;
c. Inadequate lighting and ventilation.

Where full compliance for means of egress, lighting and ventilation are not practical, the *building official* may accept compliance alternatives, engineering, or other evaluations that adequately address the deficiency.

R102.7 Moved Structures. Buildings or structures moved into or within the jurisdiction of the Commonwealth shall comply with the provisions of Chapter 14 of the International Existing Building Code,, provided that any new system shall comply as far as practicable with the requirements for new structures and provided further that the siting and fire separation distance comply with the requirements for new structures.

R102.8 Maintenance of Existing Buildings and Structures. All buildings and structures and all parts thereof, both existing and new, and all systems and equipment therein which are regulated by 780 CMR shall be maintained in a safe, operable and sanitary condition. All service equipment, life safety/fire protection systems, means of egress, devices and safeguards which are required in a building or structure, or which were required by a previous statute in a building or structure, when erected, altered or repaired, shall be maintained in good working order.

R102.8.1 Owner Responsibility. The owner shall be responsible for compliance with the provisions of 780 CMR. Lack of compliance with *102.8 Maintenance of Existing Buildings and Structures* may be grounds for enforcement by the *building official* pursuant to *780 CMR Section 114. Violations.*

PART 2 - ADMINISTRATION AND ENFORCEMENT

SECTION 103 ENFORCEMENT

R103.1 Municipal and State Enforcement. Reference to the Department of Building Safety shall be considered reference to the *building official*. 780 CMR shall be enforced by the *Building Official*, and in accordance with M.G.L. c. 143, §§ 3, 3A, 3Y, and 3Z and M.G.L. c. 22, the *building official* shall include the building commissioner or inspector of buildings, local inspector, and state building inspector (Inspector).

SECTION 104 DUTIES AND POWERS OF BUILDING OFFICIAL

R104.1 General. The *building official* is hereby authorized and directed to enforce the provisions of 780 CMR in accordance with M.G.L. c. 143, §§ 3 and 3A. The state inspector of the Office of Public Safety and Inspections, shall enforce 780 CMR as to any building or structure within any city or town that is owned in whole, or in part, by the Commonwealth or any departments, commissions, agencies, or authorities of the Commonwealth.

R104.2 Applications and Permits. The *building official* shall receive applications, review construction documents and issue permits for the construction, reconstruction, alteration, repair, removal or demolition of a building or structure; or to change the use or occupancy of a building or structure; or to install or alter any equipment or life safety systems for which provision is made or the installation of which is regulated by 780 CMR..

R104.3 Notices and Orders. The *building official* shall issue all necessary notices or orders to ensure compliance with 780 CMR.

R104.4 Inspections. The *building official* shall make all of the required inspections, or the building official shall have the authority to accept reports of inspection by *approved* agencies or individuals. Reports of such inspections shall be in writing and shall be certified by a responsible officer of such *approved* agency or by the responsible individual. The *building official* is authorized to engage such expert opinion as deemed necessary to report upon unusual technical issues that arise, subject to the approval of the appointing authority. If requested by the permit holder the building official must provide written documentation of the code section(s) found to be in violation.

R104.4.1 Coordination of Inspections. Whenever in the enforcement of 780 CMR, or another code or ordinance, the responsibility of more than one enforcement official is involved, it shall be the duty of the enforcement officials involved to coordinate their inspections and administrative orders as fully as practicable so that the owners and occupants of the building or structure shall not be subjected to visits by numerous inspectors or multiple or conflicting orders. Whenever an enforcement official observes an apparent or actual violation not within the official's authority, the official shall report the findings to the official having jurisdiction.

R104.5 Identification. The *building official* shall carry proper identification when inspecting structures or premises in the performance of duties under 780 CMR.

R104.6 Right of Entry. Where it is necessary to make an inspection to enforce the provisions of 780 CMR, or where the *building official* has reasonable cause to believe that there exists in a structure or upon a premises a condition which is contrary to or in violation of 780 CMR which makes the structure or premises unsafe, dangerous or hazardous, the building official is authorized to enter the structure or premises at reasonable times to inspect or to perform the duties imposed by 780 CMR, provided that if such structure or premises be occupied that credentials be presented to the occupant and entry requested. If such structure or premises is unoccupied, the *building official* shall first make a reasonable effort to locate the owner or other person having charge or control of the structure or premises and request entry. If entry is refused, the *building official* shall

have recourse to the remedies provided by law to secure entry, including, but not limited to requesting an Administrative search warrant. See M.G.L. c. 143, §§ 6 and 50.

R104.7 Department Records. The *building official* shall keep official records of applications received, permits and certificates issued, fees collected, reports of inspections, and notices and orders issued. Such records shall be retained in the official records for the period required for retention of public records.

R104.8 Liability. All claims of liability relative to *building officials* shall be governed by M.G.L. c. 258.

R104.9 Approved Materials and Equipment. Materials, equipment, and devices approved by the *building official* shall be constructed and installed in accordance with such approval.

> **R104.9.1 Used Materials and Equipment**. The use of used materials which meet the requirements of 780 CMR for new materials is permitted. Used equipment and devices shall not be reused unless approved by the *building official*.

R104.10 Modifications. Wherever there are practical difficulties involved in carrying out the provisions of 780 CMR, the *building official* shall have the authority to grant modifications for individual cases, upon application of the owner or owner's representative, provided the *building official* shall first find that a special individual reason makes the strict letter of 780 CMR impractical and the modification is in compliance with the intent and purpose of 780 CMR and that such modification does not lessen health, accessibility, life and fire safety, or structural requirements. The details of action granting modifications shall be recorded and entered in the files of the *building official*.

> **R104.10.1 Flood Hazard Areas and coastal dunes**. The building official shall not grant modifications to any provision related to flood hazard areas and coastal dunes as established by 780 CMR without the granting of a variance by the Building Code Appeals Board.

R104.11 Alternative Materials, Design and Methods of Construction and Equipment. The provisions of 780 CMR are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by 780 CMR, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the *building official* finds that the proposed design is satisfactory and complies with the intent of the provisions of 780 CMR, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in 780 CMR in quality, strength, effectiveness, fire resistance, durability, and safety.

> **R104.11.1 Research Reports**. Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in 780 CMR, shall consist of valid research reports from approved sources.
>
> **R104.11.2 Tests**. Whenever there is insufficient evidence of compliance with the provisions of 780 CMR, or evidence that a material or method does not conform to the requirements of 780 CMR, or in order to substantiate claims for alternative materials or methods, the *building official* shall have the authority to require tests as evidence of compliance to be made at no expense to the enforcement authority. Test methods shall be as specified in 780 CMR or by other recognized test standards. In the absence of recognized and accepted test methods, the *building official* shall approve the testing procedures. Tests shall be performed by an approved agency. Reports of such tests shall be retained by the *building official* for the period required for retention of public records.

R104.12 Matters Not Provided For. In recognition of the inherent difficulty of drafting a functional code that contemplates every situation that may arise in the area of building safety, this section provides the *building official*, the Building Code Appeals Board, or the BBRS itself, with reasonable discretion to ensure that all life safety issues that may arise in the enforcement of 780 CMR may be appropriately addressed. Matters not specifically provided for in 780 CMR regarding structural, egress, fire, energy, sanitary or other requirements essential to occupant safety shall be determined by the *building official* or, in the case of an appeal, the Building Code Appeals Board. The details of action granting modifications shall be recorded and entered in the files of the *building official*. For highly specialized buildings and structures that conform to unique code requirements or nationally recognized standards not required in 780 CMR, registered design professionals shall provide sufficient information to the *building official* to support their approval.

SECTION 105 PERMITS

R105.1 Required. It shall be unlawful to construct, reconstruct, alter, repair, remove or demolish a building or structure; or to change the use or occupancy of a building or structure; or to install or alter any equipment, or life safety systems for which provision is made or the installation of which is regulated by 780 CMR without first filing an application with the *building official* and obtaining the required permit.

R105.2 Work Exempt from Permit. Except for activities which may require a permit pursuant to other laws, and the specialized codes of M.G.L. c. 143, § 96, a permit pursuant to 780 CMR is not required for the following activities:

1. One-story detached accessory structures used as tool and storage sheds, playhouses, and similar uses provided that the floor area does not exceed 200 ft^2 (18.58 m^2).
2. Fences not over seven feet (2,134 mm) high.
3. Retaining walls that are not over four feet (1,219 mm) in height measured from the bottom of the footing to the top of the wall, unless supporting a surcharge.
4. Water tanks supported directly upon grade if the capacity does not exceed 5,000 gallons (18,927 L) and the ratio of height to diameter or width does not exceed 2 to 1.
5. Sidewalks and driveways.
6. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work. (Permits may be required for Electrical, Plumbing, or Gas work)
7. Prefabricated swimming pools that are less than 24 inches (610 mm) deep.
8. Swings and other playground equipment accessory to one and two family dwellings.
9. Window awnings supported by an exterior wall that do not project more than 54 inches (1,372 mm) from the exterior wall and do not require additional support.
10. Decks not exceeding 200 ft^2 (18.58 m^2) in area, that are not more than 30 inches (762 mm) above grade at any point, that are not attached to a dwelling, and that do not serve one of the required exit doors required by section R311.2.
11. Greenhouses covered exclusively with plastic film. This exemption does not apply if the greenhouse will be used for large assemblies of people or uses other than normally expected for this purpose.
12. Repair of any component or components of a fire protection system, where such does not affect system performance and compatibility. No permit pursuant to 780 CMR is required for maintenance. Other permits, however, may be required pursuant to applicable provisions of M.G.L. c.148, § 27A and of 527 CMR.

R105.2.1 Emergency Repairs. Where replacements and repairs governed by 780 CMR must be performed in an emergency situation, the permit application shall be submitted within the next working business day to the *building official*.

NOTE: Pursuant to the terms of the specialized codes of M.G.L. c. 143, § 96, this exemption might not apply to emergency repairs conducted under those specialized codes.

R105.2.2 Repairs. Application or notice to the *building official* is not required for ordinary repairs to structures. A permit is required for work including but not limited to: the substantial cutting away of any wall, partition or portion thereof, the removal or cutting of any structural beam or load-bearing support, or the removal or change of any required means of egress, or rearrangement of parts of a structure affecting the egress requirements or mechanical systems or other work affecting public health or general safety under the authority of 780 CMR.

R105.3 Application for Permit. To obtain a permit, the owner or authorized agent shall file a permit application on a form furnished by the *building official* for that purpose.
Such applications shall:

1. Identify and describe the work to be included by the permit for which application is made.
2. Describe the land on which the proposed work is to be performed by legal description, street address or similar description that will readily identify and definitely locate the proposed building or work.
3. Indicate the use and occupancy for which the proposed work is intended. If the work involves a care facility or residence licensed by a state agency, indicate the agency name and appropriate licensing regulation on the permit. (For example: Department of Developmental Services, 115 CMR.)

4. Be accompanied by construction documents and other information as required in section 107. Construction documents shall list any additional building features required by a Massachusetts state agency for its facilities that go beyond the requirements in 780 CMR.
5. State the valuation of the proposed work. The *building official* has authority to request from the applicant a detailed substantiation of the valuation.
6. Be signed by the owner or authorized agent.
7. Give such other data and information as required by the *building official* in accordance with 780 CMR.
8. If applicable, include the registration number and information of home improvement contractors or subcontractors for residential contracting services, in accordance with M.G.L. c. 142A, §§ 9(a) and 13.

R105.3.1 Action on Application. The *building official* shall examine or cause to be examined applications for permits and amendments, and shall issue or deny the permit, in writing, within 30 days of filing. If the application or the *construction documents* do not conform to the requirements of 780 CMR and all pertinent laws under the *building official*'s jurisdiction, the *building official* shall deny such application in writing, stating the reasons therefore. The *building official*'s signature shall be attached to every permit.

Failure to act upon the application within 30 days could result in a complaint being registered against the Building Official with his or her appointing authority, the Building Official Certification Committee, or an appeal may be filed with the Building Code Appeals Board for lack of action.

The following requirements, where applicable, shall be satisfied before a permit is issued:

1. Zoning: in accordance with M.G.L. c. 40A or St. 1956, c. 665.
2. Railroad Right-of-way: in accordance with M.G.L. c. 40, § 54A.
3. Water Supply: in accordance with M.G.L. c. 40, § 54;
4. Debris Removal: in accordance with M.G.L. c. 40, § 54
5. Workers Compensation Insurance: in accordance with M.G.L. c. 152, § 25C(6).
6. Hazards to Air Navigation: in accordance with M.G.L. c. 90, § 35B.
7. Construction in coastal dunes, in accordance with flood construction requirements of 780 CMR.

R105.3.1.1 Determination of Substantially Improved or Substantially Damaged Existing Buildings in Flood Hazard Areas and coastal dunes. For applications for reconstruction, rehabilitation, addition, alteration, repair or other improvement of existing buildings or structures located in a flood hazard area or coastal dune as established by section 322.1.1, the *building official* shall examine or cause to be examined the construction documents and shall make a determination with regard to the value of the proposed work. For buildings that have sustained damage of any origin, the value of the proposed work shall include the cost to repair the building or structure to its pre-damaged condition. If the *building official* finds that the value of proposed work equals or exceeds 50% of the market value of the building or structure before the damage has occurred or the improvement is started, the proposed work is a substantial improvement or restoration of substantial damage and the *building official* shall require existing portions of the entire building or structure to meet the requirements of section R322. For the purpose of this determination, a substantial improvement shall mean any repair, reconstruction, rehabilitation, addition or improvement of a building or structure, the cost of which equals or exceeds 50% of the market value of the building or structure before the improvement or repair is started. Where the building or structure has sustained substantial damage, repairs necessary to restore the building or structure to its pre-damaged condition shall be considered substantial improvements regardless of the actual repair work performed. The term shall not include either of the following:

1. Improvements to a building or structure that are required to correct existing health, sanitary or safety code violations identified by the *building official* and that are the minimum necessary to ensure safe living conditions.
2. Any alteration of a historic building or structure, provided that the alteration will not preclude the continued designation as a historic building or structure. For the purposes of this exclusion, a historic building shall be any of the following:

2.1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places.
2.2. Determined by the Secretary of the U.S. Department of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district.
2.3. Designated as historic under a state or local historic preservation program that is approved by the U.S. Department of the Interior.

R105.3.1.1.1 Determination of Substantial Repair of a Foundation. When work to repair or replace a foundation results in the repair or replacement of a portion of the foundation with a perimeter along the base of the foundation that equals or exceeds 50% of the perimeter of the base of the foundation measured in linear feet, or repair or replacement of 50% of the piles, columns or piers of a pile, column or pier supported foundation, the *building official* shall determine it to be substantial repair of a foundation. Applications determined by the *building official* to constitute substantial repair of a foundation shall require all existing portions of the entire building or structure to meet the requirements of section R322.

R105.3.2 Time Limitation of Application. An application for a permit for any proposed work shall be deemed to have been abandoned 180 days after the date of filing, unless such application has been pursued in good faith or a permit has been issued; except that the *building official* is authorized to grant one or more extensions of time for additional periods not exceeding 90 days each. The extension shall be requested in writing and justifiable cause demonstrated.

R105.4 Validity of Permit. The issuance or granting of a permit shall not be construed to be a permit for, or an approval of, any violation of any of the provisions of 780 CMR or of any other law or ordinance. Permits presuming to give authority to violate or cancel the provisions of 780 CMR or other laws or ordinances shall not be valid. The issuance of a permit based on construction documents and other data shall not prevent the *building official* from requiring the correction of errors in the construction documents and other data. The *building official* is also authorized to prevent occupancy or use of a structure where in violation of 780 CMR.

R105.5 Expiration. Every permit issued shall become invalid unless the work on the site authorized by such permit commences within 180 days after its issuance, or if the work authorized on the site by such permit is suspended or abandoned for a period of 180 days after the time the work is commenced. The *building official* is authorized to grant, in writing, one or more extensions of time, for periods not more than 180 days each. The extension shall be requested in writing prior to the permit expiration date and justifiable cause demonstrated.

R105.6 Suspension or Revocation. The building official is authorized to suspend or revoke a permit issued under the provisions of 780 CMR wherever the permit is issued in error or on the basis of incorrect, inaccurate, or incomplete information, or in violation of any ordinance or regulation, except as noted in R105.4, or any of the provisions of 780 CMR.

R105.7 Placement of Permit. The permit or copy shall be kept on the site of the work until the completion of the project.

R105.8 Notice of Start. The *building official* may require to be notified at least one business day before the start of work.

R105.9 – Reserved

R105.9.1 – Reserved

R105.9.2 – Reserved

SECTION 106 – Reserved

SECTION 107 CONSTRUCTION DOCUMENTS AND CONSTRUCTION CONTROL

R107.1 General. Submittal documents consisting of *construction documents*, statement of special inspections, geotechnical report and other data shall be submitted in two or more sets with each permit application. The construction documents shall be prepared by a registered design professional where required by statute. Where special conditions exist, the building official is authorized to require additional construction documents to be prepared by a registered design professional. The construction documents, computations, and specifications for in ground pools shall be prepared and designed by a registered design professional. l.

Exception: The *building official* is authorized to waive the submission of *construction documents* and other data not required to be prepared by a registered design professional if it is found that the nature of the work applied for is such that review of construction documents is not necessary to obtain compliance with 780 CMR. This exception shall not apply to in ground pools.

R107.1.1 Professional Seal and Signature. When required by Law, plans and specifications for work requiring a registered design professional shall bear a seal and signature of the responsible registered design professional in accordance with M.G.L. c. 143, § 54A. See the applicable licensing board for any policy on electronic seal and signature for certain registered design professionals.

R107.2 Construction Documents. *Construction documents* shall be in accordance with sections R107.2.1 through R107.2.9.

R107.2.1 Information on Construction Documents. *Construction documents* shall be drawn upon suitable material. Electronic media documents are permitted to be submitted where approved by the *building official*. *Construction documents* shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of 780 CMR and relevant laws, ordinances, rules and regulations, as determined by the *building official.*

R107.2.2 – Reserved

R**107.2.3 Means of Egress**. The construction documents shall designate the two required exit door locations. Although not a portion of a Means of Egress, the construction documents shall show any *Emergency Escape and Rescue Opening* elements, when applicable.

R107.2.4 Reserved

R107.2.5 Energy Compliance submittal. The *construction documents* submitted with the application for permit shall be accompanied by completed energy code compliance documentation demonstrating compliance with the energy provisions of 780 CMR R11.00: *Energy Efficiency (as amended by Massachusetts)*.

R107.2.6 Information on Braced Wall Design. For buildings and structures utilizing braced wall design, the braced wall lines shall be identified on the *construction documents* when required by the *building official*. Pertinent information including, but not limited to, bracing methods, location and length of braced wall panels and foundation requirements of braced wall panels at top and bottom shall be provided.

R107.2.7 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 Zone) and coastal A zones.

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.

R107.2.7.1 Design Flood Elevations. Where design flood elevations are not specified, they shall be established in accordance with section 1612.3.1.

R107.2.8 Manufactured Buildings and Modular Homes. Document submittal for the erection or placement of said structures shall be as follows:

8. Site specific plans and specifications.
9. Plan Identification Number Assignment Form with BBRS number. This is to confirm plans have been approved by the Office of Public Safety and Inspections and shall include a stamp showing approval and signature.
10. Plans shall be stamped on every page by a third-party inspection agency.
11. Every page showing calculations by a registered design professional shall be provided with their stamp and signature.
12. Energy compliance certificate.
13. Set manuals are required to be on site at time of project set and shall be specific to the project.

    EXCEPTION: If all connection details are provided on the plans then the set manual is not required.

14. The Installer's information shall accompany the plan submittal package along with proof of approved certification from the manufacturer.

In accordance with 780 CMR Chapter 110.R3.8.1.1 and 110.R5.1.3.1 a "*Homeowner exemption*" may not be utilized to receive a permit to install, erect, or oversee the installation of a Manufactured Building or Modular Home.

R107.2.9 Site Plan or Plot Plan. The construction documents submitted with the application for permit shall be accompanied by a site plan showing to scale the size and location of new construction and existing structures on the site, distances from lot lines, the established street grades and the proposed finished grades and, as applicable, flood hazard areas, floodways, and design base flood elevations; and it shall be drawn in accordance with an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished and the location and size of existing structures and construction that are to remain on the site or plot. The *building official* is authorized to waive or modify the requirement for a site plan where the application for permit is for alteration or repair or where otherwise warranted.

R107.3 Examination of Documents. The *building official* shall examine or cause to be examined the accompanying submittal documents and shall ascertain by such examinations whether the construction indicated and described is in accordance with the requirements of 780 CMR and other pertinent laws or ordinances under the building official's jurisdiction.

R107.3.1 Fire Department Review. For permits that include fire protection systems work construction documents shall be filed with the *building official* who shall cause them to be filed with the head of the local fire department for review. The fire department shall have ten working days after receiving the documents to complete its review. Upon the fire department's written request, the *building official* may grant one or more extensions up to a total review period maximum of 30 days. If the fire department review is not received within the allowed time frame the *building official* may, upon review, deem the documents in compliance with 780 CMR. If the head of the local fire department believes such construction documents to be noncompliant with 780 CMR or reference standards, he or she shall notify the *building official* in writing citing relevant sections of noncompliance with 780 CMR or the section of the referenced standards. See M.G.L. c. 148, § 28A.

R107.3.2 Approval of Construction Documents. Where the building official issues a permit, "hard copy" paper construction documents shall be approved in writing or by a stamp stating "Reviewed For Code Compliance."

One set of construction documents so reviewed shall be retained by the *building official*, and one such stamped set shall be returned to the applicant, shall be kept at the site of work, and shall be open to inspection by the *building official* or a duly authorized representative. Applications containing electronic construction documents will be considered "Reviewed for Code Compliance" when marked electronically by the permit issuer.

R107.3.3 Previous Approvals. 780 CMR shall not require changes in the construction documents, construction, or designated occupancy of a structure for which a lawful permit has been heretofore issued or otherwise lawfully authorized, and the construction of which has begun and pursued in good faith within 180 days after the effective date of 780 CMR and has not been abandoned.

R107.3.4 Phased Approval. The *building official* is authorized to issue a permit for the construction of foundations, selective demolition, or any other part of a building or structure before the construction documents for the whole building or structure have been submitted, provided that adequate information and detailed statements have been filed complying with pertinent requirements of 780 CMR. The holder of such permit for the foundation or other parts of a building or structure shall proceed at the holder's own risk with the building operation and without assurance that a permit for the entire structure will be granted.

R107.3.5 Reserved

R107.4 Amended Construction Documents. Work shall be installed in accordance with the approved construction documents, and any changes made during construction that are not in compliance with the approved construction documents shall be resubmitted for approval as an amended set of construction documents prior to the commencement of the proposed work.

R107.5 Retention of Construction Documents. One set of approved construction documents shall be retained by the building official in accordance with M.G.L. c. 66, § 8.

R107.6 Construction Control

R107.6.1 – General - In general Construction Control is not necessary for entire One and Two Family Dwellings. However, Construction Control is required for certain Townhouses.

R107.6.1.1 - Reserved

R107.6.1.2 Townhouse Buildings Greater Than 35,000 cubic feet. Such buildings require registered design professional services in accordance with 780 CMR 107.6 *Construction Control*.

SECTION 108 TEMPORARY STRUCTURES AND USES

R108.1 General. The *building official* is authorized to issue a permit for temporary structures and temporary uses. Such permits shall be limited as to time of service, but shall not be permitted for more than 180 days. The *building official* is authorized to grant extensions for demonstrated cause. See 780 CMR 31.00.

R108.2 Conformance. Temporary structures and uses shall conform to the structural strength, fire safety, means of egress, accessibility, light, ventilation, and sanitary requirements of 780 CMR as necessary to ensure public health, safety, and general welfare.

R108.3 Fire Department Review. Temporary structures and uses shall be approved by the *building official* in consultation with the head of the local fire department.

R108.4 Termination of Approval. The *building official* is authorized to terminate for cause and with written notice such permit for a temporary structure or use and to order the temporary structure or use to be discontinued.

R108.5 State of Emergency. Upon declaration by the governor of a state of emergency under St. 1950. c. 639, or of an emergency detrimental to the public health under M.G.L. c. 17, § 2A, a building or space within a building may be used as a temporary emergency use for purposes of housing and/or caring for persons in accordance with procedures established for such purpose as contained in ***780 CMR 31.00*** *Special Construction*, most specifically *780 CMR 3113 Temporary Emergency Use*.

SECTION 109 FEES

R109.1 Payment of Fees. A permit shall not be valid until the fees prescribed have been paid, nor shall an amendment to a permit be released until the additional fee, if any, has been paid in the amount established by the applicable governing authority.

R109.2 Schedule of Permit Fees. For state building permit fees, see 801 CMR 4.02: *Fees for Licenses, Permits, and Services to be Charged by State Agencies*. For municipal building permit fees, refer to the municipality.

R109.3 Building Permit Valuations. The applicant for a permit shall provide an estimated value of project cost at time of application. If, in the opinion of the *building official*, the valuation is underestimated on the application, the permit shall be denied, unless the applicant can show detailed estimates to meet the approval of the *building official*. Final building permit valuation shall be set by the *building official.*

R109.4 Work Commencing Before Building Permit Issued. Any person who commences any work on a building or structure governed by 780 CMR before obtaining the necessary building permit shall be in violation of 780 CMR and subject to penalties. See section R114.

EXCEPTION: Emergency repairs as found in section R105.2.1.

R109.5 Related Fees. Payment of the building permit fee shall not relieve the applicant or holder of the permit from the payment of other fees that are prescribed by law.

SECTION 110 INSPECTIONS

R110.1 General. Construction or work for which a permit is required shall be subject to inspection by the *building official* and such construction or work shall remain accessible and exposed for inspection purposes until approved. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of 780 CMR or of other laws or ordinances. Inspections presuming to give authority to violate or cancel the provisions of 780 CMR or of other laws or ordinances shall not be valid. It shall be the duty of the permit applicant to cause the work to remain accessible and exposed for inspection purposes and that all work shall be conducted, installed, protected and completed in a workmanlike and acceptable manner so as to secure the results intended by 780 CMR. Neither the *building official* nor the applicable enforcement authority shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

R110.2 Preliminary Inspection. Before issuing a permit, the *building official* is authorized to examine or cause to be examined buildings, structures and sites for which an application has been filed.

R110.3 Required Inspections. The *building official* shall conduct inspections during construction at intervals sufficient to ensure compliance with the provisions of 780 CMR which may include inspections set forth in sections R110.3.1 through R110.3.10. The *building official* shall inform the applicant of the required points of inspection at the time of permit issuance. The *building official* may designate specific inspection points in the course of construction that require the contractor or builder to give the *building official* one business day notice prior to the time when those inspections need to be performed. The building official shall make the inspection within two business days after notification.

NOTE - Manufacturer's Installation Instructions. Manufacturer's installation instructions shall be available on the job site at the time of inspection when required by the *building official*.

R110.3.1 Footing and Foundation Inspection. Footing and foundation inspections shall be made after excavations for footings are complete and any required reinforcing steel is in place. For concrete foundations, any required forms

shall be in place prior to inspection. Materials for the foundation shall be on the job, except where concrete is ready mixed in accordance with ASTM C 94 the concrete need not be on the job.

R110.3.2 Concrete Slab and Under-floor Inspection. Concrete slab and under-floor inspections shall be made after in-slab or under-floor reinforcing steel and building service equipment, conduit, piping accessories and other ancillary equipment items are in place, but before any concrete is placed or floor sheathing installed, including the subfloor.

R110.3.3 Lowest Floor Elevation. In flood hazard areas, upon placement of the lowest floor, including the basement, and prior to further vertical construction, the elevation certification required by 780 CMR shall be submitted to the *building official.*

R110.3.3.1 Floodplain Inspections. For construction in flood hazard areas as established by Table R301.2(1), upon placement of the lowest floor, including basement, and prior to further vertical construction, the building official shall require submission of documentation, prepared and sealed by a registered design professional, of the elevation of the lowest floor, including basement, required in section R322.

R110.3.4 Frame Inspection. Inspection of framing construction shall be made after the roof, masonry, framing, fire-stopping, draft-stopping and bracing are in place and after the plumbing, mechanical and electrical rough inspections are approved, when required.

R110.3.5 Lath and Gypsum Board Inspection. Lath and gypsum board inspections shall be made after lathing and gypsum board, interior and exterior, is in place, but before any plastering is applied or gypsum board joints and fasteners are taped and finished.

EXCEPTION: Gypsum board that is not part of a fire-resistance-rated assembly or a shear assembly.

R110.3.5.1 Fire-resistance-rated Construction Inspection. Where fire-resistance-rated construction is required between dwelling units or due to location on property, the *building official* shall require an inspection of such construction after lathing or gypsum board or gypsum panel products are in place, but before any plaster is applied, or before board or panel joints and fasteners are taped and finished.

R110.3.6 Fire and Smoke-resistant Penetrations. Protection of joints and penetrations in fire-resistance-rated assemblies, smoke barriers and smoke partitions shall not be concealed from view until inspected and approved.

R110.3.7 Energy Efficiency Inspections. Inspections shall be made to determine compliance with 780 CMR R11.00: *Energy Efficiency* and shall include, but not be limited to, inspections for: envelope insulation R and U values, fenestration U value, duct system R value, and HVAC and water-heating equipment efficiency.

R110.3.8 Other Inspections. In addition to the inspections specified above, the *building official* is authorized to make or require other inspections of any construction work to ascertain compliance with the provisions of 780 CMR and other laws that are enforced by the *building official*.

R110.3.9 Special Inspections. Reserved

R110.3.10 Final Inspection. A final inspection shall be made after the permitted work is complete and prior to occupancy of the building or structure.

R110.3.10.1 Flood Hazard Documentation. If located in a flood hazard area, the documentation of elevations required in section R322.1.10 shall be submitted to the *building official* prior to the final inspection.

R110.4 Inspection Agencies. The *building official* is authorized to accept reports of approved inspection agencies, provided such agencies satisfy the requirements as to qualifications and reliability.

R110.5 Inspection Requests. It shall be the duty of the holder of the building permit or their duly authorized agent to notify the *building official* when work is ready for inspection. It shall be the duty of the permit holder to provide access to and means for inspections of such work that are required by 780 CMR. The *building official* may require the permit holder or his or her representative or the licensed construction supervisor to attend these inspections.

R110.6 Approval Required. Work shall not continue beyond the point indicated in each successive inspection without first obtaining the approval of the *building official*. Upon notification, the *building official* shall make the requested inspections and shall either indicate the portion of the construction that is satisfactory as completed or notify the permit holder or his or her agent wherein the same fails to comply with 780 CMR. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the *building official*.

R110.7 Periodic Inspections of Lodging Houses. Primarily owner occupied One and/or Two Family Dwellings meeting the 780 CMR Chapter 2 definition of "*Lodging House*" used as "*short term rentals*" shall be inspected in accordance with 780 CMR Table 110.7 (see "other R's) by the *building official* for compliance with *R102.8 Maintenance of Existing Buildings and Structures*.
Periodic Inspections of **NON-Primarily Owner Occupied One and/or Two Family Dwellings** meeting the 780 CMR Chapter 2 definition of a "*short term rental*" shall be inspected pursuant to 780 CMR Table 110.7 based on the Use Group designation determined in accordance with 780 CMR Chapter 3.

> *Owner*s shall be responsible for requesting the periodic inspection prior to the expiration of the current Certificate of Inspection. The fee for such inspection shall be set by the municipality.

SECTION 111 CERTIFICATE OF OCCUPANCY AND USE

R111.1 Use and Occupancy. No building or structure shall be used or occupied, and no change in the existing occupancy classification of a building or structure or portion thereof shall be made, until the *Building Commissioner, Inspector of Buildings*, or where applicable, the *State Building Inspector*, has issued a Certificate of Occupancy and Use therefore as provided herein. A *Local Inspector* shall not sign or issue Certificates of Occupancy and Use. Issuance of a Certificate of Occupancy and Use shall not be construed as an approval of a violation of the provisions of 780 CMR or of other laws or ordinances. Conformance to all applicable specialized codes of M.G.L. c. 143, § 96, and, when applicable, submittal of a certificate of compliance for Title Vin accordance with 310 CMR 15.00: *The State Environmental Code, Title 5*, are requirements of the issuance of the Certificate of Occupancy and Use.

> **EXCEPTION:** Certificates of Occupancy and Use are not required for work exempt from permits under section 105.2 or for alterations which do not require a change to the occupancy.

R111.1.1 Buildings or Structures Hereafter Altered. When a building or structure: a.) is changed in whole or in part; b.) altered to change from one use group to another; c.) changed to a different use within the same use group; or d.) increases the maximum live load capacity or the occupancy load capacity: the building or structure shall not be occupied or used until a new Certificate of Occupancy and Use is issued by the *Building Commissioner, Inspector of Buildings*, or where applicable, *State Building Inspector*. The Certificate of Occupancy and Use shall be issued certifying that the work has been completed in accordance with the provisions of the approved permits and of the applicable codes for which the permit is required.

R111.1.2 Certificate of Completion: Work completed under a permit pursuant to 780 CMR that does not trigger a new Certificate of Occupancy and Use, a final inspection shall be performed, and if the work performed is in compliance with the approved application and 780 CMR, a Certificate of Completion may be issued by the Building Official, designating that the work has been completed in accordance with the provisions of the approved permit and no further inspections are necessary.

R111.1.3 Massachusetts Licensed Care Facilities. Certificate of occupancy inspections for Massachusetts licensed care facilities, including, inspection of special building features required by the licensing agency, shall be limited to verifying compliance with the provisions of 780 CMR.

R111.2 Certificate Issued. When a Certificate of Occupancy and Use is required, and after the *building official* inspects the building or structure within their jurisdiction and finds no violations of the provisions of 780 CMR or other laws that are enforced by the *building official*, the *Building Commissioner/Inspector of Buildings*, or where applicable, *State Building Inspector* shall issue a Certificate of Occupancy and Use within ten days. The Certificate shall contain the following:

1. The building permit number.
2. The address of the structure.
3. The name and address of the owner.
4. A description of that portion of the structure for which the certificate is issued.
5. A statement that the described portion of the structure has been inspected for compliance with the requirements of 780 CMR for the occupancy and division of occupancy and the use for which the proposed occupancy is classified.
6. The name of the *Building Commissioner/Inspector of Buildings* or *State Building Inspector*.
7. The edition of the code under which the permit was issued.
8. If an automatic sprinkler system is provided, whether the sprinkler system is required.
9. Any special stipulations and conditions of the building permit.
10. If the facility is licensed by an Agency of the Commonwealth, the name of the Agency and the name and number of any relevant Code of Massachusetts Regulations that apply regarding building features.

R111.3 Temporary Occupancy. The *Building Commissioner/Inspector of Buildings* or where applicable, *State Building Inspector* is authorized to issue a temporary Certificate of Occupancy and Use before the completion of the entire work covered by the permit, provided that such portion or portions shall be occupied safely. The *Building Commissioner/Inspector of Buildings* or where applicable, *State Building Inspector* shall set a time period, not to exceed 180 days, during which the temporary certificate of occupancy is valid. Upon written request from the permit holder, the issuer may extend the temporary occupancy permit for additional 30 day periods or a period at the discretion of, and within the jurisdiction of, the issuing official.

R111.4 Revocation. The *Building Commissioner/Inspector of Buildings* or where applicable, *State Building Inspector* is authorized to, in writing, suspend or revoke a Certificate of Occupancy and Use or Certificate of Completion issued under the provisions of 780 CMR whenever the Certificate is issued in error, or on the basis of incorrect information supplied, or where it is determined that the building or structure or portion thereof is in violation of any ordinance or regulation or any of the provisions of 780 CMR within their jurisdiction.

111.5 Posting – One and Two Family dwellings used as a ***Primarily Owner Occupied Lodging House*** *used as* ***Short Term Rental*** shall be posted for occupancy as noted in this section.

1115.1 Posting of Use and Occupancy. A copy of the periodic Certificate of Inspection shall be posted within one of the five *Guest Rooms*.

111.5.2 Required Egress Posting. A suitably designed placard, approved by the *building official* shall be posted by the owner on all floors having *Short Term Rental Guest Rooms*.
Said placard shall be securely fastened to the building or structure in a readily visible place, showing the means of egress paths per floor and the five *guest rooms* available for use by the short term renters.

111.5.3 – Reserved

111.5.4 Replacement of Posted Signs. Said placard shall be securely fastened to the building or structure in a readily visible place, showing the means of egress paths.

111.5.5 Periodic Posting Inspection. The *building official* may periodically inspect all One and Two Family dwellings units utilized as *Lodging Houses used for Short Term Rentals*, or may accept the report of such inspections from a registered design professional, or others certified by the BBRS; and such inspections and reports shall specify any violation of the posting requirements of 780 CMR.

SECTION 112 SERVICE UTILITIES - Reserved

SECTION 113 APPEALS

R113.1 General. Appeals of orders, decisions, determinations and failures to act made by any state or local agency or any person or state or local agency charged with the administration or enforcement of the state building code or any of its rules and regulations, except the specialized codes of M.G.L. c. 143, § 96, relative to the application and interpretation of 780 CMR shall be addressed by the Building Code Appeals Board in accordance with M.G.L. c. 143, § 100. Applications for filing an appeal shall be in a form acceptable to the Board.

R113.2 Limitations on Authority. Reserved

R113.3 Qualifications. Reserved

R113.4 Local and Regional Boards of Appeals. Pursuant to M.G.L. c. 143, §100, the appeals board may establish a local board of appeals in a city or town or a regional board of appeal for more than two or more cities or towns consisting of not less than three nor more than five members. The appeals board may require as a condition precedent to appeal to the appeals board that said appeal be first heard by such local or regional board of appeals. Such local or regional board of appeals may establish rules for its own procedure and shall have the same powers and duties relative to appeals as the building code appeals board. A copy of any decision by a local board of appeal shall be transmitted to the board within ten days after the rendering of such decision.

> **R113.4.1 Review**. Any person, including the Building Code Appeals Board, aggrieved by a decision of the local board of appeals, whether or not a previous party to the decision, or any municipal officer or official board of the municipality, may, not later than 45 days after the mailing of the decision of the local board, apply to the Building Code Appeals Board for a hearing de novo, in accordance with section R113. All local appeal decisions are to be reviewed by the BBRS.

SECTION 114 VIOLATIONS

R114.1 Unlawful Acts. It shall be unlawful for any person, firm or corporation to erect, construct, alter, extend, repair, move, remove, demolish, occupy, or change the use or occupancy of any building, structure or equipment, or life safety system regulated by 780 CMR, or cause the same to be done, in conflict with or in violation of any of the provisions of 780 CMR.

R114.2 Notice of Violation. The *building official* is authorized to serve a notice of violation or order on the person responsible for the erection, construction, alteration, extension, repair, moving, removal, demolition or occupancy of a building or structure in violation of the provisions of 780 CMR, or in violation of a permit or certificate issued under the provisions of 780 CMR. Such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation.

> **R114.2.1 Notice Service and Content**. The initial notice of violation may be verbal, but shall be in writing within 48 hours. For the purposes of an Appeal, the date of the written notice shall be the official date of service. Every notice or order authorized pursuant to 114.2 shall be in writing and shall be served on the person responsible:
>
> 1. Personally, by any person authorized by the building official;
> 2. By any person authorized to serve civil process by leaving a copy of the order or notice at the responsible party's last and usual place of business or abode;
> 3. By sending the party responsible or his or her agent authorized to accept service of process in the Commonwealth a copy of the order by registered or certified mail return receipt requested, if he or she is within the Commonwealth;
> 4. By electronic means by which receipt can be verified; or
> 5. If the responsible party's last and usual place of business or abode is unknown, by posting a copy of this order or notice in a conspicuous place on or about the premises in violation and by publishing it for at least three out of five consecutive days in one or more newspapers of general circulation wherein the building or premises affected is situated.

R114.3 Enforcement. Violations to 780 CMR shall be enforced in accordance with the applicable provisions of M.G.L. c. 143, M.G.L. c. 148 § 34C, and M.G.L. c. 148A.

R114.4 Violation Penalties. Any person who violates a provision of 780 CMR or fails to comply with any of the requirements thereof or who erects, constructs, alters or repairs a building or structure, or makes a change of use in violation of the approved construction documents or directive of the building official, or of a permit or certificate issued under the provisions of 780 CMR, shall be subject to penalties as prescribed by M.G.L. c. 143, § 94(a), M.G.L c. 148 § 34C, or M.G.L c.148A.

SECTION 115 STOP WORK ORDER

R115.1 Authority. Whenever the *building official* finds any work regulated by 780 CMR being performed in a manner either contrary to the provisions of 780 CMR or dangerous or unsafe, the *building official* is authorized to issue a stop work order.

R115.2 Issuance. The initial stop work order may be verbal, but shall be in writing within 48 hours and shall cite the time and date of the verbal order and be given to the owner of the property involved, or to the owner's agent, or to the person performing the work. Upon issuance of a stop work order, the cited work shall immediately cease. The stop work order shall state the reason for the order, and the conditions under which the cited work will be permitted to resume.

R115.3 Unlawful Continuance. Any person who shall continue any work after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be subject to penalties as prescribed by M.G.L. c. 143, § 94(a). Each day during which a violation exists shall constitute a separate offense.

SECTION 116 UNSAFE STRUCTURES AND EQUIPMENT

R116.1 General. The provisions of this section are established by and work in conjunction with the requirements of M.G.L. c. 143, §§ 6 through 12.

R116.2 Standards for Making Buildings Safe or Secure. Any owner of a building who has been notified that said building shall be made safe or secure under section 116, shall:

1. Remove all materials determined by the head of the fire department or building official to be dangerous in case of fire.
2. Secure all floors accessible from grade utilizing one of the following methods so long as such method is approved by the head of the fire department and building official in writing:
   a. Secure all window and door openings in accordance with the U.S. Fire Administration, National Arson Prevention Initiative Board Up Procedures;
   b. Provide 24 hour watchman services, continuously until such time as the building is reoccupied; or
   c. Provide a monitored intruder alarm system at the perimeter of all floors accessible from grade, continuously until such time as the building is reoccupied.

   Said owner, as the case may be, shall notify the building official that the approved method chosen to secure the building has been incorporated. Said owner shall allow the building official to enter the building for an inspection to ascertain that the building is secured and made safe. Said owner shall allow the head of the fire department to enter the building. The building official shall be supplied with records of maintenance and operation if the provisions of section R116.2 items 2b. or 2c. are used.

3. Maintain any existing fire alarms or sprinkler systems unless written permission is obtained from the head of the fire department in accordance with M.G.L. c. 148, § 27A to shut off or disconnect said alarms or systems.
4. Maintain utilities unless written permission is obtained from the *building official* to disconnect said utilities, a copy of which shall be forwarded to the head of the fire department. Permission to disconnect utilities shall not be granted if it will result in inadequate heat to prevent freezing of an automatic sprinkler system or inadequate utilities to maintain any other protection systems.
5. The requirements of section R116.2 items 1. through 4. do not prevent a *building official* from issuing other orders or taking expeditious, temporary security measures in emergency situations pending the completion of the requirements of section R116.2 items 1 through 4.

For the purposes of section R116, an "emergency situation" shall be defined as: an unexpected incident, which by its very nature may present a threat to public safety personnel who may be required to affect a rescue effort or conduct fire extinguishment operations.

Upon refusal or neglect of said owner to comply with such notice, any *building official* acting under the authority of M.G.L. c. 143, §§ 6 through 12, shall enforce section R116.2 item 2a. or other equivalent procedure approved by the head of the fire department, continuously until such time as the building is reoccupied.

Any building which has been made to conform to the provisions of section R116.2 during vacancy may be reoccupied under its last permitted use and occupancy classification, provided that any systems which were disconnected or shut down during the period of vacancy are restored to fully functional condition and subject to section R105 and M.G.L. c. 40A. The *building official* shall be notified in writing prior to re-occupancy. If said building is changed in use or occupancy or otherwise renovated or altered it shall be subject to the applicable provisions of 780 CMR 34.00: *Existing Building Code*.

R116.3 Marking or Identifying Certain Buildings That Are Especially Unsafe in the Case of Fire. Any building official who determines that a building is especially unsafe in case of fire under section 116 shall notify the head of the fire department about the existence of said building.

CHAPTER 2 DEFINITIONS - AMENDMENTS

R202 Add and/or revise definitions to read as follows:

[RB] BASIC WIND SPEED. Three-second gust speed at 33 feet (10 058 mm) above the ground in Exposure C (see Section R301.2.1) as given in Table R301.2(2).

BUILDING OFFICIAL. The building commissioner/inspector of buildings, local inspector or state building inspector charged with the administration and enforcement of 780 CMR in accordance with M.G.L. c. 143, §§ 3 and 3A.

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 11/2 feet (457 mm). The inland limit of the coastal A zone is (a) the Limit of Moderate Wave Action if delineated on a FIRM, or (b) designated by the authority having jurisdiction.

COASTAL DUNE. A coastal wetland resource area subject to the construction requirements of section R322.4.

COASTAL WETLAND RESOURCE AREA. Any coastal wetland resource area subject to protection under the Wetlands Protection Act, M.G.L. c. 131, § 40, and the Wetlands Protection Act Regulations, 310 CMR 10.21 through 10.35. Coastal wetland resource areas include barrier beaches, coastal beaches, coastal dunes, rocky intertidal shores, tidal flats, land subject to 100 year coastal storm flowage, coastal banks, land containing shellfish, lands subject to tidal action, and lands under an estuary, salt pond or certain streams, ponds, rivers, lakes or creeks within the coastal zone that are anadromous/catadromous fish runs. Coastal wetland resources are shown on a map entitled "Map of Coastal Wetland Resources For Building Officials." Once a coastal wetland resource is identified, coastal dunes within that resource are delineated in accordance with guidance provided on the map.

ELECTRIC VEHICLE SERVICE EQUIPMENT (EVSE) Level -2 (220 - 240V). Equipment expressly designed for the safe charging of battery electric and plug-in hybrid electric vehicles.

JURISDICTION. The Board of Building Regulations and Standards.

LODGING HOUSE. A one-family dwelling with five or fewer guest rooms where one or more occupants are primarily permanent in nature and compensation is provided for the guest rooms. A building licensed as a "lodging house" in accordance with M.G.L. c. 140, §§ 22 through 31 shall comply with 780 CMR requirements according to its appropriate use and occupancy classification.

NATIVE LUMBER. Native lumber is wood processed in the Commonwealth of Massachusetts by a mill registered in accordance with 780 CMR 110.R4: *Registration of Native Lumber Producers*. Such wood is ungraded but is stamped or certified in accordance with the requirements of 780 CMR 110.R4. For the purpose of this definition, native lumber shall be restricted to the use in one- and two-story dwellings, barns, sheds, agricultural and accessory buildings and other structures when permitted by 780 CMR 110.R4.

Add as follows

OFFICIAL INTERPRETATION. A written interpretation made by the BBRS, under authority of M.G.L. c. 143, § 94(e), or by the Building Code Appeals Board under authority of M.G.L. c. 143, § 100, of any provision of 780 CMR, or its referenced standards, except the specialized codes.

Revise the following

REGISTERED DESIGN PROFESSIONAL. An individual who is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the Commonwealth.

Add the following

SPECIALIZED CODES. Codes, rules or regulations pertaining to building construction, reconstruction, alteration, repair or demolition promulgated by and under the authority of various boards authorized by the general court. See M.G.L. c. 143, § 96.

Add the following

STATE BUILDING INSPECTOR. An "inspector" as described in M.G.L. c. 143,§ 3A.

Revise as follows

[RB] WINDBORNE DEBRIS REGION. Areas within *hurricane-prone regions* located in accordance with one of the following:

1. Within 1 mile (1.61 km) of the coastal mean high-water line where the nominal design wind speed, V_{asd} is 130 mph (58 m/s) or greater.

2. In areas where the ultimate design wind speed, V_{ult} is 140 mph (63 m/s) or greater.

NOTE: Values of V_{ult} are found in Table R301.2(2). To convert V_{ult} to V_{asd}, refer to Table R301.2.1.3.

CHAPTER 3 BUILDING PLANNING

Add the following subsection

R301.1.1 Alternative provisions.

4. American Forest and Paper Association ("AF&PA") *Prescriptive Residential Wood Deck Construction Guide* (DCA6). https://awc.org/pdf/codes-standards/publications/dca/AWC-DCA62015-DeckGuide-1804.pdf

Add the following subsection

R301.1.5 Townhouse Buildings Greater than 35,000 ft^3. Such buildings shall require registered design professional services in accordance with 780 CMR 107.6: *Construction Control.*

Replace **TABLE R301.2 CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA with New Table R301.2(1)**

Table 301.2(1) Climatic and Geographic Design Criteria

GROUND SNOW LOAD		Table R301.2(2)
WIND DESIGN	Speed (mph)	Table R301.2(2)
	Topographical effects	NO
	Special wind region	Table R301.2(2), Note 2.
	Windborne debris zone	Any area within a windborne debris region as defined in Chapter 2 of 780 CMR 51.00.
SEISMIC DESIGN CATEGORY		YES
SUBJECT TO DAMAGE FROM	Weathering	Severe
	Frost line depth	48 inches. For frost protected shallow foundations, *see* R403.3.
	Termite	Moderate to heavy
ICE BARRIER UNDERLAYMENT REQUIRED		YES
FLOOD HAZARDS		*See* R322.
AIR FREEZING INDEX	By county	For frost protected shallow foundations, *see* R403.3 and Table R403.3(2).
	Berkshire, Franklin, Hampden and Worcester	2000
	All other counties	1500
MEAN ANNUAL TEMPERATURE		*See* Massachusetts values: https://www.ncdc.noaa.gov/sites/default/files/attachments/Air-Freezing-Index-Return-Periods-and-Associated-Probabilities.pdf

MANUAL J DESIGN CRITERIA **(*See* 2016** **ACCA Manual J** **Table 1a or 1b).**	Elevation	Altitude correction factor (see Table 10A), Coincident wet bulb, Indoor winter design dry-bulb temperature, Indoor winter design dry-bulb temperature, Outdoor winter design dry-bulb temperature, Heating temperature difference.
	Latitude	Daily Range, Indoor summer design relative humidity, Indoor summer design relative humidity, Indoor summer design dry-bulb temperature, Outdoor summer design dry-bulb temperature, Cooling temperature difference.

Add new Table 301.2(2)

Table 301.2(2) SNOW LOADS AND WIND SPEEDS

	SNOW LOADS		
City/Town	**Ground Snow Load, P_g (psf)**	**Minimum Flat Roof Snow Load, P_f[1] (psf)**	**Ultimate Wind Speed, V_{ult} (mph)**
Abington	35	30	123
Acton	50	35	117
Acushnet	30	30	129
Adams[2]	60	40	111
Agawam	35	35	115
Alford	40	40	112
Amesbury	50	30	116
Amherst	40	35	114
Andover	50	30	117
Aquinnah[3] (Gay Head)	25	25	134
Arlington	40	30	119
Ashburnham	60	35	114
Ashby	60	35	114
Ashfield	50	40	112

Ashland	40	35	119
Athol	60	35	113
Attleboro	35	30	124
Auburn	50	35	118
Avon	35	35	123
Ayer	50	35	116
Barnstable[3]	30	25	130
Barre	50	35	115
Becket	60	40	113
Bedford	50	30	118
Belchertown	40	35	115
Bellingham	40	35	121
Belmont	40	30	119
Berkley	30	30	126
Berlin	50	35	117
Bernardston	60	35	112
Beverly	50	30	119
Billerica	50	30	117
Blackstone	40	35	121
Blandford	50	40	114
Bolton	50	35	117
Boston	40	30	120
Bourne	30	25	129
Boxborough	50	35	117
Boxford	50	30	117
Boylston	50	35	117

Braintree	35	30	122
Brewster	25	25	130
Bridgewater	30	30	125
Brimfield	40	35	117
Brockton	35	30	123
Brookfield	50	35	117
Brookline	40	30	120
Buckland	60	40	112
Burlington	50	30	118
Cambridge	40	30	120
Canton	40	35	122
Carlisle	50	30	117
Carver	30	30	127
Charlemont	60	40	112
Charlton	50	35	118
Chatham[3]	25	25	132
Chelmsford	50	30	117
Chelsea	40	30	120
Cheshire	60	40	112
Chester	60	40	113
Chesterfield	50	40	113
Chicopee	35	35	115
Chilmark[3]	25	25	134
Clarksburg[2]	60	40	111
Clinton	50	35	117
Cohasset	35	30	122

Colrain[2]	60	40	112
Concord	50	35	118
Conway	50	40	113
Cummington	60	40	113
Dalton	60	40	112
Danvers	50	30	118
Dartmouth[3]	30	30	129
Dedham	40	35	120
Deerfield	50	35	113
Dennis[3]	30	25	130
Dighton	30	30	126
Douglas	40	35	120
Dover	40	35	120
Dracut	50	30	116
Dudley	50	35	119
Dunstable	50	35	115
Duxbury	30	30	125
E. Bridgewater	35	30	124
E. Brookfield	50	35	117
E. Longmeadow	35	35	116
Eastham	25	25	130
Easthampton	40	35	114
Easton	35	30	123
Edgartown[3]	25	25	134
Egremont	40	40	112
Erving	50	35	113

Essex	50	30	118
Everett	40	30	119
Fairhaven[3]	30	30	130
Fall River	30	30	128
Falmouth[3]	30	25	131
Fitchburg	60	35	115
Florida	60	40	111
Foxborough	35	35	122
Framingham	40	35	119
Franklin	40	35	121
Freetown	30	30	127
Gardner	60	35	114
Georgetown	50	30	117
Gill	50	35	113
Gloucester	50	30	119
Goshen	50	40	113
Gosnold[3]	30	25	132
Grafton	50	35	119
Granby	35	35	114
Granville	50	40	114
Great Barrington	50	40	113
Greenfield	50	35	113
Groton	60	35	116
Groveland	50	30	116
Hadley	40	35	114
Halifax	30	30	125

Hamilton	50	30	118
Hampden	35	35	116
Hancock[2]	50	40	111
Hanover	35	30	124
Hanson	35	30	124
Hardwick	50	35	115
Harvard	50	35	116
Harwich[3]	25	25	131
Hatfield	40	35	114
Haverhill	50	30	116
Hawley	60	40	112
Heath	60	40	112
Hingham	35	30	122
Hinsdale	60	40	112
Holbrook	35	30	123
Holden	50	35	116
Holland	40	35	117
Holliston	40	35	120
Holyoke	35	35	114
Hopedale	40	35	120
Hopkinton	40	35	119
Hubbardston	50	35	115
Hudson	50	35	117
Hull	35	30	122
Huntington	50	40	114
Ipswich	50	30	118

Kingston	30	30	126
Lakeville	30	30	127
Lancaster	50	35	116
Lanesborough[2]	50	40	111
Lawrence	50	30	116
Lee	50	40	112
Leicester	50	35	117
Lenox	50	40	112
Leominster	60	35	115
Leverett	40	35	114
Lexington	40	30	118
Leyden	60	40	112
Lincoln	40	35	118
Littleton	50	35	117
Longmeadow	35	35	116
Lowell	50	30	116
Ludlow	35	35	115
Lunenburg	60	35	115
Lynn	40	30	119
Lynnfield	50	30	118
Malden	40	30	119
Manchester	50	30	119
Mansfield	35	30	123
Marblehead	40	30	119
Marion	30	30	129
Marlborough	50	35	118

Marshfield	35	30	125
Mashpee[3]	30	25	130
Mattapoisett[3]	30	30	130
Maynard	50	35	118
Medfield	40	35	120
Medford	40	30	119
Medway	40	35	120
Melrose	40	30	119
Mendon	40	35	120
Merrimac	50	30	116
Methuen	50	30	116
Middleborough	30	30	126
Middlefield	60	40	113
Middleton	50	30	118
Milford	40	35	120
Millbury	50	35	118
Millis	40	35	120
Millville	40	35	121
Milton	40	30	121
Monroe	60	40	111
Monson	40	35	116
Montague	50	35	113
Monterey	50	40	113
Montgomery	40	40	114
Mount Washington	40	40	113
Nahant	40	30	120

Nantucket[3]	25	25	137
Natick	40	35	119
Needham	40	35	120
New Ashford[2]	50	40	111
New Bedford[3]	30	30	129
New Braintree	50	35	115
New Marlborough	50	40	113
New Salem	50	35	114
Newbury	50	30	116
Newburyport	50	30	116
Newton	40	30	119
Norfolk	40	35	121
North Adams[2]	60	40	111
North Andover	50	30	116
North Attleborough	35	30	123
North Brookfield	50	35	116
North Reading	50	30	118
Northampton	40	35	114
Northborough	50	35	118
Northbridge	40	35	119
Northfield	60	35	112
Norton	35	30	124
Norwell	35	30	123
Norwood	40	35	121
Oak Bluffs[3]	25	25	133
Oakham	50	35	116

Orange	60	35	113
Orleans[3]	25	25	130
Otis	50	40	113
Oxford	50	35	119
Palmer	40	35	116
Paxton	50	35	116
Peabody	50	30	119
Pelham	40	35	114
Pembroke	30	30	124
Pepperell	60	35	115
Peru	60	40	112
Petersham	50	35	114
Phillipston	60	35	114
Pittsfield[2]	50	40	112
Plainfield	60	40	112
Plainville	40	35	123
Plymouth	30	30	127
Plympton	30	30	126
Princeton	50	35	116
Provincetown	25	25	127
Quincy	40	30	121
Randolph	35	30	122
Raynham	35	30	125
Reading	50	30	118
Rehoboth	35	30	125
Revere	40	30	119

Richmond[2]	50	40	112
Rochester	30	30	129
Rockland	35	30	123
Rockport	50	30	119
Rowe	60	40	111
Rowley	50	30	117
Royalston	60	35	113
Russell	40	40	114
Rutland	50	35	116
Salem	50	30	119
Salisbury	50	30	116
Sandisfield	50	40	114
Sandwich	30	25	129
Saugus	40	30	119
Savoy	60	40	112
Scituate	35	30	123
Seekonk	35	30	125
Sharon	35	35	122
Sheffield	40	40	113
Shelburne	50	40	112
Sherborn	40	35	120
Shirley	60	35	116
Shrewsbury	50	35	118
Shutesbury	40	35	114
Somerset	30	30	127
Somerville	40	30	119

South Hadley	35	35	114
Southampton	40	35	114
Southborough	40	35	119
Southbridge	40	35	118
Southwick	40	35	115
Spencer	50	35	117
Springfield	35	35	115
Sterling	50	35	116
Stockbridge	50	40	112
Stoneham	40	30	119
Stoughton	35	35	122
Stow	50	35	117
Sturbridge	40	35	118
Sudbury	40	30	118
Sunderland	40	35	113
Sutton	50	35	119
Swampscott	40	30	119
Swansea	30	30	127
Taunton	35	30	125
Templeton	60	35	114
Tewksbury	50	30	117
Tisbury[3]	25	25	133
Tolland	50	40	114
Topsfield	50	30	118
Townsend	60	35	115
Truro	25	25	128

Tyngsborough	50	30	116
Tyringham	50	40	113
Upton	40	35	119
Uxbridge	40	35	120
Wakefield	50	30	118
Wales	40	35	117
Walpole	40	35	121
Waltham	40	30	119
Ware	40	35	115
Wareham	30	30	129
Warren	40	35	116
Warwick	60	35	113
Washington	60	40	112
Watertown	40	30	119
Wayland	40	35	119
Webster	50	35	119
Wellesley	40	35	119
Wellfleet	25	25	129
Wendell	50	35	113
Wenham	50	30	118
W. Boylston	50	35	117
W. Bridgewater	35	30	124
W. Brookfield	40	35	116
W. Newbury	50	30	116
W. Springfield	35	35	115
W. Stockbridge[2]	40	40	112

W. Tisbury[3]	25	25	133
Westborough	50	35	118
Westfield	40	35	114
Westford	50	35	116
Westhampton	50	40	114
Westminster	60	35	115
Weston	40	35	119
Westport[3]	30	30	128
Westwood	40	35	121
Weymouth	35	30	122
Whately	50	35	113
Whitman	35	30	124
Wilbraham	35	35	115
Williamsburg	50	40	113
Williamstown[2]	50	40	111
Wilmington	50	30	118
Winchendon	60	35	113
Winchester	40	30	119
Windsor	60	40	112
Winthrop	40	30	120
Woburn	50	30	118
Worcester	50	35	117
Worthington	60	40	113
Wrentham	40	35	122
Yarmouth[3]	30	25	131

Note 1: The design flat roof snow load shall be the larger of the calculated flat roof snow load using P_g or the value of P_f[1] listed in this table.

Note 2: Special Wind Region. Specific locations within these municipalities may have conditions that cause higher wind speeds than the tabulated values. See https://asce7hazardtool.online for location specific details for special wind regions in ASCE/SEI 7-16, Risk Category II.

Note 3: Windborne Debris Region. Specific locations within these municipalities may be within a Windborne Debris Region (with V_{ult} 130 mph or more) as defined in 780 CMR R202.0. See https://asce7hazardtool.online for location specific details for windborne debris regions in ASCE/SEI 7-16, Risk Category II.

Revise and replace the first sentence of R301.2.1 Wind design criteria. as follows

> **R301.2.1 Wind design criteria.**
> Buildings and portions thereof shall be constructed in accordance with the wind provisions of this code using the ultimate design wind speed in Table R301.2(1) as determined from Table R301.2(2).

Revise and replace the last sentence of R301.2.1 Wind design criteria. as follows

> Where ultimate design wind speeds in Table R301.2(2) are less than the lowest wind speed indicated in the prescriptive provisions of this code, the lowest wind speed indicated in the prescriptive provisions of this code shall be used.

Revise and replace note "d" of FIGURE R301.2.1 COMPONENT AND CLADDING PRESSURE ZONES as follows.

> **d. See Table R301.2.1(1) for locations of termite infestation probability zones.**

Replace R301.2.1.1 Wind limitations and wind design required as follows.

> **R301.2.1.1 Wind limitations and wind design required.** The wind provision of 780 CMR 51.00 shall not apply to the design of buildings where the ultimate design wind speed, V_{ult} equals or exceeds 140 miles per hour (225 kph). See Table 301.2(2) for wind speeds by city or town.

Exceptions:

1. For concrete construction, the wind provisions of 780 CMR 51.00 shall apply in accordance with the limitations of Sections R404 and R608.
2. For structural insulated panels, the wind provisions of 780 CMR 51.00 shall apply in accordance with the limitations of Section 610.
3. For cold-formed steel *light-frame construction*, the wind provisions of 780 CMR 51.00 shall apply in accordance with the limitations of Sections R505, R603 and R804.

In regions where wind design is required, the design of building for wind loads shall be in accordance with one or more of the following methods:

1. AWC *Wood Frame Construction Manual* (WFCM)
2. ICC *Standard for Residential Construction in High-Wind Regions* (ICC 600).
3. ASCE *Minimum Design Loads for Buildings and Other Structures* (ASCE 7).
4. AISI *Standard for Cold-Formed Steel Framing—Prescriptive Method for One-and-Two Family Dwellings* (AISI S230).

5. *International Building Code.*

The elements of design not addressed by the methods in items 1 through 5 shall be in accordance with 780 CMR.

Where ASCE 7 or the *International Building Code* is used for the design of the building, the wind speeds/map and exposure category requirements as specified in ASCE 7 and the *International Building Code* shall be used.

Delete all of section R301.2.1.5 Topographic wind effects.

Delete all of section R301.2.1.5.1 Simplified topographic wind speed-up method.

Delete TABLE R301.2.1.5.1 - ULTIMATE DESIGN WIND SPEED MODIFICATION FOR TOPOGRAPHIC WIND EFFECT

Replace section R301.2.4 Floodplain Construction as follows

> **R301.2.4 Floodplain Construction.** Buildings and structures constructed in whole or in part in flood hazard areas (including 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.

Revise section R302.1 Exterior walls by deleting "Section P2904" and replacing with "NFPA 13D".

Revise TABLE R302.1(2) EXTERIOR WALLS—DWELLINGS WITH FIRE SPRINKLERS Note "a" by deleting "Section P2904" and replacing with "NFPA 13D".

Revise section R302.2.2 Common walls by deleting "Chapters 34 through 43" and replacing with "527 CMR 12:00"

Revise section R302.2.2 Common walls Item #1 by deleting "Section P2904" and replacing with "NFPA 13, NFPA 13R or NFPA 13D".

Revise section R302.2.2 Common walls Item #2 by deleting "Section P2904" and replacing with "NFPA 13, NFPA 13R or NFPA 13D".

Revise section R302.13 Fire protection of floors - Exceptions: #1 by deleting "Section P2904" and replacing with "NFPA 13, NFPA 13R or "

Revise section R302.14 Combustible insulation clearance – after "fan motors" – insert "knob and tube wiring"

Replace section R303.3 Bathrooms as follows

> **R303.3 Bathrooms. Mechanical ventilation in accordance with Section M1505 is required for all bathrooms, water closet compartments and similar rooms with a shower or bathtub and such rooms with a toilet. Exhaust air from the space shall be exhausted directly to the outdoors.**

Delete R303.3 Bathrooms. - Exception

Replace section R305.1 Minimum Height as follows

R305.1 Minimum Height. *Habitable* space and hallways shall have a ceiling height of not less than 7 feet (2134 mm). Bathrooms, toilet rooms, laundry rooms, hallways in *basements* and *habitable* space in *basements* shall have a ceiling height of not less than 6 feet, 8 inches (2032 mm).

Revise section R307.1 Space Required to read:

> **Fixtures shall be spaced in accordance with Figure R307.1, and in accordance with the requirements 248 CMR 10.00**

Add after the last sentence of R308.1 Identification – "*See* also M.G.L. c. 143, §§ 3T, 3U and 3V."

Delete R308.1 Identification - Exceptions #1 and #2.

Delete section "R309.3 Flood hazard areas" and replace as follows:

R309.3 Flood Hazard Areas. For buildings located in flood hazard areas, as established by section R322.1.1. garage floors shall be:

1. Elevated to or above the design flood elevation as determined in accordance with section R322.2; or
2. Located below the design flood elevation provided that the floors are at or above grade on not less than one side, are used solely for parking, building access or storage, meet the requirements of section R322.2 and are otherwise constructed in accordance with 780 CMR 51.00: *Massachusetts Residential Code*.

Revise section R309.5 Fire sprinklers by deleting "Section P2904" and adding "NFPA 13, NFPA 13R or NFPA 13D"

Revise section R310.1 Emergency escape and rescue opening required – Exception #2 by deleting "Section P2904" and adding "NFPA 13, NFPA 13R or NFPA 13D."

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Adding Exception #2 to R310.2.1 Minimum size as follows:

2. Single-hung and/or double-hung windows shall have a minimum net clear opening of 3.3 ft^2 (0.31 m^2).

Adding an Exception to R310.2.2 Minimum dimensions as follows:

> **Exception:** Single-hung and/or double-hung windows shall have minimum net clear opening dimensions shall be 20 inches (508 mm) by 24 inches (610 mm) in either direction.

Adding an Exception to R310.7.1 Existing emergency escape and rescue openings Item #1 as follows:

> **Exception:** An existing operable, single-hung or double-hung window shall provide a minimum net clear opening of 3.3 ft^2 (0.31 m^2) with minimum net clear opening dimensions of 20 inches (508 mm) by 24 inches (610 mm) in either direction.

Revise and replace section R311.1: Means of Egress as follows:

> **R311.1: Means of Egress:** *Dwelling units* shall be provided with a primary and secondary means of egress in accordance with this section. Each means of egress shall provide a continuous and unobstructed path of vertical and horizontal travel from all portions of the *dwelling unit* to the egress doors. The primary means of egress shall not require travel through a garage but the secondary means of egress may. The required egress doors shall open directly into a *public way* or to a *yard* or court that opens to a *public way*.

Revise and replace section R311.2: Egress Doors as follows:

R311.2: Egress Doors: A primary and secondary egress door shall be provided for each dwelling unit and shall be as remote as possible from each other. The primary egress door shall be side-hinged and shall provide a clear width of not less than 32 inches (813 mm) where measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). The secondary egress door shall be side-hinged or sliding, and for side-hinged secondary egress doors shall provide a clear width of not less than 28 inches (711 mm) where measured between the face of the door and the stop with the door open 90 degrees (1.57 rad). Sliding secondary egress door clear width may be slightly less than 28 inches (711 mm) to conform to industry fabrication standards. The clear height of secondary egress door openings shall not be less than 78 inches (1,981 mm) in height measured from the top of the threshold to the bottom of the stop. Other exterior doors shall not be required to comply with these minimum dimensions. Egress doors shall be capable of being readily opened from the inside of the dwelling without the use of a key or special knowledge or effort.

Add section R311.2.1 as follows:

R311.2.1 Interior Doors. All doors providing access to habitable rooms shall have a minimum nominal width of 30 inches (762 mm) and a minimum nominal height of 78 inches (1,981 mm).

Exceptions:

1. **Doors providing access to bathrooms are permitted to be 28 inches (711 mm) in nominal width.**
2. **Doors providing access to bathrooms in existing buildings are permitted to be 24 inches (610 mm) in nominal width.**

Revise and replace section R311.3.1 Floor elevations at the required egress doors – Exception as follows:

Exception: The landing or floor on the exterior side shall be not more than 8 ¼ inches (210 mm) below the top of the threshold provided that the door does not swing over the landing or floor.

Revise and replace section R311.3.2 Floor elevations at other exterior doors as follows

R311.3.2 Floor elevations. Doors other than the required egress door shall be provided with landings or floors not more than 8 ¼ inches (210 mm) below the top of the threshold.

Revise and replace the first sentence in R311.7.5.1 Risers as follows:

R311.7.5.1 Risers. The *riser* height shall be not more than 8 ¼ inches (210 mm).

Revise and replace the first sentence in R311.7.5.2 Treads as follows:

R311.7.5.2 Treads. The tread depth shall not be less than 9 inches (229mm).

Revise and replace section R311.7.5.2.1 Winder treads as follows:

R311.7.5.2.1 Winder treads. *Winder* treads shall have a tread depth of not less than 9 inches (229 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline. *Winder* treads shall have a tread depth of not less than 3 inches (76 mm) at any point within the clear width of the *stair*. Within any flight of stairs, the largest *winder* tread depth at the walkline shall not exceed the smallest *winder* tread by more than 3/8 inch (9.5 mm). Consistently shaped *winders* at the walkline shall be allowed within the same

flight of stairs as rectangular treads and shall not be required to be within 3/8 inch (9.5 mm) of the rectangular tread depth.

Revise and replace section as follows:

R313.1 Townhouse automatic sprinkler systems. Automatic sprinkler systems for *townhouses* shall be designed and installed in accordance with NFPA 13, NFPA 13R or NFPA 13D, as applicable:

1. A *townhouse* with an aggregate area of 12,000 ft^2, or more, shall be provided with an NFPA 13 system.

2. A *townhouse* with an aggregate area of less than 12,000 ft^2 shall be permitted to use an NFPA 13R system.

   Exception: A *townhouse* consisting of only three *townhouse units* with an aggregate area of less than 12,000 ft^2 shall be permitted to use an NFPA 13D system.

For the purposes of this subsection, the aggregate area shall be the combined area of all stories of the *townhouse* and *firewalls* shall not be considered to create separate buildings. Aggregate area shall include garage areas, basement areas and finished *habitable attic* areas. Unfinished *habitable attic* areas, *attic* areas and *crawlspace* areas shall not be included in the aggregate area.

Exception: An automatic sprinkler system shall not be required where *additions* or *alterations* are made to existing *townhouses* that do not have an automatic sprinkler system installed.

Revise and replace section R313.2 One- and two-family dwellings automatic sprinkler systems as follows:

R313.2 One- and two-family dwellings automatic sprinkler systems. Primarily owner occupied one- and two-family *dwellings* and accessory spaces newly constructed as *short term rental lodging houses* and primarily owner occupied one- and two-family *dwellings* and accessory spaces which began being used as *short term rental lodging houses* on or after October 17, 2017, shall be equipped with an automatic sprinkler system installed in accordance with NFPA 13D.

Note: Non-primarily owner occupied one and two-family *dwellings* shall meet the requirements of 780 CMR based on the use classification determined in accordance with 780 CMR Chapter 3.

Revise and replace section 313.2.1 Design and installation as follows:

313.2.1 One and two-family dwellings with an aggregate area greater than 14,400 ft^2, shall be equipped with an automatic sprinkler system installed in accordance with NFPA 13D. For the purposes of this section, aggregate area shall include the combined area of all stories of the building, basement areas and finished *habitable attic* areas. Garages, unfinished *habitable attic* areas, *attic* areas and *crawlspaces* shall not be included in the aggregate area.

Exception: An automatic sprinkler system shall not be required where *additions* or *alterations* are made to existing one- or two-family *dwellings* having an aggregate area greater than 14,400 ft^2 that are not already provided with an automatic sprinkler system. Aggregate area for the purposes of this exception shall be as described in R313.2 and shall include the addition or alteration area in the calculation.

Revise and replace section R314.1.1 Listings as follows:

R314.1.1 Listings. Smoke alarms shall be *listed* photoelectric type in accordance with UL 217. Combination smoke and carbon monoxide alarms shall be *listed* in accordance with UL 217 and UL 2034 (smoke alarm shall be photoelectric type).

Revise and replace section R314.2.2 Alterations, repairs and additions as follows"

R314.2.2 Alterations, repairs and additions. See Appendix J.

Add Item # 6 and 7 to section R314.3 Location as follows:

6. Near the base of all stairs, but not within the stairway.

7. For each 1,000 ft of area or part thereof.

Revise and replace section R314.3.1 as follows:

R314.3.1 RESERVED

Revise and replace section R314.5 as follows:

R314.5 Combination Alarms. Combination smoke and carbon monoxide alarms shall be permitted to be used in *lieu* of smoke alarms and shall be interconnected such that fire alarms have precedence over carbon monoxide alarms in accordance with the requirements of NFPA 72.

Delete Exception #2 in section R314.6 Power source.

Revise and replace section R314.7.4 Combination detectors as follows:

R314.7.4 Combination detectors. Combination smoke and carbon monoxide detectors shall be permitted to be installed in fire alarm systems in lieu of smoke detectors, provided that they are *listed* in accordance with UL 268 and UL 2075. The fire alarm control panel battery shall serve as the source of secondary power for wireless systems.

Add section R314.8 Heat detector as follows:

R314.8 Heat detector. A single heat detector listed for the ambient environment shall be installed in:

1. Any garage attached to or under the dwelling (detached garages do not require a heat detector).

2. A new garage attached to an existing dwelling. If the existing dwelling contains a fire detection system that is compatible with the garage heat detector, then the detector shall be interconnected to that system. Where the existing fire detection system is not compatible with the garage heat detector, the garage heat detector shall be connected to an alarm (audible occupant notification), or compatible heat detector with an alarm, located in the dwelling and within 20 feet (6096 mm) of the nearest door to the garage from the dwelling. An alarm is not required in the garage, either integral with or separate from the heat detector.

Add section R314.8.1 Heat Detector Placement as follows:

R314.8.1 Heat Detector Placement. For flat-finished ceilings, the heat detector shall be placed on or near the center of the garage ceiling. For sloped ceilings having a rise to run of greater than one foot in eight feet (305 mm in 2438 mm), the heat detector shall be placed in the approximate center of the vaulted ceiling but no closer than 4 inches (102 mm) to any wall. Heat detection shall be listed in accordance with UL 521 or UL 539.

Add section R314.9 Common Areas as follows:

R314.9 Common Areas. In all buildings that are not protected with sprinklers, each unit shall have additional interconnected smoke detectors on the stairway side of all doors leading to common interior stairways. If there is a common basement, a separate interconnected system of smoke detectors, including smoke detectors on the stairway side of all doors leading to interior stairways, shall be provided to the basement level only.

Revise and replace section R315.1 General as follows:

R315.1 General. Carbon monoxide alarms shall comply with Section R315, 248 CMR, NFPA 72 and the manufacturer's instructions.

Revise and replace section R315.1.1 Listings as follows:

> **R315.1.1 Listings.** Carbon monoxide alarms shall be *listed* in accordance with UL 2034 and UL 2075. Combination carbon monoxide and smoke alarms shall be *listed* in accordance with UL 217 and UL 2034.

Revise and replace section R315.2.2 Alterations, Repairs and Additions as follows:

> **R315.2.2 Alterations, Repairs and Additions:** *See* Appendix J**.**

Revise and replace section R315.3 Location as follows:

R315.3 Location. Carbon monoxide alarms in *dwelling units* shall be installed outside of each separate sleeping area within 10 feet of the bedrooms. Where a fuel-burning *appliance* is located within a bedroom or its attached bathroom, a carbon monoxide alarm shall be installed within the bedroom. At least one carbon monoxide alarm shall be installed on each story of a dwelling unit, including basements and cellars but not crawl spaces and uninhabitable attics.

Revise and replace section 315.4 Combination alarms as follows:

315.4 Combination alarms. Combination carbon monoxide and smoke alarms (in compliance with Section 314) shall be permitted to be used in lieu of carbon monoxide alarms, located as in R315.3, provided they are compatible and the smoke alarms take precedence.

Delete the "Exception" to section R315.5 Interconnectivity.

Add a last sentence to section R315.6 Power source as follows:

> **Alarms may also be part of a low voltage or wireless system with standby power from monitored batteries in accordance with NFPA 72.**

Delete Exception #2 from section R315.6 Power source.

Revise and replace section R319.1 Address Identification as follows:

R319.1 Address Identification. *See* M.G.L. c. 148, § 59 and applicable provisions of 527 CMR: *Board of Fire Prevention Regulations.* Local ordinances or bylaws may also be applicable.

Revise and replace section R320.1 Scope For townhouses as follows"

R320.1 Scope. For townhouses, *see* 521 CMR: *Architectural Access Board.*

Revise and replace section R320.2 Live/work units as follows:

R320.2 Live/work units. In *live/work units*, the non-residential portion shall be subject to 521 CMR: *Architectural Access Board.*

Revise and replace section R321.1 Elevators as follows:

R321.1 Elevators. Where provided, passenger elevators, limited-use and limited-application elevators or private residence elevators shall comply with ASME A17.1/CSA B44 524 CMR: *Board of Elevator Regulations*.

Revise and replace section R321.2 Platform Lifts as follows:

R321.2 Platform lifts. Where provided, platform lifts shall comply with ASME A18.1 524 CMR: *Board of Elevator Regulations.*

Revise and replace section R321.3 Accessibly as follows:

R321.3 Accessibility. Elevators or platform lifts that are part of an accessible route required by Chapter 11 of the *International Building Code*, shall comply with ICC A117.1 780 CMR 11.00: *Accessibility* shall comply with 524 CMR: *Board of Elevator Regulations*.

SECTION R322 FLOOD-RESISTANT CONSTRUCTION

Revise and replace section R322 General 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 as modified in this code. 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;
3. Coastal A Zones and;
4. V zones, where high velocity wave action exists and wave heights are greater than or equal to three feet.

The construction documents shall include documentation that is prepared and sealed by a registered design professional that the design and methods of construction to be used meet the applicable criteria of this section.

Revise and replace section R322.1.1 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 wetlands resource areas are defined on the "Map of Coastal Wetland Resources for Building Officials."

Revise section R322.1.1 Alternative provisions to read – "Reserved".

Revise and replace section 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 two feet or the elevation of the highest adjacent grade plus four 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 two feet. See section R322.2 for requirements.

3. For V Zones and coastal A zones, the design flood elevation shall be the base flood elevation plus three feet. See section R322.3 for requirements.

4. For coastal dunes, see section R322.5 for requirements.

Revise and replace section R322.1.5 Lowest Floor as follows:

R322.1.5 Lowest Floor and Basement. The lowest floor shall be the lowest floor of the lowest enclosed area, including basement, and excluding any unfinished flood-resistant enclosure that is useable solely for vehicle parking, building access or limited storage provided that such enclosure is not built so as to render the building or structure in violation of this section. A basement is the portion of a building, including crawl spaces, having its floor below exterior grade on all sides. This definition of "basement" is limited in application to the provisions of section R322.

Revise and replace section R322.1.6 as follows:

R322.1.6 Protection of Mechanical, Plumbing and Electrical Systems. Electrical systems, equipment and components; heating, ventilating, air conditioning; plumbing appliances and plumbing fixtures; duct systems; and other service equipment shall be located at or above the elevation required in section R322.2, R322.3 or R322.4. If replaced as part of a substantial improvement, electrical systems, equipment and components; heating, ventilating, air conditioning and plumbing appliances and plumbing fixtures; duct systems; and other service equipment shall meet the requirements of this section. Systems, fixtures, and equipment and components shall not be mounted on or penetrate through walls intended to break away under flood loads.

EXCEPTION: Locating electrical systems, equipment and components; heating, ventilating, air conditioning; plumbing appliances and plumbing fixtures; duct systems; and other service equipment only within flood hazard areas including A and AO Zones is permitted below the elevation required in section R322.2 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 the design flood elevation in accordance with ASCE 24. Electrical wiring systems are permitted to be located below the required elevation provided that they conform to the provisions of the electrical part of 780 CMR 51.00: *Massachusetts Residential Code* for wet locations.

Revise and replace section R322.1.9 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.

Revise and replace section R322.2.1 as follows:

R322.2.1 Elevation requirements.

1. Buildings and structures in flood hazard areas, not including flood hazard areas designated as Coastal A Zones, shall have the lowest floors elevated to or above the base flood elevation 2 feet or the design flood elevation, whichever is higher.

2. In areas of shallow flooding (AO Zones), buildings and structures shall have the lowest floor (including basement) elevated to a height above the highest adjacent grade of not less than the depth number specified in feet (mm) on the FIRM plus 1 foot (305 mm), or not less than 3 feet (915 mm) if a depth number is not specified.

3. Basement floors that are below grade on all sides shall be elevated to or above base flood elevation 2 feet or the design flood elevation, whichever is higher.

4. Garage and carport floors shall comply with one of the following:

4.1. They shall be elevated to or above the elevations required in Item 1 or Item 2, as applicable.

4.2. They shall be at or above grade on not less than one side. Where a garage or carport is enclosed by walls, the garage or carport shall be used solely for parking, building access or storage.

Exception: Enclosed areas below the elevation required in this section, including basements with floors that are not below grade on all sides, shall meet the requirements of Section R322.2.2.

Revise and replace section R322.2 as follows:

R322.2 Flood Hazard Areas (Including A and AO Zones). Buildings and structures constructed in whole or in part in A and AO Zones shall be designed and constructed in accordance with sections R322.2.1 through R322.2.3.

Revise and replace section R322.2.2 as follows:

R322.2.2 Enclosed Area Below Design Flood Elevation. Enclosed areas, including crawl spaces, that are below the design flood elevation and are not basements shall:

1. Be used solely for parking of vehicles, building access or storage.

2. Be provided with flood openings that meet the following criteria and are installed in accordance with section R322.2.2.1:

2.1. The total net area of openings shall be not less than one in^2 (645 mm^2) for each ft^2 (0.093 m^2) of enclosed area where the enclosed area is measured on the exterior of the enclosure walls, or the openings shall be designed as engineered openings and the construction documents shall include a statement by a registered design professional that the design of the openings will provide for equalization of hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of floodwaters as specified in section 2.6.2.2 of ASCE 24.

2.2. Openings shall be not less than three inches (76 mm) in any direction in the plane of the wall.

2.3 The presence of louvers, blades, screens and faceplates or other covers and devices shall allow the automatic flow of floodwater into and out of the enclosed areas and shall be accounted for in the determination of the net open area.

Revise and replace section R322.3.2 as follows:

R322.3.2 Elevation Requirements.

1. Buildings and structures erected within coastal high-hazard areas and Coastal A Zones 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 or above the base flood elevation plus 3 foot or the design flood elevation, whichever is higher.

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 and coastal A 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.

Revise and replace section R322.3.3 Foundations as follows:

R322.3.3 Foundations. Buildings and structures erected in coastal high-hazard areas and 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 R322.3.5. 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. Wind-loading values shall be those required by 780 CMR 51.00: *Massachusetts Residential 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 R322.3.9. 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 that 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.

Revise and replace section R322.3.5 as follows:

R322.3.5 Walls Below Design Flood Elevation. Walls and partitions are permitted below the elevated floor, provided that such walls and partitions are not part of the structural support of the building or structure and:

1. Electrical, mechanical and plumbing system components are not to be mounted on or penetrate through walls that are designed to break away under flood loads; and

2. Are constructed with insect screening or open lattice; or

3. Are designed to break away or collapse without causing collapse, displacement or other structural damage to the elevated portion of the building or supporting foundation system. Such walls, framing and connections shall have a resistance of not less than ten lbs. per ft^2 (479 Pa) and not more than 20 lbs. per ft^2 (958 Pa) as determined using allowable stress design; or

4. Where wind loading values of 780 CMR 51.00: *Massachusetts Residential Code* exceed 20 lbs. per ft^2 (958 Pa), the construction documents shall include documentation prepared and sealed by a registered design professional that:

   4.1 The walls and partitions below the design flood elevation have been designed to collapse from a water load less than that which would occur during the base flood.

   4.2 The elevated portion of the building and supporting foundation system have been designed to withstand the effects of wind and flood loads acting simultaneously on structural and nonstructural building components. Water-loading values used shall be those associated with the design flood. Wind-loading values shall be those required by 780 CMR 51.00: *Massachusetts Residential Code*; or

5. Walls intended to break away under flood loads as specified in Item 3 or 4 have flood openings that meet the criteria in section R322.2.2, Item 2.

Add section R322.4 Coastal Dunes as follows:

R322.4 Coastal Dunes. Buildings or structures constructed in whole or in part in coastal dunes shall be designed and constructed in accordance with sections R322.4.1 through R322.4.6.

Add section R322.4.1 Construction Documents as follows:

R322.4.1 Construction Documents. For buildings and structures, including new or replacement manufactured homes, lateral additions, foundations that are replaced in total or repaired so as to constitute substantial repair of a foundation, or substantial repair or improvement of a building or structure that has incurred substantial damage as a

result of flooding and/or storms, proposed on a parcel of land that is located wholly or partially within a coastal wetland resource area shown on the map entitled "Map of Coastal Wetland Resources For Building Officials," the building official shall require submission of one of the construction documents specified in section R322.4.1 (a) through (d) along with a notarized statement by the applicant that the order, determination or notice is in effect and is not the subject of any administrative appeals before the Department of Environmental Protection or the Division of Administrative Law Appeals. No building permit shall be issued unless and until a construction document that conforms to the requirements of this section is submitted. Note; Map of Coastal Wetland Resources For Building Officials are available through CZM or DCR Flood Hazard Management program.

a. An order of conditions establishing the boundaries of all coastal wetland resource areas in a plan referenced in and accompanying the order. The order shall determine whether the coastal wetland resource areas are significant to any of the interests identified in the Wetlands Protection Act, M.G.L. c. 131, § 40 including the interests of flood control and storm damage prevention. If the order indicates that the proposed construction work is located within a coastal dune that is significant to the interests of flood control and/or storm damage prevention, the order of conditions shall allow the proposed construction.

b. An order of resource area delineation stating that the proposed construction work is outside the boundaries of all coastal wetland resource areas as shown on a plan referenced in and accompanying the order.

c. A determination of applicability stating that the proposed construction work is outside the boundaries of all coastal wetland resource areas as shown on a plan referenced in and accompanying the determination or will not fill, dredge or alter a coastal wetland resource area.

d. A notice of non-significance evidencing that the proposed construction work is within a coastal wetland resource area as shown on a plan referenced in and accompanying the notice and stating that the coastal wetland resource area is not significant to any of the interests identified in M.G.L. c. 131, § 40: Removal, Fill, Dredging or Altering of Land Bordering Waters (the Wetlands Protection Act).

Add section R322.4.2 Structural Elevation as follows:

R322.4.2 Structural Elevation. The elevation of the bottom of the lowest horizontal structural member, as required by the lowest floor elevation inspection in subsection R110.3.3.1 shall be submitted.

Add section R322.4.3 Additional Documentation as follows:

R322.4.3 Additional Documentation. Documentation for buildings located in more than one zone shall meet the requirements of all zones.

Add section R322.4.4 as follows:

R322.4.4 Elevation Requirements. For new buildings and structures, new foundations, replacement or substantial repair of a foundation, or repair of a substantially damaged structure where damage is the result of a storm or flooding the entire structure shall be elevated so that the bottom of the lowest horizontal structural member of the lowest floor with the exception of pilings or pile caps or lateral bracing elements is located above the Design Flood Elevation, or at the elevation required by the order of conditions of the local conservation commission in accordance with the Wetlands Protection Act, M.G.L. c. 131, § 40: Removal, Fill, Dredging or Altering Land Bordering Waters (the Wetland Protection Act) and Wetlands Protection Regulations, 310 CMR 10.21 through 10.35: *Additional Regulations for Coastal Wetlands,* but no less than two feet above the adjacent grade. For lateral additions 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 or pile caps or lateral bracing elements is located above the Design Flood Elevation, or is located at the elevation required by the order of conditions of the local

conservation commission in accordance with M.G.L. c. 131, § 40 and Wetlands Protection Regulations, 310 CMR 10.21 through 10.35 but no less than two feet above the adjacent grade. Enclosures are not permitted below the lowest horizontal structural member of the lowest floor.

Add section R322.4.5 Foundations as follows:

R322.4.5 Foundations. Anchorage of buildings and structures shall be designed and connected to resist flotation, collapse or permanent lateral movement due to structural loads and stresses from flooding equal to the base flood. Foundations for work meeting the elevation requirements of section R322.4.4 shall consist of open pilings and lateral bracing elements, without at grade horizontal elements such as footings, grade beams or slabs that would otherwise impede to allow the movement of the dune.

Exception: Where surface or subsurface conditions consist of non-erodible soil that prevents the use of pile foundations, spread footings or mat foundations may be permitted. Such foundations shall be anchored to prevent sliding, uplift or overturning of the footing and the non-erodible soil it is attached to and be designed to withstand any combination of loads. No other use of alternate materials, design and methods of construction and equipment as described in R104.11 is permitted.

Add section R322.4.6 as follows:

R322.4.6 Enclosed Areas Below Design Flood Elevation. Enclosures are not permitted below the lowest horizontal structural member of the lowest floor.

Revise and replace section R324.3 as follows:

R324.3 Photovoltaic systems. Photovoltaic (PV) systems shall be designed and installed in accordance with Sections R324.3.1 through R324.7.1 and the manufacturer's installation instructions. The electrical portion of solar PV systems shall be designed and installed in accordance with 527 CMR 12:00 *Massachusetts Electrical Code* .

Revise and replace section R324.6.2.1 as follows:

R324.6.2.1 Alternative setback at ridge. Where an automatic sprinkler system is installed within the dwelling in accordance with NFPA 13D, setbacks at ridges shall comply with one of the following:

Revise and replace section R326.3 Item 1.2 as follows:

Item #1.2 Not greater than one-half of the floor area of the story below where the habitable attic is located within a dwelling unit equipped with a fire sprinkler system in accordance with NFPA 13, 13R or 13D.

Revise and replace section R326.3 Item #4 as follows:

Item #4 Where a habitable attic is located above a third story, the dwelling unit or townhouse unit shall be equipped with a fire sprinkler system in accordance with NFPA 13, 13R or 13D.

Revise and replace section R327.1 General as follows:

R327.1 General. The design and construction of pools and spas shall comply with the *International Swimming Pool and Spa Code* and the following notes:

Notes:

1. Installation of electrical wiring and electrical devices shall be in accordance with 527 CMR 12:00 *Massachusetts Electrical Code, Board of Fire Prevention Regulations.*

2. Installation of gas-fired pool heaters shall be in accordance with 248 CMR: *Massachusetts Plumbing and Gas Code, Board of State Examiners of Plumbers and Gas Fitters.*

SECTION R328 ENERGY STORAGE SYSTEMS

Revise and replace the entirety of Section R328 as follows:

R328.1 General. Where a building will be constructed or modified for the installation of *energy storage systems (ESS)* the impact of work regulated by the specialized codes of M.G.L. c. 143, § 96 and other codes and regulations on work governed by 780 CMR and within the jurisdiction of the building official, shall be subject to permitting, inspection and approval by the building official.

R328.2 Electrical installation. *ESS* shall be installed in accordance with 527 CMR 12.00.

R328.3 Fire detection. Where ESS is installed in *dwelling units*, basements and attached garages and structures, the *dwelling unit* and building shall be protected by smoke alarms, where required, in accordance with Section R314. Carbon monoxide protection, where required, shall be provided in accordance with R315.

R328.3.1 Where ESS is installed in an existing building, fire detection shall be provided throughout the building in accordance with AJ102.3.

R328.4 Ventilation. Indoor installations of *ESS* that produce hydrogen or other flammable gases during charging shall be provided with mechanical *ventilation* in accordance with 780 CMR 51.00 M1307.4.

Revise and replace section R329.2 Installation as follows:

R329.2 Installation. The installation of stationary engine generators shall be in an *approved* location and in accordance with the listing, the manufacturer's installation instructions and 527 CMR 12:00 *Massachusetts Electrical Code, Board of Fire Prevention Regulations.*

SECTION R330 STATIONARY FUEL CELL POWER SYSTEMS

Revise and replace section R330.1 General as follow:

R330.1 General. *Stationary fuel cell power systems* in new and existing buildings and structures shall comply with 527 CMR 12:00, *Massachusetts Electrical Code, Board of Fire Prevention Regulations,* 248 CMR: *Massachusetts Plumbing and Gas Code, Board of State Examiners of Plumbers and Gas Fitters and 527 CMR Massachusetts Fire Prevention Regulations, Board of Fire Prevention Regulations,* as applicable.

CHAPTER R4 FOUNDATIONS - AMENDMENTS

Revise and replace section R401.3 Drainage as follows:

R401.3 Drainage. Surface drainage shall be diverted to a storm sewer conveyance or other *approved* point of collection that does not create a hazard. *Lots* shall be graded to drain surface water away from foundation walls. The *grade* shall fall not fewer than 6 inches (152 mm) within the first 10 feet (3048 mm). Temporary and finished grading shall not direct or create flooding or damage to adjacent property during or after completion of construction.

Revise and replace section R401.4.1 Geotechnical evaluation as follows:

> **R401.4.1 Geotechnical evaluation.** In lieu of a complete geotechnical evaluation, the load-bearing values in Table R401.4.1 or 780CMR Table 1806.2A shall be assumed.

Revise and replace section R402.2 Concrete as follows:

R402.2 Concrete. Concrete shall have a minimum specified compressive strength of *f'c*, as shown in Table R402.2. Concrete subject to moderate or severe weathering as indicated in Table R301.2(1) shall be air entrained as specified in Table R402.2. The maximum weight of fly ash, other pozzolans, silica fume, slag or blended cements that is included in concrete mixtures for garage floor slabs and for exterior porches, carport slabs and steps that will be exposed to deicing chemicals shall not exceed the percentages of the total weight of cementitious materials specified in Section 19.3.3.4 of ACI 318. Materials used to produce concrete and testing thereof shall comply with the applicable standards listed in Chapters 19 and 20 of ACI 318 or ACI 332.

Revise and replace section R403.1 General as follows:

R403.1 General. All exterior walls shall be supported on continuous solid or fully grouted masonry or concrete footings, crushed stone footings, wood foundations, or other *approved* structural systems that shall be of sufficient design to accommodate all loads according to Section R301 and to transmit the resulting loads to the soil within the limitations as determined from the character of the soil. Footings shall be supported on undisturbed natural soils, compacted fill not more than 12 inches (305 mm) in depth, provided that the fill is adequately compacted using appropriate mechanical means or engineered fill. Concrete footing shall be designed and constructed in accordance with the provisions of Section R403 or in accordance with ACI 332.

Delete "or R403.1.3" from the first sentence of R403.1.1 Minimum size.

Add new subsection R403.1.2 as follows:

> **R403.1.2 Isolated concrete footings.** In detached one- and two-family dwellings that are three *stories* or less in height and constructed with stud bearing walls, isolated plain concrete footings supporting columns or pedestals are permitted.

Revise and replace section R404.1.7 as follows:

> **R404.1.7 Backfill placement.**
> Backfill shall not be placed against the wall until the wall has sufficient strength and has been anchored to the floor above, or has been sufficiently braced to prevent damage by the backfill. Backfill material shall be free draining and free of organic materials, construction debris (including wood scraps), cobbles and boulders, shall be placed in lifts not exceeding 12 inches in thickness and shall be mechanically compacted. Foundation walls shall be properly braced prior to the setting of a manufactured building.

Add new subsection R406.2.1 as follows:

> **R406.2.1 Through-wall Formwork Ties.** Through-wall formwork ties shall be removed from both faces of the foundation walls which enclose basements, cellars, below-grade garages, or any space having the potential to be converted to useable or occupied space. Remaining holes shall be patched with hydraulic cement.

Delete the **Exception for R408.7 Flood resistance.**

CHAPTER R5 FLOORS - AMENDMENTS

Revise and replace section R502.2 as follows:

R502.3 Allowable joist spans.
Spans for floor joists shall be in accordance with Tables R502.3.1(1) and R502.3.1(2). For other grades and species and for other loading conditions, refer to the AWC STJR or the American Wood Council "AWC" Maximum Span Calculator for Wood Joists and Rafters found at: https://www.awc.org/codes-standards/calculators-software/spancalc

Delete the following from R502.11.1 Design.

After *registered design professional, Delete* "where required by the statutes of the *jurisdiction* in which the project is to be constructed in accordance with Section R106.1."

Add new section R506.1.1 Control Joints as follows:

R506.1.1 Control Joints. Slabs shall be constructed with control joints having a depth of at least one quarter of the slab thickness but not less than one inch (25 mm). Joints shall be spaced at intervals not greater than 30 feet (9144 mm) in each direction. Control joints shall be placed at locations where the slab width or length changes.

Exception: Control joints may be omitted when the slab is reinforced in accordance with Table R506.1.1. Reinforcement shall be placed at the mid-depth of the slab or two inches (51 mm) from the top of slabs greater than 4 inches (102 mm) in thickness.

Add new Table R506.1.1 as follows:

Table R506.1.1

MAXIMUM DIMENSION OF SLAB OR DISTANCE BETWEEN CONTROL JOINTS (ft.)						WWF WIRE SPACING (in.)	WWF WIRE SIZE DESIGNATION (in.)
Slab Thickness (in.)							
3.5	4.0	4.5	5.0	5.5	6.0		
42	36	32	29	26	24	6 x 6	W1.4 x W1.4
59	52	46	42	38	35	6 x 6	W2.0 x W2.0
86	75	67	60	55	50	6 x 6	W2.9 x W2.9

CHAPTER 6 – WALL CONSTRUCTION – AMENDMENTS

Add the following exception to R602.10 Wall bracing:

Exception: Unconditioned single-story rooms of areas less than 600 ft^2 thermally isolated from conditioned space.

Revise and delete all of Exception #2 in - R602.10.2.2.1 Location of braced wall panels in Seismic Design Categories D0, D1 and D2

Revise and replace section R602.10.3 Required length of bracing, as follows:

R602.10.3 Required length of bracing.
The required length of bracing along each *braced wall line* for all detached buildings and townhouses shall be determined by using Table R602.10.3(1) and the applicable adjustment factors in Table R602.10.3(2).

Revise and replace section R602.10.4.3 Braced wall panel interior finish material Exception #3 as follows:

Exception #3 - Except for Method LIB, gypsum wall board is permitted to be omitted provided that the required length of bracing in Tables R602.10.3(1) is multiplied by the appropriate adjustment factor in Table R602.10.3(2), unless otherwise required by Section R302.6.

Revise and replace R602.10.4.4 Panel joints – Exception #1 as follows:

Exception #1. For methods WSP and CS-WSP, blocking of horizontal joints is permitted to be omitted when adjustment factor No. 8 of Table R602.10.3(2) is applied.

Revise and replace Table T R602.19.5 as follows:

TABLE R602.10.5 MINIMUM LENGTH OF BRACED WALL PANELS

METHOD (See Table R602.10.4)		**MINIMUM LENGTH[a] (inches)**					**CONTRIBUTING LENGTH (inches)**
		Wall Height					
		8 feet	**9 feet**	**10 feet**	**11 feet**	**12 feet**	
DWB, WSP, SFB, PBS, PCP, HPS, BV-WSP		48	48	48	53	58	Actual[b]
GB		48	48	48	53	58	Double sided = Actual Single sided = 0.5 × Actual
LIB		55	62	69	NP	NP	Actual[b]
ABW	ultimate design wind speed < 140 mph	28	32	34	38	42	48
CS-G		24	27	30	33	36	Actual[b]
CS-WSP, CS-SFB	Adjacent clear opening height (inches)						
	≤ 64	24	27	30	33	36	Actual[b]
	68	26	27	30	33	36	
	72	27	27	30	33	36	

	76	30	29	30	33	36	
	80	32	30	30	33	36	
	84	35	32	32	33	36	
	88	38	35	33	33	36	
	92	43	37	35	35	36	
	96	48	41	38	36	36	
	100	—	44	40	38	38	
	104	—	49	43	40	39	
	108	—	54	46	43	41	
	112	—	—	50	45	43	
	116	—	—	55	48	45	
	120	—	—	60	52	48	
	124	—	—	—	56	51	
	128	—	—	—	61	54	
	132	—	—	—	66	58	
	136	—	—	—	—	62	
	140	—	—	—	—	66	
	144	—	—	—	—	72	
METHOD (See Table R602.10.4)		**Portal header height**					
		8 feet	**9 feet**	**10 feet**	**11 feet**	**12 feet**	
PFH	Supporting roof only	16	16	16	Note c	Note c	48
	Supporting one story and roof	24	24	24	Note c	Note c	
PFG		24	27	30	Note d	Note d	1.5 × Actual$_b$
CS-PF		16	18	20	Note e	Note e	1.5 × Actual$_b$

Revise and replace **R602.10.10 Cripple wall bracing -** as follows:

> **R602.10.10 Cripple wall bracing.** Cripple walls shall be constructed in accordance with Section R602.9 and braced in accordance with this section. Cripple walls shall be braced with the length and method of bracing used for the wall above in accordance with Tables R602.10.3(1), and the applicable adjustment factors in Table R602.10.3(2), except that the length of cripple wall bracing shall be multiplied by a factor of 1.15. Where gypsum wall board is not used on the inside of the cripple wall bracing, the length adjustments for the elimination of the gypsum wallboard, or equivalent, shall be applied as directed in Tables R602.10.3(2) to the length of cripple wall bracing required. This adjustment shall be taken in addition to the 1.15 increase.

Delete section R603.9.5 Structural sheathing for stone and masonry veneer.

Revise section R606.2.8 Mortar – by deleting "R606.2.8.2 and R606.2.8.3" from the end of the paragraph.

Revise and replace section R606.11 Anchorage - as follows:

R606.11 Anchorage. Masonry walls shall be anchored to floor and roof systems in accordance with the details shown in Figure R606.11(1).

CHAPTER 7 – WALL COVERINS - AMENDMENTS

Add subsection R702.3.5.2 Ceiling Attachment – as follows:

> **R702.3.5.2 Ceiling Attachment.** Only designs or methods that use mechanical fasteners in accordance with Table R702.3.5 shall be used for attaching gypsum board to ceilings in buildings governed by 780 CMR 51.00 including manufactured buildings. Alternative designs, such as using adhesive only, are not permitted.

CHAPTER 8 – ROOF-CEILING CONSTRUCTION - AMENDMENTS

Revise and replace section R802.4.1 Rafter size as follows:

R802.4.1 Rafter size. Rafters shall be sized based on the rafter spans in Tables R802.4.1(1) through R802.4.1(8). Rafter spans shall be measured along the horizontal projection of the rafter. For other grades and species and for other loading conditions, refer to the AWC STJR or utilize the American Wood Council ("AWC") Maximum Span Calculator for Wood Joists & Rafters found at http://www.awc.org/calculators/span/calc/timbercalcstyle.asp.

Revise and replace section R802.5.1 Ceiling joist size as follows:

> **R802.5.1 Ceiling joist size.**
> Ceiling joists shall be sized based on the joist spans in Tables R802.5.1(1) and R802.5.1(2). For other grades and species and for other loading conditions, refer to the AWC STJR or utilize the American Wood Council ("AWC") Maximum Span Calculator for Wood Joists & Rafters found at http://www.awc.org/calculators/span/calc/timbercalcstyle.asp.

CHAPTER 9 – ROOF ASSEMBLIES - AMENDMENTS

Revise and replace section R901.1 Scope - as follows:

R901.1 Scope. The provisions of this chapter shall govern the design, materials, construction and quality of *roof assemblies*. In roofing and reroofing, the energy conservation requirements of Chapter 11 of 780 CMR 51.00 *Massachusetts Residential Code* shall also be satisfied.

Revise and replace section R905.1 Roof covering application - as follows:

R905.1 Roof covering application. Roof coverings shall be applied in accordance with the applicable provisions of this section and the manufacturer's installation instructions. Unless otherwise specified in this section, roof coverings shall be installed to resist the component and cladding loads specified in Table R301.2.1(1), adjusted for height and exposure in accordance with Table R301.2.1(2). Where there is a discrepancy between the requirements of this section and the manufacturer's printed instructions or code evaluation report, the manufacturer's printed instructions or code evaluation report shall govern.

Revise and replace section R905.16 Photovoltaic shingles, as follows:

R905.16 Photovoltaic shingles.
The installation of *photovoltaic shingles* shall comply with the provisions of this section, Section R324 and 527 CMR 12:00 *Massachusetts Electrical Code*.

Revise and replace section R905.17 Building-integrated photovoltaic (BIPV) roof panels applied directly to the roof deck, as follows:

R905.17 Building-integrated photovoltaic (BIPV) roof panels applied directly to the roof deck. The installation of *BIPV roof panels* shall comply with the provisions of this section, Section R324 and 527 CMR 12:00 *Massachusetts Electrical Code*.

Revise and replace section R907.1 Rooftop-mounted photovoltaic panel systems as follows:

R907.1 Rooftop-mounted photovoltaic panel systems. Rooftop-mounted *photovoltaic panel systems* shall be designed and installed in accordance with Section R324 and 527 CMR 12:00 *Massachusetts Electrical Code.*

Revise TABLE R905.16.6 CLASSIFICATION OF PHOTOVOLTAIC SHINGLES, as follows:

TABLE R905.16.6 delete "Figure" in the first cell and replace with "Table".

CHAPTER 10 – MASONRY FIREPLACES - AMENDMENTS

Revise and replace section R1001.1 General, as follows:

R1001.1 General. Masonry fireplaces shall be constructed in accordance with this section and the applicable provisions of Chapters 3 and 4 of 780 CMR 51.00. Chimneys shall be structurally sound, durable, smoke tight and capable of conveying flue gases to the exterior safely.

Add the following as a footnote to FIGURE R1001.1 FIREPLACE AND CHIMNEY DETAILS

Note: Letter designations H, J and S are not applicable in Massachusetts.

CHAPTER R11: ENERGY EFFICIENCY

Add the following sections as follows:

[E] 1101.1.1 Criteria. Buildings shall be designed and constructed in accordance with the 2021 *International Energy Conservation Code* (IECC) with Massachusetts Amendments contained herein.

Exception.

1. Temporary structures, as regulated by Section 3103, do not need to comply with the building envelope requirements of Chapter 51.
2. Where a municipality has adopted the Stretch energy code or Specialized opt-in energy code then 225 CMR 22.00 shall apply.

CHAPTER 1 [RE] SCOPE AND ADMINISTRATION

SECTION R103
CONSTRUCTION DOCUMENTS

R103.2 Amend as follows:

R103.2 Information on construction documents. Construction documents shall be drawn to scale on suitable material. Electronic media documents are permitted to be submitted where *approved* by the *code official*. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed, and show in sufficient detail pertinent data and features of the *building*, systems and equipment as herein governed. Details shall include the following as applicable:

1. Insulation materials and their *R*-values.
2. Fenestration *U*-factors and *solar heat gain coefficients* (SHGC).
3. Area-weighted *U*-factor and *solar heat gain coefficients* (SHGC) calculations.
4. Mechanical system design criteria.
5. Mechanical and service water-heating systems and equipment types, sizes and efficiencies.
6. Equipment and system controls.
7. Duct sealing, duct and pipe insulation and location.
8. Air sealing details.
9. EV Ready Space locations per R404.2
10. Solar-Ready Zone in accordance with Appendix R~~A~~B

CHAPTER 2 [RE] DEFINITIONS

R202 GENERAL DEFINITIONS

Add the following definitions:

CLEAN BIOMASS HEATING SYSTEM. Wood-pellet fired central boilers and furnaces where the equipment has a thermal efficiency rating of 80% (higher heating value) or greater; and a particulate matter emissions rating of no more than 0.15 lb/MMBtu PM heat output.

ELECTRIC VEHICLE. An automotive-type vehicle for on-road use, such as passenger automobiles, buses, trucks, vans, neighborhood electric vehicles, electric motorcycles, and the like, primarily powered by an electric motor that draws current from a rechargeable storage battery, fuel cell, photovoltaic array, or other source of electric current.
Informational Note: defined as in 527 CMR 12.00: Massachusetts Electrical Code (Amendments) section 625.2.

ELECTRIC VEHICLE SUPPLY EQUIPMENT (EVSE). The conductors, including the ungrounded, grounded, and equipment grounding conductors, and the *Electric Vehicle* connectors, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for the purpose of transferring energy between the premises wiring and the *Electric Vehicle*.
Informational Note: defined as in 527 CMR 12.00: Massachusetts Electrical Code (Amendments) section 625.2.

ELECTRIC VEHICLE CHARGING SPACE ("EV Ready Space"). A designated parking space which is provided with one dedicated 50-ampere branch circuit for EVSE servicing *Electric Vehicles*.

CHAPTER 4 [RE] RESIDENTIAL ENERGY EFFICIENCY

SECTION R401 GENERAL

Revise and replace all portions of section R401 as follows:

R401.1 Scope. This chapter applies to *residential buildings*. Municipalities which have adopted the Stretch Energy Code or the Municipal Opt-in Specialized Stretch energy code, shall use the energy efficiency requirements of 225 CMR and chapter 51 or this chapter as applicable.

R401.2 Application. Residential buildings shall comply with Section R401.2.5 and either Sections R401.2.1, R401.2.2, R401.2.3 or R401.2.4.

Exception: Additions, *alterations*, repairs and changes of occupancy to existing buildings complying with Chapter 5.

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

R401.2.2 Passivehouse Building Certification Option.
The Passivehouse Building Certification Option requires compliance with Section R405.

R401.2.3 Energy Rating Index Option.
The Energy Rating Index (ERI) Option requires compliance with Section R406.
Qualifying approaches under R406 include the following:

a. Certified RESNET HERS rating with MA amendments.

R401.2.4 APPENDIX RC. Residential Buildings and dwelling units covered by this chapter may elect to comply with the requirements of IECC Appendix RC - ZERO ENERGY RESIDENTIAL BUILDING PROVISIONS

R401.2.5 MA Stretch energy code. Residential Buildings and dwelling units may elect to comply with the requirements of 225 CMR MASSACHUSETTS STRETCH ENERGY CODE, or, the MUNICIPAL OPT-IN SPECIALIZED STRETCH ENERGY CODE promulgated by the Massachusetts Department of Energy Resources.

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

1. For buildings complying with Section R401.2.1, one of the additional efficiency package options shall be installed according to Section R408.2.

2. For buildings complying with the Energy Rating Index alternative Section R401.2.3, the Energy Rating Index value shall be less than or equal to the HERS index of 52 prior to credit for onsite renewable electric generation or as specified in Table R406.5.
The option selected for compliance shall be identified in the certificate required by Section R401.3.

R401.3 Certificate

R402.1.5.1 Add the section as follows:

R402.1.5.1 Approved software for Total UA alternative: The following software is approved for demonstrating Total UA compliance: REScheck-Web available at http://www.energycodes.gov/rescheck

R402.4.1.1 Amend Table R402.4.1.1 as follows:

TABLE R402.4.1.1

AIR BARRIER AND INSULATION INSTALLATION

COMPONENT	AIR BARRIER CRITERIA	INSULATION INSTALLATION CRITERIA
General requirements	A continuous air barrier shall be installed in the building envelope. The exterior thermal envelope contains a continuous air barrier. Breaks or joints in the air barrier shall be sealed.	All insulation shall be installed at Grade I quality in accordance with ICC/RESNET 301. Air-permeable insulation shall not be used as a sealing material.

R403.3.5 Amend as follows:

R403.3.5 Duct testing. Ducts shall be pressure tested in accordance with ANSI/RESNET/ICC 380 or ASTM E1554 to determine air leakage by one of the following methods:
1. Rough-in test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the system, including the manufacturer's air handler enclosure if installed at the time of the test. Registers shall be taped or otherwise sealed during the test.
2. Postconstruction test: Total leakage shall be measured with a pressure differential of 0.1 inch w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. Registers shall be taped or otherwise sealed during the test.

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

Exception: A duct air-leakage test shall not be required for ducts serving heating, cooling or ventilation systems that are not integrated with ducts serving heating or cooling systems.

R403.6 Revise the section as follows:

R403.6 Mechanical ventilation. Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the *ventilation* system is not operating.

Each dwelling unit of a residential building shall be provided with continuously operating exhaust, supply or balanced mechanical ventilation that has been site verified to meet a minimum airflow per one of the following methods:

1. Table R403.6.1

TABLE R403.6.1 MINIMUM REQUIRED AIRFLOW IN CFM BASED ON SIZE OF HOUSE AND NUMBER OF BEDROOMS

SIZE OF HOUSE	0-1 BEDROOMS	2-3 BEDROOMS	4-5 BEDROOMS	6-7 BEDROOMS	>7 BEDROOMS
Up to 1500 sq ft	30	45	60	75	90
1501 – 3000 sq ft	45	60	75	90	105
3001 – 4500 sq ft	60	75	90	105	120
4501 – 6000 sq ft	75	90	105	120	135
6001 – 7500 sq ft	90	105	120	135	150
> 7500 sq ft	105	120	135	150	165

2. RESNET HERS Index
3. ASHRAE 62.2 - 2019 or
4. the following formula for one- and two-family dwellings and townhouses of three or less stories above grade plane:

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

Where: CFA is the conditioned floor area in sq ft
N_{br} is the number of bedrooms
Q_{50} is the verified blower door air leakage rate in cfm measured at 50 Pascals
S is the building height factor determined by this table:

stories above grade plane	1	2	3
S	1.00	1.32	1.55

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

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

Revise and Replace R403.6.3 and add sections R403.6.4 through R403.6.7 as follows:

R403.6.3 Testing and Verification. Installed performance of the mechanical ventilation system shall be tested and verified by a HERS Rater, HERS Rating Field Inspector, or an applicable BPI Certified Professional, and measured using a flow hood, flow grid, or other airflow measuring device in accordance with either RESNET Standard Chapter 8 or ACCA Standard 5.

R403.6.4 Air-moving equipment, selection and installation. As referenced in ASHRAE Standard 62.2-2013, Section 7.1, ventilation devices and equipment shall be tested and certified by AMCA (Air Movement and Control Association) or HVI (Home Ventilating Institute) and the certification label shall be found on the product. Installation of systems or equipment shall be carried out in accordance with manufacturers' design requirements and installation instructions. Where multiple duct sizes and/or exterior hoods are standard options, the minimum size shall not be used.

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

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

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

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

Exceptions:

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

Add section R404.4 as follows:

R404.4 Wiring for Electric Vehicle Charging Spaces ("EV Ready Spaces"). *EV Ready Spaces* shall be provided in accordance with Table R404.4. The branch circuit shall be identified as "EV READY" in the service panel or subpanel directory, and the termination location shall be marked as "EV READY". The circuit shall terminate in a NEMA receptacle or a Society of Automotive Engineers (SAE) standard J1772 electrical connector.

TABLE R404.4 EV READY SPACE REQUIREMENTS

Type of Building	Number of parking spaces
1 & 2 family dwellings and town houses	At least 1 per unit
Multi-family	At least 10%

Exceptions:

1. In no case shall the number of required *EV Ready Spaces* be greater than the number of parking spaces otherwise required by local ordinance.
2. This requirement will be considered met if all spaces which are not *EV Ready* are separated from the premises by a public right-of-way.
3. Any 50-ampere branch circuit may be replaced by 3 or more "EV READY" labelled 20-ampere branch circuits and terminations where sufficient spaces are available.
4. Residential structures of 1-4 dwelling units may use a 40-ampere dedicated circuit, or if necessary a 110 volt 20-ampere dedicated circuit, if a 50-ampere dedicated circuit would require the dwelling unit to upgrade the size of the electrical service beyond what would be required per the MA Electrical Code (527 CMR) for the unit if a dedicated circuit was not reserved for EVSE.

Construction documents shall identify the total service load required to serve the residential unit. If the reservation of a 50-ampere branch circuit will require an upgrade to a larger electrical service, the exception shall apply.

R405. Delete subsection and replace as follows:

R405 Passivehouse Building Certification Option.
R405.1 Scope. Projects certified as meeting the PHIUS CORE 2021 or PHIUS ZERO 2021 Passive Building Standard – North America, or newer, demonstrated using approved software by PHIUS, where PHIUS certification is demonstrated by a Certified Passive House Consultant; or,
Projects certified as meeting the Certified Passive House standard using software by the Passive House Institute (PHI), where PHI certification is demonstrated by a Certified Passive House Designer.

R405.2 Phius Documentation. When using WUFI Passive or other Phius approved software:
1. Prior to the issuance of a building permit, the following items must be provided to the Building Official:
   a. A Phius 2021 (or newer) Verification Report which demonstrates project compliance with Phius 2021 (or newer) performance requirements.
   b. A statement from the CPHC that the verification report results accurately reflect the plans submitted.
   c. Evidence of project registration from Phius.
   OR
   a. A Design Certification Letter from Phius.
2. Prior to the issuance of a certificate of occupancy, the following items must be provided to the building official:
   a. Design Certification Letter from Phius.
   b. An updated Verification Report by the CPHC which reflects "as-built" conditions and test results that demonstrate project compliance with Phius (blower door and ventilation results).
   c. A statement from the CPHC that the envelope meets the Phius hygrothermal requirements found in Appendix B of the Phius 2021 Certification guidebook
   d. A statement from the Phius Certified Verifier or Rater that the project test results and other Phius verification requirements are met.
   e. A copy of the Phius workbook listing all testing results and as-built conditions.

OR

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

AND

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

R405.3 Passive House International (PHI) Documentation.
1. If using PHI Passive House software, prior to the issuance of a building permit, the following items must be provided to the Building Official:
   a. A PHPP compliance report which demonstrates project compliance with current PHI performance requirements;
   b. A statement from the Certified Passive House Consultant/Designer (CPHC/D) that the PHPP results and compliance report accurately reflect the plans submitted;
   c. Evidence of project registration from a Certified Passive House Certifier.

OR

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

2. Prior to the issuance of a certificate of occupancy, the following item(s) must be provided to the building official:
   a. A Design Certification Letter from a Certified Passive House Certifier.
   b. An updated PHPP compliance report which reflects "as-built" conditions and test results (blower door and ventilation results) that demonstrate project compliance with PHI performance requirements;
   c. A statement from the CPHD that the project test results meet the model performance requirements, all the mandatory limits and any other mandatory requirements.
   d. A copy of the Passive House Verifier's or Rater's test results;

OR

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

AND

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

R406.1 - Revise and add subsection as follows:

R406.1 Scope. This section establishes criteria for compliance using an Energy Rating Index (ERI) analysis, or approved alternative energy performance rating methods.

R406.1.1 Approved alternative energy performance methods. The following rating threshold criteria are sufficient to demonstrate energy code compliance under section R406 without calculation of a standard reference design. The mandatory provisions listed in R406.2 also apply:
Any other software approved by the Board of Building Regulations and Standards.

R406.3 Reserved.

Revise and Replace section R406.4 as follows:

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

Revise and Replace section R406.5 and Table T406.5 as follows:

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

TABLE R406.5 MAXIMUM ENERGY RATING INDEX

On-site Renewable Energy Application	Maximum HERS Index score[a, b]	
	New construction	Whole house renovations; additions
None	52	65
Solar Electric Generation	55	70
Clean Space Heating	55	70
Solar Electric & Clean Space Heating	58	75

[a] Maximum HERS rating prior to onsite renewable electric generation in accordance with Section R406.5

[b] Where on-site renewable energy is included for compliance using the ERI analysis of Section R406.4, the building shall meet the mandatory requirements of SectionR406.2, and the building thermal envelope shall be greater than or equal to the levels of efficiency and SHGC in Table R402.1.2 or Table R402.1.4 of the 2021 International Energy Conservation Code.

Add subsection R406.5.1 as follows:

R406.5.1 Trade-off for onsite renewable energy systems. New construction following R406.3 or existing buildings and additions following IECC chapter 5[RE] may use renewable energy trade-offs to increase the maximum allowable HERS rating for each unit separately served by any combination of the following:

1. Solar Electric Generation: Solar photovoltaic array rated at 4kW or higher shall offset 3 HERS points for new construction, or 5 HERS points for renovations and fully attached additions.

2. Clean Space Heating: Clean Biomass Heating System, solar thermal array, cold climate air source heat pump having rated coefficient of performance (COP) of at least 1.75 at 5 degrees Fahrenheit, or geothermal heat pump, or a combination of these systems, operating as the primary heating system shall offset 3 HERS points for new construction, or 5 HERS points for renovations and fully attached additions.

Revise and replace section R406.6 as follows:

R406.6 Verification by approved agency. Verification of compliance with Section R406 as outlined in Sections R406.4 and R406.5 shall be completed by an *approved* third party. Verification of compliance with Section R406.2 shall be completed by the authority having jurisdiction or an *approved* third-party inspection agency in accordance with Section R105.4.

Delete section R406.7.3.

ADD sections R408 ADDITIONAL EFFICIENCY PACKAGE OPTIONS through R408.2.4 as follows:

R408 ADDITIONAL EFFICIENCY PACKAGE OPTIONS

R408.1 Scope. This section establishes additional efficiency package options to achieve additional energy efficiency in accordance with Section R401.2.5.

R408.2 Additional efficiency package options. Additional efficiency package options for compliance with Section R401.2.1 are set forth in Sections R408.2.1 through R408.2.5.

R408.2.1 Enhanced envelope performance option.
The total *building thermal envelope* UA, the sum of *U*-factor times assembly area, shall be less than or equal to 95 percent of the total UA resulting from multiplying the *U*-factors in Table R402.1.2 by the same assembly area as in the proposed building. The UA calculation shall be performed in accordance with Section R402.1.5. The area-weighted average SHGC of all glazed fenestration shall be less than or equal to 95 percent of the maximum glazed fenestration SHGC in Table R402.1.2.

R408.2.2 More efficient HVAC equipment performance option. Heating and cooling *equipment* shall meet one of the following efficiencies:

1. Greater than or equal to 8.5 HSPF2 and 16 SEER2 for ductless heat pumps and 8.5 HSPF2 and 15.2 SEER2 for ducted heat pumps..
2. Greater than or equal to 3.5 COP ground source heat pump.

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

R408.2.3 Reduced energy use in service water-heating option. The hot water system shall meet one of the following efficiencies:

1. Greater than or equal to 2.0 EF electric service water-heating system.
2. Greater than or equal to 0.4 solar fraction solar water-heating system.

R408.2.4 More efficient duct thermal distribution system option. The thermal distribution system shall meet one of the following efficiencies:

1. 100 percent of ducts and air handlers located entirely within the *building thermal envelope*.
2. 100 percent of ductless thermal distribution system or hydronic thermal distribution system located completely inside the *building thermal envelope*.

CHAPTER 5 [RE] EXISTING BUILDINGS

R502 ADDITIONS.

Revise and replace section R502.1.2 Revise as follows:

> **R502.1.2 Existing plus addition compliance (Simulated Performance Alternative).**
> The *addition* and any *alterations* that are part of the project shall comply with Section R406 and shall achieve a maximum HERS index using Table R406.4.~~1.~~

Delete the Exception to section R503.2.

Appendix RB: Solar-ready Provisions – Detached One- and Two-family Dwellings, Low-rise Residential Buildings and Townhouses

SECTION RB101 SCOPE

Revise and replace section RB101.1 General as follows:

RB101.1 General. These provisions shall be applicable for new construction, except additions.

SECTION RB102 GENERAL DEFINITION

Add the following definition:
SOLAR-READY ZONE. A section or sections of the roof or building overhang designated and reserved for the future installation of a solar photovoltaic or solar thermal system.

SECTION RB103 SOLAR-READY ZONE

Add Exception #3 to RB103.1 General. As follows:

> 3. Buildings and structures as designed and shown in construction documents that do not meet the conditions for a solar-ready zone area.

Revise and replace section RB103.2 Construction document requirements for solar ready zone as follows:

RB103.2 Construction document requirements for solar ready zone. Construction documents shall indicate the solar ready zone where applicable.

Revise and replace section RB103.3 Solar-ready zone area as follows:

RB103.3 Solar-ready zone area. The total solar-ready zone area shall consist of an area not less than 300 square feet (27.87 m2) exclusive of mandatory access or set back areas as required by the MA Fire Code. New townhouses three stories or less in height above grade plane and with a total floor area less than or equal to 2,000 square feet (185.8 m^2) per dwelling shall have a solar-ready zone area of not less than 150 square feet (13.94 m^2). The solar-ready zone shall be composed of areas not less than 5 feet (1524 mm) in width and not less than 80 square feet (7.44 m^2) exclusive of access or set back areas as required by the MA Fire Code.

Revise and replace section RB103.4 Obstructions as follows:

RB103.4 Obstructions. Solar-ready zones shall consist of an area free from obstructions, including but not limited to vents, chimneys, and roof-mounted equipment.
NOTE: Nothing in RA103.4 shall require any construction documents to be redesigned or reconfigured so as to create a solar-ready zone area.

Delete RB103.7 Electrical service reserved space and Renumber section RB103.8 as RB103.7, as shown below:

RB103.7 Construction documentation certificate. A permanent certificate, indicating the solar-ready zone and other requirements of this section, shall be posted near the electrical distribution panel, water heater or other conspicuous location by the builder or registered design professional.

CHAPTER 12 MECHANICAL ADMINISTRATION

Revise and replace section **M1201.1 Scope** as follows:

M1201.1 Scope. The provisions of Chapters 12 through 24 of 780 CMR 51.00: *Massachusetts Residential Code* shall regulate the design, installation, maintenance, *alteration* and inspection of mechanical systems that are permanently installed and used to control environmental conditions within buildings. These chapters shall also regulate those mechanical systems, system components, *equipment* and *appliances* specifically addressed in this code.

For the provisions of Chapters 12 through 23 of 780 CMR 51.00: *Massachusetts Residential Code* governed by the specialized codes (see 780 CMR 1.00), see the applicable specialized codes. Provisions related to work otherwise governed by 780 CMR 51.00: *Massachusetts Residential Code* shall be retained if not in conflict with other sections of 780 CMR 51.00: *Massachusetts Residential Code*. Enforcement of work governed by the specialized codes shall be by those persons so authorized.

Additional requirements for boilers and other pressure vessels may be found in M.G.L. c. 146 and 522 CMR: *Board of Boiler Rules*, as applicable.

CHAPTER R13 GENERAL MECHANICAL SYSTEM REQUIREMENTS

Add the following section M1303.2:

M1303.2 Solid Fuel-burning Central Heating Appliance Labeling. Solid fuel-burning boilers or warm air furnaces shall bear a permanent and legible factory-applied label supplied to the manufacturer and controlled by an approved testing agency; such label shall contain applicable items in section M1303.1 and the following information:

a. Type of appliance (boiler or warm air furnace); and

b. Boilers, pressure vessels, and pressure relief devices shall be stamped in accordance with M.G.L. c. 146, §§ 24 and 34.

CHAPTER R14 HEATING AND COOLING EQUIPMENT AND APPLIANCES

Add sections M1401.6 Used Solid Fuel-burning Appliances and M1401.6.1 Clearances to Combustibles as follows:

M1401.6 Used Solid Fuel-burning Appliances. Used solid fuel-burning appliances that predate the listing requirements set forth in 780 CMR 51.00: *Massachusetts Residential Code* may be utilized but the installation of such appliances shall otherwise conform to the requirements of 780 CMR 51.00: *Massachusetts Residential Code*, as applicable and such

installations shall be inspected by the building official (or fire official in such towns that utilize the fire official for such inspection purposes).

M1401.6.1 Clearances to Combustibles. In the absence of listed clearances and floor protection requirements, used solid fuel-burning appliances shall be installed in accordance with the clearances of 780 CMR 51.00: *Massachusetts Residential Code*.

Add sections M1401.6.2 Floor Protection General and M1401.6.2.1 Floor Protection Requirements as follows:

M1401.6.2 Floor Protection General. Floor protection listing requirements for a used appliance shall be met. In the absence of listing requirements, solid fuel-burning appliances shall have floor protection that is noncombustible material applied to the combustible or noncombustible floor area underneath and extending in front, to the sides and to the rear of a heat producing appliance and have the necessary thermal conductivity to satisfy the floor protection requirements of the appliance. Various "hearth rugs," "mats," "tile board," "hearth board" and similar products sold as floor protectors may be noncombustible but may not satisfy thermal conductivity requirements of this section.

M1401.6.2.1 Floor Protection Requirements. Floor protection requirements shall be:

1. four inches (102 mm) of millboard having a thermal conductivity k = 0.84 (Btu) (inch)/(ft^2) (hour) (°F);
2. a noncombustible floor protector of the same overall thermal conductivity in (1.); or,
3. approved by a registered design professional.

EXCEPTION: If existing floor protection can be demonstrated to have been adequate for a previous installation of a used solid fuel-burning appliance, then such floor protection shall be allowed. If calculations demonstrate that the existing floor protection has a thermal conductivity lower than that set by this section, then the existing floor protection may be maintained.

Revise and replace section M1414.1 General as follows:

M1414.1 General. Fireplace stoves shall be *listed*, *labeled* and installed in accordance with the terms of the terms listing. Fireplace stoves shall be tested in accordance with UL 737. Also see Chapter 10 of 780 CMR 51.00: *Massachusetts Residential Code* for detailed guidance on solid fuel-burning appliances.

CHAPTER R16 DUCT SYSTEMS

Revise and replace section M1601.3 Duct insulation materials as follows:

M1601.3 Duct insulation materials. Duct insulation materials shall conform to the following requirements and the requirements of Chapter 11 of 780 CMR 51.00: *Massachusetts Residential Code*.

Revise and replace section M1601.4 Installation as follows:

M1601.4 Installation. Duct installation shall comply with Sections M1601.4.1 through M1601.4.10 and the requirements of Chapter 11 of 780 CMR 51.00: *Massachusetts Residential Code.*

Revise and replace section M1601.4.6 Duct insulation as follows:

M1601.4.6 Duct insulation. Duct insulation shall be installed in accordance with the following requirements and the requirements of Chapter 11 of 780 CMR 51.00: *Massachusetts Residential Code*. Where conflict exists between the

requirements of this section and Chapter 11 of 780 CMR 51.00: *Massachusetts Residential Code*, the requirements set forth in Chapter 11 of 780 CMR 51.00: *Massachusetts Residential Code* shall govern.

CHAPTER R17 COMBUSTION AIR

Revise and replace section M1701.1 Scope as follows:

M1701.1 Scope. Solid fuel-burning *appliances* shall be provided with *combustion air* in accordance with the *appliance* manufacturer's installation instructions. Oil-fired *appliances* shall be provided with *combustion air* in accordance with 527 CMR. The methods of providing *combustion air* in this chapter do not apply to fireplaces, fireplace stoves and direct-vent *appliances*. The requirements for combustion and dilution air for gas-fired *appliances* shall be in accordance with Chapter 24 of 780 CMR 51.00: *Massachusetts Residential Code*.

CHAPTER R18 CHIMNEYS AND VENTS

Revise and replace section M1801.1 Venting required as follows:

M1801.1 Venting required. Fuel-burning *appliances* shall be vented to the outdoors in accordance with their *listing* and *label* and manufacturer's installation instructions except *appliances* listed and *labeled* for unvented use. Venting systems shall consist of *approved* chimneys or vents, or venting assemblies that are integral parts of *labeled appliances*.

Add an Exception after M1801.11 Multiple-appliance venting systems Item #1 as follows:

Item #1 - EXCEPTION: Engineered systems as provided for in Section G2427.

Add an Exception to section M1801.12 Multiple solid fuel prohibited as follows:

EXCEPTION: Unless common connection is allowed by 248 CMR or 527 CMR. If allowed, the common flue shall be of such size to serve all appliances connected if such appliances were operated simultaneously. Note that 248 CMR and 527 CMR are enforced by gas inspectors and the heads of fire departments, respectively.

CHAPTER R21 HYDRONIC PIPING

Revise and replace section M2101.3 Protection of potable water as follows:

M2101.3 Protection of potable water. The potable water system shall be protected from backflow in accordance with the provisions of the Department of Environmental Protection and/or the local water purveyor, as applicable.

CHAPTER R22 SPECIAL PIPING AND STORAGE SYSTEMS

Delete all of Chapter R22 and replace with the following:

M2201 SPECIAL PIPING AND STORAGE SYSTEMS. Special laws, regulations, or both include 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, 527 CMR: *Board of Fire Prevention Regulations*, 522 CMR: *Board of Boiler Rules*, and EPA regulations. See also 780 CMR 51.00: *Massachusetts Residential Code* for tank structural design.

CHAPTER R23 SOLAR THERMAL ENERGY SYSTEMS

Add the following NOTES to section M2301.1 General.

NOTES:

1. Additional requirements for boilers and other pressure vessels may be found in M.G.L. c. 146 and 522 CMR: *Board of Boiler Rules*, as applicable.

2. Where solar thermal systems involve matters of potable water and/or wastewater, see 248 CMR: *Board of State Examiners of Plumbers and Gas Fitters*.

CHAPTER R24: FUEL GAS – Amend as follows:

For the fuel gas provisions of Chapter R24 of 780 CMR 51.00: *Massachusetts Residential Code*, see 248 CMR: *Board of State Examiners of Plumbers and Gas Fitters*. Provisions 248 CMR related to work otherwise governed by 780 CMR 51.00: *Massachusetts Residential Code* shall be retained if not in conflict with other sections of 780 CMR 51.00: *Massachusetts Residential Code*.

CHAPTERS R25 THROUGH R33: PLUMBING – Amend as follows:

For the plumbing provisions of Chapters R25 through R33 of 780 CMR 51.00: *Massachusetts Residential Code*, see 248 CMR 10.00: *Uniform State Plumbing Code*. Provisions of 248 CMR related to work otherwise governed by 780 CMR 51.00: *Massachusetts Residential Code* shall be retained if not in conflict with other sections of 780 CMR 51.00: *Massachusetts Residential Code*.

CHAPTERS R34 THROUGH R43: ELECTRICAL – Amend as follows:

For the electrical provisions of Chapters R34 through R43 of 780 CMR 51.00: *Massachusetts Residential Code*, see 527 CMR 12.00: *Massachusetts Electrical Code (Amendments)*. Provisions 527 CMR 12.00 related to work otherwise governed by 780 CMR 51.00: *Massachusetts Residential Code* shall be retained if not in conflict with other sections of 780 CMR 51.00: *Massachusetts Residential Code*.

APPENDIX AA - SIZING AND CAPACITIES OF GAS PIPING - RESERVED

APPENDIX AB - SIZING OF VENTING SYSTEMS SERVING APPLIANCES EQUIPPED WITH DRAFT HOODS, CATEGORY I APPLIANCES AND APPLIANCES LISTED FOR USE WITH TYPE B VENTS - RESERVED

APPENDIX AC - EXIT TERMINALS OF MECHANICAL DRAFT AND DIRECT-VENT VENTING SYSTEMS - RESERVED

APPENDIX AD - RECOMMENDED PROCEDURE FOR SAFETY INSPECTION OF AN EXISTING APPLIANCE INSTALLATION - RESERVED

APPENDIX AE - MANUFACTURED HOUSING USED AS DWELLINGS

ADOPTED AS REVISED

Delete all of section AE102.2 Additions, alterations, or repairs and replace as follows:

AE102.2 Additions, alterations, or repairs. *Addition*s, alterations, and repairs made to a *manufactured home* shall conform to 780 CMR 51.00 and the specialized codes.

SECTION AE103 DEFINITIONS

Add the following sentence to the end of AE103.1 General - MANUFACTURED HOME:

> **"A manufactured home (mobile home) is not a manufactured building. For manufactured buildings, see 780 CMR 110.R3."**

APPENDIX AF - RADON CONTROL METHODS - ADOPT AS REVISED

Revise and replace section AF101.1 General as follows:

AF101.1 General. This appendix contains minimum requirements for new construction in the high radon potential counties as listed in Table AF101(1) regardless of the radon levels at the site. These requirements are intended to provide a passive means of resisting radon gas entry and prepare the dwelling for post-construction radon mitigation, if necessary. See Figure AF102. Active construction techniques, rather than passive techniques, shall be permitted to be used where approved.

Alternatively, the passive system requirements of ANSI/AARST Standard Designation #CCAH: *Reducing Radon in New Construction of One & Two Family Dwellings and Townhouses*, 2013 may be used for new construction in Zone 1, or approved equal system.

Irrespective of which approach is used, no testing is required as follows:

1. for the radon levels at the site prior to construction;
2. for the radon control system when completed; or
3. in the building after completion of the project.

Therefore, such testing shall not be a condition of issuing a certificate of occupancy.

SECTION AF102 - DEFINITIONS

Add the following definition to section AF102.1 General.

GAS-PERMEABLE LAYER. A gas-permeable layer shall consist of one of the following:

1. A uniform layer of clean aggregate that is not less than four inches (102 mm) thick. The aggregate shall consist of material that will pass through a two-inch (51-mm) sieve and be retained by a ¼-inch (6.4-mm) sieve.
2. A uniform layer of sand (native or fill) that is not less than four inches (102 mm) thick and that is overlain by a soil gas collection mat or soil gas matting installed in accordance with the manufacturer's instructions. The soil gas mat or matting shall be designed for this purpose and condition, and have the capacity to freely transport soil gases to the collection point from the most remote area.

Revise and replace section AF103.3 Soil-gas-retarder as follows:

AF103.3 Soil-gas-retarder. The soil in basements and enclosed crawl spaces shall be covered with a soil-gas-retarder. The soil-gas-retarder shall be lapped not less than 12 inches (305 mm) at joints and shall extend to foundation walls enclosing the basement or crawl space. The soil gas-retarder shall fit closely around any pipe, wire or other penetrations of the material. Punctures or tears in the material shall be sealed T or covered with additional sheeting. The membrane shall extend upward six inches be sealed to the perimeter footing or wall with an ASTM C290 class 25 or higher sealant or equal.

Revise and replace section AF103.4.4 Sumps as follows:

AF103.4.4 Sumps. Sumps open to soil or serving as the termination point for sub-slab drain tile loops shall be covered with a gasketed or sealed lid. Sumps used as the suction point in a sub slab depressurization system shall have a lid designed to accommodate the vent pipe. Sumps used as a floor drain shall have a lid equipped with a trapped inlet. Drainage systems that lead outside the foundation walls shall be isolated or trapped so as not to short-circuit the depressurization system.

Revise and replace section AF103.5.2 Soil-gas-retarder as follows:

AF103.5.2 Soil-gas-retarder. A soil-gas-retarder shall be placed on top of the gas-permeable layer prior to casting the slab or placing the floor assembly. The soil-gas retarder shall cover the entire floor area with separate sections lapped not less than 12 inches (305 mm) and shall extend upward six inches and be sealed to the wall with an ASTM C290 class 25 or higher sealant or equal. The soil-gas-retarder shall fit closely around any pipe, wire, or other penetrations of the material. Punctures or tears in the material shall be sealed or covered. Under-slab insulation, if used, shall be placed on top of the sheeting.

Add a new section AF103.6.1 "T" Fitting and Vent Pipe as follows:

AF103.6.1 "T" Fitting and Vent Pipe. A "T" fitting shall be inserted beneath the soil-gas-retarder and be connected to a three-inch minimum vertical vent pipe. The vent pipe shall extend through the conditioned space of the dwelling and terminate not less than 12 inches (305 mm) above the roof in a location not less than ten feet (3,048 mm) away from any window or other opening into the conditioned spaces of the building that is less than two feet (610 mm) below the exhaust point. The horizontal legs of the "T" fitting shall connect to two five-foot long pieces of four-inch diameter perforated pipe laid horizontally in a 50 in^2 bed of gravel, filled with the same gravel as used in the gas-permeable layer.

APPENDIX AG - PIPING STANDARDS FOR VARIOUS APPLICATIONS - RESERVED

APPENDIX AH - PATIO COVERS - ADOPT IN FULL

APPENDIX AI - PRIVATE SEWAGE DISPOSAL - ADOPT AS REVISED

Revise and replace section AI101.1 Scope as follows:

AI101.1 Scope. Private sewage disposal systems shall conform to the requirements of *310 CMR 15.00: The State Environmental Code, Title 5: Standard Requirements for the Siting, Construction, Inspection, Upgrade and Expansion of On-Site Sewage Treatment and Disposal Systems and for the Transport and Disposal of Septage, and any additional legal restrictions imposed by the municipal health department.*

APPENDIX AJ - EXISTING BUILDINGS AND STRUCTURES - ADOPT AS REVISED

Revise and replace section AJ101.1 General as follows:

AJ101.1 General. The purpose of APPENDIX J is to encourage the continued use or reuse of legally existing buildings and structures. The provisions of APPENDIX J are intended to permit work in existing buildings that is consistent with the

purpose of 780 CMR 51.00: *Massachusetts Residential Code*. Compliance with these provisions shall be deemed to meet the requirements of 780 CMR 51.00: *Massachusetts Residential Code*.

Features of existing construction which do not meet the requirements of 780 CMR 51.00: *Massachusetts Residential Code* for new construction shall be presumed to have met the regulations, codes or laws in effect at the time of construction or alteration and, if so, shall be deemed to be existing nonconforming. Unless stated otherwise, nothing in APPENDIX J shall require the upgrading or replacement of any existing nonconforming feature or component of an existing building, provided the feature, component or system is in serviceable condition. Components or features of an existing building which, in the opinion of the building official, are dangerous, unsafe, damaged, significantly deteriorated or which otherwise present a threat to occupants or to public safety shall be remediated in accordance with 780 CMR 51.00: *Massachusetts Residential Code*.

Any new building system or portion thereof shall conform to 780 CMR 51.00: *Massachusetts Residential Code* for new construction to the fullest extent practicable. However, individual components of an existing building system may be repaired or replaced without requiring that system to comply fully with 780 CMR 51.00: *Massachusetts Residential Code* unless specifically required by APPENDIX J.

For compliance of work governed by other codes, including the specialized codes, see section R101.4.

Revise and replace section AJ101.2 Classification of work as follows:

AJ101.2 Classification of work. For purposes of this appendix, work in existing buildings shall be classified into the categories of *repair*, renovation, *alteration, addition,* and reconstruction. Specific requirements are established for each category of work in these provisions.

Add new section AJ101.4 Newly constructed elements as follows:

AJ101.4 Newly constructed elements. Newly constructed elements, components and systems shall comply with the requirements of this code.

Delete and replace section AJ102.3 Smoke, Carbon Monoxide and Heat Protection as follows:

AJ102.3 Smoke, Carbon Monoxide and Heat Protection. Smoke, carbon monoxide and heat protection shall be provided when required by this section and designed, located and installed in accordance with the provisions for new construction. See sections R314, R314.5, and R315.

Add the following new sections - AJ102.3.1 Adding or Creating One or More Sleeping Rooms, AJ102.3.2 Complete Reconstruction, AJ102.3.3 Adding an Attached Garage, and AJ102.3.4 Energy Storage Systems as follows:

AJ102.3.1 Adding or Creating One or More Sleeping Rooms.

Single-family Dwelling. When one or more sleeping rooms are added or created to an existing dwelling, the entire dwelling shall be provided with smoke, heat and carbon monoxide protection.

2. **Two-family Dwelling**. When one or more sleeping rooms are added or created to one dwelling unit that unit shall be provided with smoke, heat and carbon monoxide protection. When sleeping rooms are added or created to both units the entire building shall be provided with smoke, heat and carbon monoxide protection.

3. **Townhouses Dwelling Unit**. When one or more sleeping rooms are added or created to an existing dwelling unit, the entire unit shall be provided with smoke, heat, and carbon monoxide protection.

AJ102.3.2 Complete Reconstruction. If a dwelling or townhouse building undergoes reconstruction such that more than 50% of walls and ceilings are open to framing, then the entire existing building shall be provided with smoke, heat and carbon monoxide protection.

AJ102.3.3 Adding an Attached Garage. If a garage is created under or attached to an existing dwelling unit, heat detection shall be provided in the garage in accordance with R314.8 and carbon monoxide protection shall be provided throughout the building in accordance with R315.

Add New Section to AJ102.3:

AJ102.3.4 Energy Storage Systems. *When an energy storage system (ESS) is installed in a building, the building shall be provided with smoke, carbon monoxide, and heat protection in accordance with R314 and R315.*

AJ102.3.4.1 Energy Storage Systems. When an energy storage system is installed, smoke, heat, and carbon monoxide detection shall be provided in accordance with the following:

Installation of an energy storage system within an attached garage or dwelling unit shall require a hard-wired powered smoke or heat detection device within the immediate vicinity of the energy storage system in accordance with R314.

Add new section AJ102.7.1 Documentation of Compliance Alternatives as follows:

AJ102.7.1 Documentation of Compliance Alternatives. The *building official* shall ensure that the BBRS is provided with information regarding any and all compliance alternatives accepted by the building official within two weeks of acceptance.

Revise and replace section AJ102.9 Features exceeding code requirements as follows:

AJ102.9 Features exceeding code requirements. Elements, components and systems of existing buildings with features that exceed the requirements of this code for new construction, and are not otherwise required as part of *approved* alternative arrangements or deemed by the *building official* to be required to balance other building elements not complying with this code for new construction, shall not be prevented by these provisions from being modified as long as they remain in compliance with the applicable requirements for new construction and M.G.L. c.148 s.27A.

Add new sections AJ102.10 Unlined Chimneys, AJ102.11 Latent Conditions, AJ102.12 Energy Efficiency, AJ102.13 Roofing and Reroofing, and AJ102.14 Accessibility for Persons with Disabilities as follows:

AJ102.10 Unlined Chimneys. Where new HVAC appliances are connected to an unlined chimney, the chimney lining requirements of 248 CMR: *Board of State Examiners of Plumbers and Gas Fitters* or 527 CMR: *Board of Fire Prevention Regulations*, as applicable, and those of the appliance manufacturer, shall be satisfied. If the appliance is a solid fuel-burning appliance, the chimney shall be relined to satisfy requirements both of the code for new construction and those of the manufacturer, as applicable.

AJ102.11 Latent Conditions. When latent conditions are observed and which are determined by the licensed construction supervisor, the owner or the *building official* to be dangerous or unsafe, or when a component or system is determined to be unserviceable, said conditions shall be corrected in accordance with applicable provisions of 780 CMR 51.00: *Massachusetts Residential Code*. A building permit shall be obtained or the building permit shall be amended in accordance with the provisions of section R105 in order to reflect the necessary required work and the approval shall be obtained from the building official prior to commencement of the corrections.

EXCEPTION: If the public safety so warrants, corrective actions are permitted to be made prior to amending the building permit application, providing that the *building official* is notified in writing within 24 hours of actions taken pursuant to this exception. This exception shall not be construed as to authorize constructive approval nor set aside the requirements to amend the permit application, nor shall the authority of the *building official* to enforce 780 CMR 51.00: *Massachusetts Residential Code* be abridged. Such corrective actions shall be documented by the construction supervisor or the owner and submitted to the *building official* within 48 hours of the completion of the action under this exception. Such corrective work shall not be concealed until the *building official* has inspected and approved the work.

AJ102.12 Energy Efficiency. See section N1100.

AJ102.13 Roofing and Reroofing. See Chapter 9 of 780 CMR 51.00: *Massachusetts Residential Code* generally and section R907.

AJ102.14 Accessibility for Persons with Disabilities. Accessibility requirements shall be in accordance with 521 CMR.

Revise and replace section AJ103.1 General as follows:

AJ103.1 General. If a building permit is required at the request of the prospective permit applicant, the building official or his or her legal designee may meet with the prospective applicant to discuss plans for any proposed work under these provisions prior to the application for the permit. The purpose of this preliminary meeting is for the building official to gain an understanding of the prospective applicant's intentions for the proposed work, and to determine, together with the prospective applicant, the specific applicability of these provisions.

Delete sections AJ107.1.2 Plumbing materials and supplies andAJ107.2 Water closets.

Revise and replace section AJ107.3 Electrical as follows:

AJ107.3 Electrical. Repair or replacement of existing electrical wiring and *equipment* undergoing repair with like material shall be in accordance with 527 CMR 12.00.

Delete section AJ107.3 Electrical - Exceptions #1, #2, and #3.

Add an Exception to AJ108.2 Door and window dimensions - as follows:

Exception: Emergency escape and rescue openings shall comply with R310.

Revise and replace section AJ102.4.3 Emergency Escape and Rescue Windows - as follows:

AJ102.4.3 Emergency Escape and Rescue Windows. For one- and two-family dwellings and townhouses of no more than three stories in height, all emergency escape windows from sleeping rooms shall have a net clear opening of 3.3 ft^2 (0.307 m^2). The minimum net clear opening shall be 20 inches by 24 inches (508 mm by 610 mm) in either direction except that windows in sleeping rooms of existing dwellings which do not conform to these requirements may be replaced without conforming to these dimensional requirements, provided that the windows do not significantly reduce the existing opening size.

EXCEPTION: Replacement windows utilized as emergency escape and rescue windows, other than double-hung windows, shall generally conform to the requirements of this section without conforming to the cited dimensional requirements, provided that such replacement windows do not significantly reduce the existing opening size.

Add a new section AJ104.2 Structural - as follows:

AJ104.2 Structural. Unreinforced masonry townhouse buildings shall have parapet bracing and wall anchors installed at the roofline whenever a reroofing permit is issued if required by 780 CMR 34.00: *Existing Structures*. Such parapet bracing and wall anchors shall be of an approved design. Where renovations may decrease the structural performance of the existing building, such proposed activities shall be evaluated by a registered design professional for adequacy, prior to such actual structural renovation.

Revise and replace section AJ109.1 Newly Constructed Elements as follows:

AJ109.1 Newly Constructed Elements. Additions, newly constructed elements, components and systems shall comply with the requirements of 780 CMR 51.00: *Massachusetts Residential Code*.

EXCEPTIONS:

1. Operable windows may be added without requiring compliance with the light and ventilation requirements of section R303.

2. Newly installed electrical equipment shall comply with the requirements of section AJ501.5.

Revise and replace section AJ109.4 Structural as follows

AJ109.4 Structural. The minimum design loads for the structure shall be the loads applicable at the time the building was constructed, provided that a dangerous condition is not created. Structural elements that are uncovered during the course of the alteration and that are found to be unsound or dangerous shall be made to comply with the applicable requirements of 780 CMR 51.00: *Massachusetts Residential Code*. Where alterations may decrease the structural performance of the existing building, such proposed activities shall be evaluated by a registered design professional for adequacy, prior to such actual structural alterations.

Revise and replace section AJ109.5 as follows:

AJ109.5 Electrical equipment and wiring. See 527 CMR 12.00**.**

Delete subsections AJ109.5.1 through AJ109.5.3.5

Add a new section AJ110.5 Structural as follows:

AJ110.5 Structural. Where reconstruction may decrease the structural performance of the existing building, such proposed activities shall be evaluated by a registered design professional for adequacy, prior to such actual structural reconstruction.

Add a new section - SECTION AJ112 ADDITIONS and the following sub sections:

AJ112.1 Additions. An *addition* to a building or structure shall comply with 780 CMR as adopted for new construction without requiring the *existing building* or structure to comply with any requirements of those codes or of these provisions, except as required by this code. Where an *addition* impacts the *existing building* or structure, that portion shall comply with this code.

AJ112.2 Creation or extension of nonconformity. An *addition* shall not create or extend any nonconformity in the *existing building* to which the *addition* is being made with regard to accessibility, structural strength, fire safety, means of egress or the capacity of mechanical, plumbing or electrical systems.

AJ112.3 Other work. Any *repair* or *alteration* work within an *existing building* to which an *addition* is being made shall comply with the applicable requirements for the work as classified.

AJ112.4 Fire Protection. Fire protection features shall comply with the code for new construction throughout the addition.

AJ112.4.1 Smoke, Carbon Monoxide and Heat Protection. Where the addition requires smoke, carbon monoxide, and/or heat detection in Sections R314, R314.5 or R315, the addition shall comply with the provisions for new construction.

AJ112.4.1.1 Where the addition requires smoke, carbon monoxide, and/or heat detection in accordance with AJ102.3, the provisions shall apply throughout the building.

AJ112.4.2 Automatic fire sprinkler system. Where the addition creates a condition that would require the installation of a fire sprinkler system per Section R313, an automatic fire sprinkler system shall be installed throughout the addition.

Add a new section AJ113 Historic Buildings as follows:

AJ113.1 Historic Buildings. For historic building requirements, see 780 CMR 34.00: *Existing Building Code*.

APPENDIX AK - SOUND TRANSMISSION - ADOPTED IN FULL

APPENDIX AL - PERMIT FEES - RESERVED

APPENDIX AM - HOME DAY CARE—R-3 OCCUPANCY - RESERVED

APPENDIX AN - VENTING METHODS - RESERVED

APPENDIX AO - AUTOMATIC VEHICULAR GATES - ADOPT IN FULL

APPENDIX AP - SIZING OF WATER PIPING SYSTEM - RESERVED

APPENDIX AQ - TINY HOUSES - ADOPT AS REVISED

Add a new section AQ 107 MEANS OF EGRESS and subsection 107.1 Number of Means of Egress as follows:

SECTION AQ 107 MEANS OF EGRESS

107.1 Number of Means of Egress. Only one egress door is required from Tiny Houses meeting the requirements of this Appendix. The egress door shall be side-hinged and shall provide a clear width of not less than 32 inches (813 mm) where measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). The clear height of the door opening shall be not less than 78 inches (1981 mm) in height measured from the top of the threshold to the bottom of the top stop.

APPENDIX AR - LIGHT STRAW-CLAY CONSTRUCTION - RESERVED

APPENDIX AS - STRAWBALE CONSTRUCTION - ADOPT IN FULL

APPENDIX AT [RE] SOLAR-READY PROVISIONS—DETACHED ONE- AND TWO-FAMILY DWELLINGS AND TOWNHOUSES - ADOPT AS REVISED

Revise and replace AT101.1 (RB101.1) General section as follows:

AT101.1 (RB101.1) General. These provisions shall be applicable for new construction, except additions.

Revise and replace section AT103.1 (RB103.1) General as follows:

AT103.1 (RB103.1) General. New detached one- and two-family dwellings, and multiple single-family dwellings (townhouses) with not less than 600 ft^2 (55.74 m^2) of roof area oriented between 110° and 270° of true north shall comply with sections AU103.2 through AU103.8 (RB103.2 through RB103.8).

EXCEPTIONS:

1. New residential buildings with a permanently installed on-site renewable energy system.

2. A building with a solar-ready zone that is shaded for more than 70% of daylight hours annually.

3. Buildings and structures as designed and shown in construction documents that do not meet the conditions for a solar-ready zone area.

Revise and replace section AT103.3 (RB103.3) Solar-Ready Zone Area as follows:

AT103.3 (RB103.3) Solar-Ready Zone Area. The total solar-ready zone area shall consist of an area not less than 300 ft^2 (27.87 m^2) exclusive of mandatory access or set back areas as required by 527 CMR. New multiple single-family dwellings (townhouses) three stories or less in height above grade plane and with a total floor area less than or equal to 2,000 ft^2 (185.8 m^2) per dwelling shall have a solar-ready zone area of not less than 150 ft^2 (13.94 m^2). The solar-ready zone shall be composed of areas not less than five feet (1,524 mm) in width and not less than 80 ft^2 (7.44 m^2) exclusive of access or set back areas as required by 527 CMR.

Revise and replace section AT103.4 as follows:

AT103.4 (RB103.4) Obstructions. Solar-ready zones shall consist of an area free from obstructions, including but not limited to vents, chimneys, and roof-mounted equipment.

NOTE: Nothing in AT103.4 (RB103.4) shall require any construction documents to be redesigned or reconfigured so as to create a solar-ready zone area.

APPENDIX AU - COB CONSTRUCTION (MONOLITHIC ADOBE) - ADOPT IN FULL

APPENDIX AV - BOARD OF APPEALS - RESERVED

APPENDIX AW - 3D-PRINTED BUILDING CONSTRUCTION - ADOPT IN FULL

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS

(780 CMR 52.00 THROUGH 109.00: RESERVED)

780 CMR 110.00: SPECIAL REGULATIONS

110.R1: CONCRETE TESTING LABORATORIES

NOTE: 780 CMR 110.R1 is unique to Massachusetts.

110.R1.1 Title. The BBRS adopts the rules and regulations for concrete testing laboratories contained herein as 780 CMR 110.R1.

110.R1.2 Scope. The provisions of 780 CMR 110.R1 shall govern the registration of laboratories that test concrete and concrete aggregates utilized in the construction of buildings and structures falling under construction control.

110.R1.3 Definitions. The following words and terms shall, for the purpose of 780 CMR 110.R1, have the meanings shown:

ACCREDITATION AUTHORITY. An entity such as the National Institute of Standards and Technology, the Cement and Concrete Reference Laboratory ("CCRL"), AASHTO Materials Reference Laboratory ("AMRL"), registered design professional, or another agency designated by the BBRS that field examines and evaluates concrete testing laboratories. Some accreditation authority such as AMRL may have limited evaluation and testing authority relative to 780 CMR 110.R1.

BRANCH LABORATORY. A concrete testing laboratory physically removed from the principal laboratory. A branch laboratory may have project laboratories.

CONCRETE TESTING LABORATORY. A proprietorship, corporation, partnership or agency which conforms to the requirements of ASTM E 329 as modified by 780 CMR 110.R1. A concrete testing laboratory shall mean the principal laboratory, branch laboratory or project laboratory unless otherwise specified, and shall be capable of testing as a minimum concrete and concrete aggregate.

CONCRETE FIELD TESTING TECHNICIAN. A person issued a Concrete Field Testing Technician - Grade I license by the American Concrete Institute ("ACI") authorizing such person to test/inspect concrete.

DOL. The Massachusetts Division of Occupational Licensure.

LABORATORY. A concrete testing laboratory.

OFFICE. The Office of Public Safety and Inspections.

PRINCIPAL LABORATORY. A concrete testing laboratory that may have branch and project laboratories.

PROJECT LABORATORY. A temporary onsite concrete testing laboratory for a specific project under the direction of a principal or branch laboratory.

REPORT. A field examination and evaluation of a laboratory which indicates compliance with 780 CMR 110.R1. All findings of noncompliance shall be resolved as indicated by either the seal of a registered design professional or approval by an accreditation authority.

110.R1.4 Registration. A laboratory shall each be registered by the BBRS in accordance with 780 CMR 110.R1. An entity seeking to register as a new laboratory or seeking to renew a registration shall submit a standard application to the Office for approval demonstrating that its facilities, equipment, personnel and procedures meet the requirements of 780 CMR 110.R1. The application will include but not be limited to: a report(s) not older than three years and a fee. A registration and laboratory classification (principal, branch or project) shall be issued for an application that meets the requirements of 780 CMR 110.R1, or the Office shall notify the applicant of the reasons of refusal. Registrations first issued shall be valid for a period of one, but not to exceed two years and shall expire on December 31. Renewals periods of registrations shall be one year and shall expire on December 31.

110.R1.4.1 Project Submittals. A laboratory involved with projects having structures subject to construction control as required in 780 CMR 1.00 shall submit notice of proof of registration to the project owner for submittal to the building official at the time of the building permit application. Proof of registration shall also be submitted by any new or successor laboratory prior to engaging in work during the course of a project. A laboratory that plans to terminate services on a project s.hall notify the building official and project owner in writing three days prior to terminating services.

110.R1.5 Qualifications. Principal laboratory and branch laboratories shall be evaluated by an accreditation authority prior to applying for a registration and at least every three years to ensure the laboratory equipment, personnel and procedures meet the requirement of 780 CMR 110.R1. The accreditation authority shall notify the laboratory of the evaluation date. The accreditation authority will issue a report to the laboratory with all audit findings. Reports received by laboratories shall be submitted to BBRS through its designee the Office within ten days of receipt. Audit findings shall be corrected and approved by an accreditation authority within 30days and evidence of same submitted to the Office.

110.R1.5.1 Standards. Laboratory equipment, personnel and procedures shall conform to the standards of ASTM E 329 and 780 CMR 110.R1, narrow to the testing of concrete and its constituent materials only.

110.R1.5.2 Equipment. Compression testing machines shall be calibrated and verified, with equipment traceable to the National Institute of Standards and Technology, at least annually and also when a laboratory changes location or as required by the BBRS, and the calibration results submitted to the BBRS.

110.R1.5.3 Personnel. Each principal and branch laboratory shall have a director of testing services, lab supervisor and field supervisor. An individual that meets all three qualifications may fill more than one position at a laboratory, but may not fill positions concurrently at a separate

laboratory. A project laboratory shall have a full time lab supervisor. Each individual shall submit credentials and qualifications under penalty of perjury with signature notarized. Individuals applying for registration in more than one category shall file separate applications for each category. Credentials shall be filed within 30days of employment. The director of testing shall notify the BBRS within seven days of any vacancy of any position. Any vacant position shall be filled within 30days.

A director of testing shall be a fulltime employee of a laboratory, shall be able to interpret the results of tests on concrete and concrete aggregates as stated in ASTM E 329, and shall be qualified in accordance with one of the following requirements:

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.

110.R1.6 Deficiencies. Any laboratory that does not meet the requirements of 780 CMR 110.R1.4 to 110.R1.5 shall notify the Office within ten days of said deficiency. Deficiencies shall be corrected within 30days as proven by a laboratory affidavit sent to the Office on the standard affidavit form. Failure to notify the Office or to correct said deficiencies in the specified time frames shall deem the laboratory as noncompliant and it shall immediately cease testing of concrete and concrete materials subject to construction control.

110.R1.7 Revocation and Suspension. The BBRS may suspend or revoke the registration of any laboratory found to be in non-compliance with 780 CMR, or the standard of good practice.

Notice of suspension, revocation or refusal to renew a registration shall be in writing with the reasons clearly stated, and served in accordance 780 CMR 1.00. Prior to issuance of a suspension, revocation or refusal to renew a registration, written notice of such intent shall be served by the BBRS through its designee the Office,in accordance 780 CMR 1.00. Upon registration, suspension, or revocation, the laboratory shall immediately cease testing of concrete and concrete materials for structures subject to construction control.

110.R1.8 Appeals. Any laboratory or individual aggrieved by the suspension or revocation of a registration or by an interpretation, order, requirement, direction or failure to act under 780 CMR 110.R1 may appeal to the Building Code Appeals Board as provided in 780 CMR 1.00. However, entry of an

appeal shall not stay such revocation or suspension unless so ordered by the Building Code Appeals Board in a preliminary hearing conducted expressly for the purpose of a stay.

110.R2: CONCRETE FIELD TESTING TECHNICIAN LICENSING

NOTE: 780 CMR 110.R2 is unique to Massachusetts.

110.R2.1 Scope. The provisions of 780 CMR 110.R2 shall govern concrete field testing technician licensing.

110.R2.2 Definitions. Unless otherwise expressly stated in 780 CMR, the following terms, for the purpose of 780 CMR 110.R2, shall have the meaning indicated in 780 CMR 110.R2.1.2.

> **CONCRETE FIELD TESTING TECHNICIAN**. A person issued a Concrete Field Testing Technician – Grade 1 license by the American Concrete Institute ("ACI") authorizing such person to test/inspect concrete.
>
> **TESTING AGENCY**. An official Local Sponsoring Group of ACI.

110.R2.3 Licensing. All personnel engaged in field testing/inspection of concrete for use in buildings and structures subject to the construction control provisions of 780 CMR 1.00 shall be licensed by ACI as a Concrete Field Testing Technician - Grade 1 in accordance with ACI's "Certification Policies for Concrete Field Testing Technician - Grade 1" and 780 CMR 110.R2.

110.R2.4 Application for Licensing. Applicants shall contact and follow the policies and procedures of the Testing Agency and ACI to be licensed in accordance with 780 CMR 110.R2.

110.R2.5 Examination. Applicants shall contact the Testing Agency regarding applications, fees and exam schedules. The exam includes a written and practical "hands-on" component.

110.R2.6 Notification of Examination and Examination Results. The Testing Agency provides the time and place for the examination. ACI provides exam results directly to the applicant.

110.R2.7 Fees. Application, testing and license fees are paid to the Testing Agency and/or ACI.

110.R2.8 Renewals. Licenses shall be renewed according to the policies of ACI.

110.R3: MANUFACTURED AND MOBILE HOMES

PART I—GENERAL

R3.1 ADMINISTRATION

110.R3.1.1 Title. The BBRS adopts the rules and regulations for manufactured buildings, manufactured building components and manufactured homes contained herein as 780 CMR 110.R3.

110.R3.1.2 Scope. 780 CMR 110.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 the Commonwealth and/or manufactured in the Commonwealth 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 location in the Commonwealth if such products have been approved and certified pursuant to 780 CMR 110.R3.

110.R3.1.3 Administration and Enforcement. The BBRS, through its designee the Office, shall administer and enforce the state requirements of 780 CMR 110.R3 and building officials shall administer and enforce the local requirements of 780 CMR 110.R3. The boards which regulate the specialized codes shall have enforcement authority of product specific to its specialized code. No person, firm or corporation shall offer for sale or rental, or sell or rent, any product subject to any provisions of 780 CMR 110.R3 unless it conforms with the applicable provisions of 780 CMR 110.R3.
Where an uncertified building was constructed under a manufactured building program of another state and approved under such program, a TPIA shall prepare a report based on review of the plans and specifications and inspection of the building to assure that said plans and specifications meet the requirements of 780 CMR 13.00: *Energy Efficiency* and submit such to the Office for review and approval. When the occupancy classification of a relocated manufactured building is proposed to be changed, a TPIA shall inspect the building, including any disassembly necessary, to determine whether compliance may be achieved for a change of occupancy classification in accordance with the requirements of Chapter 10 of 780 CMR 34.00: *Existing Buildings*. If factory plans are available, then disassembly is not required to the extent that the factory plans can be reasonably verified to reflect the actual construction.

Exception: Relocatable buildings previously approved with a prior Massachusetts insignia may be relocated into or within the state, subject to local approval for the design loads for the location, provided that no plan, specification, reconfiguration, occupancy type or use group changes are made. The insignia numbers, design loads, and plans based on time of manufacture shall be provided to the building official at time of permit application and prior to installation.

110.R3.1.4 Authorization of Third-party Inspections Agencies. The BBRS may register TPIAs based on recommendations by the Office.

110R3.2: Definitions

110.R3.2.1 General. Unless otherwise expressly stated in 780 CMR, the following terms shall, for the purpose of 780 CMR 110.R3, have the meaning as follows:

ALTERATION. Any construction, other than ordinary repairs of product that deviate from the approved product.
APPLICABLE CODES. 780 CMR and specialized codes if applicable.
CERTIFICATION. Any manufacturer or product which meets the provisions of

780 CMR 110.R3 is deemed to be certified.
CSL. A construction supervisor license. *See* also construction supervisor.
DEALER. Any individual, organization or firm engaged in the retail selling, or offering for sale, brokering, or distribution of product, primarily to a person who in good faith, purchases or leases such product for purposes other than resale.
DPL. The Massachusetts Division of Professional Licensure.
INSTALLATION. The process of affixing, or assembling product on the building site, and connecting it to utilities, and/or to an existing building. Installation may also mean the connecting of two or more manufactured building or housing units designed and approved to be so connected.
INSTALLER. An individual who, on the basis of training and experience, has been certified by a manufacturer as competent to supervise the placement and connection required to install product of that manufacturer. Said certification by the manufacturer shall be in writing; additionally, the certified installer shall possess picture identification in the form of a driver's license or other picture identification acceptable to the building official.
LABEL. An approved device or seal evidencing certification of product in accordance with 780 CMR 110.R3.
LOCAL ENFORCEMENT AGENCY. A department or agency in a municipality charged with the enforcement of 780 CMR and appropriate specialized codes.
MANUFACTURED BUILDING. Any manufactured building which has concealed elements, such as electrical, mechanical, plumbing, fire protection, insulation, and other systems affecting health and safety, and which is manufactured, constructed, relocated, reconfigured, and/or assembled in accordance with 780 CMR and pertinent regulations, in manufacturing facilities, on or off the building site. Also, any manufactured building as defined above which does not have concealed elements, but which has been approved by the BBRS at the request of the manufacturer.
MANUFACTURED BUILDING COMPONENT. Any manufactured subsystem, manufactured subassembly, or other system designed for use in or as part of a structure having concealed elements such as electrical, mechanical, plumbing and fire protection systems and other systems affecting health and safety.
MANUFACTURER. A business entity approved to manufacture product.
MANUFACTURED HOMES. Manufactured homes regulated under the federal
Housing and Urban Development standards as defined in 24 CFR Part 3280.2, which are not within the scope of 780 CMR 110.R3.
MODULAR HOME. Any R-Use manufactured building.
OFFICE. The Office of Public Safety and Inspections.
PLANS. Building plans, specifications and documentation of product, which may include structural, electrical, mechanical, plumbing and fire protection systems and other systems affecting health and safety, including variations which are submitted as part of the building system.
PRODUCT. A manufactured building, manufactured building component, modular home or relocatable building.
QUALITY ASSURANCE MANUAL. The manual as outlined in section 3 of
780 CMR 110.R3 which contains the quality assurance process specific to a manufacturer and approved by a TPIA.
RELOCATABLE BUILDING. A partially or completely assembled building constructed and designed to be reused multiple times and transported to different building sites.
SPECIALIZED CODES. *See* 780 CMR 1.00: *Scope and Administration*.
THIRD PARTY INSPECTION AGENCY ("TPIA"). A TPIA registered in accordance with the requirements of 780 CMR 110.R3 and retained by the manufacturer and approved by the Office to perform inspection, evaluation, and certification of manufacturers and product.

110.R3.3: Certification of Manufacturer

110.R3.3.1 General. An entity which maintains a quality assurance program in conformance with a quality assurance manual in accordance with this section may apply to the Office for certification as a manufacturer. An entity seeking to become a manufacturer or a manufacturer seeking to renew a certification shall submit an

application to the Office for approval. These applications will include, but not be limited to: a quality assurance manual and a fee. A certification shall be issued for an application that meets the requirements of 780 CMR 110.R3, or the Offices shall notify the applicant of the reasons for refusal. Certifications first issued and renewals of certifications shall be valid for a period of one year.

110.R3.3.2 Quality Assurance Manual. The quality assurance manual of a manufacturer shall consist of the requirements contained in 780 CMR 110.R3. It is the responsibility of the manufacturer to execute every aspect of this manual. The manufacturer shall continue to be responsible for all corrective actions required and the contractual relationship between the manufacturer and the TPIA shall not diminish such responsibility. The manufacturer shall cooperate with the TPIA by providing all necessary reports, information, documents, records, facilities, equipment, samples and other assistance for assuring compliance with 780 CMR 110.R3. The manual shall be comprehensively indexed, and shall treat the material listed here in detail, as follows:

1. A procedure for periodic revision of the quality assurance manual;
2. An organizational structure for implementing and maintaining the quality assurance program and its functional relationship to other elements of the organization structure of the manufacturer, which structure shall provide for independence from the production department; company officers and employees in charge of the quality assurance program shall be identified, and their training and qualifications specified;
3. A uniform system of audit (in-depth analysis of program effectiveness and means to identify deficiencies) to monitor the quality assurance program periodically;
4. Complete and reliable records of manufacturing and site operations, if any (suitable means of storage, preservation and accessibility of copies of forms to be utilized shall be included);
5. A system to control changes in production or inspection procedures within the manufacturing facility;
6. A system to assure that working drawings and specifications, working instructions and standards, procurement documents, *etc*. conform to the approved building system;
7. A serial number system for buildings or building components; and
8. The method of safekeeping, handling and attaching labels and identification of those employees responsible therefore.
9. Materials Control.
    a. Procedure to assure effective control over procurement sources to ensure that materials, supplies and other items used in production and site operations, if any, conform to the approved plans, specifications and quality requirements;
    b. Procedures for inspection of materials, supplies and other items at the point of receipt;
    c. Method of protection of materials, supplies and other items against deterioration prior to their incorporation in the certified buildings or building component; and
    d. Provision for disposal of rejected materials, supplies and other items.
10. Product Control.
    a. Procedures for timely remedial and preventive measures to assure product quality;
    b. Provision, maintenance and use of testing and inspection;
    c. Provision for frequency of sampling inspections;
    d. Provision of necessary authority to reject defective work and carry out compliance assurance functions, notwithstanding any conflict with production department goals and needs;
    e. A schematic of the manufacturing operation showing the location of inspection stations or areas, and “hold” points for mandatory inspection characteristics;
    f. Inspection and test procedures, including accept/reject criteria and mandatory inspection characteristics;
    g. Standards of workmanship; and
    h. Provision of disposal of rejects.
11. Finished Product Control.
    a. Procedure for final inspection of all product before shipment to the site or storage point, including identification and labels;

b. Procedures for handling and storing all finished product, both at the manufacturing plant or other storage point and after delivery to the building site;
c. Procedures for packing, packaging and shipping operations and related inspections; and
d. Procedures for transportation, including all measures to protect product against damage while in transit, and setting forth the modes of transportation to be utilized and the carrying equipment and procedures.

12. Installation Control.
a. Installation procedures including component placement or set, equipment and procedures, field erection and finishing work, utility connection instructions and all appropriate on-site inspection criteria and test descriptions; and
b. Organizational provisions for field repair and disposal of rejects.

13. Permission for Inspection. The manufacturer shall provide the Office with written permission, signed and notarized, for the Office to inspect manufacturing facilities, products, and building sites under his or her control at any reasonable time without prior announcement.

14. Shall contain detailed plans for inspections by the Office or the TPIA.

110.R3.4: Registration of TPIA

110.R3.4.1 General. An entity which seeks to register as a TPIA or to renew a registration as a TIPA shall submit an application and a fee to the Office for approval. Applications will include, but not be limited to, the requirements of 780 CMR 110.R3. A registration shall be issued for an application that meets the requirements of 780 CMR 110.R3, or the Office shall notify the applicant of the reasons for refusal. Registrations first issued and renewals of registrations shall be valid for a period of one year.

110.R3.4.2 Registration Requirements. Applications shall contain, but not be limited to, information on the following; corporate structure, employees, inspection programs, test reports and data sheets, insurance, responsibility and liability, and certification, labels and product. The TPIA applicant shall attest that:

1. All submissions are a true and accurate statement of the personnel, equipment, and procedures that will be followed to certify product;
2. The agency's board of directors, as a body, and its technical personnel as individuals, shall exercise independent judgment;
3. The agency's activities shall not result in financial benefit to the agency through stock ownership, or other financial interests in any producer, suppliers, or vendor of products involved, other than through standard published fees for services rendered;
4. The agency shall not perform architectural, mechanical, electrical, plumbing, sprinkler, or structural design or quality assurance program approvals for any manufacturer who uses the same agency, in whole or in part, by members of the agency or any affiliated organization for in-facility inspections or other TPIA services;
5. All inspectors, evaluators, and other technicians are adequately trained and qualified to perform each job assigned to them; and
6. The agency is able to evaluate product for compliance with all applicable codes, standards, laws, and rules.

110.R3.5: Dealers

110.R3.5.1 General. Any dealer who contracts for product that is installed or intended to be installed in the Commonwealth shall, as a minimum, be registered with the Secretary of the Commonwealth and the Massachusetts Better Business Bureau. Complaints against a dealer received by the Office may be forwarded to the Massachusetts Better Business Bureau, the Office of the Attorney General of Massachusetts, the Office of Consumer Affairs and Business Regulations, or other entity for appropriate action.

Exceptions:
a. Individuals licensed or certified under other state or federal law, when the law provides for specific authority to provide this particular service, or preempts the requirement for such a registration.
b. Holders of an active license issued by the Massachusetts Real Estate Commission.
c. Any licensed construction supervisor who contracts directly with the owner or dealer.

110.R3.6: Certification of Plans

110.R3.6.1 General. Plans for newly constructed or recertified product shall meet the requirements set forth in this section and are to be evaluated for compliance with 780 CMR 110.R3 and certified accordingly by the TPIA. Certified plans along with a fee are to be submitted to the Office for review and approval.

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:

1. Plans shall be submitted showing all elements relating to specific details on properly identifiable sheets.
2. Each plan application shall bear the signature and seal of a registered design professional certifying that the plans comply with the applicable codes and standards, where applicable.
3. All work to be performed on-site, including connection of all systems, equipment and appliances, shall be identified and distinguished from work to be performed in the manufacturing facility.
4. Grade, quality and identification of all material shall be specified.
5. Design calculations and test reports shall be specified.
6. Drawings shall be drawn to scale and be legible and indicate the location of the data plate and shall be dated and identified. The number of sheets in each set shall be indicated.
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.

a. General.
   i. Details and methods of installation of product on foundations and/or to each other.
   ii. All exterior elevations.
   iii. Cross sections as necessary to identify major building components.
   iv. Details of flashing, such as at openings and at penetrations through roofs and subcomponent connections. Indicate flashing material and gauge to be used.
   v. Attic access and attic ventilation.
   vi. Exterior wall, roof and soffit material as well as finish.
   vii. Interior wall and ceiling finish material.
   viii. Fire separation walls.
   ix. Sizes, locations and types of doors, windows and fire/smoke detectors.
   x. Recommended foundation plans, vents and underfloor access.

b. Building Classification.
   i. Occupancy or use group.
   ii. Area, height, and number of stories.
   iii. Type of construction.
   iv. Fire resistance ratings.

c. Space and Fire Safety.

   i. Details of fire resistance rated assemblies for all stairway enclosures, doors, walls, floors, ceilings, partitions, columns, roof and shaft enclosures and how continuity will be maintained at all horizontal and vertical junctions.

ii. Detail of fire protection systems.
iii. Details as to width of all aisles, exits, corridors, passageways and stairway enclosures.
iv. Toxicity and flame spread classification of finished materials.

d. Structural Detail Requirements.
i. Engineer's calculations of structural members, where appropriate.
ii. Structural and framing details of all floors, roof and walls.
iii. Details and stress diagrams of roof trusses.
iv. Details of reinforcing steel.
v. Complete loading schedule.
vi. Column loads and column schedule.
vii. Lintel schedule.
viii. Size, spacing and details of all structural elements.
ix. Grade or quality of all structural elements (lumber, steel, *etc*.).
x. Elevation of structural elements, walls or sections thereof, providing resistance to vertical loads or lateral forces.
xi. Complete details of all structural connections.

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

f. Plumbing Detail Requirements.
i. Plan or schematic drawing of the plumbing layout including, but not limited to, size of piping, fitting, traps and vents, cleanouts and valves, gas, water, and drainage system.
ii. Plumbing materials, and location of all equipment and appliances to be used. Indicate fixture unit capacity of system(s) and the make, model, and rating/capacity of equipment and appliances. Indicate equipment and appliances listed or labeled by approved agencies.
iii. Make and model of safety controls (such as for water heaters), their location, and whether listed or labeled by approved agencies.
iv. How piping is to be supported and intervals of support.
v. Location of vents above roofs and required clearances including, but not limited to, clearances from air intakes, other vents and flues.
vi. Methods of testing.

g. Electrical Detail Requirements.
i. Plan of service equipment, including service entrance, conductors, service raceway and clearances above ground and above structures.

ii. Method and detail for grounding service equipment.
iii. Single line diagram of the entire electrical system.
iv. Load calculations for service and feeders.
v. Sizes of all feeders and branch circuits.
vi. Size, rating and location of main disconnect/overcurrent protective devices.
vii. Method of interconnection between product and location of connections.
viii. Location of all outlets and junction boxes.
ix. Method of mounting fixtures and wiring installations.
x. Lighting power calculations.

110.R3.7: The Office Inspections

110.R3.7.1 General. The Office, as it deems necessary, may conduct a review of processes a manufacturer's processes and/or TPIA inspection practices or any other requirement governed by 780 CMR 110.R3. This may include any part of the entire process of manufacturing, certifying, handling, storing and transporting of product pursuant to approved plans. No inspection entailing disassembly, damage to or destruction of certified product shall be conducted except to implement 780 CMR 110.R3.

110.R3.7.2 Damaged Product. Any finding of damage to product shall cause immediate notification to be made to the Office, TPIA and the manufacturer. Prior to the issuance of a certificate of occupancy, the Office shall inspect, or cause to be inspected, product which it determines to have been sufficiently damaged after certification to warrant such inspection and to take such action with regard to such product as is authorized hereof, or as is otherwise necessary to eliminate dangerous conditions. The local enforcement agencies may designate the Office as the inspection agency.

110.R3.7.2.1 Repairing Damaged Components. The Office or a TPIA shall require product which are so damaged as to no longer comply with the applicable codes and 780 CMR 110.R3 to be repaired and made to comply within 14 days of discovery and after proper written notice to the manufacturer, installer and owner; or if they are so damaged that they cannot be brought into compliance, the Office or a TPIA shall order that the labels be removed and voided from such product. A report shall be filed with the
TPIA and the Office. Irreparably damaged product shall be disposed of by the manufacturer, the CSL and/or owner.

110.R3.7.3 TPIA Review. The Office or their designated agents shall audit a TPIA, at any reasonable time, and without prior announcement, in order to monitor the reliability of each TPIA and of its monitoring of quality assurance manuals. Each such audit shall investigate the adequacy of all procedures used by the agency in monitoring compliance assurance programs including inspection, tests, production methods, process controls, operator performance, materials, receipts, storage and handling, workmanship standards, records and all other activities which implement the quality assurance program in the manufacturing facility, during transport, or on-site (as applicable), and at subcontractors' facilities. The results of such audit shall be filed with the Office and sent to the TPIA in writing, within 14 days of discovery. The TPIA shall be notified of any deficiencies and of the manner and time by which such deficiencies shall be eliminated. If deemed necessary by the Office, a TPIA registration may be suspended or revoked. An audit may also be conducted by the Office before approving an inspection agency for first issuance of a registration.

110.R3.8: Local Agency Enforcement

110.R3.8.1 Permits. Upon application and in conformity with the provisions of 780 CMR and 780 CMR 110.R3, the building official shall issue building permits for installation of product.

110.R3.8.1.1 Owner's Agent. A CSL, duly licensed in accordance with 780 CMR 110.R5, shall, in accordance with 780 CMR 1.00: *Scope and Administration*, be hired by and act as the agent for the owner for the purpose of applying for and obtaining any and all permits required for the field installation of all product. The CSL shall be responsible for the construction of the foundation system, the attachment to the foundation, and completion of the product, and all pertinent site work required by section 105 of 780 CMR and shall provide at least 48 hours notice to the Office and the building official before the placement and connection of such units shall begin.

110.R3.8.1.2 Submittal Documents. As part of the permit application process, the CSL shall submit to the building official, in writing:

a. The name of the installer, who shall be duly certified by the manufacturer to install said manufacturer's product, and is identified as an installer of product. The installer shall be responsible for the safe and proper placement and connection of the product in accordance with 780 CMR, 780 CMR 110.R3, and the specialized codes.

b. A statement that the work to be performed under such permit is to include the installation of the specific type of product in accordance with the provisions of the applicable codes, the statement is to be signed by the applicant or his or her agent, with the appropriate address.

c. A true copy of the approved product and where it was manufactured or is to be manufactured, where one has not previously been furnished to that local enforcement agency.

d. Site specific plans and specifications.

e. Plan Identification Number Assignment Form for newly constructed or recertified units with BBRS number. This is to confirm plans have been approved by the state and shall include a stamp approval and signature.

f. Plans shall be stamped on every page by a TPIA.

g. Every page showing calculations by a registered design professional shall be provided with their stamp and signature.

h. Energy compliance certificate.

i. Set manuals are required to be on-site at time of project set.

Exception: If all connection details are provided on the plans, then the set manual is not required.

j. Set crew information shall accompany the plan submittal package with approved certification from manufacturer.

110.R3.8.2 Inspection of Site Preparation and Service Connections. Appropriate local enforcement agencies shall inspect site preparation work including foundations, not within the scope of the approval and certification, and the structural, mechanical, plumbing, sprinkler, and electrical connections among units or components, for compliance with applicable law, rules and regulations.

110.R3.8.3 Compliance with Instructions. Appropriate local enforcement agencies shall inspect all product upon, or promptly after, installation at the building site to determine whether all instructions in the set connection details report or conditions listed on the manufacturer's data plate have been followed. This may include inspections for exterior weather-tightness and protection, tests for tightness of plumbing and mechanical systems, and for malfunctions in the electrical system and a visual inspection for obvious nonconformity with the approved building plans.

110.R3.8.3.1 Disassembly Prohibited. Destructive disassembly of product shall not be performed in order to conduct such tests or inspections, nor shall there be imposed standards or test criteria different from those adopted by the Office or specified in the approved plans.

110.R3.8.3.2 Opening Panels. Nondestructive disassembly may be performed only to the extent of opening access panels and cover plates.

110.R3.8.4 Non-complying New or Recertified Units. Local enforcement agencies shall report to the BBRS in accordance with 780 CMR 110.R3 any non-complying product.

110.R3.8.5 Certificates of Occupancy. Building officials shall issue certificates of occupancy for product as applicable if such product has been installed and inspected pursuant to the applicable codes and 780 CMR 110.R3 and complies with the approved building specifications and plans. Any noncompliant items shall be brought into compliance before such certificate of occupancy shall be issued.

110.R3.8.6 Reporting of Violations to Division of Professional Licensure. When any local enforcement agency is making an inspection and finds violations or suspected violations, it shall report the details of the violations in writing to the BBRS. Where violations are hazardous to occupants, a certificate of occupancy shall not be issued and the building shall not be occupied before such hazards are corrected. If the violations are not hazardous, a temporary certificate of occupancy may be issued.

110.R3.9 Compliance Assurance

110.R3.9.1 Grounds. The BBRS may suspend or revoke the registration of any TPIA or certification of any manufacturer, if the approval was issued in error; was issued on the basis of incorrect information; was issued in violation of any of the applicable codes or 780 CMR 110.R3; if examination discloses that the entity failed to perform properly; or for such other cause as may be deemed sufficient by the Office to warrant such action. If there is a violation of the specialized codes, the Office shall notify the authority having jurisdiction.

110.R3.9.2 Notice. If the BBRS suspends or revokes the registration of a TPIA, the TPIA shall be given notice in writing from the Office of the suspension or revocation with the reasons therefore set forth therein. Manufacturers being evaluated or inspected by such agencies and all local enforcement agencies within the Commonwealth shall also be notified in writing of such suspension or revocation. Such notices shall contain instructions to the manufacturer and to the local enforcement agency as to the procedures to be followed regarding product previously certified by the TPIA whose approval has been suspended or revoked. If the BBRS suspends or revokes the certification of a manufacturer, the manufacturer shall be given notice in writing from the Office of the suspension or revocation with the reasons therefore set forth therein. Such notices shall contain instructions to the
TPIA and to the local enforcement agency as to the procedures to be followed regarding product produced by the manufacturer whose certification has been suspended or revoked.

110.R3.9.3 Records. If an entity whose registration or certification has been suspended or revoked shall within 90 days of the suspension or revocation deliver to the custody of the Office the originals of all records required to be maintained during the course of its operations pursuant to the applicable codes and 780 CMR 110.R3.

110.R3.9.4 Appeal. Any entity aggrieved by a revocation or suspension stemming from a violation of 780 CMR 110.R3 or any other section or provision of 780 CMR may appeal to the BBRS as allowed by 780 CMR 1.00: *Scope and Administration*. For appeals to specialized code requirements the authority having jurisdiction shall administer the appeal.

110.R4: REGISTRATION OF NATIVE LUMBER PRODUCERS

NOTE: 780 CMR 110.R4 is unique to Massachusetts.

110.R4.1: ADMINISTRATION

110.R4.1.1 Scope. The provisions of 780 CMR 110.R4 shall govern the licensing of native lumber producers.

110.R4.1.2 Definitions. The following words and terms shall, for the purposes of 780 CMR 110.R4 and as used elsewhere in 780 CMR, have the meaning indicated in 780 CMR 110.R4.1.2.

NATIVE LUMBER. Native lumber is wood processed in the Commonwealth by a mill registered in accordance with 780 CMR. Such wood is ungraded but is stamped or certified in accordance with 780 CMR 23.00. Native lumber shall be restricted to use in one-and two-story dwellings, barns, sheds, agricultural and accessory buildings and structures and other uses as permitted by 780 CMR 23.00.

NATIVE LUMBER PRODUCERS. Persons or corporations in the business of milling wood into native lumber within the Commonwealth.

PERSON. Individual, partnership, corporation, trust, joint venture, etc.

110.R4.1.3 Registration. No person shall produce native lumber for use in buildings or structures within the Commonwealth unless registered by the BBRS.

110.R4.1.4 Application. Native lumber producers shall apply and furnish qualifications satisfactory to the BBRS in accordance with 780 CMR 110.R4 and qualification requirements provided by the BBRS with the application form.

110.R4.1.5 Registration Fee. Applications shall be accompanied by a registration fee in accordance with 801 CMR 4.02: *Fees for Licenses, Permits, and Services to be Charged by State Agencies*. This initial registration shall be valid for two years.

110.R4.1.6 Renewals. Registration shall be renewed every two years. Within 30 days before the registration expiration date, the BBRS shall forward to each registrant a renewal form. Upon receipt of the completed form and fee in accordance with 801 CMR 4.02: *Fees for Licenses, Permits, and Services to be Charged by State Agencies*, the BBRS shall renew the registration for a period of two years or notify the applicant of reasons for refusal. Any application for renewal of a registration which has expired shall require the payment of a new registration fee.

110.R4.1.7 Prequalifying Agent. State inspectors of the Division of Professional Licensure shall act as agents of the BBRS to inspect native lumber producing facilities. Upon receipt of a completed application, the state inspector shall inspect the facility for compliance with the required qualifications and make recommendation to the BBRS.

110.R4.1.8 Penalties. Any person who fails to comply with the requirements of 780 CMR 110.R4 or who falsifies an application shall be subject to the penalties and actions as prescribed in section 114.0 of 780 CMR.

110.R4.2: REGISTRATION STAMP

110.R4.2.1 Issuance. Each person registered by the BBRS shall be issued a specific name and number for use in stamping or certifying the native lumber produced at a specific mill.

110.R4.2.2 Contents. Each stamp shall be a minimum of two inches by four inches with a minimum of 36 pt. letters and shall contain the following information:

1. Name of native lumber producer;
2. Registration number; and
3. Species of wood.

Each producer shall be responsible for obtaining stamps made for their use in accordance with the requirements of the BBRS and 780 CMR 110.R4.

110.R4.2.3 Use. Each piece of native lumber shall be stamped with the name and registration number of the producer in accordance with 780 CMR 110.R4 and bear an approved mark identifying the species of wood. In lieu of stamping, a certification bearing the same stamped information may be provided by the producer for precut or re-manufactured lumber in accordance with 780 CMR 110.R4.

110.R4.2.4 Unlawful Use. It shall be unlawful to use a stamp registered for a specific mill at any other mill.

110.R4.3: REVOCATION AND SUSPENSION

110.R4.3.1 Revocation and Suspension. The BBRS may suspend or revoke the registration of any native lumber producer found to be in noncompliance with 780 CMR or the standard of good practice. Notice of suspension, revocation or refusal to renew a registration shall be in writing with the reasons clearly stated, and served in accordance 780 CMR 1.00. Prior to issuance of a suspension, revocation or refusal to renew a registration, written notice of such intent shall be served by the BBRS through its designee the Office in accordance 780 CMR 1.00. Upon registration suspension or revocation the native lumber producer shall immediately cease production of native lumber.

110.R4.3.2 Appeals. Any native lumber producer or individual aggrieved by the suspension or revocation of a registration or by an interpretation, order, requirement, direction or failure to act under 780 CMR 110.R4 may appeal to the Building Code Appeals Board as provided in 780 CMR 1.00. However, entry of an appeal shall not stay such revocation or suspension unless so ordered by the Building Code Appeals Board in a preliminary hearing conducted expressly for the purpose of a stay.

110.R5: LICENSING OF CONSTRUCTION SUPERVISORS

(*Note: 780 CMR 110.R5 is unique to Massachusetts*)

110.R5.1.1 Scope. The provisions of 780 CMR 110.R5 shall govern the licensing of construction supervisors.

110.R5.1.2 Definitions. Unless otherwise expressly stated in 780 CMR the following terms shall, for the purpose of 780 CMR 110.R5, have the meaning indicated in 780 CMR 110.R5.1.2.

CSL. A construction supervisor license. See also construction supervisor.

CONSTRUCTION SUPERVISOR. A person of good moral character who is deemed qualified by the BBRS to directly supervise persons engaged in the scope of work shown in Table 110.R5.1. Such term shall also apply to persons supervising themselves.

Table 110.R5.1 Construction Supervisor License (CSL) Scope of Work

Code	Designation	Note 1	Scope of Work
none[a]	CSL[a]	a, b, c, d	Construction, reconstruction, alteration, repair, removal, or demolition
none	CSL 1&2 Family Dwellings	b	Construction, reconstruction, alteration, repair, removal, or demolition
1A	CSL Masonry[b]	a, b, c, d	Construction, reconstruction, alteration, repair, removal, or demolition of masonry structures that require a permit. Not applicable for construction of masonry buildings
RF	CSL Roof Covering[a]	a, b, c	Construction, reconstruction, alteration, repair, or removal of roof covering, including repair and replacement of 25% of sheathing and 25% of sistering roof rafters
WS	CSL Window and Siding[b]	a, b, c	Construction, reconstruction, alteration, repair, or removal of doors, windows and siding including repair and replacement of damaged window or door framing < 4' wide and up to 25% of sheathing
SF	CSL Solid Fuel-Burning Appliance[b]	a, b, c	Installation of solid fuel burning appliances but does not allow work on any structural elements, including sheathing, with the exception of that required for the installation of either the inlet or exhaust elements
DM	CSL Demolition[b]	a, b, c, d	Demolition only.
IC	CSL Insulation[b]	a, b, c	Installation of insulation including repair and replacement of sheathing and siding necessary to access wall cavities
b. Specialty License		a. formerly known as "00, Unrestricted" CSL	
Note 1: Building Types and Structures			
a	Buildings of any use group which contain less than 35,000 cubic feet (991m^3) of enclosed space.		
b	One- and two-family dwellings or any accessory building thereto, irrespective of size.		
c	Building or structures for agricultural use.		
d	Retaining walls less than ten feet in height at all points along the wall as measured from the base of the footing to the top of the wall.		

HEARINGS OFFICER. The hearings officer is the person selected by the Division of Occupational Licensure and approved by the chair of the BBRS to carry out the disposition of complaints against licensed construction supervisors.

HOMEOWNER. Person(s) who owns a parcel of land on which he or she resides or intends to reside, on which there is, or is intended to be, a one- or two-family dwelling, attached or detached structures accessory to such use and/or farm structures. A person who constructs more than one home in a two-year period shall not be considered a homeowner.

LICENSED DESIGNEE. Any individual designated by the license holder to be present, in the absence of said license holder, during any of the periods stated in 780 CMR 110.R5.2.12. Such designee shall also hold a construction supervisor's license in the appropriate category (or better), but his or her name or license number need not be contained on the building permit application.

RECOGNITION. The approval by the BBRS of an application and related documents by one desirous of being licensed as a construction supervisor.

110.R5.1.3 Scope. 780 CMR 110.R5 shall govern the testing and licensing of individuals who are found to possess the requisite qualifications to be licensed as a construction supervisor and to have charge or control of construction, reconstruction, alteration, repair, removal or demolition of certain buildings or structures or parts thereof, as identified.

110.R5.1.3.1 Individuals supervising persons engaged in construction, reconstruction, alteration, repair, removal or demolition involving any activity regulated by any provision of 780 CMR, shall be licensed in accordance with 780 CMR 110.R5. Individuals engaged in the supervision of the field erection of manufactured buildings in accordance with 780 CMR 110.R3, shall be licensed as construction supervisors.

Exception: Any homeowner performing work for which a building permit is required shall be exempt from the licensing provisions of 780 CMR 110.R5, provided that if a homeowner engages a person(s) for hire to do such work, then such homeowner shall act as supervisor. This exception shall not apply to the field erection of manufactured buildings constructed pursuant to 780 CMR 110.R3.

NOTE: Any licensed construction supervisor who contracts to do work for a homeowner shall be responsible for performing said work in accordance with 780 CMR and manufacture's recommendations, as applicable, whether or not the licensed contractor secured the permit for said work.

110.R5.1.3.2 Exemptions. A construction supervisor's license is not required for:

1. construction of swimming pools, the erection of signs, the erection of tents;
2. projects which are subject to construction control pursuant to 780 CMR 1.00: *Scope and Administration*;

3. agricultural buildings which are not open to the public or otherwise made available for public use;
4. registered design professionals, provided such comply with the construction supervisor oversight requirements set forth in 780 CMR 110.R5 generally and 780 CMR 110.R5.2.12, as applicable;
5. Massachusetts certified building officials, provided such certification is current and they comply with the oversight requirements of 780 CMR 110.R5 generally and 780 CMR 110.R5.2.12, as applicable; or
6. the practice of any trade licensed by agencies of the Commonwealth, provided that any such work is within the scope of said license including, but not limited to wiring, plumbing gas fitting, fire protection systems, pipefitting, HVAC and refrigeration equipment. *See* M.G.L. c. 112, § 81R.

110.R5.1.3.3 Municipal Requirements. No municipality shall be prohibited from requiring a license for those individuals engaged in directly supervising persons engaged in construction, reconstruction, alteration, repair, removal or demolition in those categories of building and structures for which 780 CMR 110.R5 does not require a license.

110.R5.1.4 Administration and Enforcement. The BBRS shall administer and enforce the provisions of 780 CMR 110.R5. The BBRS or those designated by it shall administer examinations, under 780 CMR 110.R5, of persons desirous of being registered as qualified to receive a license as a construction supervisor.

110.R5.2: Registration and Licensing

110.R5.2.1 Qualifications. A construction supervisor license candidate shall demonstrate that he or she has had at least three years of experience in their field. This experience shall have been completed within the ten-year period prior to the date of application. Successful completion of certain educational programs may satisfy one to two years of required experience. In addition, all applicants are required to successfully pass an examination in order to receive a license. For a list of the pre-exam qualifications, access the examination application noted in 780 CMR 110.R5.2.2.

Exception: An individual holding a current certification in accordance with the requirements of 780 CMR 110.R7 shall be allowed to submit an application for an unrestricted construction supervisor license without the need for examination.

110.R5.2.1.1 Evaluation of Exam Scores. The authorized testing agent of the BBRS shall determine a successful exam score. BBRS may evaluate multiple unsuccessful exam scores of an applicant if the applicant has:

a. received and utilized testing accommodation through the authorized testing agent;
b. taken the exam at least three times in the past five years and not received a successful score on any one exam;
c. received an exam score 5% greater than the successful exam score authorized by the testing agent using a weighted average of the highest scores

from each section of any two of the three exams; and
d. provided a letter of recommendation from any two of the following individuals:
e. a building official;
f. a registered design professional; and/or
g. a construction supervisor licensee.
h. If the requirements of 780 CMR 110.R5.2 are met then the exam applicant has successfully passed an examination in accordance with780 CMR 110.R5.

110.R5.2.2 Examinations. Examinations shall be held only by appointment. All exam applications shall be filed in accordance with the construction supervisor license examination application

110.R5.2.3 License Approval. A majority vote of the members of the BBRS shall be required to grant a license. Notwithstanding this requirement, the BBRS may delegate approval to staff where an applicant meets all applicable provisions of 780 CMR 110.R5.

110.R5.2.4 Expiration. Licenses issued pursuant to 780 CMR 110.R5 shall expire three years from the date of issuance, which shall be noted on said license and may be renewed. A renewal of an original license shall be for periods of two years and a renewal license shall expire two years from the date of issuance, which shall be noted on said license and may be renewed. A renewal license shall not be issued unless application therefore is made within one year of the date of expiration of the most recently issued license. If a licensee fails to renew his or her license within one year of the expiration date, such license may thereafter be renewed within two years of its expiration date upon the payment of a fee in accordance with 780 CMR.

Exceptions: For applications meeting any of these three exception requirements, where applicable, the license shall be renewed for a minimum of one year to a maximum of three years.

1. **Medical Reactivation**. Applicants who seek license reactivation and a waiver of the retesting and/or continuing education requirements shall:

   a. notify the Office in writing via email or US mail, within four years of expiration date of the license;
   b. have evidence of personal illness defined as one of the internationally recognized causes of mortality or one of the recognized mental health related illnesses, or illness or death of a parent, sibling, spouse, or child in a four-year window from date of the Office's written notification;
   c. not have DOR tax, child support, Home Improvement Contractor or Construction Supervisor complaint, or civil fine issues with the Office; and
   d. submit the following:
      i. an application form from the Office;

ii. a form letter from the Office stating how illness or death contributed to loss of focus on personal or business affairs;
iii. medical evidence of illness or death; and
iv. a fee.

2. **Military Reactivation**. Applicants who seek license reactivation and a waiver of the retesting and/or continuing education requirements shall:

a. notify the Office in writing via email or US Mail, within four years of expiration date of the license;
b. have evidence of personal military service or of military service of spouse;
c. not have DOR tax, child support, Home Improvement Contractor or Construction Supervisor complaint, or civil fine issues with the Office; and
d. submit the following:
i. an application form from the Office;
ii. evidence of honorable military service within the expiration period; and
iii. a fee.

3. Valor Act. If a license holder is on active duty with the armed forces of the United States, as defined in M.G.L. c. 4, § 7, clause 43, the certificate shall remain valid until the license holder is released from active duty and for a period of not less than 90 days following that release. For this exception to apply, the license holder shall be given an Honorable Discharge, a General Discharge, or an Under Other than Honorable Conditions ("UOTHC") Discharge, as noted on their discharge and separation papers.

The BBRS may accept education, training, or service completed by an individual as a member of the armed forces, as defined in M.G.L. c. 4, § 7, clause 43, or the United States military reserves as an alternative or in addition to submission of required documentation pursuant to continuing education requirements. The applicant shall submit a license renewal application along with a Verification of Military Experience and Training form and any other supporting documentation. The education, training, or service submitted to the BBRS shall have been completed within 24 months of submission.

110.R5.2.5 Expired License. The practice of construction supervision is prohibited with an expired license.

110.R5.2.6 Procedure for Obtaining a License.

110.R5.2.6.1 Application. License applicants meeting the qualifications of 780 CMR 110.R5.2.1 may submit an examination application in accordance with 780 CMR 110.R5.2.2 to the authorized testing agent of BBRS.

110.R5.2.6.2 Forms. It shall be the responsibility of the applicant to assure that the required forms are received by the testing agency. All forms shall be accompanied by the required license fee.

110.R5.2.6.3 Records. The BBRS shall keep a copy of the application and a computer file listing all licensed construction supervisors.

110.R5.2.6.4 Examination Date. Upon receipt of a fully completed application, an examination date shall be set by the authorized testing agency and the applicant so notified.

110.R5.2.7 False Statements. Any false statement on the application or references shall be sufficient reason to refuse to issue a license, or to suspend or revoke a license if issued.

110.R5.2.8 Cause for Suspension or Revocation. The following shall be grounds for reprimand, suspension, or revocation of a license:

1. the applicant made a false statement to the BBRS;
2. a licensee made a false statement to the BBRS;
3. any violation of 780 CMR;
4. work was performed without a building permit;
5. failure to fully cooperate with a BBRS investigation into a complaint;
6. failure to turn over a suspended or revoked license to the BBRS;
7. failure to abide by a mandate or order of the BBRS;
8. failure to properly supervise a project or be present at a work site as required by 780 CMR 110.R5;
9. failure to meet the requirements of 780 CMR 110.R5.4;
10. revocation of the CSL holder's Home Improvement Contractor Registration by the Office of Consumer Affairs and Business Regulations (HIC revocations that are not personal to the CSL holder shall not be grounds for discipline);
11. violations of state or federal law relevant to CSL work, including violations of the Occupational Safety and Health Act or Occupational Safety and Health Administration regulations, as formally decided by the courts or relevant state or federal agency; and
12. conduct showing a lack of good moral character including, but not limited to, conviction of a crime reasonably related to the profession.

110.R5.2.9 Procedure for Suspension or Revocation of License.

110.R5.2.9.1 Complaints. All complaints relative to a license shall be on a form provided by the BBRS. Any person may file a complaint. Where a complaint is filed against a construction supervisor regarding adherence to an agreement to perform work requiring licensure pursuant to 780 CMR 110.R5 or the code compliance of work performed pursuant to that agreement, said complaint must be filed within three years of said agreement or three years from the last date work was performed under that agreement, whichever occurs later. This limitation shall not be deemed to apply to complaints which the BBRS finds to involve possible violations unrelated to compliance with a specific agreement or where a complaint

is based upon a finding made by a court or other state or federal government agency, including but not limited to other licensing authorities.

110.R5.2.9.1.1 Basis of Complaint. Work related to a specific building permit that is deemed to not comply with 780 CMR or a consistent pattern of abuse relating to contractual arrangements between license holder and client should be the basis of such complaint. Any work requiring a building permit which is performed without such permit shall be considered cause for suspension or revocation.

110.R5.2.9.1.2 Review and Investigation of Complaints. The BBRS or its designee shall review every complaint filed. If the reviewer determined that the complaint alleges plausible potential violations of 780 CMR by the licensee, a hearing shall be convened. The BBRS may, if it elects, investigate a complaint prior to scheduling a hearing. Failure of a complainant to cooperate in the investigation shall be grounds for dismissal of a complaint.

Upon receipt of a complaint, the BBRS or its designee shall send a letter acknowledging receipt to the complainant, the licensee being complained of, and the appropriate municipal building official. A copy of the complaint and all attachments shall be mailed to the license holder with the acknowledgment letter.

110.R5.2.9.2Disclosure of Adverse Actions. The BBRS may require a CSL or CSL applicant to disclose any conviction (regardless of whether it is a felony or misdemeanor) or civil finding made against them made by a court, other state or federal agency or, where applicable, by a licensing board of another jurisdiction. Where required by the BBRS, said disclosure must occur at time of application or next renewal.

110.R5.2.9.3 Notice of Hearing. If the hearings officer or the BBRS determined that a hearing shall be held to resolve a complaint, reasonable notice shall be provided to the complainant and the license holder. Mailing of the notice to the address on record with BBRS shall be deemed satisfactory notice to the license holder. The notice of hearing shall contain:

1. the name of the complainant.
2. The date, time and place of said hearing.
3. The location of the incident giving rise to the complaint.
4. Notice that either party may view the BBRS's complaint file by appointment.

110.R5.2.9.4 Hearings. Hearings convened pursuant to 780 CMR 110.R5 shall be conducted pursuant to 801 CMR 1.02: *Informal/Fair Hearing Rules*. Any party may be represented by legal counsel. All parties shall be permitted to present an opening statement, testify on their own behalf, cross-examine all witnesses, present any relevant witness testimony, present any relevant documentary evidence, and offer a closing argument. The hearings officer may question any witness and include any

records kept by the BBRS as exhibits. The hearings officer may conclude the hearing at any time and issue a decision based on the evidence presented. If a licensee does not appear for the hearing, the hearings officer may conduct a hearing in their absence and render a decision based upon the evidence presented, but only after making a finding that the licensee was provided notice as required by 780 CMR 110.R5.2.9.3.

110.R5.2.9.5 Decisions and Discipline of License Holders. The hearings officer shall issue a written decision after the hearing. Decisions shall be issued in a reasonably prompt manner. The hearings officer may suspend a license for a fixed period of time, revoke a license permanently, or reprimand the licensee. In conjunction with these disciplinary measures, the hearings officer may order the license holder to retake the CSL examination. Any license that is suspended or revoked shall be forwarded to the BBRS immediately. A person whose license is revoked may apply in writing to the BBRS for reinstatement no sooner than two years from the date of the revocation.

110.R5.2.10 Discretionary Appeal. Any person aggrieved by a decision of the hearings officer may, in writing, request review of said decision by the BBRS. The filing of such a petition shall not serve to stay any disciplinary action taken by the hearings officer. The BBRS may review such decision at its discretion. Such review is an administrative review that shall be based solely on the administrative record and is not to be construed as a second hearing on the same complaint(s). After review, the BBRS may deny the petition, grant the petition but affirm the decision of the hearings officer, or grant the petition and remand the matter to the hearings officer for further proceedings as directed. An order of remand may include instructions that the hearing officer's decision imposing a reprimand, period of suspension, or revocation be increased, decreased, waived, or rescinded, and any other penalty substituted including, but not limited to, decreasing or increasing a period of suspension, rescinding a suspension and issuing a reprimand, or rescinding a suspension and ordering revocation. The filing of an appeal with the BBRS shall serve to toll the timing provisions of M.G.L. c. 30A, § 14 until such time as the BBRS issues its order on review.

110.R5.2.10.1 Appeal to a Court. Any person aggrieved by a decision of the hearings officer or the BBRS may appeal such decision in conformance with M.G.L c. 30A, § 14.

110.R5.2.11 Change of Address. The license holder shall have the responsibility of reporting any change of address and/or change of circumstance to the BBRS. The information on file at the BBRS shall be deemed accurate unless changed by the license holder.

110.R5.2.12 On-site Presence of Supervisor. A licensed construction supervisor or a licensed designee as defined shall be present on the site at some point to approve construction, reconstruction, alterations, removal or demolition involving the following work:

Note: Any licensed construction supervisor who contracts to do work for a homeowner shall be responsible for performing said work in accordance with 780 CMR whether or not the licensed contractor secured the permit for said work.

1. Foundation:
   a. Preparation of bearing material;
   b. Location of foundation;
   c. Placement of forms and reinforcing materials (if applicable);
   d. Placing of concrete (or setting of other foundation materials);
   e. Setting weather protection methods (if required);
   f. Installation of waterproofing and/or damp proofing materials; and
   g. Placement of backfill.

   Note: If groundwater is encountered in excavating for foundation placement, the licensed construction supervisor shall report its presence to the building official and shall submit a report detailing methods of remediation.
2. Structural frame:
   a. Installation of joists, trusses and other structural members and sheathing materials to verify size, species and grade, spacing and attachment/fastening methods. The licensed construction supervisor shall ensure that any cutting or notching of structural members is performed in accordance with requirements of 780 CMR.
   b. Setting of masonry or other structural systems (if used).
3. Energy conservation: Installation of insulation materials, vapor and air infiltration barriers.
4. Fire protection: Installation of smoke, heat and carbon monoxide ("CO") detectors and/or systems.
5. Special construction including, but not limited to:
   a. Chimneys.
   b. Retaining walls over four feet in height above grade.

The building official may require a licensed construction supervisor or his or her licensed designee to be present on the building site at other points during the construction, reconstruction, alterations, removal or demolition work as he or she deems appropriate.

110.R5.2.13 Lost/Stolen Licenses. License holders are required to keep the license in their possession at all times during the course of construction work at any and all building sites. If said license is lost, stolen or mutilated, it shall be the responsibility of the license holder to notify the BBRS.

110.R5.2.14 Requirement to Show License. A building official may require the license holder to produce the license at any time on a job site.

110.R5.2.15 Responsibility of Each License Holder.

110.R5.2.15.1 Responsibility for Work. The license holder shall be fully and completely responsible for all work for which he or she is supervising. He or she

shall be responsible for seeing that all work is done pursuant to 780 CMR and the drawings as approved by the building official.

110.R5.2.15.2 Responsibility to Supervise Work. The license holder shall be responsible to supervise the construction, reconstruction, installation, alteration, repair, removal or demolition for the category of license held involving any activity regulated by any provision of 780 CMR and all other applicable Laws of the Commonwealth even though he or she, the license holder, is not the permit holder but only a subcontractor or contractor to the permit holder.

110.R5.2.15.3 Notification of Violations. The license holder shall immediately notify the building official in writing of the discovery of any violations which are covered by the building permit.

110.R5.2.15.4 Willful Violation. Any licensee who shall willfully violate 780 CMR shall be subject to revocation or suspension of license by the hearings officer.

110.R5.2.16 Permit Applications. All building permit applications shall contain the name, signature and license number and the category of license so held of the construction supervisor who is to supervise those persons engaged in the work as defined in the building permit. In the event that such licensee is no longer supervising said persons, the work shall immediately cease until a successor license holder is substituted on the records of the building department.

110.R5.3 Administration

110.R5.3.1 Identification. The BBRS shall issue a card or a certificate or other form of license identification.

110.R5.3.2 Records of Licensees. The BBRS shall maintain a computer listing which will be available to the public at the office of the BBRS containing all licenses issued by the BBRS.

110.R5.3.3 Examination. The BBRS shall determine whether an examination shall be required,or shall be oral or written and shall determine the content of the examination, if applicable.

Exception: An individual holding a current certification in accordance with the requirements of 780 CMR 110.R7 shall be allowed to submit an application for the construction supervisor license without the need for examination.

110.R5.3.4 Subject to Rules, Regulations and Procedures. All persons licensed shall be subject to 780 CMR 110.R5, as well as other rules, regulations, and procedures promulgated by the BBRS.

110.R5.3.5 Fees. Any and all fees charged for licenses, examinations, renewals, and registrations shall be determined by the Commonwealth and enforced by the BBRS. Fees shall be paid in accordance with 801 CMR 4.02: *Fees for Licenses, Permits, and Services to Be Charged by State Agencies*.

110.R5.4 Continuing Education

110.R5.4.1 Standards. The BBRS may adopt standards for continuing education requirements and course and instructor approval. The standards shall include requirements for continuing education as applicable to buildings and building codes and referenced standards.

110.R5.4.2 Hours. A qualifying licensee shall provide proof of completion of required hours of continuing education per two-year license cycle in the appropriate category in which the licensee is licensed. Credit may not be earned if the licensee has previously obtained credit for the same course as either a student or instructor during the same licensing period.

1. Construction Supervisors License 12 Hours
2. Construction Supervisors License (One- and Two-family Dwellings) ten Hours
3. Construction Supervisors Specialty License six Hours

Exception: Building officials who are certified and in good standing in accordance with 780 CMR 110.R7 are exempt from 780 CMR 110.R5.4.

110.R5.4.3 Education Topics. Construction Supervisor License holders are required to complete the appropriate minimum number of continuing education hours each two-year renewal cycle as described in 780 CMR 110.R5.4.2. The following hour(s) of continuing education topics are required for 12 and ten hour trainings as identified in 780 CMR R5.4.2:

1. Code Review four hours

   Note: Code review courses shall include specific concentration to requirements of the license category. For instance, One- and Two-family license courses shall focus, but not be limited to, residential code requirements.
2. Workplace Safety one hour
3. Business Practices/Workers' Compensation one hour
4. Energy (except Demolition Specialty License) one hour
5. Lead Safe Practices (only first renewal cycle) one hour
6. The remainder of credit hours are to be completed by approved electives.

Specialty CSL holders are required to complete the appropriate number of continuing education each two-year renewal cycle as described in 780 CMR 110.R5.4.2. The following hour(s) of continuing education topics are required for six-hour trainings as identified in 780 CMR R5.4.3:

1. Code Review two hours

   Note: Code review courses shall include a specific concentration to requirements of the license category. For instance, Residential Roof Covering license courses shall focus, but not be limited to: roof covering, underlayment and similar code requirements.
2. Workplace Safety one hour
3. Business Practices/Workers' Compensation one hour
4. Energy (except Demolition Specialty License) one hour

5. Lead Safe Practices (only first renewal cycle) one hour Qualified licensees may acquire up to a maximum of six hours of continuing education

via on-line training. Remaining hours shall be acquired through in-person, classroom training.

Those offering on-line courses in accordance with 780 CMR 110.R5.4.1 shall take measures to ensure a meaningful learning experience for the licensee including, at a minimum:

1. At the start of each on-line training, a licensee shall be required to affirm to the statement: "Under the pains and penalties of perjury, I attest that, as the licensed construction supervisor requiring continuing education credit, I will personally view all portions of this on-line educational session and will personally answer all questions required of this training."
2. A licensee shall be required to answer a minimum of five questions relating to the material covered each 30-minute period (or more frequently if determined appropriate on-line education provider).
3. A candidate shall answer all questions correctly at the end of each session.
4. If the licensee answers all questions correctly, he or she may advance to the next section.
5. If the licensee answers a question or questions incorrectly, he or she shall be so notified and directed back to the portion of the presentation from which the question is derived.
6. The licensee shall be afforded an opportunity to, again, review the section and answer a similar question(s) as appropriate.
7. Once the licensee answers all questions correctly, he or she shall be allowed to advance to the next portion of the training.
8. In no case shall a licensee be allowed to advance through a section without successfully answering questions relevant to material covered.
9. At the conclusion of a complete on-line training session, a licensee shall be required to successfully complete a final examination comprised of 20 questions, answering at least 16 correctly, and shall again affirm to the statement: "Under the pains and penalties of perjury, I attest that, as the licensed construction supervisor requiring continuing education credit, I have personally viewed all portions and answered all questions required of this training."

Additionally, providers of on-line educational sessions shall take measures to ensure a meaningful learning experience for the licensee by:

10. Allowing the student to log-out of the session (and back in) without penalty.
11. Providing closed-captioning assistance.
12. Revising on-line training subject matter to reflect changes in code requirements each renewal period.
13. Issuing certificates to students reflecting successful completion of the on-line training, including successful completion of training review questions as herein described.

110.R5.4.4 Accessibility. To the extent possible, the BBRS shall ensure that continuing education courses are offered throughout the state and are accessible to all licensees.

110.R5.4.5 Renewal of Approval. The BBRS is authorized to establish a procedure for renewal of course approval.

110.R5.4.6 Content. Continuing education consists of approved courses that impart appropriate and related knowledge in the regulated industries. Courses may include relevant materials that are included in licensing exams subject to the limitations imposed in 780 CMR 110.R5.4.6, item 1. The burden of demonstrating that courses impart appropriate and related knowledge is upon the person seeking approval or credit.

Course examinations will not be required for continuing education courses unless they are required by the instructor.

Unless determined by the coordinator, textbooks are not required to be used for continuing education courses. The coordinator shall provide students with a syllabus containing, at a minimum, the course title, the times and dates of the course offering, the names and addresses or telephone numbers and email address of the course coordinator and instructor, and a detailed outline of the subject materials to be covered. Any written or printed material given to students shall be of readable quality and contain accurate and current information.

Upon completion of an approved course, licensees shall earn one hour of continuing education credit for each hour approved by the BBRS. Each continuing education course shall be attended in its entirety in order to receive credit for the number of approved hours. Courses may be approved for full or partial credit, and for more than one regulated industry. Continuing education credit in an approved course shall be awarded to presenting instructors on the basis of one credit for each hour of preparation for the initial presentation, which may not exceed three hours total credit for each approved course. Continuing education credit may not be earned if the licensee has previously obtained credit for the same course as a licensee or as an instructor within the Current licensing cycle.

The following courses will not be approved for credit:

1. courses designed solely to prepare students for a license examination in a discipline other than CSL;
2. courses in mechanical office skills including typing, speed reading, or other machines or equipment. Computer or business skills courses are allowed, if appropriate and related to the regulated industry of the licensee;
3. courses in motivation, psychology, or any other course not related to the building industry; and
4. courses that are primarily intended to impart knowledge of specific products of specific companies, if the use of the product or products relates to the sales promotion or marketing of one or more of the products discussed.

110.R5.4.7 Course Approval. Courses shall be approved by the BBRS in advance and will be approved on the basis of the applicant's compliance with the provisions of this section relating to continuing education in the regulated industries. The BBRS shall make the final determination as to the approval and assignment of credit hours for courses. Courses shall be at least one hour in length.

Approval shall not be granted for time spent on meals or other unrelated activities. Breaks shall not be accumulated in order to dismiss the class early. Classes shall not be offered to any one student for longer than six hours in one day, excluding meal breaks.

Application for course approval shall be submitted 120 days before the course offering. Approval is granted for a subsequent offering of identical continuing education courses without requiring a new application if the course is offered within the approved 24-month cycle. The BBRS shall deny future offerings of courses if they are found not to be in compliance with the laws relating to course approval. Courses shall be updated subject to periodic review by the BBRS to ensure currency with technological changes in 780 CMR.

110.R5.4.8 Course Coordinator. Each course of study shall have at least one coordinator, which is a person who is registered with the BBRS, who is responsible for supervising the program and ensuring compliance with all relevant law. Each coordinator shall oversee no more than 12 courses of study.

110.R5.4.9 Responsibilities of a Course Coordinator:

1. ensuring compliance with all laws and rules relating to continuing educational offerings governed by the BBRS;
2. ensuring that instructors are qualified to teach the course offering as defined in 780 CMR 110.R5.4.10;
3. maintaining accurate records relating to course offerings, instructors, tests taken by students if required, and student attendance for a period of three years from the date on which the course was completed. These records shall be made available to the BBRS upon request. In the event that a coordinator ceases operation for any reason, the coordinator is responsible for maintaining the records or providing a custodian for the records acceptable to the BBRS. The coordinator shall notify the BBRS of the name and address of that custodian. Under no circumstances shall the BBRS act as custodian of the records;
4. supervising and evaluating courses and instructors. Supervision includes ensuring that all areas of the curriculum are addressed without redundancy and that continuity is present throughout the entire course;
5. providing course completion certificates within ten days of, but not before, completion of the entire course. Course completion certificates shall be completed in their entirety. Course completion certificates shall contain the following statement: "If you have any comments about this course offering, please mail them to the Board of Building Regulations and Standards attn: Education Coordinator." The current address of the Office shall be included. A coordinator may require payment of the course tuition as a condition for receiving the course completion certificate;

6. investigating complaints related to course offerings or instructors. A copy of the written, signed complaint shall be sent to the BBRS within ten working days of course completion. An acknowledgment will be sent upon receipt of complaint *via* email;
7. to be available to instructors and students throughout course offerings and provide to the students and instructor the mailing address, telephone number and email address at which the coordinator can be reached;
8. participate in workshops or instructional programs as reasonably required by the BBRS;
9. furnishing the BBRS, upon request, with copies of course and instructor evaluations and qualifications of instructors. Evaluations shall be completed by students at the time the course is offered and evaluations shall be reviewed by coordinators within five days after the course offering; and
10. notifying the BBRS in writing within ten days of any change in the information in an application for approval on file with the BBRS.

110.R5.4.10 Instructors. Each continuing education course shall have an instructor who is qualified by education, training, or experience to ensure competent instruction. Failure to have only qualified instructors teach at an approved course offering will result in loss of course approval. Coordinators are responsible to ensure that an instructor is qualified to teach the course offering.

1. Continuing education instructors shall have one of the following:
   a. a four-year degree (bachelor's or equivalent) in any discipline plus two years of practical experience within the previous five years in the subject area being taught;
   b. a four-year college degree (bachelor's) or graduate degree in the subject area being taught;
   c. a CSL holder or certified building official with at least three years experience in the subject area being taught; provided the instructor demonstrates proficiency in the subject matter;
   d, five years' practical experience within the previous ten years in the subject area being taught.

   Note: A contractor whose construction license is currently suspended or revoked shall not teach or serve as a continuing education course instructor.
2. Approved instructors are responsible for:
   a. compliance with all laws and rules relating to continuing education;
   b. providing students with current and accurate information;
   c. maintaining an atmosphere conducive to learning in the classroom;
   d. verifying attendance of students, submission of completed course evaluations and certifying course completion;
   e. providing assistance to students and responding to questions relating to course materials; and
   f. attending the workshops or instructional programs that are required by the BBRS.

110.R5.4.11 Prohibited Practices for Coordinators and Instructors. In connection with an approved continuing education course, coordinators and instructors shall not:

1. recommend or promote the services or practices of a particular business;
2. encourage or recruit individuals to engage the services of, or become associated with, a particular business;
3. require students to participate in other programs or services offered by the instructor or coordinator;
4. attempt, either directly or indirectly, to discover questions or answers on an examination for a license;
5. disseminate to any other person specific questions, problems, or information known or believed to be included in licensing examinations;
6. misrepresent any information submitted to the BBRS;
7. fail to cover, or ensure coverage of, major points, issues, and concepts contained in the course outline approved by the BBRS during the approved instruction; or
8. issue inaccurate course completion certificates.

Coordinators shall notify the BBRS within ten days of a felony or gross misdemeanor conviction or of disciplinary action taken against an occupational or professional license held by the coordinator or an instructor teaching an approved course. The notification shall be grounds for the BBRS to withdraw the approval of the coordinator and to disallow the use of the instructor.

110.R5.4.12 Fees. Fees for an approved course of study and related materials shall be clearly identified to students. In the event that a course is canceled for any reason, all fees shall be returned within 15 days from the date of cancellation. In the event that a course is postponed for any reason, students shall be given the choice of attending the course at a later date or having their fees refunded in full within 15 days from the date of postponement. If a student is unable to attend a course or cancels the registration in a course, coordinator policies regarding refunds shall govern.

110.R5.4.13 Facilities. Each course of study shall be conducted in a classroom or other appropriate facility that is accessible and adequate to comfortably accommodate the instructors and the number of students enrolled.

110.R5.4.14 Supplementary Materials. An adequate supply of supplementary materials to be used or distributed in connection with an approved course shall be available at the time and place of the course offering in order to ensure that each student receives all of the necessary materials. Outlines and any other materials that are reproduced shall be of readable quality.

110.R5.4.15 Advertisement. 780 CMR 110.R.4.15 governs the advertising of continuing education courses.

1. Advertising shall be truthful and not deceptive or misleading. Courses shall not be advertised in any manner as approved unless approval has been granted in writing by the BBRS.
2. No advertisement, pamphlet, circular, or other similar materials pertaining to an approved offering shall be circulated or distributed in the Commonwealth unless the following statement is prominently displayed: "This course has been

approved by the Massachusetts Board of Building Regulations and Standards for [approved number of hours] hours of continuing [relevant industry] education."

3. Advertising of approved courses shall be clearly distinguishable from the advertisement of other non-approved courses and services.

4. The number of hours for which a course has been approved shall be prominently displayed on an advertisement for the course. If the course offering is longer than the number of hours of credit to be given, it shall be clear that credit is not earned for the entire course.

5. Advertising shall comply with regulations for advertisement of private occupational schools, 230 CMR 15.06: *Advertisements and Representations*, and all advertising including, but not limited to false advertising, is governed by 940 CMR 31.04: *False or Misleading Statements or Representations*, violations of which are enforceable under the provisions of M.G.L. c. 93A, the Consumer Protection Act.

110.R5.4.16 Notice to Students. At the beginning of each approved offering, the following notice shall be handed out in printed form or shall be read to students: "This educational offering is recognized by the Massachusetts Board of Building Regulations and Standards as satisfying [approved number of hours] hours of continuing [relevant industry] education."

110.R5.4.17 Audits. The BBRS reserves the right to audit subject offerings with or without notice to the coordinator.

110.R5.4.18 Falsification of Reports. The BBRS may penalize anyone found to have falsified an education report through imposition of: limitations or conditions on, suspension or revocation of a license, course coordinator approval or instructor approval, or a fine up to
$1,000.00, or both. The BBRS reserves the right to audit a licensee's continuing education records.

110.R5.4.19 Extensions. If a licensee provides documentation to the BBRS that the licensee or its qualifying person is unable, and will continue to be unable, to attend actual classroom course work because of a physical disability, medical condition, military service or similar reason, the deadline to complete continuing education courses shall be extended for a period not to exceed one two-year cycle. The licensee shall make up delinquent credit hours and pay appropriate fees.

The BBRS may request documentation of the condition upon which the request for extension is based as is necessary to satisfy the BBRS of the existence of the condition and that the condition does preclude attendance at continuing education courses. In lieu of granting an extension, the BBRS may allow a licensee presenting appropriate documentation to complete all continuing education online regardless of any normally applicable restrictions.

110.R5.4.20 Reporting Requirements. Required continuing education shall be reported in a manner prescribed by the BBRS. Licensees are responsible for maintaining copies of course completion certificates. The BBRS may allow an

attestation of completion of continuing education in lieu of submission of course completion certificates for licensure renewal. However, licensees must provide course completion certificates upon request.

110.R5.4.21 Continuing Education Fees. *See* 801 CMR 4.02: *Fees for Licenses, Permits, and Services to Be Charged By State Agencies* for the following fees:

1. Course Approval:
   a. initial course application fee for each continuing education course approval sought;
   b. initial course approval fee for each hour or fraction of one hour. Initial course approval expires on the last day of the 24th month after the course is approved; and
   c. renewal of course approval fee for each hour or fraction of one hour. Renewal of course approval expires on the last day of the 24th month after the course is renewed.
2. Course Coordinator:
   a. initial coordinator approval fee. Coordinator may only oversee 12 courses. Initial coordinator approval expires on the last day of the 24th month after the coordinator is approved; and
   b. renewal of coordinator approval fee. Renewal of coordinator approval expires on the last day of the 24th month after the coordinator is renewed.

110.R6: RESERVED

110.R7: CERTIFICATION OF INSPECTORS OF BUILDINGS, BUILDING COMMISSIONERS AND LOCAL INSPECTORS

NOTE: 780 CMR 110.R7 is unique to Massachusetts.

110.R7.1 GENERAL PROVISIONS

110.R7.1.1 Title. 780 CMR 110.R7.

110.R7.1.2 Definitions. Any terms not defined in 780 CMR 110.R7 shall assume the definition of the term as used elsewhere in 780 CMR.

REGISTRANT. Any individual registered with the BBRS as a building official in the capacity of an inspector of buildings/building commissioner or local inspector.

110.R7.1.3 Scope. 780 CMR 110.R7 shall control all matters relating to qualifications and certification of all building officials engaged in or to be engaged in the administration and enforcement of 780 CMR; categories of certified building officials; procedures for application, issuance, denial and revocation of certifications; approval of training and/or educational programs offered to meet the requirements for certification; maintenance of certification through continuing education; application fees for certification; and enforcement of 780 CMR 110.R7. 780 CMR 110.R7 establishes standards and procedures for certification and requires all persons performing duties with respect to the inspection of building construction for any political subdivision within the Commonwealth to be certified as provided in 780 CMR 110.R7.

110.R7.1.4 Powers and Duties. The BBRS, working through itsadministrator and other staff, shall have the following responsibilities in addition to all others provided in 780 CMR and 780 CMR 110.R7.

110.R7.1.4.1. Upon recommendations from the Building Official Certification Committee ("BOCC"), established under 780 CMR 110.R7.1.5, to issue certifications to individuals deemed qualified as provided for in 780 CMR 110.R7.

110.R7.1.4.2. To maintain accurate records of all applications for certification and any official action thereon and to make such records available for inspection by the public at all reasonable times.

110.R7.1.4.3. To suspend or revoke a certification upon the establishment of grounds for discipline pursuant to780 CMR 110.R7.4.1.5.

110.R7.1.4.4. Any person aggrieved by any notice, action, ruling or order of the BBRS, or theBOCC, with respect to 780 CMR 110.R7, may have a right to a hearing as provided for by law.

110.R7.1.5 Inspector Certification Advisory Committee. The BBRS has established the Inspector Certification Advisory Committee, known as the BOCC. The BOCC shall be supported by such staff of the BBRS as may be required for the effective operation of 780 CMR 110.R7.

110.R7.1.5.1 Powers and Duties. The BOCC shall have the responsibility to advise and to recommend to the BBRS on all items relating to the certification of building officials, including, but not limited to:

1. Issuing certificates.
2. Reviewing applicant credentials.
3. Maintaining applicant and certified inspector records.
4. Hearing complaints and appeals pertaining to inspector certification.
5. Reviewing and approving all courses of study, seminars, and other educational programs as deemed necessary, for continuing education requirements.
6. Monitoring all appointments to assure compliance with 780 CMR 110.R7.
7. Considering reciprocity with other states (upon petition of the BOCC on forms provided for such purpose).

110.R7.1.5.2 Make-up of the Committee. The BOCC shall consist of 11 members appointed by the BBRS as follows:

1. One member of the BBRS or his or her designee.
2. Nine members who are active building officials consisting of:
   a. One member from each of the four Municipal Building Officials Associations (Southeastern Building Officials Association, Building Officials of Western Massachusetts, Massachusetts Building Commissioners and Inspectors Association, and MetroWest Building Officials Association).
   b. Four members at large to be appointed by the BBRS, all of whom shall be recommended by the Board of Directors of the Massachusetts Federation of Building Officials.
3. One member from academia who is an educator of construction at the college level (e.g., architectural, civil, structural) to be appointed by the BBRS.
4. One member of the Massachusetts Municipal Association.

110.R7.1.6 Categories of Certification. Categories of certification for building officials are as follows:

110.R7.1.6.1 Inspector of Buildings or Building Commissioner. An individual certified as an inspector of buildings/building commissioner shall perform the duties as defined in 780 CMR and M.G.L. c. 143, as applicable.

110.R7.1.6.2 Local Inspector. An individual certified as a local inspector shall perform the duties as defined in 780 CMR and M.G.L. c. 143, as applicable.

110.R7.1.6.3 Alternate Inspector of Buildings/Building Commissioner. An alternate inspector of buildings/building commissioner shall be certified prior to appointment.

110.R7.1.7 Building Official Appointments.

110.R7.1.7.1. **Permanent Appointments**. No individual shall be permanently appointed to the position of inspector of buildings, building commissioner or local inspector in a municipal enforcing agency for which a certification requirement has been established by 780 CMR 110.R7, unless that individual has been deemed qualified and certified in that category by the BOCC.

EXCEPTION: Conditional appointments may be made pursuant to 780 CMR 110.R7.1.7.4.

110.R7.1.7.2 Reporting by Appointing Authority. Immediately following appointment, the clerk of each city or town shall report to the BBRS, the name, title and status of each new employee who is appointed as an inspector of buildings, building commissioner or local inspector. Said report shall be provided on forms as prescribed by the BBRS for said purpose and shall be submitted in attestation under the pains and penalties of perjury that said new employee meets or exceeds the minimum qualifications as defined by M.G.L. c. 143, § 3 and 780 CMR, as applicable.

110.R7.1.7.3 Historical Note. Any individual employed as inspector of buildings, building commissioner or local inspector and who was in office on November 12, 1992 and who was qualified in accordance with M.G.L. c. 143, § 3 to be in office at time of hire, and who presented acceptable evidence of these facts to the BBRS, shall be deemed certified in the category held on said date, and shall be provided with a certificate by the BBRS.

110.R7.1.7.4 Conditional Appointments. Individuals who meet or exceed the experience requirements pursuant to M.G.L. c. 143, § 3 and 780 CMR, but who are not certified under the provisions of 780 CMR 110.R7 may be appointed on a conditional basis only. If so appointed these requirements shall be met:

1. Immediately upon appointment, the city or town clerk shall report the conditional appointment to the BBRS in accordance with 780 CMR 110.R7.1.7.2.
2. Within the first six months of employment the conditional appointee shall make application to take the examination(s) required for the appropriate category of certification.
3. Within one year following the first six months of employment a conditional appointee who is appointed as an inspector of buildings\building commissioner shall attain a passing score on all of the examinations required for that category of certification.
4. Within six months following the first six months of employment a conditional appointee who is appointed as a local inspector shall attain a passing score on all of the examinations required for that category of certification.
5. In accordance with 780 CMR 110.R7.1.7.4.1, a conditional appointee may petition the BOCC in writing for an extension of time to comply with the examination schedule of 780 CMR 110.R7. Upon establishment of cause, the BOCC may grant an extension as it may consider appropriate.

6. Conditional appointees shall notify the BBRS of any change in the status of their employment, within one month of such change.
7. Any individual conditionally appointed as an inspector of buildings/building commissioner shall first be certified as a local inspector.

110.R7.1.7.4.1 Requests for Exam Schedule Extension. Upon written petition to the BOCC, any conditional appointee unable to comply with the examination schedule as cited in 780 CMR 110.R7.1.7.4 may for cause, be granted an extension of time in order to comply. Petitions shall be forwarded to the clerk of the BOCC on forms for such purpose, and addressed to the office of the BBRS. The conditional appointee shall state all reasons to substantiate the request for an extension of time. Conditional appointees who have not attempted the examination schedule as herein defined during the prescribed period shall not be granted an extension, and no conditional appointee shall be afforded more than three extensions of time beyond the prescribed period for the level of certification sought.

110.R7.1.7.4.2 Notification. The BOCC shall, within ten days of any action taken by the committee pursuant to 780 CMR 110.R7, notify the appointing authority in writing of such action.

110.R7.1.7.4.3 Notice of Noncompliance. Any conditional appointee who has not attained passing scores in all examinations required for certification as an inspector of buildings/building commissioner and/or local inspector and who exhausted extension time as afforded by 780 CMR 110.R7.1.7.4.1 shall be deemed to be in non-compliance with M.G.L. c. 143, § 3 and unauthorized to serve as a conditional appointee in the position for which they are not yet certified.

110.R7.2 REQUIREMENTS FOR INITIAL CERTIFICATION

110.R7.2.1 Application. Any candidate for certification in any category of building official issued pursuant to 780 CMR 110.R7 shall submit an application to the BBRS, accompanied by the required application fee (if any), on forms provided for this purpose by the BBRS. The application shall include such information and documentation as the BBRS may require pursuant to 780 CMR 110.R7.

110.R7.2.2 Requirements for Certification as a Local Inspector:

110.R7.2.2.1 Pre-exam Approval. All candidates shall meet or exceed the qualifications for the position of local inspector pursuant to M.G.L. c. 143, § 3 and 780 CMR prior to taking any examinations. The BOCC shall approve all candidates prior to taking any examinations and shall maintain a list of all qualified candidates for any and all city and towns appointing building officials.

110.R7.2.2.2 Successful Examination. All candidates shall attain a passing score in all examinations required for certification as either a Building Plans Examiner (identified as Exams 1B, 1C, 3B and 3C) or Building Inspector (identified as Exams 1A, 1B and 3B) as defined by the National Certification Program for Construction Code Inspectors ("NCPCCI")

or equivalent exam categories as approved by the BBRS for such purpose and as offered by the International Code Council ("ICC").

110.R7.2.2.3 Prior Approval for Examination as a Local Inspector. No candidates shall be allowed to take said examinations without prior approval of the BBRS or the BOCC at the discretion of the BBRS.

110.R7.2.3 Requirements for Certification as an Inspector of Buildings/Building Commissioner.

110.R7.2.3.1 Pre-exam Approval. All candidates shall meet or exceed the qualifications for the position of inspector of buildings/building commissioner pursuant to M.G.L. c. 143, § 3 and 780 CMR prior to taking any examinations. All candidates shall meet the examination requirements for certification as a local inspector pursuant to 780 CMR 110.R7.2.2.2, or hold a certification as a local inspector pursuant to 780 CMR 110.R7.2.2. The BOCC shall approve all candidates prior to taking any examinations and shall maintain a list of all qualified candidates for any and all city and towns appointing building officials.

110.R7.2.3.2 Successful Examination. All candidates shall attain a passing score in all examinations required for certification as a Certified Building Official as defined by the International Code Council ("ICC") or equivalent exam categories as approved by the BBRS for such purpose and as offered by the ICC.

EXCEPTION: Candidates may choose to attend on-boarding training as approved by the BBRS and as periodically offered. Successful completion of all on-boarding training requirements, including attaining a passing score on any and all requisite examinations, may be substituted for completion of the Codes and Standards Module of the ICC certification examinations as identified above. Candidates who utilize this exception shall also attain passing scores on the ICC Legal and Management Module examinations as identified above and shall satisfy all Local Inspector certification requirements as established by 780 CMR. Candidates who utilize this exception will be issued a Massachusetts Inspector of Buildings/Building Commissioner certification ("MCBO").

110.R7.2.3.3 Prior Approval for Examination as an Inspector of Buildings/Building Commissioner. No candidates shall be allowed to take said examinations without prior approval of theBBRS, or the BOCC at the discretion of the BBRS.

110.R7.2.4 Retired Persons. Any person who has been duly certified in accordance with 780 CMR 110.R7 and who retires from service in good standing, may petition the committee to receive "retired status" certification. Upon approval said certification shall be denoted "retired" and shall not be deemed revoked. Revocation shall only be invoked for cause. Any person who has been approved for retired status certification and who wishes to reactivate said certification shall comply with the examination schedule as defined in 780 CMR 110.R7 for the level of certification sought.

110.R.7.2.5 **Notification Change of Employment Location.** Conditional and certified individuals shall notify the BBRS of any change in the status or location of their employment. Notification

shall be made to the BOCC Program Coordinator, current State Building Inspector for Municipality leaving and the State Building Inspector for new Municipality, within one month of such change.

110.R7.3 REQUIREMENTS FOR MAINTENANCE OF CERTIFICATION STATUS

110.R7.3.1 Continuing Education Requirements. Within each three-year period following initial certification, the registrant to maintain certification shall complete 45 hours of continuing education credit acceptable to the BOCC. Conditional appointees as defined by 780 CMR 110.R7 shall attain at least one contact hour of education credit for each month of employment until such time as the conditional appointee has successfully completed the required examination schedule and is certified as prescribed.

110.R7.3.1.1 Requirements for Energy Code Training. Building officials shall be trained in the energy provisions of the 780 CMR every three years, corresponding with the adoption of the latest edition of the International Energy Conservation Code pursuant toM.G.L. c. 143, § 94 and policy of the BBRS.

110.R7.3.2 Course Curriculum. The BOCC may publish a list of acceptable educational programs, courses, seminars, and the like and may also accept educational activities in which registrants have participated after the fact, upon application and review of the course information. The BOCC shall assign credits to each educational/training event and shall issue policies and procedures, separate from 780 CMR 110.R7, relative to continuing education requirements.

110.R7.3.3 Course Log. Each certified individual shall maintain a record of his or her continuing education. Credit hours shall be reported to the BBRS or other approved agencies as prescribed by the policies and procedures of the BOCC, relative to continuing education. The BBRS shall maintain a record of each inspector's progress towards completion of the 45-hour requirement. At the end of each three-year period, each inspector who has successfully attained his or her continuing education requirement shall be dulynotified by the BBRS.

110.R7.3.4 Rights and Privileges. In accordance with M.G.L. c. 143, § 99, no building official attending BBRS required educational programs shall lose any rights relative to compensation or vacation.

110.R7.4 PROCEDURES FOR COMPLAINTS

110.R7.4.1 Complaints.

110.R7.4.1.1 Complaint Intake. A complaint about a certified building official shall be in writing and shall be received and reviewed by the administrator, or his or her designee. The administrator may cause the complaint to be investigated further, dismissed for failure to assert a cognizable or actionable claim, or referred to the BOCC for a hearing on the merits. Actions taken pursuant to this section shall be left to the sound discretion of the administrator.

110.R7.4.1.2 Notice of Hearing. If the administrator refers a matter to the BOCC for hearing, reasonable notice of the hearing shall be provided to the certification holder. Mailing of the notice via first class mail to the address on record with the BBRS shall be deemed satisfactory notice to the holder. The notice of hearing shall contain:

1. The name of the complainant.
2. The date, time and place of said hearing.
3. The basis of the complaint.
4. Notice that the holder may review the Board's complaint file by appointment.

110.R7.4.1.3 Hearing. Hearings held pursuant to 780 CMR 110.R7.4.1 shall be conducted in accordance with M.G.L. c. 30A and 801 CMR 1.02:*Informal/Fair Hearing Rules*. Any party may be represented by legal counsel at such a hearing. At the hearing, the certification holder shall be permitted to present an opening statement, testify on their own behalf, cross-examine all witnesses, present any relevant witness testimony, present any relevant documentary evidence, and offer a closing argument. Any person offering testimony at the hearing shall be sworn under oath. The BOCC may question any witness and include any records on file with the BBRS as exhibits. The BOCC may, at their discretion, conclude the hearing at any time and issue a recommended decision based on the evidence presented.

If a certification holder does not appear for the hearing, the BOCC may conduct a hearing and render a recommended decision based upon the evidence presented only after making a finding that the certification holder was provided reasonable and proper notice of the hearing as required by 780 CMR 110.R7.4.1.2.

110.R7.4.1.4 Decisions and Discipline of Certification Holders. The BOCC shall issue a written decision after the hearing. Decisions shall be issued in a reasonably prompt manner. The decision of the BOCC shall serve as a recommendation to the BBRS and shall be promptly forwarded by the administrator to the full board for review. If after a hearing the BOCC finds that the holder has violated any provision of 780 CMR 110.R7.4.1.5, it may recommend suspension of a certification for a fixed period of time, revocation of a certification permanently, or a reprimand of the certification holder. Further, the BOCC may recommend that any order include appropriate remedial or disciplinary conditions.

Once forwarded to the BBRS, the board shall either adopt the recommendation in its entirety, adopt the recommendation with amendment, reject the recommendation in its entirety, or remand the matter to the BOCC further proceedings. A certificate holder whose certification is revoked may apply in writing to the Board for reinstatement no sooner than one year from the date of the revocation.

110.R7.4.1.5 Grounds for Discipline. The following shall be grounds for discipline of a certification holder:

1. The holder has obtained a certification by fraud or misrepresentation;
2. The holder has aided or abetted in practice as a certified building official any person not authorized to practice as a certified building official under the provisions of 780 CMR 110.R7;
3. The holder has fraudulently or deceitfully practiced as a certified building official;

4. The holder has been grossly negligent or has engaged in misconduct in the performance of any of his or her duties;
5. The holder has failed to maintain continuing education requirements as specified in 780 CMR110.R7;
6. The holder has been found to have failed to report an offer, or bribe, or other favor in a proceeding under 780 CMR 110.R7;
7. The holder has made a false or misleading statement to the BBRS, or has made a material omission in any submission to the BBRS;
8. The holder has s failed to appropriately enforce the provisions of 780 CMR as prescribed by M.G.L. c. 143, § 3;
9. The holder has engaged in any conduct in violation of 780 CMR or any state or federal law rendering them unsuitable to be certified as a building official.
10. The holder has been found to have violated state ethics laws by the State Ethics Commission.
11. The holder failed to cooperate in an investigation being conducted by the BBRS or its administrator.

110.R7.4.1.6 Appeal. A decision made after a hearing shall be considered final when it is issued by the BBRS. Any party aggrieved by a final decision of the BBRS may appeal to superior court within 30 days of receipt thereof pursuant to M.G.L. c. 30A, § 14.

110.R7.4.1.7 Employment of an Uncertified Individual. In accordance with M.G.L. c. 143, § 3, no municipality may offer employment to, retain for employment or permanently appoint any individual who is not certified in accordance with 780 CMR 110.R7, except on a conditional basis in accordance with 780 CMR 110.R7.1.7.4.

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS

(780 CMR 111.00 THROUGH 114.00: RESERVED)

CHAPTER 115: APPENDICES

A. EMPLOYEE QUALIFICATIONS (Not Adopted)

B. BOARD OF APPEALS (Not Adopted)

C. USE GROUP U (Adopted as revised)

C101.2 Add section and exception as follows.

C101.2 Revise as follows.

C101.2 Occupancy Thresholds. Buildings that exceed an occupancy load of 100, that would otherwise be classified as Group U Agricultural, shall be classified in accordance with their intended use.

EXCEPTION: Riding arenas shall have an occupancy load limit of 100.

C101.3 Add section as follows.

C101.3 H-Use. Agricultural buildings used to store commercial fertilizers, herbicides, or pesticides shall comply with 527 CMR, 780 CMR, and M.G.L. c. 132B with its associated regulations, as applicable.

Table C102.1 Add Note b.

b. Greenhouses that comply with snow-load requirements are exempt from the area requirements set forth in C102.

C102.3 Delete in its entirety.

D. FIRE DISTRICTS (Not Adopted)

E. SUPPLEMENTARY ACCESSIBILITY REQUIREMENTS (Not Adopted)

F. RODENTPROOFING (Adopted no amendments)

G. FLOOD-RESISTANT CONSTRUCTION (Adopted as revised)

Delete Sections G101 through G115.1 and replace as follows.

G101.1 General. Work subject to the requirements of this appendix shall be designed by a registered design professional. Work located in both flood hazard areas and coastal dunes

shall meet the requirements for both areas. Where requirements are duplicative the more stringent requirement shall apply.

G101.2 Construction Documents. Construction documents in accordance with section 1612.5 shall be submitted as applicable for work in coastal dunes. Construction documents shall indicate proposed details of floor, wall, foundation support components, loading computations, and other essential technical data used to meet the requirements of this appendix. In addition and as part of the permit application for construction in coastal dunes the building official shall require submission of one of the construction documents specified in (a) through (d) along with a notarized statement by the applicant that the order, determination or notice is in effect and is not the subject of any administrative appeals before the Department of Environmental Protection or the Division of Administrative Law Appeals. No building permit shall be issued unless and until a construction document that conforms to the requirements of this section is submitted.

(a) An order of conditions establishing the boundaries of all coastal wetland resource areas in a plan referenced in and accompanying the order. The order shall determine whether the coastal wetland resource areas are significant to any of the interests identified in the Wetlands Protection Act, M.G.L. c. 131, § 40 including the interests of flood control and storm damage prevention. If the order indicates that the proposed construction work is located within a coastal dune that is significant to the interests of flood control and/or storm damage prevention, the order of conditions shall allow the proposed construction.

(b) An order of resource area delineation stating that the proposed construction work is outside the boundaries of all coastal wetland resource areas as shown on a plan referenced in and accompanying the order.

(c) A determination of applicability stating that the proposed construction work is outside the boundaries of all coastal wetland resource areas as shown on a plan referenced in and accompanying the determination or will not fill, dredge or alter a coastal wetland resource area.

(d) A notice of non-significance evidencing that the proposed construction work is within a coastal wetland resource area as shown on a plan referenced in and accompanying the notice and stating that the coastal wetland resource area is not significant to any of the interests identified in M.G.L. c. 131, § 40: Removal, Fill, Dredging or Altering of Land Bordering Waters (the Wetlands Protection Act).

G101.3 Elevation of Structures in **Coastal Dunes**. For new buildings and structures, new foundations, replacement or substantial repair of a foundation, or repair of a substantially damaged structure where damage is the result of a storm or flooding the entire structure shall be elevated so that the bottom of the lowest horizontal structural member of the lowest floor with the exception of pilings or pile caps or lateral bracing elements is located above the Design Flood Elevation, or at the elevation required by the

order of conditions of the local conservation commission in accordance with the Wetlands Protection Act, M.G.L. c. 131, § 40 and Wetlands Protection regulations, 310 CMR10.21 through 10.35, but no less than two feet above the adjacent grade. For lateral additions 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 or pile caps or lateral bracing elements is located above the Design Flood Elevation, or at the elevation required by the order of conditions of the local conservation commission in accordance with the Wetlands Protection Act, M.G.L. c. 131, § 40 and the Wetlands Protection regulations at 310 CMR 10.21 through 10.35 but no less than two feet above the adjacent grade. Enclosures are not permitted below the lowest horizontal structural member of the lowest floor.

G101.4 Foundations. Foundations shall be designed in accordance with section 18, ASCE 7 and ASCE 24. Anchorage of buildings and structures shall be designed and connected to resist flotation, collapse or permanent lateral movement due to structural loads and stresses from flooding equal to the base flood. Unless otherwise required in Section 1810, Foundations for work meeting the elevation requirements of section G301.3 shall consist of open pilings and lateral bracing elements, without at grade horizontal elements such as footings, grade beams or slabs that would otherwise impede to allow the movement of the dune.

EXCEPTION: Where surface or subsurface conditions consist of non-erodible soil that prevents the use of pile foundations, spread footings or mat foundations may be permitted. Such foundations shall be anchored to prevent sliding, uplift or overturning of the footing and the non-erodible soil it is attached to and be designed to withstand any combination of loads.

H. SIGNS (Adopted no amendments)

I. PATIO COVERS (Adopted no amendments)

J. GRADING (Adopted no amendments)

K. ADMINISTRATIVE PROVISIONS (Not Adopted)

L. EARTHQUAKE RECORDING INSTRUMENTATION (Not Adopted)

M. TSUNAMI-GENERATED FLOOD HAZARDS (Not Adopted)

N. REPLICABLE BUILDINGS (Adopted no amendments)

O. PERFORMANCE-BASED APPLICATION (Adopted no amendments)