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 by 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.

101.4.3 Plumbing. Reference to the International Plumbing 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*.

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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: *Massachusetts Residential Stretch Energy Code and Municipal Opt-in Specialized Code* 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.

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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.

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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 Appendix J to 780 CMR 51.00: *Massachusetts Residential 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).

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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.

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R104.8 Liability. All claims of liability relative to *building official*s 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.

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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 m2).
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 ft2 (18.58 m2) 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.

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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*'s 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. 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 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:

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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

51.00: continued

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.

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

R107.2.3 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.

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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.

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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.*

51.00: continued

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.

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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.

R110.3.5.1Fire-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.

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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.

Owners 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.

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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 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.

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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 113. 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; or
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.

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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:
   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 R 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 R 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 R 116.2 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.

51.00: continued

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 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 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 - 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 official*s." 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.

51.00: continued

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, Vasd is 130 mph (58 m/s) or greater.
2. In areas where the ultimate design wind speed, Vult is 140 mph (63 m/s) or greater. **NOTE:** Values of Vult are found in Table R301.2(2). To convert Vult to Vasd, 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 ft3. 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, Pg (psf)**	**Minimum Flat Roof Snow Load, Pf1 (psf)**	**Ultimate Wind Speed, Vult (mph)**
Abington	35	30	123
Acton	50	35	117
Acushnet	30	30	129
Adams2	60	40	111
Agawam	35	35	115
Alford	40	40	112
Amesbury	50	30	116
Amherst	40	35	114
Andover	50	30	117
Aquinnah3 (Gay Head)	25	25	134

51.00: continued

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

51.00: continued

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

51.00: continued

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
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

51.00: continued

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

51.00: continued

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

51.00: continued

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

51.00: continued

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 Pg or the value of Pf1 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 Vult 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:

51.00: continued

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 **R302.13 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:

51.00: continued

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 or, 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."

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

51.00: continued

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.

51.00: continued

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 ft2 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 ft2, 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 ft2 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.

51.00: continued

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.

51.00: continued

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:

51.00: continued

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.

51.00: continued

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 requirement
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 as determined by the best available data, whichever is higher.

51.00: continued

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 as determined by the best available data, 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 in2 (645 mm2) for each ft2 (0.093 m2) 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.

51.00: continued

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 ft2 (479 Pa) and not more than 20 lbs. per ft^2 (958 Pa) as determined using allowable stress design; or

51.00: continued

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 areavailable 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

51.00: continued

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:

51.00: continued

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.

51.00: continued

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:

51.00: continued

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.

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.

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:

51.00: continued

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**	**WWF WIRE SIZE**
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 ft2 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.

51.00: continued

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 LENGTHa (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	Actualb
GB		48	48	48	53	58	Double sided = Actual Single sided = 0.5 × Actual
LIB		55	62	69	NP	NP	Actualb
ABW	ultimate design wind speed < 140 mph	28	32	34	38	42	48
CS-G		24	27	30	33	36	Actualb
CS-WSP, CS-SFB	Adjacent clear opening height (inches)						
	≤ 64	24	27	30	33	36	
	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 × Actualb
CS-PF		16	18	20	Note e	Note e	1.5 × Actualb

51.00: continued

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.

51.00: continued

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.

51.00: continued

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 RAB

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.*

51.00: continued

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.

51.00: continued

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.

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

51.00: continued

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:

$$Q = .03 \times CFA + 7.5 \times (Nbr + 1) - 0.052 \times Q50 \times S \times WSF$$

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.

51.00: continued

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 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 feet above grade directly in line with the vent terminal. The sign shall read, in print size no less than ½ 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.

51.00: continued

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.

51.00: continued

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 thermalenvelope 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.

51.00: continued

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

51.00: continued

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 m^2) 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

51.00: continued

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.

51.00: continued

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:

51.00: continued

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. *Additions*, 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."

51.00: continued

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.

51.00: continued

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 exhaustpoint. 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 in2 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.

51.00: continued

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 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.

51.00: continued

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:

51.00: continued

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 ft2 (0.307 m2). 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.

51.00: continued

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:

51.00: continued

AT103.1 (RB103.1) General. New detached one- and two-family dwellings, and multiple single-family dwellings (townhouses) with not less than 600 ft2 (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 ft2 (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 ft2 (185.8 m^2) per dwelling shall have a solar-ready zone area of not less than 150 ft2 (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 ft2 (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