9th Edition MA Residential Code 780 CMR 51.00
Proposed MA Amendments to the IRC 2015
(amended following October 13, 2015 BBRS meeting)

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9th Edition MA Residential Code 780 CMR 51.00
Proposed MA Amendments to the IRC 2015
(amended following October 13, 2015 BBRS meeting)

780 CMR 51 (The Massachusetts Residential Code) shall be the *International Residential Code 2015* with:

- sections and/or text deleted as shown in ~~strikeout.~~
- sections replaced, added, or with text modified or added as shown in red font.
- sections replaced, added, or with text modified following the October 13, 2015 BBRS meeting are shown in **blue** font.

CHAPTER 1: SCOPE AND ADMINISTRATION (Unique to MA)

SECTION 101 GENERAL

101.1 Adoption and Title. The Board of Building Regulations and Standards (BBRS) adopts and incorporates by reference, the *International Residential Code*, 2015 edition (IRC) with its appendices as indicated, 780 CMR 110.R1 to R7 and 780 CMR 115AA and these together with modifications as set forth, shall collectively comprise the *Massachusetts State Building Code* (780 CMR), Ninth Edition, Residential Volume, and referred to as "this code".

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

1. the construction, reconstruction, alteration, repair, demolition, removal, inspection, issuance and revocation of *permit*s 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 this code.
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; and
4. other powers and duties found in M.G.L. c. 143, §§ 93 through 100, but not listed herein.
5. Owner-occupied lodging houses with five or fewer guestrooms.

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

101.4 Referenced Codes. Referenced codes include the specialized codes of M.G.L. c. 143, § 96 and other codes and regulations listed in 101.4.1 through 101.4.12 and shall be considered part of this code to the prescribed extent of each such reference. Work regulated by the

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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 this code and within the jurisdiction of the *building official*, shall be subject to inspection by the *building official*.

101.4.1 Gas and Fossil Fuel Burning Appliances. Reference to the *International Fuel Gas Code* shall be considered reference to 248 CMR: *Board of State Examiners of Plumbers and Gas Fitters*. Gas fired appliances are governed 248 CMR. Oil fired appliances are governed by 527 CMR 4.00: *Oil Burning Equipment*.

101.4.2 Mechanical. The provisions of the *International Mechanical Code (IMC)* shall apply to all mechanical systems except for that which is defined as sheet metal work by M.G.L. c. 112, § 237.

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*.

101.4.4 Property Maintenance. Reference to the *International Property Maintenance Code* shall be considered reference to this code (780 CMR) and within the jurisdiction of the *building official.*

101.4.5 Fire Prevention. Reference to sections of the *International Fire Code (IFC)* for fire prevention requirements shall be considered reference to 527 CMR: *Board of Fire Prevention Regulations*. The fire official enforces the provisions of 527 CMR. Reference to sections of the *International Fire Code (IFC)* Edition for building code requirements are adopted, except that retroactive requirements of the IFC are not adopted. The *building official* enforces 780 CMR and all adopted IFC requirements.

101.4.6 Energy. Chapter 11: *Energy Efficiency* of this code shall apply to all matters governing the design and construction of buildings for energy efficiency.

101.4.7 Architectural Access. Any reference in this code to accessibility shall be considered reference to 521 CMR: *Architectural Access Board*. 521 CMR is enforced by the *building official*.

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

101.4.9 Elevators. Any reference in this code to elevators shall be considered reference to 524 CMR: *Board of Elevator Regulations*.

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

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101.4.11 International Residential Code. Any reference in this code to the *International Residential Code* shall be considered reference to 780 CMR 51.00 through 120.00.

101.5 BBRS Advisory Committees. BBRS technical Advisory Committees support requests from and by the BBRS as it deems necessary per M.G.L. c. 143. Titles and membership of these technical advisory committees may be viewed at www.mass.gov/dps.

SECTION 102 APPLICABILITY

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 this code specify different materials, methods of construction or other requirements, the most restrictive shall govern.

Exception: Where enforcement of a provision of this code 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 this code shall not nullify any provision of state or federal law. Massachusetts General Laws (M.G.L.s) and the Code of Massachusetts Regulations (CMRs) are often referenced in this code. It is the code user's responsibility to determine all applicable laws and regulations relevant to sections in this code.

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 this code.

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

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

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

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

102.6 Existing Structures. The legal occupancy of any structure existing on the date of adoption of this code shall be permitted to continue without change, except as is specifically

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covered in this code or as deemed necessary by the *building official* for the general safety and welfare of the public.

102.6.1 Laws in Effect. Unless specifically provided otherwise in this code, and narrow to the provisions of this code, any existing building or structure shall meet and 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 and shall be allowed to continue to be occupied pursuant to its use and occupancy, provided that the building or structure shall be maintained by the *owner* in accordance with this code.

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

102.6.3 Less Stringent. In cases where the provisions of this code 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 this code shall apply, providing such application can be reasonably demonstrated to not result in danger to the public, as determined by the *building official*.

102.6.4 Existing Means of Egress, Lighting and Ventilation. The *building official* may cite the following condition 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 this code.

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

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

102.7 Moved Structures. Buildings or structures moved into or within the jurisdiction shall comply with the provisions of Appendix J provided that any new system shall comply as far as practicable with the requirements for new structures and provided further that the siting and fire separation distance comply with the requirements for new structures.

102.8 Maintenance of Existing Buildings and Structures. All buildings and structures and all parts thereof, both existing and new, and all systems and equipment therein which are regulated by this code shall be maintained in a safe, operable and sanitary condition. All service equipment, 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.

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102.8.1 Owner Responsibility. The *owner*, as defined in Chapter 2: *Definitions*, shall be responsible for compliance with the provisions of this code.

PART 2 - ADMINISTRATION AND ENFORCEMENT

SECTION 103 ENFORCEMENT

103.1 Municipal and State Enforcement. Reference to The Department of Building Safety shall be considered reference to the *building official*. This code shall be enforced by the *building official* as defined in Chapter 2: *Definitions* and in accordance with M.G.L. c. 143, §§ 3, 3A, Y, and Z and M.G.L. c. 22, the *building official* shall include; building commissioner or inspector of buildings, local inspector, and state building inspector. These M.G.L.s also contain provisions, not limited to: employment and designation, qualifications, temporary appointment, and certification of *building official*s.

SECTION 104 DUTIES AND POWERS OF BUILDING OFFICIAL

104.1 General. The *building official* is hereby authorized and directed to enforce the provisions of this code in accordance with M.G.L. c. 143, §§ 3 and 3A. In every city and town this code shall be enforced by the State Inspector of the Department of Public Safety, Division of Inspections, as to any structures or buildings or parts thereof that are owned by the Commonwealth or any departments, commissions, agencies, or authorities of the Commonwealth

104.2 Applications and *Permits*. The *building official* shall receive applications, review *construction documents* and issue *permit*s for the erection, and alteration, demolition and moving of buildings and structures, inspect the premises for which such *permit*s have been issued and enforce compliance with the provisions of this code.

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

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

104.4.1 Coordination of Inspections. Whenever in the enforcement of this code, or another code or ordinance, the responsibility of more than one enforcement official of the jurisdiction 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

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orders. Whenever an enforcement official observes an apparent or actual violation not within the official's authority, the official shall report the findings to the official having jurisdiction.

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

104.6 Right of Entry. Where it is necessary to make an inspection to enforce the provisions of this code, 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 this code 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 this code, 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.

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

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

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

104.9.1 Used Materials and Equipment. The use of used materials which meet the requirements of this code for new materials is *permit*ted. Used equipment and devices shall not be reused unless *approved* by the *building official*.

104.10 Modifications. Wherever there are practical difficulties involved in carrying out the provisions of this code, the *building official* shall have the authority to grant modifications for individual cases, upon application of the *owner* or owner's representative, provided the *building official* shall first find that special individual reason makes the strict letter of this code impractical and the modification is in compliance with the intent and purpose of this code 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 department of building safety.

104.10.1 Areas Prone to Flooding. The *building official* shall not grant modifications to any provision related to areas prone to flooding as established by this code without the granting of a variance to such provisions by the building code appeals board.

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104.11 Alternative Materials, Design and Methods of Construction and Equipment. The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, 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 this code, and that the material, method or work offered is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.

104.11.1 Research Reports. Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall consist of valid research reports from *approved* sources.

104.11.2 Tests. Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, 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 jurisdiction. Test methods shall be as specified in this code or by other recognized test standards. In the absence of recognized and accepted test methods, the *building official* shall approve the testing procedures. Tests shall be performed by an *approved* agency. Reports of such tests shall be retained by the *building official* for the period required for retention of public records.

104.12 Matters Not Provided For. In recognition of the inherent difficulty of drafting a functional code that contemplates every situation that may arise in the area of building safety, this section provides the *building official*, the building code appeals board, or the BBRS itself, with reasonable discretion to ensure that all life safety issues that may arise in the enforcement of this code may be appropriately addressed. Matters not specifically provided for in this code 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 department of building safety. For highly specialized buildings and structures that conform to unique code requirements or nationally recognized standards not required in this code, *registered design professionals* shall provide sufficient information to the *building official* to support their approval.

SECTION 105 PERMITS

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

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105.2 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 building *permit* is not required for the following activities:

1. One-story detached accessory structures, provided that the floor area does not exceed 200 square feet (18.58 m^2).
2. Fences not over 7 feet (2134 mm) high.
3. Retaining walls that are not over 4 feet (1219 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.
7. Prefabricated swimming pools that are less than 24 inches (610 mm) deep.
8. Swings and other playground equipment (also refer to 521 CMR for accessibility requirements as applicable)
9. Window awnings supported by an exterior wall that do not project more than 54 inches (1372 mm) from the exterior wall and do not require additional support.
10. Decks not exceeding 200 square feet (18.58 m^2) in area, that are not more than 30 inches (762 mm) above grade at any point, are not attached to a dwelling do not serve the exit door required by Section R311.4.
11. Greenhouses covered exclusively with plastic film. This exemption does not apply if the greenhouse is to be used for large assemblies of people or uses other than normally expected for this purpose.

105.2.1 Emergency Repairs. Where replacements and repairs governed by this code 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.

105.2.2 Repairs. Application or notice to the *building official* is not required for ordinary repairs to structures. A *permit* is required for work including but not limited to: the substantial cutting away of any wall, partition or portion thereof, the removal or cutting of any structural beam or load-bearing support, or the removal or change of any required means of egress, or rearrangement of parts of a structure affecting the egress requirements or mechanical systems or other work affecting public health or general safety under the jurisdiction of 780 CMR.

105.3 Application for Permit. To obtain a *permit*, the *owner* (*see* definition) or authorized agent shall file a *permit* application on a form furnished by the *building official* for that purpose. Standard application forms, along with application forms that some municipalities use, can be found at www.mass.gov/dps. Such applications shall:

1. Identify and describe the work to be covered by the *permit* for which application is made.
2. Describe the land on which the proposed work is to be done 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 this code.
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* (*see* definition) or authorized agent.
7. Give such other data and information as required by the *building official* in accordance with this code.

105.3.1 Action on Application. The *building official* shall examine or cause to be examined applications for *permit*s and amendments, and shall issue or deny the *permit*, within 30 days of filing. If the application or the *construction documents* do not conform to the requirements of this code and all pertinent laws (*see* note below) 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*.

The following requirements, where applicable, must be satisfied before a building *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, § 3SB.
7. Construction in coastal dunes, in accordance with flood construction requirements of this code.

R105.3.1.1 Determination of substantially improved or substantially damaged existing buildings in flood hazard areas. 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 predamaged condition. If the building official finds that the value of proposed work equals or exceeds 50 percent 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 percent of the

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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 predamaged condition shall be considered substantial improvements regardless of the actual repair work performed. The term shall not include either of the following:

1. Improvements to a building or structure that are required to correct existing health, sanitary or safety code violations identified by the building official and that are the minimum necessary to ensure safe living conditions.
2. Any alteration of a historic building or structure, provided that the alteration will not preclude the continued designation as a historic building or structure. For the purposes of this exclusion, a historic building shall be any of the following:
   2.1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places.
   2.2. Determined by the Secretary of the U.S. Department of 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 Department of 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 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.

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

105.4 Validity of Permit. The issuance or granting of a *permit* shall not be construed to be a *permit* for, or an approval of, any violation of any of the provisions of this code or of any other ordinance of the jurisdiction. *Permit*s presuming to give authority to violate or cancel the provisions of this code or other ordinances of the jurisdiction 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 this code or of any other ordinances of this jurisdiction.

105.5 Expiration. Every *permit* issued shall become invalid unless the work on the site authorized by such *permit* is commenced within 180 days after its issuance, or if the work authorized on the site by such *permit* is suspended or abandoned for a period of 180 days after the time the work is commenced. The *building official* is authorized to grant, in writing, one or

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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.

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

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

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

105.9 Reserved

SECTION 106 Reserved

SECTION 107 CONSTRUCTION DOCUMENTS

107.1 Submittal Documents. Submittal documents consisting of *construction documents*, and other data shall be submitted in two or more sets with each application for a *permit.* Where special conditions exist, the *building official* is authorized to require additional *construction documents* to be prepared by a *registered design professional*. 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* also www.mass.gov/dpl for policy on electronic seal and signature for certain *registered design professionals*. Professional engineering services shall be required for activities which are deemed to constitute the practice of engineering as defined in M.G.L. c. 112, §81D, except as provided in M.G.L. c. 54A and any legally required profession or as provided in M.G.L. c. 112, §81R. Where work is performed by licensed trades people pursuant to MGL c. 112 s. 81R, plans and specifications prepared to document that work shall not be required to bear the seal or signature of a *registered design professional.*

> **Exception**: 1. 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 this code.

R107.1.1 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 this code and relevant laws, ordinances, rules and regulations, as determined by the building official.

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R107.1.2 Manufacturer's installation instructions. Manufacturer's installation instructions, as required by this code, shall be available on the job site at the time of inspection.

R107.1.3 Information on braced wall design. For buildings and structures utilizing braced wall design, and where required by the building official, braced wall lines shall be identified on the construction documents. 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.

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

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

R107.1.5 Manufactured Buildings and Modular Homes. Document submittal shall be as follows:

1. Site specific plans and specifications.
2. Plan Identification Number Assignment Form with BBRS number. This is to confirm plans have been *approved* by the State and must include a stamp approval and signature.
3. Plans must be stamped on every page by a Third Party Inspection Agency.
4. Every page showing calculations by a *registered design professional* must be provided with their stamp and signature.
5. Energy compliance certificate.
6. Set manuals are required to be on site at time of project set and must be specific to the project.

   Exception: If all connection details are provided on the plans then the set manual is not required.
7. Set crew information must accompany the plan submittal package with *approved* certification from manufacturer.

R107.1.6 Townhouse buildings greater than 35,000 cubic feet. Such buildings require *registered design professional* services in accordance with 780 CMR 107.6 *Construction Control*.

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R107.2 Site plan or plot plan. The construction documents submitted with the application for permit shall be accompanied by a site plan showing the size and location of new construction and existing structures on the site and distances from lot lines. 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 construction documents for code compliance.

R107.3.1 Approval of construction documents. Where the building official issues a permit, the construction documents shall be approved in writing or by a stamp that states "REVIEWED FOR CODE COMPLIANCE." One set of construction documents so reviewed shall be retained by the building official, ~~. The other~~ one set shall be returned to the applicant, and shall be kept at the site of work and shall be open to inspection by the building official or a duly authorized representative. If the construction documents contain fire protection and/or detection requirements one set will be required for fire department review.

R107.3.2 Previous approvals. This code 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 been pursued in good faith within 180 days after the effective date of this code and has not been abandoned.

R107.3.3 Phased approval. The building official is authorized to issue a permit for the construction of foundations 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 this code. 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.

R107.3.4 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 this code. If the head of the local fire department believes such *construction documents* to be noncompliant with this code or reference standards, he or she shall notify the *building official* (refer to M.G.L. c. 148, § 28A) in writing citing relevant sections of noncompliance with this code or the section of the referenced standards.

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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.

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.

SECTION 108 TEMPORARY STRUCTURES AND USES

108.1 General. The *building official* is authorized to issue a *permit* for temporary structures and temporary uses. Such *permit*s 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. (Also see 780 CMR 31.)

108.2 Conformance. Temporary structures and uses shall conform to the structural strength, fire safety, means of egress, accessibility, light, ventilation and sanitary requirements of this code as necessary to ensure public health, safety and general welfare.

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

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

108.5 State of Emergency. Upon declaration by the Governor of a State of Emergency under St. 1950. c. 639, or of an emergency detrimental to the public health under M.G.L. c. 17, § 2A a building or space within a building may be used as a temporary emergency use for purposes of housing and/or caring for persons in accordance with procedures established for such purpose as contained in 780 CMR 31.

SECTION 109 FEES

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

109.2 Schedule of Permit Fees. For state building *permit* fees, *see* 801 CMR 4.02: *Rates*. For municipal building *permit* fees, refer to the municipality.

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

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detailed estimates to meet the approval of the *building official*. Final building *permit* valuation shall be set by the *building official*.

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

Exception: Emergency repairs as found in Section 105.2.1

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

SECTION 110 INSPECTIONS

110.1 General. Construction or work for which a *permit* is required shall be subject to inspection by the *building official* and such construction or work shall remain accessible and exposed for inspection purposes until *approved*. Approval as a result of an inspection shall not be construed to be an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel the provisions of this code or of other ordinances of the jurisdiction 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 this code. Neither the *building official* nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

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

110.3 Required Inspections. The *building official* shall conduct inspections during construction at intervals sufficient to ensure compliance with the provisions of this code which may include inspections set forth in sections 110.3.1 through 110.3.10. 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 inspections within two business days after notification.

110.3.1 Foundation inspection. Inspection of the foundation shall be made after poles or piers are set or trenches or basement areas are excavated and any required forms erected and any required reinforcing steel is in place and supported prior to the placing of concrete. The foundation inspection shall include excavations for thickened slabs intended for the support of bearing walls, partitions, structural supports, or equipment and special requirements for wood foundations.

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110.3.2 Plumbing, mechanical, gas and electrical systems inspection. Rough inspection of plumbing, mechanical, gas and electrical systems shall be made prior to covering or concealment, before fixtures or appliances are set or installed, and prior to framing inspection.

Exception: Backfilling of ground-source heat pump loop systems tested in accordance with Section M2105.1 prior to inspection shall be permitted.

110.3.3 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.

110.3.4 Frame and masonry inspection. Inspection of framing and masonry construction shall be made after the roof, masonry, framing, firestopping, draftstopping and bracing are in place and after the plumbing, mechanical and electrical rough inspections are approved.

110.3.5 Other inspections. In addition to inspections in Sections 110.3.1 through 110.3.4, the *building official* shall have the authority to make or require any other inspections to ascertain compliance with this code and other laws enforced by the *building official*.

110.3.5.1 Fire-resistance-rated construction inspection. Where fire-resistance-rated construction is required between dwelling units or due to location on property, the *building official* shall require an inspection of such construction after lathing or gypsum board or gypsum panel products are in place, but before any plaster is applied, or before board or panel joints and fasteners are taped and finished.

110.3.6 Final inspection. Final inspection shall be made after the permitted work is complete and prior to occupancy.

110.3.6.1 Elevation 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.

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

110.5 Inspection Requests. It shall be the duty of the holder of the 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 this code. The *building official* may require the *permit* holder or his representative or the Licensed Construction Supervisor to attend these inspections.

110.6 Approval Required. Work shall not be done beyond the point indicated in each successive inspection without first obtaining the approval of the *building official*. The *building*

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official, upon notification, 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 this code. Any portions that do not comply shall be corrected and such portion shall not be covered or concealed until authorized by the *building official*.

SECTION 111 CERTIFICATE OF OCCUPANCY

111.1 Use and Occupancy. No building or structure shall be used or occupied, and no change in the existing occupancy classification of a building or structure or portion thereof shall be made, until the building commissioner, inspector of buildings, or when applicable, the state inspector, has issued a certificate of occupancy therefore as provided herein. Issuance of a certificate of occupancy shall not be construed as an approval of a violation of the provisions of this code or of other ordinances of the jurisdiction. Conformance to all applicable specialized codes of M.G.L. c. 143, § 96, and submittal of a certificate of compliance for Title V, if applicable per 310 CMR 15, are requirements of the issuance of the Certificate of Use and Occupancy.

Exception: Certificates of occupancy are not required for work exempt from *permit*s under Section 105.2 or for alterations which do not require a change to the occupancy.

111.1.1 Buildings or Structures Hereafter Altered. building or structure, in whole or in part, altered to change from one use group to another, to a different use within the same use group, the maximum live load capacity, or the occupancy load capacity shall not be occupied or used until the certificate shall have been issued certifying that the work has been completed in accordance with the provisions of the *approved permit*s and of the applicable codes for which *permit* is required.

111.1.2 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 this code.

111.2 Certificate Issued. After the *building official* inspects the building or structure and finds no violations of the provisions of this code or other laws that are enforced by the department of building safety, the *building official* shall issue a certificate of occupancy that contains the following:

1. The building *permit* number.
2. The address of the structure.
3. (*Reserved*).
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 this code for the occupancy and division of occupancy and the use for which the proposed occupancy is classified.
6. The name of the building commissioner or 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*.

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10. If the facility is licensed by a State agency, the name of the agency and the name and number of any relevant Code of Massachusetts Regulations (CMR) that apply regarding building features.

111.3 Temporary Occupancy. The *building official* is authorized to issue a temporary certificate of occupancy before the completion of the entire work covered by the *permit*, provided that such portion or portions shall be occupied safely. The *building official* 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 *building official* may extend the temporary occupancy *permit* for additional 30 day periods or a period at the discretion of the *building official*.

111.4 Revocation. The *building official* is authorized to, in writing, suspend or revoke a certificate of occupancy or completion issued under the provisions of this code wherever 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 this code.

SECTION 112 SERVICE UTILITIES - Reserved

SECTION 113 APPEALS

113.1 General. Appeals of orders, decisions, determinations and failures to act made by any state or local agency or any person or state or local agency charged with the administration or enforcement of the state building code or any of its rules and regulations, except the specialized codes of M.G.L. c. 143, § 96 relative to the application and interpretation of this code shall be addressed by the building code appeals board in accordance with M.G.L. c. 143, § 100. An application to file an appeal may be found at www.mass.gov/dps

113.2 Limitations on Authority. - Reserved

113.3 Qualifications. - Reserved

113.4 Local and Regional Boards of Appeals. If a city, region or town had not duly established by ordinance or bylaw or otherwise a local or regional building code board of appeals prior to January 1, 1975, said city, region or town may establish a local or regional board of appeals in accordance with section 113.0, referred to as the local board of appeals, consisting of not less than three nor more than five members appointed by the chief administrative officer of the city, region or town. Any appeal originating in a city or town that has a local board must be heard by the local board before being heard by the state building code appeals board.

113.4.1 Review. Any person, including the State 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 State Building Code Appeals Board for a hearing *de novo* before the State Board, in accordance with section 113. All local appeal

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decisions are to be reviewed by the BBRS and are to be summarized in a manner acceptable to the BBRS. Forms and other information pertaining to this review process are found at www.mass.gov/dps.

113.4.2 Qualifications of Local Board Members. Each member of a local board of appeals established under M.G.L. c. 143, § 100 shall have had at least five years experience in the construction, alteration, repair and maintenance of building and building codes. At least one member shall be a registered structural or civil professional engineer and one member a licensed registered architect.

113.4.3 Chairman of Local or Regional Board. The board shall select one of its members to serve as chairman and a detailed record of all proceedings shall be kept on file in the building department.

113.4.4 Absence of Members. During the absence of a member of a local board of appeals for reason of disability or disqualification, the chief administrative officer of the city, region or town shall designate a substitute who shall meet the qualifications as outlined in section 113.0.

SECTION 114 VIOLATIONS

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

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

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

1. Personally, by any person authorized by the *building official*; or
2. By any person authorized to serve civil process by leaving a copy of the order or notice at the responsible party's last and usual place of business or abode; or
3. By sending the party responsible or their agent authorized to accept service of process in the Massachusetts a copy of the order by registered or certified mail return receipt requested, if he is within the Massachusetts; or
4. 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.

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

114.4 Violation Penalties. Any person who violates a provision of this code 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 this code, shall be subject to penalties as prescribed by M.G.L. c. 143, § 94a.

SECTION 115 STOP WORK ORDER

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

115.2 Issuance. The initial stop work order may be verbal, but shall be in writing within 48 hours and shall cite the time and date of the verbal order and be given to the *owner* of the property involved, or to the owner's agent, or to the person doing 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 *permit*ted to resume.

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

SECTION 116 UNSAFE STRUCTURES AND EQUIPMENT

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

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

1. Remove all materials determined by the head of the fire department or *building official* to be dangerous in case of fire.
2. Secure all floors accessible from grade utilizing one of the following methods so long as such method is *approved* by the head of the fire department and *building official* in writing:
   a. Secure all window and door openings in accordance with the U.S. Fire Administration, National Arson Prevention Initiative Board Up Procedures found here: www.usfa.dhs.gov/downloads/pdf/publications/napi4.pdf continuously until such time as the building is reoccupied; or
   b. Provide 24 hour watchman services, continuously until such time as the building is reoccupied; or

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c. Provide a monitored intruder alarm system at the perimeter of all floors accessible from grade, continuously until such time as the building is reoccupied.

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

3. Maintain any existing fire alarms or sprinkler systems unless written permission is obtained from the head of the fire department in accordance with M.G.L. c. 148, § 27A to shut off or disconnect said alarms or systems.

4. Maintain utilities unless written permission is obtained from the *building official* to disconnect said utilities. Permission to disconnect utilities shall not be granted if it will result in inadequate heat to prevent freezing of an automatic sprinkler system or inadequate utilities to maintain any other protection systems.

5. The requirements of section 116.2 items 1. through 4. do not prevent a *building official* from ordering or taking expeditious, temporary security measures in emergency situations pending the completion of the requirements of section 116.2 items 1. through 4. For the purposes of section 116, an "emergency situation@ shall be defined as: an unexpected incident, which by its very nature may present a threat to public safety personnel who may be required to affect a rescue effort or conduct fire extinguishment operations.

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

Any building which has been made to conform to the provisions of 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 local *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 Chapter 34: *Existing Structures*.

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. The *building official*, in cooperation with the head of the fire department, shall cause said building to be marked in accordance with the marking requirements in 527 CMR 10.00: *Fire Prevention, General Provisions*.

CHAPTER 2: DEFINITIONS

9th Edition MA Residential Code 780 CMR 51.00
Proposed MA Amendments to the IRC 2015
(amended following October 13, 2015 BBRS meeting)

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BUILDING OFFICIAL. ~~The officer or other designated authority charged with the administration and enforcement of this code.~~ The building commissioner/inspector of buildings, local inspector or state building inspector charged with the administration and enforcement of this code in accordance with M.G.L. c. 143, §§ 3 and 3A.

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 ~~Figure R301.2(4)A~~ Table R301.2(4).

COASTAL DUNE. A coastal dune is a coastal wetland resource area and is subject to the construction requirements of section R322.4.

COASTAL WETLAND RESOURCE AREA. Any coastal wetland resource area subject to protection under the Wetlands Protection Act, M.G.L. c. 131, § 40, and the Wetlands Protection Act Regulations, 310 CMR 10.21 through 10.35. Coastal wetland resource areas include barrier beaches, coastal beaches, coastal dunes, rocky intertidal shores, tidal flats, land subject to 100 year coastal storm flowage, coastal banks, land containing shellfish, lands subject to tidal action, and lands under an estuary, salt pond or certain streams, ponds, rivers, lakes or creeks within the coastal zone that are anadromous/catadromous fish runs. Coastal wetland resources are shown on a map entitled "Map of Coastal Wetland Resources For Building Officials". Once a coastal wetland resource is identified coastal dunes within that resource are delineated in accordance with guidance provided on the map.

ELECTRIC VEHICLE SERVICE EQUIPMENT (EVSE) Level -2 (220 - 240V). Equipment expressly designed for the safe charging of battery electric and plug-in hybrid electric vehicles.

JURISDICTION. ~~The governmental unit adopted this code under due legislative authority that has~~ The Board of Building Regulations and Standards.

NATIVE LUMBER. Native lumber is wood processed in the Commonwealth of Massachusetts by a mill registered in accordance with 780 CMR 110.R4: *Licensing 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.

OFFICIAL INTERPRETATION. A written interpretation made by the Board of Building Regulations and Standards (BBRS), under authority of M.G.L. c. 143, § 94(e), or by the State Building Code Appeals Board under authority of M.G.L. c. 143, § 100 of any provision of this code, or its referenced standards, except the *specialized codes*.

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 state or *jurisdiction* in which the project is to be constructed~~ Massachusetts.

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.

WINDBORNE DEBRIS REGION. Reserved.

~~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 ultimate design wind speed, Vult, is 130 mph (58 m/s) or greater in.~~

~~2. In areas where the ultimate design wind speed, Vult, is 140 mph (63.6 m/s) or greater; or Hawaii.~~

9th Edition MA Residential Code 780 CMR 51.00
Proposed MA Amendments to the IRC 2015
(amended following October 13, 2015 BBRS meeting)

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CHAPTER 3: BUILDING PLANNING

R301.1.1 Alternative provisions. As an alternative to the requirements in Section R301.1, the following standards are permitted subject to the limitations of this code and the limitations therein. Where engineered design is used in conjunction with these standards, the design shall comply with the *International Building Code.*

1. AF&PA *Wood Frame Construction Manual* (WFCM)
2. AISI *Standard for Cold-Formed Steel Framing— Prescriptive Method for One- and Two-Family Dwellings* (AISI S230).
3. ICC *Standard on the Design and Construction of Log Structures* (ICC 400).
4. American Forest and Paper Association (AF&PA) *Prescriptive Residential Wood Deck Construction Guide* (DCA6).

R301.1.4 Townhouse buildings greater than 35,000 cubic feet. Such buildings shall require *registered design professional* services in accordance with 780 CMR 107.6 Construction Control.

R301.2 Climatic and geographic design criteria. Buildings shall be constructed in accordance with the provisions of this code as limited by the provisions of this section. ~~Additional criteria shall be established by the local *jurisdiction* and set forth in~~ See Table R301.2(1).

Table R301.2(1)
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

Ground Snow Load		Table R301.2(4).
Wind Design	Speed	Table R301.2(4).
	Topographic effects	No
	Special Wind Regions	No
	Windborne debris zone	No
Seismic Design Category		No
Subject to Damage From	Weathering	Severe
	Frost line depth	48-inches For shallow foundations see R403.3(2).
	Termite	See Figure R301.2(6)
Winter Design Temp		Dry bulb
Ice Barrier Underlayment Reqd		For roofing, see R905.2.7
Flood Hazards		See Section 322.
Air Freezing Index		For shallow foundations see R403.3(2)
Mean Annual Temp		See www/ncdc.noaa.gov/fpsf.html

R301.2.1.1 Wind limitations and wind design required. The wind provisions of this code shall not apply to the design of buildings ~~where wind design is required in accordance with Figure~~

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~~R301.2(4)B~~ where the wind speed is 140 mph or greater. See Table R301.2(4) for wind speeds by city or town.

Exceptions:

1. For concrete construction, the wind provisions of this code shall apply in accordance with the limitations of Sections R404 and R608.
2. For structural insulated panels, the wind provisions of this code shall apply in accordance with the limitations of Section R610.
3. For cold-formed steel light-frame construction, the wind provisions of this code shall apply in accordance with the limitations of Sections R505, R603 and R804.

In regions where wind design is required ~~in accordance with Figure R301.2(4)~~ the design of buildings for wind loads shall be in accordance with one or more of the following methods:

1. AF&PA *Wood Frame Construction Manual* (WFCM) or its *Guide to Wood Construction in High Wind Areas for One- and Two-Family Dwellings, 110 mph Exposure B*. A Commonwealth of Massachusetts version of the checklist can be used in place of the checklist at the end of the Guide and is found at www.mass.gov/dps.
2. ICC *Standard for Residential Construction in High-Wind Regions* (ICC 600). (ICC-600); or
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 the provisions of this code.

Where ASCE 7 or the *International Building Code* is used for the design of the building, the wind speed map and exposure category requirements as specified in ASCE 7 and the *International Building Code* shall be used.

R301.2.1.2 Protection of openings. Reserved. ~~Exterior glazing in buildings located in windborne debris regions shall be protected from windborne debris. Glazed opening protection for windborne debris shall meet the requirements of the Large Missile Test of ASTM E 1996 and ASTM E 1886 as modified in Section 301.2.1.2.1. Garage door glazed opening protection for windborne debris shall meet the requirements of an *approved* impact resisting standard or ANSI/DASMA 115.~~

~~**Exception:** Wood structural panels with a thickness of not less than 7/16 inch (11 mm) and a span of not more than 8 feet (2438 mm) shall be permitted for opening protection. Panels shall be precut and attached to the framing surrounding the opening containing the product with the glazed opening. Panels shall be predrilled as required for the anchorage method and shall be secured with the attachment hardware provided. Attachments shall be designed to resist the component and cladding loads determined in accordance with either Table R301.2(2) or ASCE 7, with the permanent corrosion resistant attachment hardware provided and anchors permanently installed on the building. Attachment in~~

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~~accordance with Table R301.2.1.2 is permitted for buildings with a *mean roof height* of 45 feet (13, 728 mm) or less where the ultimate design wind speed, *Vult*, is 180 mph (290 kph) or less.~~

Table R301.2(4) - snow loads and wind speeds listed by municipality. See separate file.

R301.2.2 Seismic provisions. Reserved. ~~The seismic provisions of this code shall apply as follows:~~

~~1. *Townhouses* in Seismic Design Categories C, D0, D1and D2.~~
~~2. Detached one- and two-family *dwellings* in Seismic Design Categories, D0, D1 and D2.~~

R301.2.4 Floodplain construction. Buildings and structures constructed in whole or in part in flood hazard areas (including AO, A, Coastal A or V Zones) or *coastal dunes* as established in ~~Table R301.2(1)~~ 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 ~~associated with the most restrictive~~ 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.

R301.2.4.1 ~~Alternative provisions.~~ Reserved ~~As an alternative to the requirements in Section R322, ASCE 24 is permitted subject to the limitations of this code and the limitations therein.~~

SECTION R302 FIRE-RESISTANT CONSTRUCTION

R302.1 Exterior walls. Construction, projections, openings and penetrations of *exterior walls* of *dwellings* and accessory buildings shall comply with Table R302.1(1); or *dwellings* equipped throughout with an *automatic sprinkler system* installed in accordance with NFPA 13D ~~Section P2904~~ shall comply with Table R302.1(2).

. . .

Table R302.1(2) footnote:

a. For residential subdivisions where all *dwellings* are equipped throughout with an automatic sprinkler system installed in accordance with ~~Section P2904~~ NFPA 13D , the *fire separation distance* for nonrated exterior walls and rated projections shall be permitted to be reduced to 0 feet, and unlimited unprotected openings and penetrations shall be permitted, where the adjoining *lot* provides an open setback *yard* that is 6 feet or more in width on the opposite side of the property line.

. . .

R302.2 Townhouses. Common walls separating *townhouses* shall be assigned a fire-resistance rating in accordance with Section R302.2, Item 1 or 2. The common wall shared by two *townhouses* shall be constructed without plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. The wall shall be rated for fire exposure from both sides and

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shall extend to and be tight against exterior walls and the underside of the roof sheathing. Electrical installations shall be in accordance with Chapters 34 through 43. Penetrations of the membrane of common walls for electrical outlet boxes shall be in accordance with Section R302.4.

1. Where a fire sprinkler system in accordance with ~~Section P2904~~ NFPA 13D is provided, the common wall shall be not less than a 1-hour fire-resistance-rated wall assembly tested in accordance with ASTM E 119 or UL 263.
2. Where a fire sprinkler system in accordance with ~~Section P2904~~ NFPA 13D is not provided, the common wall shall be not less than a 2-hour fire-resistance-rated wall assembly tested in accordance with ASTM E 119 or UL 263.

R302.13 Fire protection of floors. Floor assemblies that are not required elsewhere in this code to be fire-resistance rated, shall be provided with a 1/2-inch (12.7 mm) gypsum wallboard membrane, 5/8-inch (16 mm) wood structural panel membrane, or equivalent on the underside of the floor framing member. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted.

Exceptions:

1. Floor assemblies located directly over a space protected by an automatic sprinkler system in accordance with ~~Section P2904,~~ NFPA 13D, or other approved equivalent sprinkler system.

. . .

~~**R303.3 Bathrooms.** Bathrooms, water closet compartments and other similar rooms shall be provided with aggregate glazing area in windows of not less than 3 square feet (0.3 m2), one half of which must be openable.~~

~~**Exception:** The glazed areas shall not be required where artificial light and a local exhaust system are provided. The minimum local exhaust rates shall be determined in accordance with Section M1507. Exhaust air from the space shall be exhausted directly to the outdoors.~~

R303.3 Bathrooms. Mechanical ventilation in accordance with Section M1507 is required for all bathrooms with a shower or bathtub and rooms with a toilet.

R305.1 Minimum height. *Habitable space* and hallways ~~,and portions of *basements*~~ containing these spaces shall have a ceiling height of not less than 7 feet (2134 mm) Bathrooms, toilet rooms ~~and~~, laundry rooms and habitable space in basements shall have a ceiling height of not less than 6 feet 8 inches (2032 mm). To the reader: Exceptions are retained.

R308.1 Identification. Except as indicated in Section R308.1.1 each pane of glazing installed in hazardous locations as defined in Section R308.4 shall be provided with a manufacturer's designation specifying who applied the designation, designating the type of glass and the safety glazing standard with which it complies, which is visible in the final installation. The designation shall be acid etched, sandblasted, ceramic-fired, laser etched, embossed, or be of a type that once

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applied cannot be removed without being destroyed. A *label* shall be permitted in lieu of the manufacturer's designation. Also *see* M.G.L. c. 143 §§ 3t, 3u, and 3v.

R309.3 Flood hazard areas and *coastal dunes*. For buildings located in flood hazard areas or *coastal dunes* as established by ~~Table R301.2(1)~~ 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 this code.

R309.5 Fire sprinklers. Private garages shall be protected by fire sprinklers where the garage wall has been designed based on Table R302.1(2), Footnote a. Sprinklers in garages shall be connected to an automatic sprinkler system that complies with ~~Section P2904~~ NFPA 13D . Garage sprinklers shall be residential sprinklers or quick-response sprinklers, designed to provide a density of 0.05 gpm/ft2. Garage doors shall not be considered obstructions with respect to sprinkler placement.

R310.2.1 Minimum opening area. Emergency and escape rescue openings shall have a net clear opening of not less than 5.7 square feet (0.530 m2). The net clear opening dimensions required by this section shall be obtained by the normal operation of the emergency escape and rescue opening from the inside. ~~The net clear height opening shall be not less than 24 inches (610 mm) and the net clear width shall be not less than 20 inches (508 mm).~~ The minimum net clear opening dimensions shall be 20 inches (508 mm) by 24 inches (610 mm) in either direction.

Exceptions:

1. *Grade* floor or below *grade* openings shall have a net clear opening of not less than 5 square feet (0.465 m2).
2. Double hung windows shall have a minimum net clear opening of 3.3 square feet ($0.31 m^2$).

R311.1 Means of egress. *Dwellings* units shall be provided with a primary and secondary means of egress in accordance with this section. ~~The~~ Each means of egress shall provide a continuous and unobstructed path of vertical and horizontal egress travel from all portions of the *dwelling* to the ~~required~~ egress doors ~~without requiring travel through a garage~~. The primary means of egress shall not require travel through a garage but the secondary means of egress may. The required egress doors shall open directly into a public way or to a *yard* or court that opens to a public way.

Note:

1. In multi-level dwellings, including but not limited to townhouses, split-level and raised ranch style layouts, the two separate egress doors may be located on different levels.
2. Where site topography prevents direct access at two remote locations to grade from the normal level of entry, the two separate egress doors may be located on different levels.

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R311.2 Egress door. ~~Not less than one~~ 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 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). The clear height of ~~the~~ side-hinged door openings shall be not less than 78 inches (1981 mm) in height measured from the top of the threshold to the bottom of the stop. Sliding door clear width may be slightly less than 28 inches (711 mm) to conform to industry fabrication standards. Other doors shall not be required to comply with these minimum dimensions. Egress doors shall be readily openable from inside the *dwelling* without the use of a key or special knowledge or effort.

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 six feet, six inches (1981 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.

R311.7.5.1 Risers. The riser height shall be not more than ~~73/4 inches (196 mm)~~ 8 ¼ inches (210 mm). The riser shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). Risers shall be vertical or sloped from the underside of the nosing of the tread above at an angle not more than 30 degrees (0.51 rad) from the vertical. Open risers are permitted provided that the openings located more than 30 inches (762 mm), as measured vertically, to the floor or grade below do not permit the passage of a 4-inch-diameter (102 mm) sphere.

Exceptions:
1. The opening between adjacent treads is not limited on spiral stairways.
2. The riser height of spiral stairways shall be in accordance with Section R311.7.10.1.

R311.7.5.2 Treads. The tread depth shall be not less than ~~10 inches (254 mm).~~ 9 inches (229 mm) The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm).

R311.7.5.2.1 Winder treads. ~~Winder treads shall have a tread depth of not less than 10 inches (254 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 6 inches (152 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 do not have to be within 3/8 inch (9.5 mm) of the rectangular tread depth.~~

~~**Exception:** The tread depth at spiral stairways shall be in accordance with Section R311.7.10.1~~

Winder treads shall have a minimum tread depth equal to the tread depth of the straight run portion of the stairs measured as above at a point 12 inches from the side where the treads are narrower. Winder treads shall have a minimum tread depth of three inches at any point. Within any flight of stairs, the greatest winder tread depth at the 12 inch walk line shall not exceed the smallest by more than 3/8 inch.

R313.1 Townhouse automatic fire sprinkler systems. An automatic residential fire sprinkler system shall be installed in *townhouses*.

Exception 1: An automatic residential fire sprinkler system shall not be required where *additions* or *alterations* are made to existing *townhouses* that do not have an automatic residential fire sprinkler system installed.

Exception 2: An automatic residential fire sprinkler system shall not be required where common walls of new townhouses are constructed with a 2-hour fire resistance rating as per Section R302.2, Item 2.

R313.1.1 Design and installation. Automatic residential fire sprinkler systems for *townhouses* shall be designed and installed in accordance with ~~Section P2904 or~~ NFPA 13, NFPA 13R, or NFPA 13D, as applicable:

1. A townhouse building with an aggregate area of 12,000 square feet, or more, shall be provided with an NFPA 13 system.
2. A townhouse building with an aggregate area of less than 12,000 square feet shall be permitted to use a NFPA 13R system.

Exception: A three-unit townhouse building with an aggregate area less than 12,000 square feet shall be permitted to use a NFPA 13D system.

For the purposes of this section, the aggregate area shall be the combined area of all stories of the building and firewalls shall not be considered to create separate buildings. Aggregate area shall include garage areas, basement areas, and finished attic areas. Unfinished attic areas shall not be included in the aggregate area.

R313.2 One- and two-family dwellings automatic fire systems. ~~An automatic residential fire sprinkler system shall be installed in one- and two-family *dwellings*.~~ Only one- and two-family dwellings having an aggregate area greater than 14,400 square feet shall have fire sprinklers installed in accordance with NFPA 13D. Aggregate area for the purpose of this section shall include basements but not garages and unfinished attics.

Exception: An automatic residential fire sprinkler system shall not be required for *additions* or *alterations* to existing buildings having an aggregate area greater than 14,400 square feet that are not already provided with an automatic residential sprinkler system.

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R313.2.1 Design and installation. Automatic residential fire sprinkler systems shall be designed and installed in accordance with ~~Section P2904 or~~ NFPA 13D.

R314.1.1 Listings. Smoke alarms shall be the photoelectric type *listed* in accordance with UL 217 or UL 268. Combination smoke and carbon monoxide alarms shall be *listed* in accordance with UL 217 and UL 2034.

R314.2.2 Alterations, repairs and additions. See Appendix J. ~~Where *alterations*, *repairs* or *additions* requiring a permit occur, or where one or more sleeping rooms are added or created in existing *dwellings*, the individual *dwelling unit* shall be equipped with smoke alarms located as required for new *dwellings*.~~

~~**Exceptions:**~~

~~1. Work involving the exterior surfaces of *dwellings*, such as the replacement of roofing or siding, the *addition* or replacement of windows or doors, or the addition of a porch or deck, are exempt from the requirements of this section.~~

~~2. Installation, alteration or repairs of plumbing or mechanical systems are exempt from the requirements of this section.~~

R314.3 Location. Smoke alarms shall be installed in the following locations:

1. In each sleeping room.
2. Outside each separate sleeping area in the immediate vicinity of the bedrooms.
3. On each additional *story* of the *dwelling*, including *basements* and *habitable attics* and not including crawl spaces and uninhabitable *attics*. In *dwellings* or *dwelling units* with split levels and without an intervening door between the adjacent levels, a smoke alarm installed on the upper level shall suffice for the adjacent lower level provided that the lower level is less than one full *story* below the upper level.
4. Smoke alarms shall be installed not less than 3 feet (914 mm) horizontally from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by Section R314.3.
5. For each 1000 square feet of area or part thereof.
~~5.~~6. Near all stairs.

R314.3.1 Installation near cooking appliances. **Reserved.** ~~Smoke alarms shall not be installed in the following locations unless this would prevent placement of a smoke alarm in a location required by Section R314.3.~~

~~1. Ionization smoke alarms shall not be installed less than 20 feet (6096 mm) horizontally from a permanently installed cooking *appliance*.~~

~~2. Ionization smoke alarms with an alarm silencing switch shall not be installed less than 10 feet (3048 mm) horizontally from a permanently installed cooking *appliance*.~~

~~**3.** Photoelectric smoke alarms shall not be installed less than 6 feet (1828 mm) horizontally from a permanently installed cooking *appliance*.~~

R314.4 Interconnection. Where more than one smoke alarm is required to be installed within an individual dwelling unit in accordance with Section R314.3, the alarm devices shall be

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interconnected in such a manner that the actuation of one alarm will activate all of the alarms in the individual *dwelling unit*. Physical interconnection of smoke alarms shall not be required where listed wireless alarms are installed and all alarms sound upon activation of one alarm.

Exception: Interconnection of smoke alarms in existing areas shall not be required where *alterations* or repairs do not result in removal of interior wall or ceiling finishes exposing the structure, unless there is an *attic*, crawl space or *basement* available that could provide access for interconnection without the removal of interior finishes, and unless one or more bedrooms are being added or created.

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 alarm signals have precedence over CO alarms in accordance with the requirements of NFPA 720.

Delete Exception 2 in Section R314.6.

R315.5 Power source. Carbon monoxide alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source and, where primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection.

Exceptions:

1. Carbon monoxide alarms shall be permitted to be battery operated where installed in buildings without commercial power.

~~2. Carbon monoxide alarms installed in accordance with Section R315.2.2 shall be permitted to be battery powered.~~

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.

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 ~~main house~~ dwelling (detached garages do not require a heat detector).
2. A new garage attached to an existing dwelling. If the existing house 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.

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

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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 four inches (102 mm) to any wall. Heat detection shall be listed in accordance with UL 521 or UL 539.

R314.9 Common areas. All common areas including basements and hallways/stairways in two family dwellings shall have smoke detector protection. Each detection device shall activate an alarm that provides audible notification installed in accordance with NFPA 72-2013: 18.4.5.

R315.1 General. Carbon monoxide alarms shall ~~be furnished, installed and maintained by the owner in accordance~~ comply with Section R315~~, M.G.L. c. 148, § 26F½ , 527 CMR,~~ 248 CMR, NFPA 720 and the manufacturer's instructions. Any required carbon monoxide detection shall be interconnected.

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 2034 and UL 217.

R315.2.2 Alterations, repairs and additions. See Appendix J. ~~Where *alterations*, *repairs* or *additions* requiring a permit occur, or where one or more sleeping rooms are added or created in existing *dwellings*, the individual *dwelling unit* shall be equipped with smoke alarms located as required for new *dwellings*.~~

~~**Exceptions:**~~

~~1. Work involving the exterior surfaces of *dwellings*, such as the replacement of roofing or siding, or the addition or replacement of windows or doors, or the addition of a porch or deck, is exempt from the requirements of this section.~~

~~2. Installation, alteration or repairs of plumbing or mechanical systems are exempt from the requirements of this section~~.

R315.3 Location. Carbon monoxide alarms in *dwelling units* shall be outside of each separate sleeping area ~~in the immediate vicinity~~ 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 alarm shall be installed on each story of a dwelling unit, including basements and cellars but not in crawl spaces and uninhabitable attics.

R315.4 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.

R315.5 Power source. Carbon monoxide alarms and combination alarms shall receive their primary power from the building wiring where such wiring is served from a commercial source and, where primary power is interrupted, shall receive power from a battery. Wiring shall be permanent and without a disconnecting switch other than those required for overcurrent protection. Alarms may also be part of a low voltage or wireless system with standby power from monitored batteries in accordance with NFPA 72.

Exceptions:

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1. Carbon monoxide alarms shall be permitted to be battery operated where installed in buildings without commercial power.
~~2. Carbon monoxide alarms installed in accordance with Section R315.2.2 shall be permitted to be battery powered.~~

R319.1 Address identification. See M.G.L. c. 148 §59 and applicable provisions of 527 CMR. ~~Buildings shall be provided with *approved* address identification. The address identification shall be legible and placed in a position that is visible from the street or road fronting the property. Address identification characters shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall not be spelled out. Each character shall be not less than 4 inches (102 mm) in height with a stroke width of not less than 0.5 inch (12.7 mm). Where required by the fire code official, address identification shall be provided in additional *approved* locations to facilitate emergency response. Where access is by means of a private road and the building address cannot be viewed from the public way, a monument, pole or other sign or means shall be used to identify the structure. Address identification shall be maintained.~~

R320.1 Scope. For *townhouses* see 521 CMR. ~~Where there are four or more *dwelling units* or sleeping units in a single structure, the provisions of Chapter 11 of the *International Building Code* for Group R-3 shall apply.~~

~~**R320.1.1 Guestrooms.** A *dwelling* with guestrooms shall comply with the provisions of Chapter 11 of the *International Building Code* for Group R-3. For the purpose of applying the requirements of Chapter 11 of the *International Building Code*, guestrooms shall be considered to be sleeping units.~~

~~**Exception:** Owner-occupied lodging houses with five or fewer guestrooms constructed in accordance with the *International Residential Code* are not required to be accessible.~~

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.

R321.2 Platform lifts. Where provided, platform lifts shall comply with ~~ASME A18.1~~. 524 CMR.

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~~ 524 CMR.

~~**R322.1 General.** Buildings and structures constructed in whole or in part in flood hazard areas including A or V Zones and Coastal A Zones, as established in Table R301.2(1), and substantial improvement and restoration of substantial damage of buildings and structures in flood hazard areas, shall be designed and constructed in accordance with the provisions contained in this section. Buildings and structures that are located in more than one flood hazard area shall comply with the provisions associated with the most restrictive flood hazard areas Buildings and structures located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24.~~

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

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

~~**R322.1.1 Alternative provisions.** As an alternative to the requirements in Section R322, ASCE 24 is permitted subject to the limitations of this code and the limitations therein~~.

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

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

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

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

~~The design flood elevation shall be used to define flood hazard areas. At a minimum, the design flood elevation shall be the higher of the following:~~

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~~1. The base flood elevation at the depth of peak elevation of flooding, including wave height, that has a 1 percent (100 year flood) or greater chance of being equaled or exceeded in any given year; or~~
~~2. The elevation of the design flood associated with the area designated on a flood hazard map adopted by the community, or otherwise legally designated.~~

~~**R322.1.4.2 Determination of impacts.**~~ **Reserved.** ~~In riverine flood hazard areas where design flood elevations are specified but floodways have not been designated, the applicant shall demonstrate that the effect of the proposed buildings and structures on design flood elevations, including fill, when combined with other existing and anticipated flood hazard area encroachments, will not increase the design flood elevation more than 1 foot (305 mm) at any point within the *jurisdiction*.~~

R322.1.5 Lowest floor and basement. The lowest floor shall be the lowest floor of the lowest enclosed area, including ~~*basement*,~~ 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.

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, ~~or~~ 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 this code for wet locations.

~~**R322.1.7 Protection of water supply and sanitary sewage systems.**~~ **Reserved** ~~New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the systems in accordance with the plumbing provisions of this code. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into systems and discharges from systems into floodwaters in accordance with the~~

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~~plumbing provisions of this code and Chapter 3 of the *International Private Sewage Disposal Code*.~~

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

R322.1.10 As-built elevation documentation. A registered *design professional* shall prepare and seal documentation for submittal of the elevations specified in Section R322.2, ~~or~~ R322.3 or R322.4.

R322.1.11 Construction documents. 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.

R322.2 Flood hazard areas (including A and AO Zones). ~~Areas that have been determined to be prone to flooding and are not subject to high-velocity wave action shall be designated as flood hazard areas. Flood hazard areas that have been delineated as subject to wave heights between 11/2 feet (457 mm) and 3 feet (914 mm) or otherwise designated by the jurisdiction shall be designated as Coastal A Zones and are subject to the requirements of Section R322.3.~~ Buildings and structures constructed in whole or in part in ~~flood hazard area~~s A and AO Zones shall be designed and constructed in accordance with Sections R322.2.1 through R322.2.3.

R322.2.1 Elevation requirements.

1. Buildings and structures in ~~flood hazard areas including flood hazard areas design~~ated as ~~Coastal~~ A Zones, shall have the lowest floor~~s~~ elevated to or above the design flood elevation. ~~or the design flood elevation whichever is higher.~~
2. In ~~areas of shallow flooding (AO Zones),~~ AO Zones buildings and structures shall have the lowest floor (including *basement*) elevated to a height of not less than the design flood elevation.
3. Basement floors that are below *grade* on all sides shall be elevated to or above design flood elevation ~~plus 1 foot (305 mm). or the design flood elevation, whichever is higher~~.

   ~~**Exception:** Enclosed areas below the design flood elevation, including *basements* with floors that are not below *grade* on all sides, shall meet the requirements of Section R322.2.2.~~

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.

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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 1 square inch (645 mm2) for each square foot (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 3 inches (76 mm) in any direction in the plane of the wall.

R322.2.2.1 Installation of openings. The walls of enclosed areas shall have openings installed such that:

1. There shall be not less than two openings on different sides of each enclosed area; if a building has more than one enclosed area below the design flood elevation, each area shall have openings on *exterior* walls.
2. The bottom of each opening shall be not more than 1 foot (305 mm) above the higher of the final interior grade or floor and the finished existing exterior grade immediately under ~~each~~ the opening.
3. Openings shall be permitted to be installed in doors and windows; doors and windows without installed openings do not meet the requirements of this section.

R322.3 Coastal high-hazard areas (including V Zones and Coastal A Zones).~~, where designated).~~ ~~Areas that have been determined to be subject to wave heights in excess of 3 feet (914 mm) or subject to high velocity wave action or wave induced erosion shall be designated as coastal high hazard areas. Flood hazard areas that have been designated as subject to wave heights between 1 1/2 feet (457 mm) and 3 feet (914 mm) or otherwise designated by the jurisdiction shall be designated as Coastal A Zones.~~ Buildings and structures constructed in whole or in part in V and Coastal A Zones ~~coastal high hazard areas and coastal A Zones, where designated~~, shall be designed and constructed in accordance with Sections R322.3.1 through R322.3.7.

R322.3.1 Location and site preparation.

1. New buildings and buildings that are determined to be substantially improved pursuant to Section R105.3.1.1 shall be located landward of the reach of mean high tide.
~~2. For any alteration of sand dunes and mangrove stands, the *building official* shall require submission of an engineering analysis that demonstrates that the proposed *alteration* will not increase the potential for flood damage.~~

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

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beams and bracing, is elevated to ~~or above the base flood plus 1 foot (305 mm) or~~ the design flood elevation~~, whichever is higher~~.

2. Basement floors that are below *grade* on all sides are prohibited.

3. The use of fill for structural support is prohibited.

4. Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways. Fill is prohibited unless such fill is constructed and/or placed to avoid diversion of water and waves toward any building or structure.

5. Walls and partitions enclosing areas below the design flood elevation shall meet the requirements of Sections R322.3.4 and R322.3.5.

6. For lateral additions in V Zones that are not a substantial improvement, only the addition shall be elevated so that the bottom of the lowest horizontal structural member of the lowest floor with the exception of pilings, pile caps, columns, grade beams and bracing, is located at an elevation that is at least the design flood elevation.

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

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

R322.3.4 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

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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 10 (479 Pa) and not more than 20 pounds per square foot (958 Pa) as determined using allowable stress design; or

4. Where wind loading values of this code exceed 20 pounds per square foot (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 this code.

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.

~~6. In Coastal A Zones, walls shall be provided with flood openings that meet the criteria of Section R322.2.2.~~

~~**R322.3.6 Construction documents.** 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.~~ Reserved.

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.

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 (a) through (d) below along with a notarized statement by the applicant that the Order, Determination or Notice is in effect and is not the subject of any administrative appeals before the Department of Environmental Protection or the Division of Administrative Law Appeals. No building *permit* shall be issued unless and until a construction document that conforms to the requirements of this section is submitted.

(a) An Order of Conditions establishing the boundaries of all coastal wetland resource areas in a plan referenced in and accompanying the Order. The Order shall determine whether the coastal wetland resource areas are significant to any of the interests identified in the Wetlands Protection Act, M.G.L. c. 131, § 40 including the interests of flood control and storm damage prevention. If the Order indicates that the proposed construction work is located within a *coastal dune* that is significant to the interests of

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flood control and/or storm damage prevention, the Order of Conditions must allow the proposed construction.
(b) An Order of Resource Area Delineation stating that the proposed construction work is outside the boundaries of all coastal wetland resource areas as shown on a plan referenced in and accompanying the Order.
(c) A Determination of Applicability stating that the proposed construction work is outside the boundaries of all coastal wetland resource areas as shown on a plan referenced in and accompanying the Determination or will not fill, dredge or alter a coastal wetland resource area.
(d) A Notice of Non-significance evidencing that the proposed construction work is within a coastal wetland resource area as shown on a plan referenced in and accompanying the Notice and stating that the coastal wetland resource area is not significant to any of the interests identified in M.G.L. c. 131, § 40: *Removal, Fill, Dredging or Altering of Land Bordering Waters* (the Wetlands Protection Act).

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 R109.1.3, shall be submitted.

R322.4.3 Additional Documentation. Documentation for buildings located in more than one zone shall meet the requirements of all zones.

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 is located 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*. 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 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.

R322.4.5 Foundations. Foundations for work meeting the elevation requirements of Section R322 shall consist of open pilings without footings 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.

R322.4.6 Enclosed Areas below Design Flood Elevation. Enclosures are not permitted below the lowest horizontal structural member of the lowest floor.

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R324: SOLAR ENERGY SYSTEMS

R324.1 General. Solar energy systems shall comply with the provisions of this section.

R324.2 Solar thermal systems. Solar thermal systems shall be designed and installed in accordance with Chapter 23 ~~and the *International Fire Code*.~~

R324.3 Photovoltaic systems. ~~Photovoltaic systems shall be designed and installed in accordance with Sections R324.3.1 through R324.7.2.5 and NFPA 70. Inverters shall be *listed* and *labeled* in accordance with UL 1741. Systems connected to the utility grid shall use inverters listed for utility interaction. in accordance with Section R301~~. Photovoltaic systems shall be designed and installed in accordance all governing loading conditions, fire protection, energy conservation and weatherization requirements dictated by this code and the electrical requirements of 527 CMR and those of the manufacturer.

R324.4 through **R324.7** are deleted.

R326.1 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. Public and semi-public outdoor in-ground swimming pool enclosures shall conform to the requirements of M.G.L. c. 140, § 206.
2. Also *see* 521 CMR 19.00: *Recreational Facilities*.
3. Also *see* 105 CMR 430.00: *Minimum Standards for Recreational Camps for Children (State Sanitary Code, Chapter IV)* and 435.00: *Minimum Standards for Swimming Pools (State Sanitary Code: Chapter V)* as such regulate swimming pool requirements.
4. Installation of electrical wiring and electrical devices shall be in accordance with 527 CMR.
5. Installation of gas-fired pool heaters shall be in accordance with the Board of State Examiners of Plumber and Gas Fitters regulations at 248 CMR.

CHAPTER 4: FOUNDATIONS

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 a minimum of 6 inches (152 mm) within the first 10 feet (3048 mm). Temporary and finished grading shall not direct nor create flooding or damage to adjacent property during or after completion of construction.

R401.4.1 Geotechnical evaluation. In lieu of a complete geotechnical evaluation, the load-bearing values in Table R401.4.1 or 780 CMR Table 1806.2a shall be assumed.

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 which 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,

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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.

R403.1.6 Foundation anchorage. Wood sill plates and wood walls supported directly on continuous foundations shall be anchored to the foundation in accordance with this Section Cold-formed steel framing shall be anchored directly to the foundation or fastened to wood sill plates anchored to the foundation. Anchorage of cold-formed steel framing and sill plates supporting cold-formed steel framing shall be in accordance with this section and Section R505.3.1 or R603.3.1. Wood sole plates at all exterior walls on monolithic slabs, wood sole plates of *braced wall panels* at building interiors on monolithic slabs and all wood sill plates shall be anchored to the foundation with minimum 1/2-inch diameter (12.7 mm) A 307 or other applicable steel anchor bolts spaced a maximum of 6 feet (1829 mm) on center or *approved* anchors or anchor straps spaced as required to provide equivalent anchorage to 1/2-inch-diameter (12.7 mm) anchor bolts, installed in accordance with the manufacturer's instructions. Bolts shall extend a minimum of 7 inches (178 mm) into concrete or grouted cells of concrete masonry units. The bolts shall be located in the middle third of the width of the plate. A nut and washer shall be tightened on each anchor bolt. There shall be a minimum of two bolts per plate section with one bolt located not more than 12 inches (305 mm) or less than seven bolt diameters from each end of the plate section. Interior bearing wall sole plates on monolithic slab foundation that are not part of a *braced wall panel* shall be positively anchored with *approved* fasteners. Sill plates and sole plates shall be protected against decay and termites where required by Sections R317 and R318.

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, cobbles and boulders, shall be placed in lifts not exceeding 12-inches and shall be mechanically compacted.

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.

R408.7 Flood resistance. For buildings located in *flood hazard areas* as established in Table R301.2(1):

1. Walls enclosing the under-floor space shall be provided with flood openings in accordance with Section R322.2.2.
2. The finished ground level of the under-floor space shall be equal to or higher than the outside finished ground level on at least one side.

~~**Exception:** Under-floor spaces that meet the requirements of FEMA/FIA-TB-11-1.~~

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CHAPTER 5: FLOORS

502.3 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 & Rafters* found at http://www.awc.org/calculators/span/calc/timbercalcstyle.asp"

R502.11.1 Design. Wood trusses shall be designed in accordance with *approved* engineering practice. The design and manufacture of metal-plate-connected wood trusses shall comply with ANSI/TPI 1. The truss design drawings shall be prepared by a registered design professional where required by the statutes of the *jurisdiction* in which the project is to be constructed in accordance with Section R106.1.

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 four inches (102 mm) in thickness.

Table R506.1.1
Maximum Dimension of Slab or Distance Between Control Joints (ft.)

Slab Thickness (in.)						**WWF Wire Spacing (in.)**	**WWF Wire Size Designation (in.)**
3.5	4	4.5	5.0	5.5	6		
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

Note to reader: To be replaced with table with proper formatting as found in the 8th edition.

CHAPTER 6: WALL CONSTRUCTION

R602.10 Wall bracing. Buildings shall be braced in accordance with this section or, when applicable, Section R602.12. Where a building, or portion thereof, does not comply with one or more of the bracing requirements in this section, those portions shall be designed and constructed in accordance with Section R301.1.

Exception. Unconditioned single story rooms of areas less than 600 sq. ft. thermally isolated from conditioned space.

CHAPTER 7: WALL COVERING

702.3.5.2 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 this code including manufactured buildings. Alternative designs, such as using adhesive only, are not permitted.

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CHAPTER 8: ROOF-CEILING CONSTRUCTION

R802.4 Allowable ceiling joist spans. Spans for ceiling joists shall be in accordance with Tables R802.4(1) and R802.4(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.

R802.5 Allowable rafter spans. Spans for rafters shall be in accordance with Tables R802.5.1(1) through R802.5.1(8). For other grades and species and for other loading conditions, refer to the AWC STJR. The span of each rafter shall be measured along the horizontal projection of the rafter or utilize the American Wood Council (AWC) *Maximum Span Calculator for Wood Joists & Rafters* at http://www.awc.org/calculators/span/calc/timbercalcstyle.asp. .

CHAPTER 9: ROOF ASSEMBLIES

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 must also be satisfied.

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(2), adjusted for height and exposure in accordance with Table R301.2(3). 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.

R905.16 Photovoltaic shingles. Reserved. ~~The installation of photovoltaic shingles shall comply with the provisions of this section, Section R324 and NFPA 70.~~

R906.1 General. The use of above-deck thermal insulation shall be permitted provided such insulation is covered with an *approved* roof covering and complies with FM 4450 or UL 1256. In roofing and reroofing, the energy conservation requirements of Chapter 11 must also be satisfied.

R 907 ROOFTOP-MOUNTED PHOTOVOLTAIC SYSTEMS Reserved ~~**R907.1 Rooftop-mounted photovoltaic systems.** Rooftop-mounted photovoltaic panels or modules shall be installed in accordance with this section, Section R324 and NFPA 70.~~

R909 ROOFTOP-MOUNTED PHOTOVOLTAIC PANEL SYSTEMS Reserved
~~**R909.1 General.** The installation of photovoltaic panel systems that are mounted on or above the roof covering shall comply with this section, Section R324 and NFPA 70.~~

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CHAPTER 10: CHIMNEYS AND FIREPLACES

R1001.1 General. Masonry fireplaces shall be constructed in accordance with this section and the applicable provisions of Chapters 3 and 4. Chimneys shall be structurally sound, durable, smoke tight and capable of conveying flue gases to the exterior safely.

CHAPTER 11: ENERGY EFFICIENCY

N1101.1 Scope. This chapter regulates the energy efficiency for the design and construction of buildings regulated by this code. Municipalities which have adopted the Stretch Energy Code shall use the energy efficiency requirements of 780 CMR 115 Appendix AA (attached to this code).

N1101.6 (R202) Defined terms. The following words and terms shall, for the purposes of this chapter, have the meanings shown herein.

CLEAN BIOMASS STOVE. Wood- or pellet-fired stoves that are EPA certified; and have a particulate matter emissions rating of no more than 3.5 g/hr for non-catalytic wood and pellet stoves; or 2.0 g/hr for catalytic wood and pellet stoves.

CLEAN BIOMASS HEATING SYSTEMS. 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.

N1101.13 (R401.2) Compliance. Projects shall comply with one of the following:

1. Sections N1101.14 through N1104.
2. Section N1105 and the provisions of Sections N1101.14 through N1104 labeled "Mandatory."
3. An energy rating index (ERI) approach, or approved alternative energy performance rating method in Section N1106.

Qualifying approaches include the following:

a. Certified RESNET HERS rating with MA amendments.
b. Certified Energy Star Homes, Version 3.1.
c. Certified Passivehaus performance method.

N1101.14 (R401.3) Certificate (Mandatory). A permanent certificate shall be completed by the builder or registered design professional and posted on a wall in the space where the furnace is located, a utility room or an approved location inside the building. Where located on an electrical panel, the certificate shall not cover or obstruct the visibility of the circuit directory label, service disconnect label or other required labels. The certificate shall list the predominant *R*-values of insulation installed in or on ceiling/roof, walls, foundation (slab, *basement wall,* crawl space wall and/or floor) and ducts outside conditioned spaces; *U*-factors for fenestration and the solar heat gain coefficient (SHGC) of fenestration, and the results from any required duct system and building envelope air leakage testing done on the building. Where there is more than one value for each component, the certificate shall list the value covering the largest area. The certificate shall list the types and efficiencies of heating, cooling and service water heating equipment.

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Where a gas-fired unvented room heater, electric furnace, or baseboard electric heater is installed in the residence, the certificate shall list "gas-fired unvented room heater," "electric furnace" or "baseboard electric heater," as appropriate. An efficiency shall not be *listed* for gas-fired unvented room heaters, electric furnaces or electric baseboard heaters**.** The Certificate shall list the final HERS index when applicable.

N1102.1.2 (R402.1.2) Insulation and fenestration criteria. The *building thermal envelope* shall meet the requirements of Table N1102.1.2 based on the climate zone specified in Section N1101.7.

TABLE N1102.1.2 (R402.1.2)
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT[a]

CLIMATE ZONE	**FENESTRATION *U* FACTOR [b]**
5 and Marine 4	**0.32~~0~~**

TABLE N1102.1.4 (R402.1.4)
EQUIVALENT *U*-FACTORS[a]

CLIMATE ZONE	**FENESTRATION *U* FACTOR [b]**
5 and Marine 4	**0.32~~0~~**

N1102.1.5.1 Approved software for Total UA alternative: The following software is approved for demonstrating Total UA compliance:

1. REScheck Version 4.6.0 or later, available at http://www.energycodes.gov/rescheck
2. REScheck-Web available at https://energycode.pnl.gov/REScheckWeb/

N1103.3.3 (R403.3.3) Duct testing (Mandatory). Ducts shall be pressure tested 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. All registers shall be taped or otherwise sealed during the test.
2. Post construction 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.

Post-construction or rough-in testing and verification shall be done by a HERS Rater, HERS Rating Field Inspector, or an applicable BPI Certified Professional.

Exception: A duct air leakage test shall not be required where the ducts and air handlers are located entirely within the building thermal envelope.

A written report of the results of the test shall be signed by the party conducting the test and provided to the *code official*.

N1103.6 (R403.6) Mechanical ventilation (Mandatory).

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~~The building shall be provided with ventilation that meets the requirements of Section M1507 of this code or the *International Mechanical Code*, as applicable, or with other approved means of 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

1. the Energy Star Homes' Version 3.1 or
2. ASHRAE 62.2 - 2013 or
3. the following formula for one- and two-family dwellings and townhouses of three or less *stories above grade plane*:

$$Q = .03 \times CFA + 7.5 \times (N_{br} + 1) - 0.052 \times Q_{50} \times S \times WSF$$

Where: CFA is the *conditioned floor area* in sq ft
N_{br} is the number of bedrooms
Q_{50} is the verified blower door air leakage rate in cfm measured at 50 Pascals
S is the building height factor determined by this table:

stories above grade plane	1	2	3
S	1.00	1.32	1.55

WSF is the shielded weather factor as determined by this table:

County	WSF
Barnstable	0.60
Berkshire	0.52
Bristol	0.54
Dukes	0.59
Essex	0.58
Franklin	0.52
Hampden	0.49
Hampshire	0.59
Middlesex	0.55
Nantucket	0.61
Norfolk	0.52
Plymouth	0.53
Suffolk	0.66
Worcester	0.59

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R403.6.2 Verification: Installed performance of the mechanical ventilation system shall be tested and verified by a HERS Rater, HERS Rating Field Inspector, or an applicable BPI Certified Professional, and measured using a flow hood, flow grid, or other airflow measuring device in accordance with either RESNET Standard Chapter 8 or ACCA Standard 5.

R403.6.3 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.

R403.6.4 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 4 ft of ductwork between the remote-mounted fan and intake grille.

R403.6.5 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.

R403.6.6 Air Inlets and Exhausts. All ventilation air inlets shall be located a minimum of 10 ft from vent openings for plumbing drainage systems, appliance vent outlets, exhaust hood outlets, vehicle exhaust, or other known contamination sources; and shall not be obstructed by snow, plantings, or any other material. Outdoor forced air inlets shall be covered with rodent screens having mesh openings not greater than ½ inch. A *whole house mechanical ventilation system* shall not extract air from an unconditioned basement unless *approved* by a *registered design professional*. Where wall inlet or exhaust vents are less than seven (7) feet above finished grade in the area of the venting, including but not limited to decks and porches, a metal or plastic identification plate shall be permanently mounted to the exterior of the building at a minimum height of eight (8) feet above grade directly in line with the vent terminal. The sign shall read, in print size no less than one-half (1/2) inch in size, "MECH. VENT DIRECTLY BELOW. KEEP CLEAR OF ALL OBSTRUCTIONS".

Exceptions:

1. Ventilation air inlets in the wall ≥ 3 ft. from dryer exhausts and contamination sources exiting through the roof.
2. No minimum separation distance shall be required between local exhaust outlets in kitchens/bathrooms and windows.
3. Vent terminations that meet the requirements of the *National Fuel Gas Code* (NFPA 54/ ANSI Z223 .1) or equivalent.

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N1104.2 (R404.2) Electric Vehicle Service Equipment (EVSE) Ready (Mandatory). In accordance with 527 CMR and this section, at least one minimum 40-ampere branch circuit shall be provided to garages and/or the exterior of the building to accommodate a future dedicated Society of Automotive Engineers (SAE) standard J1772-approved Level 2 EVSE. The circuits shall have no other outlets. The service panel shall provide sufficient capacity and space to accommodate the circuit and over-current protective device. A permanent and visible label stating "EV READY" shall be posted in a conspicuous place at both the service panel and the circuit termination point.

The location and number of "EV READY" parking spaces shall be identified on construction documents as follows:

Type of Building	Number of spaces
Single-family dwelling:	1
Two-family dwelling:	1
3 or more unit building:	1 per two units

N1106.1 (R406.1) Scope. This section establishes criteria for compliance using an Energy Rating Index (ERI) analysis, or approved alternative energy performance rating methods.

N1106.1.1 Approved alternative energy performance methods. The following rating threshold criteria are sufficient to demonstrate energy code compliance under section N1106 without calculation of a standard reference design. The *mandatory* provisions of subsection N1106.2 also apply.

1. ENERGY STAR Homes 3.1 path.
New buildings or additions to an existing building, building system or portion thereof shall be certified to conform to the ENERGY STAR Certified Homes, Version 3.1. standard.

2. **Passive House Institute US (PHIUS) Approved Software: Passive House Planning Package (PHPP).** Where the Specific Space Heat Demand as modeled in Passive House Planning Package (PHPP) by a Certified Passive House Consultant is less than or equal to 10 KBtu/sq ft/year.

N1106.1.2 Documentation. The following documentation is required for energy code compliance under subsection N1106.1.1:

1. For Energy Star Homes, a copy of the preliminary HERS rating based on plans in required for issuance of a building *permit*. A copy of the final Energy Star homes certificate, a copy of the certified final HERS rating and a copy of the signed Energy Star Thermal Enclosure System Rater Checklist shall be submitted to the *building official* before the *certificate of occupancy* is issued.
2. For Passive House Planning Package (PHPP) verified compliance, a list of compliance features, and a statement that the estimated Specific Space Heat Demand is "based on plans" will be required for issuance of a building *permit*. A copy of the final PHPP report indicating the finished building achieves a Certified Passive House Consultant-verified Specific Space

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Heat Demand of less than or equal to 10 KBtus/sq ft/year shall be submitted to the *building official* before the *certificate of occupancy* is issued.

N1106.3 (R406.3) Energy rating index. The Energy Rating Index (ERI) shall be a numerical integer value that is based on a linear scale constructed such that the *ERI reference design* has an Index value of 100 and a *residential building* that uses no net purchased energy has an Index value of 0. Each integer value on the scale shall represent a 1 percent change in the total energy use of the rated design relative to the total energy use of the *ERI reference design*. The ERI shall consider all energy used in the *residential building*. The RESNET Home Energy Rating System (HERS) index is the approved ERI approach in Massachusetts.

N1106.4 (R406.4) ERI-based compliance. Compliance based on an ERI analysis requires that the *rated design* be shown to have an ERI less than or equal to the appropriate value listed in Table N1106.4 when compared to the *ERI reference design* prior to credit for onsite renewable electric generation.

N1106.4.1 Trade-off for onsite renewable energy systems
New construction following N1106.3 or existing buildings and additions following N1107.3 may use any combination of the following renewable energy trade-offs to increase the maximum allowable HERS rating for each unit separately served by any combination of the following:

1. Solar photovoltaic array rated at 2.5kW or higher shall offset 5 HERS points.
2. *Clean Biomass Heating System*, solar thermal array, or geothermal heat pump, or a combination of these systems, operating as the primary heating system shall offset 5 HERS points.
3. Solar thermal array for primary domestic hot water heating or a *Clean Biomass Stove* shall offset 2 HERS points.

Note: A *Clean Biomass Stove* offset may not be combined with a primary heating system offset.

Table N1106.4.1
Maximum HERS ratings with onsite renewable energy systems.

Renewable energy	None	Solar PV >2.5kW or Renewable primary heating system	Solar PV or Renewable Primary heating & Solar thermal DHW	Solar PV & Renewable Primary Heating & Solar thermal DHW
Maximum HERS index for new construction	**55**	**60**	**62**	**67**
Maximum HERS index for whole house renovations or additions	**65**	**70**	**72**	**77**

N1106.5 (R406.5) Verification by approved agency. Verification of compliance with Section N1106 shall be completed by an *approved* third party. For compliance using a HERS rating or

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Energy Star Homes 3.1 certification, verification of compliance shall be completed by the certified HERS rater. For compliance using the Passive House Planning Package, verification of compliance shall be completed by a certified Passive House consultant.

N1108.1.2 (R502.1.2) Existing plus addition compliance (Simulated Performance Alternative). Where non conditioned space is changed to conditioned space, the addition shall comply where the annual energy cost or energy use of the addition and the existing building, and any alterations that are part of the project, is less than or equal to the annual energy usage of the existing building when the addition and any alterations that are part of the project shall comply with Section N1105 in its entirety.

Exception: Alternatively, the addition and any alterations that are part of the project shall comply with N1106 and shall achieve a maximum HERS index using Table N1106.4.1.

CHAPTER 12: MECHANICAL ADMINISTRATION

M1201.1 Scope. The provisions of Chapters 12 through ~~24~~ 23 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 governed by the *specialized codes* (see Chapter 1), see the *specialized codes.* Provisions related to work otherwise governed by this code shall be retained if not in conflict with other sections of this code. Enforcement of work governed by the specialized codes shall be by those persons so authorized.

Additional requirements for boilers and other pressure vessels may be found in M.G.L. c. 146 and the Board of Boiler Rules at 522 CMR, as applicable.

CHAPTER 13: GENERAL MECHANICAL SYSTEM REQUIREMENTS

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);
b. Boilers, pressure vessels, and pressure relief devices must be stamped in accordance with M.G.L. c. 146, §§ 24 and 34.

CHAPTER 14: HEATING AND COOLING EQUIPMENT

M1401.6 Used Solid Fuel-burning Appliances. Used solid fuel-burning *appliances* that predate the listing requirements set forth in this code may be utilized but the installation of such *appliances* shall otherwise conform to the requirements of this 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).

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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 this code.

M1401.6.2 Floor Protection General. Floor protection listing requirements for a ~~new or~~ 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) or,
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.

M1414.1 General. Fireplace stoves shall be *listed*, *labeled* and installed in accordance with the terms of the listing. Fireplace stoves shall be tested in accordance with UL 737. Also *see* Chapter 10 for detailed guidance on solid fuel-burning appliances.

CHAPTER 16: DUCT SYSTEMS

M1601.3 Duct insulation materials. ~~Duct insulation materials shall conform to the following requirements~~: Duct insulation shall conform to the following requirements and the requirements of Chapter 11.

M1601.4 Installation. ~~Duct installation shall comply with Sections M1601.4.1 through M1601.4.10~~ Duct installation shall comply with Subsections M1601.4.1 through M1601.4.7 and the requirements of Chapter 11.

M1601.4.6 Duct insulation. Duct insulation shall be installed in accordance with the following requirements: Duct insulation shall be installed in accordance with the following requirements and the requirements of Chapter 11. Where conflict exists between the requirements of this Section and Chapter 11, Chapter 11 requirements shall govern.

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CHAPTER 17: COMBUSTION AIR

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 directvent *appliances*. The requirements for combustion and dilution air for gas-fired *appliances* shall be in accordance with Chapter 24.

CHAPTER 18: CHIMNEY AND VENTS

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*. ~~Gas fired *appliances* shall be vented in accordance with Chapter 24~~.

M1801.11 Multiple-appliance venting systems. Two or more *listed* and *labeled appliances* connected to a common natural draft venting system shall comply with the following requirements:

1. *Appliances* that are connected to common venting systems shall be located on the same floor of the *dwelling*.

~~**Exception:** Engineered systems as provided for in Section G2427~~.

2. Inlets to common venting systems shall be offset such that no portion of an inlet is opposite another inlet.
3. Connectors serving *appliances* operating under a natural draft shall not be connected to any portion of a mechanical draft system operating under positive pressure.

M1801.12 Multiple solid fuel prohibited. A solid fuel-burning *appliance* or fireplace shall not connect to a chimney passageway venting another *appliance*.

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 21: HYDRONIC PIPING

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. ~~listed in Section P2902~~.

CHAPTER 22: SPECIAL PIPING AND STORAGE SYSTEMS

SPECIAL PIPING AND STORAGE SYSTEMS

Delete all of chapter 22 and replace with paragraph below.

M2201 Special Piping and Storage Systems. Special laws and/or regulations impact

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

CHAPTER 23: SOLAR SYSTEMS

SOLAR THERMAL ENERGY SYSTEMS

M2301.1 General. This section provides for the design, construction, installation, *alteration* and repair of *equipment* and systems using thermal solar energy to provide space heating or cooling, hot water heating and swimming pool heating.

Notes:

1. Additional requirements for boilers and other pressure vessels may be found in M.G.L. c. 146 and the Board of Boiler Rules at 522 CMR, as applicable.
2. Where solar thermal systems involve matters of potable water and/or wastewater *see* the Board of State Examiners for Plumbers and Gas Fitters regulations at 248 CMR.

CHAPTER 24: FUEL GAS

FUEL GAS

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

CHAPTER 25 to 33: PLUMBING

PLUMBING ADMINISTRATION

For the plumbing provisions of Chapters 25 through 33 see 248 CMR 10.00: *Uniform State Plumbing Code.* Provisions related to work otherwise governed by this code (780 CMR) shall be retained if not in conflict with other sections of this code.

CHAPTER 34 to 43: ELECTRICAL

GENERAL REQUIREMENTS

For the electrical provisions of Chapters 34 through 43 see 527 CMR: *Massachusetts Electrical Code.* Provisions related to work otherwise governed by this code (780 CMR) shall be retained if not in conflict with other sections of this code.

APPENDIX A - SIZING AND CAPACITIES OF GAS PIPING - Reserved.

APPENDIX B - SIZING OF VENTING SYSTEMS SERVING APPLIANCES EQUIPPED WITH DRAFT HOODS, CATEGORY I APPLIANCES, AND APPLIANCES LISTED FOR USE WITH TYPE B VENTS - Reserved.

APPENDIX C - EXIT TERMINALS OF MECHANICAL DRAFT AND DIRECT-VENT VENTING SYSTEMS - Reserved.

APPENDIX D - RECOMMENDED PROCEDURE FOR SAFETY INSPECTION OF AN EXISTING APPLIANCE INSTALLATION - Reserved.

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APPENDIX E - MANUFACTURED HOUSING USED AS DWELLINGS

AE102.2 Additions, alterations or repairs. *Additions*, *alterations and repairs* made to a *manufactured home* shall conform to ~~one of the following:~~ this code and the *specialized codes.*

~~1. Be certified under the National Manufactured Housing Construction and Safety Standards Act of 1974 (42 U.S.C. Section 5401, et seq.).~~

~~2. Be designed and constructed to comply with the applicable provisions of the National Manufactured Housing Construction and Safety Standards Act of 1974 (42 U.S.C. Section 5401, et seq.).~~

~~3. Be designed and constructed in compliance with the code adopted by this *jurisdiction*.~~

AE201- MANUFACTURED HOME. Add two paragraphs as follows:
A *manufactured home* (mobile home) is not a *manufactured building*. For manufactured buildings see Chapter 110.R3.
AE301.4 Reserved.
AE302 to **AE307** Reserved. See Chapter 1.
AE402 Reserved.
AE505 Reserved.
AE507 Reserved.

APPENDIX F - PASSIVE RADON GAS CONTROLS

~~***(The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.)***~~

AF101.1 General. This appendix contains minimum requirements for new construction in ~~*jurisdictions* where radon resistant construction is required~~ 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. ~~Inclusion of this appendix by *jurisdictions* shall be determined through the use of locally available data or determination of Zone 1 designation in Figure AF101 and Table AF101(1).~~

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.

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AF102.1 General. For the purpose of these requirements, the terms used shall be defined as follows:

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 4 inches (102 mm) thick. The aggregate shall consist of material that will pass through a 2-inch (51 mm) sieve and be retained by a 1/4-inch (6.4 mm) sieve.
2. A uniform layer of sand (native or fill) that is not less than 4 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.

AF103.2.2 Sumps. Sumps open to soil or serving as the termination point for subslab ~~or exterior~~ 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.

AF103.3.1 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 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.

AF103.3.2 "T" fitting and vent pipe. A ~~3- or 4-inch~~ "T" fitting shall be inserted beneath the soil-gas-retarder and be connected to a 3-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 10 feet (3048 mm) away from any window or other opening into the *conditioned spaces* of the building that is less than 2 feet (610 mm) below the exhaust point. The horizontal legs of the "T" fitting shall connect to two five-foot long pieces of 4-inch diameter perforated pipe laid horizontally in a 50 square inch filled with the same gravel as used in the *gas-permeable layer*.

AF103.4.2 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.

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AF103.4.3 "T" fitting and vent pipe. Before a slab is cast or other floor system is installed, a "T" fitting shall be inserted below the slab or other floor system and the soil gas- retarder. The "T" fitting shall be connected to a 3-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 10 feet (3048 mm) away from any window or other opening into the *conditioned spaces* of the building that is less than 2 feet (610 mm) below the exhaust point. The horizontal legs of the "T" fitting shall connect to two five-foot long pieces of 4-inch diameter perforated pipe laid horizontally in a 50 square inch filled with the same gravel as used in the *gas-permeable layer*.

APPENDIX G - PIPING STANDARDS FOR VARIOUS APPLICATIONS- Reserved.

APPENDIX H - PATIO COVERS Massachusetts adopts this Appendix without amendment.

APPENDIX I - PRIVATE SEWAGE DISPOSAL

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 J - EXISTING BUILDINGS AND STRUCTURES

AJ101.1 General. The purpose of these provisions is to encourage the continued use or reuse of legally existing buildings and structures. These provisions are intended to permit work in existing buildings that is consistent with the purpose of this code. Compliance with these provisions shall be deemed to meet the requirements of this code.

Features of existing construction which do not meet the requirements of this 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 this chapter 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 this code.

Any new building system or portion thereof shall conform to this 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 this code unless specifically required by this appendix.

For compliance of work governed by other codes, including the *specialized codes,* see Chapter 1, Section R101.4.

9th Edition MA Residential Code 780 CMR 51.00
Proposed MA Amendments to the IRC 2015
(amended following October 13, 2015 BBRS meeting)

AJ102.1 General. Regardless of the category of work being performed, the work shall not cause the structure to become unsafe or adversely affect the performance of the building; shall not cause ~~an existing mechanical or plumbing system~~ a system regulated by this code to become unsafe, hazardous, insanitary or overloaded; and unless expressly permitted by these provisions, shall not make the building any less compliant with this code or to any previously *approved* alternative arrangements than it was before the work was undertaken.

AJ102.3 Smoke, Carbon Monoxide and Heat detectors. ~~Regardless of the category of work, s~~ Smoke, carbon monoxide and heat detectors shall be provided ~~where~~ when required by ~~Section R314.3.1~~ this section and designed, located and installed in accordance with the provisions for new construction (see sections R314, R314.5, and R315).

AJ102.3.1 Adding or creating one or more sleeping rooms.

1. **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 detectors. 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 ~~all~~ walls and ceilings are open to framing, then the entire existing building shall be provided with smoke, heat and carbon monoxide ~~detectors~~ protection.

AJ102.3.3 Adding an attached garage. If a garage is created under or attached to an existing *dwelling unit*, a heat detector shall be provided in the garage.

AJ102.7.1 Documentation of Compliance Alternatives. The *building official* shall ensure that the BBRS is provided with information regarding the compliance alternatives accepted by the *building official*.

AJ102.10 Unlined Chimneys. Where new HVAC appliances are connected to an unlined chimney, the chimney lining requirements of the Board of State Examiners of Plumbers and Gas Fitters regulations at 248 CMR or the Board of Fire Prevention regulations at 527 CMR, 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

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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 this 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, the building permittable 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 this 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 N 1100.

AJ102.13 Roofing and Reroofing. *See* Chapter 9 generally and Section R907.

AJ102.15Accessibility for Persons with Disabilities. Accessibility requirements shall be in accordance with 521 CMR.

AJ103.1 General. If a building *permit* is required at the request of the prospective *permit* applicant, the *building official* or his or her ~~designee shall~~ 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.

~~**AJ301.1.2 Plumbing materials and supplies.** The following plumbing materials and supplies shall not be used:~~

~~1. All-purpose solvent cement, unless *listed* for the specific application.~~
~~2. Flexible traps and tailpieces, unless *listed* for the specific application.~~
~~3. Solder having more than 0.2 percent lead in the repair of potable water systems~~

~~**AJ301.2 Water closets.** Where any water closet is replaced with a newly manufactured water closet, the replacement water closet shall comply with the requirements of Section P2903.2.~~

~~**AJ301.3 Electrical.** Repair or replacement of existing electrical wiring and *equipment* undergoing repair with like material shall be permitted.~~

~~**Exceptions:**~~

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~~1. Replacement of electrical receptacles shall comply with the requirements of Chapters 34 through 43.~~
~~2. Plug fuses of the Edison-base type shall be used for replacements only where there is not evidence of overfusing or tampering in accordance with the applicable requirements of Chapters 34 through 43.~~
~~3. For replacement of nongrounding-type receptacles with grounding-type receptacles and for branch circuits that do not have an *equipment* grounding conductor in the branch circuitry, the grounding conductor of a grounding-type receptacle outlet shall be permitted to be grounded to any accessible point on the grounding electrode system, or to any accessible point on the grounding electrode conductor, as allowed and described in Chapters 34 through 43~~

AJ401.2.1 Emergency Egress 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 square feet (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 egress 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.

~~**AJ401.4 Structural.** Unreinforced masonry buildings located in Seismic Design Category D2 or E shall have parapet bracing and wall anchors installed at the roofline whenever a reroofing *permit* is issued. Such parapet bracing and wall anchors shall be of an *approved* design.~~

AJ401.4 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.

AJ501.1 Newly constructed elements. Additions, n~~N~~ewly constructed elements, components and systems shall comply with the requirements of this 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.

AJ501.4 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.

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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 this 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.

~~**AJ501.5 Electrical equipment and wiring.**~~
AJ501.5 Electrical Equipment and Wiring. *See* 527 CMR.

AJ601.5 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.

AJ701.1 General. For historic building requirements *see* 780 CMR 34.00: *Existing Buildings*.

APPENDIX K - SOUND TRANSMISSION Massachusetts adopts this Appendix without amendment.
APPENDIX L - PERMIT FEES – Reserved. *See* 801 CMR 4.00: *Rates*, as applicable.

APPENDIX M - HOME DAY CARE—R-3 OCCUPANCY - Reserved.

APPENDIX N - VENTING METHODS - Reserved.

APPENDIX O – AUTOMATIC VEHICULAR GATES – Massachusetts adopts this appendix without amendment.

APPENDIX P – SIZING OF WATER PIPING SYSTEM – Reserved**.**

APPENDIX Q - Reserved.

APPENDIX R - LIGHT STRAW-CLAY CONSTRUCTION - Reserved.

APPENDIX S – STRAWBALE CONSTRUCTION -Reserved.

APPENDIX T - RECOMMENDED PROCEDURE FOR WORST-CASE TESTING OF ATMOSPHERIC VENTING SYSTEMS UNDER N1102.4 OR N1105 CONDITIONS □ 5ACH50 - Reserved.

APPENDIX U - SOLAR-READY PROVISIONS
DETACHED ONE- AND TWO-FAMILY DWELLINGS, MULTIPLE SINGLE-FAMILY DWELLINGS (TOWNHOUSES).

SCOPE
U101.1 General. These provisions shall be applicable for new construction except additions. ~~where solar-ready provisions are required~~.

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SECTION U102

U103.3 Solar-ready zone area. The total solar-ready *zone* area shall be not less than 300 square feet (27.87 m2) *exclusive of mandatory access or set back areas as required by the International Fire Code*. 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 square feet (185.8 m2) per dwelling shall have a solar-ready *zone* area of not less than 150 square feet (13.94 m2). The solar-ready *zone* shall be composed of areas not less than 5 feet (1.52 m) in width and not less than 80 square feet (7.44 m2) exclusive of access or set back areas as required by the *International Fire Code*.

780 CMR 110 R1- R7, Special Regulations To be attached.

780 CMR 115 AA, Stretch Energy Code

AA101 Purpose and Adoption. The purpose of the stretch energy code is to provide a more energy efficient code alternative for new buildings. The stretch energy code may be adopted or rescinded by any municipality in the commonwealth in the manner prescribed by law.

AA102 Applicability. Municipalities that have adopted the stretch energy code shall use the energy efficiency requirements of this appendix as provided below. These requirements replace all previous stretch energy code requirements.

AA103 New buildings.

AA 103.1 R-use buildings. In all R-use buildings, of four stories or less above *grade plane* with one or more dwelling units, each *dwelling unit* shall comply with Section N1106 of 780 CMR 51 (Residential Code).

AA103.2 Large area and high energy use buildings. All buildings over 100,000 sq ft, and new supermarkets, laboratories and conditioned warehouses over 40,000 sq. ft. shall comply with 780 CMR 13 and shall demonstrate energy use per square foot at least 10% below the energy requirements of ANSI/ASHRAE/IESNA 90.1 APPENDIX G Performance Rating Method on either a site or source energy basis.

AA103.3 Other new buildings. New buildings not covered in AA103.1 and AA103.2 shall comply with 780 CMR 13 or 780 CMR 51-Chapter 11 as applicable based on the use and occupancy of the building.

AA104 Existing buildings. For alterations, renovations, additions or repairs of existing buildings in these municipalities the energy efficiency requirements of 780 CMR 13 or 780 CMR 51-Chapter 11 shall be used as applicable based on the use and occupancy of the building.