

THE MASSACHUSETTS STATE BUILDING CODE

USER'S GUIDE

to
780 CMR

Sixth Edition

COMMONWEALTH OF MASSACHUSETTS

**Published by
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THE USERS' GUIDE TO THE SIXTH EDITION

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PART I - OVERALL CHANGES

The *Sixth Edition* of the Massachusetts State Building Code is based on the provisions of the 1993 BOCA National Building Code. However, since significant changes have been made to the national code, the *Sixth Edition* is considered a unique document to the Commonwealth. One should not assume that the two documents are compatible. There are several reasons for differences between the two codes, some of which are identified below.

(1) In some instances, requirements of Massachusetts General Laws (M.G.L.) conflict with provisions of the national code. Since law is superior to regulation, the national code must be stripped of any conflicting language.

(a) The Board of Building Regulations and Standards (BBRS) is fortunate to employ the services of various subcommittees comprised of learned and experienced professionals who donate their time in review of the code. Members of these subcommittees focus on certain aspects of the code and adapt its language to suit local peculiarities that may not be considered in the national code. These subcommittees include:

- 1. The Geotechnical Advisory Committee,
- 2. The Fire Prevention, Fire Protection Advisory Committee,
- 3. The Loads Advisory Committee,
- 4. The Seismic Advisory Committee, and
- 5. The Energy Advisory Committee.

Also, Massachusetts must coordinate the provisions of the state building code with the provisions of other specialized codes under the control of separate independent boards. Some of the specialized codes include:

- 6. The Fire Prevention Code (527 CMR),
- 7. The Elevator Code (524 CMR),
- 8. The Architectural Access Regulations (521 CMR),
- 9. The Plumbing and Gas Code (248 CMR), and.
- 10. The Electrical Code (527 CMR).

(b) The following chapters, are considered entirely unique to the Commonwealth differing significantly from the national code, and are so identified with a parenthetical statement below the chapter title.

The chapters include:

- Chapter 1 - Administration
- Chapter 9 - Fire Protection Systems
- Chapter 11 - Accessibility
- Chapter 13 - Energy Conservation
- Chapter 16 - Structural Loads
- Chapter 18 - Foundations and Retaining Walls
- Chapter 27 - Electrical Wiring and Equipment
- Chapter 29 - Plumbing and Gas Fitting
- Chapter 30 - Elevator and Conveying Systems
- Chapter 34 - Repair, Alteration and Change of Use of Existing Buildings
- Chapter 35 - Manufactured Buildings, Building Components and Mobile Homes
- Chapter 36 - The One and Two Family Dwelling Code

(c) Changes in other chapters are identified with bolded, italicized face type.

(2) Part II of this Guide contains a summary of some of the major changes relative to the national code and to the *Fifth Edition* of the Massachusetts Building Code.

(a) The first change a user will note in the *Sixth Edition* of the code is the numbering system. Recently, three national code agencies joined forces in the hopes of someday producing a uniform, international building code. The first matter that these agencies agreed upon in this pursuit was to use a chapter format in lieu of the article system. Massachusetts has followed this lead.

(b) Recognizing the frustration that may develop in attempting to retrieve information utilizing this new system, a cross-index of article and primary section numbers of the *Fifth Edition* relative to the chapter and primary section numbers of the *Sixth Edition* is included as Part III of this Guide (again,

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS
THE MASSACHUSETTS STATE BUILDING CODE

please note that Part III is not meant as an absolute authoritative source identifying all changes from the *Fifth Edition* - refer to the actual code for definitive requirements).

PART II - SUMMARY OF CHANGES TO EACH CHAPTER

CAUTION

These summaries are meant as a transition tool for users of the *Sixth Edition* of the Massachusetts State Building Code and only highlight certain major changes. The summaries are not designed as an authoritative source for all changes either from the National Building Code or the *Fifth Edition* of the Massachusetts State Building Code. Always refer to the actual code documents for definitive requirements.

Part II of this Guide contains brief summaries of the major changes from BOCA National Building Code, and from the Fifth Edition of the Massachusetts State Building Code.

CHAPTER 1 - ADMINISTRATION (Fifth Edition Article 1)

Differences from National Building Code:

Chapter 1 is considered unique to Massachusetts. Essentially it is a combination of *Fifth Edition* requirements and the national document.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

Some of the major changes in Chapter 1 occur in Section 105, which defines the qualifications and certification requirements for all those who serve as building code enforcement officials in the Commonwealth; Section 110.0, which delineates procedures for the placement of manufactured buildings (requiring a licensed construction supervisor to secure a permit for the work and a certified set crew to install the structure); Section 116.0, which more clearly defines the role of registered architects and professional engineers in the course of building construction; and Section 121.0 which defines the remedy available to person ordered to remove a dangerous structure (the route is through the courts, not through a board of appeals).

CHAPTER 2 - DEFINITIONS (Fifth Edition Article 2)

Differences from the National Code

All definitions from the national code appear in this chapter. In a few instances, the wording was modified to reflect Massachusetts law or to clarify a definition. Also, some definitions specific to Massachusetts were added, such as inspector of buildings and local inspector.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

Although many definitions are provided for in Chapter 2, the national code chooses to separate others and place them within the chapter in which they most closely relate. For instance, words and terms specific to means of egress requirements are found in Chapter 10, not Chapter 2.

CHAPTER 3 - USE OR OCCUPANCY (Fifth Edition Article 3)

Differences from the National Code:

Chapter 3 is compatible with the national code. However, portions of Section 313.0, *Mixed Use Groups*, are effected by changes that occur in Chapter 9 relative to fire suppression requirements of certain buildings.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

THE MASSACHUSETTS STATE BUILDING CODE

A feature added to the national code is found Section 302, which defines requirements for certain specific occupancy areas within buildings. Also, Section 307.0 describes four subclassifications for the *High Hazard Use Group Classification*, whereas, the *Fifth Edition* defines only one.

CHAPTER 4 - SPECIAL USE AND OCCUPANCY

(*Fifth Edition Article 6*)

Differences from the National Code:

Chapter 4 is consistent with the National Code from Sections 401.0 to 421.0 excepting changes incorporated due to conflicts with Massachusetts laws and/or regulations, such as those that occur in Section 603.0, defining the limits of high rise buildings, and Section 421.0, defining requirements for inground swimming pools.

Sections 422.0 through 429.0 are unique to the Commonwealth, defining special uses that do not appear in the national code. Some of these sections have been brought forward from the *Fifth Edition* of the code with little change; they include provisions for existing structures in Section 422.0, summer camps for children in Section 425.0, and detoxification centers in Section 428.0.

Sections 423.0, 427.0 and 429.0 which define special code provisions for group residences, limited group residences, and group dwelling units have been brought forward but have been modified to reflect new philosophies in the care of the occupants of these residences. These changes appear for the first time in the *Sixth Edition* of the code. The day care provisions in Section 424.0 have also been modified to increase occupant safety.

Possibly the most significant change to Chapter 4 appears in Section 426.0. This section defines requirements for bulk storage merchandising buildings. Such buildings contain sales areas with high piled combustible commodities, and/or hazardous materials. Inherently, these structures present different fire and life safety risks than traditional retail structures. Section 426.0 provides adequate safety to the patrons of these facilities and reduces the possibility of excessive property loss due to fire. The section is newly developed for the *Sixth Edition* of the code.

Differences from the *Fifth Edition* of the Massachusetts State Building Code:

Chapter 4 is significantly different than the compatible *Fifth Edition* of the code. To start, special use provisions are no longer found in Article 6, also several new provisions have been added such as those defined above, and more detailed requirements for high hazard uses.

CHAPTER 5 - GENERAL BUILDING LIMITATIONS

(*Fifth Edition Article 5*)

Differences from the National Code:

Chapter 5 is almost entirely compatible with the national code, excepting the addition of note *m* to Table 503 which cautions the code user to a distinction of Massachusetts general law requiring *hospitals, other than college or school infirmaries, to be erected of Type 1B construction or better.*

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

Chapter 5 is very similar to the comparable *Fifth Edition* article. Methodologies relating to building size have remained constant for years, dating to work of insurance companies that originally developed the requirements. However, some requirements that appeared in the building limitations section of Article 5 have been moved to a more appropriate place. Provisions for accessibility, for instance are found in Chapter 11.

CHAPTER 6 - TYPES OF CONSTRUCTION

(*Fifth Edition Article 4*)

Differences from the National Code :

Chapter 6 is entirely compatible with the national code.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS
THE MASSACHUSETTS STATE BUILDING CODE

Types of construction are located in Article 4 in the *Fifth Edition*. Location is the major change in the new code, some language is condensed relating to the description for the five types of construction.

CHAPTER 7 - FIRERESISTANT MATERIALS AND CONSTRUCTION **(*Fifth Edition Article 9*)**

Differences from the National Code:

Chapter 7 is entirely compatible with the national code.

Changes from the *Fifth Edition* of the Massachusetts State Building Code :

Fireresistance rating of construction materials were located in Article 9 of the *Fifth Edition*. Along with location, several changes have occurred in the code text. Examples of change are found in Section 708.0 which limits opening sizes in fire wall assemblies, Section 713.0 which defines minimum fire resistance ratings for floor\ceiling and roof\ceiling assemblies in certain residential buildings, Section 717.0 which determines approval of fire dampers, and fire damper ratings, and 720.0 which requires the installation of firestopping and draftstopping.

CHAPTER 8 - INTERIOR FINISHES **(*Fifth Edition Article 9*)**

Differences from the National Code:

Chapter 8 is entirely compatible with the national code.

Changes from the *Fifth Edition* of the Massachusetts State Building Code :

Interior finishes were part of Article 9 in the *Fifth Edition* under Sections 922.0 through 925.0. Since interior finishes can have a significant effect on a building's internal fire load. These provisions are separated in the *Sixth Edition* to emphasize the importance of properly regulating the placement of combustible trim, floor finishes, and interior hangings and decorations. Additionally, Section 806.0 limits the use of combustible materials in Types 1 and 2 construction. Chapter 8 should be utilized in concert with the provisions of 527 CMR, The Massachusetts Fire Prevention Code.

CHAPTER 9 - FIRE PROTECTION SYSTEMS **(*Fifth Edition Article 10*)**

Differences from the National Code:

The provisions of Chapter 9 were developed by the *Fire Prevention\Fire Protection Advisory Committee* whose make-up is defined in the forward of the code.

Chapter 9 is significantly different than the national code and is considered unique to the Commonwealth, particularly in its requirements for fire suppression systems. Section 904.0 identifies where fire suppression systems are required in buildings based upon the building's size and use group classification.

Recognizing inherent life safety hazards posed by certain building types, and further recognizing the tremendous loss due to fire that has occurred in certain building types over the years, the *Sixth Edition* of the code requires fire suppression systems to be installed in buildings at levels not anticipated by the national code. For instance Section 904.2 of the national code, allows an assembly use, such as a motion picture theater, to be erected unsuppressed up to 12,000 square feet. The comparable *Sixth Edition* section requires a fire suppression system to be installed when it exceeds 8,000 square feet.

Also, Chapter 9 does not recognize the term *fire area*, which is often used in the pages of the national code. The term fire area is defined as "*the aggregate floor area enclosed and bounded by fire walls, exterior walls, or fire separating assemblies*". Utilizing this concept in the design of mixed use buildings (Section 313.0 of the code) allows the code user to design and erect buildings that sacrifice fire suppression for fire resistive construction. Essentially, the result of such a design is a building that is (or may be) suppressed in one area, but not another. Such buildings may provide a false sense of security for the occupant, and cause logistical problems for fire service personnel who must fight the fire (ie: the firefighter does not necessarily know which portion of the building is fitted with a suppression system, and which is not; a fact he needs to know to adequately fight the fire or deal with the emergency). This is not to say that separated mixed used

THE MASSACHUSETTS STATE BUILDING CODE

buildings are not an option under the new code. However, once the size of a building exceeds a certain dimension (dependent upon its use group), a suppression system is required, regardless of whether the uses are separated from one another with fireresitance rating construction, which may render the separated mixed use option irrelevant.

Changes to Chapter 9 are the result of many months of review of the national code. Some of the reasons for change are identified above. However, there are additional benefits to both the code user and the building occupant resulting from these changes. It is worth noting that many municipalities in the Commonwealth experience some difficulty developing and maintaining a properly staffed fire department, and are often challenged in fighting larger fires. With the changes in fire suppression requirements, some of the burden may be lifted from these departments.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

Chapter 9 has not only been relocated in the Sixth of the code, but has also been significantly changed in technical content. The format of Chapter 9 takes a more sobering look at issues of fire suppression and alarming and presents requirements in a more concise and logical pattern. It may be considered as different from *Fifth Edition* Massachusetts code as it is from the national code.

ARTICLE 10 - MEANS OF EGRESS
(*Fifth Edition* Article 8)

Changes from the National Code:

Chapter 10 is nearly compatible to the national code. Changes appear in limited sections.

The first change, an addition to the national code, occurs with the insertion of Section 1004.2 which empowers the building official to issue an *exit order* to a building owner when a hazardous egress condition is cited. Although this language is consistent with current practices in the Commonwealth, it is different from the requirements of the national code.

A second change occurs in Table 1010.3 of the code. Unlike the national code, the *Sixth Edition* only allows one means of egress from buildings in very limited instances (ie: use groups B and S-2 that meet ardent restrictions in terms of building size and occupant travel distance).

A third change appears in Section 1017.4.1 pertaining to the locking of egress doors. Actually, the section varies from the national code in two counts under this section. First, point number 8 under section 1017.4.1 allows for the locking of certain doors in I-1 and I-2 occupancies when other life safety concerns are at issue. Second, Section 1017.4.1.2 allows for special locking arrangements in certain business occupancies when security issues conflict with code requirements. In each of these instances, the code has responded to building owner needs, carefully balancing issues of security and life safety without to either. When egress doors are locked under these provisions, additional life safety features are required.

Additional changes are made to the provisions of Chapter 9 to ensure that it jibes with Massachusetts law and regulation.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

Many of the comments expressed above apply in respect to changes from the *Fifth Edition* Massachusetts code text. Means of egress requirements, in many instances, have changed and should be carefully reviewed by the code user.

CHAPTER 11 - ACCESSIBILITY
(*Fifth Edition* Section 512.0)

Differences from the National Code:

The provisions of Chapter 11 as they appear in the national code have been deleted. Chapter 11 in the *Sixth Edition* refers to 521 CMR, the *Rules and Regulations* of the Architectural Access Board (AAB regulations). The Architectural Access Board is empowered to promulgate these regulations under Massachusetts general law. Although it is a separate regulation under the control of a different agency, the provisions of the AAB regulations are enforced by municipal and state building officials. The code user is cautioned that there may be significant differences from the national code, and should refer only to 521 CMR for regulations pertaining to building accessibility.

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS
THE MASSACHUSETTS STATE BUILDING CODE

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

Reference to AAB regulations appeared in Section 512.0 of the *Fifth Edition* of the code. See above comments for changes.

ARTICLE 12 - INTERIOR ENVIRONMENT

(Fifth Edition - Article 7)

Differences from the National Code:

The *Sixth Edition* of the code requires all newly constructed buildings to mechanically ventilate bathrooms and toilet rooms (natural ventilation of such spaces is not allowed as a substitute for mechanical ventilation).

Access to attics and crawl spaces, if separating conditioned from unconditioned space, shall be weather-stripped and closed tightly.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

Bathroom mechanical ventilation requirements now include one- and two-family housing whereas the *Fifth Edition* of the code exempted one- and two-family housing bathrooms and toilet rooms from such required mechanical ventilation.

Access to attics and crawl spaces, if separating conditioned from unconditioned space, shall be weather-stripped and close tightly.

Rat-proofing requirements are now found in Chapter 12

ARTICLE 13 - ENERGY CONSERVATION

(Fifth Edition - Article 31)

Differences from National Code:

Chapter 13 of the Code does not yet require that new construction low-rise residential buildings conform to the requirements of the Council of American Building Officials (CABO) Model Energy Code, 1995 version (MEC95).

Chapter 13 will, however, require conformance to a Massachusetts version of MEC95 commencing March 1, 1998 - see front sheet of Chapter 13 and front of Appendix J.

One- and two-family housing now explicitly requires thermostats for each floor containing conditioned space.

Electrical outlet plate gaskets are now required on all receptacles, switch or other electrical boxes in walls separating conditioned from unconditioned space.

Changes from the *Fifth Edition* of the Massachusetts State Building Code

See "Differences from National Code" above.

CHAPTER 14 - EXTERIOR WALL COVERINGS

(Fifth Edition Article 21)

Differences from the National Code:

Chapter 14 is entirely compatible with the national code.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

Changes made relative to provisions for exterior walls are in respect to its location in the code and changes reflecting technological advances in anchoring systems and building material combustibility.

CHAPTER 15 - ROOFS AND ROOF STRUCTURES

(Fifth Edition Article 23)

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS
THE MASSACHUSETTS STATE BUILDING CODE

Differences from the National Code:

Chapter 15 is entirely compatible with the national code, except, generic language referring to climactic conditions not relevant to the Commonwealth have been deleted.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

Changes made relative to provisions for roof and roof structures are in respect to location in the code and changes reflecting technological advances.

CHAPTER 16 - STRUCTURAL LOADS (*Fifth Edition Article 11*)

Differences from the National Code:

The provisions of Chapter 16 were reviewed and further developed by both the *Loads* and the *Seismic Advisory Committees* whose make-up are defined in the forward of the code.

Wind load provisions have been simplified; snow load zones are considered unique to Massachusetts; the use of importance factors for snow load design is not utilized; seismic design is based on a peak velocity related acceleration (a_v) of 0.12 throughout the entire state; superfluous requirements dealing with loading criteria outside Massachusetts have been deleted.

Changes from the *Fifth Edition* of the Massachusetts State Building Code :

Seismic design has been amended to reflect current design philosophy.

CHAPTER 17 - STRUCTURAL TESTS AND INSPECTIONS (*Fifth Edition Article 13*)

Differences from the National Code:

The provisions are similar to the national code but are enhanced by requiring a specific program of testing and inspections of critical structural items to be developed by the Structural Engineer of record.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

This chapter has been clarified to identify critical inspection procedures for structural materials and processes and further serves to clarify some of the responsibilities of registered professionals under construction control (5th edition section 127 - 6th edition section 116)

CHAPTER 18 - FOUNDATIONS AND RETAINING WALLS (*Fifth Edition Article 12*)

The provisions of Chapter 18 were reviewed and further developed by the *Geotechnical Advisory Committee* whose make-up is defined in the forward of the code. The following is a detailed analysis of the their work provided by members of the committee.

(1) For the *Sixth Edition*, the format, terminology and provisions of BOCA (1993) were usually adopted; the technical provisions are generally consistent with those in the *Fifth Edition* of the Massachusetts State Building Code, unless noted in the User's Guide. The User's Guide indicates the specific locations of significant changes which have been incorporated in the *Sixth Edition*, together with comments and backup information. Such changes include:

- (a) Technical changes to existing provisions, which may or may not be consistent with BOCA.
- (b) New provisions which have been adopted by the State Board of Building Regulations and Standards since issuance of the *Fifth Edition* (1990).
- (c) New provisions which are included in BOCA, but were not contained in the *Fifth Edition*.
- (d) New provisions which are introduced in the *Sixth Edition*.

All references herein to BOCA are to the BOCA National Building Code, 1993 (*Twelfth Edition*).

1802.0 FOUNDATION INVESTIGATIONS

1802.1 Where required: 1202.1 (Fifth Ed.) retained; BOCA requirements for specific number of borings for building area not adopted.

1802.1.1 Seismic investigation: criteria established for field investigation/report on evaluation of "liquefaction" potential, with reference to Section 1805.3 (1612.3 in the Fifth Ed.)

1802.2 Soil samples and boring reports: provisions of 1202.2 (Fifth Ed.) retained, which require that copies of the results be filed with the code official.

1803.0 SOIL BEARING TESTS

1803.0 Soil bearing tests: all of 1203.0 (Fifth Ed.) retained, in lieu of 'Soil test procedure'.

1804.0 LOAD BEARING VALUE OF SOILS

1804.1 Soils report: 1201.3.2 (Fifth Ed.) provisions retained; BOCA list of requirements for prepared fill in report are not included.

1804.2 Satisfactory foundation materials: 1201.2 (Fifth Ed.) retained.

1804.3 Presumptive load bearing values: 1201.3 (Fifth Ed.) provision for approval of higher bearing pressures retained, and 1201.3.1 reference to Appendix for guidelines for classification of bearing materials retained.

TABLE 1804.3 Allowable Bearing Pressures, has been retained from the Fifth Ed. (TABLE 1201) with some minor modifications.

The values in BOCA (TABLE 1804.3) are considered inappropriate for Massachusetts.

1201.3.2 (*Fifth Ed.*) provisions for compacted fill below foundations and for field control are retained.

1804.4 Lightweight structures: 1201.3 (Fifth Ed.) retained.

1805.0 ALLOWABLE FOUNDATION LOADS

1805.2 Soil capacity: Provision added, which allows up to 33% increase in bearing pressures for soil types indicated, for load combinations which include wind or seismic. This provision applies to all foundation types. A similar provision in the Fifth Ed. (1206.2) that applied only to footings has been deleted.

1805.3 Liquefaction: These provisions have been transferred in their entirety from 1113.8 (Fifth Ed.).

1805.4 Vertical pressure: 1204.4 (Fifth Ed.) retained.

1805.5 Settlement analysis: 1204.5 (Fifth Ed.) retained,

1805.6 Disturbance of bearing soils: 1204.6 (Fifth Ed.) retained.

1805.7 Rock foundations: provisions added for increased bearing pressures, based on load tests (per BOCA).

1806.0 DEPTH OF FOOTINGS

1806.1 Frost Protection: modified to apply to structures larger than 100 sq. feet area or 10 feet high (per BOCA).

1806.2 Isolated footing: The criteria for relative position of soil-bearing footings changed, consistent with BOCA (See 1205.2, Fifth Ed.).

1806.3 Depth of spread footings: 1205.3 (Fifth Ed.) retained.

1807.0 FOOTING DESIGN

1807.1 Design loads: 1206.1 (Fifth Ed.) retained.

1807.4 Eccentric loads: 1206.6 (Fifth Ed.) retained.

1810.0 CONCRETE FOOTINGS

1810.2.1 Footing seismic ties: Requirements for seismic ties between footings for Category D structures have been added consistent with BOCA (1810.2.1). These provisions differ from BOCA in that the ties are to be designed for a force equal to 10% of the larger column dead load plus live load in lieu of "a force equal to 25% of the effective peak velocity-related acceleration (A_v) times the column dead load plus live load". Under 1113.6.9 (Fifth Ed.) interconnections of footings with ties were not specifically required, but were to be considered in the design.

1812.0 FOUNDATION WALLS

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS
THE MASSACHUSETTS STATE BUILDING CODE

1812.2 Definitions and 1812.3 Minimum thickness: definitions have been added and requirements modified from those of 1222.2 (Fifth Ed.); also, Table 1812.3.2 has been changed.

1812.6 Lateral stability: there is an added reference to 1825.0 for seismic design requirements.

1814.0 MAT RAFT AND FLOAT FOUNDATIONS

1814.2 Settlement analysis: the requirement for a settlement analysis (1211.2, Fifth Ed.) is retained.

1815.0 PIER FOUNDATIONS

1815.1 General: The definitions, as given in 1212.1 (Fifth Ed.) are retained but with modifications: 1) "and piles installed by the hollow stem auger method" is deleted (refer now to 1820.2) and 2) "other non-circular foundation elements" are now included.

1815.2.1 Foundation ties: the provisions for interconnection between piers are consistent with BOCA (1815.2), except that the ties are to be designed for a force equal to 10% of the larger column dead load plus live load in lieu of "a force equal to 25% of the effective peak velocity-related acceleration (A_v) times the column dead plus live load". (This in effect retains the requirement in 1113.6.9 (Fifth Ed.) for interconnection of piers, with a similar magnitude of design force in the tie, which is more conservative than BOCA.)

1815.2.2 Seismic reinforcement: these new provisions are similar to those now required for cast-in-place concrete piles (see 1820.1.2.1). The provisions in 1820.1.2.1 which were adopted by BOCA, are consistent with the model code provisions issued by FEMA (*NEHRP Recommended Provisions for Seismic Regulations for New Buildings*, 1994 Edition, prepared by the Building Seismic Safety Council for the Federal Emergency Management Agency). Although BOCA does not require seismic reinforcement for piers, it is noted that the FEMA guidelines recommended that the same seismic provisions apply to drilled piers or caissons. Therefore, such provisions are included herein. Note that the "minimum pier design cross sectional area" is defined as the minimum section area, as determined by the allowable design stresses, even though the actual pier section may be larger.

1815.2.3 Pier cap connection: the provisions are similar to those now required for all concrete piles (1816.11.1) which are consistent with the FEMA model code provisions (see 1815.2.2 for reference). Although BOCA does not require the cap connection for piers, such provisions are included herein for consistency with the FEMA recommendation.

1815.2.4 Alternative detailing: This provision allows alternatives to the code-specified minimum reinforcing, similar to the BOCA provision for concrete piles in 1816.11.1.

1815.3 through 1815.11: The existing provisions, in 1212.2 through 1212.10 (Fifth Ed.) are retained; they are considered more complete and appropriate for Massachusetts.

1816.0 PILE FOUNDATIONS

1816.3 Pile bending seismic design: The special provisions of BOCA (1816.3) were adopted for pile reinforcement below buildings assigned to Seismic Performance Category D; this was not required in the *Fifth Edition*. It is noted that this is consistent with the FEMA document referenced in 1815.2.

1816.4 Protection of pile materials: the existing provisions, 1213.3 (Fifth Ed.) are retained; they are considered more complete and appropriate for Massachusetts.

1816.5 Lateral support: 1213.4 (Fifth Ed.) is retained; reference to "fluid soil" is deleted.

1816.7 Stability: 1213.6 (Fifth Ed.) is retained.

1816.8 Structural integrity: 1213.7 (Fifth Ed.) is retained.

1816.10 Splices: 1213.9 (Fifth Ed.) retained, including requirement for all pile splices to "develop at least 50% of the capacity in bending". In addition, the BOCA provisions for design requirements for splices located in the upper ten feet of the embedded pile are adopted.

1816.11.1 Pile cap seismic connection: The special provisions of BOCA (1816.11.1) were adopted for seismic connection of all concrete piles to the caps (not required in Fifth Ed.). Note: This is a new requirement, which may have an economic impact on pile foundations.

1816.11.2 Pile foundation seismic ties: The provisions for interconnection between pile caps are consistent with BOCA (1816.11.2), except that the ties are to be designed for a force equal to 10% of the larger column dead load plus live load in lieu of "a force equal to 25% of the effective peak velocity-related acceleration (A_v) times the column dead plus live load". (This in effect retains the requirements in 1113.6.9 (Fifth Ed.) for interconnection of pile caps; the magnitude of the design force in the tie is more conservative than BOCA.)

1816.13 Inspection: The more detailed requirements of 1213.12 (Fifth Ed.) are retained.

1816.18 Pile Heave: The more detailed requirements of 1213.17 (Fifth Ed.) are retained.

1817.0 ALLOWABLE PILE LOADS

1817.1 through 1817.3: The existing provisions in 1214.1, 1214.2 and 1214.3 (Fifth Ed.) including the requirements for determination of allowable load by the driving formula, friction formula in clay and for jacked piles, are retained. (Note: The description of the design criteria for friction piles in clay has been modified for clarification.

1817.4 Compression load test: The existing provisions in 1214.4 (Fifth Ed.) are retained; they are more detailed and appropriate for local conditions.

1817.6 Lateral load tests and 1817.7 Tension Load tests: The more detailed existing provisions of 1214.6 and 1214.7 are retained.

1817.8 Bearing capacity: The existing provisions of 1214.8 (Fifth Ed.) are retained.

1818.0 STRUCTURAL STEEL PILES

1818.2 Allowable stress: The existing provisions in 1215.4 (Fifth Ed.) are retained, including the limit of "35% of the minimum specified yield strength or 12,600 psi." The limitation on stress is a result of driveability considerations.

1818.3 Pile cap seismic connection: The special provisions of BOCA were adopted for connection of steel piles to the caps for buildings assigned to Seismic Category D, (not required in the *Fifth Edition*).

1819.0 CONCRETE-FILLED STEEL PIPE AND TUBE PILES

1819.2 Allowable stress: A distinction is made between top-driven and mandrel-driven piles:

- In 1819.2.1, the existing provisions in 1216.3 (Fifth Ed.) for stress limits due to driveability considerations are retained for top-driven piles.
- In 1819.2.2, the higher allowable limits in BOCA are allowed for piles driven by mandrels which effectively transmit the driving stresses to the bottom of the pile.

1819.3.1 Pile cap seismic connection: The special provisions of BOCA were adopted for pile reinforcement and connection to the cap for all piles (not required in the Fifth Ed.).

1819.5 Placing concrete: the existing provisions in 1216.1 (Fifth Ed.) for alignment criteria of the steel pipe before filling with concrete have been deleted; the reason is that other pile types which cannot be similarly inspected are not subject to such requirements, and such requirements are not generally necessary.

1820.0 CAST-IN-PLACE CONCRETE PILES

1820.1.1 Material: The existing requirement, 1217.1 (Fifth Ed.) for minimum concrete strength is retained (i.e. 3000 psi in lieu of 2500 psi in BOCA)

1820.1.2.1 Seismic reinforcement: The special requirements of BOCA (1820.2.2.1) for pile reinforcement and connection to the cap are adopted (Not required in Fifth Ed.). Note: There are different requirements for buildings assigned to Seismic Performance Category C and D.

1820.1.3 Installation: the installation requirement for all cased, concrete-filled piles are given here, and are referenced in 1820.4.3.2.3 and 1820.5.3.

1820.2 Augered uncased piles: The provisions are now in a new, separate section; this pile type was previously (Fifth Ed.) included in 1212.0 Pier foundations. The provisions have been modified, and are not entirely consistent with BOCA (1820.2).

Note: 1820.2.8 Instrumentation has been added; it requires that the auger rig be equipped with data logging equipment to automatically record vital information during installation.

1820.4 Pressure-injected footings: All provisions are those contained in the REVISIONS to 1217.0 (Fifth Ed.) which were adopted since issuance of the *Fifth Edition* (1990). The revisions, together with an extensive Commentary, were prepared by the Geotechnical Advisory Committee and presented at a Public Hearing on November 30, 1993, and were subsequently approved and filed by the State Board of Building Regulations and Standards.

1820.5 Cased poured concrete piles: The existing provisions in 1217.5 (Fifth Ed.) have been retained, including the limitation of 1,600 psi on design stress.

1820.6 Small diameter grouted piles: These provisions for grouted cast-in-place piles, less than 12 inches diameter, are not included in BOCA (1993). The requirements of 1217.2 (Fifth Ed.) have been re-organized and retained.

1821.0 PRECAST CONCRETE PILES

THE MASSACHUSETTS STATE BUILDING CODE

1821.1 through 1821. 3: The BOCA provisions are generally adopted. In 1821.33, the formula for design compressive stress varies slightly from that in 1218.3 (Fifth Ed.) i.e., a smaller deduction is required for the prestress. The 1600 psi limitation on design stress in the Fifth Ed. has been retained.

1821. 3. 5 Pile cap seismic connection: The special provisions for seismic connection (per 1816.11) also allows for extension of the pile reinforcing strand into the cap, except for buildings assigned to Seismic Performance Category D.

1821.3.6 Spiral seismic reinforcing: Special BOCA provisions for the length of spiral reinforcement for buildings assigned to Seismic Performance Category D are adopted. Also, the requirements for ties in the upper two feet of pile have been added, to be consistent with FEMA.

1822.0 TIMBER PILES

1822.1 through 1822.4: All provisions are those contained in the REVISIONS to 1219.0, which have been adopted since issuance of the *Fifth Edition* (1990).

The Revisions, together with an extensive Commentary, were prepared by the Geotechnical Advisory Committee and presented at a Public Hearing on November 8, 1994, and were subsequently approved and filed by the State Board of Building Regulations and Standards.

1824.0 CONCRETE-FILLED STEEL PIPE WITH STEEL CORE CAISSONS

1824.2 Rock socket: The provisions for the rock socket design have been revised to require that the perimeter bond stress be determined by studies for each installation, but in no case shall the bond stress exceed 200 psi. Also, the minimum outside diameter has been reduced from 24 to 18 inches, consistent with BOCA.

1824.3 Seismic reinforcement: It is required that all caissons have seismic reinforcement, per 1820.1.2.1 (not in *Fifth Edition*)

1824.6 Allowable stress: BOCA provisions adopted, without the stress limits on concrete and steel as contained in 1221.8 (Fifth Ed.); such limits do not apply, since the caisson is not driven.

1824.8 Precautions: The requirement for plumbness (1221.6 Fifth Ed.) has been deleted.

1825.0 RETAINING WALLS

1825.2 Design: Design requirements to resist seismic loads have been added.

CHAPTER 19 - CONCRETE
(*Fifth Edition* Article 15)**Differences from the National Code:**

The provisions are essentially the same as the national code.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

Seismic requirements for reinforced concrete have been amended to reflect current design and construction practices consistent with expected seismicity of the region.

CHAPTER 20 - LIGHTWEIGHT METALS
(*Fifth Edition* Article 19)**Differences from the National Code:**

The provisions are the same as the national code.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

No changes from 5th edition other than updating of referenced standards.

CHAPTER 21 - MASONRY
(*Fifth Edition* Article 14)**Differences from the National Code:**

The provisions are essentially the same as the national code with the exception of reinforcing requirements.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS
THE MASSACHUSETTS STATE BUILDING CODE

Seismic requirements for masonry have been amended to reflect current design and construction practices consistent with expected seismicity of the region

CHAPTER 22 - STEEL
(Fifth Edition Article 18)

Differences from the National Code:

The provisions are essentially the same as the national code with the exception of the inclusion of the provisions of the “Interim Guidelines for Steel Moment Frame Structures” (FEMA 267 - August 1995).

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

Seismic requirements for steel have been amended to reflect current design and construction practices consistent with expected seismicity of the region.

ARTICLE 23 - WOOD
(*Fifth Edition* Article 17)**Differences from the National Code:**

The provisions of Chapter 23 are essentially the same as the national code with the exception of the inclusion of text for the use of native lumber.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

Seismic requirements for wood construction have been amended to reflect current design and construction practices consistent with expected seismicity of the region.

CHAPTER 24 - GLASS AND GLAZING
(*Fifth Edition* Article 22)**Differences from the National Code:**

Chapter 24 reflects the provisions of the 1996 national building code, and is different only to remain compatible with Massachusetts general law.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

The requirements for glass and glazing have been relocated in the *Sixth Edition* of the code, and have been modified to reflect advances in technology.

CHAPTER 25 - GYPSUM BOARD AND PLASTER
(*Fifth Edition* Article 16)**Differences from the National Code:**

Chapter 25 is entirely compatible with the national code.

Changes from the *Fifth Edition* of the Massachusetts State Building Code :

The requirements for gypsum board and plaster have been relocated in the *Sixth Edition* of the code, and have been modified to reflect changes in technologies.

CHAPTER 26 - PLASTIC
(*Fifth Edition* Article 20)**Differences from the National Code:**

Chapter 26 is entirely compatible with the national code.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

The requirements for plastic have been relocated in the *Sixth Edition* of the code, and have been modified to reflect changes in technologies.

CHAPTER 27 - ELECTRICAL WIRING AND EQUIPMENT
(*Fifth Edition* Article 27)**Differences from the National Code:**

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS

THE MASSACHUSETTS STATE BUILDING CODE

Chapter 27 has been deleted from the national code in its entirety. Electrical wiring and equipment is regulated by a separate state agency, and is made part of the code by reference.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

See comments above.

CHAPTER 28 - MECHANICAL SYSTEMS

(Fifth Edition - Article 25)

Differences from National Code:

Chapter 28 of the *Sixth Edition* of the code contains Section 2812.0 which sets forth requirements for power venters and acknowledges other jurisdictions which also regulate the installation of power venters (Board of Fire Prevention Regulations for oil-fired appliances; see 527 CMR and the Plumbing and Gas Board for gas-fired appliances; see 248 CMR).

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

Explicit construction requirements for boiler rooms have been removed from the *Sixth Edition* of the Massachusetts State Building Code.

CHAPTER 29 - PLUMBING SYSTEMS

(Fifth Edition - Article 28)

Differences from National Code:

Massachusetts plumbing and gas requirements are controlled by the Plumbing and Gas Code - 248 CMR and promulgated by the Plumbing and Gas Board and such requirements are typically not controlled by the State Building Code.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

Chapter 29 now also identifies Massachusetts laws and regulations that involve licensed refrigeration technicians and pipefitters.

ARTICLE 30 - ELEVATORS

(Fifth Edition - Article 26)

Differences from National Code:

Massachusetts elevator requirements are controlled by the Elevator Regulations - 524 CMR, promulgated by the Board of Elevator Regulations and such requirements are typically not controlled by the State Building Code.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

The detailed requirements set forth in the *Fifth Edition* of the State Building Code have been removed to ensure clarification of the jurisdiction of both the Board of Building Regulations and Standards and the Board of Elevator Regulations.

CHAPTER 31 - SPECIAL CONSTRUCTION

(Fifth Edition Articles 6, 21, 19 and 30)

Differences from the National Code:

Chapter 31 is essentially the same as the national code. However, substantive changes have been made to the Flood Resistant Construction provisions of Section 3107.0. Additional changes have been made to remain compatible with Massachusetts general law and regulation.

Changes from the *Fifth Edition* of the Massachusetts State Building Code :

Requirements in Chapter 31 were scattered about the pages of the *Fifth Edition*. They have been organized in a more logical fashion in Chapter 31, and have been modified to reflect advances in technology. Also see comments above.

CHAPTER 32 - CONSTRUCTION IN THE RIGHT-OF-WAY

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS
THE MASSACHUSETTS STATE BUILDING CODE

(*Fifth Edition* Articles 7 and 30)

Differences from the National Code:

Chapter 32 is essentially the same as the national code, changed only remain compatible with Massachusetts general law and regulation.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

Requirements in Chapter 32 were scattered about the pages of the *Fifth Edition*. They have been organized in a more logical fashion in Chapter 32, and have been modified to reflect advances in technology.

CHAPTER 33 - SITE WORK, DEMOLITION AND CONSTRUCTION
(*Fifth Edition* Article 30)**Differences from the National Code:**

Chapter 33 is essentially the same as the national code, changed only remain compatible with Massachusetts general law and regulation.

Changes from the *Fifth Edition* of the Massachusetts State Building Code :

Requirements in Chapter 33 have been organized in a more logical fashion and have been modified to reflect advances in technology.

**CHAPTER 34 - REPAIR, ALTERATION, ADDITION AND CHANGE OF USE
OF EXISTING BUILDINGS**
(*Fifth Edition* Article 32)**Differences from the National Code:**

Chapter 34 has been substantially modified from the national code in terms of technical content and format.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

The requirements for the repair, alteration, addition and change of use for existing buildings have been modified from the provisions of Article 32 and presented in a more logical fashion. Section 3408.0 presents structural requirements for existing buildings that are new to both Massachusetts and the national code.

Additionally, Chapter 34 differs from the *Fifth Edition* of the code in several ways, including:

- (1) Guidance on unsafe lighting and/or unsafe ventilation is now presented in Chapter 34;
- (2) A definition for “substantial renovation” is provided;
- (3) Emphasis of the need for an evaluation of existing buildings that fall under the requirements of “controlled construction” is provided;
- (4) Requirements for continuation of the same use group or a change to a use group resulting in a change in Hazard Index of one or less have been combined;
- (5) Clarification as to when Fire Protective Systems are required, is provided;
- (6) Energy provisions for any existing building undergoing building permissible work are provided and clarified and will further change (there will be an impact on “replacement windows” on January 1, 1999) - see the front piece to Chapter 13 which is also repeated as the front piece to Appendix J;
- (7) Structural requirements for existing buildings are now delineated;
- (8) “Historic Buildings” requirements are now found in Chapter 34, whereas in the *Fifth Edition* of the Code, “Historic Buildings” criteria was found in Article 6.

**CHAPTER 35 - MANUFACTURED BUILDINGS, MANUFACTURED BUILDING
COMPONENTS AND MANUFACTURED HOUSING**
(*Fifth Edition* - Article 33)**Differences from National Code:**

Chapter 35 in concept and specific requirements is unique to Massachusetts.

Changes from the *Fifth Edition* of the Massachusetts State Building Code:

Chapter 35 of the *Sixth Edition* of the State Building Code differs from Article 33 of the *Fifth Edition* of the Code in several ways, including:

- (1) A definition of the “Installer of Manufactured Homes” has been created, and;

THE MASSACHUSETTS STATE BUILDING CODE

- (2) Construction documents requirements have been clarified, and;
- (3) The homeowner exemption for the acquiring of the building permit has been removed and it is now necessary for a licensed construction supervisor to apply for the permit, oversee site, footing and foundation work and if the licensed construction supervisor is also an “Installer of Manufactured Homes”, the license holder may/shall also oversee installation of the Manufactured Home onto the foundation system and ensure proper tying of the various modular units together before turn over to the Homeowner; otherwise in addition to the license holder being involved, a factory certified “Installer of Manufactured Homes” shall be present to ensure proper installation and bolt-up of the Manufactured Home before turn over to the Homeowner.

CHAPTER 36 - ONE AND TWO FAMILY DWELLING CODE
(Fifth Edition - Article 34)

Differences from National Code:

Chapter 36 utilizes the general format of the CABO ONE AND TWO FAMILY DWELLING CODE, 1995 EDITION, but is significantly altered throughout to reflect Massachusetts requirements.

Changes from the Fifth Edition of the Massachusetts State Building Code:

Chapter 36 of the *Sixth Edition* of the State Building Code differs from Article 34 of the *Fifth Edition* of the Code in a number of ways, including:

- (1) In the Definitions section, DMR Group Homes are defined in terms of the Residential Use they most likely resemble (R-4, R-3, R-2 or R-1, as applicable), and;
- (2) the Uniform Snow Load Maps have been clarified by city or town, and;
- (3) attached garage fire separation from the main house has been redefined, and;
- (4) mechanical ventilation of bathroom and toilet rooms is now required, and;
- (5) clarification of the venting of special spaces, such as roofs, eaves, etc. reflects the requirements of the main body *Sixth Edition* Code, and;
- (6) attic access between conditioned and unconditioned space is explicitly required to be weather-stripped and pull-down doors must close tightly, and;
- (7) the fire protections systems requirements for one and two family dwellings has been refined to reflect the requirements of Massachusetts and NFPA-72, (photo-electric smoke detectors and the battery backup of all single station and multiple station smoke detectors are addressed) and;
- (8) energy conservation requirements, although not yet significantly changed (thermostats are now required on every story that contains heated and/or cooled space)l, will change on March 1, 1998 to reflect requirements of Massachusetts and the CABO Model Energy Code, 1995 version - see the front piece to Chapter 13 which is also repeated as the front piece top Appendix J, and;
- (9) Span tables have been updated and expanded , and;
- (10) The fireplace, chimney and solid fuel-burning appliance requirements have been updated to Massachusetts requirements, and;
- (11) Recognition of the multiple jurisdictions and regulations pertaining to the design and installation of comfort heating appliances has been placed in Chapter 36; i.e., in addition to the State Building Code (780 CMR), the Plumbing and Gas Code (248 CMR) and the Fire Prevention Regulations (527 CMR) also are identified, and;
- (12) Solar system criteria is also found in Chapter 36.

DESCRIPTION OF APPENDIX J

Appendix J, “Energy Conservation for Low-Rise Residential Buildings” is currently unique to Massachusetts and is referenced from Chapter 36. Appendix J carries forward the current *Fifth Edition* energy conservation requirements with minor changes, including the requiring of thermostats on every story containing conditioned space - Note that Appendix J will change (See the front piece to Chapter 13 which is repeated as the front piece of Appendix J).

DESCRIPTION OF APPENDIX K

Appendix K , “Floor Protector Thermal Conductivity Calculations” is unique to Massachusetts and supplements the solid fuel-burning section of Chapter 36, Section 3610.

DESCRIPTION OF APPENDIX L

Appendix L, “Schedule of Fees” is unique to Massachusetts and defines initial and renewal licensing fees, initial and renewal Home Improvement Contractor registration fees and associated Guaranty Fund fees, Appeals Board fees, building permit fees, and existing building, periodic inspection fees.

PART III - CROSS REFERENCE BY ARTICLE/CHAPTER

CAUTION

This cross-index is meant as a transition tool for users of the *Sixth Edition* of the Massachusetts State Building Code. It is not meant as an authoritative source for all changes either from the BOCA National Building Code or the *Fifth Edition* of the Massachusetts State Building Code. Always refer to the actual code documents for definitive requirements.

The Table in Part III has been developed for those who are accustomed to using the *Fifth Edition* and previous editions of the Massachusetts State Building Code. The first column lists article and primary section numbers in the *Fifth Edition*; the second column gives the article and section number in the *Sixth Edition*.The balance of the articles in the *Fourth Edition* have an equivalent article in the *Fifth Edition*.

<i>Fifth Edition</i> Table of Contents	<i>Sixth Edition</i> Article/Chapter Cross Reference
Article 1 - ADMINISTRATION AND ENFORCEMENT	Chapter 1 - ADMINISTRATION <i>(Substantial portions of chapter are entirely unique to Massachusetts)</i>
100.0 Scope	101.0 Scope
101.0 Applicability	102.0 Applicability
102.0 Ordinary repairs	110.3 Exemptions (Application for permit)
103.0 Installation of service repairs equipment	110.0 Permit Application
104.0 Maintenance	103.0 Maintenance
105.0 Change in existing use	102.5 Applicability to existing buildings 110.1 Permit application
106.0 Alterations and repairs	102.5 Applicablity to existing buildings 110.1 Permit application
107.0 Building department	05.0 Office of the inspector of buildings or building commissioner
08.0 Duties and powers of the building official and state inspector	106.0 Duties and powers of the building official 107.0 Duties and powers of the state inspector
109.0 Rules and regulations	108.0 Rules and regulations
110.0 Approval	109.0 Approval
111.0 Inspection	115.0 Inspection
112.0 Right of entry	115.6 General (Inspection)
113.0 Application for permit	110.0 Application for permit
114.0 Permits	111.0 Permits
115.0 Conditions of permit	113.0 Conditions of permit
116.0 Demolition of structures	112.0 Demolition of structures
117.0 Moved structures	102.56 Moved Structures
118.0 Fees	114.0 Fees
119.0 Certificate of use and occupancy	120.0 Certificate of occupancy
120.0 Posting structures	120.5 Posting structures
121.0 Violations	118.0 Violations
122.0 Stop-work order	119.0 Stop-work order
123.0 Unsafe structures	121.0 Unsafe structures
124.0 Emergency measures	121.0 Unsafe structures
125.0 Reserved	
126.0 Board of Appeals	122.0 Board of Appeals
127.0 Construction Control	16.0 Registered architectural and professional engineering services-Construction Control

<i>Fifth Edition</i> Table of Contents	<i>Sixth Edition</i> Article/Chapter Cross Reference
128.0 Construction Materials Safety Board	123.0 Construction Materials Safety Board
129.0 Activities requiring licenses	108.0 Rules and regulations
130.0 Fire-Prevention-Fire Protection Board	24.0 Fire-Prevention-Fire Protection Advisory Committee
131.0 Structural Peer Review Advisory Board	25.0 Structural Peer Review Advisory Committee
140.0 Validity	104.0 Validity 117.0 Workmanship
Article 2 - DEFINITIONS AND CLASSIFICATIONS	Chapter 2 - DEFINITIONS <i>(Additional definitions are provided in appropriate chapters)</i>
200.0 General	201.0 General
201.0 General definitions	202.0 General definitions
Article 3 - USE GROUP CLASSIFICATION	Chapter 3 - USE OR OCCUPANCY
300.0 General	301.0 General
301.0 Classification	302.0 Classification
302.0 Use group A, assembly uses	303.0 Assembly use groups
303.0 Use group B, business uses	304.0 Business use groups
304.0 Use group E, educational uses	305.0 Educational use groups
305.0 Use group F, factory and industrial use	306.0 Factory and industrial use groups
306.0 Use group H, high hazard uses	307.0 High hazard use groups
307.0 Use group I, institutional uses	308.0 Institutional use groups
308.0 Use group M, mercantile uses	309.0 Mercantile use groups
309.0 Use group R, residential uses	310.0 Residential use groups
310.0 Use group S, storage uses	311.0 Storage use groups
311.0 Use group U, Utility and miscellaneous uses	312.0 Utility and miscellaneous use groups
312.0 Doubtful use classification	302.0 Classification
313.0 Mixed use and occupancy	313.0 Mixed use groups
Article 4 - TYPE OF CONSTRUCTION CLASSIFICATION	Chapter 6 - TYPES OF CONSTRUCTION
400.0 General	601.0 General
401.0 Construction classification	602.0 Construction classification
402.0 Type 1 construction	603.0 Type 1 construction
403.0 Type 2 construction	603.0 Type 2 construction
404.0 Type 3 construction	604.0 Type 3 construction
405.0 Type 4 construction	605.0 Type 4 construction
406.0 Type 5 construction	606.0 Type 5 construction
Article 5 - GENERAL BUILDING LIMITATIONS	Chapter 5 - GENERAL BUILDING LIMITATIONS
500.0 General	501.0 General 502.0 Definitions
501.0 General area and height limitations	503.0 General area and height limitations
502.0 Area modifications	506.0 Area modifications
503.0 Height modifications	504.0 Height modifications
504.0 Unlimited areas	507.0 Unlimited areas
505.0 Existing buildings	505.0 Mezzanines
506.0 Street encroachments	3202.0 Street encroachments
507.0 Permissible street projections	3203.0 Permissible street encroachments

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS

THE MASSACHUSETTS STATE BUILDING CODE

<i>Fifth Edition</i> Table of Contents	<i>Sixth Edition</i> Article/Chapter Cross Reference
508.0 Permissible yard and court encroachments	3202.0 Street encroachments
509.0 Special and temporary projections	3204.0 Special and temporary projections
510.0 Awnings and canopies	3205.0 Awnings and canopies
511.0 Temporary structures	3104.0 Temporary structures
512.0 Physically handicapped and aged	Chapter 11
513.0 Special historic buildings and districts	3409.0 Historic buildings
Article 6 - SPECIAL USE AND OCCUPANCY REQUIREMENTS	Chapter 4 - SPECIAL USE AND OCCUPANCY
600.0 General	401.0 General
601.0 Covered mall buildings	402.0 Covered mall buildings
602.0 High-rise buildings	403.0 High rise buildings
603.0 HPM use facilities	416.0 HPM facilities
604.0 Membrane structures	3103.0 Membrane structures
605.0 Mezzanines	505.0 Mezzanines
606.0 Open wells	404.0 Atriums
607.0 Open parking garages	406.0 Open parking garage
608.0 Private garages	407.0 Private garages
609.0 Public garages	408.0 Public garages
610.0 Use group I-2	409.0 Use group I-2
611.0 Use group I-3	410.0 Use group I-3
612.0 Bleachers, grandstands and folding or telescopic seating	1013.0 Grandstands
613.0 Motion picture projections rooms, screening rooms and sound stages	11.0 Motion picture projections rooms, screening rooms and sound stages
614.0 Rooftop heliports	1511.0 Rooftop heliports
615.0 Stages and Platforms	412.0 Stages and platforms
616.0 Airport traffic control towers	414.0 Airport traffic control towers
617.0 Combustible dust, grain processing and storage	307.4 Use group H-2 structures/ 418.0
618.0 Explosion hazards	307.3 Use group H-1 structures/ 418.0
619.0 Flammable and combustion liquids	307.4 Use group H-2 structures/ 418.0
620.0 Liquefied petroleum gas facilities	307.4 Use group H-2 structures/ 418.0
621.0 Mobile unit	420.0 Mobile unit
622.0 Paint spraying and spray booths	
623.0 Radio and television towers	3108.0 Radio television towers
624.0 Radio and television antennae	3109.0 Radio television antennas
625.0 Swimming pools	421.0 Swimming pools
626.0 Temporary structures	3104.0 Temporary structures
627.0 Fire prevention codes	Appendix A
628.0 Special permits and certificates of fitness	111.0 Permits 3204.0 Special and temporary projections
629.0 Existing buildings	422.0 Existing buildings/ Chapter 34
630.0 Amusement parks	413.0 Special amusement buildings
631.0 Group residence	423.0 Group residence
632.0 Nursing homes...etc.	409.0 Use group I-2
633.0 Child day care centers	424.0 Day Care Centers
634.0 Summer camps for children	425.0 Summer Camps for Children
635.0 Historic buildings	3409.0 Historic buildings

<i>Fifth Edition</i> Table of Contents	<i>Sixth Edition</i> Article/Chapter Cross Reference
636.0 Limited group residences	427.0 Limited group residences
637.0 Detoxification Facilities	428.0 Detoxification Facilities
638.0 Group dwelling units	429.0 Group dwelling
-	405.0 Underground structures
-	426.0 Bulk merchandising retail buildings
Article 7 - INTERIOR ENVIRONMEN- TAL REQUIREMENTS	Chapter 12- INTERIOR ENVIRONMENT
700.0 General	1201.0 General 1202.0 Definitions
701.0 Plans and specifications	1203.0 Construction documents
702.0 Existing building	3400.6 Unsafe lighting and/ or unsafe ventilation
703.0 Light and ventilation required	1205.0 Light and ventilation required
704.0 Natural light	1206.0 Natural light
705.0 Artificial light	1207.0 Artificial light
706.0 Natural ventilation	1208.0 Natural ventilation
707.0 Mechanical ventilation	1209.0 Mechanical ventilation
708.0 Room dimensions	1204.0 Room dimensions
709.0 Ventilation of special spaces	1210.0 Ventilation of special spaces
	1211.0 Access to crawl spaces and attics
710.0 Courts	1212.0 Courts and yards
711.0 Rear yards	1212.0 Courts and yards
712.0 Obstruction of courts and yards	1213.0 Obstruction of courts and yards
713.0 Window cleaning safeguards	3110.0 Window -cleaning safeguards
14.0 Sound transmission control in residential buildings	214.0 Sound transmission control in residential buildings
Article 8 - MEANS OF EGRESS	Chapter 10 - MEANS OF EGRESS
800.0 General	1001.0 General
801.0 Plans and specifications	1002.0 Definitions 1003.0 Construction documents
802.0 Use and occupancy requirements	1004.0 Use group and occupancy requirements
803.0 Prohibited use	
804.0 Existing buildings	3400.4 Special provisions for means of egress
805.0 Maintenance of exits	1028.0 Maintenance of exits
806.0 Occupant load	1008.0 Occupant load
807.0 Types and location of means of egress	1006.0 Types and location of means of egress
808.0 Capacity of egress components	1009.0 Capacity of egress components
809.0 Number of exits	1010.0 Number of exits
810.0 Exit access passageways and corridors	1011.0 Exit access passageways and corridors
11.0 Level of exit discharge passageways used as an exit element	1020.0 Level of exit discharge passageways used as an exit element
812.0 Means of egress doorways	1017.0 Means of egress doorways
813.0 Revolving doors	1018.0 Revolving doors
814.0 Horizontal exits	1019.0 Horizontal exits
815.0 Ramps	1016.0 Ramps
816.0 Interior stairways	1014.0 Stairways
817.0 Access to roof	1027.0 Access to roofs
818.0 Smokeproof enclosures	1015.0 Smokeproof enclosures

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS

THE MASSACHUSETTS STATE BUILDING CODE

<i>Fifth Edition</i> Table of Contents	<i>Sixth Edition</i> Article/Chapter Cross Reference
819.0 Exterior stairways	1014.0 Stairways
820.0 Escalators and moving walks	Chapter 30
821.0 Fire escapes	1025.0 Fire escapes
822.0 Slidescapes	1026.0 Slidescapes
823.0 Exit signs and lights	1023.0 Exit signs and lights
824.0 Means of egress lighting	1024.0 Means of egress lighting
825.0 Hazards to means of egress	1005.0 General limitations
826.0 Assembly aisles	1012.0 Assembly aisles and aisles accessways
827.0 Guards	1021.0 Guards
828.0 Handrails	1022.0 Handrails
Article 9 - FIRERESISTIVE CONSTRUCTION	Chapter 7 - FIRERESISTANT MATERIALS AND CONSTRUCTION
900.0 General	701.0 General
-	702.0 Definitions
901.0 Plans and specifications	703.0 Construction documents
902.0 Fire hazard classification	Table 313.1.2 Fireresistant ratings for fire separation
903.0 Fire tests	704.0 Fire tests
904.0 Flame spread and flame resistance tests	Chapter 8 Interior Finishes
905.0 Special fireresistive requirement	Chapter 8 Interior Finishes
906.0 Exterior walls	705.0 Exterior walls
907.0 Exterior opening protectives	706.0 Exterior opening protectives
908.0 Fire walls and party walls	707.0 Fire walls and party walls
909.0 Fire wall openings	708.0 Fire wall openings
910.0 Fire separation walls	709.0 Fire separation assemblies
911.0 Smoke barriers	712.0 Smoke barriers
912.0 Fireresistance rating of structural members	15.0 Fireresistance rating of structural members
913.0 Fireresistance rated floor/roof/ceiling assemblies	713.0 Floor/ceiling and roof/ceiling assemblies
914.0 Roof construction	714.0 Roof construction
915.0 Vertical shafts	710.0 Vertical shafts
916.0 Fire door assemblies	716.0 Fire door assemblies
917.0 Fire windows and shutters	718.0 Fire windows and shutters
918.0 Fire dampers	717.0 Fire dampers
919.0 Wired glass	719.0 Wired glass
920.0 Fireresistive requirements for plaster	721.0 Fireresistive requirements for plaster
921.0 Firestopping and draftstopping	720.0 Firestopping and draftstopping
922.0 Interior finish and trim	803.0 Interior finish and trim
923.0 Application of interior finish	804.0 Application of interior finish
924.0 Combustible materials permitted in floors on Type 1 and 2 construction	806.0 Combustible materials permitted in floors on Type 1 and 2 construction
925.0 Decorative material restrictions	807.0 Interior hanging and decorations
926.0 Exterior trim restrictions	705.1.2 Combustible, exterior wall finish and trim
927.0 Roof structures	714.0 Roof construction
928.0 Thermal and sound insulating materials	722.0 Thermal - and sound-insulating materials
929.0 Plenums	2805.0 Plenums
930.0 Smoke and heat vents	921.0 Smoke control systems 922.0 Smoke and heat vents

<i>Fifth Edition</i> Table of Contents	<i>Sixth Edition</i> Article/Chapter Cross Reference
Article 10 - FIRE PROTECTION SYSTEMS	Chapter 9- FIRE PROTECTION SYSTEMS
1000.0 General	901.0 General
1001.0 Plans and specifications	903.1.1 Fire protection construction documents
1002.0 Fire suppression systems	904.0 Fire suppression systems
1003.0 Suppression system selection	905.0 Suppression system agent compatibility
1004.0 Water sprinkler systems	906.0 Fire sprinkler systems
1005.0 Limited area sprinkler systems	907.0 Limited area sprinkler systems
1005.0 Water-spray fixed systems	908.0 Water-spray sprinkler systems
1007.0 Foam extinguishing systems	911.0 Foam extinguishing systems
1008.0 Carbon dioxide extinguishing systems	909.0 Carbon dioxide extinguishing systems
1009.0 Halogenated fire extinguishing systems	912.0 Halogenated extinguishing systems
1010.0 Dry chemical extinguishing systems	910.0 Dry-chemical extinguishing systems
1011.0 Wet chemical range hood extinguishing systems	13.0 Wet-chemical range hood extinguishing systems
1012.0 Standpipe systems	914.0 Standpipe systems
1013.0 Standpipe systems for buildings under construction or demolition	3305.0 Fire hazards
1014.0 Fire department connections	915.0 Fire department connections
1015.0 Water supply and other extinguishing media	103.0 Fire protection systems approval/ acceptance
1016.0 Yard hydrants	916.0 Yard hydrants/Underground fire mains
1017.0 Fire protection signaling systems	917.0 Fire protection signaling systems
1018.0 Automatic fire detection systems	918.0 Automatic fire detection systems
1019.0 Smoke control systems	921.0 Smoke control systems
1020.0 Supervision	923.0 Supervision
1021.0 Fire Extinguishers	920.0 Fire Extinguishers
Article 11 - STRUCTURAL LOADS	Chapter 16 - STRUCTURAL LOADS <i>(Portions of this chapter are entirely unique to Massachusetts)</i>
1100.0 General	1601.0 General 1602.0 Definitions
1101.0 Plans and Specifications	1603.0 Construction documents
1102.0 Design safe load	1604.0 Design safe load
1103.0 Design live load	1607.0 Design live load
1104.0 Design dead load	1605.0 Design dead load
1105.0 Existing buildings	1617.0 Existing buildings
1106.0 Uniformly distributed live loads	1606.0 Uniformly distributed live loads
1107.0 Concentrated loads	1613.0 Concentrated loads
1108.0 Impact loads	1614.0 Impact loads
1109.0 Special loads	1615.0 Special loads
1110.0 Special consideration for roofs	1609.0 Roof loads
1111.0 Snow loads	1610.0 Snow loads
1112.0 Wind loads	1611.0 Wind loads
1113.0 Earthquake loads	1612.0 Earthquake loads
1114.0 Combination of loads	1616.0 Combination of loads
1115.0 Live load reduction	1608.0 Live load reduction
Article 12 - FOUNDATION SYSTEMS AND RETAINING WALLS	Chapter 18 - FOUNDATIONS AND RETAINING WALLS <i>(Portions of this chapter are entirely unique to</i>

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS

THE MASSACHUSETTS STATE BUILDING CODE

<i>Fifth Edition</i> Table of Contents	<i>Sixth Edition</i> Article/Chapter Cross Reference
	<i>Massachusetts)</i>
1200.0 General	1801.0 General
201.0 Bearing pressures on foundation materials	1804.0 Load bearing value of soils
1202.0 Subsurface explorations	1802.0 Foundation investigations
1203.0 Soil bearing tests	1803.0 Soil bearing tests
1204.0 Allowable foundation loads	1805.0 Allowable foundation loads
1205.0 Depth of footings	1806.0 Depth of footings
1206.0 Footing design	1807.0 Footing design
1207.0 Timber footings and wood foundations	1808.0 Timber footings and wood foundations
1208.0 Steel grillages	1809.0 Steel grillages
1209.0 Concrete footings	1810.0 Concrete footings
1210.0 Masonry unit footings	1811.0 Masonry unit footings
1211.0 Mat, raft and float foundations	1814.0 Mat, raft and float foundations
1212.0 Pier foundations	1815.0 Pier foundations
1213.0 Pile foundations	1816.0 Pile foundations
1214.0 Allowable pile loads	1817.0 Allowable pile loads
1215.0 Structural steel piles	1818.0 Structural steel piles
216.0 Concrete-filled steel pipe and tapered tubular piles	819.0 Concrete-filled steel pipe and tapered tube piles
1217.0 Cast-in-place concrete piles	1820.0 Cast-in-place concrete piles
1218.0 Precast concrete piles	1821.0 Precast concrete piles
1219.0 Timber piles	1822.0 Timber piles
1220.0 Composite piles	1823.0 Composite piles
221.0 Concrete-filled pipe with steel core caissons	824.0 Concrete-filled pipe with steel core caissons
1222.0 Foundation walls	1812.0 Foundation walls
1223.0 Retaining walls	1825.0 Retaining walls
1224.0 Waterproofing and dampproofing	1813.0 Waterproofing and dampproofing
Article 13 - MATERIALS AND TESTS	Chapter 17 - STRUCTURAL TESTS AND INSPECTIONS
1300.0 General	1701.0 General 1702.0 Definitions
1301.0 Alternative test procedure	1707.0 Alternative test procedure
1302.0 Test safe load	1708.0 Test safe load
1303.0 Tests	1703.0 Information required 1704.0 Approvals
1304.0 Design strengths of materials	1706.0 Design strengths of materials
1305.0 Conditions of acceptance	1703.0 Information required 1704.0 Approvals
1306.0 Approvals	1704.0 Approvals
Article 14 - MASONRY	Chapter 21 - MASONRY
1400.0 General	2101.0 General
1401.0 Masonry construction units	2105.0 Masonry construction materials
1402.0 Brick units	2105.2 Clay or shale masonry units
1403.0 Structural clay tile units	2105.2 Clay or shale masonry units
1404.0 Glazed clay masonry units	2105.2 Clay or shale masonry units
1405.0 Concrete units	2105.2 Clay or shale masonry units
1406.0 Architectural terra cotta	2105.2 Clay or shale masonry units

<i>Fifth Edition</i> Table of Contents	<i>Sixth Edition</i> Article/Chapter Cross Reference
1407.0 Natural stone	2105.3 Stone masonry units
1408.0 Cast stone	2105.3 Stone masonry units
1409.0 Mortar and grout for masonry	2105.7 Mortar
1410.0 Masonry wall construction	Chapter 21 - 2112.0 Masonry construction
1411.0 Bonding of walls	2110.0 Bond
1412.0 Lateral bracing of walls	2106.0 Lateral stability/ 2108.0 Lateral support
1413.0 Chases and recesses in bearing walls	Chapter 21 - 2112.1.4 Chases
1414.0 Waterproofing chases	2112.0 Masonry construction
1415.0 Corbeled and projected masonry	2112.2 Corbeled masonry
1416.0 Bearing on hollow unit walls	2112.0 Masonry construction
1417.0 Engineered unreinforced masonry	2101.1.1 Engineered masonry design
1418.0 Reinforced masonry	Chapter 21; 2101.1.1; 2104.0 and 2112.0
1419.0 Unreinforced Masonry	2112.0 Masonry construction
1420.0 Structural glass block units	2115.0 Glass block walls
1421.0 Isolated piers	Chapter 21
1422.0 Dry - stacked, surface-boarded masonry walls	Chapter 21
Article 15 - CONCRETE	Chapter 19 - CONCRETE
1500.0 Concrete design standards	1901.0 Concrete design standards
1501.0 Seismic design provisions	1902.0 Definitions 1903.0 Seismic requirements for reinforce concrete
1502.0 Materials	1904.0 Seismic requirements for plain concrete 1906.0 Materials 1907.0 Durability
1503.0 Concrete quality	1908.0 Concrete quality, mixing and placing
1504.0 Mixing and placing of concrete	1908.0 Concrete quality, mixing and placing
1505.0 Formwork, embedded pipes, and construction joints	1909.0 Formwork, embedded pipes, and construction joints
1506.0 Details of reinforcement	1910.0 Details of reinforcement
1507.0 Concrete-filled pipe columns	1912.0 Concrete-filled pipe columns
1508.0 Shotcrete	1911.0 Shotcrete
1509.0 Minimum slab thickness	1905.0 Minimum slab thickness
Article 16 - GYPSUM AND PLASTER	Chapter 25 - GYPSUM BOARD AND PLASTER
1600.0 General	2501.0 General 2502.0 Shear walls
1601.0 Interior lathing and gypsum plastering	2505.0 Interior lathing and gypsum plastering
1602.0 Portland cement stucco lath and plaster	2506.0 Portland cement stucco lath and plaster
1603.0 Gypsum board materials	2503.0 Gypsum board materials
1604.0 Gypsum construction	2504.0 Gypsum construction
Article 17 - WOOD	Chapter 23 - WOOD
1700.0 General	2301.0 General
1701.0 Lumber and timber construction	Chapter 23
1702.0 Heavy timber type construction	2304.0 Heavy timber construction
1703.0 Design and construction	Chapter 23
1704.0 Wall construction	Chapter 23
1705.0 Floor construction	Chapter 23
1706.0 Roof construction	Chapter 23

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS

THE MASSACHUSETTS STATE BUILDING CODE

<i>Fifth Edition</i> Table of Contents	<i>Sixth Edition</i> Article/Chapter Cross Reference
1707.0 Stress skin panels	Chapter 23
1708.0 Structural glued-laminated timber and built-up wood construction	Chapter 23
1709.0 Fiber boards	2309.0 Fiber boards
1710.0 Plywood	Chapter 23
1711.0 Particle board	2308.0 Particle board
1712.0 Protection against decay and termites	Chapter 23
Article 18 - STEEL	Chapter 22 - STEEL
1800.0 General	2201.0 General 2202.0 Definitions
1801.0 Structural steel construction	2203.0 Structural steel construction
1802.0 Formed steel construction	2204.0 Seismic requirements for structural steel 2206.0 Formed steel construction
1803.0 Open web steel joist construction	2205.0 Open web steel joist construction
1804.0 Reinforcing steel	2208.0 Reinforcing steel
1805.0 Cast steel construction	2209.0 Cast steel construction
1806.0 Cast iron construction	2210.0 Cast iron construction
1807.0 Special steel and steel cable structural systems	2207.0 Special steel and steel cable structural systems
1808.0 Exterior steel frame corrosion protection under masonry	2211.0 Exterior steel frame corrosion protection under masonry
Article 19 - LIGHTWEIGHT METAL ALLOYS	Chapter 20 - LIGHTWEIGHT METALS
1900.0 General	2001.0 General
1901.0 Materials	2002.0 Materials
Article 20 - PLASTIC	Chapter 26 - PLASTIC
2000.0 General	2601.0 General 2602.0 Definitions
2001.0 Light-transmitting plastics	2604.0 General requirements for light transmitting plastics 2605.0 Light-transmitting wall panels 2606.0 Light-transmitting plastic glazing of unprotected openings 2606.0 Light-transmitting plastic roof panels 2608.0 Light-transmitting skylight glazing
2002.0 Foam plastics	2603.0 Foam plastics
Article 21 - EXTERIOR WALLS	Chapter 14 - EXTERIOR WALL COVERINGS
2100.0 General	1401.0 General
2101.0 General construction requirements	1403.0 Performance requirements
2102.0 Flood resistant construction	3107.0 Flood-resistant construction
2103.0 Ratproofing	1403.7 Ratproofing and Chapter 12
2104.0 Weather protection	1403.3 Weather resistance
2105.0 Wall panels	1405.0 Veneers
2106.0 Metal veneers	1405.0 Veneers
2107.0 Masonry veneers	1405.0 Veneers
2108.0 Thin stone and tile veneers	1405.0 Veneers
2109.0 Structural glass veneers	1405.0 Veneers
Article 22 - VERTICAL AND SLOPED GLASS GLAZING	Chapter 24 - GLASS AND GLAZING

<i>Fifth Edition</i> Table of Contents	<i>Sixth Edition</i> Article/Chapter Cross Reference
2200.0 General	2401.0 General
2201.0 General requirement for glass	2402.0 General requirement for glass
2202.0 Wind loads for glass	2403.0 Wind, snow and dead loads on glass
2203.0 Safety glazing	2405.0 Safety glazing
2204.0 Sloped glazing and skylights	2404.0 Sloped glazing and skylights
2205.0 Light-transmitting plastic glazing of unprotected openings	2404.0 General requirements for light transmitting plastics
2206.0 Light in handrails and guardrails	2406.0 Glass in handrails and guardrails
2207.0 Glazing in racquetball and squash courts	2407.0 Glazing in racquetball and squash courts
Article 23 - ROOFS AND ROOF COVERINGS	Chapter 15 - ROOFS AND ROOF COVERINGS
2300.0 General	1501.0 General 1502.0 Definitions
2301.0 Fire classification	1506.0 Fire classification
2302.0 Wood shingles	1505.0 Performance requirements 1507.2.8 Wood shingles
2303.0 Asphalt shingles	1505.0 Performance requirements 1507.2.3 Asphalt shingles
2304.0 Flashing	1508.0 Flashing
2305.0 Fastening	1505.0 Performance requirements 1507.0 Prescriptive requirements
2306.0 Light-transmitting plastic roof panels	2404.0 General requirements for light transmitting plastics
-	1503.0 Construction documents
-	1504.0 Weather Protection
-	1509.0 Roof insulation
-	1510.0 Roof structures
-	1511.0 Rooftop heliports
-	1512.0 Reroofing
Article 24 - MASONRY FIREPLACES	2114.0 FIREPLACES AND CHIMNEYS
2400.0 General	2114.1 Scope
2401.0 Plans and specifications	2103.0 Construction documents
2402.0 Construction requirements	2114.0 Fireplaces and chimneys
Article 25 - MECHANICAL EQUIPMENT AND SYSTEMS	Chapter 28 - MECHANICAL SYSTEMS
2500.0 General	2801.0 General
2501.0 Plans, specifications and permits	2802.0 Construction documents
2502.0 Inspections and tests	2804.0 Inspections and tests
2503.0 Existing buildings	2802.0 Construction documents 2811.0 Existing buildings
2504.0 Fees	2803.0 Fees
2505.0 Drying rooms	2806.0 Drying rooms
2506.0 Waste and linen handling systems	2807.0 Waste and linen handling systems
2507.0 Refuse vaults	2808.0 Refuse vaults
2508.0 Dust, stock and refuse conveyor systems	2808.0 Refuse vaults
2509.0 Medical gases	2809.0 Medical gases
2510.0 Oxygen systems	2810.0 Oxygen systems
2511.0 Boiler rooms	302.1.1 Specific occupancy areas

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS

THE MASSACHUSETTS STATE BUILDING CODE

<i>Fifth Edition</i> Table of Contents	<i>Sixth Edition</i> Article/Chapter Cross Reference
2512.0 Solid fuel burning heating appliances	2813.0 Solid fuel burning heating appliances
	2805.0 Plenums
	2812.0 Power vents
Article 26 - ELEVATOR, DUMBWAITER AND CONVEYOR EQUIPMENT, INSTALLATION AND MAINTENANCE	Chapter 30 - ELEVATOR AND CONVEYOR SYSTEMS <i>(This chapter is entirely unique to Massachusetts See Chapter 30 for information regarding 524 CMR)</i>
2600.0 General	
2601.0 Plans, specifications and permits	
2602.0 Tests and inspections	
2603.0 Certificate of compliance	
2604.0 Maintenance and accidents	
2605.0 Existing installations	
2606.0 Alterations	
2608.0 Hoistway enclosures and venting	
2609.0 Elevator and dumbwaiter machinery and equipment	
2610.0 Machine rooms and related construction for passenger and freight elevators and dumbwaiters	
2611.0 Elevator opening protectives	
2612.0 Elevator car emergency signals and signs	
2613.0 Manlifts (prohibited)	
2614.0 Industrial lifts and loading ramps	
2615.0 Automotive lifts	
2616.0 Conveyors	
2617.0 Escalators	
Article 27 - ELECTRICAL WIRING AND EQUIPMENT	Chapter 27 - ELECTRICAL WIRING, EQUIPMENT, AND SYSTEMS <i>(This chapter is entirely unique to Massachusetts)</i>
Article 28 - PLUMBING AND GAS FITTING	Chapter 29 - PLUMBING SYSTEMS <i>(This chapter is entirely unique to Massachusetts)</i>
Article 29 - SIGNS	CHAPTER 31 -SPECIAL CONSTRUCTION
2900.0 General	3102.1 General
2901.0 Plans, specifications and permits	3102.4 Permits and construction documents
2902.0 Exemptions	3102.4.3 Permit exemptions
2903.0 Unsafe and unlawful signs	3102.5.1 Removal
2904.0 Existing signs	3102.4.2 Alterations
2905.0 Maintenance and inspection	3102.5 Maintenance and Inspections
2906.0 Bonds and liability insurance	3102.0 Signs
2907.0 General requirements for all signs	3102.0 Signs
2908.0 Ground signs	3102.7 Ground signs
2909.0 Roof signs	3102.8 Roof signs
2910.0 Wall signs	3102.9 Wall signs
2911.0 Projecting signs	3102.10 Projecting signs
2912.0 Marquee signs	3102.11 Marquee signs
2913.0 Miscellaneous and temporary signs	3102.12 Temporary signs
2914.0 Illuminated signs	3102.13 Illuminated signs

<i>Fifth Edition</i> Table of Contents	<i>Sixth Edition</i> Article/Chapter Cross Reference
2915.0 Portable signs	3102.14 Portable signs
Article 30 - PRECAUTIONS DURING BUILDING OPERATIONS	Chapter 33 - SITE WORK, DEMOLITION AND CONSTRUCTION
3000.0 General	3301.0 General
3001.0 Plans, specification and special permits	3302.0 Construction documents and special permits
3002.0 Tests	3303.0 Tests
3003.0 Inspection	3301.0 General
3004.0 Maintenance	3306.0 Maintenance
3005.0 Existing buildings	3309.0 Existing buildings
3006.0 Protection of public and workmen	3304.0 Protection of public
3007.0 Demolition and excavation	3310.0 Demolition and excavation
3008.0 Regulations of lots	
3009.0 Retaining walls and partition fences	3311.0 Retaining walls and partition fences
3010.0 Storage of materials	3312.0 Storage of materials and construction equipment
3011.0 Removal of waste material	3313.0 Removal of waste material
3012.0 Protection of adjoining property	3308.0 Protection of adjoining property
3013.0 Protection of floor and wall openings	3304.0 Protection of public
3014.0 Scaffolds	3312.0 Storage of materials and construction equipment
3015.0 Hoists	3312.0 Storage of materials and construction equipment
3016.0 Stairways and ladders	3314.0 Stairways
3017.0 Lighting	3315.0 Lighting
3018.0 Fire hazards	3305.0 Fire hazards
3019.0 Health hazards	3307.0 Health hazards
3020.0 Welding safety precautions	3304.0 Protection of materials and construction equipment
3021.0 Sanitation	
3022.0 Disputes	
Article 31 - ENERGY CONSERVATION	Chapter 13 - ENERGY CONSERVATION <i>(This chapter is entirely unique to Massachusetts)</i>
3100.0 General	1301.0 General
3101.0 Administrative	1301.1 Administrative
3102.0 Existing buildings	1302.0 Existing buildings
3103.0 Plans and specifications	1303.0 Plans and specifications
3104.0 Materials and equipment	1304.0 Materials and equipment
3105.0 Design conditions	1305.0 Design conditions
3106.0 Building insulation specifications	1306.0 Building insulation specifications
3107.0 Air infiltration & moisture control	1307.0 Air infiltration & moisture control
3108.0 Component design	1308.0 Component design
3109.0 Exterior envelope requirements for low-rise residential buildings	1309.0 Exterior envelope requirements for low-rise residential buildings
3110.0 Heating, ventilating, & air-conditioning (HVAC) systems	1310.0 Heating, ventilating, & air-conditioning (HVAC) systems
3111.0 Heating, ventilating & air-conditioning equipment	1311.0 Heating, ventilating & air-conditioning equipment

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS

THE MASSACHUSETTS STATE BUILDING CODE

<i>Fifth Edition</i> Table of Contents	<i>Sixth Edition</i> Article/Chapter Cross Reference
3112.0 Electric power distribution	1312.0 Electric power distribution
3013.0 Lighting systems	1313.0 Lighting systems
014.0 Building envelope requirements for commercial and high-rise residential buildings	314.0 Building envelope requirements for commercial and high-rise residential buildings
3115.0 Building design by system analysis	1315.0 Building design by system analysis
116.0 Buildings utilizing solar, geothermal, wind or other non-depleatable energy sources as alternative design	316.0 Buildings utilizing solar, geothermal, wind or other non-depletable energy sources as alternative design
Article 32 - REPAIR, ALTERATION, ADDITION AND CHANGE OF USE OF EXISTING BUILDINGS	Chapter 34 - REPAIR, ALTERATION, ADDITION AND CHANGE OF USE OF EXISTING BUILDINGS <i>(This chapter is entirely unique to Massachusetts)</i>
3200.0 Scope	3400.1 Scope
3201.0 Definitions	3401.0 Definitions
3202.0 Implementation	3402.0 Implementation
203.0 Requirements for continuation of the same use group of equal or lesser hazard index	404.0 Requirements for continuation of the same use group or change to a use group resulting in a change in hazard index of one or less
204.0 Requirements for change in use group to one hazard index greater	404.0 Requirements for continuation of the same use group or change to a use group resulting in a change in hazard index of one or less
205.0 Requirements for change in use group to two or more hazard indices greater	405.0 Requirement for change in use group to two of more hazard indices greater
3206.0 Compliance alternatives	3406.0 Compliance alternatives
3207.0 Energy provisions for existing buildings	3407.0 Energy provisions for existing buildings
208.0 Other code sections pertaining to repair, alteration, or change of use of existing buildings	408.0 Structural requirements for existing buildings
Article 33 - MANUFACTURED BUILDINGS, BUILDING COMPONENTS AND MOBILE HOMES	Chapter 35 - MANUFACTURED BUILDINGS, MANUFACTURED BUILDING COMPONENTS, AND MANUFACTURED HOUSING <i>(This chapter is entirely unique to Massachusetts)</i>
3300.0 General	3501.0 General 3502.0 Definitions
3301.0 Approval	3503.0 Construction documents 3504.0 Approval
3302.0 Certification	3505.0 Certification
3303.0 Reciprocity	3506.0 Reciprocity
3304.0 Assurance inspection	3507.0 Assurance inspection
3305.0 Responsibility of the building official	508.0 Responsibility of the local enforcement agencies
3306.0 Suspension and revocation of certification	509.0 Suspension and revocation of certification
Article 34 - ONE AND TWO FAMILY DWELLINGS	Chapter 36 - ONE AND TWO FAMILY DWELLINGS <i>(Portions of this chapter are entirely unique to Massachusetts)</i>
3400.0 General	3601.1 General administration
3401.0 Building Planning	3603.0 Building Planning
3402.0 Foundations	3604.0 Foundations
3403.0 Wall Construction	3606.0 Wall Construction

<i>Fifth Edition</i> Table of Contents	<i>Sixth Edition</i> Article/Chapter Cross Reference
3404.0 Wall Covering	3607.0 Wall Covering
3405.0 Floors	3605.0 Floors
3406.0 Roof-ceiling construction	3608.0 Roof-ceiling construction
3407.0 Roof coverings	3609.0 Roof coverings
3408.0 Chimneys, fireplaces and connector plates	3610.0 Chimneys and fireplaces
3409.0 Solid fuel burning appliances	3610.0 Chimneys and fireplaces
3410.0 Mechanical equipment, general	Sections 3611, 3612 and 3613
3411.0 Combustion air	3620.0 Combustion air
3412.0 Warm-air furnace	3614.0 Heating and cooling equipment
3413.0 Vented decorative appliances, floor furnaces, vented wall furnaces and vented room heaters	3616.0 Vented floor, wall and room heaters
3414.0 Venting of appliances	3616.0 Vented floor, wall and room heaters
3415.0 Ducts	3619.0 Duct systems
3416.0 Comfort cooling	3614.0 Heating and cooling equipment
3417.0 Absorption units and absorption systems for comfort cooling and comfort heating	3614.0 Heating and cooling equipment
3418.0 Fuel supply systems	3614.0 Heating and cooling equipment
3419.0 Energy conservation by component design	3603.21 Energy conservation requirements
3420.0 Building insulation	3603.19 Insulation/flame spread, smoke developed/critical radiant flux, and; 3603.21 Energy conservation requirements
3421.0 Ventilation	3617.0 Ventilation air supply
3422.0 Vapor barriers	3603.21 Energy conservation requirements
3423.0 U-values of building components	3603.21 Energy conservation requirements
3424.0 Air leakage for all buildings	3603.21 Energy conservation requirements
3425.0 System design heating/cooling capacity	3614.0 Heating and cooling equipment/3603.21
3426.0 Controls	3603.21 Energy conservation requirements
3427.0 Balancing	3603.21 Energy conservation requirements
3428.0 Duct insulation	3619.0 Duct systems/3603.21 Energy conservation requirements
3429.0 Pipe insulation	3603.21 Energy conservation requirements
Reference Standards	Appendix A
Index to Tables and Figures	
General Index	General Index
APPENDICES	APPENDICES
A Reference Standards	A Reference Standards
B Unit dead loads for design purposes	G Unit dead loads for design purposes
C Recommended fastening schedule	C Recommended fastening schedule
Guidance for selection of foundation material classes in table 1804.3	Guidance for selection of foundation material classes in table 1804.3
Procedure for accounting for series and parallel heat flow paths	Procedure for accounting for series and parallel heat flow paths
Reference data for repair, addition, and change of use of existing buildings	Reference data for repair, addition, and change of use of existing buildings
Specialized Massachusetts rules and regulations other than state building code commission	A Appendix A
H Historic structures	H Historic structures
-	Sample building permit application forms state

780 CMR: STATE BOARD OF BUILDING REGULATIONS AND STANDARDS

THE MASSACHUSETTS STATE BUILDING CODE

<i>Fifth Edition</i> Table of Contents	<i>Sixth Edition</i> Article/Chapter Cross Reference
-	building code appeals application forms official interpretations
	Energy conservation for low-rise residential building
	C Floor protector thermal conductivity calculations L Schedule of Fees
SPECIAL REGULATIONS	SPECIAL REGULATIONS
80 CMR-1 Concrete Testing Laboratories Licensing	80 CMR R1 Concrete Testing Laboratories Licensing
80 CMR-2 Concrete Testing Personnel Licensing	80 CMR R2 Concrete Testing Personnel Licensing
80 CMR-3 Manufactured Buildings, Building Components and Manufactured Homes	80 CMR R3 Manufactured Buildings, Building Components and Manufactured Homes
780 CMR-4 Use of Native Lumber	80 CMR R4 Use of Native Lumber
780 CMR-5 Construction Supervisors Licensing	780 CMR R5 Construction Supervisors Licensing
80 CMR-6 Home Improvement Contractor Registration	80 CMR R6 Home Improvement Contractor Registration
80 CMR-7 Certification of Building Code Enforcement Officials	80 CMR R7 Certification of Building Code Enforcement Officials

NON-TEXT PAGE