

CHAPTER 34

EXISTING STRUCTURES

(780 CMR 34 is entirely unique to Massachusetts)

780 CMR 3400.0 SCOPE

3400.1 General: The provisions of 780 CMR 34 are intended to maintain or increase public safety, health, and general welfare in existing buildings by permitting repair, alteration, addition, and/or change of use without requiring full compliance with the code for new construction except where otherwise specified in 780 CMR 34.

3400.2 Compliance: Repairs, alterations, additions, and changes of use shall conform to the requirements of 780 CMR 34. Where compliance with the provisions of this code for new construction is required by 780 CMR 34, and where such compliance is impractical because of construction difficulties or regulatory conflicts, *compliance alternatives* as described in 780 CMR 3406.0 may be accepted by the *building official*.

Note: Specialized codes, rules, regulations, and laws pertaining to repair, alteration, addition, or change of use of existing buildings promulgated by various authorized agencies may impact upon the provisions of 780 CMR 34. Specialized state codes, rules, regulations, and laws include, but are not limited to those listed in *Appendix A*.

3400.3 Applicability: The provisions of 780 CMR 34 apply to repair, alteration addition or change in use to existing buildings which qualify to use 780 CMR 34 (see 780 CMR 3400.3.1), based on the proposed continuation of, or change in use group, as follows:

1. Continuation of the same *use group*, or a change in *use group* which results in a change in *hazard index* of one or less as determined by 780 CMR 3403 shall comply with 780 CMR 3404.0.
2. Change in use group to a use group with *hazard index* of two or more greater than the *hazard index* of the existing use shall comply with the requirements of 780 CMR 3405.0 and the code for new construction.
3. **Part change in use (Mixed Use):** Portions of the building is changed to a new *use group*, shall be separated from the remainder of the building with *fire separation assemblies* complying with 780 CMR 313, or with approved *compliance alternatives*. The portion of the building changed shall be made to conform with the applicable provisions of 780 CMR 34.
4. **Additions:** Additions to *existing buildings* shall comply with all code requirements for new

construction, except as otherwise provided in 780 CMR 34. The combined height and area of the *existing building* and the addition shall not exceed that allowed by 780 CMR 503.0 and Table 503 as modified by 780 CMR 504 and 506. Where a *fire wall* complying with 780 CMR 707.0 and 708.0 is provided, the addition shall be considered as a separate building.

5. **Ordinary repairs:** *Ordinary repairs* conforming to 780 CMR 110.3 (4), 780 CMR 2 and 780 CMR 902 may be performed without a building permit.

6. **Assembly use groups:** A change from any other use group to an assembly use group (A) shall comply with the requirements of the code for new construction, except that **structural earthquake** requirements need only conform to 780 CMR 3408 and energy conservation requirements need only comply with 780 CMR 3407..

7. **Institutional use groups:** A change from any other use group to an institutional use group (I) shall comply with the requirements of the code for new construction, except that **structural earthquake** requirements need only conform to 780 CMR 3408 and energy conservation requirements need only comply with 780 CMR 3407..

8. **Residential use groups:** A change from any other use group to a residential use group (R) shall comply with the requirements of the code for new construction, except that **structural earthquake** requirements need only conform to 780 CMR 3408 and energy conservation requirements need only comply with 780 CMR 3407..

9. **Historic buildings:** Buildings which qualify as *totally or partially preserved historic buildings* in accordance with 780 CMR 3409 shall meet the provisions of 780 CMR 3409.

10. **Structural requirements:** Structural requirements for additions, and for *existing buildings* subject to repair, alteration, and/or change of use, shall be in accordance with 780 CMR 3408.

~~**Exceptions: House Museums and Preserved Historic Buildings.**~~

11. **Energy conservation requirements:** Energy conservation requirements for additions, and for *existing buildings* subject to repair, alteration, and/or change of use, shall be in accordance with 780 CMR 3407.

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Exceptions: *House Museums and Preserved Historic Buildings.*

3400.3.1 Buildings which qualify: The provisions of 780 CMR 34 shall apply to *existing buildings* which have been legally occupied and/or used for a period of at least five years. Any building for which there exists an outstanding notice of violation or other order of the building official shall not qualify to use 780 CMR 34 unless such proposed work includes the abatement of all outstanding violations and

compliance with all outstanding orders of the building official. Buildings which do not qualify as *existing buildings* for the purposes of 780 CMR 34 shall comply fully with the applicable provisions of this code for new construction.

Exceptions:

(1) For other than structural work, *Existing buildings* or portions thereof which are changed in use from any other use group to day care centers (I-2 or E) shall not qualify as *existing buildings* for the purposes of 780 CMR 34, but shall comply with the requirements of 780 CMR 4, as applicable.

(2) For other than structural work, *Existing buildings* or portions thereof, which are changed in use from any use to a Group Residence, Limited Group Residence or Group Dwelling Unit shall not qualify as *existing buildings* for the purposes of 780 CMR 34, but shall comply with the provisions of 780 CMR 4, as applicable.

3400.4 Special Provisions for Means of Egress:

3400.4.1 Existing Non Conforming Means of Egress: (Move this section to 3400.5 and make 3400.4 fire escapes only?) The following conditions, when observed by the *building official*, shall be cited, in writing as a violation. Said citation shall order the abatement of the non conformance and shall include such a time element as the building official deems necessary for the protection of the occupants thereof, or as otherwise provided for by statute.

1. Less than the number of *means of egress* serving every space and/or story, required by 780 CMR 1010.0 and Table 1010.2, or 780 CMR 36 for one and two family dwellings.
2. Any required *means of egress* component which is not of sufficient width to comply with 780 CMR 1009, or is not so arranged as to provide safe and adequate *means of egress*, including exit signage and emergency lighting.

3400.4.2 Fire Escapes: Fire escapes shall be permitted only as provided for in 780 CMR 3400.4.2

3400.4.2.1 New buildings. Fire escapes shall not constitute any part of the required means of egress in new buildings.

3400.4.2.2 Existing fire escapes. Existing fire escapes shall be continued to be accepted as a component in the means of egress in existing buildings only.

3400.4.2.3 New fire escapes. New fire escapes for existing buildings shall be permitted only where exterior stairs cannot

be utilized due to lot lines limiting stair size or due to the sidewalks, alleys or roads at grade level. New fire escapes shall not incorporate ladders or access by windows.

3400.4.2.4 Limitations. Fire escapes shall comply with this section and shall not constitute more than 50 percent of the required number of exits nor more than 50 percent of the required exit capacity.

3400.4.2.5 Location. Where located on the front of the building and where projecting beyond the building line, the lowest landing shall not be less than 7 feet (2134 mm) or more than 12 feet (3658 mm) above grade, and shall be equipped with a counterbalanced stairway to the street. In alleyways and thoroughfares less than 30 feet (9144 mm) wide, the clearance under the lowest landing shall not be less than 12 feet (3658 mm).

3400.4.2.6 Construction. The fire escape shall be designed to support a live load of 100 pounds per square foot (4788 Pa) and shall be constructed of steel or other approved noncombustible materials. Fire escapes constructed of wood not less than nominal 2 inches (51 mm) thick are permitted on buildings of Type 5 construction. Walkways and railings located over or supported by combustible roofs in buildings of Type 3 and 4 construction are permitted to be of wood not less than nominal 2 inches (51 mm) thick.

3400.4.2.7 Dimensions. Stairs shall be at least 22 inches (559 mm) wide with risers not more than, and treads not less than, 8 inches (203 mm) and landings at the foot of stairs not less than 40 inches (1016 mm) wide by 36 inches (914 mm) long, located not more than 8 inches (203 mm) below the door.

3400.4.2.8 Opening protectives. Doors and windows along the fire escape shall be protected with 3/4-hour opening protectives.

3400.4.2.9 Testing and Certification: All exterior bridges, steel or wooden stairways, fire escapes and egress balconies shall be examined and/or tested, and certified for structural adequacy and safety every five years, by a Massachusetts registered professional engineer, or others qualified and acceptable to the building official; said engineer or others shall then submit an affidavit to the building official.

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3400.5 Hazardous Means of Egress:

3400.5.1 Exit Order/Hazardous Means of Egress: In any *existing building* or structure not provided with exit facilities as herein prescribed for new buildings and in which the exits are deemed hazardous or dangerous to life and limb, the *building official* shall declare such building dangerous and unsafe in accordance with the provisions of 780 CMR 121.0.

3400.5.2 Appeal from exit order: Any person served with any order pursuant to 780 CMR 3400.5 shall have the remedy prescribed in 780 CMR 121.

3400.6 Unsafe Lighting and/or Unsafe Ventilation: In any *existing building*, or portion thereof, in which (a) the light or ventilation do not meet the applicable provisions of 780 CMR 12.0 and (b) which, in the opinion of the *building official*, are dangerous, or hazardous, to the health and safety of the occupants, the *building official* shall order the abatement of such conditions to render the building or structure occupiable or habitable as applicable for the posted use and occupant load.

In enforcing the provisions of 780 CMR 3400.6 the *building official* may require or accept engineering or other evaluations of the lighting and/or ventilation systems in order to evaluate possible dangerous or hazardous conditions and acceptable solutions.

Where full compliance with 780 CMR for new construction is not practical for structural and/or other technical reasons, the *building official* may accept compliance alternatives, or engineering or other evaluations which adequately address the building or structure livability for the posted use and occupant load.

3400.7 Change in Commodity or Storage Arrangement: *Existing buildings*, or portions thereof, in which there is a change in occupancy classification, commodity classification, or storage arrangement, as defined by NFPA 13, requires an evaluation of the existing sprinkler system for compliance with NFPA 13 and NFPA 25.

In enforcing the provisions of 780 CMR 3400.7 the *building official* may require or accept engineering or other evaluations of the fire protection systems in order to identify possible non-compliant conditions and acceptable solutions. If the evaluation determines that alterations are necessary, the *building official* shall order the abatement of such conditions.

3401.1 General: Definitions shall, for the purposes of 780 CMR 3401.0, have the meaning shown herein:

Building System: Any mechanical, structural, egress, electrical, plumbing, building enclosure and/or fire protection system, or fire resistive construction system, or portion thereof.

Building System Component: A part or portion of a *building system*.

Compliance Alternative: An alternative life-safety construction feature which meets or exceeds the requirements or intent of a specific provision of 780 CMR. The *Building Official* is authorized to approve or disapprove *compliance alternatives*. *Compliance alternatives* are only permitted for *existing buildings*.

Existing building or structure: Any building or structure qualifying under 780 CMR 3400.3.1.

Hazard Index: A numerical value, between 1 and 8, which is assigned to a specific *Use Group* in order to determine which of the provisions of 780 CMR 34 apply to the proposed work on the *existing building*. The *Hazard Index* is a relative scale used only to determine applicable provisions of 780 CMR 34. *Hazard indices* are listed in Table 3403 and *Appendix F*.

Historic buildings: (a) Any building or structure individually listed on the National Register of Historic Places or (b) any building or structure evaluated by MHC to be a contributing building within a National Register or State Register District. (c) any building or structure which has been certified by the Massachusetts Historical Commission to meet eligibility requirements for individual listing on the National Register of

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Historic Places. Historic building shall be further defined as totally or partially preserved buildings. All entries into the house museum list shall be certified by the Massachusetts Historical Commission. The Board of Building Regulations and Standards shall ratify all buildings or structures certified by the Massachusetts Historical Commission to qualify for *house museum* listing (see Appendix H).

Partially preserved buildings: (a) Any building or structure individually listed on the National Register of Historic Places or (b) any building or structure certified as a historic building by the Massachusetts Historical Commission and not designated a *house museum* in Appendix H.

Restoration: Restoration is the process of accurately reconstructing or repairing the forms and details of a building or structure or portion thereof as it appeared at a particular period or periods of time by means of removal of later work/or the replacement of missing original work

House museums: A *house museum* is an *historic building* or structure. The principal use of such a building or structure must be as an exhibit of the building or the structure itself which is open to the public not less than 12 days per year, although additional uses, original and/or ancillary to the principal use shall be permitted within the same building up to maximum of 40% of the gross floor area. *House museums* shall be those listed in Appendix H. All entries into the *house museum* list shall be certified by the Massachusetts Historical Commission. The Board of Building Regulations and Standards shall ratify all buildings or structures certified by the Massachusetts Historical Commission to qualify for *totally preserved* listing (See Appendix H).

~~*Seismic Hazard Category:* A numerical value, between 1 and 3, which is based on a proposed change in use, change in occupancy and cost of alterations in order to determine which of the provisions of 780 CMR 3408 apply to the proposed work on the existing building. The *Seismic Hazard Category* is a relative scale used only to determine applicable provisions of 780 CMR 34. *Seismic Hazard Categories* are listed in Table 3408.1~~

Substantial Renovation, or Substantial Alteration: The terms *substantial renovation* and *substantial alteration* are defined herein for the specific purpose of determining whether fire protective systems are required in existing buildings, when such buildings undergo renovations or alterations,

change in use or occupancy or additions. As used in 780 CMR 34, *substantial renovation* or *substantial alteration* shall have the following meanings; *Substantial renovation* and *substantial alteration* is work which is major in scope and expenditure when compared to the work and expenditure required for the installation of a fire protection system, when such system is required by 780 CMR 9 for a particular *use group*. Work shall not be considered a substantial alteration if the cost of installing the fire protection system exceeds 15% of the total renovation cost. The *building official* shall make such determination and may request the owner or applicant to provide such supporting information as is necessary to make such determination

780 CMR 3402.0 IMPLEMENTATION

3402.1 Building Permit Application Requirements for Existing Buildings: A building permit shall be required for any work regulated by 780 CMR 34.

Exception: *Ordinary repairs* may be performed without a building permit.

3402.1.1 Investigation and evaluation: For any proposed work regulated by 780 CMR 34, which is subject to 780 CMR 116, as a condition of the issuance of a building permit the building owner shall cause the *existing building* (or portion thereof) to be investigated and evaluated in accordance with the provisions of 780 CMR 34 (see Appendix F).

The investigation and evaluation shall be in sufficient detail to ascertain the effects of the proposed work (if any) on the structural, egress, fire protection, energy conservation systems and light and ventilation systems of the space under consideration and, where necessary, the entire building or structure.

3402.1.2 Submittal: The results of the investigation and evaluation, along with any proposed *compliance alternatives*, shall be submitted to the *building official* in written report form.

3402.1.3 Non Conformities and Compliance Alternatives: The application for a building permit shall identify all items of non or partial compliance with the requirements of 780 CMR 34, and *compliance alternatives*, if any are proposed, for approval by the building official. The *building official* shall respond to the acceptability of any proposed *compliance alternatives* within 30 days of the filing of the building permit application. Where proposed *compliance alternatives* are, in the opinion of

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the *building official*, unacceptable, or where issues of non-compliance remain, the permit

3402.1.5 Documentation of compliance alternatives: Whenever action is taken on any building permit application to repair, make alterations or additions, or change the use or occupancy of an existing building, and when said application proposes the use of *compliance alternatives*, the building official shall ensure that one copy of the proposed *compliance alternatives*, including applicable plans, test data, or other data for evaluation, be submitted to the BBRs, together with a copy of the building permit application and the *building official's* decision regarding the proposed *compliance alternatives*.

780 CMR 3403.0 HAZARD INDEX

3403.1 Hazard Index: In the implementation of the provisions of 780 CMR 34, the *hazard index* associated with a particular use group shall be as identified in table 3403 and Appendix F. In order to determine the applicable provisions of 780 CMR 34 the *hazard index* of the existing *use group* shall be subtracted from the *hazard index* of the proposed use. The algebraic difference shall be used to determine the applicable provisions of 780 CMR 34.

**Table 3403
HAZARD INDEX**

USE GROUP ⁽¹⁾	DESCRIPTION	HAZARD INDEX NO. ⁽²⁾
A-1	Theater with stage	6
A-2	Night Club	7
A-3	Theater without stage	5
A-2	Restaurant	5
A-3	Lecture halls, recreations centers, museums, libraries, churches, similar assembly buildings	4
A-4	Indoor arenas, skating rinks, swimming pools, tennis courts	4
B	Business	2
E	Educational (K through 12)	4
F	Factory and industrial	3
H	High hazard	8
I-1, I-3	Institutional restrained	5
I-2	Institutional incapacitated	4
M	Mercantile	3
R-1	Hotels, motels	4
R-2	Multi-family (4 or more dwellings)	4
R-2	Multi-family (3 dwellings)	2
R-3, R-4	Multiple single-family, One and two family	2
S-1	Storage, moderate hazard	3

applicant shall have the remedies prescribed by 780 CMR 122.0.

S-2	Storage, low hazard	1
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Notes to Table 3403:

- (1) See 780 CMR 3 and 4 and Appendix F.
- (2) Hazard Index Modifier for selected construction types as follows:
 - (a) When a building is classified in construction Type 1A, 1B, 2A, or 2B, subtract one from the *Hazard index* shown in Table 3403 for the applicable proposed new use group only.
 - (b) When a building is classified in construction Type 2C or 5B, add one to the *Hazard index* shown in Table 3403 for the applicable proposed new use group only. Exception: *Partially Preserved Historic Buildings* (780 CMR 3409).

780 CMR 3404.0 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

3404.1 General: The requirements of 780 CMR 3404.0 and applicable provisions of 780 CMR 3408 shall apply to all repairs and alterations to *existing buildings* having a continuation of the same use group or to *existing buildings* changed in use group of one or less *hazard index* (Table 3403).

3404.2 Requirements exceeding those required for new construction: *Existing buildings* which, in part or as a whole, exceed the requirements of 780 CMR may be altered, in the course of compliance with 780 CMR 34, so as to reduce or remove, in part or completely, features not required by this code for new construction.

Exception: Pursuant to M.G.L. c. 148, § 27A, fire protection devices, shall not be disconnected (temporarily or permanently), obstructed, removed or shut off or destroyed without first procuring a written permit from the head of the local fire department.

3404.3 New building systems: Any new *building system* or portion thereof shall conform to 780 CMR for new construction to the fullest extent practical. However, individual *components* of an existing *building system* may be repaired or replaced without requiring that system to comply fully with the code for new construction unless specifically required by 780 CMR 3408

3404.4 Alterations and repairs: Alterations or repairs to *existing buildings* which maintain or improve the performance of the building may be made with the same or like materials, unless required otherwise by 780 CMR 3408. Alterations

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or repairs which have the effect of replacing a *building system* as a whole shall comply with 780 CMR 3404.3

3404.5 Number of Means of Egress: Every floor or story of any existing building shall provide at least the number of *means of egress* as required by 780 CMR 3400.4 and which are acceptable to the *building official*.

3404.6 Capacity of exits: All required *means of egress* shall comply with 780 CMR 1009.0. Existing *means of egress* may be used to contribute to the total egress capacity requirement based on the unit egress widths of 780 CMR 1009.0.

3404.7 Exit signs and lights: Exit signs and lighting shall be provided in accordance with 780 CMR 1023.0.

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3404.8 Means of egress lighting: *Means of egress* lighting shall be provided in accordance with 780 CMR 1024.0.

3404.9 Height and Area limitations: The height and area requirements of 780 CMR 5 shall apply to *existing buildings* when such *existing buildings* are modified by addition and/or change in use. Modifications to the height and area requirements as provided in 780 CMR 504.0 and 506.0 are permitted.

3404.10 Existing Fire and party walls: No further compliance is required with 780 CMR 707.0. The height above the roof of existing fire, party and exterior walls need not comply with 780 CMR 3404.0

3404.11 Fire Protection Systems: Fire Protection Systems: Design, installation and maintenance of fire protection systems shall be provided in accordance with 780 CMR 3404.3 and 780 CMR 3404.12 as applicable.

3404.12 Fire protection systems are required for the following cases:

1. Additions where required by 780 CMR 9.0 for the specific *use group*.
2. For *existing buildings modified by addition and/or change in use* where required by 780 CMR 504 or 506 to satisfy height and area requirements.
3. *Existing buildings*, or portions thereof which are *substantially altered* or *substantially renovated*, and where otherwise required by 780 CMR 9.0 for the specific *use group*.

Note: Notwithstanding the provisions of 780 CMR 3404.12, automatic Fire Suppression systems are required in municipalities which have adopted the provisions of MGL c148 § 26G, H or I (See *Official Interpretation* Number 45-96 listed in *Appendix B*).

3404.13 Enclosure of stairways: Open stairways are prohibited except in one- and two-family dwellings or unless otherwise permitted by 780 CMR 10. There shall be no minimum fire resistance rating required for an existing enclosure of a stairway. Partitions or other new construction which is added in order to fully and solidly enclose a stairway shall provide a minimum fire resistance rating of one hour. All doors in the enclosure shall be self-closing and tight-fitting with approved hardware. All doors in those portions of the stairway which are fire resistance rated shall comply to the applicable provisions of 780 CMR 9.

3404.14 Assembly Use Groups: Notwithstanding the provisions of 780 CMR 3404, Assembly Use

Groups shall comply with the provisions of 780 CMR 3400.3, item 6.

3404.15 Institutional Use Groups: Notwithstanding the provisions of 780 CMR 3404, Institutional Use Groups shall comply with the provisions of 780 CMR 3400.3, item 7.

3404.16 Residential Use Groups: Notwithstanding the provisions of 780 CMR 3404, Residential Use Groups shall comply with the provisions of 780 CMR 3400.3, item 8.

3404.17 Fire hazard to adjacent buildings: Any proposed change in the use or occupancy of an existing building which has the effect of increasing the fire hazard to adjacent buildings shall comply with the requirements of Table 705.2 for exterior wall fire resistance rating requirements, or with approved *compliance alternatives*.

3404.18 Accessibility for Persons with Disabilities: Accessibility requirements shall be in accordance with 521 CMR as listed in *Appendix A*.

3404.19 Energy Conservation: Energy conservation requirements shall be in accordance with 780 CMR 3407.0.

780 CMR 3405.0 REQUIREMENT FOR CHANGE IN USE GROUP TO TWO OR MORE HAZARD INDICES GREATER

3405.1 General: When the existing use group is changed to a new use group of two or more hazard indices higher (as provided in Table 3403), the existing building shall conform to the requirements of the code for new construction, except as provided in 780 CMR 3408 or as otherwise allowed in 780 CMR 3407.0.

3405.2 Accessibility for Persons with Disabilities: Accessibility requirements shall be in accordance with 521 CMR as listed in *Appendix A*.

780 CMR 3406.0 COMPLIANCE ALTERNATIVES

3406.1 General: Except for structural work, where ~~Where~~ compliance with the provisions of the code for new construction, required by 780 CMR 34, is impractical because of construction difficulties or regulatory conflicts, *compliance alternatives* may be accepted by the building official.

Examples of *compliance alternatives* which have been used are provided in *Appendix F*. The building official may accept these *compliance alternatives* or others proposed.

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3406.2 Documentation: In accordance with 780 CMR 3402.1.5, the building official shall ensure that the BBRS is provided with information regarding *compliance alternatives* accepted or rejected by the *building official*.

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**780 CMR 3407.0 ENERGY PROVISIONS
FOR EXISTING BUILDINGS**

Implementation date: Note that commencing January 1, 1999, replacement windows for existing low-rise residential buildings are required to have a maximum thermal transmittance of 0.44 and such windows must be NFRC listed/labeled.

Exception 1: Criteria for NFRC listing/labeling and maximum U-0.44 are not required if the existing window (s) are true divided light (i.e. – single thickness multi-pane sashes with structural muntin bars) and being replaced with “like kind” units. This Exception additionally requires that a storm window be installed over the replacement window. The storm window may be installed internally, externally, or integrated with the primary window.

Exception 2: Criteria for NFRC listing/labeling and maximum U-0.44 are not required for basement windows with a unit height up to 24 inches, whether or not the basement is a conditioned space.

3407.1 General: 780 CMR 3407.0 establishes the energy provisions for *existing buildings* governed by 780 CMR 3404.0 or 780 CMR 3405.0.

3407.2 Applicability: Alterations to any building component affecting the energy conservation performance of an existing building shall comply with the applicable requirements of:

- (a) 780 CMR, Table 3407 (COMPONENT VALUES FOR ALTERED ELEMENTS) and all applicable subsections of 780 CMR 13.0, or:
- (b) 780 CMR 1304.2 for thermal envelope requirements and all other applicable requirements of 780 CMR 13.0, or:
- (c) 780 CMR 1304.5 for thermal envelope requirements and all other applicable requirements of 780 CMR 13.0, or:
- (d) 780 CMR 1309, or:
- (e) 780 CMR Appendix J, as applicable.

3407.3 Exempt buildings: Refer to 780 CMR 1301.4 for thermally exempt buildings and 780 CMR 1308.1 for lighting exemptions.

3407.4 Compliance exceptions

3407.4.1 Fenestration: When alterations to a wall assembly include only altering the fenestration component, the areas of fenestration may be decreased or replaced with an opaque wall element made to comply with the thermal transmittance value of the existing wall.

3407.4.2 Ordinary repairs: *Ordinary repairs* need not comply with the energy provisions.

Note that in the repair of broken windows, broken doors or broken skylights, like-kind

replacement shall be allowed, but the complete replacement of windows, doors or skylights in an *existing building* shall require compliance with the applicable requirements of 780 CMR 3407.2. Any window replacement that includes new jambs or new jamb liners does not qualify as an “ordinary repair,” and such replacement is subject to the energy performance criteria of 780 CMR, 3407.2.

3407.4.3 Roofs: Compliance of the roof/ceiling assembly is not required unless the existing roofing material is stripped off the roof deck. However, if a structural analysis by a registered professional engineer shows that the roof will not support the additional live loads imposed by compliance of the roof/ceiling assembly, or, if such analysis shows that addition of the required amount of insulation will cause ponding of water, then compliance of the roof/ceiling assembly is not required.

3407.5 Alternative Designs: Alternative design methods may be used where it can be demonstrated through analysis by a licensed professional that the alternative will achieve a level of energy conservation equivalent to that required by 780 CMR 3407. A report on the energy conservation analysis shall be submitted to the building official with the application for the building permit.

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**TABLE 3407
 COMPONENT VALUES FOR ALTERED ELEMENTS**

BUILDING COMPONENT	DESCRIPTION	THERMAL PROPERTIES	NOTES
Walls	All wall construction containing heated or mechanically cooled space	U-0.08	6,8
Foundation Walls Including Band	Containing heated or mechanically cooled space Containing unheated space	U-0.08 U-0.17	4
Roof/Ceiling Assembly	Wood plank and beam construction containing heated or mechanically cooled space	U-0.08	1
Roof/Ceiling Assembly	Construction other than wood plank and beam containing heated or mechanically cooled space	0.05	
Windows and Skylights	All construction enclosing heated or mechanically cooled space	For windows, see Note 2. For skylights - no current restriction on "U" value	2, 5 6, 7
Floors	Floor sections over area exposed to outside air or unheated areas Unheated slab on grade Heated slab on grade	U-0.08 R-5.50 R-7.75	3
Mechanical Equipment	Heating, cooling, sizing and efficiency	780 CMR 1305.0	9
Equipment Controls	Humidistats, thermostats & zoning	780 CMR 1305.0,	9
Duct and Pipe Insulation and Construction	Located in or on buildings	780 CMR 1305.0	
Electrical Power Distribution.	-	780 CMR 1307.0	
Lighting	Lighting	780 CMR 1308.0	

Note 1. Wood plank and beam assemblies are constructions in which the finished interior surface is the underside of the roof deck.

Note 2. For existing low-rise residential buildings, commencing January 1, 1999, the maximum allowed thermal transmittance of replacement windows, with or without a storm window, shall be 0.44 and such windows and window with storm window combinations will be NFRC listed labeled. For all other existing building types (commercial/high-rise), window thermal transmittance requirements shall conform to the requirements of 780 CMR 13 generally and 780 CMR 1304.2 or 1304.5 or 1309, as applicable. Refer also to 780 CMR 3407.0 Exceptions 1 and 2.

Note 3. Insulation may be omitted from floors over unheated areas when foundation walls are provided with a U value of 0.17.

Note 4. The U value requirement of 0.17 for foundation walls may be omitted when floors over unheated spaces are provided with a U value of 0.08.

Note 5. Refer to 780 CMR Appendix J Table J4.3.2 for allowable air infiltration rates for residential doors and windows. Allowable rate for commercial doors is 11 cfm/lin. ft of operable sash crack.

Note 6. The first floor exterior envelope of business and mercantile use groups shall have an overall thermal transmittance value not greater than .65 in lieu of individual component values for walls and fenestration.

Note 7. When the glass area is increased, the glass and wall components which are altered shall comply with the component values in Table 3407. The extent of wall made to comply shall be equivalent to the decreased opaque wall area.

Note 8. When any alterations to the exterior wall component exposes the wall cavity or, when a finished system is added to a wall having no cavity, the wall must comply with the values in Table 3407.

Note 9. When mechanical system compliance is required on an existing system, only the portions of the system altered and any other portions which can reasonably be incorporated need comply.

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REPAIR, ALTERATION, ADDITION AND CHANGE OF USE OF EXISTING BUILDINGS

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780 CMR 3408.0 STRUCTURAL REQUIREMENTS FOR *EXISTING BUILDINGS*

SEE SEPARATE DOCUMENT FOR COMPLETE REVISION OF 3408 BY JOINT LAC/SAC COMMITTEE ON CHAPTER 34

780 CMR 3409.0 HISTORIC BUILDINGS

3409.1 Scope: The provisions of 780 CMR 3409.0 shall govern all buildings and structures in the Commonwealth which are legally designated as *historic buildings*. 780 CMR 3409.0 shall preempt all other regulations of 780 CMR governing the reconstruction alterations change of use and occupancy, repairs maintenance and additions for the conformity of historic buildings and structures to 780 CMR, with the exception of 780 CMR 122.0 for appeals, or unless otherwise specified (see *Appendix H*). There is no obligation for owners of historic properties to apply for 780 CMR 3409.0.

3409.1.1 Key Definitions: The following five definitions are found in 780 CMR 3401.1, but are also presented here as such definitions form a significant portion of 780 CMR 3409.

Historic buildings: (a) Any building or structure individually listed on the National Register of Historic Places or (b) any building or structure evaluated by MHC to be a contributing building within a National Register or State Register District. (c) any building or structure which has been certified by the Massachusetts Historical Commission to meet eligibility requirements for individual listing on the National Register of Historic Places. *Historic building* shall be further defined as a *house museum* or *preserved buildings*. All entries into the *house museum* list shall be certified by the Massachusetts Historical Commission. The Board of Building Regulations and Standards shall ratify all buildings or structures certified by the Massachusetts Historical Commission to qualify for *house museum* listing (see *Appendix H*).

Preserved buildings: (a) Any building or structure individually listed on the National Register of Historic Places or (b) any building or structure certified as a *historic building* by the Massachusetts Historical Commission and not designated a *house museum* in *Appendix H*.

Restoration: *Restoration* is the process of accurately reconstructing or repairing the forms and details of a building or structure or

portion thereof as it appeared at a particular period or periods of time by means of removal of later work/or the replacement of missing original work

House museum *House museum:* A *house museum* is an *historic building* or structure. The principal use of such a building or structure must be as an exhibit of the building or the structure itself which is open to the public not less than 12 days per year, although additional uses, original and/ or ancillary to the principal use shall be permitted within the same building up to maximum of 40% of the gross floor area. *House museum* *House museum* shall be those listed in *Appendix H*. All entries into the *house museum* list shall be certified by the Massachusetts Historical Commission. The Board of Building Regulations and Standards shall ratify all buildings or structures certified by the Massachusetts Historical Commission to qualify for *house museum* listing (See *Appendix H*).

3409.2 House museum

3409.2.1 State Building Code exceptions: A *house museum* shall be subject to the following exceptions:

1. Repairs, maintenance and restoration shall be allowed without conformity to 780 CMR generally, if the provisions of 780 CMR 3409.2.2 have been met.
2. In case of fire or other casualty to a *house museum*, said building may be rebuilt, in total or in part, using such techniques and materials as are necessary to restore it to its original condition and use group.
3. If a *historic building* or structure, as a result of proposed work, would become eligible for certification as a *house museum* and the Massachusetts Historical Commission so certifies by affidavit, such affidavit is submitted to the building official with the permit application, and the building official shall then allow the work to proceed under the provisions of 780 CMR 3409.2.

3409.2.2 Mandatory safety requirements: All *house museum* shall comply to the following requirements:

3409.2.2.1 Fire protection equipment: Fire protection equipment shall be provided according to the following requirements.

1. Manual fire extinguishing equipment: All use groups, other than Residential R-3 and R-4, shall have approved manual fire extinguishing equipment, as determined by the head of the local fire department.

2. Fire Protective Signaling Systems (Fire Alarm Systems): All residential buildings in use groups R-1, R-2 and R-3 shall conform to the applicable requirements of 780 CMR 918 and 919 as applicable. All other use groups shall comply with 780 CMR 3409.2.2.1 items 2.(a) and (b):

(a) **Locations:** Provide smoke detectors in accordance with manufacturers listing and spacing requirements, but not less than one, for every 1200 square feet of floor area per level. In addition, all lobbies, common corridors, hallways and exitway access and discharge routes shall be provided with approved smoke detectors installed in accordance with the manufacturers listing and spacing requirements but not more than 30 feet spacing between detectors. All required smoke detectors shall have an alarm audible throughout the structure or building.

(b) **Single station and multiple station smoke detection devices:** Smoke detectors of single station and multiple station types shall meet the requirements of UL 217 and be listed or approved by a nationally-recognized fire-testing laboratory. All other smoke detectors shall be listed in accordance with UL 268 as listed in *Appendix A*.

3. **Manual pull stations:** A manual fire alarm pull station shall be provided in the natural path of egress in all use groups except R-3 and R-4. Manual pull stations shall be connected to the building fire warning system in conformance with NFPA 72 as listed in *Appendix A*.

3409.2.2.1.1 Supervision: Fire protective signaling systems required by 780 CMR 3409.2.2.1 shall be supervised in accordance with the requirements of 780 CMR 923.2.

Exception: Residential single and multiple station smoke detectors.

3409.2.2.2 Exit signs and emergency lights: Approved exit signs and emergency lighting, where designated by the local building official, shall be provided in compliance with 780 CMR 1023.0 and 780 CMR 1024.0.

Exception: All *house museums* need not comply with 780 CMR 1023.0 and 780 CMR 1024.0 if not occupied after daylight hours,

except that paths of egress shall have exit signs.

3409.2.2.3 Maximum occupancy: Occupancy shall be limited by the actual structural floor load capacity as certified by a qualified Massachusetts *registered professional engineer* or *architect* or in accordance with 780 CMR 1008.0, whichever is less. Said floor load shall be posted in accordance with the procedures set forth in 780 CMR 120.0, 780 CMR 1003.3 and 780 CMR 1617.2. The owner shall submit evidence of this certification and related computations to the building official upon request.

3409.2.2.4 Limited egress: Where one or more floors of a *house museum* are limited to one *means of egress*, the occupancy load shall be computed as follows:

1. **Floors below the first story:** Not more than one occupant per 100 square feet of gross floor area with a maximum occupancy of 49.

2. **First story:** Not more than one occupant per 50 square feet of gross floor area.

3. **Second story and above:** Not more than one occupant per 100 square feet of gross floor area, or 30 occupants per unit of egress width, whichever condition results in the lesser occupancy load.

3409.2.2.5 Inspections: The *building official* and the fire official shall inspect all *house museums* not less frequently than once every year in order to determine that the building or structure continues to conform to 780 CMR 3409.2. A qualified Massachusetts *registered professional engineer* or *architect* shall certify every five years thereafter as to the exact floor load capacity of the building or structure. The building official shall certify all *house museums* not less frequently than once every year. Fees shall be established at \$25.00 per building per inspection.

3409.2.2.6 Accessibility for Persons with Disabilities: Accessibility requirements shall be in accordance with 521 CMR as listed in *Appendix A*.

3409.2.2.7 Energy Conservation: House museums are exempt from the requirements of 780 CMR 3407 and the energy conservation requirements of 780 CMR 36.

3409.2.2.8 Structural Requirements: House museums need not comply with the wind load and seismic load requirements of 780 CMR 3408.

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3409.3 Partially preserved buildings:

3409.3.1 State Building Code provisions: A *preserved building* shall be subject to the following provisions:

1. **Existing Systems** - individual components of an existing *building system* may be repaired or replaced in kind without requiring that system to comply fully with the code for new construction. (See 780 CMR 34, 780 CMR 3404.3: *New Systems*)

3409.3.2 State Building Code exceptions: A *preserved building* shall be subject to the following exceptions: Repairs or in kind replacement of the following features will be allowed on partially preserved buildings so as not to compromise the architectural integrity of the historical characteristics and qualities which contributed to the eligibility for listing in the National Register of Historic Places.

1. **Roofing** - repair or in kind replacement of an existing historic roof system (i.e., slate, wood, clay, tile, metal) shall be permitted without requiring structural compliance for equivalent new construction providing that dead and live loading requirements have not changed.

2. **Windows** - repair or in kind replacement of existing historic windows (i.e., frames, sash, muntins, glazing, sills, molding, shutters) shall be permitted without requiring energy code compliance.

3. **Entries/Porches** - repair or in kind replacement of existing individual decorative features of an existing system (i.e. columns, balustrades, stairs, pilasters, doors, sidelights) shall be permitted.

4. **Wood Siding/Decorative Elements** - Repair or in kind replacement of an existing system including such items as clapboards, shingles, cornices, brackets, and window and door surrounds shall be permitted.

5. **Masonry** - repair or in kind replacement of masonry units as part of an existing system (i.e., brick, stone, terra cotta, concrete and stucco) shall be permitted.

6. **Metals** - repair or in kind replacement of existing architectural metals (i.e. cast and wrought iron, steel, tin, copper and copper alloys, aluminum, zinc) shall be permitted.

7. **Interior features** - repair or in kind replacement of non-structural interior features that are important in defining the overall historic character of a building (i.e., columns, cornices, baseboards, fireplace mantels, paneling, window trim, doors, moldings, railings, flooring, plasterwork) shall be permitted.

2. **Replacement in kind** - when the repair of historic materials including patching, splicing, piecing-in, consolidating or reinforcing is not possible, compatible materials may be substituted which closely convey the form and design as well as the visual appearance of the existing feature.

3409.3.3 Applicability: 780 CMR 3409.3 and 780 CMR 34 shall apply to all *preserved buildings*.

3409.3.4 Continuation of use and occupancy: The legal use and occupancy of any *preserved building* may be continued without change or further compliance to 780 CMR.

3409.3.5 Inspection certification and fees: *preserved buildings* shall not require annual inspection unless otherwise stipulated in 780 CMR 106.5 and Table 106.

3409.3.6 Fire damage: If a building or structure is damaged from fire or other casualty it may be restored to its original construction or it shall meet the requirements of 780 CMR provided these requirements do not compromise the features for which the building was considered Historic when listed in the National Register of Historic Places.

3409.3.7 Change in occupancy: See 780 CMR 34.

3409.3.8 New systems: See 780 CMR 34.

3409.3.9 Lesser and equal hazard: See 780 CMR 34. A *preserved building* classified under unprotected construction Type 2C or 5B shall have waived the requirement to add one to the Hazard Index number (See 780 CMR 34, Table 3403).

3409.3.10 Greater hazard: See 780 CMR 34. A *preserved building* classified under unprotected construction Type 2C or 5B shall have waived the requirement to add one to the Hazard Index number (See 780 CMR 34, Table 3403).

3409.3.11 Energy Conservation: Preserved buildings are exempt from the energy requirements of 780 CMR 3407 and the energy requirements of 780 CMR 36.

Exception: Additions to partially preserved buildings shall comply with the energy provisions of 780 CMR 13 or of 780 CMR 36, as applicable.

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~~3409.3.12 Structural Requirements: Preserved buildings need not comply with the seismic load requirements of 780 CMR 3408.~~

3409.3.13 Accessibility for Persons with Disabilities: Accessibility requirements shall be in accordance with 521 CMR as listed in *Appendix A*.