

THE MASSACHUSETTS STATE BUILDING CODE

Fifth Edition

780 CMR

COMMONWEALTH OF MASSACHUSETTS

**Published by
Michael J. Connolly
Massachusetts Secretary of State**

MASSACHUSETTS STATE BUILDING CODE - FIFTH EDITION

ERRATA SHEET

Forward - p.iii

Add to the list of Articles which, in their entirety, are considered non-BOCA

Article 11 - Structural Loads

Article 12 - Foundation Systems and Retaining Walls

Boards and Committees - p. vii

Delete: Simpson Gumpertz and Heger, Inc.

Substitute: Consulting Engineer - beneath Rubin M. Zallen, P.E.

Table of Contents - p. xxii

Add: Appendix D - Guidance for the Selection of Foundation Material Classes in Table 1201 - p. D-1

Add: Appendix E - Procedure for Accounting for Series and Parallel Heat Flow Paths - p. E-1

Article 1 - Administration and Enforcement

Section 103.1 General - p. 1-3

Change to correct font.

Notes to Table 108 - p. 1-9

Note g. - Add "se" to the end of second line to spell "use".

Section 119.5 - p. 1-22

Seven lines down - Change Article 3 to Article 2.

Article 2 - Definitions

Child day-care center - p. 2-6

In line 3 - change the word from "know" to "known"

In line 9 - add a comma as follows: "...limited to kindergarten, nursery

In line 10 - add the word "organization" as follows:a facility operated by a religious organization/ where....

Dwellings - p. 2-11

Should read:

Multi-family dwelling: A building or portion thereof containing more than two (2) dwelling units and not classified as a one- or two-family dwelling, and with not more than three (3) lodgers or boarders per dwelling unit.

Article 3 - Use Group Classification

Section 307.3 - p. 3-10

Sixth line down: delete "and detoxification facility" and put period after hospital.

Section 313.1 - p. 3-14
Second line change "113.1.4" to 313.1.4.

Article 5 - General Building Limitations

Table 501.4 - p. 5-4
The last column is incorrect. It should read: None, None, 20%, 20%, 30% 40%, 50%, 60%, 70%, 80%.

Section 512.1.1 Handicapped access for limited group residences - p 5-12.
Change 640 to 636

Article 6 - Special Use and Occupancy Requirements

Sections 600.2, 600.3, 600.4, 600.5, 600.6, 600.7 and 600.8 - p. 6-1 and 6-2:
Portions of these sections have been inadvertently bolded; these are not changes.

Section 601.1 p. 6-2
Exceptions: change "code" to building [official].

Table 601 - p. 6-4
Insert "Square feet per person" at top of left column.

Section 601.5 - p. 6-4
Last line, change "606.0" to 806.0.

Table 603.1.3a - p. 6-13
First column, third line should read: Class 1-A.

Section 603.4.6 - p. 6-16
Second line, Class 1, should be Roman numeral I.

Section 603.5.2 - p. 6-17
Note 7, Class 1, should be Roman numeral I.

Section 625.1 - p. 6-50
Add **semi-public** to line six.

Section 625.3.1 - p. 6-51
Change "bc" to be.

Section 625.5.1 - p. 6-52
Should read:
To a depth of 2 feet 9 inches from the top, the wall slope shall not be more than one foot horizontal in five feet vertical.

Section 625.8 - p. 6-53 The bolded sentence should read:
The construction and installation of electrical wiring for equipment in or adjacent to swimming pools, to metallic appurtenances in or within five feet of the pool, and auxiliary equipment such as pumps, filters and similar equipment shall conform to Article 680 of the Massachusetts Electrical Code, 527 CMR 12.00.

Section 625.9 - p. 6-53 The first sentence should read:
"...enclosed by a fence..."

Section 636.1.4 - p. 6-76
Delete reference to R4 at end of sentence

Article 7 - Interior Environmental Requirements

Sections 706.2, 706.2.1, 706.2.2, 706.3, 706.4, 708.1.1, 708.1.2 and 708.1.3 - p. 7-3 to 7-5:
These sections have been inadvertently bolded; these are not changes and should not be bolded.

Sections 707.1 and 709.4 - p. 7-4 and 7-6, represent differences from 1987 BOCA and should be bolded (they are currently not bolded).

Article 8 - Means of Egress

Section 812.2.3 - p. 8-15
The "Exception" and its contents should be bolded.

Section 812.4 - p. 8-15
Add a fifth exception that reads: "5. Horizontal sliding doors complying with Section 812.4.4".

Section 812.4.1.2 - p. 8-16, 17
Exception 7 the release device statement should be in italics; i.e., "*Keep pushing. This door will open in 15 seconds. Alarm will sound*"

Section 812.4.4 - p. 8-17, 18
Requirement 8 should read: "8. The door assembly power supply shall be electrically supervised at a constantly attended location".

Section 812.4.4 - p. 8-17, 18
The entire subsection should be bolded.

Section 816.8 - p. 8-25
Add to the end of this subsection the parenthetical comment "(also see Section 816.2)".

Section 818.4 - p. 8-27
3rd line delete] after "level".

Article 9 - Fireresistive Construction

Table 906.2 - p. 9-8
Use Group F-1, M, S-1; greater than 10 to 15, change "0" to 1 hour.

Figure 906.2.4 - p. 9-10
Indications of curves should read, from left to right: 1 hour, 2 hour and 3 hour.

Table 906.3 - p. 9-11
Third column from left, Change "0-5" to 3-5.

Table 916 - p. 9-24
Hour designations, starting with "3", should be dropped one space to correctly line up with the desired location.

Table 930 - p. 9-43

Nfipa in Note a should be capitalized.

Article 10 - Fire Protection Systems

Section 1018.3.5 - p. 10-36

Delete colleges and universities as they are neither A-4 or E use groups, and add , etc.

Article 11 - Structural Loads - p. 11-1

Add parenthetical note beneath the Article title (This Article is entirely unique to Massachusetts).

Equation 5 - p. 11-19

The 1/3 is an exponent.

Equation 11 - p. 11-20

The exponent is 0.33.

Article 12 - Foundation Systems and Retaining Walls - p. 12-1

Add parenthetical note beneath the Article title (This Article is entirely unique to Massachusetts).

Article 16 - Gypsum and Plaster - p. 16-1

Delete the word "SECTION" from the title.

Article 29 - Signs

Sections 2900.3 and 2902.4.1 - p. 29-1 and 29-2:

These sections have been inadvertently left unbolded. These sections are unique to Massachusetts, and should be bolded.

Article 32 -

Section 3200.3 - p 32-2, paragraph 5 - delete portion of exception concerning vertical additions (Paul spoke to Rob about this partial decision)

Appendix A, Part I - p. A-18:

Reference Standard Nfipa 13-85 should be Nfipa 13-89.

Reference Standard Nfipa 13D-80 should be Nfipa 13D-89.

Appendix A, Part II - p. A-23:

Reference Standard Nfipa 13R-87 should be Nfipa 13R-89.

Appendix D - p. D-1

Delete: All reference to Table 720

Substitute: Table 1201

FOREWORD and ACKNOWLEDGEMENTS

EDITION 5 OF THE MASSACHUSETTS STATE BUILDING CODE

FOREWORD

The Fifth Edition of the Massachusetts State Building Code has been revised from the Fourth Edition to make it as close to the BOCA National Model, both in Article and sub-Article numbering and in technical content. In several instances, BOCA could not be followed for a number of reasons, including:

- Requirements of Massachusetts General Laws (MGL)
- BBRS changes to meet specific needs of the Commonwealth
- Specialized Massachusetts Codes under the Control of Separate Independent Boards

The following Articles, in their entirety, are non-BOCA:

Article 1 - Administration

Article 10 - Fire Protection Systems

Article 11 - Structural Loads

Article 12 - Foundation Systems and Retaining Walls

Article 27 - Electrical Wiring and Equipment

Article 28 - Plumbing and Gasfitting

Article 31 - Energy Conservation

Article 32 - Repair, Alteration and Change of Use of Existing Buildings

Article 33 - Manufactured Buildings, Building Components and Mobile Homes

Article 34 - One and Two Family Dwelling Code (available as a separate document from the State Bookstore; ~~not included in this code.~~) ^{also} ~~out~~

In the remaining Articles, BBRS changes are presented in bold-faced type.

NOTE

The Fifth Edition becomes effective September 14, 1990, and will remain effective concurrently with the Fourth Edition, which is to be valid until February 28, 1991.

In following the BOCA National Building Code format, the Fifth Edition does not include either the One and Two-Family Dwelling Code provisions (Article 21 in the Fourth Edition) or the various Rules and Regulations (Appendix Q in the Fourth Edition). Both documents will be available as separate publications from the State Bookstore, Room 116, State House, Boston, MA 02133 (Tel: (617) 727-2834).

One and Two-Family Dwelling Code: Now identified separately and in the Fifth Edition as Article 34, includes Article 1 (Administration and Enforcement) of the Fifth Edition and Article 21 of the Fourth Edition. The Fourth Edition version of Article 21 will remain in effect until such time as it has been updated, using the 1989 edition of the CABO One and Two-Family Dwelling Code as a base.

Rules and Regulations of the Board of Building Regulations and Standards: Now identified as 780 CMR 1 through 4, may be purchased as a "package" or separately from the State Book Store. These four regulations which were contained in Appendix Q of the Fourth Edition will remain in effect until updated.

Guide to the Fifth Edition of the Massachusetts State Building Code: This guide was developed to assist code users and is available from the State Bookstore. It includes an Article No. Cross-Index from the Fourth Edition to the Fifth Edition, and a Summary of Major Changes made in the Fifth Edition relative to the Fourth Edition. Note: One copy will be given to purchasers of the Basic Code at no extra charge.

These codes are subject to change by amendment. These amendments are effective when published in the bi-weekly MASSACHUSETTS REGISTER unless otherwise stated by the promulgating agency. ~~(All code purchasers will be notified by the State Bookstore when amendments have been made and are available.)~~

out

ACKNOWLEDGEMENTS

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ARTICLE 1

ADMINISTRATION AND ENFORCEMENT

(This Article is entirely unique to Massachusetts)

SECTION 100.0 SCOPE

100.1 Title: These regulations shall be known as the Commonwealth of Massachusetts State Building Code hereinafter referred to as "this code."

100.2 Scope: These regulations, in accordance with Chapter 348 of the Acts of 1984 as amended, shall control: a) the construction, reconstruction, alteration, repair, demolition, removal, inspection, issuance and revocation of permits or licenses, installation of equipment, classification and definition of any building or structure and use or occupancy of all buildings and structures and parts thereof except bridges and appurtenant supporting structures which have been or are to be constructed by or are under the custody and control of the Department of Public Works, the Massachusetts Turnpike Authority, the Massachusetts Bay Transportation Authority, the Metropolitan District Commission, or the Massachusetts Port Authority or for which said agencies have maintenance responsibility; b) the rehabilitation and maintenance of existing buildings; c) the standards or requirements for materials to be used in connection therewith, including but not limited to provisions for safety, ingress and egress, energy conservation and sanitary conditions; d) the establishment of reasonable fees for inspections and the issuance of licenses to individuals engaged as construction supervisors; except as such matters are otherwise provided for in the Massachusetts General Laws Annotated, or in the rules and regulations authorized for promulgation under the provisions of this code.

100.3 Application of reference: Unless otherwise specifically provided in this code, all references to article or section numbers, or to provisions not specifically identified by number, shall be construed to refer to such article, section or provision of this code.

100.4 Code remedial: This code shall be construed to secure its expressed intent which is to insure public safety, health and welfare insofar as they are affected by building construction through structural strength, adequate egress facilities, sanitary conditions, equipment, light and ventilation and fire safety; and, in general, to secure safety to life and property.

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100.5 Specialized codes: Specialized codes, rules or regulations pertaining to building construction, reconstruction, alteration, repair, or demolition promulgated, and as amended, from time to time, by the various authorized state agencies shall be incorporated in this code. The said specialized codes, rules or regulations include, but are not limited to, those listed in Appendix G.

SECTION 101.0 APPLICABILITY

101.1 General: The provisions of this code shall apply to all matters affecting or relating to buildings and structures; and shall apply with equal force to municipal, county, state authorities of or established by the legislature and private buildings and structures, except where such buildings and structures are otherwise specifically provided for by statute.

Exceptions:

1. Unless specifically provided otherwise in this code, all existing buildings and structures shall meet and shall be presumed to meet, the provisions of the applicable laws, codes, rules or regulations, bylaws or ordinances in effect at the time such building or structure was erected or substantially altered.
2. In cases where applicable codes, rules or regulations, bylaws or ordinances were not in use at the time of such erection or substantial alteration, the provisions of Section 104.0 of this code shall apply.
3. In cases where the provisions of this code are less stringent than the applicable codes, rules or regulations, bylaws or ordinances in force at the time of such erection or substantial alteration, the applicable provisions of this code shall apply, providing such application of these provisions does not result in danger to the public as determined by the building official.

101.2 Zoning restrictions: When the provisions herein specified for structural strength, adequate egress facilities, sanitary conditions, equipment, light and ventilation, and fire safety conflict with the local zoning bylaws or ordinances, this code shall control the erection or alteration of buildings.

101.3 Matters not covered: Any requirements essential for structural, fire or sanitary safety of an existing or proposed building or structure, or essential for the safety of the occupants thereof, and which is not specifically covered by this code, shall be determined by the building official. The State Board of Building Regulations and Standards (hereinafter referred to as the BBRs) and the

Department of Public Safety shall be notified in writing within seven (7) working days of any action taken under this section.

101.4 Referenced Standards: Where differences occur between provisions of this code and referenced standards, the provisions of this code shall apply.

SECTION 102.0 ORDINARY REPAIRS

102.1 General: Except as provided in Section 113.1, a permit shall not be required for ordinary repairs to buildings and structures.

SECTION 103.0 INSTALLATION OF SERVICE EQUIPMENT

103.1 General: When the installation, extension, alteration or repair of an elevator, moving stairway, mechanical equipment, refrigeration, air conditioning or ventilating apparatus, plumbing, gas piping, electric wiring, heating system or any other equipment is specifically controlled by the provisions of this code or the approved rules, it shall be unlawful to use such equipment until a certificate of approval has been issued therefor by the building official or other agency having jurisdiction.

SECTION 104.0 MAINTENANCE

104.1 General: All buildings and structures and all parts thereof, both existing and new, shall be maintained in a safe and sanitary condition. All service equipment, means of egress, devices and safeguards which are required by this code in a building or structure, or which were required by a previous statute in a building or structure, when erected, altered or repaired, shall be maintained in good working order.

104.2 Owner responsibility: The owner, as defined in Article 2, shall be responsible for the safe and sanitary maintenance of the building or structure and its exitway facilities at all times, unless otherwise specifically provided in this code.

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SECTION 105.0 CHANGE IN EXISTING USE

105.1 Continuation of existing use: The legal use and occupancy of any existing structure for which it had been heretofore approved, may be continued without change, except as maybe specifically covered in this code or as may be deemed necessary by the building official for the general safety and welfare of the occupants and the public.

105.2 Change of existing use: Any change in the use and occupancy of any existing building or structure shall comply with Article 32.

SECTION 106.0 ALTERATIONS AND REPAIRS

106.1 Application: Except as provided in this code, existing buildings or structures when altered or repaired shall be made to conform to Article 32.

SECTION 107.0 BUILDING DEPARTMENT

107.1 Appointment: The chief administrative officer of each city or town shall employ and designate an inspector of buildings or building commissioner, as well as such other local inspectors as are reasonably necessary. The inspector of buildings or building commissioner shall report directly and be solely responsible to the appointing authority.

107.2 Building commissioner or inspector of buildings: The building department shall have an administrative chief responsible for the administration and enforcement of this code who shall be known as the building commissioner or inspector of buildings.

107.2.1 Local Inspector: The local inspector (building) shall assist the building commissioner or inspector of buildings in the performance of his duties and shall also be responsible for the enforcement of this code.

107.2.2 Alternate inspector: An alternate inspector of buildings may be appointed to act in the disability of the inspector of buildings in case of illness, absence, or conflict of interest. The alternate inspector shall meet the qualifications of Section 107.3.

107.3 Qualifications of the building commissioner or inspector of buildings: Each building commissioner or inspector of buildings shall have had at least five (5) years of experience in the supervision of building construction or design or in the alternative a four year undergraduate degree in a field related to building

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construction or design. In addition, such persons shall have had general knowledge of the accepted requirements for building construction, fire prevention, light, ventilation and safe egress; as well as a general knowledge of other equipment and materials essential for safety, comfort, and convenience of the occupants of a building or structure; plus whatever other requirements of experience and knowledge that are deemed necessary by the municipality.

107.4 Qualifications of the local inspector: Each local inspector shall have had at least five (5) years of experience in the supervision of building construction or design or in the alternative a two year associate degree in a field related to building construction or design. In addition, such persons shall have a general knowledge of the accepted requirements for building construction, fire prevention, light, ventilation and safe egress; as well as a general knowledge of other equipment and materials essential for safety, comfort, and convenience of the occupants of a building or structure; plus whatever other requirements of experience and knowledge that are deemed necessary by the municipality.

107.5 Restriction on employees: No full-time building commissioner, inspector of buildings, or full-time local inspector as defined herein shall be engaged in, or directly or indirectly connected with, the furnishing of labor, materials or appliances for the construction, alteration or maintenance of a building or structure, or the preparation of plans or of specifications therefor within the city, town or region for which he is appointed, unless he is the owner of the building or structure; nor shall any officer or employee associated with the building department engage in any work which conflicts with his official duties or with the interests of the department.

107.6 Relief from personal liability: Insofar as the law allows, while acting for the municipality, the building official, charged with the enforcement of this code shall not be deemed personally liable in the discharge of his official duties.

SECTION 108.0 DUTIES AND POWERS OF THE BUILDING OFFICIAL AND STATE INSPECTOR

108.1 The local building official: The building commissioner or inspector of buildings and the local inspector shall enforce all the provisions of this code and any other applicable state statutes, rules and regulations, or ordinances and bylaws, and act on any question relative to the mode or manner of construction, and the materials to be used in the construction, reconstruction, alteration, repair, demolition, removal, installation of equipment, and the location, use, occupancy, and maintenance of all buildings and structures, including any building or structure owned by any authority established by the legislature but not owned by the Commonwealth.

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108.2 Applications and permits: The building official shall receive applications and inspect the premises for which permits have been issued and enforce compliance with the provisions of this code.

108.3 Building notices and orders: The building official shall issue all necessary notices or orders to remove illegal or unsafe conditions, to require the necessary safeguards during construction, to require adequate egress facilities in new and existing buildings and structures, and to insure compliance with all the code requirements for the safety, health and general welfare of the public.

108.4 Credentials: The building official or his authorized representative shall carry proper credentials of his respective office for the purpose of inspecting any and all buildings, structures and premises in the performance of his duties under this code.

108.5 Inspections: The building official shall make all the required inspections or may accept reports of inspections from a qualified registered professional engineer or architect or others certified by the BBRS, and all reports of such inspections shall be in writing; or the building official may engage such experts as he may deem necessary to report upon unusual technical issues that may arise.

108.5.1 Inspection and certification, specified use groups: The building official shall periodically inspect and certify buildings and structures or parts thereof in accordance with Table 108. A building or structure shall not be occupied or continue to be occupied without the posting of a valid certificate of inspection where required by Table 108. A certificate of inspection as herein specified shall not be issued until an inspection is made certifying that the building or structure or parts thereof complies with all the applicable requirements of this code, and until the fee is paid as specified in Table 108. Municipalities may increase or waive only in their entirety for any specific use group the fees as specified in said Table 108.

Exception: Municipalities may revise or modify, or waive in part those fees for buildings and structures or parts thereof owned by the municipality, county or political subdivision thereof and for buildings and structures or parts thereof used solely for religious purposes.

108.6 Administrative procedures: The building commissioner or inspector of buildings shall have the authority to formulate administrative procedures necessary to uniformly administer and enforce this code provided that such procedures do not conflict with the rules and regulations promulgated by the BBRS.

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108.7 Department records: The building official shall keep in a public place and open to public inspection during normal working hours official records of applications received, permits and certificates issued, fees collected, reports of inspections, variances granted, and notices and orders issued. File copies of all papers in connection with building operations shall be retained in the official records so long as the building or structure to which they relate remains in existence.

108.8 Reports: The building official shall submit the following reports:

1. to the chief administrative officer of the municipality a written statement of all permits and certificates issued, fees collected, inspections made, and notices and orders issued for the year;
2. to the BBRS and Department of Public Safety reports on decisions regarding the matters not covered as specified in Section 101.3; and
3. to the assessors of the municipality reports on permits issued as specified in Section 114.2.

108.9 The state inspector: In every city and town this code shall be enforced by the state inspector as to any structures or buildings or parts thereof that are owned by the Commonwealth or any departments, commissions, agencies, or authorities of the Commonwealth. The state inspector shall have as to such buildings and structures all the powers of a building commissioner or inspector of buildings. All buildings and structures owned by any authority established by the legislature and not owned by the Commonwealth shall be regulated in accordance with Section 108.1 of this code.

108.9.1 Other responsibilities: The state inspector shall make periodic reviews of all local building inspection practices, provide technical assistance and advice to the local building officials in the implementation of this code, and report in writing his findings to the building officials.

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TABLE 108
 REQUIRED MINIMUM INSPECTIONS AND CERTIFICATIONS FOR SPECIFIED USE GROUPS
 (See Articles 3 & 6 for complete description of use groups)

Use Group	Use Group	Use Group Description	Minimum Inspections	Maximum Certification Period	Fees for Max. Certification Period
A-1	Assembly-Theaters Over 400 Capacity	A+ With Stage and Scenery B+ Movie Theater	Semi-Annually	One Year	\$75
A-1	Assembly-Theaters 400 or less capacity	A With Stage and Scenery B Movie Theater	Annually	One Year	\$40
A-2	Assembly-Night Clubs or Similar Uses	+ Over 400 capacity 400 or less capacity	Semi-Annually Annually	" "	\$75 \$40
A-3	Assembly-Lecture halls, recreation centers, terminals, etc.	+ Over 400 capacity 400 or less capacity	Semi-Annually Annually	" "	note a \$40
A-4	Assembly	Churches, low-density, recreation and similar uses	Prior to issuance of each new cert.	Five years	\$40
A-5	Assembly	Stadiums, bleachers, places of outdoor assembly	"	One year	note b
E	Educational	Educational	"	One Year	\$40
E	Day Care	Child day care centers (see Section 633)	"	One year	\$40
I-2	Institutional	Incapacitated--hospitals, nursing homes, mental hospitals, certain day-care facilities (Sec. 632)	"	Two Years	note d
I-3	Institutional	Restrained - prisons, jails, detention centers, etc.	"	Two years	note c
R-1	Residential	Hotels, lodging housings, dormitories etc.(note g)	"	One year	note e
R-2	Residential	Multi-family - (note g)	"	Five years	note f
R-1	Residential SPEC. OCC.	Detoxification facilities (see Section 637)	"	Two years	\$75
R-2	Residential SPEC. OCC.	Summer camps for children (see Section 634)	Annually	One year	note h
R-3 or R-4	Residential SPEC. OCC.	Group residence (see Section 631)	"	"	"
R-5	Residential SPEC. OCC.	Limited group residence (see Section 636)	"	"	"

Notes applicable to Table 108

General:

The maximum certification period specified in Table 108 is intended to provide administrative flexibility. For those buildings and structures or parts thereof allowing more than one (1) year maximum certification period, the building official may determine the length of validity of the certificate issued. For example, a building in the R-2 use group could be issued a certificate valid for 1, 2, 3, 4 or 5 years. The total amount of fees charged for a certificate or certificates issued during the maximum certification period can exceed the fee listed or referenced in column 4 of Table 108. For example, if the building official issues a certificate valid for two (2) years for a building in the R-2 use group, the fee charged would be two fifths (2/5) times the fee per maximum certification period as determined for the building in question using the formula in note f below.

Note a. For all buildings or structures, or parts thereof, in the A-3+ Use Group categories the fee to be charge for the maximum certification period of one (1) year is \$75 for accomodations for up to five thousand (5,000) persons, plus \$15 for the accomodations for each additional one thousand (1,000) persons or fraction thereof.

Note b. For all buildings or structures, or parts thereof, in A-5 use group, the fee to be charged for the maximum certification period of one (1) year is \$40 for seating accommodations for up to five thousand (5,000) persons, plus \$8 for the accommodation for each additional one thousand (1,000) persons or fraction thereof.

Note c. For all buildings and structures, or parts thereof, in the I-3 use group, the fee to be charged for the maximum certification period of two (2) years is \$75 for each structure containing up to one hundred (100) beds, plus a \$2 charge for each additional ten (10) beds or fraction thereof over the initial one hundred (100) beds.

Note d. For hospitals, nursing homes, sanitariums, and orphanages in the I-2 use group, the fee to be charged for the maximum certification period of two (2) years is \$75 for each structure containing up to one hundred (100) beds, plus a \$2 charge for each additional ten (10) beds or fraction thereof over the initial one hundred (100) beds. All other buildings or structures or parts thereof in the I-2 use group classification shall be charged a fee of \$75 for a two (2) year maximum certification period.

Note e. For all buildings and structures or parts thereof in the R-1 use group, the fee to be charged for the maximum certification period of one (1) year shall be \$40 for up to five (5) units plus \$2 per unit for all over five (5) units. A unit shall be defined as follows:

- two (2) hotel guest rooms;
- two (2) lodging house guest rooms;
- two (2) boarding house guest rooms; or
- four (4) dormitory beds

Note f. For all buildings and structures or parts thereof in the R-2 use group, the fee to be charged for the maximum certification period of five (5) years shall be \$75, plus \$2 per dwelling unit, except three (3) family dwelling units shall be exempt from such fees.

Note g. For purposes of determining the required number of inspections, the maximum certification period, and the fees, as specified in Table 108, dormitories are included in the R-1 use group classification rather than the R-2.

Note h. Summer camps for children in use group R-2 shall be inspected and certified annually prior to the beginning of each season. The annual fee shall be \$15 for the first twenty-five (25) residential units; \$8 for each additional twenty-five (25) residential units; and \$15 for each assembly building or use. (A residential unit for this purpose shall be defined as four (4) beds.)

108.9.2 Review by the commissioner: The Commissioner of the Commonwealth of Massachusetts, Department of Public Safety shall establish districts which shall

be supervised by a state inspector of the Division of Inspection. The Commissioner may review, on his own initiative or on the application of any state inspector, any action or refusal or failure of action by any building official the result of which does not comply with the uniform implementation of this code; and may reverse, modify or annul, in whole or in part, such action except with respect to the specialized codes, provided that an order or action of the Commissioner shall not reverse, modify, annul, or contravene any order, action, determination, interpretation or any decision by the BBRS or the State Building Code Appeals Board.

108.9.3 Reports: The state inspector shall file with the BBRS reports of his periodic reviews and recommendations for improvements of building inspection practices. The format and due dates for these reports shall be determined by the BBRS.

SECTION 109.0 RULES AND REGULATIONS

109.1 Rule making authority: Under authority granted by Chapter 348, Acts of 1984, as amended, the BBRS is empowered in the interest of public safety, health and general welfare, to adopt and promulgate rules and regulations, and to interpret and implement the provisions of this code to secure the intent thereof.

109.1.1 Licensing of Construction Supervisors: Except for those structures governed by Construction Control in Section 127.0, effective July 1, 1982, no individual shall be engaged in directly supervising persons engaged in construction, reconstruction, alteration, repair, removal or demolition involving the structural elements of buildings and structures, unless he or she is licensed in accordance with the rules and regulations promulgated by the BBRS entitled Rules and Regulations for Licensing Construction Supervisors.

Exception: Any Home Owner performing work for which a building permit is required shall be exempt from the provisions of this section; provided that if a Home Owner engages a person(s) for hire to do such work, that such Home Owner shall act as supervisor.

For purposes of this section only, a "Home Owner" is defined as follows: Person(s) who owns a parcel of land on which he/she resides or intends to reside, on which there is, or is intended to be, a dwelling of six or less units, attached or detached structures accessory to such use and/or farm structures. A person who constructs more than one home in a two-year period shall not be considered a home owner.

109.1.1.1 No municipality shall be prohibited from requiring a license for those individuals engaged in directly supervising persons engaged in construction,

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reconstruction, alteration, repair, removal or demolition in those categories of building and structures for which the BBRS is not requiring a license, provided that those municipalities which have established licensing requirements for construction supervisors prior to January 1, 1975, may maintain their existing licensing requirements.

109.1.2 Licensing of laboratories and test personnel: The BBRS shall issue rules and regulations for the examination and licensing, and the revocation of licenses of individuals, laboratories and firms responsible for the inspection and/or testing of materials, devices and methods of construction, in accordance with the Rules and Regulations for Concrete Testing Personnel and the Rules and Regulations for Licensing of Concrete Testing Laboratories.

109.1.3 Manufactured buildings: The BBRS shall issue rules and regulations pursuant to Article 33 governing manufactured buildings and building components.

109.1.4 Mobile homes: The BBRS shall issue rules and regulations pursuant to Article 33 governing mobile homes.

109.2 Amendments and promulgation of rules: Any person may propose amendments to this code. Public hearings shall be held in the city of Boston in May and November of each year, and at such other times and places as the BBRS may determine, to consider petitions for such amendments. Amendments adopted by the BBRS shall be binding and have the full force and effect in all cities and towns.

SECTION 110.0 APPROVAL

110.1 Approved materials and equipment: All materials, equipment, devices, systems or methods of construction shall be subject to the following approvals required by this section.

110.2 Accepted engineering practice: If not otherwise specified in this code, the regulations, specifications and standards listed in the appropriate appendices shall be deemed to represent accepted engineering practice with respect to the material, equipment, device, system or method of construction therein specified.

110.3 New materials and methods of construction: The provisions of this code are not intended to prevent the use of any material, system or method of construction not specifically prescribed by this code. The building official shall accept approvals of the BBRS on all new materials, systems or methods of construction proposed for use which are not specifically provided for in this code.

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110.4 Used materials and equipment: Used materials, equipment and devices which meet the minimum requirements of this code for new materials, equipment and devices shall be permitted; however, the building official may require satisfactory proof that such materials, equipment and devices have been reconditioned, tested, and/or placed in good and proper working condition prior to approval.

110.5 Research and investigations: Wherever there is insufficient evidence that any material, system or method of construction conforms to the requirements of this code or there is insufficient evidence to substantiate claims for alternative materials, systems or methods of construction, the building official may require tests meeting the functional requirements of this code (see Sections 1300.0, 1303.0, and 1305.0) and such tests shall be conducted by a laboratory and/or personnel approved by the BBRS. The costs of all such tests or other investigations required under these provisions shall be paid by the applicant.

110.5.1 Test results: Copies of the results of all such tests shall be forwarded to the BBRS within ten (10) days and copies shall be kept on file in the permanent records of the building department.

110.5.2 Retesting: The BBRS may require tests to be repeated, if at any time there is reason to believe that material or construction no longer conforms to the requirements on which its approval was based.

110.6 Variances/modifications: When there are practical difficulties involved in carrying out structural or mechanical provisions of this code, the Board of Appeals may allow a variance or a modification from such provisions as applied for by the owner as provided in Section 126.0, provided that the decision of the Board shall not conflict with the general objectives of this code and its enabling legislation and provided that no decision shall be considered by any person or agency as a precedent for future decisions.

SECTION 111.0 INSPECTION

111.1 Preliminary Inspection: Before issuing a permit, the building official may examine or cause to be examined all buildings, structures and sites for which an application has been filed for a permit to construct, reconstruct, alter, repair, remove, demolish or change the use thereof.

111.2 Inspection: The building official shall make all required inspections as specified in the provisions of this code and he shall conduct such inspections from time to time during and upon completion of the work for which he has issued a permit; and he shall maintain a record of all such examinations and inspections and of all violations of this code. In conjunction with specific construction projects, the

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building official may designate specific inspection points in the course of construction that require the contractor or builder to give the building official twenty-four (24) hours notice prior to the time when those inspections need to be performed. The building official shall make the inspection within forty-eight (48) hours after such notification.

111.2.1 Inspection services: The building official may accept the written report of inspections from a qualified registered professional engineer or architect or others certified by the BBRS; and such inspection report shall specify but not be limited to any violation of the requirements of this code in respect to egress requirements, floor load, fire grading, occupancy load and use of the buildings or structures.

111.3 Final inspection: The owner or his authorized representative shall notify the building official upon completion of the building or structure or part thereof. Prior to the issuance of the certificate of use and occupancy required in Section 119.0, a final inspection shall be made and all violations of the approved plans and permit shall be noted and the holder of the permit shall be notified of any discrepancies.

111.4 Manufactured Buildings

111.4.1 Plant inspection: Inspection of all manufactured buildings and building components at the plant shall be performed by a third party which shall be certified and approved by the BBRS and monitored as specified in Article 33 and the rules and regulations pursuant thereto.

111.4.2 Site inspection: Inspection of all manufactured buildings, building components, and mobile homes at the installation site shall be made by the building official as specified in Article 33 and the rules and regulations pursuant thereto.

111.5 Existing Buildings

111.5.1 Periodic Inspections: The building commissioner or inspector of buildings shall develop plans for the systematic periodic inspection of all existing buildings and structures and shall cause such buildings and structures to be periodically or otherwise inspected as specified in Section 108.5.1 and Section 120.4, for compliance with this code.

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SECTION 112.0 RIGHT OF ENTRY

112.1 General: In the discharge of his duties, the building official shall have the authority to enter at any reasonable hour any building, structure or premises in the municipality to enforce the provisions of this code.

If any owner, occupant, or other person refuses, impedes, inhibits, interferes with, restricts, or obstructs entry and free access to every part of the structure, operation or premises where inspection authorized by this code is sought, the building official, or state inspector may:

1. seek in a court of competent jurisdiction a search warrant so as to apprise the owner, occupant or other person concerning the nature of the inspection and justification for it and may seek the assistance of police authorities in presenting said warrant; and/or
2. revoke or suspend any permit, license, certificate or other permission regulated under this code where inspection of the structures, operation or premises is sought to determine compliance with this code.

112.2 Office badge: The BBRS may adopt a badge of office for building officials which shall be displayed for the purpose of identification.

112.3 Jurisdictional cooperation: The assistance and cooperation of police, fire, and health departments and all other officials shall be available to the building official as required in the performance of his duties.

SECTION 113.0 APPLICATION FOR PERMIT

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

Exception: Ordinary repairs as defined in Section 201.0.

113.2 Form of application: The application for a permit shall be submitted in such form as the building official may prescribe and shall be accompanied by the required fee as prescribed in Section 118.0.

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113.3 By whom application is made: Application for a permit shall be made by the owner of the building or structure. The full names and addresses of the owner, applicant, and of the responsible officers, if the owner is a corporate body, shall be stated in the application.

113.4 Description of work: The application shall contain a general description of the proposed work, its location, the use and occupancy of all parts of the building or structure and of all portions of the site or lot not covered by the building or structure; and shall state whether or not fire extinguishing equipment, plumbing, water piping, gasfitting, heating or electrical work is involved, the estimated cost of such work including the general work, and such additional information as may be required by the building commissioner or inspector of buildings. The building commissioner or inspector of buildings may require the facts contained in each application to be certified by the applicant under oath.

113.5 Plans and specifications: The application for the permit shall be accompanied by not less than three (3) copies of specifications and of plans drawn to scale, with sufficient clarity and detail dimensions to show the nature and character of the work to be performed. When quality of materials is essential for conformity to this code, specific information shall be given to establish such quality; and this code shall not be cited or the term "legal" or its equivalent be used as a substitute for specific information. The building official may waive the requirement for filing plans when the work involved is of a minor nature.

When such application for a permit must comply with the provisions of Article 6 or Article 10 of this code, the building official shall cause one (1) such set of plans and specifications received by him to be forwarded simultaneously to the head of the fire department for his file and approval of the items specified in Section 1000.0 as they relate to the applicable sections of Article 6 and Article 10. The head of the fire department shall within ten (10) working days from the date of receipt by him approve or disapprove such plans and specifications. Upon request by the head of the fire department, the building official may grant one (1) or more extensions for such review, providing, however, that the total review by said head of the fire department shall not exceed thirty (30) calendar days. If such approval, disapproval or request for an extension of time shall not be received by the building official within said ten (10) working days, the building official may deem the plans and specifications to be in full compliance with the applicable sections of Article 6 and Article 10 and, therefore, approved by the head of the fire department.

All plans filed with the building official shall include but not be limited to:

1. the accurate locations and dimension of all means of egress from fire and an occupancy schedule of persons for all occupiable spaces;

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2. the method and amount of ventilation and sanitation;
3. the methods of firestopping as required in this code; and
4. schedules and details indicating compliance of interior trim and finish with provisions of Article 9.

113.5.1 Structures subject to control: In those structures subject to control as required in Section 127.0, affidavits must be submitted with the permit application that the individuals and testing laboratories responsible for carrying out the duties specified in Section 127.0 have been licensed by the BBRS.

113.5.2 Architects' and engineers' seals: Unless otherwise provided in this code, all plans and specifications for buildings and structures containing more than thirty-five thousand (35,000) cubic feet of enclosed space shall bear the Massachusetts seal of registration of a qualified registered professional engineer or architect.

Plans and specifications, plats and records whenever required to be stamped with the seal of a registered professional engineer or architect shall be signed by the registrant named thereon. The use of a facsimile signature stamp shall not be deemed to comply with this section.

113.6 Site plan: There shall also be filed prior to a permit being granted for the excavation or for the erection of any building or structure a site plan showing to scale the size and location of all new construction and all existing structures on the site, distances from lot lines, the established street grades if they exist (verified by the town or city) and proposed finished grades. In the case of demolition, the site plan shall show all construction to be demolished and the location and size of all existing structures and construction that are to remain on the site or plot. The site plan shall not be changed except as specified in Sections 113.8 and 115.3.

113.7 Engineering details: The building official may require adequate details of structural, mechanical and electrical work, including computations, stress diagrams and other essential technical data, prepared by a registered professional engineer qualified by experience in the specific field of construction, to be filed. All such plans and computations shall bear the Massachusetts seal of registration and signature of the qualified registered professional engineer or architect.

113.8 Amendments to application: Subject to the limitations of Section 113.9, amendments or revisions to a plan or other records accompanying the same may not be made until the proposed changes have been filed with and approved by the building official; and such approved amendments shall be deemed part of the original application and shall be filed therewith.

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113.9 Time limitation of application: An application for a permit for any proposed work shall be deemed to have been abandoned six (6) months after date of filing, unless such application has been diligently prosecuted or a permit has been issued; except that for reasonable cause the building official may grant one or more extensions of time for additional periods not exceeding ninety (90) days each.

SECTION 114.0 PERMITS

114.1 Action on application: The building commissioner or inspector of buildings shall examine or cause to be examined all applications for permits and amendments thereto within thirty (30) days after filing. If the application or the plans do not conform to the requirements of Section 113.0 or other related sections of this code or of pertinent laws within his direct jurisdiction, he shall reject such application in writing citing the specific sections of this code or pertinent law. If he is satisfied that the proposed work conforms to the requirements of this code and all pertinent law applicable thereto, he shall issue a permit.

114.1.1 Railroad Right-of-Way: No permit to build a structure of any kind on land formerly used as a railroad right-of-way or any property appurtenant thereto formerly used by any railroad company in the state shall be issued without first obtaining, after public hearing, the consent in writing to the issuance of such permit from the Secretary of the Executive Office of Transportation and Construction, all in accordance with MGL C40, S54A.

114.1.2 Water Supply: No permit shall be issued for the construction of a building or structure which would necessitate the use of water therein, unless a supply of water is available therefor, either from a water system operated by a city, town or district, or from a well located on the land where the building or structure is to be constructed, or from a water corporation or company, as required by MGL C40, S54.

114.1.3 Debris: As a condition of issuing a permit for the demolition, renovation, rehabilitation or other alteration of a building or structure, MGL C40, S54 requires that the debris resulting therefrom shall be disposed of in a properly licensed solid waste disposal facility as defined by MGL C111, S150A. Signature of the permit applicant, date and number of the building permit to be issued shall be indicated on a form provided by the building department, and attached to the office copy of the building permit retained by the building department. In the case of a large project where the name and location of the disposal facility may be unknown at the time of the building permit application, an affidavit provided by the building department containing the number of the building permit, date, within two months, when notification will be submitted to the building official of the name and location of the waste disposal facility, signature and address of the permit applicant and date shall be acceptable.

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Exception: This sub-section does not apply to new buildings or structures.

114.2 Report to assessors: The building official shall give to the assessors of the municipality written notice of the granting by him of permits for the construction of any buildings or structures, or for the removal or demolition, or for any substantial alteration or addition thereto. Such notice shall be given within seven (7) days after the granting of each permit, and shall state the name of the person to whom the permit was granted and the location of the building or structure to be constructed, reconstructed, altered, demolished or removed.

114.3 Expiration of permit: Any permit issued shall be deemed abandoned and invalid unless the work authorized by it shall have been commenced within six (6) months after its issuance; however, for cause, one or more extensions of time, for periods not exceeding six (6) months each, may be granted in writing by the building commissioner or inspector of buildings. Work under such a permit in the opinion of the building commissioner or inspector of buildings, must proceed in good faith continuously to completion so far as is reasonably practicable under the circumstances.

For purposes of this section, any permit issued shall not be considered invalid if such abandonment or suspension of work is due to a court order prohibiting such work as authorized by such permit; provided, however, in the opinion of the building commissioner or inspector of buildings, the person so prohibited by such court order, adequately defends such action before the court.

114.4 Previous approvals: Nothing in this code or the rules and regulations pursuant thereto shall affect any building permit lawfully issued, or any building or structure lawfully begun in conformance with such permit, before the effective date of this code or any amendments thereto.

114.5 Signature to permit: The building commissioner or inspector of buildings shall attach his signature to every permit, or he may authorize a subordinate to affix such signature thereto.

114.6 Approved plans: If approved by him, the building commissioner or inspector of buildings or his authorized subordinate shall stamp and endorse in writing the plans submitted in accordance with Section 113.5; one (1) set of such stamped and endorsed plans shall be retained; the other set of plans shall be kept at the building site, open to the inspection of the building commissioner, inspector of buildings, or his authorized subordinate, at all reasonable times.

114.7 Revocation of permits: The building commissioner or inspector of buildings may revoke a permit or approval issued under the provisions of this code only in

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case of any false statement or misrepresentation of fact in the application or the plans on which the permit or approval was based.

114.8 Approval in part: When application for a permit to erect or add to a building or structure has been filed, as required in Section 113.5, and pending issuance of such permit, the building commissioner or inspector of buildings may, at his discretion, issue a special permit for the foundations or any other part of a building or structure, before the entire plans and specifications for the whole building have been submitted, provided adequate information and detailed statements have been filed complying with all the requirements of this code and pertinent law. The holder of such a special permit may proceed at his own risk without assurance that a permit for the entire structure will be granted.

114.9 Posting of permit: A copy of the building permit provided by the building department shall be kept in view and protected from the weather on the site of operation during the entire time the work is under execution and until the certificate of use and occupancy shall have been issued. The building permit shall serve as an inspection record card to allow the building official conveniently to make entries thereon regarding inspection of the work.

114.10 Notice of start: At least twenty-four (24) hours' notice of start of work under a building permit shall be given to the building official.

SECTION 115.0 CONDITIONS OF PERMIT

115.1 Compliance with code: The permit shall be a license to proceed with the work and shall not be construed as authority to violate, cancel or set aside any of the provisions of this code, except as specifically stipulated by modification or legally granted variation in accordance with Section 126.0.

115.2 Compliance with permit: All work shall conform to the stamped or endorsed application and plans for which the permit has been issued and any approved amendments thereto.

115.3 Change in site plan: A lot or site shall not be changed, increased or diminished in area from that shown on the official site plan, as specified in Section 113.6, unless a revised plan showing such changes accompanied by the necessary affidavit of owner or applicant shall have been filed and approved.

Exception: A revised site plan will not be required if the change is caused by reason of an official street opening, street widening or other public improvement.

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SECTION 116.0 DEMOLITION OF STRUCTURES

116.1 Service connections: Before a building or structure can be demolished or removed, the owner or agent shall notify all utilities having service connections within the building or structure, such as; water, electric, gas, sewer and other connections. A permit to demolish or remove a building or structure shall not be issued until a release is obtained from the utilities, stating that their respective service connections and appurtenant equipment, such as; meters and regulators have been removed or sealed and plugged in a safe manner.

116.2 Lot regulation: When a building or structure has been demolished or removed and a building operation has not been projected or approved, the vacant lot shall be filled with nonorganic fill, graded and maintained in conformity with adjacent grades. The lot shall be maintained free from the accumulation of rubbish and all other unsafe or hazardous conditions which endanger the health of the public; provisions shall be made to prevent the accumulation of water or damage to any foundations on the premises or the adjoining property; and the necessary retaining walls and fences shall be erected in accordance with the provisions of Article 30.

SECTION 117.0 MOVED STRUCTURES

117.1 General: Buildings and structures moved into or within the jurisdiction shall comply with the provisions of this code.

SECTION 118.0 FEES

118.1 General: A permit shall not be issued to begin work for new construction, alteration, removal, demolition or other building operation until the fees prescribed by municipal ordinance or bylaw shall have been paid to the city or town collector or other municipal agency authorized to collect such fees.

118.2 Other fees: The payment of the fee for the construction, alteration, removal or demolition and for all work done in connection with or concurrently with the work contemplated by a building permit shall not relieve the applicant or holder of the permit from the payment of other fees that may be prescribed by law or ordinance for water taps, sewer connections, electrical and plumbing permits, erection of signs and display structures, marquees or other appurtenant structures, or fees for inspections, certificates of use and occupancy or other privileges or requirements, both within and without the jurisdiction of the building department.

SECTION 119.0 CERTIFICATE OF USE AND OCCUPANCY

119.1 New buildings and structures: A building or structure hereafter shall not be used or occupied in whole or in part until the certificate of use and occupancy shall have been issued by the building commissioner or inspector of buildings or, when applicable, the state inspector. The certificate shall not be issued until all the work has been completed in accordance with the provisions of the approved permits and of the applicable codes for which a permit is required, except as provided in Section 119.4.

Prior to the issuance of the certificate of use and occupancy, the building commissioner or inspector of buildings shall cause a written request to be transmitted to the head of the fire department concerning the issuance of the certificate with regard to items in Section 1000.1.1 of this code. Within three (3) working days of receipt of the request the head of the fire department shall indicate concurrence with the issuance of said certificate or non-concurrence with specific reasons therefor which relate to the items listed in said Section 1000.1.1. Should no response to the inquiry be received by the building commissioner or inspector of buildings within five (5) working days, the building commissioner or inspector of buildings shall deem concurrence by the head of the fire department.

119.2 Buildings or structures hereafter altered: A building or structure, in whole or in part, altered to change from one use group to another; to a different use within the same use group; the fire grading; the maximum live load capacity; the occupancy load capacity; or a building or structure hereafter altered for which a certificate of use and occupancy has not been heretofore issued, shall not be occupied or used until the certificate shall have been issued certifying that the work has been completed in accordance with the provisions of the approved permits and of the applicable codes for which a permit is required. Any use or occupancy, which was not discontinued during the work of alteration, shall be discontinued within thirty (30) days after the completion of the alteration unless the required certificate is issued.

119.3 Existing buildings or structures: If a certificate of use and occupancy has not been issued, upon written request from the owner of an existing building or structure, a certificate of use and occupancy shall be issued, provided there are no violations of law or orders of the building official pending, and it is established after inspection and investigation that the alleged use of the building or structure has heretofore existed. Nothing in this code shall require the removal, alteration or abandonment of, or prevent the continuance of the use and occupancy of a lawfully existing building or structure, unless such use is deemed to endanger public safety and welfare.

119.4 Temporary occupancy: Upon the request of the holder of a permit, a temporary certificate of occupancy for a building or structure or part thereof may be issued before the entire work covered by the permit shall have been completed, provided such portion or portions may be occupied safely prior to full completion of the building or structure without endangering life or public welfare, and provided that the agencies having jurisdiction for permits issued under other applicable codes are notified of the decision to issue a temporary certificate.

119.5 Contents of certificate: The certificate shall certify compliance with the provisions of this code and the purpose for which the building or structure may be used in its several parts; and shall be issued within ten (10) days after final inspection, provided that the provisions of the approved permits and of the applicable codes for which permits are required have been met. The certificate of use and occupancy shall specify: the use group in accordance with the provisions of Article 3, the fire grading as defined in Article 2 and Table 902, the maximum live load on all floors as prescribed in Article 11, the occupancy load in the building and all parts thereof as defined in Article 2 and Article 8, and any special stipulations and conditions of the building permit.

SECTION 120.0 POSTING STRUCTURES

120.1 Posted use and occupancy: A suitably designed placard approved by the building official shall be posted by the owner on all floors of every building and structure and part thereof designed for high hazard, storage, mercantile, factory and industrial or business use (use groups H, S, M, F and B) as defined in Article 3. Said placard shall be securely fastened to the building or structure in a readily visible place, stating: the use group, the fire grading, the live load and the occupancy load.

120.2 Posted occupancy load: A suitably designed placard approved by the building official shall be posted by the owner in every room where practicable of every building and structure and part thereof designed for use as a place of public assembly or as an institutional building for harboring people for penal, correctional, educational, medical or other care or treatment, or as residential buildings used for hotels, lodging houses, boarding houses, dormitory buildings, multiple family dwellings (use groups A, I, R-1 and R-2). Said placard shall designate the maximum occupancy load.

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

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120.4 Periodic inspection for posting: The building official may periodically inspect all existing buildings and structures except one and two family dwellings for compliance with this code in respect to posting; or he may accept the report of such inspections from a qualified registered engineer or architect or others certified by the BBRs; and such inspections and reports shall specify any violation of the requirements of this code in respect to the posting of floor load, fire grading, occupancy load and use group of the building or structure.

SECTION 121.0 VIOLATIONS

121.1 Unlawful acts: It shall be unlawful for any person, firm or corporation to erect, construct, alter, reconstruct, repair, remove, demolish, use or occupy any building or structure or equipment regulated by this code, or cause same to be done, contrary to or in conflict with or in violation of any of the provisions of this code.

121.2 Notice of violation: The building official shall serve a notice of violation or order on the person responsible for the erection, construction, alteration, reconstruction, repair, removal, demolition, use or occupancy of a building or structure in violation of the provisions of this code, or in violation of a detail statement or a plan approved thereunder, or in violation of a permit or certificate issued under the provisions of this code; and such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation.

121.2.1 Notice or orders, service and content: Every notice or order authorized by this code shall be in writing and shall be served on the person responsible:

1. personally, by any person authorized by the building official; or
2. by any person authorized to serve civil process by leaving a copy of the order or notice at his last and usual place of abode; or
3. by sending him a copy of the order by registered or certified mail return receipt requested, if he is within the Commonwealth; or
4. if his last and usual place of abode is unknown, by posting a copy of this order or notice in a conspicuous place on or about the premises in violation and by publishing it for at least three (3) out of five (5) consecutive days in one (1) or more newspapers of general circulation wherein the building or premises affected is situated.

121.3 Prosecution of violation: If the notice of violation is not complied with within the time period specified in the notice, unless otherwise provided in this code,

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the building official may institute the appropriate proceedings at law or in equity in a court of competent jurisdiction to restrain, correct or abate such violation or to require the removal or termination of the unlawful use of the building or structure in violation of the provisions of this code or of the order or direction made pursuant thereto.

121.4 Violation penalties: Anyone who shall violate a provision of this code shall be punishable by a fine of not more than one thousand dollars (\$1,000) or by imprisonment for not more than one year, or both, for each violation. Each day during which any portion of a violation continues shall constitute a separate offense.

121.5 Abatement of violation: The imposition of the penalties herein prescribed shall not preclude the building official from instituting appropriate action to prevent unlawful construction or to restrain, correct or abate a violation, or to prevent illegal occupancy of a building, structure or premises or to stop an illegal act, conduct, business or use of a building or structure in or about any premises.

SECTION 122.0 STOP-WORK ORDER

122.1 Notice to owner: Upon notice from the building official that any work is being prosecuted contrary to the provisions of this code or in an unsafe or dangerous manner, such work shall be immediately stopped. The stop-work order shall be in writing and shall be served on the owner or on the person doing the work, and shall state the conditions under which work maybe resumed; provided, however, that in instances where immediate action is deemed necessary for public safety or in the public interest, the building official may require that work be stopped upon verbal order, provided that said verbal order be confirmed in writing within forty-eight (48) hours.

122.1.1 Posting: A stop-work notice shall be posted in a conspicuous place on the job site and can only be removed by the building official.

122.2 Unlawful continuance: Anyone who shall continue any work in or about the job site after having been served with a stop-work order, except such work as he is directed by the building official to perform to remove a violation of unsafe conditions, shall be liable to prosecution as provided in Section 121.0.

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SECTION 123.0 UNSAFE STRUCTURES

123.1 Inspection: The building official immediately upon being informed by report or otherwise that a building or other structure or anything attached thereto or connected therewith is dangerous to life or limb or that any building in that city or town is unused, uninhabited or abandoned, and open to the weather, shall inspect the same; and he shall forthwith in writing notify the owner to remove it or make it safe if it appears to him to be dangerous, or to make it secure if it is unused, uninhabited or abandoned and open to the weather. If it appears that such structure would be especially unsafe in case of fire, it shall be deemed dangerous within the meaning hereof, and the building official may affix in a conspicuous place upon its exterior walls a notice of its dangerous condition, which shall not be removed or defaced without authority from him.

123.2 Removal or making structure safe: Any person so notified shall be allowed until twelve o'clock noon of the day following the service of the notice in which to begin to remove such building or structure or make it safe, or to make it secure, and he shall employ sufficient labor speedily to make it safe or remove it or to make it secure; but if the public safety so requires and if the mayor or selectmen so order, the building official may immediately enter upon the premises with the necessary workmen and assistants and cause such unsafe structure to be made safe or demolished without delay and a proper fence put up for the protection of passersby, or to be made secure.

SECTION 124.0 EMERGENCY MEASURES

124.1 Failure to remove or make structure safe, survey board, survey report: If an owner of such unsafe structure refuses or neglects to comply with the requirements of such notice within the specified time limit, and such structure is not made safe or taken down as ordered therein, a careful survey of the premises shall be made by a board consisting; in a city, of a city engineer, the head of the fire department, as such term is defined in Section 1 of Chapter 148 of the Massachusetts General Laws Annotated, as amended, and one disinterested person to be appointed by the building official; and, in a town, of a surveyor, the head of the fire department and one disinterested person to be appointed by the building official. In the absence of any of the above officers or individuals, the mayor or selectmen shall designate one or more officers or other suitable persons in place of the officers so named as members of said board. A written report of such survey shall be made, and a copy thereof served on such owner.

124.2 Removal of dangerous or abandoned structures: If such survey report as outlined in Section 124.1 declares such structure to be dangerous or to be unused, uninhabited or abandoned, and open to the weather, and if the owner continues such refusal or neglect, the building official shall cause it to be made safe or taken

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down or to be made secure; and, if the public safety so requires, said building official may at once enter the structure, the land on which it stands or the abutting land or buildings, with such assistance as he may require, and secure the same; and may remove and evict, under the pertinent provisions of Chapter 239 of the Massachusetts General Laws Annotated as amended, or otherwise, any tenant or occupant thereof; and may erect such protection for the public by proper fence or otherwise as may be necessary, and for this purpose may close a public highway. In the case of such demolition, the said building official shall cause such lot to be levelled to conform with adjacent grades by a nonorganic fill. The costs and charges incurred shall constitute a lien upon the land upon which the structure is located, and shall be enforced in an action of contract; and such owner shall, for every day's continuance of such refusal or neglect after being so notified, be punished by a fine in accordance with Section 121.4. The provisions of the second paragraph of Section 3A of Chapter 139 of the Massachusetts General Laws Annotated as amended, relative to liens for such debt and the collection of claims for such debt shall apply to any debt referred to in this section, except that the said building official shall act hereunder in place of the mayor or board of selectmen. During the time such order is in effect, it shall be unlawful to use or occupy such structure or any portion thereof for any purpose.

124.3 Remedy of person ordered to remove a dangerous structure or make it safe: An owner, aggrieved by such order may have the remedy prescribed by Section 2 of Chapter 139 of the Massachusetts General Laws Annotated as amended; provided that any provision of said Section 2 shall not be construed so as to hinder, delay or prevent the building official from acting and proceeding under Section 124.2; and provided, further, that this section shall not prevent the city or town from recovering the forfeiture provided in said Section 124.2 from the date of the service of the original notice, unless the order is annulled by the jury.

125.0 RESERVED

SECTION 126.0 BOARD OF APPEALS

126.1 State Building Code Appeals Board: Whoever is aggrieved by an interpretation, order, requirement, direction or failure to act under this code by any agency or official of the city, town or region, or agency or official of the State charged with the administration or enforcement of this code or any of its rules or regulations, excepting any specialized codes, may appeal directly to the State Building Code Appeals Board as provided in Section 126.0.

Whoever is aggrieved by an interpretation, order, requirement, direction or failure to act under this code by any agency or official of a city, town or region charged with the administration or enforcement of this code or any of its rules and

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regulations, excepting any specialized codes, may appeal directly to the State Building Code Appeals Board or may appeal first to a local or regional building code appeals board and if aggrieved thereby he may then appeal to the State Building Code Appeals Board as provided in Section 126.0.

In the event an appeal is taken directly to the State Building Code Appeals Board from an interpretation, order, requirement or direction, said appeal shall be filed as specified in Section 126.3.1 with the State Building Code Appeals Board not later than forty-five (45) days after the service of notice thereof of the interpretation, order, requirement or direction.

In the event the appeal is taken directly to the State Building Code Appeals Board for the failure to act, the appeal shall be taken not later than forty-five (45) days after a request to act has been made by the aggrieved person in writing and served upon the appropriate building official or chief administrative officer of the state or local agency which fails to act.

If the aggrieved person elects to appeal before the local or regional building code appeals board, he shall not be allowed to enter such appeal with the State Building Code Appeals Board until such time as the said local or regional board renders a decision, unless the reason for appeal to the State Building Code Appeals Board is the failure of the local or regional board to act.

126.2 Membership

126.2.1 Three member panel: The State Building Code Appeals Board (hereinafter referred to in Section 126.0 as the Board) shall consist of the membership of the BBRS. The chairman of the BBRS shall be Chairman of the Board. The Chairman of the Board may designate any three (3) members of the Board to act as a three (3) member panel to hold any public hearing under Section 126.0 and to hear testimony and take evidence. The Chairman of the Board shall select one (1) of the three (3) members to act as chairman of the said three (3) member panel. If a three (3) member panel is so designated, the three (3) member panel shall act as the Appeals Board and render a decision as provided in Section 126.0.

126.2.2 Clerk: The administrator of the BBRS shall designate a clerk to the BBRS. The clerk shall keep a detailed record of all decisions and appeals and a docket book on file showing the name of each appeal properly indexed and the disposition of the appeal. Said docket book shall be open to public inspection at all times during normal business hours.

126.2.3 Quorum: A majority of the Board shall constitute a quorum if the appeal is heard by the entire Board.

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126.3 Appeals procedure for State Building Code Appeals Board

126.3.1 Entry: Appeals shall be entered on forms provided by the BBRS and shall be accompanied by an entry fee of one-hundred fifty (\$150) dollars or such other amounts as may be determined by the BBRS from time to time.

The appeal shall be signed by the appellant or his attorney or agent and shall note the name and address of the person or agency in whose behalf the appeal is taken and the name of the person and address wherein service of notice for the appellant is to be made. The appeal shall also state in detail the interpretation, order, requirement, direction or failure to act which are the grounds of the appeals as well as the particular section or sections of this code which are involved in the appeal and the reasons for the appellant advances supporting the appeal.

A copy of the appeal shall be served in accordance with Section 121.2.1 by the appellant on the person or state, regional or local agency from whose action or inaction the appeal is taken, on or before entry of the appeal. An affidavit, under oath, that such copy has been served shall be filed with the Board forthwith by the appellant.

126.3.2 Stay of Proceedings: Entry of an appeal shall stay all proceedings in furtherance of the action or failure to act appealed from, unless the state, regional or local agency or any person charged with the administration or enforcement of this code or any of its rules or regulations presents evidence and the Board or a three (3) member panel or a single member of the Board, appointed by the chairman for said purpose, finds that upon the evidence presented a stay would involve imminent peril to life or property. In such an event, stay of all proceedings shall be waived or the Board or three (3) member panel or single member may order such other action necessary to preserve public safety.

Before waiving the stay or proceedings, the Board or three(3) member panel or single member of the Board, appointed by the chairman for said purpose, shall hold a hearing and give the appellant and state, regional or local agency or any person claiming that a stay would involve imminent peril to life or property, notice in writing of the hearing not less than twenty-four (24) hours before said hearing.

126.3.3 Documents: Upon entry, the clerk shall request in writing from the state, city, regional or town officer in charge of the matter on appeal, a copy of the record and all other papers and documents relative to the appeal to be transmitted forthwith to the Board. Said state, city, regional or town officer shall upon receipt of the request of the Board transmit forthwith all the papers and documents and a copy of the record relating to the matter on appeal.

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126.3.4 Hearings: The chairman of the Board shall fix a convenient time and place for a public hearing. Said hearings shall be held not later than thirty (30) days after the entry of such appeal, unless such time is extended by agreement with the appellant. Any such party may appear in person or by agent or attorney at such hearing. The chairman or clerk shall give notice of the time and place of said hearing to all parties to the hearing and to anyone else requesting notice in writing at least ten (10) days prior thereto. Failure to hold a public hearing within thirty (30) days shall not affect the validity of the appeal or any decision rendered. The Board or three (3) member panel in its hearings conducted under this section shall not be bound by strict rules of evidence prevailing in courts of law or equity.

126.4 Decisions

126.4.1 Votes required: If the appeal is conducted by a three (3) member panel, then the concurrence of two (2) of the three (3) members holding the public hearing shall be required. If the appeal is conducted by the entire Board, then a majority vote of those hearing the case shall be required.

126.4.2 Standard: The Board or a three (3) member panel may vary the application of any provision of this code in any particular case, may determine the suitability of alternate materials and methods of construction, and provide reasonable interpretations of the provisions of this code; provided that the Board or a three-member panel finds that the decision to grant a variance shall not conflict with the general objectives set forth Section 95 of Chapter 143 of the General Laws of the Commonwealth or with the general objectives of this code.

126.4.3 Time for decision: The Board shall within thirty (30) days after such hearing, unless such time is extended by agreement of the parties, issue a decision or order reversing, affirming or modifying in whole or in part the order, interpretation, requirement, direction or failure to act which is the subject matter of the appeal.

Failure to render a decision within thirty (30) days shall not affect the validity of any such decision or appeal.

Notice of and a copy of the decision shall be sent by the clerk to all parties to the appeal and anyone requesting in writing a copy of the decision.

126.4.4 Contents of decision: All decisions shall be in writing and state findings of fact, conclusions and reasons for decisions. Every decision shall indicate thereon the vote of each member and shall be signed by each member voting. A decision shall not be considered by any person or agency as a precedent for future decisions.

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126.4.5 Additional powers: The Board or a three (3) member panel may impose in any decision, limitations both as to time and use, and a continuation of any use permitted may be conditioned upon compliance with future amendments to this code.

126.5 Enforcement: Upon receipt of the decision of the Board or a three (3) member panel, the parties to the appeal shall take action forthwith to comply with the decision unless a later time is specified in the decision.

126.6 Appeals from State Building Code Appeals Board: Any person aggrieved by a decision of the State Building Code Appeals Board may appeal to a court of law or equity in conformance with Chapter 30A, Section 14 of the General Laws.

126.7 Local and regional board of appeals

126.7.1 Local or regional board of appeals: Whoever is aggrieved by an interpretation, order, requirement, direction or failure to act under this code by any agency or official of a city, region or town charged with the administration or enforcement of this code or any of its rules and regulations may appeal first to the appeals board in that city, region or town and then to the State Building Code Appeals Board as provided in Section 126.0.

In the event an appeal is taken from an interpretation, order, requirement or direction, said appeal shall be filed with the local or regional appeals board not later than forty-five (45) days after the service of notice thereof of the interpretation, order, requirement or direction.

In the event the appeal is taken for the failure to act, the appeal shall be taken not later than forty-five (45) days after a request to act has been made by the aggrieved person in writing and served to the appropriate building official or chief administrative officer of the city, regional or town agency which fails to act.

126.7.2 Membership: Any building code board of appeals duly established by ordinance or by law or otherwise in a city, region or town and in existence on January 1, 1975, shall qualify as a local board of appeals under Section 126.0 notwithstanding anything to the contrary contained herein. However, the procedure and rights for appeals for such board of appeals shall be governed by this code.

If a city, region or town had not duly established by ordinance or bylaw or otherwise a local or regional building code appeals board prior to January 1, 1975, said city, region or town may establish a local or regional board of appeals, hereinafter referred to as the local board of appeals, consisting of five (5) members appointed by the chief administrative officer of the city, region or town: one (1) member appointed for five(5) years, one (1) for four (4) years, one for three (3)

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years, one for two (2) years and one to serve for one (1) year; and thereafter each new member to serve for five (5) years or until his successor has been appointed.

126.7.3 Qualifications of local board members: Each member of a local board of appeals established under Section 126.7.2 shall have had at least five (5) years experience in the construction, alteration, repair and maintenance of building and building codes. At least one (1) member shall be a registered structural or civil professional engineer and one (1) member a licensed professional architect.

126.7.4 Chairman of local or regional board: The board shall select one (1) of its members to serve as chairman and a detailed record of all proceedings shall be kept on file in the building department.

126.7.5 Absence of members: During the absence of a member of a local board of appeals for reason of disability or disqualification, the chief administrative officer of the city, region or town shall designate a substitute who shall meet the qualifications as outlined in Section 126.7.3.

126.7.6 Quorum: A quorum shall be three (3) members.

126.7.7 Procedures: Entry of appeals shall be governed by Section 126.3.1 excepting that a city, region or town may set its own entry fee.

Upon notice of entry of appeal the local building commissioner or inspector of buildings shall transmit a copy of the record and all the papers and documents to the local board of appeals.

Entry of an appeal shall stay all proceedings in furtherance of the action or failure to act appealed from, unless the building commissioner or inspector of buildings certifies in writing to the local board of appeals that a stay would involve imminent peril to life or property. Notice in writing of such certification by the building commissioner or inspector of buildings shall be given the appellant at least twenty-four (24) hours prior to the hearing. In such an event a hearing on such stay shall be given first priority and be the first matter heard by the local board of appeals at its next scheduled meeting. The hearing on the appeal shall be held as soon as possible thereafter in accordance with Section 126.7.8.

The local board of appeals may establish its own rules for procedure not established herein or not inconsistent with this code or with the general objectives set forth in Section 95 of Chapter 143 of the General Laws of the Commonwealth

126.7.8 Hearings: All hearings shall be public and notice of said hearings shall be advertised in a newspaper of general circulation in the city, region or town in which the appeal is taken at least ten (10) days before said hearing. Notice of the

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hearing, setting forth the date and time of said hearing, shall be mailed by the local board of appeals to all parties and all those who requested notice in writing at least fourteen (14) days before said hearing. Said hearings shall be held not later than thirty (30) days after the entry of such appeal, unless such time is extended by agreement with the appellant. This section as it pertains to notice shall not apply to hearings on a stay as provided in Section 126.7.7.

126.7.9 Decisions of local boards: A concurring vote of a majority of all the members present shall be required for any decision. The local board of appeals may vary the application of this code to any particular case, may consider the suitability of alternate materials and methods of construction and may provide reasonable interpretations of the provisions of this code; provided that the decision of the local board shall not conflict with the general objectives of the state building code or with the general objectives of Section 95 of Chapter 143 of the General Laws of the Commonwealth. The local board of appeals may impose, in any decision, limitations both as to time and use, and a continuation of any use permitted may be conditioned upon compliance with future amendments to this code.

126.7.10 Time for decision: The board shall within thirty (30) days after such hearing, unless such time is extended by agreement of the parties, issue a decision or order reversing, affirming or modifying in whole or in part the order, interpretation, requirement, direction or failure to act which is the subject matter of the appeal.

Failure to render a decision within thirty (30) days shall not affect the validity of any such decision or appeal.

Notice of and a copy of the decision shall be sent by the clerk to all parties to the appeal and to anyone requesting in writing a copy of the decision.

126.7.11 Contents of decision: All decisions shall be in writing and state findings of fact, conclusions and reasons for the decisions. Every decision shall indicate thereon the vote of each member and shall be signed by each member voting. Any decision shall not be considered by any person or agency as a precedent for future decisions.

126.7.12 Copy of decision: A copy of any decision by a local board of appeals shall be transmitted to the State Building Code Appeals Board within ten (10) days after the rendering of such decision. If the State Building Code Appeals Board disapproves of the said decision of the local board, it may on its own motion appeal from the decision of the local board of appeals according to Section 126.0 and call for a hearing de novo.

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If the State Building Code Appeals Board does not notify the local board in writing within forty-five (45) days from the date of the local board's decision, the said decision shall be deemed approved; provided that the decision shall not conflict with the general objectives of the state building code and the objectives of Section 95, Chapter 143 of the General Laws of the Commonwealth.

126.7.13 Enforcement of decision: If said decision is approved by the State Building Code Appeals Board, all parties to the appeal shall take immediate action in accordance with the decision of the local board unless the person aggrieved by such decision appeals to the State Building Code Appeals Board as provided in Section 126.0.

126.7.14 Review: Any person, including the State Building Code Appeals Board, aggrieved by a decision of the local board of appeals, whether or not a previous party to the decision, or any municipal officer or official board of the municipality, may, not later than forty-five (45) days after the mailing of the decision of the local board, apply to the State Building Code Appeals Board for a hearing de novo before the State Board, in accordance with the regulations contained in Section 126.0.

SECTION 127.0 CONSTRUCTION CONTROL

127.1 Responsibilities: The provisions of this section define the construction controls required for all structures needing registered professional architectural or engineering services, and delineate the responsibilities of such professional services together with those services that are the responsibility of the contractor during construction.

Exceptions:

1. Any building containing less than thirty-five thousand (35,000) cubic feet of enclosed space;
2. Any single or two family house or any accessory building thereto;
3. Any building used for farm purposes; and
4. Retaining walls less than ten (10) feet in height at all points along the wall as measured from the base of the footing to the top of the wall.

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127.2 Professional architecture or engineering services.

127.2.1 Design: All plans, computations and specifications involving new construction, alterations, repairs, expansions or additions shall be prepared by or under the direct supervision of a registered professional architect or engineer and bear his signature and seal; said signature and seal shall signify that the plans, computations and specifications meet the applicable provisions of this code, all acceptable engineering practices and all applicable laws and ordinances.

127.2.2 Architect/engineer inspectional responsibility: A registered professional architect or engineer shall be responsible for the following:

1. Review of shop drawings, samples and other submittals of the contractor as required by the construction contract documents as submitted for building permit, and approval for conformance to the design concept.
2. Review and approval of the quality control procedures for all code-required controlled materials.
3. Special architectural or engineering professional inspection of critical construction components requiring controlled materials or construction specified in the accepted engineering practice standards.

A registered professional architect or engineer shall perform the necessary professional services and be present on the construction site on a regular and periodic basis to determine that, generally, the work is proceeding in accordance with the documents approved for the building permit.

127.2.3 Reporting: A registered professional architect or engineer shall submit periodically, in a form acceptable to the building official, a progress report together with pertinent comments. At the completion of the construction, the registered professional architect or engineer shall submit to the building official a report as to the satisfactory completion and the readiness of the project for occupancy (excepting any items not endangering such occupancy and listing pertinent deviations from the approved building permit documents).

127.3 Construction contractor services: The actual construction of the work shall be the responsibility of the general contractor as identified on the approved building permit and shall involve the following:

1. Execution of all work in accordance with the approved construction documents.
2. Execution and control of all methods of construction in a safe and satisfactory manner in accordance with all applicable local, state, and federal statutes and regulations.

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3. Upon completion of the construction, he shall certify to the best of his knowledge and belief that such has been done in substantial accord with Items 1 and 2 above and with all pertinent deviations specifically noted.

127.4 Special professional services: When applications for unusual designs or magnitude of construction are filed, or where reference standards require special architectural or engineering inspections, the building official may require full-time project representation by the registered professional architect or engineer in addition to that provided in Section 127.2.2. The project representative shall keep daily records and submit reports as may be required by the building official. Upon completion of the work, the registered professional architect or engineer shall file a final report as required under Section 127.2.3.

127.4.1 Building permit requirement: This special professional service requirement shall be determined prior to the issuance of the building permit and shall be a requisite for the permit issuance. Refusal by the applicant to provide such service as required by the building official shall result in the denial of the permit. However, the applicant may file an appeal as provided in Section 126.0.

127.4.2 Fee and costs: All fees and costs related to the performance of special professional services shall be borne by the applicant.

127.5 Building official responsibility: Nothing contained in this section shall have the effect of waiving or limiting the building official's authority to enforce this code with respect to examination of the contract documents, including plans, computations and specifications, and field inspections (see Section 108.0).

SECTION 128.0 CONSTRUCTION MATERIALS SAFETY BOARD

128.1 Membership: There shall be a board under the control of the BBRS called the Construction Materials Safety Board, hereafter in Section 128.0 called the CMSB which shall consist of nine (9) members, one (1) of whom shall be a member of the BBRS who shall be ex-officio and a voting member of the Board and eight (8) members to be appointed by the chairman of the BBRS: one of whom shall be a registered professional engineer who is a structural engineer; one of whom shall be a registered architect; one of whom shall be a representative of a commercial testing laboratory; one of whom shall be a representative of a public testing laboratory; two of whom shall be representatives from the construction industry; one of whom shall be a member of a university faculty engaged in research and teaching in structural materials; and one of whom shall be a member of a university faculty engaged in research and teaching in the area of theoretical and applied mechanics.

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128.2 Duties: The CMSB will review applications for registration or licensing of individuals, laboratories or firms responsible for the inspection, control and testing of construction materials, and review applications and pertinent data relevant to all materials, devices, products and methods of construction not included in this code; and report to the BBRS their recommendations. The CMSB will collect information and review cases where disciplinary action against an existing license, whether an individual, laboratory or firm, has been proposed; and make recommendations to the BBRS. The BBRS will issue applications, receive payment for the review of such applications and approvals, registration and licensing fees, and maintain records for the efficient dispatch of the duties of the CMSB.

128.3 Testing and evaluation groups: The BBRS shall establish and maintain testing and evaluation groups who will have the responsibility of administering and directing, under the supervision of the BBRS, the testing and controls for evaluating individual applicants, laboratories and firms wishing to become registered or licensed.

SECTION 129.0 ACTIVITIES REQUIRING LICENSES

129.1 Concrete

129.1.1 Field technicians: A person shall not engage in the activities of field testing of concrete for use in structures subject to construction control (Section 127.0) and/or controlled materials (Section 1304.0) unless such person is licensed by the BBRS in accordance with the Rules and Regulations for Concrete Testing Personnel.

129.1.2 Testing laboratories: A testing laboratory, branch laboratory and/or project laboratory shall not test concrete and/or concrete materials for use in structures subject to construction control (Section 127.0) and/or controlled materials (Section 1304.0) unless licensed by the BBRS in accordance with this code and the Rules and Regulations for Licensing of Concrete Testing Laboratories.

129.2 Native lumber: A person shall not engage in producing native lumber for use in structures within the Commonwealth of Massachusetts unless registered by the BBRS in accordance with this code and the Rules and Regulations Controlling the Use of Native Lumber.

129.3 Enforcement: Any person or laboratory who violates the provisions of this section, or any rules and regulations promulgated hereunder, or who falsifies or counterfeits a license or registration issued by the BBRS, or who fraudulently issues or accepts such a license shall be punished as provided in Section 121.0.

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SECTION 130.0 FIRE PREVENTION - FIRE PROTECTION BOARD

130.1 Constitution of the Fire Prevention - Fire Protection Board: There shall be a Board under the control of the BBRS called the Fire Prevention Fire Protection Board, hereinafter in Section 130.0 called the FFP Board which shall consist of thirteen (13) members, two (2) of whom shall be members of the BBRS; one (1) of whom shall be the State Fire Marshal or his designee, all three (3) of whom shall be ex-officio and voting members of the Board, and ten (10) members to be appointed by the chairman of the BBRS for a term of one(1) year; three (3) of whom shall be representatives of the Fire Chiefs Association; two (2) of whom shall be representatives of the Massachusetts Fire Prevention Association; one (1) of whom shall be a representative of the International Municipal Signalmen's Association; one (1) of whom shall be a member of the Board of Fire Prevention Regulations; one (1) of whom shall be a Fire Protection Engineer; one (1) of whom shall be a building official and one (1) of whom shall be a registered professional engineer or architect. A chairman and a vice chairman shall be chosen by the members of the Board to serve for one (1) year. A member of an agency or board of the state shall not be eligible for the office of chairman or vice chairman.

130.2 Purpose: The FFP Board will review and recommend to the BBRS changes to this code relating to fire prevention and fire protection and more specifically those matters contained in Article 10 of this code.

131.0 - 139.0 RESERVED -*fant*

SECTION 140.0 VALIDITY

140.1 General: The provisions of this code are severable, and if any of its provisions shall be held unconstitutional or otherwise invalid by any court of competent jurisdiction, the decision of such court shall not affect or impair any of the remaining provisions.

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ARTICLE 2

DEFINITIONS

SECTION 200.0 GENERAL

200.1 Scope: Unless otherwise expressly stated, the following terms shall, for the purpose of this code, have the meaning indicated in this section.

200.2 Interchangeability: Words used in the present tense include the future; words used in the masculine gender include the feminine and neuter; the singular number includes the plural and the plural the singular.

200.3 Terms defined in other codes: Any terms relating to elevators, dumbwaiters and escalators shall have their meaning as defined by 524 CMR 3.00-11.00 and 524 CMR 15.00-33.00, as well as Article 26. Any terms relating to plumbing, gasfitting and electrical wiring shall have their terms as defined by 248 CMR 2.00, 248 CMR 3.00-8.00 and 527 CMR 12.00 respectively as listed in Appendix G.

200.4 Terms not defined: Where terms are not defined through methods authorized by this section, they shall have their ordinarily accepted meanings such as the context implies.

200.5 Application of other laws: Nothing herein contained shall be deemed to nullify any provisions of the zoning by-laws or ordinance of any municipality in the Commonwealth of Massachusetts insofar as those provisions deal exclusively with those powers of regulating zoning granted by the provisions of Chapter 40A and 41 of the Massachusetts General Laws Annotated, as amended.

SECTION 201.0 GENERAL DEFINITIONS

Accepted engineering practice: That which conforms to accepted principles, tests or standards of nationally recognized technical or scientific authorities.

Accessory structure: A building the use of which is incidental to that of the main building and which is located on the same lot.

Addition: An extension or increase in floor area or height of a building or structure.

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Air-conditioning: The treatment of air so as to control simultaneously its temperature, humidity, cleanness and distribution to meet the requirements of a conditioned space.

Airplane hangar, private: A building for the storage of four or less single motor planes in which volatile or flammable oil is not handled, stored or kept in other than that contained in the fuel storage tank of the plane.

Aisle: A clear and unobstructed passageway through a room.

Airplane hangar, public: A building for the storage, care or repair of private or commercial airplanes not included in the term "private airplane hangar."

Air transport factor: The ratio of the rate of useful sensible heat removal from the conditioned space to the energy input to the supply and return fan motor(s), expressed in consistent units and under the designated operating conditions.

Alley: A secondary thoroughfare less than thirty (30) feet in width dedicated for the public use of vehicles and pedestrians, affording access to abutting property.

Alteration: A change or modification of a building or structure, or the service equipment thereof, that affects safety or health and that is not classified as an ordinary repair.

Alternate inspector: A person appointed to act in the absence of the inspector of buildings in case of illness, disability, or conflict of interest.



Alternating tread stairway: A stair that has a series of steps between 50 and 70 degrees from horizontal, usually attached to a center support rail in an alternating manner so that the user of the stairs never has both feet at the same level at the same time.

Amusement Device: A device or structure open to the public by which persons are conveyed or moved in unusual manner for diversion.

Anchor store: An anchor store is an exterior perimeter department store or major merchandising or magnet center having direct access to a mall and having its required exits independent of the mall.

Annual Fuel Utilization Efficiency (AFUE): Energy output divided by energy input, calculated on an annual basis and including part load and cycling effects.

DEFINITIONS

Approval: When used in Article 33 for manufactured buildings or building components, approved by the State Board of Building Regulations and Standards, hereinafter known as the BBRS.

Approved: Approved by the State Board of Building Regulations and Standards, the building official or other authority having jurisdiction.

Approved agency: An established and recognized agency regularly engaged in conducting tests or furnishing inspection services. The building commissioner or local inspector may accept creditable evidence of competency of such an agency, however, the BBRS is the ultimate Massachusetts approval agency.

Approved material, equipment and methods: Approved by the BBRS or an agency approved by said Board.

Approved rules: Those rules approved by the BBRS unless otherwise specified.

Appurtenant structure: A device or structure attached to the exterior or erected on the roof of a building designed to support service equipment used in connection therewith, or for advertising or display purposes, or other similar uses.

Architectural terra cotta: Plain or ornamental hard burned plastic clay unit: larger in size than brick, with glazed or unglazed ceramic finish (see Section 1406.0).

Area, building: The area included within surrounding exterior walls (or exterior walls and fire walls) exclusive of vent shafts and courts. Areas of the building not provided with surrounding walls shall be included in the building area if included within the horizontal projection of the roof or floor above.

Area Factor (AF): A multiplying factor which adjusts the base unit power density (UPD) for spaces of various sizes to account for the impact of room configuration on lighting power utilization.

Areaway (form of construction): An uncovered subsurface space adjacent to a building.

Atrium: See "Open well".

Attic: The space between the ceiling beams of the top story and the roof rafters.

Automatic: As applied to energy conservation, is self-acting, operating by its own mechanism when actuated by some impersonal influence such as a change in electric current, pressure, temperature or mechanical configuration. (See definition of "Manual").

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Automatic: As applied to fire protection devices, automatic refers to a device or system providing an emergency function without the necessity of human intervention and activated as a result of a predetermined temperature rise, rate of rise of temperature, or increase in the level of combustion products; such as incorporated in an automatic sprinkler system, automatic fire door, etc.

Automatic fire suppression system: An engineered system using carbon dioxide (CO₂), dry chemical, a halogenated extinguishing agent, or an automatic sprinkler system to automatically detect and suppress a fire through fixed piping and nozzles.

Base: The level at which earthquake motions are considered to be imparted to the structure or the level at which the structure as a dynamic vibrator is supported.

Basement: That portion of a building which is partly below and partly above grade, and having at least one-half (1/2) its height above grade.

Bay (part of a structure): The space between two adjacent piers or mullions or between two adjacent lines of columns.

BBRS: Massachusetts State Board of Building Regulations and Standards.

Box system: A structural system where the vertical load is carried by bearing walls and structural framing and where the lateral stability and lateral force resisting system consists of shear walls or braced frames.

Braced frame: A vertical truss or its equivalent which is provided to resist lateral forces in which the members are subjected primarily to axial stresses.

Brick:

Calcium silicate brick (sand lime brick): A building unit made of sand and lime.

Clay or shale: A solid masonry unit of clay or shale, usually form into a rectangular prism while in the plastic state and burned or fired in a kiln.

Concrete brick: A solid masonry unit having the approximate shape of a rectangular prism and composed of inert aggregate particles embedded in a hardened cementitious matrix.

Hollow brick: A masonry unit of clay or shale whose net cross-sectional area in any plane parallel to the bearing surface is not less than 60 percent or more than 75 percent of its gross cross-sectional area measured in the same plane.

Building (see also "Structure"): A structure enclosed within exterior walls or firewalls, built, erected and framed of a combination of any materials, whether portable or fixed, having a roof, to form a structure for the shelter of persons,

animals or property. For the purpose of this definition, "roof" shall include an awning or similar covering, whether or not permanent in nature. The word "building" shall be construed where the context requires as though followed by the words "or part or parts thereof".

Building Commissioner: The administrative chief of the building department in a municipality who is charged with the administration and enforcement of this code. (See also "Inspector of buildings" and Section 107.1.)

Building component: Any subsystem, subassembly, or other system designed for use in or as part of a structure having concealed elements such as electrical, mechanical, plumbing and fire protection systems and other systems affecting health and safety.

Building, existing: Any structure erected or one for which a legal building permit has been issued prior to the adoption of this code (and its amendments).

Building line: The line established by law, beyond which a building shall not extend, except as specifically provided by law.

Building official: The officer or other designated authority charged with the administration of this code. Building official as used herein includes the building commissioner or the inspector of buildings, the local inspector and state inspector.

Building service equipment: The mechanical, electrical and elevator equipment including piping, wiring, fixtures and other accessories, which provides sanitation, lighting, heating, ventilation, fire fighting and transportation facilities essential for the habitable occupancy of the building or structure for its designated use and occupancy.

Building site: The area occupied by a building or structure, including the yards and courts required for light and ventilation, and such areas that are prescribed for access to the street.

Buttress: A projecting part of a masonry wall built integrally therewith to furnish lateral stability which is supported on proper foundations.

Cellar: That portion of a building which is partly or completely below grade and having at least one-half (1/2) its height below grade.

Central station system: A system, or group of systems, the operations of which are signaled to, recorded in, maintained and supervised from an approved central station, in which there are competent and experienced observers and operators in attendance at all times whose duty it shall be, upon receipt of a signal, to take such

action as shall be required under the rules established for their guidance. Such systems shall be controlled and operated by a person, firm or corporation whose principal business is the furnishing and maintaining of supervised protective signaling service and who does not have interest in protected properties (see Section 1020.0).

Certificate of Approval - a written document from the appropriate code official approving an action, type of material, and the like.

Certificate of use and occupancy: The certificate issued by the code official which permits the use of a building in accordance with the approved plans and specifications and which certifies compliance with the provisions of law for the use and occupancy of the building in its several parts together with any special stipulations or conditions of the building permit.

Certification: Any manufactured building or building component that meets the provisions of Article 33 and the rules and regulations pursuant thereto and which has been labeled accordingly.

Change of use: An alteration by change of use in a building heretofore existing to a new use group which imposes other special provisions of law governing building construction, equipment or means of egress.

Child day care center: Any facility operated on a regular basis whether known as a day nursery, nursery school, kindergarten, child play school, progressive school child development center, or preschool, or known under any other name, which receives children not of common parentage under seven (7) years of age or under sixteen (16) years of age if such children have special needs for non-residential custody and care during part or all of the day separated from their parents. Child day care center shall not include: any part of a public school system; any part of a private, organized educational system unless the services of such a system are primarily limited to kindergarten, nursery or related preschool services; a Sunday school conducted by a religious institution; a facility operated by a religious organization where children are cared for during short periods of time while persons responsible for such children are attending religious services; a family day care home, as defined by Chapter 28A, Section 9, of the MGLA as amended; an informal cooperative arrangement among neighbors or relatives; or the occasional care of children with or without compensation therefor.

Chimney: A primarily vertical enclosure containing one or more passageways.

Factory-built chimney: A chimney that is factory-made and listed by an approved testing or inspection agency for the venting of gas appliances, gas incinerators and solid or liquid fuel burning appliances.

Masonry chimney: A field-constructed chimney of solid masonry units, bricks, stones, listed hollow masonry units or reinforced concrete.

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Metal chimney (smokestack): A field-constructed chimney made of metal.

Clay masonry unit: A building unit larger in size than a brick, composed of burned clay, shale, fireclay or mixtures thereof.

CMR: Code of Massachusetts Regulations; Appendix G contains a listing of ^{various} carious CMR's for Massachusetts specialized codes.

Coefficient of performance (COP): See Section 3110.0 for the definitions of COP as appropriate: electrically operated HVAC equipment--cooling; applied HVAC system components--cooling; heat operated HVAC system equipment--cooling; and heat pump--heating.

Combination of municipalities: Any two (2) or more cities and/or towns who have agreed to combine in order to share costs necessary for the administration and enforcement of this code in the said cities and/or towns.

Combination system: A system of piping designed to provide both standpipe service and automatic sprinkler protection.

Combustible material: A combustible material is a material which cannot be classified as noncombustible in accordance with that definition (see Section 903.4).

Comfort envelope: The area on a psychometric chart enclosing all those conditions described in ASHRAE 55-74 as being comfortable.

Common hallway: A common corridor or space separately enclosed which provides any of the following in any story:

1. common access to the required exitways of the building, or
2. common access for more than one (1) tenant; or
3. common access for more than thirty (30) persons.

Compliance assurance program: The system, documentation and methods for assuring that manufactured buildings, building components, building systems and mobile homes, including their manufacture, storage, transportation and assembly and handling and installation, conform with Article 33 and the rules and regulations promulgated pursuant thereto.

Concrete: A mixture of cement, aggregates and water, of such proportions and manipulation as to meet specific requirements.

Concrete, reinforced: Concrete in which reinforcement, other than that provided for shrinkage or temperature changes, is combined in such a manner that the two materials act together in resisting forces.

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Conditioned floor area: All portions of interior gross floor area which are contained within exterior walls and which are conditioned directly or indirectly by an energy-using system (see "Gross floor area").

Conflagration hazard: The fire risk involved in the spread of fire by exterior exposure to and from adjoining buildings and structures.

Connected lighting load: Total possible simultaneous demand for lighting, including power used in the lamp itself and any losses in the fixture and ballast.

Construction equipment: The construction machinery, tools, derricks, hoists, scaffolds, platforms, runways, ladders and all material handling equipment, safeguards and protective devices used in construction operations.

Construction operation: The erection, alteration, repair, renovation, demolition or removal of any building or structure; and the excavation, filling, grading and regulation of lots in connection therewith.

Construction supervisor: Any individual directly supervising persons engaged in construction, reconstruction, alterations, repairs or demolition involving the structural elements of buildings and structures.

Controlled construction: The construction of a building or structure or a specific part thereof which has been designed and erected under the supervision of a licensed professional engineer or architect using controlled materials as herein defined in compliance with accepted engineering practice under the procedure of Section 127.0.

Controlled materials: Materials which are certified by an approved agency as meeting accepted engineering standards for quality.

Construction, type of: See Section 401.0.

Type 1: See Section 402.0.

Type 2: See Section 403.0.

Type 3: See Section 404.0.

Type 4: See Section 405.0.

Type 5: See Section 406.0

Corridor: An enclosed hallway, passageway or other compartmented space providing the occupants with access to the required exitways of the building or floor area.

Court: An open, uncovered and unoccupied space on the same lot with a building and enclosed wholly or partly by buildings, walls or other enclosing devices.

Inner: Any court enclosed wholly by buildings, walls or other enclosing devices.

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Outer: A court extending to and opening upon a street, public alley, or other approved open space, not less than 15 feet wide, or upon a required yard.

Court width: As applied to an inner court, means its least horizontal dimension. As applied to an outer court, means the shortest horizontal dimension measured in a direction substantially parallel with the principal open end of such court.

Curb level: The elevation of the street curb as established in accordance with law.

Building or wall height: The elevation of the street grade opposite the center of the wall nearest to and facing the street lot line.

Excavations: The elevation of the street grade nearest to the point of excavation.

Damper, fire: A damper arranged to seal off air flow automatically through part of an air duct system, so as to restrict the passage of heat. The fire damper shall not be used as a smoke damper unless the location lends itself to the dual purpose

Day care center (child): See "Child day care center".

Degree day, heating: A unit, based upon temperature difference and time, used in estimating fuel consumption and specifying the nominal heating load of a building in winter. For any one day, when the mean temperature is less than 65 degrees F., there exist as many degree days as there are Fahrenheit degrees difference in temperature between the mean temperature for the day and 65 degrees F.

Deluge system: An automatic sprinkler system consisting of open sprinklers with water supply valves activated by a separate automatic detection system.

Department: (DPS): The Department of Public Safety, Division of Inspection.

Detecting device, automatic: A device which automatically detects heat, smoke or other products of combustion.

Detection system, automatic fire: A fire protective signaling system containing automatic detecting device(s) which actuate a fire alarm signal (see Section 1018.0).

Detector, smoke: An approved, listed detector for sensing visible or invisible particles of combustion (see Section 1018.0).

Detoxification facility: A facility licensed or operated by the Department of Public Health, Division of Alcoholism in accordance with the Rules and Regulations for Detoxification Facilities issued by the Department of Public Health, Division of Alcoholism, Commonwealth of Massachusetts, and shall be used to treat individuals acceptable to the program in accordance with those Rules and Regulations.

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Dispensing: The pouring or transferring of any material from a container, tank or similar vessel, whereby vapors, dust, fumes, mists or gases are liberated to the atmosphere.

Door assembly, fire; A combination of a fire door, frame, hardware, and other accessories which together provide a specific degree of fire protection to the opening.

Door, fire: A door and its assembly, so constructed and assembled in place as to give protection against the passage of fire.

DPS: The Department of Public Safety, Commonwealth of Massachusetts.

Draft hood: A device built into a gas appliance or made a part of a chimney connector or vent connector from a gas appliance which is designed to:

1. permit the ready escape of flue gases in the event of zero draft, a back-draft or stoppage in the vent beyond the draft hood;
2. permit the ready relief of the back pressure from a back-draft so it does not enter the gas appliance; and
3. neutralize the possible effect of excess draft (stack action) upon the operation of the appliance.

Draft regulator: A device which functions to maintain a desired draft in the appliance by automatically reducing the draft to the desired value.

Draftstopping: Building materials installed to prevent the movement of air smoke, gases and flame to other areas of the building through large concealed passages such as attic spaces and floor assemblies with suspended ceilings or open web trusses.

Dual bracing system: Consists of a moment resisting space frame and shear walls which meet the following design criteria:

1. The space frame and shear walls shall resist the total lateral force in accordance with their relative rigidities considering the interaction of the shear walls and space frame.
2. The shear walls acting independently of the resisting portions of the space frame shall resist the total lateral force.
3. The space frame shall have the capacity to resist not less than twenty-five (25) per cent of the total lateral force.

Dumbwaiter: A hoisting and lowering mechanism with a car of limited capacity and size which moves in guides in a substantially vertical direction and is used exclusively for carrying material (see 524 CMR - Massachusetts State Elevator Regulations and Article 26 of this code).

Dwellings

Boarding house: A building arranged or used for lodging, with or without meals, for compensation and not occupied as a single family unit.

Dormitory: A space in a building where group sleeping accommodations are provided for persons not members of the same family group, in one room, or in a series of closely associated rooms.

Hotel: Any building containing six or more guest rooms, intended or designed to be used, or which are used, rented or hired out to be occupied or which are occupied for sleeping purposes by guests.

Lodging house: Any building or portion thereof arranged or used for lodging by more than three (3) lodgers or boarders and where cooking or sanitary facilities may be provided (R-1 use group).

Multi-family dwelling: A building or portion thereof containing more than two (2) dwelling units and not classified as a one- or two-family dwelling, and with not more than three (3) lodgers or boarders per dwelling unit.

One-family dwelling: A building containing one dwelling unit with not more than three (3) lodgers or boarders.

Two-family dwelling: A building containing two dwelling units with not more than three (3) lodgers or boarders per dwelling unit.

Dwelling unit: A single unit providing complete, independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking, and sanitation, with not more than three (3) lodgers or boarders per dwelling unit.

Dwelling unit, congregate: A building or portion thereof, owned by a municipal authority or an agency or department of the Commonwealth, housing no more than six (6) not necessarily related residents all over the age of 55, with separate sleeping accommodations for each resident and in which living spaces, cooking and sanitary facilities are shared outside the sleeping accommodations, shall be considered a single dwelling unit. Where individual residents' rooms contain a sink, refrigerator and cook-top, and residents have individual or shared sanitary facilities, each individual resident room shall be considered a dwelling unit. For purposes of the State Building Code, Congregate Dwelling Units shall be considered multi-family dwellings (R2) when not designed as attached one- or two-family dwelling (R3) or (R4). Congregate housing shall not be considered as boarding, lodging, dormitory, hotel, motel or institutional use.

Economizer, Air: A ducting arrangement and automatic control system that allows a cooling supply to supply outside air to reduce or eliminate the need for mechanical refrigeration during mild or cold weather.

Efficiency, overall system: For a designated time period, the ratio of useful energy at the point of use to the thermal energy input expressed in percent.

Elevator: See Elevator and Escalator Regulations (524 CMR 3.00 through 11.00) and Article 26 of this code; Elevator, Dumbwaiter, Escalator and Moving Walk Regulations (See 524 CMR 15.00 through 33.00 and Article 26 of this code).

Elevator lobby: That portion of a floor, platform or alcove immediately adjacent to the elevator shaft opening used to receive and discharge passengers or freight, or used as a waiting area.

Elevator repairs: All work necessary to maintain present elevator equipment in a safe and serviceable condition and to adjust or replace defective, broken or worn parts with parts made of equivalent material, strength and design, and only where the replacing part performs the same function as the replaced part.

Emergency control station: An approved location on the premises where signals from emergency equipment are received.

Energy: The capacity for doing work. Energy takes a number of forms which may be transformed from one to another, such as thermal (heat), mechanical (motion), electrical, and chemical. In customary units, energy is measured in kilowatt-hours (kwh) or British thermal units (Btu).

Energy efficiency ratio (EER): The ration of net cooling capacity in Btu/h to total rate of electric input in watts under designated operating conditions.

Equipment, existing: Any equipment covered by this code which was installed prior to the effective date of this code, or for which an application for permit to install was filed with the code official prior thereto.

Escalator: A power-driven, inclined, continuous stairway used for raising and lowering passengers (see 524 CMR and Article 26 of this code).

Exit: That portion of a means of egress which is separated from all other spaces of a building or structure by construction or equipment as required in this code to provide a protected way of travel to the exit discharge.

Exit access: Exit access is that portion of a means of egress which leads to an entrance to an exit.

DEFINITIONS

Exit discharge: That portion of a means of egress between the termination of an exit and a public way.

Exit, horizontal: A way of passage from one building to an area of refuge in another building on approximately the same level, or a way of passage through or around a wall or partition to an area of refuge on approximately the same level in the same building, which affords safety from fire or smoke from the area of incidence and areas communicating therewith.

Exitway discharge court: An exterior unoccupied space which is open to the sky for its entire area, located on the same lot with a theater or other assembly building which it serves exclusively as an obstructed passageway to the street or other public space.

Exterior envelope: The elements of a building which enclose conditioned spaces through which thermal energy transfers to or from the exterior.

Fire area: The floor area enclosed and bounded by fire walls, fire separation assemblies or exterior walls of a building to restrict the spread of fire.

Fire department connection: A connection for fire department use in supplementing or supplying water for standpipes or sprinkler systems (see Section 1014.0).

Fire grading: The fire hazard classification of a building or structure in hour or fractions thereof established for its use group and occupancy in Table 902.

Fire hazard: The potential degree of fire severity existing in the use and occupancy of a building, classified as high, moderate or low.

High: All uses which involve the storage, sale, manufacture or processing of highly combustible, volatile flammable or explosive products which are likely to burn with extreme rapidity and produce explosions or large volumes of smoke, poisonous fumes or gases in the event of fire.

Moderate: All uses which involve the storage, sale, manufacture or processing of materials which are likely to burn with moderate rapidity and a considerable volume of smoke, but which do not produce either poisonous fumes or explosions, in the event of fire.

Low: All uses which involve the storage, sale or manufacture of materials that do not ordinarily burn rapidly, nor produce excessive smoke, poisonous fumes or explosions in the event of fire.

Fire protection: The provision of construction safeguards and exit facilities; and the installation of fire alarm, fire detecting and fire extinguishing service equipment, to reduce the fire risk and the conflagration hazard.

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Fire protection system: A system including systems, devices and equipment to detect a fire, actuate an alarm or suppress or control a fire or any combination thereof (see Article 10).

Fire resistance: That property of materials or their assemblies which prevents or retards the passage of excessive heat, hot gases or flames under conditions of use.

Fire resistance rating: The time in hours or fractions thereof that materials or their assemblies will resist fire exposure as determined by the fire test specified in this code.

Fire separation distance: The distance in feet measured from the building face to the closest interior lot line, to the center line of a street or public way or to an imaginary line between two buildings on the same property.

Firestopping: Building materials installed to prevent the movement of flame and gases to other areas of a building through small concealed passages in building components such as floors, walls and stairs.

Flame resistance: That property of materials or combinations of component materials which restricts the spread of flame as determined by the flame resistance tests specified in this code.

Flame spread: The propagation of flame over a surface.

Flame spread rating: The measurement of flame spread on the surface of materials or their assemblies as determined by the tests specified in this code.

Flammable: Subject to easy ignition and rapid flaming combustion.

Floor area, gross: Gross floor area shall be the floor area within the perimeter of the outside walls of the building under consideration, without deduction for hallways, stairs, closets, thickness of walls, columns, or other features.

Floor area, net: For the purpose of determining the number of persons for whom exits are to be provided, net floor area shall be the actual occupied area, not including accessory unoccupied areas or thickness of walls (see Section 806.0).

Floor fill: The fill between the structural floor arch or slab and the finished flooring.

Floor filling: The type of short-span floor construction in fire resistant buildings installed between structural steel framing to serve as a combination structural floor slab or arch and fireproof protection of the framing.

DEFINITIONS

Floor finish: The finish placed on top of the floor arch, slab or other structural floor element.

Footcandle (FC): The unit of illuminance on a surface one (1) square foot in area on which there is a uniformly distributed flux of one lumen, or the illuminance produced on a surface all points of which are at a distance of one foot from a directionally uniform point source of one candle.

Garage, private: A garage for four or less passenger motor vehicles without provision for repairing or servicing such vehicles for profit.

Garage, public: A building or structure for the storage or parking of more than four passenger motor vehicles or motor powered boats, or more than one commercial motor vehicle; with or without provision for the dispensing of gasoline, oil or similar products for the servicing of such vehicles. Public garages shall be classified according to their specific use in one of the following groups.

Group 1: A public garage in which provision is made for the care, storage, repair or painting of or fuel-dispensing to motor vehicles.

Group 2: A public garage used exclusively for passenger vehicles that will accommodate not more than nine (9) passengers.

Grade: A reference plane representing the average of finished ground level adjoining the building at all exterior walls. When the finished ground level slopes away from the exterior walls, the reference plane shall be established by the lowest points within the area between the building and the lot line or, when the lot line is more than 6 feet from the building, between the building and a point 6 feet from the building.

Grade hallway, grade lobby, grade passageway: An enclosed hallway or corridor that is an element of an exit; and terminating at a street or an open space or court communicating with a street.

Grandstand: Any structure, except movable seating and sectional benches, intended primarily to support individuals for the purposes of assembly, but this definition shall not apply to the permanent seating in theaters, churches, auditoriums and similar buildings.

Habitable space: Space in a structure for living, sleeping, eating, or cooking. Bathrooms, toilet compartments, closets, halls, storage or utility space and similar areas are not considered habitable space.

Hazardous production material (HPM): A solid, liquid or gas that has a degree of hazard rating in health, flammability or reactivity of 3 or 4 as ranked by NFiPA 704 listed in Appendix A, and which is used directly in research, laboratory or

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production processes which have, as their end product, materials which are not hazardous.

Heat: The form of energy that is transferred by virtue of a temperature difference.

Heat capacity (H_c): The amount of heat necessary to raise the temperature of a given mass. Numerically the mass multiplied by the specific heat.

Heated space: A space within a building which is provided with a positive heat supply. Finished living space within a basement, or registers or heating devices designed to supply heat to a basement space shall define that space as heated space.

Height

Building: The vertical distance from grade to the top of the highest roof beams of a flat roof, or the mean level of the highest gable or slope of a hip roof.

Court: The vertical distance from the lowest level of the court to the mean height of the top of the enclosing walls.

Story: The vertical distance from top to top of two successive tiers of beams or finished floor surfaces; and, for the topmost story, from the top of the floor finish to the top of the ceiling joists, or, when there is not a ceiling, to the top of the roof rafters.

Walls: The vertical distance from the foundation wall or other immediate support of such wall to the top of the wall.

Hereafter: After the time that this code becomes effective.

Heretofore: Before the time that this code became effective.

Hoist, material platform: A power or manually operated suspended platform conveyance operating in guide rails for the exclusive raising or lowering of materials, which is operated and controlled from a point outside the conveyance. (See Elevator and Escalator Regulations 524 CMR, and Article 26 of this code).

Hoisting and conveying equipment, special: Manually or power operated hoisting, lowering or conveying mechanisms, other than elevators, escalators or dumbwaiters for the transport of persons or freight in a vertical inclined or horizontal direction on one floor or in successive floors. (See Elevator and Escalator Regulations 524 CMR, and Article 26 of this code).

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Automobile lift: A fixed mechanical device for raising an entire motor vehicle above the floor level, but not through successive floors of the building or structure.

Conveyors: A system of machinery and manual or mechanized devices other than elevator and dumbwaiter equipment, consisting of belts, chains, rollers, buckets, aprons, slides and chutes and other miscellaneous equipment for hoisting, lowering and transporting materials and merchandise in packages or in bulk in any direction in a building or structure.

Freight lift: A power operated raising and lowering device for transporting freight vertically, operating entirely within one story of the building or structure.

Manlifts: A power operated belt device with steps and handholds for transporting persons in a vertical position through successive floors or levels of the building or structure.

Hoisting and elevating equipment, miscellaneous: All power operated hoisting and elevating equipment for raising, lowering and moving persons or merchandise from one level to another such as inclined elevators, slings and hooks, tiering and piling machines not permanently located in a fixed position, mine elevators, skip hoists for blast furnaces, stage and orchestra lifts, lift bridges and temporary builders' hoists and similar equipment.

Illumination: The density of the luminous flux incident on a surface; it is the quotient of the luminous flux and the area of the surface when the latter is uniformly illuminated.

Industrial lift (material lift): A non-portable power operated raising or lowering device for transporting freight vertically, operating entirely within one (1) story of the building or structure.

Inspection, special: Professional supervision as herein required of the installation, fabrication, erection or placement of components and/or connections requiring special expertise to ensure adequacy.

Inspector of buildings: The administrative chief of the building department in a municipality who is charged with the administration and enforcement of this code. (See also "Building commissioner")

Interior lot line: Any lot line other than one adjoining a street or public space.

Jurisdiction: The governmental unit which has adopted this code under due legislative authority.

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Kiosk: A small structure used as a newsstand, refreshment booth and/or pavilion for similar usage.

Label: A plate, tag or other device permanently and prominently affixed to a product or material indicating that it has been tested and evaluated by an approved agency.

Lateral force resisting system: That part of the structural system to which the total lateral forces prescribed in Section 1113.0 are assigned.

Lintel: A beam placed over an opening or recess in a wall which supports the wall construction above.

Load: Forces or other actions that arise on structural systems from the weight of all permanent construction, occupants and their possessions, environmental effects, differential settlement and restrained dimensional changes.

Dead load: The weight of all permanent structural and nonstructural components of a building, such as walls, floors, roofs, ceilings, stairways and fixed service equipment.

Duration of load: The period of continuous application of a given load, or the aggregate of periods of intermittent applications of the same load.

Earthquake load: The assumed lateral load acting in any horizontal direction on the structural frame due to the kinetic action of earthquakes.

Impact load: The load resulting from moving machinery, elevators, craneways, vehicles, and other similar forces and kinetic loads.

Internal load: The forces resulting from the restraint of movement of construction materials or differential movement of a combination of materials caused by the effects of expansion or contraction due to temperature changes, shrinkage, moisture changes, creep, differential settlement or combinations thereof.

Lateral soil load: The lateral pressure in pounds per square foot (psf) due to the weight of the adjacent soil including due allowance for hydrostatic pressure and possible surcharge, from fixed or moving loads.

Live load: The weight superimposed by the use and occupancy of the building, not including the wind load, earthquake load, or dead load. Wind load: The lateral pressure on the building or structure in pounds per square foot (psi) due to wind blowing in any direction.

Loading ramp: A hinged, nonportable device, either mechanical or hydraulic, hand or power operated, used for spanning gaps or adjusting height: between loading surface and carrier or between loading surface and loading surface.

Lobby: The enclosed vestibule between the principal entrance to the building and the doors to the main floor of the auditorium or assembly room of a theater or place

DEFINITIONS

of assembly, or to the main floor corridor of a business building (see also "Elevator lobby").

Local enforcement agency: A department or agency in a municipality charged with the enforcement of this code and appropriate specialized codes which include, but are not limited to, The State Plumbing and Gas Fitting Code, and the State Electrical Code.

Local inspector: A person in a municipality who assists the building commissioner or inspector of buildings in the performance of his duties and is charged with the enforcement of this code.

Lot: A portion or parcel of land considered as a unit.

Corner lot: A lot with two adjacent sides abutting upon streets or other public spaces.

Interior lot: A lot which faces on one street or with opposite sides on two streets.

Lot line: A line dividing one lot from another, or from a street or any public place.

Lot line, interior: Any lot line other than one adjoining a street or public space.

Lot line, street: The lot line dividing a lot from a street or other public way.

Manufactured building: Any building which has concealed elements, such as electrical, mechanical, plumbing, fire protection, insulation, and other systems affecting health and safety, and which is manufactured or assembled in manufacturing facilities, on or off the building site. Also, any building as defined above which does not have concealed elements, but which has been approved by the BBRS at the request of the manufacturer.

Masonry: A built-up construction or combination of building units or materials of clay, shale, concrete, glass, gypsum, stone or other approved units bonded together with mortar or monolithic concrete. Reinforced concrete is not classed as masonry.

Ashlar facing masonry: Facing of solid rectangular units larger in size than brick and of burned clay or shale, natural or cast stone, with sawed, dressed and squared beds and mortar joints.

Ashlar masonry: Masonry composed of bonded, rectangular units, larger in size than brick, with sawed, dressed or squared beds and mortar joints.

Solid masonry: Masonry consisting of solid masonry units laid contiguously with the joints between the units filled with mortar, or consisting of plain concrete.

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Masonry unit

Clay: A building unit larger in size than a brick, composed of burned clay, shale, fire clay or mixtures thereof.

Concrete: A building unit or block larger in size than 12 by 4 by 4 inches made of cement and suitable aggregates.

Hollow: A masonry unit whose net cross-sectional area in any plane parallel to the bearing surface is less than 75 percent of its gross cross-sectional area measured in the same plane.

Solid: A masonry unit whose net cross-sectional area in every plane parallel to the bearing surface is 75 percent or more of its gross cross-sectional area measured in the same plane.

Means of egress: A continuous and unobstructed path of travel from any point in a building or structure to a public way, and consisting of three separate and distinct parts: (a) the exit access, (b) the exit and (c) the exit discharge. A means of egress comprises the vertical and horizontal means of travel and shall include intervening room spaces, doors, hallways, corridors, passageways, balconies, ramps, stairs, enclosures, lobbies, horizontal exits, courts and yards.

Member

Primary: any member of the structural frame of a building or structure used as a column, grillage beam, or to support masonry walls and partitions, including trusses, isolated lintels spanning an opening of 8 feet or more, and any other member required to brace a column or a truss.

Secondary: any member of the structural framework other than a primary member, including filling-in beams of floor systems.

Membrane: As it pertains to membrane structures, a thin, flexible, impervious material capable of being supported by an air pressure of 1.5 inches of water column.

Membrane structures:

Air-inflated structure: A building where the shape of the structure is maintained by air pressurization of cells or tubes to form a barrel vault over the usable area. Occupants of such a structure do not occupy the pressurized area used to support the structure.

Air-supported structure: A building wherein the shape of the structure is attained by air pressure and occupants of the structure are within the elevated pressure area. Air supported structures are of two basic types:

Single skin: Where there is only the single outer skin and the air pressure is directly against that skin.

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Double skin: Similar to a single skin, but with an attached liner which is separated from the outer skin and provides an air space which serves for insulation, acoustic, aesthetic or similar purposes.

Cable-restrained, air-supported structure: A structure in which the uplift is resisted by cables or webbings which are anchored to either foundations or dead men. Reinforcing cable or webbing is attached by various methods to the membrane or is an integral part of the membrane. This is not a cable-supported structure.

Membrane-covered cable structure: A non-pressurized structure in which a mast and cable system provides support and tension to the membrane weather barrier and the membrane imparts structural stability to the structure.

Membrane-covered frame structure: A non-pressurized building wherein the structure is composed of a rigid framework to support tensioned membrane which provides the weather barrier.

Noncombustible membrane structure: A membrane structure in which the membrane and all component parts of the structure are noncombustible.

Tent: Any structure, enclosure or shelter constructed of canvas or pliable material supported by any manner except by air or the contents it protects.

Mezzanine(s): An intermediate level or levels between the floor and ceiling of any story with an aggregate floor area of not more than 33 percent of the floor area of the story in which the level or levels are located.

Mobile home: A structure, transportable in one or more sections, which is eight (8) body feet or more in width and is thirty-two (32) body feet or more in length, and which is built on a permanent chassis, and designed to be used as a dwelling with permanent foundation, when connected to the required utilities, and includes the plumbing, heating, air-conditioning and electrical systems contained therein.

Mobile unit: A structure of vehicular, portable design, built on a chassis and designed to be moved from one site to another, and to be used with or without a permanent foundation.

Mortar: A plastic mixture of approved cementitious materials, fine aggregate and water used to bond masonry or other structural units.

Mortar, surface-bonding: A mixture containing hydraulic cement, glass fiber reinforcement with or without inorganic fillers, or organic modifiers, and water, used to bond concrete masonry units.

Motel: A hotel as defined in this code.

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Moving walk: A type of passenger carrying device on which passengers stand or walk, and in which the passenger carrying surface remains parallel to the direction of motion and is uninterrupted (see Section 2600.2).

Native lumber: Native lumber is wood processed in the Commonwealth of Massachusetts by a mill registered in accordance with the regulations of the State Building Code Commission. Such wood is ungraded but is stamped or certified in accordance with the requirements of Section 1701 of this code. For the purpose of this definition, native lumber shall be restricted to use in one- and two-story dwellings, barns, sheds, agricultural and accessory buildings and other structures when permitted by section 1701.1.2.

Noncombustible: This is a general, relative term. Its precise meaning is defined in this code for specific applications.

Noncombustible building material (incombustible): See Section 903.0.

Nominal dimension

Lumber: A dimension that varies from actual dimensions in accordance with DOC PS 20 listed in Appendix A.

Masonry: A dimension that varies from actual masonry dimensions by the thickness of a mortar joint but not more than one-half inch.

Occupancy: The purpose for which a building, or part thereof, is used or intended to be used.

Occupant load: The total number of persons that are permitted to occupy a building, or portion thereof, at any one time (see Section 806.0).

Occupiable room: A room or enclosed space designed for human occupancy in which individuals congregate for amusement, educational or similar purposes, or in which occupants are engaged at labor; and which is equipped with means of egress, light, and ventilation facilities meeting the requirements of this code.

Occupied: As applied to a building, shall be construed as though followed by the words "or intended, arranged or designed to be occupied."

Open Well: A floor opening, or atrium.

Owner: Every person who alone or jointly or severally with others (a) has legal title to any building or structure; or (b) has care, charge, or control of any building or structure in any capacity including but not limited to agent, executor, executrix, administrator, administratrix, trustee or guardian of the estate of the holder of legal title; or (c) lessee under a written letting agreement; or (d) mortgagee in possession;

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or (e) agent, trustee or other person appointed by the courts. Each such person is bound to comply with the provisions of this code.

Packaged terminal air-conditioner: A factory-selected combination of heating and cooling components, assemblies, or sections, intended to serve a room or zone.

Packaged terminal heat pump: A packaged terminal air conditioner using the refrigeration system in a reverse cycle or heat pump mode to provide heat.

Panel (part of a structure): The section of a floor or wall comprised between the supporting frame of two adjacent rows of columns and girders or column bands of floor construction.

Panning: The sealing off of a joist or stud space for use as a plenum. This is allowed in one and two-family dwellings only for use as a return air plenum.

Parking structure, open: A structure for the parking of passenger cars wherein two (2) or more sides of such structure are not less than fifty (50) per cent open on each floor or level for fifty (50) per cent of the distance from the floor to the ceiling and wherein provision for the repairing of such vehicles is not made. Such open parking structures are not classified as public garages, but shall comply with the requirements of Section 607.0 and FPR-4.

Particle board: Particle board is a mat-formed panel consisting of particles of wood or a combination of wood particles and wood fibers bonded together with synthetic resins or other suitable bonding systems (see Section 1711.0).

Penthouse: An enclosed structure above the roof of a building, other than a roof structure or bulkhead, occupying not more than 33 1/2 percent of the roof area.

Permit: An official document or certificate issued by the authority having jurisdiction which authorizes performance of a specified activity.

Person: Every individual, partnership, corporation, firm, association, trustee or group, including a city, town, county, authority or other governmental unit, owning property or conducting any activity regulated by this code.

Place of Assembly: A room or space accommodating fifty (50) or more individuals for religious, recreational, educational, political, social or amusement purposes, or for the consumption of food and drink, including all connected rooms or space with a common means of egress and entrance.

Place of outdoor assembly: Premises used or intended to be used for public gatherings of two hundred (200) or more individuals in other than buildings.

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Plastic, combustible: A plastic material more than one twentieth (1/20) inches in thickness which burns at a rate of not more than two and one-half (2 1/2) inches per minute when subjected to ASTM D635, Standard Method of Test for Flammability of Self-Supporting Plastics, listed in Appendix A.

Plastic

Light diffusing system: A suspended construction consisting in whole or in part of lenses, panels, grids or baffles suspended below independently mounted electrical lighting sources.

Plastic glazing: Plastic materials which are glazed or set in frame or sash and not held by mechanical fasteners which pass through the glazing material.

Plastic roof panels: Plastic materials which are fastened to structural members, or to structural panels or sheathing, and which are used as light transmitting media in roofs.

Plastic wall panels: Plastic materials which are fastened to structural members, or to structural panels or sheathing, and which are used as light transmitting media in exterior walls.

Reinforced plastic, glass fiber: Plastic reinforced with glass fiber having not less than 20 percent of glass fibers by weight.

Thermosetting material: A plastic material which is capable of being changed into a substantially nonreformable product when cured.

Thermoplastic material: A plastic material which is capable of being repeatedly softened by increase of temperature and hardened by decrease of temperature.

Plenum: An enclosed portion of the building structure, so designed to allow the movement of air, that forms part of an air distribution system.

Positive heat supply: Heat deliberately supplied to a space by design, such as a supply register, radiator or heating element. Also, heat indirectly supplied to a space through uninsulated surfaces of service water heaters and space heating components, such as furnaces, boilers and heating and cooling distribution systems which continually maintain air temperature within the space of 50 degrees F. (10 degrees C.) or higher during normal operation.

Posted use and occupancy: The posted classification of a building in respect to use, fire grading, floor load and occupant load.

Posted sign: The tablet, card, or plate which defines the use, occupancy, fire grading and floor loads of each story, floor or parts thereof for which the building or part thereof has been approved.

DEFINITIONS

Power: In connection with machines, power is the time rate of doing work. In connection with the transmission of energy of all types, power refers to the rate at which energy is transmitted; in customary units, it is measured in watts (W) or British thermal units per hour (Btu/h).

Power adjustment factor: A modifying factor less than 1.0 to reduce the connected lighting power of a space to account for the use of energy-conserving lighting control devices.

Power factor: A factor, equal to the cosine of the phase angle between current and voltage by which the product of voltage and current is multiplied to convert volt-amperes to power in watts.

Preservative treatment (treated material): Unless otherwise noted, is impregnation under pressure with a wood preservative. Wood preservative is any suitable substance that is toxic to fungi, insects, borers, and other living wood-destroying organisms.

Professional engineer or architect: A person who, by reason of special knowledge and the principles and methods of engineering and architectural analysis and design acquired by professional education and experience, is qualified to practice engineering or architecture, as attested by registration as a professional engineer or architect.

Proprietary (local) system: An electrical alarm system capable of automatically notifying building supervisory personnel of a water flow or an impairment of a sprinkler system.

Protected construction: That in which all structural members are constructed chemically treated, covered or protected so that the individual unit or the combined assemblage of all such units has the required fire-resistance rating specified for its particular use or application in Table 401 and includes protected combustible and protected noncombustible construction.

Public way: Any street, alley or other parcel of land open to the outside air leading to a public street; deeded, dedicated, or otherwise permanently appropriated to the public for public use and having a clear width of not less than 10 feet.

Recovered Energy: Energy utilized, which would otherwise be wasted, from a system that utilizes energy for any purpose.

Reheat: The application of sensible heat to the supply air that has been previously cooled below the temperature of the conditioned space by either mechanical refrigeration or the introduction of outdoor air.

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Remote station system: An electric alarm system capable of automatically notifying the public or private fire department, or other approved constantly attended location, when the system is activated.

Repair: The reconstruction or renewal of any part of an existing building for the purpose of its maintenance.

Repairs, ordinary: Any maintenance which does not affect structure, egress, fire protection systems, fire ratings, energy conservation provisions, plumbing, sanitary, gas, electrical or other utilities. A building permit is not required for ordinary repairs.

Required: Shall be construed to be mandatory by provisions of this code.

Residential unit: a) in R-2 multi-family use group, a dwelling unit; b) in R-2 dormitory use group, a room or group of rooms occupied as a single unit; and c) in R-1 use group, a room or group of rooms occupied as a single unit.

Riser: The vertical supply pipes in a sprinkler system or standpipe system.

Roof: The roof slab or deck with its supporting members, not including vertical supports.

Roof covering: The covering applied to the roof for weather resistance, fireresistance or appearance.

Roof structure: An enclosed structure on or above the roof of any part of a building.

Room air conditioner: An encased assembly designed as a unit for mounting in a window or through a wall, or as a console. It is designed primarily to provide free delivery of conditioned air to an enclosed space, room or zone. It includes a prime source of refrigeration for cooling and dehumidification and means for circulating and cleaning air, and may also include means for ventilating and heating.

Room Area (A_r): The area of a room or space determined from the inside face of the walls or partitions measured at work plane height.

Rubble

Coursed rubble: Masonry composed of roughly shaped stones fitting approximately on level beds and well bonded.

Random rubble: Masonry composed of roughly shaped stones laid without regularity of coursing but well bonded and fitted together to form well defined joints.

DEFINITIONS

Rough or ordinary rubble: Masonry composed of unsquared field stones laid without regularity of coursing but well bonded.

Rubble masonry: Masonry composed of roughly shaped stones.

Runway: An aisle or walkway constructed or maintained as a temporary passageway for pedestrians or vehicles.

Seasonal energy efficiency ratio (SEER): EER calculated on a weighted average over a seasonal annual period.

Scaffold: Any elevated platform which is used for supporting workmen, materials or both.

Self-closing: As applied to a fire door or other opening protective, means normally closed and equipped with an approved device which will insure closing after having been opened for use.

Sensible heat: Heat added or removed which can be measured by a change in temperature of the substance.

Service passage, HPM: A passage used for the transportation of hazardous production material (HPM) from a separate inside HPM storage room or the exterior of the building to the perimeter wall of the fabrication area, and for purposes other than required egress.

Service systems: All energy-using systems in a building that are operated to provide services for the occupants or processes housed therein, including HVAC, service water heating, illumination, transportation, cooking or food preparation, laundering or similar functions.

Service water heating: Supply of hot water for domestic or commercial purposes other than comfort heating.

Service water heating demand: The maximum design rate of heated water withdrawal from a service water heating system in a designated period of time (usually an hour or a day).

Shading coefficient: The ratio of the solar heat gain through a glazing system corrected for external and internal shading to the solar gain through an unshaded single light of double strength sheet glass under the same set of conditions.

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Shaft, covered: An interior enclosed space extending through one or more stories of a building, connecting openings in successive floors, or floors and roof; and covered at the top.

Shaft, open: An exterior, enclosed space extending through one or more stories of a building, enclosed with walls of the required weather and fireresistance rating for exterior walls, and open to the sky at the top.

Shall: The term, when used in this code, shall be construed as mandatory.

Sign: Any fabricated sign or outdoor display structure, including its structure, consisting of any letter, figure, character, mark, point, plane, marquee sign, design, poster, pictorial, picture, stroke, stripe, line, trademark, reading matter or illuminating device, constructed, attached, erected, fastened or manufactured in any manner whatsoever so that the same shall be used for the attraction of the public to any place, subject, person, firm, corporation, public performance, article, machine or merchandise whatsoever, and displayed in any manner out of doors for recognized advertising purposes.

Closed sign: A sign in which more than 50 percent of the entire area is solid or tightly enclosed or covered.

Ground sign: A sign supported by uprights or braces in or upon the ground surface.

Marquee sign: A sign attached to or hung from a marquee, canopy or other covered structure, projecting from and supported by the building and extending beyond the building wall, building line or street lot line.

Open sign: A sign in which at least 50 percent of the enclosed area is uncovered, or open to the transmission of wind.

Projecting sign: A display sign which is attached directly to the building wall, and which extends more than 15 inches from the face of the wall.

Portable sign: A sign, usually of a temporary nature, not securely anchored to the ground or to a building or structure and which obtains some or all of its structural stability with respect to wind or other normally applied force; by means of its geometry or character.

Roof sign: A sign which is erected, constructed and maintained above the roof of the building.

Temporary sign: A sign constructed of cloth, fabric or other light temporary material with or without a structural frame intended for a limited period of display; including decoration displays for holidays or public demonstrations.

Wall sign: A sign which is painted on or attached directly to a fence or to the surface of masonry, concrete, frame or other approved building walls and which extends not more than 15 inches from the face of the fence or wall.

Signaling system, fire protective: An interior alarm system composed of sending stations and signaling devices in a building, operated on an electrical circuit, so arranged that the operation of any one station will ring all signals throughout the building and at one or more approved locations.

Slidescape: A straight or spiral chute, erected on the interior or exterior of a building, which is designed as a means of human egress direct to a street or other public way.

Smoke barrier: A continuous membrane that will resist the movement of smoke.

Smoke compartment: A space within a building enclosed by smoke barriers or fire separation walls on all sides, including top and bottom.

Smokeproof enclosure: An enclosed stairway, with access from the floor area of the building either through outside balconies or ventilated vestibules opening on a street, yard or open court; and with a separately enclosed direct exit to the street at the grade floor.

Solar energy source: Source of thermal, chemical or electrical energy derived directly from conversion of incident solar radiation.

Solid fuel burning appliance: Room heaters which are free standing fire chamber assemblies designed to burn wood or coal. They may be of the circulating or radiant type. These units are for attachment to a residential type chimney and may be thermostatically controlled.

Specialized Code: All building codes, rules or regulations pertaining to building construction, reconstruction, alteration, repair or demolition promulgated by and under the authority of the various agencies which have been authorized from time to time by the General Court of the Commonwealth of Massachusetts.

Sprinkler, automatic: A device, connected to a water supply system, that opens automatically at a predetermined fixed temperature and discharges a spray of water.

Sprinkler system, automatic: A sprinkler system, for fire protection purposes, is an integrated system of underground or overhead piping designed in accordance with fire protection engineering standards. The system includes a suitable water supply. The portion of the system above ground is a network of specially or hydraulically designed piping installed in a building, structure or area, generally overhead, and to which automatic sprinklers are connected in a systematic pattern. The system is usually activated by heat from a fire and discharges water over the fire area.

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Sprinkler system, limited area: An automatic sprinkler system consisting of not more than 20 sprinklers for use in a room or space enclosed by construction assemblies as required by this code.

Sprinkler system, occupancy: An automatic sprinkler system servicing a use group in a building enclosed by construction assemblies as required by this code.

Stage: A partially enclosed portion of a building which is designed or used for the presentation of plays, demonstrations, or other entertainment wherein scenery, drops or other effects may be installed or used.

Stairway: One or more flights of stairs, and the necessary landings and platforms connecting them, to form a continuous and uninterrupted passage from one floor to another. A flight of stairs, for the purposes of this code, shall have at least three risers.

Standpipe: A standpipe system is an arrangement of piping, valves, hose outlets and allied equipment installed in a building or structure. The outlets are located in such a manner that water can be discharged in streams or spray patterns through hoses and nozzles attached to such hose outlets for the purpose of extinguishing a fire and so protecting the occupants. This is accomplished by connections to water supply systems or by pumps, tanks and other equipment necessary to provide an adequate supply of water to the hose outlets.

Standpipe, dry: A standpipe system not having permanent water supply connection. Water is supplied by the fire department through the required fire department connection only.

Standpipe, dry/wet: A standpipe system which is normally dry but can be charged with water.

Standpipe, wet: A standpipe system which has the supply normally open and water pressure maintained in all portions of the standpipe system at all times.

State Building Code: The State Building Code and amendments and rules and regulations thereto as promulgated by the State Building Code Commission (now the Board of Building Regulations and Standards) under Chapter 23B, Sections 16, 17 and 18, of the Massachusetts General Laws Annotated as amended.

State Building Code Commission (SBCC): The Massachusetts State rules and regulations thereto as promulgated by the State Building Code Commission established by Chapter 23B, Section 16, of the Massachusetts General Laws Annotated as amended. The State Building Code Commission has been replaced by the State Board of Building Regulations and Standards.

DEFINITIONS

State inspector: An employee of the Division of Inspection, State Department of Public Safety who is charged with administering and enforcing this code relative to any structure or building or parts thereof that are owned by the Commonwealth or any departments, commissions, agencies or authorities of the Commonwealth. The state inspector is also charged with supervising the enforcement of this code relative to all buildings and structures other than those owned by the Commonwealth.

Steel construction, cold-formed: That type of construction made up entirely, or in part, of steel structural members cold-formed to shape from sheet or strip steel such as roof deck, floor and wall panels, studs, floor joists, roof joists and other structural elements.

Steel joist: Any steel structural member of a building or structure made of hot-rolled or cold-formed solid or open web sections, or riveted or welded bars, strip or sheet steel members, or slotted and expanded, or otherwise deformed rolled sections.

Steel member, structural: Any steel structural member of a building or structure consisting of a rolled steel structural shape other than cold-formed steel, light gage steel or steel joist members.

Storage room, HPM, separate inside: A room used for the storage of hazardous production material (HPM) in containers, tanks, drums or other means, separated from other occupancies (see Section 603.0). Such rooms include:

HPM inside room: An HPM storage room totally enclosed within a building and not having exterior walls.

HPM cutoff room: An HPM storage room within a building and having at least one exterior wall.

Story: That portion of a building included between the upper surface of a floor and upper surface of the floor or roof next above (also see "Mezzanine").

Story above grade: Any story having its finished floor surface entirely above grade except that a basement shall be considered as a story above grade when the distance from grade to the finished surface of the floor above the basement is more than 6 feet for more than 50 percent of the total perimeter or more than 12 feet at any point.

Street: A public thoroughfare (such as street, avenue or boulevard) which has been dedicated for public use.

Structure: A combination of materials assembled at a fixed location to give support or shelter, such as a building, framework, retaining wall, tent, reviewing stand, platform, bin, fence, sign, flagpole, recreational tramway, mast for radio antenna,

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or the like. The word "structure" shall be construed, where the context requires, as though followed by the words, "or part or parts thereof."

Summer camps for children: Premises, operated solely between April and October of each year for recreational or other purposes, and having residential facilities. The use of such accommodations for purposes of inspection, certification and inspection fees shall be considered as being similar to a dormitory in R-2 use group and subject to Article 6, Sections 635.2 through 635.6.

Tamdera wiring: Consists of pairs of luminaires operating with one lamp in a luminaire powered from a single two-lamp ballast contained in a second luminaire.

Task lighting: Illumination applied to an individual location, with local control of switching. Examples include desk lights, examining lights, and machine lights.

Temperature difference equivalent, TDeq: Total heat flow through the structure caused by solar radiation and outside temperature.

Thermal resistance (R): A measure of the ability to retard the flow of heat. The R value is the reciprocal of thermal conductance expressed in units of $\text{hr} \cdot \text{ft}^2 \cdot ^\circ\text{F}$ per Btu.

Thermal transmittance (U): The coefficient of heat transmission (air-to-air) expressed in units of Btu per hour per square foot per degrees F. (Watts per square meter per degree K.). It is the time rate of heat flow per unit area and unit temperature difference between the warm side and cold side air films. The U value applies to combinations of different materials used in series along the heat flow path and also to single materials that comprise a building section and includes cavity air spaces and surface air films on both sides of a building element.

Thermal transmittance (U_o): Overall (average) heat transmission of a gross area of the exterior building envelope, expressed in units of Btu per hour per square foot per degrees F. (Watts per square meter per degree K.). The U_o value applies to the combined effect of the time rate of heat flow through the various parallel paths, such as windows, doors and opaque construction areas, comprising the gross area of one or more exterior building components, such as walls, floor or roof/ceiling.

Thermoplastic material: A solid plastic material which is capable of being repeatedly softened by increase of temperature and hardened by decrease of temperature.

Thermosetting material: A solid plastic material which is capable of being changed into a substantially non-reformable product when cured under the application of heat or pressure.

DEFINITIONS

Tile: A ceramic surface unit, usually relatively thin in relation to facial area made from clay or a mixture of clay and other ceramic materials, called the body of the tile, having either "glazed" or "unglazed" face and fired above red heat in the course of manufacture to a temperature sufficiently high to produce specific physical properties and characteristics.

Tile, structural clay: A hollow masonry unit composed of burned clay, shale, fire clay or mixtures thereof, and having parallel cells.

Tires, bulk storage of: Storage of 10,000 or more average size passenger vehicle tires weighing approximately 25 pounds each.

Travel trailer: A vehicular, portable structure built on a chassis and designed to be used for temporary occupancy for travel, recreational or vacation use; with the manufacturer's permanent identification "Travel Trailer," thereon; and when factory equipped for the road, being of any length provided its gross weight does not exceed forty-five hundred (4500) pounds, or being of any weight provided its overall length does not exceed twenty-eight (28) feet.

Use (used): The purpose for which the building or structure is designed, used or intended to be used.

Use, accessory: A use incidental to the principal use of a building as defined or limited by the provisions of the local zoning laws.

Use group: The classification of a building or structure based on the purpose for which it is used as listed in Article 3.

Use Group A assembly (see Section 302.0).

Use Group B business (see Section 303.0).

Use Group E educational (see Section 304.0).

Use Group F factory and industrial (see Section 305.0).

Use Group H high hazard (see Section 306.0).

Use Group I institutional (see Section 307.0).

Use Group M mercantile (see Section 308.0).

Use Group R residential (see Section 309.0).

Use Group S storage (see Section 310.0).

Use Group U utility and miscellaneous (see Section 311.0).

Ventilation: The natural or mechanical process of supplying conditioned or unconditioned air to, or removing such air from, any space.

Vertical opening: An opening through a floor or roof.

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Wall

Apron wall: That portion of a skeleton wall below the sill of a window.

Bearing wall: A wall supporting any vertical load in addition to its own weight.

Cavity wall: A wall built of masonry units or of plain concrete, or a combination of these materials, arranged to provide an air space within the wall, and in which the inner and outer parts of the wall are tied together with metal ties.

Composite wall: A wall built of a combination of two or more masonry units of different materials bonded together, one forming the backup and the other the facing elements.

Curtain wall: A nonbearing enclosure wall not supported at each story.

Dry-stacked, surface-bonded walls: A wall built of concrete masonry units where the units are stacked dry, without mortar on the bed or head joints, and where both sides of the wall are coated with a surface-bonding mortar.

Faced wall: A wall in which the masonry facing and backing are so bonded as to exert common action under load.

Fire separation wall: A fireresistance rated assembly of materials having protected openings, and designed to restrict the spread of fire.

Fire wall: A fireresistance rated wall, having protected openings, which restricts the spread of fire and extends continuously from the foundation to or through the roof.

Foundation wall: A wall below the floor nearest grade serving as a support for a wall, pier, column or other structural part of a building (see Section 1222.0).

Hollow wall: A wall built of masonry units so arranged as to provide an air space within the wall, and in which the facing and backing of the wall are bonded together with masonry units.

Nonbearing wall: A wall which does not support vertical loads other than its own weight.

Parapet wall: That part of any wall entirely above the roof line.

Party wall: A fire wall on an interior lot line used or adapted for joint service between two buildings (see Section 908.0).

Retaining wall: A wall designed to resist the lateral displacement of soil or other material.

Skeleton or panel wall: A nonbearing wall supported by each story on a skeleton frame.

Veneered wall: A wall having a facing of masonry or other weather resisting noncombustible materials securely attached to the backing, but not so bonded as to exert common action under load.

Water spray fixed system: A system using water in a form having a predetermined pattern, particle size, velocity and density discharged from specially designed nozzles or devices.

ARTICLE 3

USE GROUP CLASSIFICATION

SECTION 300.0 GENERAL

300.1 Scope: The provisions of this article shall control the classification of all buildings and structures as to use group.

300.2 Application of other laws: The provisions of this article shall not be deemed to nullify any provisions of the zoning law, ordinance of any municipality in the Commonwealth of Massachusetts or any other statute pertaining to the location or use of buildings, except as is specifically required by the provisions of this code.

SECTION 301.0 CLASSIFICATION

301.1 General: All buildings and structures shall be classified with respect to use in one of the use groups listed below.

1. Use Group A assembly (see Section 302.0).
2. Use Group B business (see Section 303.0).
3. Use Group E educational (see Section 304.0).
4. Use Group F factory and industrial (see Section 305.0),
5. Use Group H high hazard (see Section 306.0).
6. Use Group I institutional (see Section 307.0).
7. Use Group M mercantile (see Section 308.0).
8. Use Group R residential (see Section 309.0).
9. Use Group S storage (see Section 310.0).
10. Use Group U utility and miscellaneous (see Section 311.0).

301.2 Fire grading of buildings: All buildings and structures shall be graded in accordance with the degree of fire hazard of their use in terms of hours and fractions of an hour and as regulated by Section 902.0.

301.3 Deleted

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SECTION 302.0 USE GROUP A, ASSEMBLY USES

302.1 General: All buildings and structures, or parts thereof, shall be classified in Use Group A which are used or designed for the gathering together of persons for purposes such as civic, social or religious functions, recreation, food or drink consumption or awaiting transportation. A room or space used for assembly purposes by less than 50 persons and which is accessory to another use group shall be included as a part of that main use group. **Other buildings or structures which accommodate less than fifty (50) but would otherwise qualify as places of assembly, shall be classified in the business (B) use group.**

302.2 Use Group A-1, theaters: This use group shall include all theaters and all other buildings and structures, or parts thereof, intended for the production and viewing of the performing arts or motion pictures and usually provided with fixed seats, including theaters, motion picture theaters and television and radio studios admitting an audience. Stages and platforms shall comply with Section 615.0.

302.3 Use Group A-2 structures: This use group shall include all buildings and places of public assembly, without theatrical stage accessories, designed for use as dance halls, night clubs and for similar purposes, including all rooms, lobbies and other spaces connected thereto with a common means of egress and entrance.

302.4 Use Group A-3 structures: This use group shall include all buildings with or without an auditorium in which persons assemble for amusement, entertainment or recreation, and incidental motion picture, dramatic or theatrical presentations, lectures or other similar purposes without theatrical stage other than a raised platform; and principally used without permanent seating facilities, including art galleries, exhibition halls, museums, lecture halls, libraries, restaurants other than night clubs, and recreation centers; and buildings designed for other similar assembly purposes including passenger terminals.

302.5 Use Group A-4 structures: This use group shall include all buildings used as churches and for similar religious purposes.

302.6 Use Group A-5, outdoor assembly: This use group shall include structures used for outdoor assembly intended for participation in or reviewing activities including grandstands, bleachers, coliseums, stadiums, **tents**, amusement park structures and fair or carnival structures. Such structures shall comply with the provisions of this code for special uses and occupancies (see Article 6).

SECTION 303.0 USE GROUP B, BUSINESS USES

303. 1 General: All buildings and structures, or parts thereof, shall be classified in Use Group B which are used for the transaction of business, for the rendering of

USE GROUP CLASSIFICATION

professional services, or for other services that involve stocks of goods, wares or merchandise in limited quantities for use incidental to office uses or sample purposes. *similar*

303.2 List of business uses: The uses listed in Table 303.2 are indicative of and shall be classified as Use Group B.

**Table 303.2
USE GROUP B, BUSINESS USES**

Airport traffic control towers	Fire stations
Animal hospitals, kennels, pounds	Florists and nurseries
Automobile and other motor vehicle showrooms	Laboratories; testing and research
Banks	Laundries; pickup and delivery Stations and self-service
Barber shops	Police stations
Beauty shops	Post offices
Car wash	Print shops
Civic administration	Professional services; attorney, dentist, physician, engineer, etc.
Clinic, outpatient	Radio and television stations
Dry-cleaning; pickup and delivery stations and self-service	Telephone exchanges
Electronic data processing	

SECTION 304.0 USE GROUP E, EDUCATIONAL USES

304.1 General: All buildings and structures, or parts thereof, other than those used for business training or vocational training, shall be classified in Use Group E which are used by more than five persons at one time for educational purposes through the 12th grade including, among others, schools and academies. Educational type uses with a total occupant load less than 50 shall be classified as Use Group B. School buildings, or parts thereof, for business training or vocational training shall be classified in the same use group as the business or vocation taught.

304.1.1 Child day care center: A child day care center which provides care for children more than 2 years 9 mo. of age shall be classified as use Group E.

SECTION 305.0 USE GROUP F. FACTORY AND INDUSTRIAL USES

305.1 General: All buildings and structures, or parts thereof, in which occupants are engaged in performing work or labor in the fabricating, assembling or processing of products or materials shall be classified in Use Group F including, among others, factories, assembling plants, industrial laboratories and all other industrial and

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manufacturing uses, except those of use Group H involving highly combustible, flammable or explosive products and materials.

305.2 Use Group F-1 structures: Factory and industrial uses which are not otherwise classified as low hazard Use Group F-2 shall be classified as moderate hazard factory and industrial Use Group F-1. The manufacturing processes listed in Table 305.2 shall be indicative of and included in Use Group F-1.

305.3 Use Group F-2 structures: Factory and industrial uses which involve the fabrication or manufacturing of noncombustible materials which during finishing, packing or processing do not involve a significant fire hazard shall be classified as Use Group F-2. Except as herein provided, buildings of Use Group F-2 shall comply with the requirements of the code for buildings of Use Group F-1. The manufacturing processes listed in Table 305.3 shall be indicative of and included in Use Group F-2.

DEFINITIONS

Water supply, automatic: Water supplied through a gravity or pressure tank or automatically operated fire pumps, or from a direct connection to an approved municipal water main (see Section 1013.0).

Winder: A step in a winding stairway (see Section 816.4.3).

Window

Bay window: A window projecting beyond the wall line of the building and extending down to the foundation.

Fire window: A window constructed and glazed to give protection against the passage of fire (see Section 917.0).

Oriel window: A window projected beyond and suspended from the wall of the building or cantilevered therefrom.

Writing: The term shall be construed to include handwriting, typewriting, printing, photo offset or any other form of reproduction in legible symbol or characters.

Written notice: A notification in writing delivered in person to the individual or parties intended; or delivered at, or sent by certified or registered mail to the last residential or business address of legal record.

Yard: An unoccupied open space other than a court.

Zoning: The reservation of certain specified areas within a community or city for building and structures, or use of land, for certain purposes with other limitations such as height, lot coverage and other stipulated requirements.

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USE GROUP CLASSIFICATION

Table 305.2
USE GROUP F-1 MODERATE HAZARD FACTORY AND INDUSTRIAL USES

Aircraft Appliances Athletic equipment Automobiles and other motor vehicles Bakeries Beverages, alcoholic Bicycles Boat building Boiler works Brooms or brushes Business machines Cameras and photo equipment Canneries, including food products Clothing Condensed and powdered milk manufacture Construction and agricultural machinery Disinfectants Dry cleaning using other than flammable liquids in cleaning or dyeing operations or other than classified in Table 306.2 Electric light plants and power houses Electrolytic reducing works Electronics Engines, including rebuilding Film, photographic	Food processing Furniture Hemp and jute products Laundries Leather and tanneries, excluding enameling or japanning Machinery Millwork and woodworking, wood distillation Motion picture and television filming Musical instruments Optical goods Paper mills or products Plastic products Printing or publishing Recreational vehicles Refuse incinerators Shoes Soaps and detergents Sugar refineries Textile mills, including canvas, cotton, cloth, bagging, burlap, carpets and rags Tobacco Trailers Upholstery and manufacturing shops
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Table 305.3
USE GROUP F-2, LOW HAZARD FACTORY AND INDUSTRIAL USES

Beverages, nonalcoholic Brick and masonry Ceramic products Foundries Glass products	Gypsum Ice Metal fabrication and assembly Water pumping plants
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SECTION 306.0 USE GROUP H, HIGH HAZARD USES

306.1 General: All buildings and structures, or parts thereof, shall be classified in Use Group H which are used for the manufacturing, processing, generation or storage of corrosive, highly toxic, highly combustible, flammable or explosive

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materials that constitute a high fire or explosion hazard, including loose combustible fibers, dust and unstable materials.

306.2 List of high hazard uses: The processes, materials and manufactures listed in Table 306.2 are indicative of and shall be classified as Use Group H.

306.2.1 Exceptions: The following shall not be classified as Use Group H:

1. Any building or portion of a building containing less than the exempt amount of those materials shown in Table 306.2.1 when maintained in accordance with the fire prevention code listed in Appendix A.
2. Buildings containing rooms conforming to the requirements of Article 6 and the fire prevention code listed in Appendix A for such hazardous material.
3. Rooms containing flammable liquids in tightly-closed containers of one gallon capacity or less for retail sale or private use on the premises and in quantities not exceeding 2 gallons per square foot of room area.
4. Rooms used for preparation or storage of food products for retail sale on the premises.
5. Retail paint salesrooms with quantities of paint not exceeding 2 gallons per square foot of room area.
6. Liquor stores and distributors without bulk storage.
7. The storage or use of materials for agricultural purposes for use on the premises.
8. Closed systems housing flammable or combustible liquids or gases used for the operation of machinery or equipment.
9. Cleaning establishments which utilize combustible liquid solvents having a flash point of 140 degrees F. (60 degrees C.) or higher in closed systems employing equipment listed by an approved testing laboratory, provided this use is separated from all other areas of the building by 1 hour fire-resistance rated construction.
10. Cleaning establishments which utilize a liquid solvent having a flash point at or above 200 degrees F. (93 degrees C.).
11. Refrigeration systems.
12. Tire retail stores without bulk storage.

USE GROUP CLASSIFICATION

Table 306.2
USE GROUP H, HIGH HAZARD USES

Bulk storage of tires. ✓

Combustible dust and any similar solid material sufficiently comminuted for suspension in still air which, when so suspended, is capable of self-sustained combustion.

Combustible fibers and any similar readily ignitable and free burning fibers such as cotton, sisal, henequen, jute, hemp, tow, cocoa fiber, oakum, baled waste, baled wastepaper, kapok, hay, straw, excelsior, Spanish moss and other like material.

Combustible liquids having a flash point at or above 100 degrees F. (38 degrees C.).
Combustible liquids shall be subdivided as follows:

Class II liquids shall include those having flash points at or above 100 degrees F. (38 degrees C.), and below 140 degrees F. (60 degrees C.).

Class III-A liquids shall include those having flash points at or above 140 degrees F. (60 degrees C.) and below 200 degrees F. (93 degrees C.).

Corrosive liquids which, when in contact with living tissue, will cause severe damage to such tissue by chemical action or are liable to cause fire when in contact with organic matter or with certain chemicals such as acids and alkaline caustic liquids.

Explosive material and any chemical compound, mixture or device, the primary and common purpose of which is to function by explosion with substantially simultaneous release of gas and heat, the resultant pressure being capable of destructive effects.

Flammable liquids having a flash point below 100 degrees F. (38 degrees C.), and having a vapor pressure not exceeding 40 psia at 100 degrees F. (38 degrees C.). Class I liquids shall include those having flash points below 100 degrees F. (38 degrees C.), and may be subdivided as follows:

Class I-A shall include those having flash points below 73 degrees F. (23 degrees C.) and having a boiling point below 100 degrees F. (38 degrees C.).

Class I-B shall include those having flash points below 73 degrees F. (23 degrees C.) and having a boiling point at or above 100 degrees F. (38 degrees C.).

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Table 306.2 (continued)
USE GROUP H, HIGH HAZARD USES

Class I-C shall include those having flash points at or above 73 degrees F. (23 degrees C.) and below 100 degrees F. (38 degrees C.).

The flash point of liquids having a flash point at or below 175 degrees F. (79 degrees C.), except for fuel oils and certain viscous materials, shall be determined in accordance with ASTM D56 listed in Appendix A.

The flash point of liquids having a flash point above 175 degrees F. (79 degrees C.), except for fuel oils, shall be determined in accordance with ASTM D92 listed in Appendix A.

The flash point of fuel oil and certain viscous materials having a flash point at or below 175 degrees F. (79 degrees C.) shall be determined in accordance with ASTM D93 listed in Appendix A.

Flammable gas having a flammability range with air greater than 1 percent by volume which is a liquid while under pressure and having a vapor pressure in excess of 27 psia at a temperature of 100 degrees F. (38 degrees C.).

Flammable solids and any similar solid substance other than one classified as explosive, which is liable to cause fires through friction, through absorption of moisture, through spontaneous chemical change or as a result of retained heat from manufacturing or processing.

Liquefied petroleum gas which is composed predominately of the following hydrocarbons or mixtures of them, such as: propane, propylene, butane (normal butane or isobutane) and butylenes.

Nitromethane which is a combustible liquid which at 599 degrees F. (315 degrees C.) and 915 psig decomposes explosively and is an unstable material.

Oxidizing materials and any similar substances that readily yield oxygen to stimulate combustion, such as sodium nitrate, potassium chlorate and pyroxylin plastic.

Organic peroxide.

Unstable materials which polymerize, decompose, condense or become self-reactive when exposed to air, water, heat, shock or pressure.

USE GROUP CLASSIFICATION

**Table 306.2.1
EXEMPT AMOUNTS OF HAZARDOUS MATERIALS,
LIQUIDS AND CHEMICALS**

Material	Maximum quantities
1. Flammable liquids	
Class 1-A	30 gal. ^b
Class 1-B	60 gal. ^b
Class 1-C	90 gal. ^b
2. Combustible liquids ^c	
Class II	120 gal. ^b
Class III-A	250 gal. ^b
3. Combination flammable liquids ^a	120 gal. ^b
4. Flammable gasses	3,000 cu. ft. at one atmosphere of pressure at 70°
5. Liquefied flammable gasses	60 gal.
6. Combustible fibers-loose	100 cu. feet
7. Combustible fibers-baled	1,000 cu. feet
8. Flammable solids	500 lbs.
9. Unstable materials	No exemptions
10. Corrosive liquids	55 gal.
11. Oxidizing materials-gases	6,000 cu. feet
12. Oxidizing materials-liquids	50 gal.
13. Oxidizing materials-solids	500 lbs.
14. Organic peroxides	10 lbs.
15. Nitromethane (unstable materials)	No exemptions
16. Ammonium nitrate	1,000 lbs.
17. Ammonium nitrate compound mixtures containing more than 60% nitrate by weight	1,000 lbs.
18. Highly toxic materials and poisonous gas	No exemptions
19. Smokeless powder	20 lbs. ^d
20. Black sporting powder	5 lbs. ^d

Note a. Containing not more than the exempt amounts of Class 1-A, 1-B or 1-C flammable liquids.

Note b. The maximum quantities shall be increased by 100 percent in areas which are not accessible to the public. In buildings where automatic fire suppression systems are installed, the maximum quantities shall be increased 100 percent in the areas accessible to the public.

Note c. Tank storage up to 660 gallons for fuel burning equipment meeting the requirements of the BOCA National Mechanical Code or the BOCA National Fire Prevention Code and 527CMR listed in Appendix A and G, respectively, shall be permitted.

Note d. Maximum quantities in the amount specified by NFPA 495 shall be permitted when stored in accordance with NFPA 495 listed in Appendix A.

SECTION 307.0 USE GROUP I, INSTITUTIONAL USES

307.1 General: All buildings and structures, or parts thereof, shall be classified in Use Group I in which people suffering from physical limitations because of health or age are harbored for medical or other care or treatment, or in which people are detained for penal or correction purposes, or in which the liberty of the inmates is restricted.

307.2: Deleted

307.3 Use Group I-2: This use group shall include buildings or parts thereof used for medical, surgical, psychiatric, nursing or custodial care on a 24-hour basis of six or more persons who are not capable of self-preservation. The following types of facilities, when accommodating persons of the above description, shall be classified as I-2 facilities: hospital, nursing home (both intermediate care facility and skilled nursing facility) and mental hospital. A facility such as the above with five or less occupants shall be classified as a residential use group.

307.3.1 Child day care center: A child day care center which accommodates children 2 years 9 months of age or less shall be classified as Use Group I-2.

307.4 Use Group I-3: This use group shall include buildings or parts thereof inhabited by six or more persons who are under some restraint or security. An I-3 facility is occupied by persons who are generally incapable of self-preservation due to security measures not under the occupants control. The following types of facilities, when accommodating persons of the above description, shall be classified as I-3 facilities: prisons, jails, reformatories, detention centers, correctional centers and pre-release centers. Buildings of Use Group I-3 shall be classified as one of the subclassifications indicated in Sections 307.4.1 through 307.4.5. Any building to be constructed or proposed for a change in occupancy to an I-3 use, shall meet the provisions of both General Building Limitations (Article 5) and Fire Protection Systems (Article 10) required by this Code and also meet the governing provisions of NFPA 101, Life Safety Code, chapters 14 and 15 respectively (also see Section 611.0).

307.4.1 Use Condition I: This use condition shall include all buildings in which free movement is allowed from sleeping areas, and other spaces where access or occupancy is permitted, to the exterior via means of egress without restraint. A Use Condition I facility shall be classified in Use Group R.

307.4.2 Use Condition II: This use condition shall include all buildings in which free movement is allowed from sleeping areas and any other occupied smoke compartment to one or more other smoke compartments. Egress to the exterior is impeded by locked exits.

USE GROUP CLASSIFICATION

307.4.3 Use Condition III: This use condition shall include all buildings in which free movement is allowed within individual smoke compartments, such as within a residential unit comprised of individual sleeping rooms and group activity space, with egress impeded by remote control release of means of egress from such smoke compartment to another smoke compartment.

307.4.4 Use Condition IV: This use condition shall include all buildings in which free movement is restricted from an occupied space. Remote controlled release is provided to permit movement from all sleeping rooms, activity space and other occupied areas within the smoke compartment and to other smoke compartments.

307.4.5 Use Condition V: This use condition shall include all buildings in which free movement is restricted from an occupied space. Staff controlled release is provided to permit movement from all sleeping rooms, activity spaces and other occupied areas within the smoke compartment and to other smoke compartments.

SECTION 308.0 USE GROUP M, MERCANTILE USES

308.1 General: All buildings and structures, or parts thereof, shall be classified in Use Group M which are used for display and sales purposes involving stocks of goods, wares or merchandise incidental to such purposes and accessible to the public; including, among others, retail stores, motor fuel service stations, shops and salesrooms and markets. Highly combustible goods shall be limited to small quantities that do not constitute a high hazard; and if not so limited, the construction shall comply with the requirements for Use Group H as set forth in the provisions of Section 306.0 and Tables 401 and 501.

SECTION 309.0 USE GROUP R, RESIDENTIAL USES

309.1 General: All buildings and structures, or parts thereof, shall be classified in Use Group R in which families or households live, or in which sleeping accommodations are provided for individuals with or without dining facilities, excluding those that are classified as institutional buildings.

309.2 Use Group R-1 structures: This use group shall include all hotels, motels, boarding houses, lodging houses and similar buildings arranged for shelter and sleeping accommodations and in which the occupants are primarily transient in nature, making use of the facilities for a period of less than 30 days.

309.3 Use Group R-2 structures: This use group shall include all multiple-family dwellings having more than two dwelling units, except as provided in Section 910.3 for multiple single-family dwelling units, and shall also include all boarding houses, lodging houses and similar buildings arranged for shelter and sleeping accommodations in which the occupants are primarily not transient in nature.

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309.3.1 Dormitories: A dormitory facility which accommodates more than five persons more than 2 ½ years of age shall be classified as Use Group R-2.

309.4 Use Group R-3 structures: This use group shall include all buildings arranged for the use of one- or two-family dwelling units, including not more than three (3) lodgers or boarders per dwelling unit, and as provided in Section 910.3 for multiple single-family dwelling units.

309.4.1 Family day-care home: A family day-care home as defined by MGL 28A, s. 9, shall be classified as use group R-3 or R-4. Such facility may not accommodate more than six children.

309.5 Use Group R-4 structures: This use group shall include all detached one- or two-family dwellings not more than three stories in height, and their accessory structures as indicated in **Article 34**, the One and Two Family Dwelling Code. All such structures shall be designed in accordance with the One and Two Family Dwelling Code or in accordance with the requirements of this code for a Use Group R-3 structure.

309.6 Use group R-5 structures: This use group shall include all buildings arranged for use as limited group residences in accordance with the requirements of this code (see **Article 6**).

SECTION 310.0 USE GROUP S, STORAGE USES

310.1 General: All buildings and structures, or parts thereof, shall be classified in Use Group S which are used primarily for the storage of goods, wares or merchandise, except those of Use Group H that involve highly combustible or explosive products or materials; including, among others, warehouses, storehouses and freight depots.

310.2 List of moderate hazard uses: Buildings used for the storage of moderate hazard contents which are likely to burn with moderate rapidity, but which do not produce either poisonous gases, fumes or explosives, including, among others, the materials listed in Table 310.2, shall be classified in Use Group S-1.

310.3 List of low hazard uses: Low hazard uses shall include buildings used for the storage of noncombustible materials, and of low hazard wares that do not ordinarily burn rapidly such as products on wood pallets or in paper cartons without significant amounts of combustible wrappings, but with a negligible amount of plastic trim such as knobs, handles or film wrapping. Such uses shall be classified as Use Group S-2 including, among others, the materials listed in Table 310.3.

USE GROUP CLASSIFICATION

**Table 310.2
USE GROUP S-1 STORAGE USES, MODERATE HAZARD**

Bags, cloth, burlap and paper	Linoleum
Bamboo and rattan	Livestock shelters
Baskets	Lumber yards
Belting, canvas and leather	Motor vehicle repair shops
Books and papers in rolls and packs	Petroleum warehouses for storage of lubricating oils with a flash point of 200 degrees F. or higher
Boots and shoes	Photo engraving
Buttons, including cloth covered, pearl or bone	Public garages (Group 1) and stables
Cardboard and cardboard boxes	Silk
Clothing, woolen wearing apparel	Soap
Cordage	Sugar
Furniture	Tobacco, cigars, cigarettes and snuff
Furs	Upholstering and mattress manufacturing
Glue, mucilage, paste and size	Wax candles
Horn and combs, other than celluloid	
Leather, enameling or japanning	

**Table 310.3
USE GROUP S-2 STORAGE USES, LOW HAZARD**

Asbestos	Gypsum board
Beer or wine up to 12% alcohol in metal, glass or ceramic containers	Inert pigments
Cement in bags	Ivory
Chalk and crayons	Meats
Dairy products in nonwaxed coated paper containers	Metal cabinets
Dry cell batteries	Metal desks with plastic tops and trim
Electrical coils	Metal parts
Electrical motors	Metals
Food products	Mirrors
Foods in noncombustible containers	New empty cans
Fresh fruits and vegetables in nonplastic trays or containers	Oil filled and other types of distribution transformers
Frozen foods	Open parking structures
Glass	Porcelain and pottery
Glass bottles, empty or filled with noncombustible liquids	Public garages (Group 2)
	Stoves
	Talc and soapstone
	Washers and dryers

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SECTION 311.0 USE GROUP U, UTILITY AND MISCELLANEOUS USES

311.1 General: Buildings and structures of an accessory character and miscellaneous structures not classified in any specific use group shall be constructed, equipped and maintained to meet the requirements of this code commensurate with the fire and life hazard incidental to their use. Utility and miscellaneous uses shall include fences over 6 feet high, tanks, cooling towers, retaining walls and buildings such as private garages, carports, sheds and agricultural buildings.

SECTION 312.0 DOUBTFUL USE CLASSIFICATION

312.1 General: When a building or structure is proposed for a use not specifically provided for in this code or the classification of which is doubtful, such building or structure shall be included in the use group which it most nearly resembles in respect to the existing or proposed life and fire hazard, and it shall be so classified by the building official.

SECTION 313.0 MIXED USE AND OCCUPANCY

313.1 Two or more uses: When a building is occupied for two or more uses, not included in the same use group, one of the following Sections 313.1.1 through 313.1.4 or a combination thereof shall apply.

313.1.1 Nonseparated uses: The provisions of the code applying to each use shall apply to such parts of the building as come within that use group. The required building type of construction shall be determined according to the use of the building which has the more restrictive height and area limitations. The most restrictive applicable provisions of Article 10 shall apply to the nonseparated uses. A fire separation assembly is not required between uses, however, fire separation assemblies shall be provided as required by other sections of the code. Tenant separations shall be provided as required in Table 401.

313.1.2 Separated uses: The mixed uses shall be completely separated, both horizontally and vertically, by fire separation walls and floor/ceiling assemblies having a fireresistance rating corresponding to the highest fire grading prescribed in Table 902 for the separate uses. Each such portion of the building shall comply with the code based on the use of that space. Each portion of the building shall comply with the height limitations of Sections 501.0 and 503.0 based on the use of that space and the building type of construction. For each story, the building area shall be such that the sum of the ratios of the floor area of each use divided by the allowable area by Sections 501.0 and 502.0 for each use shall not exceed one.

313.1.3 Separate buildings: The mixed uses shall be completely separated by fire walls having a fireresistance rating corresponding to the highest fire grading

USE GROUP CLASSIFICATION

prescribed in Table 902 for the separate uses. Each use group shall be considered a separate building and shall comply with the provisions of this code applicable to that group.

313.1.4 Incidental uses: Where the use is supplemental to the main use of the building and the area devoted to such use does not occupy more than 10 percent of the area of any floor nor more than 10 percent of the allowable area permitted by Sections 501.0 and 502.0 based on the supplemental use, a fire separation assembly shall not be required between the main and supplemental uses. The required type of construction shall be based on the main use of the building.

Exceptions: Section 313.1.4 shall not apply to:

1. Specific use areas within buildings of Use Group I-2 (see Section 610.2)
2. Specific use areas within buildings of Use Group I-3 (see Section 611.7)
3. Supplemental areas of Use Group H

313.2 High hazard uses: A place of public assembly or education shall not be permitted in a building classified in Use Group H.

313.3 Means of egress: The means of egress requirements shall be applied in accordance with Section 802.2.

313.4 Open parking facilities beneath other use groups: Open parking structures constructed under Use Groups A, I, B, M and R shall not exceed the height and area limitations permitted under Section 607.0. The height and area of the structure for the occupancy above the open parking facility shall be in accordance with Section 501.0. The height of the entire building shall be the distance defined in Section 201.0 and shall not exceed the limitations for the upper occupancy in Section 501.3. Fire separation for wall assemblies and floor/ceiling assemblies between the parking occupancy and the upper occupancy shall correspond to the highest fire grading prescribed in Table 902 for the uses involved. The type of construction shall apply to each occupancy individually, except that all structural members including main bracing within the open parking structure necessary to the support of the upper occupancy shall be protected with more restrictive fire-resistant assemblies of the occupancies involved as shown in Table 401. Exit facilities for the upper occupancy shall conform to Article 8 and shall be separated from the parking area by walls having at least a 2-hour fire-resistance-rating as required by Table 401 and self-closing doors complying with Section 916.0. Means of egress from the opening parking facility shall comply with Section 809.5.

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ARTICLE 4

TYPES OF CONSTRUCTION CLASSIFICATION

SECTION 400.0 GENERAL

400.1 Scope: The provisions of this article shall control the classification of all buildings as to type of construction.

400.2 Application of other laws: The provisions of this article shall not be deemed to nullify any provisions of the zoning law, **ordinance of any municipality in the Commonwealth of Massachusetts** or any other statute pertaining to the location, or type of construction of buildings, except as is specifically required by the provisions of this code.

SECTION 401.0 CONSTRUCTION CLASSIFICATION

401.1 General: All buildings and structures erected or to be erected, altered or extended in height or area shall be classified in any one or in a combination of the five construction types defined in Table 401 and Sections 402.0 through 406.0.

401.2 False designation: A building shall not be designated a given type of construction unless it conforms to the minimum requirements for that type. It shall be unlawful to post, or use, or designate, or advertise a building as of a given type of construction unless it complies with the minimum code requirements for that type.

401.3 Minimum requirements: When a type of construction is used that is superior to the minimum herein required for any specified use, height and area of the building, nothing in this code shall be construed to require full compliance with the specifications for the higher type; but the designated construction classification of the building shall be that of the lesser type, unless all the requirements for the higher type are fulfilled.

401.4 Noncombustibility requirements: Where a structure or a part of a structure is required to be constructed of noncombustible construction, the use of combustible elements shall be permitted subject to the limitations of this section without altering the construction classification.

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Table 401
FIRERESISTANCE RATINGS OF STRUCTURE ELEMENTS (IN HOURS)

Structure element	Type of construction - Section 401.0									
	Noncombustible			Noncombustible/Combustible			Combustible			
	Type 1 Section 402.0	Type 2 Section 403.0		Type 3 Section 404.0		Type 4 Section 405.0	Type 5 Section 406.0			
Note a 1 Exterior walls	Protected	Protected	Unprotected	Protected	Unprotected	Protected	Heavy timber Note c	Protected	Unprotected	Unprotected
	1A	2A	2B	2C	3A	3B	4	5A	5B	0
	4	3	2	1	0	2	2	1	0	0
2 Fire walls and party walls (Section 908.0)	Not less than the rating based on fire separation distance (see Section 906.2)									
	Not less than the rating based on fire separation distance (see Section 906.2)									
3 Fire separation assemblies (Sections 910.0, 913.0)	Not less than the rating based on fire separation distance (see Section 906.2)									
	Not less than the fire grading of use group --- (see Table 902)									
4 Smoke barriers (Section 911.0 and Note g)	Fire resistance rating corresponding to fire grading of use group --- (see Table 902)									
	1	1	1	1	1	1	1	1	1	1
5 Fire enclosures of exits, exit hallways and stairways (Section 816.9.2, 910.0 and Note b)	Fire resistance rating corresponding to fire grading of use group --- (see Table 902)									
	2	2	2	2	2	2	2	2	2	2
6 Shafts (other than exits) and elevator hoistways (Sections 910.0, 915.0 and Note b)	Fire resistance rating corresponding to fire grading of use group --- (see Table 902)									
	2	2	2	2	2	2	2	2	2	2
7 Exit access corridors (Notes 1, g)	Fire resistance rating corresponding to fire grading of use group --- (see Table 902)									
	1	1	1	1	1	1	1	1	1	1
8 Separations	See Note d									
	Tenant spaces (Note f)	1	1	1	1	1	1	1	1	1
	Dwelling units (Note f)	1	1	1	1	1	1	1	1	1
Other nonbearing partitions	0	0	0	0	0	0	0	0	0	0

TYPES OF CONSTRUCTION CLASSIFICATION

Structure element		Type of construction Section 401.0											
		Noncombustible				Noncombustible/Combustible				Combustible			
		Type 1 Section 402.0		Type 2 Section 403.0		Type 3 Section 404.0		Type 4 Section 405.0		Type 5 Section 406.0			
9 Interior bearing walls, bearing partitions, columns, girders, trusses (other than roof trusses) and framing (Section 912.0)	Note a Supporting more than one floor	Protected		Unprotected		Protected		Unprotected		Protected		Unprotected	
		1A	1B	2A	2B	2C	3A	3B	4	5A	5B		
10 Structural members supporting wall (Section 912.0 and Note g)	Supporting one floor only or a roof only	3	2	1½	1	0	1	0	See Section 405.0	1	0	1	0
		3	2	1½	1	0	1	0	See Section 405.0	1	0	1	0
Not less than fire resistance rating of wall supported													
11 Floor construction including beams (Section 913.0 and Note h)	15' or less in height to lowest member	3	2	1½	1	0	1	0	See Section 405.0, Note c	1	0	1	0
		2	1½	1	1	0	1	0	See Section 405.0, Note c	1	0	1	0
12 Roof construction, including beams, trusses and framing, arches and roof deck (Section 914.0 and Notes e, i)	More than 15' but less than 20' in height to lowest member	1	1	1	0	0	0	0	See Section 405.0	1	0	1	0
		Note d											
20' or more in height to lowest member	20' or more in height to lowest member	0	0	0	0	0	0	0	See Section 405.0	0	0	0	0
		Note d											

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Notes to Table 401

Note a. For increased fire-resistance ratings requirements in special high hazard uses involving a higher degree of fire severity and higher concentration of combustible contents, see Section 600.2. For fire-resistance rating requirements for structural membranes and assemblies which support other fire-resistance rated members or assemblies, see Section 912.1.

Note b. For reductions in the required fire-resistance rating of exit and shaft enclosures, see Sections 816.9.2 and 915.3.

Note c. For substitution of other structural materials for timber in Type 4 construction, see Section 1702.2.

Note d. Fire retardant treated wood permitted, see Sections 903.5 and 905.3.

Note e. For permitted uses of heavy timber in roof construction in buildings of Types 1 and 2 construction, see Section 914.4.

Note f. For reductions in required fire-resistance ratings of exit access corridors, tenant separations and dwelling unit separations, see Section 810.4 and 810.4.1.

Note g. For exceptions to the required fire-resistance rating of construction supporting exit access corridors and smoke barriers, see Sections 910.6 and 911.2.

Note h. For buildings having habitable or occupiable stories or basements below grade, see Section 807.3.1.

401.4.1 Roofs, floors and walls: Combustible elements in roofs, floors and walls are permitted to be used for the following components:

1. Interior finish and trim materials as regulated by Sections 922.0, 923.0 and 924.0.
2. Light-transmitting plastics as permitted by Articles 20, 21, 22 and 23.
3. Fire-retardant treated wood as permitted by Section 903.0.
4. Mastics and caulking materials applied to provide flexible seals between components of exterior wall construction.
5. Roof covering materials as regulated by Section 2301.0.
6. Thermal and sound insulation as permitted by Sections 908.4, 928.0, 1709.4, 2002.0 and 2301.4.
7. Exterior veneer and trim as permitted by Sections 926.2 and 2105.0.
8. Nailing or furring strips as permitted by Sections 900.3.1 and 923.0.
9. Windows and doors as permitted by Section 907.4.
10. Heavy timber as permitted by Sections 807.3.1 and 914.2.
11. Partitions as permitted by Section 905.3.
12. Roof structures as permitted by Section 927.0.

401.4.2 Ducts: Nonmetallic ducts as permitted by the BOCA National Mechanical Code listed in Appendix A.

401.4.3 Piping: Combustible piping materials as permitted by the BOCA National Mechanical Code, **Massachusetts State Plumbing Code (248 CMR 2.00)** and the **Massachusetts Fuel Gas Code (248 CMR 3.00 through 8.00)** promulgated by the Commonwealth of Massachusetts Board of State Examiners of Plumbers and Gas Fitters, listed in Appendix G.

TYPES OF CONSTRUCTION CLASSIFICATION

401.4.4 Electrical: Insulated electrical wiring and related components as regulated by the Massachusetts Electrical Code promulgated by the Board of Fire Prevention Regulations, listed in Appendix G.

SECTION 402.0 TYPE 1 CONSTRUCTION

402.1 General: Buildings and structures of Type 1 construction are those in which the walls, partitions, structural elements, floors, ceilings, roofs, and the exits are constructed and protected with approved noncombustible materials to afford the fire-resistance rating specified in Table 401, except as otherwise specifically regulated by the provisions of Article 9. Type 1 buildings shall be further classified as Types 1A and 1B. Fire-retardant treated wood shall only be used as specified in Table 401 and Section 903.5.

SECTION 403.0 TYPE 2 CONSTRUCTION

403.1 General: Buildings and structures of Type 2 construction are those in which the walls, partitions, structural elements, floors, ceilings, roofs, and the exits are constructed of approved noncombustible materials meeting the fire-resistance rating requirements specified in Table 401, except as further regulated in Article 9. Type 2 buildings shall be further classified as types 2A, 2B, and 2C. Fire-retardant treated wood shall only be used as specified in Table 401 and Section 903.5.

SECTION 404.0 TYPE 3 CONSTRUCTION

404.1 General: Buildings and structures of Type 3 construction are those in which the exterior, fire and party walls are constructed of masonry or other approved noncombustible materials of the required fire-resistance rating and structural properties; and the floors, roofs and interior framing are wholly or partly of wood or of metal or other approved construction; the fire and party walls are ground supported, except that girders and their supports carrying walls of masonry shall be protected to afford the same degree of fire-resistance rating of the walls supported thereon; and all structural elements shall have the required fire-resistance rating specified in Table 401.

404.2 Type 3A: Structures of type 3A construction shall include all Type 3 buildings in which the interior structural elements are wholly or partly of fire protected wood of not less than 2-inch nominal thickness, or of other approved protected combustible materials, or of metal protected and insulated to afford the fire-resistance rating specified in Table 401.

404.3 Type 3B: Structures of Type 3B construction shall include all Type 3 buildings in which the interior structural members are of wood of not less than

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2-inch nominal thickness or consist of other combustible or noncombustible materials with protection of less than 1-hour fire-resistance rating.

SECTION 405.0 TYPE 4 CONSTRUCTION

405.1 General: Buildings and structures of Type 4 construction are those in which the exterior walls are of noncombustible materials having a fire-resistance rating not less than that specified in Table 401 and the interior structural members are of solid or laminated wood without concealed spaces. The elements of Type 4 construction shall comply with the provisions of this section (see Section 1702.0 for construction details).

405.2 Columns: Wood columns shall be sawn or glued laminated and shall be not less than 8 inches, nominal, in any dimension when supporting floor loads and not less than 6 inches, nominal, in width and not less than 8 inches, nominal, in depth when supporting roof and ceiling loads only. Columns shall be continuous or superimposed and connected in an approved manner.

405.3 Floor framing: Beams and girders of wood shall be sawn or glued laminated timber and shall be not less than 6 inches, nominal, in width and not less than 10 inches, nominal, in depth. Framed sawn or glued laminated timber arches which spring from the floor line and support floor loads shall be not less than 8 inches, nominal, in any dimension. Framed timber trusses supporting floor loads shall have members of not less than 8 inches, nominal, in any dimension.

405.4 Roof framing: Framed or glued laminated arches for roof construction which spring from the floor line or from grade and do not support floor loads shall have members not less than 6 inches, nominal, in width and not less than 8 inches, nominal, in depth for the lower half of the height and not less than 6 inches, nominal, in depth for the upper half. Framed or glued laminated arches for roof construction which spring from the top of walls or wall abutments, framed timber trusses, and other roof framing which does not support floor loads shall have members not less than 4 inches, nominal, in width and not less than 6 inches, nominal, in depth. Spaced members shall be composed of two or more pieces not less than 3 inches, nominal, in thickness when blocked solidly throughout their intervening spaces or when such spaces are tightly closed by a continuous wood cover plate of not less than 2 inches, nominal, in thickness, secured to the underside of the members. Splice plates shall be not less than 3 inches, nominal, in thickness. When protected by approved automatic sprinklers under the roof deck, framing members shall be not less than 3 inches, nominal, in width.

405.5 Flooring: Floors shall be without concealed spaces and shall be of sawn or glued laminated plank, splined, or tongue and groove, of not less than 3 inches, nominal, in thickness covered with 1 inch, nominal, dimension tongue and groove

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flooring, laid crosswise or diagonally, or 15/32-inch plywood or ½ inch particle board; or of planks not less than 4 inches, nominal, in width, set on edge close together and well spiked, and covered with 1-inch nominal, dimension flooring, or 15/32 inch plywood, or ½ inch particle board. The lumber shall be laid so that no continuous line of joints will occur except at points of support. Floors shall not extend closer than ½ inch to walls. Such ½ inch spaces shall be covered by a molding fastened to the wall either above or below the floor and so arranged that it will not obstruct the swelling or shrinkage movements of the floor, or corbeling of masonry walls under floor shall be used in place of molding.

405.6 Roofs: Roofs shall be without concealed spaces and roof decks shall be sawn or glued laminated, splined or tongue and groove plank, not less than 2 inches, nominal, in thickness, 1⅞ inch thick interior plywood (exterior glue), or of planks not less than 3 inches, nominal, in width, set on edge close together and laid as required for floors. Other types of decking shall only be used if providing equivalent fire-resistance rating and structural properties.

405.7 Walls: Walls shall be of solid wood construction formed by not less than two layers of 1-inch matched boards or laminated construction of a 4-inch thickness, or of 1-hour fire-resistance rated construction.

405.8 Exterior structural members: Wood columns and arches conforming to heavy timber sizes shall only be used externally where a fire separation distance of 20 feet or more is provided.

SECTION 406.0 TYPE 5 CONSTRUCTION

406.1 General: Buildings and structures of Type 5 construction are those in which the exterior walls, bearing walls, partitions, floor and roof construction are constructed of any materials permitted by this code and in which the structural elements have the required fire-resistance ratings specified in Table 401. Type 5 buildings shall be further classified as Types 5A (protected) and 5B (unprotected).

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ARTICLE 5

GENERAL BUILDING LIMITATIONS

SECTION 500.0 GENERAL

500.1 Scope: The provisions of this article control the height and area of all buildings hereafter erected, and extensions to existing buildings hereafter altered or enlarged as a function of the type of construction, use group, exterior exposure and accessibility of buildings and structures for fire fighting purposes.

SECTION 501.0 GENERAL AREA AND HEIGHT LIMITATIONS

501.1 General: The areas and heights of all buildings and structures between exterior walls, or between exterior walls and fire walls, shall be governed by the type of construction and the use group classification as defined in Articles 3 and 4 and shall not exceed the limits fixed in Table 501, except as specifically modified by this section and Sections 502.0, 503.0, 504.0, 601.6, 602.3.1.4, 603.1.2, 604.2.5, 616.2, 617.2 and 905.2.

501.1.1 Special industrial uses: All buildings and structures designed to house low hazard industrial processes, including, among others, the production and distribution of electric, gas or steam power and rolling mills, structural metal fabrication shops and foundries, requiring large areas and unusual heights to accommodate cranes or special machinery and equipment, shall be exempt from the height and area limitations of Table 501.

501.1.2 Open parking structures: Open parking structures shall conform to the height and area limitations in Section 607.5.

501.2 Area limit: The area limitations specified in Table 501 shall apply to the maximum horizontally projected area of all buildings fronting on a street, or public space not less than 30 feet in width accessible to a public street.

501.2.1 Buildings on same lot: Two or more buildings on the same lot shall be regulated as separate buildings or shall be considered as portions of one building if the height of each building and the aggregate area of all buildings are within the limitations of Table 501 as modified by Sections 502.0 and 504.0. The provisions of this code applicable to the aggregate building shall be applicable to each building.

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Table 501
HEIGHT AND AREA LIMITATIONS OF BUILDINGS

Height limitations of buildings (shown in upper figure as stories above grade and feet above grade), and area limitations of one or two-story buildings facing on one street or public space not less than 30 feet wide (shown in lower figure as area in square feet per floor).

See note a. Table notes appear immediately following table.
N.P. = Not Permitted; N.L. = Not Limited

USE GROUPS	Type of Construction													
	Noncombustible						Noncombustible/Combustible						Combustible	
	Type 1		Type 2				Type 3		Type 4		Type 5			
	Protected note b		Protected	Unpro- tected	Unpro- tected	Unpro- tected	Pro- tected	Unpro- tected	Pro- tected	Heavy timber	Pro- tected	Unpro- tected	Pro- tected	Unpro- tected
note a	1A	1B	2A	2B	2C	3A	3B	4	5A	5B				
	N.L.	N.L.	5 St. 65' 19,950	3 St. 40' 13,125	2 St. 30' 8,400	3 St. 40' 11,550	2 St. 30' 8,400	3 St. 40' 12,600	1 St. 20' 8,925	1 St. 20' 4,200				
A-1 Assembly; theaters	N.L.	N.L.	5 St. 65' 19,950	3 St. 40' 13,125	2 St. 30' 8,400	3 St. 40' 11,550	2 St. 30' 8,400	3 St. 40' 12,600	1 St. 20' 8,925	1 St. 20' 4,200				
A-2 Assembly; night clubs and similar uses	N.L.	4 St. 50' 7,200	3 St. 40' 5,700	2 St. 30' 3,750	1 St. 20' 2,400	2 St. 30' 3,300	1 St. 20' 2,400	2 St. 30' 3,600	1 St. 20' 2,550	1 St. 20' 1,200				
A-3 Assembly; lecture halls, recreation centers, terminals, restaurants other than night clubs	N.L.	N.L.	5 St. 65' 19,950	3 St. 40' 13,125	2 St. 30' 8,400	3 St. 40' 11,550	2 St. 30' 8,400	3 St. 40' 12,600	1 St. 20' 8,925	1 St. 20' 4,200				
A-4 Assembly; churches	N.L.	N.L.	5 St. 65' 34,200	3 St. 40' 22,500	2 St. 30' 14,400	3 St. 40' 19,800	2 St. 30' 14,400	3 St. 40' 21,600	1 St. 20' 7,200	1 St. 20' 7,200				
B Business	N.L.	N.L.	7 St. 85' 34,200	5 St. 65' 22,500	3 St. 40' 14,400	4 St. 50' 19,800	3 St. 40' 14,400	5 St. 65' 21,600	3 St. 40' 15,300	2 St. 30' 7,200				
E Educational	N.L.	N.L.	5 St. 65' 34,200	3 St. 40' 22,500	2 St. 30' 14,400	3 St. 40' 19,800	2 St. 30' 14,400	3 St. 40' 21,600	1 St. 20' 15,300	1 St. 20' 7,200				
F Factory and industrial	N.L.	N.L.	6 St. 75' 22,800	4 St. 50' 15,000	2 St. 30' 9,600	3 St. 40' 13,200	2 St. 30' 9,600	4 St. 50' 14,400	2 St. 30' 10,200	1 St. 20' 4,800				
H High Hazard	5 St. 65' 16,800	3 St. 40' 14,400	3 St. 40' 11,400	2 St. 30' 7,500	1 St. 20' 4,800	2 St. 30' 6,600	1 St. 20' 4,800	2 St. 30' 7,200	1 St. 20' 5,100	N.P.				
I-1	Deleted													

GENERAL BUILDING LIMITATIONS

I-2 Institutional, incapacitated	N.L.	8 St. 90' 21,600	4 St. 50' 17,100	2 St. 30' 11,250	1 St. 20' 7,200	1 St. 20' 9,900	N.P.	1 St. 20' 10,000	1 St. 20' 7,650	N.P. note l
I-3 Institutional, restrained	N.L.	6 St. 75' 18,000	4 St. 50' 14,250	2 St. 30' 9,375	1 St. 20' 6,000	2 St. 30' 8,250	1 St. 20' 6,000	2 St. 30' 9,000	1 St. 20' 6,375	N.P.
M Mercantile	N.L.	N.L.	6 St. 75' 22,800	4 St. 50' 15,000	2 St. 30' 9,600	3 St. 40' 13,200	2 St. 30' 9,600	4 St. 50' 14,400	2 St. 30' 10,200	1 St. 20' 4,800
R-1 Residential, hotels note j	N.L.	N.L.	9 St. 100' 22,800	4 St. 50' 15,000	3 St. 40' 9,600	4 St. 50' 13,200	3 St. 40' 9,600	4 St. 50' 14,400	3 St. 40' 10,200	2 St. 35' 4,800
R-2 Residential, multi-family	N.L.	N.L.	9 St. 100' 22,800	4 St. 50' 15,000	3 St. 40' 9,600	4 St. 50' 13,200	3 St. 40' 9,600	4 St. 50' 14,400	3 St. 40' 10,200	2 St. 35' 4,800
R-3 Residential, 1 & 2 family	N.L.	N.L.	4 St. 50' 22,800	4 St. 50' 15,000	3 St. 40' 9,600	4 St. 50' 13,200	3 St. 40' 9,600	4 St. 50' 14,400	3 St. 40' 10,200	2 St. 35' 4,800
S-1 Storage, moderate	N.L.	N.L.	5 St. 65' 19,950	4 St. 50' 13,125	2 St. 30' 8,400	3 St. 40' 11,550	2 St. 30' 8,400	4 St. 50' 12,600	2 St. 30' 8,925	1 St. 20' 4,200
S-2 Storage, low note g	N.L.	N.L.	7 St. 85' 34,200	5 St. 65' 22,500	3 St. 40' 14,400	4 St. 50' 19,800	3 St. 40' 14,400	5 St. 65' 21,600	3 St. 40' 15,300	2 St. 30' 7,200
U Utility, miscellaneous	N.L.	N.L.	N.L.	N.L.	N.L.	N.L.	N.L.	N.L.	N.L.	N.L.

Notes applicable to Table 501:

Note n. See the following sections for general exceptions to Table 501:

Section 501.4 Allowable area reduction for multi-story buildings.

Section 502.2 Allowable area increase due to street frontage.

Section 502.3 Allowable area increase due to automatic fire suppression system installation.

Section 503.1 Allowable height increase due to automatic fire suppression system installation.

Section 504.0 Unlimited area one-story buildings.

Note b. Buildings of Type I construction permitted to be of unlimited tabular heights and areas are not subject to special requirements that allow increased heights and areas for other types of construction (see Section 501.5).

Note c. For tabular area increases in buildings of use group E, see Section 502.4.

Note d. For height exceptions for auditoriums in buildings of Use Groups A-4 and E, see Section 503.2.

Note e. For exceptions to height and area limitations of buildings of Use Group II, see Article 6 governing the specific use. For other special fire-resistive requirements governing specific uses, see Section 905.0.

Note f. For exceptions to height of buildings for Use Group R-2 of Types 2B and 3A construction, see Section 905.2.

Note g. For height and area exceptions for open parking structures, see Section 607.0.

Note h. For exceptions to height and area limitations for special industrial uses, see Section 501.1.1.

Note i. See Section 633.5 for applicable height and area limitations.

Note j. For R-1 detoxification facilities, see Table 637.9.

501.3 Height limit: The height in feet and number of stories above grade specified in Table 501 shall apply to all buildings and to all separate parts of a building enclosed within lawful fire walls complying with the provisions of Article 9. A basement shall be considered as a story above grade when the distance from grade to the finished surface of the floor above the basement is more than 6 feet for more than 50 percent of the total perimeter or more than 12 feet at any point.

501.4 Multi-story buildings: The area limits for buildings two stories in height shall be the same as the area limits provided in Table 501 for one-story buildings. In buildings over two stories in height, the area limits of Table 501 for one-story buildings shall be reduced as specified in Table 501.4.

**Table 501.4
PERCENT REDUCTION OF AREA LIMITS**

No. of stories	Type of construction		
	1A & 1B	2A	2B, 2C, 3A, 3B, 4, 5A, 5B
1	None	None	None
2	None	None	None
3	None	5%	20%
4	None	10%	20%
5	None	15%	30%
6	None	20%	40%
7	None	25%	50%
8	None	30%	60%
9	None	35%	70%
10	None	40%	80%

501.5 Type 1 construction: Buildings of Type 1 construction permitted to be of unlimited tabular heights and areas in Table 501 are not subject to the special requirements that allow increased heights and areas for other types of construction.

SECTION 502.0 AREA MODIFICATIONS

502.1 General: The provisions of this section shall modify the area limits of Table 501 as herein specified.

502.2 Street frontage increase: When a building or structure has more than 25 percent of the building perimeter fronting on a street or other unoccupied space, the area limitations specified in Table 501 shall be increased 2 percent for each 1 percent of such excess frontage. The unoccupied space shall be on the same lot or dedicated for public use, and not less than 30 feet in width accessible from a street by a posted fire lane not less than 18 feet in width.

GENERAL BUILDING LIMITATIONS

502.3 Automatic fire suppression system: When a building of other than Use Group H is equipped throughout with an approved automatic fire suppression system, the area limitation specified in Table 501 shall be increased by 200 percent for one- and two-story buildings and 100 percent for buildings more than two stories in height. An approved limited-area sprinkler system is not considered as an approved automatic fire suppression system for the purposes of this section.

502.4 School buildings: When every classroom of a one-story school building of Use Group E has at least one door opening directly to the exterior of the building, the area limitations specified in Table 501 shall be increased 200 percent. Not less than one-half of the required exits from any assembly room included in such buildings shall also open directly to the exterior of the building.

SECTION 503.0 HEIGHT MODIFICATIONS

503.1 Automatic fire suppression systems: When a building is equipped throughout with an approved automatic fire suppression system, the building height limitation specified in Table 501 shall be increased one story and 20 feet. This increase shall not apply to buildings of Use Group I-2 of Types 2C, 3A, 4 and 5A construction nor to buildings of Use Group H. An approved limited-area sprinkler system is not considered an approved automatic fire suppression system for the purposes of this section.

503.2 Auditoriums: The maximum height of auditoriums in Use Groups A-4 and E shall be 65 feet when of Type 2B, 3A, 4 or 5A construction and 45 feet when of Type 2C, 3B or 5B construction.

SECTION 504.0 UNLIMITED AREAS

504.1 One-story buildings: In other than Type 5 construction, the area of all buildings of Use Groups A-3, B, F, I-2, M and S not including high hazard uses, which do not exceed one story or 85 feet in height shall not be limited provided the exit facilities comply with the provisions of Article 8, an automatic fire suppression system is provided throughout in accordance with the provisions of Section 1002.0 and the building is isolated as specified in Section 504.2.

Exceptions:

1. Buildings and structures of special industrial uses according to Section 501.1.1 shall be exempt from the above height limits and fire separation distance requirements, and the automatic fire suppression system shall not be provided when such installations would be detrimental or dangerous to the specific use and occupancy as approved by the building official. When located with a fire separation distance of less than 30 feet, the

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exterior walls of such buildings shall be protected or constructed to provide a fire-resistance rating of not less than 2 hours.

2. A fire suppression system shall not be required for buildings of Type 2 or Type 4 construction used exclusively for storage of noncombustible material, not packed or crated in combustible material.
3. When buildings and structures of Types 1 and 2 construction for rack storage facilities do not have access by the public, they shall not be limited in height provided they conform to the requirements of Section 504.1 and NFPA 231C listed in Appendix A.

504.1.1 School buildings: One-story school buildings of Use Group E of Type 2, 3A or 4 construction shall not be limited in area when a direct exit to the outside of the building is provided from each classroom and the building is equipped with an approved automatic fire suppression system throughout. Exterior walls on all sides of such buildings shall comply with Section 504.2.

504.1.2 Indoor recreation buildings: Indoor participant sport areas such as tennis courts, skating rinks, swimming pools and equestrian clubs shall not be limited in area and shall be exempt from the automatic fire suppression system requirements provided the requirements of Sections 504.1.2.1 through 504.1.2.4 are met.

504.1.2.1 Exits: Direct exits to the outside are provided for all the occupants of the recreation area.

504.1.2.2 Posting: The recreation area is conspicuously posted as to use and occupant load.

504.1.2.3 Fire protective signaling system: The building is equipped with a fire protective signaling system.

504.1.2.4 Fire suppression: All other areas are equipped with an automatic fire suppression system.

504.2 Exterior walls: The minimum fire-resistance rating of exterior walls of one-story buildings of unlimited area shall be determined by the use group and fire separation distance as specified in Table 504.2, but not less than the fire-resistance rating required by Table 401 for the type of construction.

GENERAL BUILDING LIMITATIONS

Table 504.2
MINIMUM FIRERESISTANCE RATING OF EXTERIOR WALLS
(HOURS)

Fire separation distance	Use group						
	A-3	B	F	1-2	M	S-1	S-2
30 feet or greater but less than 50 feet	2	2	3	2	3	3	2
50 feet or greater	0	0	0	0	0	0	0

504.2.1 Opening protectives: Openings in exterior walls required by Table 504.2 to have a fireresistance rating of 3 hours or greater shall be protected with fire assemblies having a fireresistance rating of not less than 3 hours. Openings in exterior walls required by Table 504.2 to have a fireresistance rating of 2 hours shall be protected with fire assemblies having a fireresistance rating of not less than 1½ hours.

SECTION 505.0 EXISTING BUILDINGS

505.1 Alteration limitations: These provisions shall not be deemed to prohibit alterations within the limitations of Sections 106.0 and 505.2, provided an unlawful change of use is not involved.

505.1.1 Minor changes: Changes, alterations or repairs to the interior of a building or to the front facing a street or other public space shall be permitted, provided such changes, in the opinion of the building official, do not increase the size or the fire hazard of the building, or endanger the public safety, and are not specifically prohibited by this code.

505.1.2 Existing projections: A change or enlargement shall not be made to an existing part of a building now projecting beyond the street lot line or building line where such is established by law, except in conformity to the provisions of Section 507.0 governing new construction.

505.2 Increase in height and area: It shall be unlawful to increase the height or area of an existing building or structure, unless the building or structure is of a type of construction permitted for new buildings or structures of the increased height and area as regulated by Section 501.0 and in conformance with Section 106.0.

SECTION 506.0 STREET ENCROACHMENTS

506.1 General: Except as herein provided, a part of any building hereafter erected and additions to an existing building heretofore erected shall not project beyond the

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lot lines or beyond the building line when such line is established by the zoning law or any other statute controlling building construction.

506.2 Below grade: A part of a building hereafter erected below grade that is necessary for structural support of the building shall not project beyond the lot lines, except that the footings of street walls or their supports located at least 8 feet below grade shall not project more than 12 inches beyond the street lot line.

506.3 Above grade: All projections hereafter permitted beyond the street lot line or the building line above grade shall be so constructed as to be readily removable without endangering the safety of the building.

506.4 Projections necessary for safety: In any specific application, the building official is authorized to designate by approved rules such architectural features and accessories which are deemed desirable or necessary for the health or safety of the public and the maximum extent to which they shall project beyond the street lot line or the building line where such is established by statute, subject to all provisions and restrictions that are otherwise prescribed by law, ordinance or rule of the authorities having jurisdiction over streets or public spaces.

506.5 Permit revocable: Any permit granted or permission expressed or implied in the provisions of this code to construct a building so as to project beyond the street lot line or building line shall be revocable by the jurisdiction at will.

506.6 Existing encroachments: Parts of existing buildings and structures which already project beyond the street lot line or building line are not required to be altered until their removal is directed by the proper authorities of the jurisdiction.

SECTION 507.0 PERMISSIBLE STREET PROJECTIONS

507.1 General: Subject to such provisions as are otherwise prescribed by law or ordinance, or by rules of the authorities having jurisdiction over streets, highways, and public spaces, the following projections, as described in Sections 507.2 through 507.11.1, shall be permitted beyond the street lot line or the building line.

507.2 Cornices and eaves: Main cornices or roof eaves located at least 12 feet above the curb level shall project not more than 3 feet.

507.3 Architectural decorations: Belt courses, lintels, sills, architraves, pediments and similar architectural decorations shall project not more than 4 inches when less than 10 feet above the curb level, and not more than 10 inches when 10 feet or more above the curb level.

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507.4 Ornamental columns: Ornamental columns, or pilasters, including the bases and moldings which emphasize the main entrance of the building, shall project not more than 12 inches.

507.5 Entrance steps: Entrance steps and doors shall project not more than 12 inches and shall be guarded by cheek pieces not less than 3 feet high, or shall be located between ornamental columns or pilasters.

507.6 Oriel windows: Oriel windows with the lowest portion at least 10 feet above the curb level shall project not more than 2½ feet.

507.7 Balconies: Balconies located at least 10 feet above the curb level shall project not more than 3 feet, except that when the balcony is required in connection with a fire escape or exterior stairway as an element of a means of egress, the projection shall not exceed 4 feet.

507.8 Awnings: Retractable or fixed awnings shall have clearances above the grade, and shall be installed in accordance with the requirements of Section 510.0.

507.9 Awning covers or boxes: Awning covers or boxes located at least 8 feet above the curb level shall not project more than 3 feet.

507.10 Marquees: For the purpose of this section, a marquee shall include any object or decoration attached to or a part of said marquee.

507.10.1 Projection and clearance: The horizontal clearance between a marquee and the curb line shall be not less than 2 feet. A marquee projecting more than two-thirds of the distance from the property line to the curb line shall be not less than 10 feet above the ground or pavement below.

507.10.2 Thickness: The maximum height or thickness of a marquee measured vertically from its lowest to its highest point shall not exceed 3 feet when the marquee projects more than two-thirds of the distance from the property line to the curb line, and shall not exceed 9 feet when the marquee is less than two-thirds of the distance from the property line to the curb line.

507.10.3 Roof construction: Where the roof or any part thereof is a skylight, the materials shall consist of approved plastics, or wired glass not less than ¼ inch thick with a single pane not more than 18 inches wide. Every roof and skylight of a marquee shall be sloped to downspouts which shall conduct any drainage from the marquee in a manner not to spill over the sidewalk.

507.10.4 Location prohibited: Every marquee shall be so located as not to interfere with the operation of any exterior standpipe, and not to obstruct the clear

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passage of stairways or exit discharge from the building or the installation or maintenance of street lighting.

507.10.5 Construction: A marquee shall be supported entirely from the building and constructed of noncombustible material. Marquees shall be designed and constructed to withstand wind or other lateral loads and live loads as required in Article 11 of this code. Structural members shall be protected to prevent deterioration.

507.11 Vaults: Vaults below the sidewalk level shall extend not closer than 3 feet to the curb line; and the construction and use of such vaults shall be subject to the terms and conditions of the authority or legislative body having jurisdiction.

507.11.1 Areaways: Areaways shall not project beyond the street lot line more than 4 feet; provided that every such areaway shall be covered over at the street grade by an approved grating of metal or other noncombustible material.

SECTION 508.0 PERMISSIBLE YARD AND COURT ENCROACHMENTS

508.1 General: A part of any building or structure shall not extend into side courts, inner courts or yards required for light and ventilation of habitable and occupiable rooms by the provisions of Article 7, or by the zoning law or other statutes controlling building construction, except as hereinafter provided; but the encroachment shall not exceed 20 percent of the legal area of yard or court required for light and ventilation purposes.

508.2 Roof eaves: Roof eaves shall project not more than 3 feet beyond the face of the wall.

508.3 Steps and architectural features: Steps, window sills, belt courses and similar architectural features, rain leaders and chimneys shall project not more than 2 feet beyond the face of the wall.

508.4 Exterior stairways and fire escapes: Outside stairways, smokeproof tower balconies, fire escapes or other required elements of a means of egress shall not project more than 4 feet beyond the face of the wall.

SECTION 509.0 SPECIAL AND TEMPORARY PROJECTIONS

509.1 Alley projections: The permissible projection beyond street lot lines shall apply in general to building projections into alleyways, except as is modified by the authority having jurisdiction or by special deed restriction.

GENERAL BUILDING LIMITATIONS

509.2 Special permits: When authorized by special permit, vestibules and storm doors shall be erected for periods of time not exceeding seven months in any one year, and shall not project more than 3 feet nor more than one-fourth the width of the sidewalk beyond the street lot line. Temporary entrance awnings shall be erected with a minimum clearance of 7 feet to the lowest portion of the hood or awning when supported on removable steel, or other approved noncombustible supports.

SECTION 510.0 AWNINGS AND CANOPIES

510.1 Permit: A permit shall be obtained from the building official for the erection, repair or replacement of any fixed awning, canopy or hood except as provided in Section 510.1.1, and for any retractable awning located at the first story level and extending over the public street or, over any portion of a court or yard beside a building serving as a passage from a required exit or exit discharge to a public street.

510.1.1 Exemption from permit: A permit shall not be required for the erection, repair or replacement of fixed or retractable awnings installed on buildings of Use Group R-3 unless they project over public property, or for retractable awnings installed above the first story or where the awning does not project over the public street or over any court or yard serving as a passage from a required exit to a public street.

510.2 Retractable awnings: There shall be a minimum clearance of 7 feet from the sidewalk to the lowest part of the framework or any fixed portion of any retractable awning, except that the bottom of the valance of canvas awnings shall have a minimum clearance of 6 feet 9 inches above the sidewalk. Retractable awnings shall be securely fastened to this building and shall not extend closer than 12 inches in from the curb line. They shall be equipped with a mechanism or device for raising and holding the awning in a retracted or closed position against the face of the building.

510.3 Fixed or permanent awnings: The clearance from the sidewalk to the lowest part of any fixed or permanent awning shall be the same as required in Section 510.2 for retractable awnings. Fixed or permanent awnings installed above the first story shall not project more than 4 feet.

510.4 Canopies: Canopies shall be constructed of a metal framework, with an approved covering, attached to the building at the inner end and supported at the outer end by not more than two stanchions with braces anchored in an approved manner and placed not less than 2 feet in from the curb line. The horizontal portion of the framework shall be not less than 8 feet nor more than 12 feet above the sidewalk and the clearance between the covering or valance and the sidewalk shall be not less than 7 feet.

510.5 Special applications of awnings: Rigid awnings supported in whole or part by members resting on the ground and used for patio covers, car ports, summer houses or other similar uses shall comply with the requirements of Section 510.6 for design and construction. Such structures shall be braced as required to provide rigidity.

510.6 Design and construction: Fixed awnings, canopies and similar structures shall be designed and constructed to withstand wind or other lateral loads and live loads as required by Article 11 of this code with due allowance for shape, open construction and similar features that relieve the pressures or loads. Structural members shall be protected to prevent deterioration.

SECTION 511.0 TEMPORARY STRUCTURES

511.1 General: The building official may issue a permit for temporary construction. Such permits shall be limited as to time of service, but such temporary construction shall not be for more than a period of one (1) year. However, such temporary construction may be extended for an additional one (1) year period.

511.2 Special approval: All temporary construction shall conform to structural strength, fire safety, means of egress, light, ventilation and sanitary requirements of this code necessary to insure the public health, safety and general welfare.

511.3 Termination of approval: The building official is hereby authorized to terminate such special approval and to order the demolition of any such construction at his discretion, or as directed by a decision of the board of appeals.

SECTION 512.0 ACCESSIBILITY FOR THE PHYSICALLY HANDICAPPED

512.1 Building access for handicapped: All buildings and portions thereof of Use Groups A, B, E, F, I, M, R-1 and R-2 shall have at least one (1) primary entrance accessible to and useable by the handicapped. Such entrance shall provide access to a level that makes elevators available in buildings where elevators are installed. Where ramps are used to comply with this requirement, they shall have a slope not greater than one (1) in twelve (12). See 521 CMR Rules and Regulations of the Architectural Access Board for additional provisions for building use by the physically handicapped, as listed in Appendix G.

512.1.1 Handicapped access for limited group residences: All required means of egress in a building classified in Use Group R-5 (limited group residence) shall be made accessible to the handicapped in accordance with the provisions of Section 636.0. Where ramps are used to comply with this requirement, they shall have a slope not greater than one (1) in twelve (12). Such ramps shall be constructed in accordance with the provisions of Section 815.0.

GENERAL BUILDING LIMITATIONS

SECTION 513.0 SPECIAL HISTORIC BUILDINGS AND DISTRICTS

513.1 Approval: See Section 635.0 and Appendix H for Historic Buildings

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ARTICLE 6

SPECIAL USE AND OCCUPANCY REQUIREMENTS

SECTION 600.0 GENERAL

600.1 Scope: In addition to the general requirements of this code governing the location, construction and equipment of all buildings and structures, and the fireresistance ratings, height and area limitations of Tables 401 and 501, the provisions of this article shall control all buildings and structures designed for special uses and occupancies as herein provided.

Chemical plants, packing plants, grain elevators, refineries, flour mills and other similar structures shall be constructed in accordance with the recognized practices and requirements of the specific industry. The building official shall permit such variations from the requirements of this code as will secure reasonable and economical construction with the necessary fire, life and property safeguards. In granting such variations, due regard shall be given to the isolation of the structure, the fire hazard and the exposure to surrounding property.

600.1.1 Applicable Massachusetts General Law: The applicable Massachusetts General Laws Annotated, as amended, and applicable rules and regulations, specifically the 522 and 527 CMR series as listed in Appendix G and elsewhere, shall be adhered to in the design and construction of structures under this article.

600.2 Special high hazards: When necessary to resist a higher degree of fire severity than specified herein, for high concentrations of combustible contents and for buildings of high hazard uses which exceed five stories or 65 feet in height, the building official shall require higher fireresistance ratings than the requirements of Table 401 governing the fireresistance ratings of types of construction and protection of structural elements.

600.3 Means of egress: The means of egress for buildings of special uses and occupancies shall conform to the requirements of Article 8, except as is modified by more restrictive provisions of this article for specific uses.

600.4 Heating and venting: The requirements herein prescribed for the installation of heating and venting appliances and equipment shall be construed as supplemental

to the provisions of Articles 7 and 25, and the BOCA National Mechanical Code listed in Appendix A.

600.5 Equipment rooms: Heating and ventilating equipment in occupancies involving fire hazards from flammable vapors, dust, combustible fibers or other highly combustible substances shall be installed and protected against fire and explosion hazards in accordance with the BOCA National Mechanical Code listed in Appendix A. Rooms containing such equipment shall be segregated by construction of not less than 2 hour fireresistance rating except as otherwise required for specific uses, without openings in the enclosure walls and with means of direct ingress and egress from the exterior, or such equipment shall be located in accessory structures segregated from the main building.

600.6 Segregation of storage spaces: All rooms and spaces used for the storage of volatile and flammable materials shall be separately enclosed and segregated with fireresistance rated construction as herein required for specific uses and occupancies.

600.7 Restricted locations: Except as otherwise specifically provided for herein, buildings of Use Group H shall not be located within 200 feet of the nearest wall of a building classified in Use Group A, E or I.

600.8 Inspections: All buildings and structures involving the use and handling of flammable or explosive materials and other hazardous uses and occupancies, and buildings of Use Groups A and E, shall be inspected in accordance with the BOCA National Fire Prevention Code and 527CMR listed in Appendix A and G, respectively.

600.8.1 Coordination of inspections: The building official, fire prevention code official, health officials and other administrative agencies of the jurisdiction to whom the authority is delegated to inspect buildings and structures in respect to the maintenance of safe conditions of use and occupancy shall immediately notify the respective official of any violation of the provisions of this code or the BOCA National Fire Prevention Code and 527CMR listed in Appendix A and G, respectively, and health rules and regulations.

SECTION 601.0 COVERED MALL BUILDINGS

601.1 Scope: The provisions of this section shall apply to buildings or structures defined herein as covered mall buildings not exceeding three floor levels in height at any one point. Except as specifically required by this section, covered mall buildings shall meet all applicable provisions of this code.

Exceptions: When approved by the building official, the following uses are not required to comply with the provisions of this section.

SPECIAL USE AND OCCUPANCY REQUIREMENTS

1. Terminals for transportation facilities.
2. Foyers and lobbies in buildings of Use Groups R-1, R-2 or B.
3. Buildings which comply totally with all other applicable provisions of this code.

601.1.1 Definitions: Terms used in this section shall have the following meanings:

Anchor store: An exterior perimeter department store or major merchandising or magnet center having direct access to a mall and having its required exits independent of the mall.

Gross leasable area: The gross leasable area is the total floor area designed for tenant occupancy and exclusive use. The area of tenant occupancy is measured from the center lines of joint partitions to the outside of the tenant walls.

Mall: A mall is a roofed-over common pedestrian area serving more than one tenant located within a covered mall building.

Mall building, covered: A building enclosing a number of tenants and occupancies such as retail stores, drinking and dining establishments, entertainment and amusement facilities, offices and other similar uses wherein two or more tenants have a main entrance into one or more malls. Anchor stores shall not be considered as part of the covered mall building.

601.2 Lease plan: The owner shall provide both the building and fire departments with a lease plan showing the locations of each occupancy and its means of egress after the certificate of occupancy has been issued. Such plans shall be kept current. Modifications or changes in occupancy or use shall not be made from that shown on the lease plan without prior approval.

601.3 Tenant separations: Each tenant space shall be separated from other tenant spaces by a wall having a fire-resistance rating of not less than 1 hour. The separation wall shall extend from the floor to the underside of the ceiling. Except as required by other provisions of this code, the ceiling need not be a fire-resistive assembly. A separation is not required in attic spaces above tenant separation walls nor is a tenant separation wall required between any tenant space and a mall, except for occupancy separations required elsewhere in this code.

601.3.1 Anchor store openings: Openings between an anchor store and the pedestrian area of a mall need not be protected.

601.4 Egress: Each individual occupancy within the covered mall building shall be provided with a means of egress in accordance with other provisions of this code. Measurements shall be made to the entrance to the mall.

601.4.1 Travel distance: The maximum length of exit access travel from any point within the mall to an approved exit along the natural and unobstructed path of travel shall not exceed 200 feet.

601.4.2 Anchor store exits: Anchor stores shall provide the required number of exits and units of exit width directly to the exterior. The occupant load of anchor stores opening into the mall shall not be included in determining exit requirements for the mall.

601.4.3 Dead ends: The dead end of a mall shall not exceed twice its width.

601.4.4 Design occupant load: In determining required exit facilities of the mall, the number of occupants for whom exit facilities are to be provided shall be based on gross leasable area of the covered mall building (excluding anchor stores) and shall be based on Table 601.

601.4.5 Exit access width: The minimum width of exit access passageways and corridors from a mall shall be 66 inches.

601.4.6 Exit distribution: The required units of exit width and exits shall be distributed equally throughout the mall.

601.4.7 Storage prohibited: Storage is prohibited in exit corridors which are also used for service to the tenants. Such corridors shall be posted with conspicuous signs so stating.

**Table 601
FLOOR AREA ALLOWANCE PER OCCUPANT FOR COVERED MALLS**

Square feet per person	Gross leasable area (sq. ft.)
30	Under 150,000
40	150,001-350,000
50	over 350,000

601.5 Mall width: The minimum width of the mall shall be 20 feet. There shall be a minimum of 10 feet clear exit width to a height of 8 feet between any projection of a tenant space bordering the mall and the nearest kiosk, vending machine, bench, display opening, or other obstruction to egress travel. The mall width shall be sufficient to accommodate the occupant load emptying into the immediately adjacent mall as determined by Section 601.4.4 for all occupancies except Use Groups A and E which shall be determined by Section 806.0.

601.6 Structural elements: Covered mall buildings shall be of Type 1, 2 or 4 construction. Covered mall buildings three stories or less in height are exempt from the area limitations of Table 501.

SPECIAL USE AND OCCUPANCY REQUIREMENTS

601.6.1 Floor/ceiling assemblies: Floor/ceiling assemblies and their supporting columns and beams within multi-level covered malls shall be of 1 hour fire resistance rated noncombustible construction or of Type 4 construction meeting the requirements of Section 405.0.

601.6.2 Structural elements, anchor stores: An anchor store three stories or less in height shall be of Type 1, 2 or 4 construction and is exempt from the area limitations of Table 501, provided that a smoke control system conforming to Section 1019.4 is installed in the anchor store. For the purposes of the design and operation of the fire emergency ventilation system, the anchor store shall be considered a tenant space zone.

601.7 Roof coverings: Roof coverings for covered mall buildings shall be Class A, B or C as required by Section 2301.0.

601.8 Use Group A-1 and A-2 occupancies: Use Group A-1 and A-2 occupancies shall have not more than one-half of their required exits opening directly to the covered mall. ← ?

601.9 Fire suppression: The covered mall and all buildings connected thereto shall be provided throughout with an approved automatic fire suppression system. The system shall be installed in such a manner that when any portion of the system serving tenant spaces is shut down, the portion of the system serving the mall will remain operational.

601.9.1 Supervision: All sprinkler control valves shall be electrically supervised and connected to either the fire department or to an approved supervisory service.

601.10 Standpipes: There shall be a fire department standpipe outlet connected to a supply capable of delivering 250 gallons per minute (gpm) located within the mall at each entrance to an exit passageway, corridor or enclosed stairway and at exterior exits. Fire department standpipes shall be supplied from the automatic sprinkler supply piping of the mall or shall be a separate standpipe system.

601.11 Smoke control: The mall and adjacent tenant spaces shall be equipped with a smoke control system conforming to Section 1019.4.

601.12 Fire department access to equipment: Controls for air conditioning systems, sprinkler risers and valves, or other fire detection, suppression or control elements shall be accessible to and properly identified for use by the fire department.

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601.13 Plastic panels and plastic signs: Within every story or level and from side wall to side wall of each tenant space, approved plastic panels and signs shall be limited as specified in Sections 601.13.1 through 601.13.4.

601.13.1 Area: The panels and signs shall not exceed 20 percent of the wall area facing the mall.

601.13.2 Height and width: The panels and signs shall not exceed a height of 36 inches; except if the panel or sign is vertical, the height shall not exceed 96 inches and the width shall not exceed 36 inches.

601.13.3 Location: The panels and signs shall be located a minimum distance of 18 inches from adjacent tenants.

601.13.4 Encasement: All edges and the backs shall be fully encased in metal.

601.14 ~~Kiosks~~ ^{font} Kiosks and similar structures (temporary or permanent) shall meet the requirements of Sections 601.14.1 through 601.14.4.

601.14.1 Construction: Combustible kiosks or other structures shall not be located within the covered mall unless constructed of fire-retardant treated wood throughout conforming to Section 903.5.

601.14.2 Fire suppression: Kiosks or similar structures that are covered or have roofs and are located within the covered mall shall be protected by an approved automatic fire suppression system.

601.14.3 Horizontal separation: The minimum horizontal separation between kiosks and other structures within the covered mall shall be 20 feet.

601.14.4 Maximum area: Kiosks or similar structures shall have a maximum area of 300 square feet.

601.15 Parking structures: An attached garage for the storage of passenger vehicles having a capacity of not more than nine persons or an open parking structure shall be considered as a separate building where it is separated from the covered mall building by a fire separation wall having a fire resistance rating of not less than 2 hours or shall be considered as part of the covered mall building.

SPECIAL USE AND OCCUPANCY REQUIREMENTS

SECTION 602.0 HIGH-RISE BUILDINGS

602.1 Applicability: The provisions of this section shall apply to all buildings Groups when such buildings have floors used for human occupancy located more than 70 feet above the lowest level of fire department vehicle access, except that the provisions of this section shall not apply to airport traffic control towers conforming to the requirements of Section 616.0.

602.2 Maintenance and inspection: All fire protection systems shall be maintained in an operative condition at all times and shall be periodically inspected and tested in accordance with the BOCA National Fire Prevention Code and 527CMR listed in Appendix A and G, respectively. Maintenance inspections shall be made quarterly and logged in a journal kept available for inspection.

602.3 General: All buildings and structures complying with Section 602.0 shall be provided with an approved automatic fire suppression system according to Section 602.3.1.

602.3.1 Automatic fire suppression system: The automatic fire suppression system shall be installed throughout the building. The system shall be designed using the parameters set forth in Article 10 and the requirements of Sections 602.3.1.1 through 602.3.1.3.

602.3.1.1 Shutoff valves and water flow devices: Shutoff valves and a water flow device shall be provided for each floor.

602.3.1.2 Valve supervision: Valves shall be supervised by a continuously manned control station or central station.

602.3.1.3 Deleted

602.3.1.4 Deleted

602.3.1.4.1 Type of construction: The minimum type of construction required by this code shall be modified as indicated in Table 602.

602.3.1.4.2 Fireresistance ratings of walls and doors: The fireresistance rating of exit access corridors, vertical separation of tenant spaces and dwelling unit separations shall be in accordance with Sections 810.4.1 and 810.4.2.

602.3.1.4.3 Shaft enclosures: The required fireresistance rating of vertical shafts other than stairway enclosures and elevator hoistway enclosures shall be reduced to 1-hour fireresistance rating when sprinklers are installed within the shafts at alternate floors.

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602.3.1.4.4 Standpipe system: The 1½-inch hose line, nozzle, rack and cabinet are not required in accordance with Section 1012.5.1.

**Table 602
TYPE OF CONSTRUCTION MODIFICATIONS
PERMITTED FOR HIGH-RISE BUILDINGS**

Type of construction set forth in Table 401	Modified type of construction permitted hereunder
1A	1B
1B	2A
2A	2B

602.3.1.4.5 Travel distance: The exit access travel distance limitations set forth in Table 807 shall be increased to 300 feet.

602.3.1.4.6 Smokeproof enclosures: A smokeproof enclosure as set forth in Section 818.0 is required for at least one exit. Other required stairways greater than 70 feet in height shall be pressurized to a minimum of 0.15 inches of water column and a maximum of 0.35 inch of water column in the shaft relative to the building with all stairway doors closed. The stairway pressurization system shall be activated by all devices which are required to activate the voice alarm system in Section 602.5.1.

602.3.1.4.7 Fire dampers: Fire dampers, other than those needed to maintain the fire-resistance rating of the floor/ceiling assembly, are not required, Where fire dampers will interfere with the operation of the smoke control system, approved alternative protective devices shall be utilized.

602.3.2 Deleted ?

602.4 Smoke detection systems: A smoke detector suitable for the intended use shall be installed in accordance with Sections 602.4.1 through 602.4.3.

3.2.1

3.2.2

602.4.1 Room locations: A smoke detector shall be installed in every mechanical equipment, electrical, transformer, telephone equipment, elevator machine or similar room unless such rooms are protected with an automatic fire suppression system.

3.2.4

3.2.5?

602.4.2 Duct locations: A smoke detector shall be installed in each connection to a vertical duct or riser serving two or more stories from return air ducts or plenums of heating, ventilating and air conditioning systems. In buildings of Use Group R, an approved smoke detector shall be installed as required above or shall be installed in each return air riser carrying not more than 5,000 cubic feet per minute (cfm) and serving not more than ten air inlet openings.

SPECIAL USE AND OCCUPANCY REQUIREMENTS

602.4.3 Operation: The actuation of any detector required by this section shall operate the voice alarm system and shall place into operation all equipment necessary to prevent the recirculation of smoke.

602.5 Alarm and communication systems: Alarm and communication systems shall be provided. The alarm and communication systems shall be so designed and installed that damage to any terminal unit or speaker will not render more than one zone of the system inoperative.

One or more communication systems shall be designed to serve the voice alarm, public address and fire department communication system as indicated in Sections 602.5.1 through 602.5.3.

602.5.1 Voice alarm system: The operation of any smoke detector, sprinkler, water flow device or manual fire alarm station shall automatically activate a voice alarm system. Activation of the system shall automatically sound an alert signal to the desired areas. The voice alarm system shall provide a predetermined message on a selective basis to the area where the alarm originated and shall provide information and give direction to the occupants. The alarm shall be designed to be heard clearly by all occupants within the building or designated portions thereof as is required for the public address system.

The central control station shall contain controls for the voice alarm system having the capability to manually initiate a selective or general voice alarm.

The system shall be continuously electrically supervised against component failure of the audiopath, including amplifiers, speaker wiring, switches and electrical contacts and shall detect opens, shorts and grounds which might impair the function of the system.

602.5.2 Public address system: A public address communication system designed to be clearly heard by all occupants of the building shall operate from the central control station. It shall be established on a selective or general basis to the following terminal areas: elevators, elevator lobbies, corridors, exit stairways, rooms and tenant spaces exceeding 1,000 square feet in area, dwelling units in Use Group R-2 and guest rooms or suites in Use Group R-1.

602.5.3 Fire department communication system: A two-way fire department communication system shall be provided for fire department use. It shall operate between the central control station and every elevator, elevator lobby and entry to an enclosed exit stairway.

602.6 Central control station: A central control station for fire department operations shall be provided in a location approved by the fire department. It shall

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contain the voice alarm and public address system panels; the fire department communications panel; fire detection and alarm system annunciator panels; an annunciator which visually indicates the floor location of elevators and whether they are operational; status indicators and controls for air handling systems; controls for unlocking all stairway doors simultaneously; sprinkler valve and water flow detector display panels; emergency power, light and system controls; and status indicators and a telephone for fire department use with controlled access to the public telephone system.

602.7 Smoke control: A smoke control system conforming to Section 1019.2 shall be installed.

602.8 Elevators: Elevator operation and installation shall be in accordance with Article 26. Elevator service shall be provided for fire department emergency access to all floors. Said elevator cab shall be of such size to accommodate an ambulance cot 24 inches by 76 inches in its horizontal open position. Except for the main entrance level, all elevators shall open into a lobby separated from the remainder of the building by 1-hour fire-resistance rated construction. Exit stairways, chutes, janitor closets, tenant spaces in Use Group R and service rooms shall not open into the elevator lobby. In use groups other than R, tenant spaces opening directly into the elevator lobby shall be provided with other means of exit access that does not require passage through the elevator lobby.

Exception: Elevator lobbies are not required when a smoke control system is installed in accordance with Section 1019.3.

602.9 Standby power, light and emergency systems: Standby power, light and emergency systems shall comply with the requirements of Sections 602.9.1 through 602.9.3.

602.9.1 Standby power: A standby power system conforming to 527 CMR (12.00) and/or NFPA 70, article 701, as applicable, shall be provided. If the standby system is a generator set inside a building, it shall be located in a separate room of 2-hour fire-resistance rated construction. System supervision with manual start and transfer features shall be provided at the central control station.

602.9.1.1 Fuel supply: An on-premises fuel supply sufficient for not less than 2 hours full demand operation of the system shall be provided.

Exception: Where the system is supplied with pipeline natural gas and is approved.

SPECIAL USE AND OCCUPANCY REQUIREMENTS

602.9.1.2 Capacity: The standby system shall have a capacity and rating that would supply all equipment required to be operational at the same time. The generating capacity need not be sized to operate all the connected electrical equipment simultaneously.

602.9.1.3 Connected facilities: All power, lighting, signal and communication facilities specified in Sections 602.4, 602.5, 602.6, 602.7, 602.8 and 602.9 as applicable, and electrically-powered fire pumps required to maintain pressure, shall be transferable to the standby source. Service shall be provided for access to all floors by at least one elevator when standby power is connected.

Exception: Smoke control systems in accordance with Section 1019.1.2.

602.9.2 Separate circuits and fixtures: Separate lighting circuits and fixtures shall be required to provide sufficient light with an intensity of not less than 1 footcandle measured at floor level in all egress corridors, stairways, smokeproof enclosures, elevator cars and lobbies and other areas which are clearly a part of the escape route.

602.9.2.1 Other circuits: All circuits supplying lighting for the central control station and mechanical equipment rooms shall be transferable to the standby source.

602.9.3 Emergency systems: *Exit* signs, exit illumination as required by Section 824.0, and elevator car lighting, are classified as emergency systems and shall operate within 10 seconds of failure of the normal power supply.

602.10 Exits: Exits shall comply with other requirements of this code and Sections 602.10.1 and 602.10.2.

602.10.1 Door operation: All stairway doors which are to be locked from the stairway side shall have the capability of being unlocked simultaneously without unlatching upon a signal from the central control station.

602.10.2 Stairway communication system: A telephone or other two-way communications system connected to an approved emergency service which operates continuously shall be provided at not less than every fifth floor in each required stairway where other provisions of this code permit the doors to be locked.

602.11 Seismic consideration: Anchorage of elevator drive and suspension systems, emergency power and lighting facilities, fire pumps and all other fire protection equipment and systems shall be designed in accordance with Section 1113.0.

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SECTION 603.0 HPM USE FACILITIES

603.1 Scope: The provisions of these sections shall apply to buildings and structures using hazardous production materials (HPM), such as in semiconductor fabrication facilities and areas of comparable research and development. Except as specifically required by this section, such buildings shall comply with the applicable requirements of this code. The specific code provisions of Sections 306.0, 502.3 and Tables 808 and 902 applicable to high hazard use shall not apply unless stated herein.

603.1.1 Fab area, general: A fabrication area (fab area) is one in which there are processes involving hazardous production materials, and includes ancillary rooms or areas such as dressing rooms and offices that are supplemental to the area processes.

603.1.2 Allowable heights, stories and area: The allowable height, number of stories and basic areas permitted for buildings and structures used for facilities using HPM shall not exceed the limits specified in Table 603.1.2. The provisions of Section 504.0 shall not apply. The area limitations are for one- or two-story buildings facing on one street or public space not less than 30 feet wide. The increases permitted in Sections 502.2 and 502.3 shall apply.

**Table 603.1.2
HEIGHT, NUMBER OF STORIES AND AREA
LIMITATION FOR HPM USE FACILITIES**

Type of construction →	Number of stories	Height (feet)	Area in square feet/floor →
1A and 1B	3	55	Unlimited
2A	3	55	34,200
2B	3	55	22,500
2C	3	40	14,400
3A	3	50	19,800
3B	3	40	14,400
4	3	55	21,600
5A	3	40	15,300
5B	2	30	7,200

603.1.3 Fab area size: The size of a fab area shall be determined by the density of the HPM in that space. The density of HPM shall not exceed that specified in Table 603.1.3b. The total quantity of HPM permitted shall be based on the densities in Table 603.1.3b, or the quantities in Table 603.1.3a, whichever is the larger amount.

603.1.4 Egress: There shall be not less than two means of egress provided for any fab area or any HPM use facility subdivision thereof larger than 200 square feet. The maximum length of exit access travel in HPM use facilities shall be 100 feet.

**Table 603.1.3a
PERMITTED QUANTITIES OF HPM IN A
SINGLE FABRICATION AREA**

Material	Maximum quantity
Flammable liquids	
Class 1-A	90 gal.
Class 1-B	180 gal.
Class 1-C	270 gal.
Combination flammable liquids containing not more than the exempt amounts of Class 1-A, 1-B or 1-C flammable liquids	360 gal.
Combustible liquids	
Class II	360 gal.
Class III-A	750 gal.
Flammable gases	9,000 cu. ft. at one atmosphere of pressure at 70° degrees F.
Liquified flammable gases	180 gal.
Flammable solids	1,500 lbs.
Corrosive liquids	165 gal.
Oxidizing material - gases	18,000 cu. ft.
Oxidizing material - liquids	150 gal.
Oxidizing material-solids	1,500 lbs.
Organic peroxides	30 lbs.
Highly toxic material and poisonous gas	Included in the aggregate for flammables as noted above

**Table 603.1.3b
PERMITTED QUANTITIES OF HPM IN A
SINGLE HPM USE FACILITY - DENSITY BASIS^{a,c}**

State	Units	Flammable	Oxidizer	Corrosive
Solid	lbs/sq.ft.	0.001	0.003	0.003
Liquid	gal/sq.ft.	0.04 ^b	0.03	0.08
Gas	cf/sq.ft.	1.250	1.250	3.000

Note a. HPM within piping shall not be included in the calculated quantities.

Note b. The maximum permitted quantities of flammable and combustible liquids shall not exceed the following quantities:

Class (I-A)+(I-B)+(I-C)(Combination flammable liquids) = .025
however Class I-A shall not exceed = .0025

Class II = .01

Class III-A = .02

Note c. Highly toxic materials and poisonous gases shall be limited by the maximum quantities specified in Table 603.1.3a.

603.1.5 Separation: Fab areas shall be separated from each other, from egress corridors, and from other parts of the building by not less than 1-hour fire-resistance rated assemblies in compliance with Section 903.1, with fire doors complying with Section 916.0. Floors forming part of the required separation shall be liquid-tight.

603.1.6 Floors: Floors within fab areas shall be of noncombustible construction. Unprotected openings through floors of fab areas are permitted when the interconnected levels are used solely for mechanical equipment directly related to such fab areas.

Mechanical, duct and piping penetrations within a fab area shall not extend through more than two floors. Penetrations shall be effectively draftstopped at the floor level. The fab area, including the areas through which ductwork and piping extend, shall be considered a single conditioned space or fire area.

603.1.7 Ventilation, general: Ventilation systems shall comply with the BOCA National Mechanical Code listed in Appendix A except as otherwise provided herein. Ventilation including recirculated air shall be provided throughout the fab area at the rate of not less than 1 cfm per square foot of floor area.

603.1.7.1 Interconnection: The exhaust system of one fab area shall not connect to another exhaust system outside that fab area within the building. The return air system from one fab area shall not connect to any other system.

603.1.7.2 Smoke detectors: Smoke detectors shall be installed in the recirculating air stream and shall initiate a signal at the emergency control station.

603.1.7.3 Shutoff switches: Automatic shutoffs are not required to be installed on air-moving equipment. A manually-operated remote switch to shut off the fab area supply or recirculation air system, or both, shall be provided at an approved location outside the fab area.

603.1.7.4 Gas detection: When HPM gas is used or dispensed and the physiological warning properties for the gas are at a higher level than the accepted permissible exposure limit for the gas, a continuous gas-monitoring system shall be provided to detect the presence of a short-term hazard condition. When dispensing occurs with the possibility of generating flammable gases or vapors in quantities exceeding 20 percent of the lower explosive limit, a continuous gas-monitoring system shall be provided. The monitoring system shall be connected to the emergency control station.

603.1.8 Transporting HPM: HPM shall be transported to fab areas through enclosed piping or tubing systems that comply with Section 603.5, through service passages, or in egress corridors as permitted in the exception to Section 603.2.

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603.1.9 Electrical: Electrical equipment and devices within the fab area shall comply with NFPA 70 listed in Appendix A. The requirements for hazardous locations need not be applied when the average rate of air change is at least 4 cfm per square foot of floor area and when the rate of air change at any location is not less than 3 cfm per square foot.

603.2 Egress corridors: Egress corridors shall comply with Section 810.4 and shall be separated from fab areas as specified in Section 603.1.5. Egress corridors shall not be used for transporting HPM except as provided in Section 603.5.2.

Exception: In existing HPM use facilities, when there are alterations or modifications to existing fab areas, the transportation of HPM in egress corridors shall be permitted when all the following requirements are met:

1. Corridors adjacent to the fab area under alteration shall comply with Table 401, item 7, for a length determined as follows:
 - a. The length of the common wall of the corridor and that fab area, and
 - b. For the distance along the egress corridor to the point of entry of HPM into the egress corridor serving that fab area.
2. There shall not be openings between an egress corridor and an HPM storage cabinet in a fab area other than those in compliance with all of the following:
 - a. 1-hour fire doors are installed between the egress corridor and the cabinet.
 - b. The cabinet is enclosed with a 1-hour fire-resistance rated assembly between it and the corridor.
 - c. The cabinet shall be internally sprinklered.

603.3 Service passages: Service passages shall be considered as HPM use facilities. Service passages shall be separated from egress corridors as required by Section 603.1.5.

603.3.1 Ventilation: Service passages shall be ventilated as required by Section 603.1.7.

603.3.2 Egress: There shall be not less than two means of egress from a service passage. Not more than one-half of the required means of egress shall be into the fab area. Doors from service passages shall be self-closing and swing in the direction of egress travel.

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603.3.3 Travel distance: The maximum distance of travel from any point in a service passage to an exit or door into a fab area shall not exceed 75 feet. Dead ends shall not exceed 4 feet in length.

603.3.4 Alarms: Alarms shall be provided in accordance with Section 603.4.5.

603.4 Storage of HPM, general: Rooms used for the storage of HPM in quantities greater than that set forth in Table 306.2.1, except for that permitted within a fab area, shall comply with the provisions of NFPA 30 listed in Appendix A, provided that the area of an HPM cutoff room shall not exceed 6,000 square feet (558 m²). The storage area for any liquid HPM shall be provided with drains.

603.4.1 Location within building: When HPM cutoff rooms are provided, they shall be not less than 30 feet from lot lines.

603.4.2 HPM drainage systems: Drainage systems shall be provided to direct liquid leakage and fire protection water to a safe location away from the building, any important valve or adjoining property. HPM flammable liquid drains shall be separated from other HPM liquid drains. Other HPM liquids in drains that are not compatible shall be separated from each other, provided that they are permitted to be combined when they have been rendered acceptable for discharge by an approved means into the public sewers.

603.4.3 Egress: There shall be two means of egress from a separate inside HPM storage room when the room exceeds 200 square feet in area. When two means of egress are required from HPM cutoff rooms, one shall be directly to the outside of the building. All storage room egress doors shall be self-closing and swing in the direction of egress travel.

603.4.4 Ventilation: Exhaust ventilation shall be provided in accordance with Section 603.1.7 for all categories of HPM.

603.4.5 Emergency alarm: An emergency telephone system or local fire protective signaling system station shall be installed outside of each interior egress door from HPM cutoff rooms. The signal shall be relayed to the emergency control station and a local signaling device provided.

603.4.6 Electrical: HPM cutoff rooms containing flammable liquids or gases shall be classified as Class I, Division 1 hazardous locations in accordance with NFPA 70 listed in Appendix A.

603.4.7 Gas detection: Gas detection shall be provided in accordance with Section 603.1.7.4.

603.5 Piping and tubing: HPM piping and tubing shall comply with this section and shall be installed in accordance with ASME B31.3 listed in Appendix A.

603.5.1 General: Piping and tubing systems shall be metallic unless the material being transported is incompatible with such system. Systems supplying gaseous HPM, having a health hazard of 3 or 4 as ranked by NFiPA 704 listed in Appendix A, shall be welded throughout, except for connections, valves and fittings which are within an exhausted enclosure. HPM supply piping or tubing in service passages shall be exposed to view.

603.5.2 Installation in egress corridors or above other use groups: HPM shall not be located within egress corridors or above areas not containing HPM use facilities except as permitted by this section. HPM piping and tubing shall be permitted within the space defined by the walls of egress corridors and the floor or roof above, or in concealed spaces above other use groups under the following conditions:

1. Automatic sprinklers shall be installed within the space unless the space is less than 6 inches in least dimension.
2. Ventilation at not less than 6 air changes per hour shall be provided. The space shall not be used to convey air from any other area.
3. All HPM supply piping and tubing and HPM nonmetallic waste lines shall be separated from the egress corridor and from any use group other than an HPM use facility by construction having a fireresistance rating of not less than 1 hour as permitted for walls or partitions. When gypsum wallboard is used, joints on the piping side of the enclosure need not be taped, provided the joints occur over framing members.
4. When the piping or tubing is used to transport HPM liquids, a receptor shall be installed below such piping or tubing. The receptor shall be designed to collect any discharge or leakage and drain it to an approved location. The 1-hour enclosure required by item 3 herein shall not be used as part of the receptor.
5. Readily accessible manual or automatic remotely-activated fail-safe emergency shutoff valves shall be installed on piping and tubing, other than waste lines, at the following locations:
 - a. At branch connections into the fab area;
 - b. At entries into egress corridors.
6. Where HPM supply gas is carried in pressurized piping, a fail-safe system for excess flow control shall shut off flow due to a rupture in the piping.
7. Electrical wiring and equipment located in the piping space shall be approved for Class I, Division 2 hazardous locations in accordance with NFiPA 70 listed in Appendix A.
8. Gas detection shall be provided per Section 603.1.7.4.

Exceptions to items 1 through 8: Transverse crossings of the corridors by supply piping coaxially enclosed within a ferrous pipe or tube for the width of the corridor. An enclosing pipe or tube open to an HPM use facility is permitted.

603.5.3 Identification: Piping, tubing and HPM waste lines shall be identified in accordance with ANSI A 13.1 listed in Appendix A.

SECTION 604.0 MEMBRANE STRUCTURES

604.1 General: The provisions of this section shall apply to air-supported, air-inflated, membrane-covered cable and membrane-covered frame structures, collectively known as membrane structures, erected for a period of 90 days or longer. Those erected for a shorter period of time shall comply with applicable provisions of the BOCA National Fire Prevention Code and 527CMR listed in Appendix A and G, respectively, and Section 626.0. Membrane structures covering water storage facilities, water clarifiers, water treatment plants, sewage treatment plants, and similar facilities not used for human occupancy are required to meet only the requirements of Section 604.2.2 and Section 604.5 of this section.

604.2 Construction requirements: Construction of membrane structures shall comply with Sections 604.2.1 through 604.2.5.

604.2.1 Type of construction: All noncombustible membrane structures shall be classified as Type 2C construction. Noncombustible frame- or cable- supported structures covered by an approved membrane in accordance with Section 604.2.2 shall be classified as Type 2C construction. Heavy timber frame-supported structures covered by an approved membrane in accordance with Section 604.2.2 shall be classified as Type 3B construction. A noncombustible membrane structure used exclusively as a roof and located more than 20 feet above any floor, balcony or gallery is deemed to comply with the roof construction for Type 1 and Type 2 construction, provided that such a structure complies with the requirements of this section. All other membrane structures shall be classified as Type 5B construction.

604.2.2 Membrane material: Membranes shall be either noncombustible as defined by Section 903.4, or flameresistant conforming to NFPA 701 listed in Appendix A.

Exception: Plastic less than 20-mil thickness used in greenhouses when occupancy by the general public is not permitted and for aquaculture pond covers are not required to be flameresistant.

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604.2.3 Applicability of other provisions: Except as otherwise specifically required by this section, membrane structures shall meet all applicable provisions of this code. The membrane shall meet roof covering requirements of Section 2301.3.

604.2.4 Allowable floor areas: The area of a membrane structure shall not exceed the limits set forth in Table 501, except as provided in Section 502.0.

604.2.5 Maximum height: Membrane structures shall not exceed one story nor shall they exceed the height limits in feet set forth in Table 501.

Exception: Noncombustible membrane structures serving as roof construction only.

604.3 Inflation systems: Air-supported and air-inflated structures shall be provided with primary and auxiliary inflation systems to meet the minimum requirements of Sections 604.3.1 and 604.3.2.

604.3.1 Equipment requirements: The inflation system shall consist of one or more blowers and shall include provisions for automatic control to maintain the required inflation pressures. The system shall be so designed as to prevent overpressurization of the system.

In addition to the primary inflation system, in buildings exceeding 1,500 square feet in area, an auxiliary inflation system shall be provided with sufficient capacity to maintain the inflation of the structure in case of primary system failure. The auxiliary inflation system shall operate automatically if there is a loss of internal pressure or if the primary blower system becomes inoperative.

Blower equipment shall meet the following requirements:

1. Blowers shall be powered by continuous rated motors at the maximum power required for any flow condition as required by the structural design.
2. Blowers shall be provided with inlet screens, belt guards and other protective devices as required by the building official to provide protection from injury.
3. Blowers shall be housed within a weather-protecting structure.
4. Blowers shall be equipped with backdraft check dampers to minimize air loss when inoperative.
5. Blower inlets shall be located to provide protection from air contamination. Location of inlets shall be approved by the building official.

604.3.2 Standby power: Whenever an auxiliary inflation system is required, an approved standby power generating system shall be provided. The system shall be

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equipped with a suitable means for automatically starting the generator set upon failure of the normal electrical service and for automatic transfer and operation of all the required electrical functions at full power within 60 seconds of such normal service failure. Standby power shall be capable of operating independently for a minimum of 4 hours.

604.4 Support provisions: A system capable of supporting the membrane in the event of deflation shall be provided in all air-supported and air-inflated structures having an occupant load of more than 50 or when covering a swimming pool regardless of occupant load. The support system shall be capable of maintaining membrane structures used as a roof for Type 1 or Type 2 construction not less than 20 feet above floor or seating areas. The support system shall be capable of maintaining all other membranes at least 7 feet above the floor, seating area or surface of the water.

604.5 Engineering design: All membrane structures shall be structurally designed in accordance with criteria approved by the building official and developed by an engineer or architect licensed by the state to practice as such.

SECTION 605.0 MEZZANINES

605.1 General: A mezzanine or mezzanines in compliance with this section shall be considered a portion of the floor below. Such mezzanines shall not contribute to the building area as regulated by Section 501.2. Such mezzanines shall not contribute to the number of stories or height as regulated by Section 501.3.

605.2 Area limit: The aggregate area of a mezzanine or mezzanines within a story shall not exceed one-third of the area of that story.

Exception: The aggregate area of mezzanines in buildings and structures of Type 1 or 2 construction for special industrial uses according to Section 501.1.1 shall not exceed two-thirds of the area of that story.

605.3 Egress: Each occupant of a mezzanine with an occupant load of more than 50 or in which the travel distance to an exit exceeds 75 feet shall have access to at least two independent means of egress.

SECTION 606.0 OPEN WELLS

606.1 General: The term "open well" shall mean a floor opening, series of floor openings or an atrium connecting two or more stories which does not meet requirements for a covered shaft with respect to enclosure. Open wells are to be classified as either atriums (Section 606.2) or floor openings (Section 606.3) and

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shall be permitted in all buildings in other than Use Group H when provided with the protection herein required.

Exceptions: The provisions of this section shall not apply to the following:

1. Stairways permitted to be unenclosed in accordance with Section 816.9.2.
2. In other than Use Group I, openings which serve only one adjacent floor, are not connected with an exit access corridor, not connected with openings serving other floors and are not concealed within the building construction.

606.1.1 Fire suppression: An approved, electrically supervised automatic fire suppression system shall be installed throughout all floor areas connected by the open well in accordance with the provisions of Article 10, except those floor areas separated from the open well by fire separation assemblies conforming to Table 401 and for floor openings meeting the exceptions in Section 606.3.

606.1.2 Use: The floor of the open well shall not be used for other than low fire hazard uses and only approved materials and decorations shall be used in the open well space.

Exception: The use of the open well floor area for any approved purpose shall not be restricted when the individual space is provided with an approved automatic fire suppression system.

606.2 Atriums: Atriums shall be constructed in accordance with Sections 606.2.1 through 606.2.4.

606.2.1 Smoke control: A smoke control system complying with Section 1019.5 shall be installed in all atriums that connect more than two stories.

606.2.2 Enclosure of atriums: Atrium spaces shall be separated from adjacent spaces by a 1-hour fire separation wall as required for corridors.

Exceptions:

1. In residential occupancies, protected openings are not required when the floor area of each guest room or dwelling unit does not exceed 1,000 square feet and each room or unit has an approved means of egress not entering the atrium.
2. Adjacent spaces shall be separated from the atrium by fire windows or by a tempered, wired or laminated glass wall subject to the following:
 - a. The glass shall be protected by a specially designed automatic fire sprinkler system. The sprinkler system shall completely wet the entire surface of the glass wall when actuated. When there are

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- walking surfaces on both sides of the glass, both sides of the glass shall be so protected.
- b. The glass shall be in a gasketed frame and installed in such a manner that the framing system will deflect without breaking (loading) the glass before the sprinkler system operates.
 - c. Obstructions, such as curtain rods, drapery traverse rods, curtains, drapes or similar materials shall not be installed between the sprinkler heads and the glass.
3. The adjacent spaces of any three floors of the atrium shall not be required to be separated from the atrium; however, these spaces shall be included in the atrium volume for the design of the smoke control system (see Section 1019.5).

606.2.3 Alarm: In all buildings with an atrium, an automatic fire detection system shall be required. The alarm shall be initiated by either the fire suppression system or the activation of two or more smoke detectors in the atrium. Such buildings of Use Group A, E or M shall be provided with voice alarms complying with the requirements of Section 602.5.1.

606.2.4 Travel distance: In other than the lowest level of the atrium, when the required means of egress is through the atrium space, the exit access travel distance shall not exceed 150 feet.

606.3 Floor openings: Floor openings including unenclosed supplemental stairways or escalators conforming to Section 2617.3 shall be permitted when protected on every floor pierced by the opening in accordance with Sections 606.3.1 and 606.3.2.

Exception: In buildings having an approved automatic fire suppression system throughout, escalator openings which are protected by a draft curtain and a closed sprinkler water curtain conforming to NFPA 13 listed in Appendix A.

606.3.1 Smoke control: A smoke control system conforming to Section 1019.6 shall be installed.

606.3.2 Draftstop: An approved draftstop shall be installed at each story of the floor opening. The draftstop shall enclose the perimeter of the opening and shall extend from the ceiling downward at least 18 inches on all sides. Automatic sprinklers shall be provided around the perimeter of the opening and within 2 feet of the draftstop. The distance between the sprinklers shall not exceed 6 feet center to center.

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SECTION 607.0 OPEN PARKING STRUCTURES

607.1 General: Open passenger vehicle parking structures are those structures used for the parking or storage of passenger motor vehicles designed to carry not more than nine persons, wherein two or more sides of such structures are not less than 50 percent open on each floor or level for 50 percent of the distance from the floor to the ceiling, and wherein provision for the repairing of such vehicles is not made and include the two general types indicated in Sections 607.1.1 and 607.1.2. Open parking structures are not classified as public garages.

607.1.1 Ramp-type parking structures: Ramp-type parking structures are those employing a series of continuously rising floors or a series of interconnecting ramps between floors permitting the movement of passenger automobiles under their own power to and from the street level.

607.1.2 Mechanical-type parking structures: Mechanical-type parking structures are those employing specially designed parking machines, elevators, lifts, conveyors, moving cranes, dollies or other devices for moving passenger automobiles to and from the street level.

607.2 General construction requirements: Passenger vehicle structures shall be constructed of noncombustible materials throughout, including structural framing, floors, roofs and walls. Any enclosed rooms or spaces on the premises shall comply with the applicable requirements of this code.

607.3 Basements: Basements which are not classified as open parking structures in accordance with Section 607.1 but are used for parking vehicles shall be sprinklered in accordance with the provisions of Section 1002.0 and shall be ventilated in accordance with the mechanical code listed in Appendix A.

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607.4 Fuel dispensing: Areas where fuel is dispensed shall conform to the requirements of Section 609.4.

607.5 Heights and areas: Heights and areas of open parking structures shall not exceed the limits specified in Table 607, except that when at least 50 percent open on all sides and when the horizontal distance from any point on any level to an exterior wall opening on a street, alley, courtyard or any other permanent open space does not exceed 200 feet, the maximum height of open parking structures of Type 2B and 2C construction shall be 75 feet and the area shall not be limited.

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Table 607
HEIGHT AND AREA LIMITATION FOR OPEN PARKING STRUCTURES

Type of Construction	Height	Area in Square Feet
1A and 1B	Unlimited	Unlimited
2A	12 Stories - 120 Feet	Unlimited
2B	10 Stories - 100 Feet	50,000
2C	8 Stories - 85 Feet	50,000
2B and 2C	2 Stories - 25 Feet ^a	Unlimited

Note a. For exceptions to height and area limitations, see Section 607.5.

The allowable areas of structures wherein more than 25 percent of the perimeter has frontage on street or other open space leading to a street, each of which is not less than 30 feet wide, shall be increased as provided in Section 502.2. When an automatic sprinkler system is installed in accordance with Section 1004.0 in Types 2B and 2C construction, the area shall be unlimited. The above limits of height permit parking on the roof.

607.6 Protective guardrails: All wells, shafts and other open, exposed spaces throughout, except first floor, shall be enclosed and protected with continuous walls or protective guardrails constructed in accordance with Section 827.0, except that in those structures wherein vehicles are hoisted to the desired level and placed in the parking space entirely by approved mechanical means, the continuous wall or protective guardrail is not required on the side of the parking levels adjacent to the space occupied by the hoisting and placing equipment.

607.7 Wheel guards: Wheel guards made of noncombustible material shall be placed wherever required.

607.8 Means of egress: For means of egress requirements, see Section 809.5.

607.9 Standpipe systems: For standpipe requirements, see Section 1012.2.9.

SECTION 608.0 PRIVATE GARAGES

608.1 Attached garages: Private garages located beneath rooms in buildings of Use Groups R-1, R-2 or R-3 shall have walls, partitions, floors and ceilings separating the garage space from the adjacent interior spaces constructed of not less than 1-hour fire-resistance rating. Attached private garages shall be completely separated from the adjacent interior spaces and the attic area by means of 1/2-inch gypsum board or equivalent applied to the garage side. The sills of all door openings between the

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garage and adjacent interior spaces shall be raised not less than 4 inches above the garage floor. The door opening protectives shall be 1¾-inch solid core wood doors or approved equivalent.

608.1.1 Separation by breezeway: Where a garage separated by a breezeway not less than 10 feet in length from a building of Use Group R-3 is of Type 5B construction, the junction of the garage and breezeway shall be firestopped to comply with Section 921.0.

608.2 Other conditions: All private garages not falling within the purview of Sections 608.1 or 608.1.1 attached to or located beneath a building shall comply with the requirements of Section 313.0 for public garages.

608.3 Means of egress: Where living quarters are located above a private garage, required means of egress facilities shall be separated from the garage area with 1-hour fire-resistance rated construction.

SECTION 609.0 PUBLIC GARAGES

609.1 General: Public garages shall comply with the applicable requirements of this section. The portions of such buildings and structures in which paint spraying is done shall comply with the requirements of Section 622.0.

609.2 Construction: All Group 1 public garages hereafter erected shall be classified as Use Group S-1 and all Group 2 public garages shall be classified as Use Group S-2 and both shall conform to the height and area limitations of Table 501 except as herein specifically provided.

609.2.1 Special height limitations: Public garage buildings shall comply with the height and area limitations of Table 501 for the classification of the use as specified in Section 609.2. The height limitations shall be increased one additional story when the building is equipped with an approved automatic fire suppression system.

609.2.2 Basements: The first floor construction of public garages of all classifications and public hangars with basements shall be constructed of not less than 2-hour fire-resistance rating and shall be water- and vapor-proof. Where openings are provided in the floor, they shall be protected by a curb or ramp not less than 6 inches high above the floor to avoid the accumulation of explosive liquids or vapors and prevent spilling to the lower floor. There shall be not less than two means of egress from such areas.

609.2.3 Roof storage of motor vehicles: When the roof of a building is used for parking or storage of motor vehicles, it shall be provided with a parapet wall or a guardrail constructed in accordance with Section 827.0 and a wheel guard not less

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than 6 inches in height, located so as to prevent any vehicle from striking the parapet wall or guardrail.

609.2.4 Floor construction and drainage: Floors of public garages and airplane hangars shall be graded to drain through oil separators or traps to avoid accumulation of explosive vapors in building drains or sewers as provided in the **Massachusetts State Plumbing Code (248 CMR 2.00)** listed in Appendix G. The floor finish shall be of concrete or other approved nonabsorbent, noncombustible material.

Exception: Floor drains are not required for detached public garages for the storage of four or less commercial motor vehicles without provision for repairing or servicing such vehicles nor the dispensing of gasoline, oil, or similar products.

609.3 Fuel dispensing areas: Fuel dispensing areas shall be located on the level nearest grade. Public garages with fuel dispensing areas shall be completely separated from any other use, both horizontally and vertically, by fire separation walls and floor/ceiling assemblies having a minimum fireresistance rating of 2 hours. The floors of the fuel dispensing areas shall be graded to a floor drainage system such that any fuel spill or leak is contained within the area. The drainage system shall conform to the requirements of the **Massachusetts State Plumbing Code (248 CMR 2.00)** listed in Appendix G. The fuel dispensing area shall be protected with an approved automatic fire suppression system in accordance with Section 1002.10.

609.3.1 Fuel dispensing systems: All fuel dispensing and storage systems shall conform to the requirements of the mechanical code listed in Appendix A.

609.4 Ventilation: All public garages shall be ventilated in accordance with the BOCA National Mechanical Code listed in Appendix A. Fuel dispensing areas shall be mechanically ventilated.

609.5 Special hazards: Any process conducted in conjunction with public garages involving volatile flammable solvents shall be segregated or located in a detached building or structure, except as provided in Section 619.0 for the storage and handling of gasoline and other volatile flammables. The quantity of flammable liquids stored or handled in public garages other than in underground storage and in the tanks of motor vehicles shall be not more than 5 gallons in approved safety cans.

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SECTION 610.0 USE GROUP I-2

610.1 General: All buildings or portions thereof of Use Group I-2 shall comply with the provisions of this section and all other applicable provisions of this code.

610.2 Specific use areas: The specific use areas listed in Table 610.2 shall be separated from other areas of buildings of Use Group I-2 in accordance with the requirements of Table 610.2.

610.2.1 Separation walls: Where the separation walls around specific use areas are not required to have a fire-resistance rating by Table 610.2, the separation walls shall be constructed of materials consistent with the building type of construction and be capable of resisting the passage of smoke. The separation walls shall extend from the floor to the underside of a fire-resistance rated floor/ceiling assembly or to the floor/roof deck above. All doors shall be self-closing or automatic closing upon detection of smoke. Doors in walls required to be fire-resistance rated shall have a minimum fire-resistance rating of $\frac{3}{4}$ hour and shall comply with Section 916.0.

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**Table 610.2
SPECIFIC USE AREAS WITHIN AN I-2 USE**

Room or area	Separation/Protection
Boiler and heater rooms	2-hour; or 1-hour and automatic fire suppression
Employee locker rooms	1-hour; or automatic fire suppression with separation walls
Gift/retail shops	1-hour; or automatic fire suppression with separation walls
Handicraft shops	1-hour; or automatic fire suppression with separation walls
Kitchens	1-hour; or automatic fire suppression with separation walls
Laboratories which employ hazardous materials but such materials are in quantities less than that which would cause classification as Use Group H	1-hour; or automatic fire suppression with separation walls
Laundries greater than 100 square feet	1-hour and automatic fire suppression
Paint shops employing hazardous substances and material in quantities less than that which would cause classification as Use Group H	2-hour or 1-hour and automatic fire suppression
Physical plant maintenance shop	2-hour or 1-hour and automatic fire suppression
Soiled linen room	1-hour and automatic fire suppression
Storage rooms more than 50 square feet in area but not more than 100 square feet in area storing combustible material	1-hour or automatic fire suppression with separation walls
Storage rooms more than 100 square feet storing combustible material	1-hour and automatic fire suppression
Trash collection rooms	1-hour and automatic fire suppression

610.3 Corridors: All corridors in buildings of Use Group I-2 shall be continuous to the exits and separated from all other use areas except waiting areas, nurses' stations, and mental health treatment areas conforming to Sections 610.3.1 through 610.3.5.

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610.3.1 Waiting areas on patient sleeping floors: Waiting areas on patient sleeping floors shall not be open to the corridor, except where:

1. The area does not exceed 250 square feet; and
2. The area is located to permit direct supervision by facility staff; and
3. The area is equipped with an approved electrically supervised smoke detection system; and
4. Not more than one such waiting area is permitted in any one smoke compartment; and
5. The area is arranged not to obstruct access to required exits; and
6. The walls and ceiling of the space are constructed as required for corridors.

610.3.2 Waiting areas on other floors: Waiting areas on the floors other than patient sleeping floors shall not be open to the corridor, except where:

1. Each area does not exceed 600 square feet; and
2. The area is located to permit direct supervision by the facility staff; and
3. The area is arranged not to obstruct access to required exits; and
4. The area is equipped with an approved electrically supervised automatic smoke detection system; and
5. The walls and ceilings of the space are constructed as required for corridors.

610.3.3 Waiting areas in sprinklered buildings: In buildings equipped throughout with an approved automatic fire suppression system, spaces constructed as required for corridors shall not be open to a corridor, except where:

1. The spaces are not used for patient sleeping rooms, treatment rooms or hazardous areas as defined in Section 610.2; and
2. Each space is located to permit direct supervision by the facility staff; and
3. The space and corridors which the space opens onto in the same smoke compartment are protected by an approved electrically supervised automatic smoke detection system; and
4. The space is arranged so as not to obstruct access to required exits.

610.3.4 Nurses' stations: Space for doctors' and nurses' charting, communications and related clerical areas shall not be open to the corridor, except where the space is constructed as required for corridors.

610.3.5 Mental health treatment areas: Areas wherein only mental health patients who are capable of self-preservation are housed, group meeting or multi-purpose therapeutic spaces, other than specific use areas as defined in Section 610.2, under continuous supervision by facility staff, shall not be open to the corridor, except where:

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1. Each area does not exceed 1,500 square feet; and
2. The area is located to permit supervision by the facility staff; and
3. The area is arranged so as not to obstruct any access to required exits; and
4. The area is equipped with an approved electrically supervised automatic smoke detection system; and
5. Not more than one such space is permitted in any one smoke compartment; and
6. The walls and ceilings of the space are constructed as required for corridors.

610.4 Corridor walls: Corridor walls shall have a 1-hour fire-resistance rating extending from the floor to the underside of the floor or roof deck above. In buildings equipped throughout with an approved automatic fire suppression system, the corridor wall fire-resistance rating is not required provided the corridor walls form a barrier to limit the transfer of smoke. The walls shall extend from the floor to the underside of the floor or roof deck above or to the underside of the fire-resistance rated floor/ceiling or roof/ceiling assembly above when the ceiling membrane is constructed to limit the transfer of smoke.

610.4.1 Corridor doors: All doors shall conform to Section 916.0. Doors to patient sleeping rooms shall be automatic-closing by smoke detection. All other doors shall be self-closing or automatic-closing by smoke detection. In buildings equipped throughout with an approved automatic fire suppression system, corridor doors other than those in a wall required to be rated by Section 610.2 or for the enclosure of a vertical opening shall not have a required fire-resistance rating, but shall provide an effective barrier to limit the transfer of smoke. In buildings equipped throughout with an approved automatic fire suppression system, all doors except those to sleeping rooms shall be self-closing or automatic-closing by smoke detection.

610.4.2 Locking devices: Locking devices which restrict access to the patient room from the corridor, which are operable only by staff from the corridor side, shall not restrict egress from the patient room except for mental health patient rooms.

610.5 Smoke barrier: Each floor of a building of Use Group I-2 shall have at least one smoke barrier creating not less than two compartments per floor with a maximum compartment length and width of 150 feet. The smoke barrier shall be in accordance with Section 911.0.

610.5.1 Refuge area: At least 30 net square feet per occupant shall be provided within the aggregate area of corridors, patient rooms, treatment rooms, lounge or dining areas and other low hazard areas on each side of each smoke barrier. On floors not housing bed or litter patients at least 6 net square feet per occupant shall

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be provided on each side of each smoke barrier for the total number of occupants in adjoining compartments.

610.5.2 Independent egress: A means of egress shall be provided from each compartment created by smoke barriers without returning through the compartment from which egress originated.

610.6 Smoke/heat detectors: An automatic fire alarm system conforming to Section 1018.0 shall be provided in patient sleeping rooms, corridors and common spaces open to the corridor as permitted by Section 610.3. Heat detectors shall be provided in unsprinklered specific use areas listed in Section 610.2 and shall sound a local alarm at a constantly attended location.

610.6.1 Rooms: Patient sleeping rooms shall be provided with a smoke detector permanently connected to house current and complying with the requirements of UL 217 or UL 268 listed in Appendix A. Such detectors shall provide a visual display on the corridor side of each patient room and shall provide an audible and visual alarm at the nursing station attending that room. Where such detectors and related devices are not combined with the nursing call system, the total system shall be electrically supervised.

Exception: Smoke detectors are not required in patient rooms equipped with automatic door-closing devices with integral smoke detectors on the room sides installed in accordance with their listing, provided the integral detectors perform the required alerting function.

610.6.2 Corridors: An approved automatic fire detection system shall be installed in all corridors in buildings of Use Group I-2 which are not equipped throughout with an approved automatic fire suppression system. The automatic fire detection system required by this section shall be electrically interconnected to the fire protective signaling system.

SECTION 611.0 USE GROUP I-3

611.1 General: All buildings or portions thereof of Use Group I-3 shall comply with the provisions of this section and all other applicable provisions of this code (see Section 307.4).

611.2 Definitions: Terms used in this section shall have the following meaning:

Residential housing area: Includes sleeping areas and any contiguous day room, group activity space or other common spaces for customary access of residents.

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Sallyport (security vestibule): A compartment provided with two or more doors where the intended purpose is to prevent the continuous and unobstructed passage by allowing the release of only one door at a time.

611.3 Mixed occupancies: Portions of buildings of Use Group I-3 which are classified as a different occupancy group shall meet the applicable requirements of this code for such occupancies. Where security operations necessitate the locking of required means of egress, provisions shall be made for the release of occupants during all times of use.

611.4 Means of egress: Except as modified or provided for in this section, the provisions of Article 8 shall apply.

611.4.1 Door width: Doors to resident sleeping rooms shall have a clear width of not less than 28 inches.

611.4.2 Sliding doors: When doors in a means of egress are of the horizontal sliding type, the force to slide the door to its fully open position shall not exceed 50 pounds with a perpendicular force against the door of 50 pounds.

611.4.3 Horizontal exits: Horizontal exits shall not be substituted for other exits unless the maximum exit travel distance specified in Table 807 is not exceeded. Horizontal exits shall be permitted to comprise 100 percent of the exits required. At least 6 square feet of accessible space per occupant shall be provided on each side of the horizontal exit for the total number of people in adjoining compartments. Every fire compartment for which credit is allowed in connection with a horizontal exit shall not be required to have a stairway or door leading directly outside, provided the adjoining fire compartments have stairways or doors leading directly outside.

611.4.4 Spiral stairs: Spiral stairs meeting the requirements of Section 816.7 are permitted for access to and between staff locations.

611.4.5 Exit discharge: Exits are permitted to discharge into a fenced or walled courtyard, provided that not more than two walls of the courtyard are the building walls from which exit is being made. Enclosed yards or courts shall be of sufficient size to accommodate all occupants, a minimum of 50 feet from the building with a net area of 15 square feet per person.

611.4.6 Sallyports: A sallyport shall be permitted in a means of egress where there are provisions for continuous and unobstructed passage through the sallyport during an emergency condition.

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611.5 Locks: Doors from an area of refuge to the exterior are permitted to be locked with a key lock in lieu of locking methods described in Section 611.5.1. The locks shall be operable from the outside.

611.5.1 Remote release: All remote release in a means of egress shall be provided with reliable means of operation, remote from the resident living areas, to release locks on all required doors.

Exception: Provisions for remote unlocking are not required provided not more than ten locks are necessary to be unlocked in order to move all occupants from one smoke compartment to an area of refuge as promptly as required for remote unlocking. The opening of all necessary doors shall be accomplished with not more than two separate keys.

611.5.2 Power operated doors and locks: All power operated sliding doors or power operated locks for swinging doors shall be operable by a manual release mechanism at the door, and either emergency power or a remote mechanical operating release shall be provided.

611.5.3 Redundant operation: Remote release, mechanically operated sliding doors or remote release, mechanically operated locks shall be provided with a mechanically operated release mechanism at each door, or shall be provided with a redundant remote release control.

611.5.4 Relock capability: Doors remotely unlocked under emergency conditions shall not automatically relock when closed unless specific action is taken at the remote location to enable doors to relock.

611.6 Vertical openings: Vertical openings shall be enclosed in accordance with Section 915.1.

Exception: Two communicating floor levels are permitted without enclosure protection between the two levels, provided all the following conditions are met:

1. The entire normally occupied area, including all communicating floor levels, is sufficiently open and unobstructed that a fire or other dangerous condition in any part will be immediately obvious to the occupants or supervisory personnel in the area.
2. Egress capacity is simultaneously sufficient for all the occupants of all communicating levels and areas, all communicating levels in the same fire area being considered as a single floor area for purposes of determination of required egress capacity.

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3. Each floor level, considered separately, has at least one-half of its individual required egress capacity accessible by exit access leading directly out of that level without traversing another communicating floor level.

611.7 Specific use areas: The specific use areas listed in Table 611.7 shall be separated from other areas of buildings of Use Group I-3 in accordance with the requirements of Table 611.7.

**Table 611.7
SPECIFIC USE AREAS WITHIN AN I-3 USE**

Room or area	Separation/Protection
Boiler and heater rooms	2-hour; or 1-hour and automatic fire suppression
Employee locker rooms	1-hour; or automatic fire suppression with separation walls
Handicraft shops	1-hour; or automatic fire suppression with separation walls
Kitchens	1-hour; or automatic fire suppression with separation walls
Laundries greater than 100 square feet	1-hour and automatic Fire suppression
Paint shops employing hazardous substances and materials in quantities less than that which would cause classification as Use Group H	2-hour; or 1-hour and automatic automatic fire suppression
Physical plant maintenance shop	2-hour; or 1-hour and automatic suppression
Storage rooms more than 50 square feet in area but not more than 100 square feet in area storing combustible material	1-hour; or automatic fire suppression with separation walls
Storage rooms more than 100 square feet storing combustible material	1-hour; or automatic fire suppression
Trash collection rooms	1-hour and automatic fire suppression
Padded cells	1-hour and automatic fire suppression

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611.7.1 Separation walls: Where the separation walls around specific use areas are not required by Table 611.7 to have a fire-resistance rating, the separation walls shall be constructed of materials consistent with the building type of construction and be capable of resisting the passage of smoke. The separation walls shall extend from the floor to the underside of a fire-resistance rated floor/roof assembly or to the floor/roof deck above. All doors shall be self-closing or automatic-closing upon detection of smoke.

611.8 Smoke barrier: All buildings of Use Group I-3 shall have smoke barriers as follows:

1. To divide every story used by residents for sleeping, or any other story having an occupant load of 50 or more persons, into at least two compartments, and
2. To limit the housing of a maximum of 200 residents in any smoke compartment, and
3. To limit the travel distance to a door in a smoke barrier:
 - a. From any room door required as exit access to 100 feet,
 - b. From any point in a room to 150 feet.

611.8.1 Refuge area: At least 6 net square feet per occupant shall be provided on each side of each smoke barrier for the total number of occupants in adjoining compartments.

611.8.2 Independent egress: A means of egress shall be provided from each compartment created by smoke barriers without returning through the compartment from which exiting originates.

611.9 Subdivision of resident housing areas: Any individual cell, dormitory, or other space where residents are housed shall be separated from all other spaces by substantial construction of noncombustible materials in accordance with Table 611.9.

611.9.1 Fire-resistance rated doors: Doors in openings in partitions required to be fire-resistive by Table 611.9 in other than required enclosures of exits or hazardous areas shall be substantial doors, of construction that will resist fire for at least 20 minutes. Wired glass vision panels are permitted. Latches and door closers are not required on cell doors.

611.9.2 Smoke-tight doors: Doors in openings in partitions required to be smoke-tight by Table 611.9 shall be substantial doors, of construction that will resist the passage of smoke. Latches and door closers are not required on cell doors.

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Table 611.9
SUBDIVISION OF RESIDENT HOUSING AREAS

Use condition Section 307.4 Feature	II ^b		III ^b			IV ^b			V		
	NS	AS	NS	AS	NS	NS	AS	NS	AS	NS	AS
Room to room separation	NR	NR	NR	NR	ST	NR	NR	FR(1/2)	ST		
Room face to corridor separation	ST	NR	ST	NR	ST	NR	NR	FR	ST		
Room face to common space separation	NR	NR	NR < 50' c	NR < 50' c	ST > 50' c	NR < 50' c	NR < 50' c	FR	ST > 50' c	FR	ST
Common space to corridor separation	FR	NR	FR	NR	FR	FR	NR	FR	NR	FR	ST
Total openings in solid room face ^a	120 sq. inches		120 square inches			120 square inches			120 square inches - closable from inside or 120 square inches with smoke control		

AS = Protected by automatic sprinklers
 NS = Not protected by automatic sprinklers
 NR = No requirement

ST = Smoke-tight
 FR = Fireresistance rated - 1 hour
 FR(1/2) = Fireresistance rated - 1/2 hour

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Notes to Table 611.9

Note a. "Total opening in solid room face" includes all openings (undercuts, food passes, grilles, etc.), the total of which will not exceed 120 sq. inches. All openings shall be 36 inches or less above the floor.

Note b. Under use condition II, III or IV, a space housing not more than 16 persons and subdivided by open construction (any combination of grating doors and grating walls or solid walls) shall be considered as one room or as separate rooms. The perimeter walls of such space shall be of smoke-tight construction. Smoke detection shall be provided in such space under use condition IV, common walls between sleeping areas within the space shall be smoke-tight and grating doors and fronts are permitted.

Note c. This is the travel distance through the common space to the exit access corridor

611.10 Windowless buildings: For the purposes of this section, a windowless building or portion of a building is one with nonopenable windows, windows not readily breakable, or without windows. Windowless buildings shall be provided with vent openings, smoke shafts, or an engineered smoke control system to provide ventilation (mechanical or natural) for each windowless smoke compartment.

SECTION 612.0 BLEACHERS, GRANDSTANDS AND FOLDING OR TELESCOPIC SEATING

612.1 General: Bleachers, grandstands and folding or telescopic seating shall be constructed as required by this code and in accordance with NFIPA 102 listed in Appendix A.

612.2 Handrails: Means of egress stairways shall be provided with a handrail on at least one side and shall conform to Section 828.0. The handrail shall be broken as necessary to provide for entrance to the seating platforms.

612.3 Spaces underneath seats: Spaces underneath grandstand seats shall be kept free of all combustible and flammable materials and shall not be occupied or used for other than exits; except that when enclosed in not less than 1-hour fire-resistance rated construction, the building official shall approve the use of such spaces for other purposes provided that the safety of the public is not endangered.

SECTION 613.0 MOTION PICTURE PROJECTION ROOMS, SCREENING ROOMS AND SOUND STAGES

613.1 General: The provisions of this section shall apply to rooms in which ribbon-type cellulose acetate or other safety film is used in conjunction with electric arc, xenon or other light source projection equipment which develops hazardous gases, dust or radiation. Where cellulose nitrate film is used or stored, such rooms shall comply with NFIPA 40 listed in Appendix A.

Every motion picture machine projecting film as mentioned within the scope of this section shall be enclosed in a projection room. Appurtenant electrical equipment,

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such as rheostats, transformers and generators, shall be within the projection room or in an adjacent room of equivalent construction. There shall be posted on the outside of each projection room door and within the projection room itself a conspicuous sign with 1-inch block letters stating: *Safety Film Only Permitted in this Room.*

613.2 Construction of projection rooms: Every projection room shall be of permanent construction consistent with the construction requirements for the type of building in which the projection room is located. Openings need not be protected.

The room shall have a floor area of not less than 80 square feet for a single machine. Each motion picture projector, floodlight, spotlight or similar piece of equipment shall have a clear working space of not less than 30 inches by 30 inches on each side and at the rear thereof, but only one such space shall be required between two adjacent projectors. The projection room and the rooms appurtenant thereto shall have a ceiling height of not less than 7 feet 6 inches. The aggregate of openings for projection equipment shall not exceed 25 percent of the area of the wall between the projection room and the auditorium. All openings shall be provided with glass or other approved material, so as to completely close the opening.

613.3 Projection booth and equipment ventilation: Projection booths and equipment shall be ventilated in accordance with the BOCA National Mechanical Code listed in Appendix A.

613.4 Lighting control: Provision shall be made for control of the auditorium lighting and the emergency lighting systems of theaters from inside of the room and from at least one other convenient point in the building as required in Section 824.3.1.

613.5 Miscellaneous equipment: Each projection room shall be provided with rewind and film storage facilities.

613.6 Screening rooms: Screening rooms shall provide a seating capacity of not more than 30 persons, with not less than two approved means of egress complying with Article 8. Such rooms shall be enclosed in 1-hour fire separation walls with fire doors complying with Section 916.0. All seats shall be permanently fixed in position and the arrangement shall comply with the requirements of Section 826.0.

613.7 Sound stage construction: All buildings designed or used as sound stages for motion picture or television film productions shall be protected with an approved two-source automatic sprinkler system complying with the provisions of Article 10; except that where approved, suppression of rooms designed for housing electrical equipment is not required when such rooms are constructed of Type 1 construction.

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613.8 Film laboratories: Film laboratories shall not be operated in other than buildings or structures of Type 1A construction, equipped throughout with an approved automatic sprinkler system.

613.9 Film exchanges: All film exchanges and depots shall be housed in buildings and structures of Type 1A construction equipped throughout with an approved automatic sprinkler system. All flammable film other than that in process of receipt, delivery or distribution shall be stored in vaults complying with the requirements of Section 613.9.1.

613.9.1 Vaults: Flammable film quantities of more than 1,000 pounds and not more than 10,000 pounds shall be stored in vaults enclosed in floors, walls and ceilings of not less than 4-hour fire-resistance rating with 3-hour fire doors complying with Section 916.0. The interior storage volume of the vault shall be not more than 1,500 cubic feet. The vault shall be drained and provided with scuppers.

SECTION 614.0 ROOFTOP HELIPORTS

614.1 General: This section governs the design and construction of rooftop facilities intended to accommodate the landing of helicopters. The use of a roof for landing shall be subject to the approval of the Federal Aviation Administration.

614.2 Structural loads: The roof and all pertinent building components shall be designed for the dead loads, live loads, impact loads and vibration imparted to the structure due to helicopter landing, including the single skid point landing.

614.3 Referenced standard: All rooftop heliports shall comply with NFPA 418 listed in Appendix A.

SECTION 615.0 STAGES AND PLATFORMS

615.1 Applicability: The provisions of this section shall apply to all parts of buildings and structures which contain stages or platforms and similar appurtenances as herein defined.

615.2 Stages: A stage is a partially enclosed portion of a building which is designed or used for the presentation of plays, demonstrations or other entertainment. A stage shall be further classified as either a legitimate stage, regular stage or thrust stage.

Stage, legitimate: A stage wherein curtains, drops, leg drops, scenery, lighting devices or other stage effects are retractable horizontally or suspended overhead.

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Stage, regular: A stage wherein curtains, fixed leg drops, valances, scenery and other stage effects are hung and are not retractable.

Stage, thrust: A platform extending beyond the proscenium arch and into the audience.

615.2.1 Stage floor construction: Openings through all stage floors shall be equipped with tight-fitting, solid wood trap doors not less than 2 inches in nominal thickness with approved safety locks or other materials of equal physical and fire endurance properties.

615.2.1.1 Legitimate stages: Legitimate stages shall be constructed as required for the type of construction, but not less than Type 1B construction except that the portion of the legitimate stage extending back from and 6 feet beyond the full width of the proscenium opening on each side shall be permitted to be constructed of noncombustible or heavy timber construction covered with a wood floor of not less than 2 inches in nominal thickness. Except for the finished floor, combustible construction shall not extend beyond the plane of the proscenium opening.

615.2.1.2 Regular and thrust stages: Regular stages and thrust stages shall be constructed of materials as required for floors for the type of construction of the building in which they are located.

615.2.2 Stage rigging loft: The rigging loft, also referred to as a loft or fly, is the space over the stage where scenery and equipment can be out of view. The fly gallery is the narrow raised platform at the side of the legitimate stage from which the lines for flying scenery are manipulated. The gridiron is the arrangement of beams over a legitimate stage supporting the machinery for flying scenery and hanging battens from which lighting is hung. The pin rail is the beam at one side of a legitimate stage through which wooden or metal pins are driven and to which lines from the flies are fastened. The rigging loft, fly galleries, gridiron and pin rails shall be constructed of approved noncombustible materials.

615.2.3 Footlights and stage electrical equipment: Footlights and border lights shall be installed in troughs constructed of noncombustible materials. The switchboard shall be so located as to be readily accessible at all times and the storage or placing of stage equipment against it shall be prohibited.

615.2.4 Exterior stage doors: Where protection of openings is required, exit discharge door openings to the outer air shall be protected with fire doors complying with Section 916.0. All exterior openings which are located on the stage for means of egress or loading and unloading purposes, and which are likely to be open during occupancy of the theater, shall be constructed with vestibules to prevent air drafts into the auditorium.

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615.2.5 Proscenium wall: Legitimate stages shall be completely separated from the seating area by a proscenium wall of not less than 2-hour fire-resistance rating extending continuously from foundation to at least 4 feet above the roof. There shall be no other openings in the wall separating a legitimate stage from the auditorium except the main proscenium opening; two doorways at the stage level, one on each side thereof; and one doorway to the musician's pit from the space below the stage floor. Each such doorway shall not exceed 45 square feet in area and shall be protected with fire doors complying with Section 916.0.

615.2.5.1 Trim, finish and decorative hangings: All moldings and decorations around the proscenium opening shall be constructed entirely of noncombustible material.

615.2.6 Proscenium curtain: The proscenium opening shall be provided with an approved curtain of noncombustible or fire-retardant material so designed and installed that it will protect against passage of flame and smoke for 5 minutes. The curtain shall be operated by an automatic heat activated device to descend instantly and safely and to completely close the proscenium opening at a rate of temperature rise of 15 to 20 degrees F. per minute (0.14 degrees C. to 0.19 degrees C. per second); and by an auxiliary operating device to permit prompt and immediate manual closing of the proscenium opening.

615.2.7 Scenery: All combustible materials used in sets and scenery shall be rendered flameresistant to comply with Article 9.

615.2.8 Stage ventilation: Metal or other approved noncombustible ventilators, equipped with movable shutters or sash shall be provided over stages larger than 500 square feet in floor area, constructed to open automatically by approved heat activated devices, with an aggregate clear area of opening not less than 5 percent of the area of the stage, except as otherwise provided in Section 615.2.9. Supplemental means shall be provided for manual operation of the ventilator. Curbs shall be provided as required for skylights in Section 2204.6.1.

615.2.9 Superimposed theaters: An addition or extension shall not be erected over the stage section of a theater, nor shall a second theater be erected above another. Where approved, the prohibition against superimposed theaters and construction above the stage shall not apply when approved access is provided for fire fighting with direct means of ventilation to the outer air from the stage portion.

615.3 Platforms: A platform is that raised area within a building used for the presentation of music, plays or other entertainment; the head table for special guests; the raised area for lectures and speakers, boxing and wrestling rings; theater-in-the-round; and similar purposes wherein there are no overhead hanging

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curtains, drops, scenery or stage effects other than lighting. A temporary platform is one installed for use for not more than 30 days.

615.3.1 Materials: In buildings required to be of Type 1 or Type 2 construction, where the platforms are not more than 30 inches above the main floor level the minimum type of construction for a permanent platform shall be Type 2C. For all types of construction, where the platforms are not more than 30 inches above the main floor level, not larger in area than 10 percent of the room floor area and not more than 200 square feet in area, the minimum type of construction for a permanent platform shall be Type 5B. For all types of construction, where the platforms are not more than 30 inches above the main floor level, not larger than one-third of the room floor area and not more than 3,000 square feet in area, the minimum type of construction for a permanent platform shall be Type 4 or the platform shall be constructed of fire-retardant treated wood. All other permanent platforms shall be constructed of approved materials as required for floors for the required type of construction of the building in which it is located. Temporary platforms shall be constructed of any approved materials.

615.3.2 Space beneath: The space between the floor and a temporary platform above shall not be used for any purpose other than electrical wiring to platform equipment. Where the space between the floor and a permanent platform above is used for any purpose other than electrical wiring or plumbing, the platform shall provide a 1-hour fireresistance rating.

615.4 Dressing and appurtenant rooms: Dressing and appurtenant rooms shall comply with Sections 615.4.1 through 615.4.3.

615.4.1 Construction: Dressing rooms, scene docks, property rooms, workshops and storerooms and all compartments appurtenant to the stage shall be separated from each other and from the stage and all other parts of the building by walls of not less than 1-hour fireresistance rating with approved opening protectives. Such rooms shall not be placed immediately over or under the operating stage area.

Exception: Separation from the stage is not required for stages having a floor area of 500 square feet or less.

615.4.2 Opening protectives: Openings other than to trunk rooms and the necessary doorways at stage level shall not connect such rooms with the stage, and such openings shall be protected with fire doors complying with Section 916.0.

615.4.3 Dressing room and stage exits: Each tier of dressing rooms shall be provided with at least two means of egress. Egress stairways from dressing and storage rooms are not required to be enclosed when located in the stage area behind the proscenium wall. At least one approved means of egress shall be provided from

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each side of the stage and from each side of the space under the stage, and from each fly gallery and from the gridiron. A steel ladder shall be provided from the gridiron to a scuttle in the stage roof.

SECTION 616.0 AIRPORT TRAFFIC CONTROL TOWERS

616.1 General: The provisions of this section shall apply to airport traffic control towers not exceeding 1,500 square feet per floor used only for air traffic control, electrical and mechanical equipment rooms, radar and electronics rooms, office spaces incidental to tower operation and lounges for employees including restrooms.

616.2 Type of construction: Air traffic control towers shall be constructed to conform with the height and area limitations of Table 610.2.

**Table 616.2
HEIGHT AND AREA LIMITATION FOR AIRPORT
TRAFFIC CONTROL TOWERS**

Type of construction	Height	Maximum area in square feet
1A, 1B	Unlimited	1,500
2A	240 feet	1,500
2B	100 feet	1,500

616.3 Egress: A minimum of one exit stairway shall be permitted for airport traffic control towers of any height provided the occupant load per floor does not exceed 15. The stair shall conform to the requirements of Sections 816.0 and 818.0. The stair shall be separated from elevators by a minimum distance of one-half the diagonal of the area served.

Exception: Smokeproof enclosures as set forth in Section 818.0 are not required when required stairways are pressurized to a minimum of 0.15 inches of water column and a maximum of 0.35 inch of water column in the shaft relative to the building with all stairway doors closed.

616.4 Automatic fire detection systems: Airport traffic control towers shall be provided with an automatic fire detection system complying with Section 1018.0.

616.5 Standby power, light and emergency systems: A standby power system conforming to Section 2707.0 shall be provided in airport traffic control towers over 65 feet in height. Service shall be provided to smokeproof enclosure mechanical equipment and lighting, elevator operational equipment, and automatic fire alarm systems.

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SECTION 617.0 COMBUSTIBLE DUSTS, GRAIN PROCESSING AND STORAGE

617.1 General: The provisions of this section shall apply to all buildings in which materials producing flammable dusts and particles which are readily ignitable and subject to explosion hazards are stored or handled, including, among others, grain bleachers and elevators, malt houses, flour, feed or starch mills, wood flour manufacturing and manufacture and storage of pulverized aluminum, coal, cocoa, magnesium, spices, sugar or similar material producing dust. The provisions of NFPA 61A, 61B, 61C, 61D, 65, 85F, 651, 653, 654, 655, 664 and the BOCA National Fire Prevention Code and 527CMR listed in Appendix A and G, respectively, except as herein specifically required, shall be deemed to conform to the requirements of this code.

617.2 Buildings: All such buildings and other occupied structures shall be of Type 1, Type 2 or of laminated planks or lumber sizes qualified for Type 4 construction, within the height and area limits of Table 501 for Use Group H; except that when erected of Type 1 or Type 2 construction, the height and area of grain elevators and similar structures shall be unlimited, and when of Type 4 construction, the maximum height shall be 65 feet and except further that, in isolated areas, the maximum height of Type 4 structures shall be increased to 85 feet.

617.2.1 Grinding rooms: Every room or space for grinding or other operations producing flammable dust shall be enclosed with floors and walls of not less than 2-hour fire-resistance rating when the area is not more than 3,000 square feet, and of not less than 4-hour fire-resistance rating when the area is greater than 3,000 square feet.

617.2.2 Conveyors: All conveyors, chutes, piping and similar equipment passing through the enclosures of such rooms or spaces shall be constructed dirt- and vapor-tight, and of approved noncombustible materials complying with Section 2616.0.

617.3 Explosion relief: Means for explosion relief shall be provided as specified in Section 618.0, or such spaces shall be equipped with the equivalent mechanical ventilation complying with the BOCA National Mechanical Code listed in Appendix A.

617.4 Grain elevators: Grain elevators, malt houses and buildings for similar uses shall not be located within 30 feet of interior lot lines or structures on the same lot, except when erected along a railroad right of way.

617.5 Coal pockets: Coal pockets located less than 30 feet from interior lot lines or structures on the same lot shall be constructed of not less than Type 2A

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construction. Where more than 30 feet from interior lot lines, or erected along a railroad right of way, the minimum type of construction of such structures shall be Type 4, provided they are not more than 65 feet in height.

SECTION 618.0 EXPLOSION HAZARDS

618.1 Explosion relief: Every structure, room or space occupied for uses involving explosion hazards shall be equipped and vented with explosion relief systems and devices arranged for automatic release under predetermined increase in pressure as herein provided for specific uses.

618.2 Venting devices: Venting devices to relieve the pressure resulting from explosive air-vapor mixtures shall consist of windows, skylights, vent flues or releasing roof or wall panels which discharge directly to the open air or to a public place or other unoccupied space not less than 20 feet in width on the same lot. Such releasing device shall be so located that the discharge end shall be not less than 10 feet vertically and 20 feet horizontally from window openings or means of egress facilities in the same or adjoining buildings or structures. The exhaust shall always be in the direction of least exposure and never into the interior of the building.

618.3 Area of vents: The aggregate clear vent relief area shall be regulated by the type of construction of the building and shall be not less than prescribed below.

1. Heavy reinforced concrete frame, 1 square foot for 80 cubic feet of volume.
2. Light structural steel frame and ordinary construction, 1 square foot for 65 cubic feet of volume.
3. Light wood frame construction, 1 square foot for 50 cubic feet of volume.

The combined area of open windows, pivoted sash or wall panels arranged to open under internal pressure shall not be less than 10 percent of the area of the enclosure walls, with not less than 50 percent of the opening arranged for automatic release.

618.4 Construction of vents: All explosion relief devices shall be of an approved type constructed of lightweight, noncombustible and corrosion-resistive materials, and the discharge end shall be protected with approved screens of not more than 3/4-inch mesh, arranged to blow out under relatively low pressures.

SECTION 619.0 FLAMMABLE AND COMBUSTIBLE LIQUIDS

619.1 Main storage: Main storage systems of flammable and combustible liquids shall be constructed and installed in accordance with NFPA 30 and the BOCA National Fire Prevention Code and 527CMR listed in Appendix A and G, respectively.

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619.2 Construction of enclosures: Process rooms shall be separated from other uses and occupancies by walls, floors and ceilings of not less than 2-hour fire-resistance rating with 1½-hour fire doors complying with Section 916.0. The interior door openings shall be provided with noncombustible sills not less than 6 inches high and the room shall be vented as required in Section 618.1. Floors shall be waterproofed and drained to comply with Section 1224.0.

619.3 Enclosure openings: Openings shall not be permitted in the enclosure walls within 11 feet of adjoining property lines or with a fire separation distance of less than 11 feet from any building or structure not part of the installation.

619.4 Dry cleaning plants: The construction and installation of dry cleaning plants shall be in accordance with the requirements of this code, the BOCA National Mechanical Code listed in Appendix A, the Massachusetts State Plumbing Code (248 CMR 2.00) and NFPA 32 listed in Appendix G and A, respectively.

SECTION 620.0 LIQUEFIED PETROLEUM GAS FACILITIES

620.1 General: The design and construction of propane, butane, propylene, butylene and other liquefied petroleum gas distribution facilities shall conform to the applicable provisions of this section. The storage and handling of liquefied petroleum gas systems shall conform to the BOCA National Fire Prevention Code and 527CMR listed in Appendix A and G, respectively. The design and installation of piping, equipment and systems which utilize liquefied petroleum gas shall be in accordance with the BOCA National Mechanical Code listed in Appendix A. Liquefied petroleum gas facilities shall be ventilated in accordance with the BOCA National Mechanical Code listed in Appendix A and Section 620.1.1.

620.1.1 LPG distribution facilities: Liquefied petroleum gas distribution facilities shall be provided with air inlets and outlets arranged so that air movement across the floor of the facility will be as uniform as possible. The total area of both inlet and outlet openings shall be at least 1 square inch for each square foot of floor area. The bottom of such openings shall not be more than 6 inches above the floor.

620.2 Construction: Liquefied petroleum gas distribution facilities shall be constructed in accordance with Section 620.3 for separate buildings, Section 620.4 for attached buildings or Section 620.5 for rooms within buildings.

620.3 Separate buildings: When located in separate buildings, such buildings shall be used exclusively for that purpose or for other purposes having similar hazards. Such buildings shall be limited to one story in height.

620.3.1 Floors: The floor shall not be located below ground level and any spaces beneath the floor shall be solidly filled or shall be left unenclosed.

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620.3.2 Materials: Walls, floors, ceilings, columns and roofs shall be constructed of noncombustible materials. Exterior walls, ceilings and roofs shall be constructed of lightweight material designed for explosion venting or, if of heavy construction such as solid brick masonry, concrete block or reinforced concrete construction, explosion venting windows or panels in walls or roofs shall be provided having an explosion venting area of at least 1 square foot for each 50 cubic feet of the enclosed volume.

620.4 Attached buildings: Where liquefied petroleum gas facilities are located in an attached structure, the attached perimeter shall not exceed 50 percent of the perimeter of the space enclosed and the facility shall comply with Sections 620.3 and 620.4.1. Where the attached perimeter exceeds 50 percent, such facilities shall comply with Section 620.5.

620.4.1 Walls: Common walls at points at which structures are attached shall have a fire resistance rating of not less than 1 hour and shall not have openings. Common walls for attached structures used only for storage of LP-gas are permitted to have fire doors complying with Section 916.0. Such walls shall be designed to withstand a static pressure of at least 100 pounds per square foot (psf), except where the building to which the structure is attached is occupied by operations or processes having a similar hazard.

620.5 Rooms within buildings: When liquefied petroleum gas facilities are located in rooms within buildings, such rooms shall be located in the first story and shall have at least one exterior wall with sufficient exposed area to permit explosion venting as provided in Section 620.5.1. The building in which the room is located shall not have a basement or unventilated crawl space and the room shall comply with Sections 620.5.1 and 620.5.2.

620.5.1 Materials: Walls, floors, ceilings, and roofs of such rooms shall be constructed of noncombustible materials. Exterior walls and ceilings shall be either of lightweight material designed for explosion venting, or, if of heavy construction such as solid brick masonry, concrete block or reinforced concrete construction shall be provided with explosion venting windows or panels in the walls or roofs having an explosion venting area of at least 1 square foot for each 50 cubic feet of enclosed volume.

620.5.2 Common construction: Walls and floor/ceiling assemblies common to the room and to the building within which it is located shall have a fire resistance rating of not less than 1 hour with no openings. Common walls for rooms used only for storage of LP-gas are permitted to have doorways which shall be equipped with ¾-hour opening protectives. Such walls and ceiling shall be designed to withstand a static pressure of at least 100 psf. Where approved, these provisions shall not apply when the building within which the room is located is occupied by operations or processes having a similar hazard.

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SECTION 621.0 MOBILE UNITS

621.1 General: Mobile units, as defined in Section 201.0, shall be designed, constructed and maintained to be transported from one location to another and not mounted on a permanent foundation. A mobile unit placed on a permanent foundation or on foundation piers shall be designed and constructed to comply with all of the requirements of this code for on-site and prefabricated construction.

621.2 Construction: Residential mobile units shall be of an approved design and constructed in accordance with the applicable ordinances and statutes. All other mobile units shall be designed and constructed in accordance with the requirements of this code. All mobile units on a permanent foundation shall be evaluated, inspected and labeled in-plant in accordance with Section 115.2.3.

621.3 Location: Mobile units shall be located in spaces approved for such use. The provisions of this code shall not be construed to repeal, modify or constitute an alternative to any lawful zoning regulations. In case of conflict between this code or any other ordinance or statute, the most rigid requirements shall apply.

621.3.1 Anchorage and tie-down: Every parking space for mobile units shall be provided with devices for anchoring the unit to prevent overturning or uplift. The owner of the parking space shall anchor or cause to be anchored all mobile units located on the parking space. Where concrete platforms are provided for the parking of the units, anchorage shall be provided by eyelets embedded in the concrete with adequate anchor plates or hooks, or other suitable means. The anchorage shall be adequate to withstand wind forces and uplift as required in Article 11 for buildings and structures, based upon the size and weight of the units.

SECTION 622.0 PAINT SPRAYING AND SPRAY BOOTHS

622.1 General: The provisions of this section shall apply to the construction, installation and use of buildings and structures or parts thereof for the spraying of flammable paints, varnishes and lacquers or other flammable materials, mixtures or compounds used for painting, varnishing, staining or similar purposes. All such construction and equipment shall comply with NFPA 33 and 34 in Appendix A.

622.2 Location of spraying processes: Such processes shall be conducted in a spraying space, spray booth, spray room or shall be isolated in a detached building or as otherwise approved by the building official in accordance with NFPA 70 and the BOCA National Fire Prevention Code and 527CMR listed in Appendix A and G, respectively.

622.3 Spray spaces: All spray spaces shall be ventilated with an exhaust system to prevent the accumulation of flammable mist or vapors in accordance with the BOCA

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National Mechanical Code listed in Appendix A. When such spaces are not separately enclosed, noncombustible spray curtains shall be provided to restrict the spread of flammable vapors.

622.3.1 Spray booths: All spray booths shall be constructed of noncombustible materials and equipped with mechanical ventilating systems in accordance with the BOCA National Mechanical Code listed in Appendix A.

622.3.2 Spray rooms: All spray rooms shall be enclosed in partitions of not less than 1-hour fire-resistance rating. Floors shall be waterproofed and drained in an approved manner.

622.3.3 Spray storage rooms: Spraying materials in quantities of not more than 20 gallons shall be stored in approved cabinets ventilated at top and bottom. When in quantities of more than 20 gallons and not more than 100 gallons, the spraying materials shall be stored in approved double walled noncombustible cabinets vented directly to the outer air. All spraying materials in quantities of more than 100 gallons shall be stored in an enclosure of not less than 2-hour fire-resistance rating or in a separate exterior storage building. Such storage shall not be in quantities of more than 250 gallons, except when stored in storage buildings; and except further that not more than 25 gallons of spraying material shall be stored in buildings in which pyroxylin products are manufactured or stored.

622.4 Fire protection: Sprinkler heads shall be provided in all spray, dip and immersing spaces and storage rooms, and shall be installed in accordance with Article 10. Where buildings containing spray areas are not equipped with an approved automatic sprinkler system, the sprinklers in booths and other spray areas and storage rooms shall be permitted to be supplied from the building water supply when approved and conforming to Section 1005.0.

SECTION 623.0 RADIO AND TELEVISION TOWERS

623.1 General: Subject to the structural provisions of Section 1112.0 for wind loads and the requirements of Section 927.0 governing the fire-resistance ratings of buildings for the support of roof structures, all radio and television towers shall be designed and constructed as herein provided.

623.2 Location and access: The towers shall be so located and equipped with step bolts and ladders to be readily accessible for inspection purposes. Guy wires or other accessories shall not cross or encroach upon any street or other public space, or over any electric power lines, or encroach upon any other privately owned property without written consent of the owner.

623.3 Construction: All towers shall be constructed of approved corrosion-resistant noncombustible material. The minimum type of construction of isolated radio towers not more than 100 feet in height shall be Type 4.

623.4 Loads: The structure shall be designed to resist the wind loads in accordance with ANSI A58.1 listed in Appendix A. Consideration shall be given to conditions involving wind load on ice-covered sections in localities subject to sustained freezing temperatures.

623.4.1 Dead load: Towers shall be designed for the dead load plus ice load in regions where ice formation is likely to occur.

623.4.2 Uplift: Adequate foundations and anchorage shall be provided to resist two times the calculated wind uplift.

623.5 Grounding: All towers shall be permanently and effectively grounded.

SECTION 624.0 RADIO AND TELEVISION ANTENNAE

624.1 Permits not required: A building permit is not required for roof installation of antennae structures not more than 12 feet in height for private radio or television reception. Such a structure, however, shall not be erected so as to injure the roof covering, and when removed from the roof, the roof covering shall be repaired to maintain weather- and water-tightness. The installation of any antennae structure mounted on the roof of a building shall not be erected nearer to the lot line than the total height of the antennae structure above the roof, nor shall such structure be erected near electric power lines or encroach upon any street or other public space.

624.2 Permits required: Approval shall be secured for all roof mounted antennae structures more than 12 feet in height above the roof. The application shall be accompanied by detailed drawings of the structure and methods of anchorage. All connections to the roof structure shall be properly flashed to maintain water-tightness. The design and materials of construction shall comply with the requirements of Section 623.3 for character, quality and minimum dimension.

SECTION 625.0 SWIMMING POOLS

625.1 General: Pools used for swimming or bathing shall be in conformity with the requirements of this section, provided, however, these regulations shall not be applicable to any such pool less than 24 inches deep or having a surface area less than 250 square feet, except when such pools are permanently equipped with a water recirculating system or involve structural materials. For purposes of this code, pools are classified as private, public or semi-public swimming pools, as defined in

Section 625.2. Materials and constructions used in swimming pools shall comply with the applicable requirements of this code.

Materials and construction used in swimming pools shall comply with applicable requirements of this code. Pools used for swimming or bathing and their equipment or accessories which are constructed, installed and maintained in accordance with the applicable standards listed in Appendix A shall be deemed to conform to the requirements of this code, provided the requirements of Sections 625.7, 625.8 and 625.9 are included in the installation and the requirements of the Commonwealth of Massachusetts Environmental Code 310 CMR 16.00 are met.

625.2 Classification of pools: Any constructed pool which is used, or intended to be used, as a swimming pool in connection with a building of Use Group R-3 and available only to the family of the householder and his private guests shall be classified as a private swimming pool. Any swimming pool other than a private swimming pool shall be classified as a public or semi-public swimming pool.

625.3 Plans and permits

625.3.1 Permits: A swimming pool or appurtenances thereto shall not be constructed, installed, enlarged or altered until plans have been submitted and a permit has been obtained from the building official. The approval of all city, county and state authorities having jurisdiction over swimming pools shall be obtained before applying to the building official for a permit. Certified copies of these approvals shall be filed as part of the supporting data for the application for the permit.

625.3.2 Plans: Plans shall accurately show dimensions and construction of the pool and appurtenances and properly established distances to lot lines, buildings, walks and fences, as well as details of the water supply system, drainage and water disposal systems, and all appurtenances pertaining to the swimming pool. Detailed plans of structures, vertical elevations, and sections through the pool showing depth shall be included.

625.4 Locations: Private swimming pools shall not encroach on any front or side yard required by this code, or the governing zoning law, except by specific rules of the jurisdiction in which it is located. A wall of a swimming pool shall not be located less than 6 feet from any rear or side property line or 10 feet from any street property line, except by specific rules of the jurisdiction in which it is located.

625.5 Structural design: The pool structure shall be engineered and designed to withstand the expected forces to which it will be subjected.

625.5.1 Wall slopes: To a depth up to 2 feet 9 inches from the top, the wall slope shall not be more than one foot horizontal in five feet vertical.

625.5.2 Floor slopes: The slope of the floor on the shallow side of the transition point shall not exceed one foot vertical to seven feet horizontal. The transition point between shallow and deep water shall not be more than five (5) feet deep.

625.5.3 Surface cleaning: All swimming pools shall be provided with a recirculating skimming device or overflow gutters to remove scum and foreign matter from the surface of the water. Where skimmers are used there shall be at least one (1) skimming device for each 1,000 square feet of surface area or fraction thereof. Where overflow gutters are used, they shall be not less than 3 inches deep, pitched to drains and constructed so they are safe, cleanable and that matter entering the gutters will not be washed out by a sudden surge of entering water.

625.5.4 Walkways: All public swimming pools shall have walkways not less than four (4) feet in width extending entirely around the pool. Where curbs or sidewalks are used around any swimming pool, they shall have a slip-resistant surface for a width of not less than one (1) foot at the edge of the pool, and shall be so arranged to prevent return of surface water to the pool.

625.5.5 Steps and ladders: One (1) or more means of egress shall be provided from the pool. Treads of steps or ladders shall have non-slip surfaces and handrails on both sides, except that handrails may be omitted when there are not more than four (4) steps or when they extend the full width of the pool. Access to public pools shall include a paraplegic lift.

625.6 Water supply: All swimming pools shall be provided with a potable water supply, free of cross connections with the pool or its equipment.

625.6.1 Water treatment: Public and semi-public swimming pools shall be designed and installed so that there is a pool water turnover at least once every eight (8) hours. Filters shall not filter water at a rate in excess of three (3) gallons per minute, per square foot of surface area. The treatment system shall be so designed and installed to provide in the water, at all times when the pool is in use, excess chlorine of not less than four-tenths (0.4) parts per million (ppm) or more than six-tenths (0.6) ppm, or excess chloramine between seven-tenths (0.7) and one (1.0) ppm, or disinfection shall be provided by other approved means. Acidity/alkalinity of the pool water shall not be below seven (7.0) or more than seven and one-half (7.5). All recirculating systems shall be provided with an approved hair and lint strainer installed in the system ahead of the pump.

Private swimming pools shall be designed and installed so that there is a pool water turnover at least once every 18 hours. Filters shall not filter water at a rate in excess

of five (5) gallons per minute per square foot of surface area. The pool owner shall be instructed in proper care and maintenance of the pool by the supplier or builder, including the use of high test calcium hypochlorite (dry chlorine) or sodium hypochlorite (liquid chlorine) or equally effective germicide and algicide, and the importance of proper pH (alkalinity and acidity) control.

625.6.2 Drainage systems: The swimming pool and equipment shall be equipped to be completely emptied of water and the discharged water shall be disposed of in an approved manner that will not create a nuisance to adjoining property.

625.7 Appurtenant structures: All appurtenant structures, installations, and equipment, such as showers, dressing rooms, equipment houses or other buildings and structures, including plumbing, heating, and air conditioning, amongst others appurtenant to a swimming pool, shall comply with all applicable requirements of this code, the zoning laws, the Commonwealth of Massachusetts Department of Public Health Sanitary Code 310 CMR 12.00, the Plumbing Code 248 CMR 2.00, as well as the Massachusetts Electrical Code 527 CMR 12.00.

625.7.1 Accessories: All swimming pool accessories shall be designed, constructed, and installed so as not to be a safety hazard. Installations or structures for diving purposes shall be properly anchored to insure stability, and properly designed and located for maximum safety.

625.8 Equipment installations: Pumps, filters, and other mechanical and electrical equipment for public swimming pools shall be enclosed in such a manner as to be accessible only to authorized persons and not to bathers. Construction and drainage shall be such as to avoid the entrance and accumulation of water in the vicinity of electrical equipment. The construction and installation of electrical wiring for equipment in or adjacent to swimming pools, to metallic appurtenances in or within five (5) feet of the pool, and auxiliary equipment such as pumps, filters and similar equipment shall conform to Article 680 of the Massachusetts Electrical Code 527 CMR 12.00.

625.9 Swimming pool safety devices: Every public and semipublic outdoor in-ground swimming pool shall be enclosed by a fence six (6) feet in height and firmly secured at ground level provided that any board or stockade fence or structure shall be at least five (5) feet in height, but if over five (5) feet in height, the fence shall be chain link. Such enclosure, including gates therein, shall not be less than six (6) feet above the ground, and any gate shall be self-latching with latches placed four (4) feet above the ground or otherwise made inaccessible from the outside to children up to eight (8) years of age. Such enclosure shall be constructed of such material and maintained so as not to permit any opening in said enclosure, other than a gate, wider than three (3) inches at any point along the enclosure. Any such pool shall be equipped with at least one (1) life ring and a rescue hook.

625.9.1 Diving boards: Minimum water depths and distances for diving hoppers for pools, based on board height above water, shall comply with Table 625 for public pools and Table 625a for private pools.

Diving boards higher than 3 meters shall conform to the recommendations of the Rules and Regulations of United States Diving, Inc., listed in Appendix A.

The maximum slope permitted between point D_2 and the transition point shall not exceed one unit vertical to three units horizontal (1:3) in public pools and one unit vertical to one unit horizontal (1:1) in private pools. D_1 is the point directly under the end of the diving boards. D_2 is the point at which the floor begins to slope upwards to the transition point. See Figure 625.

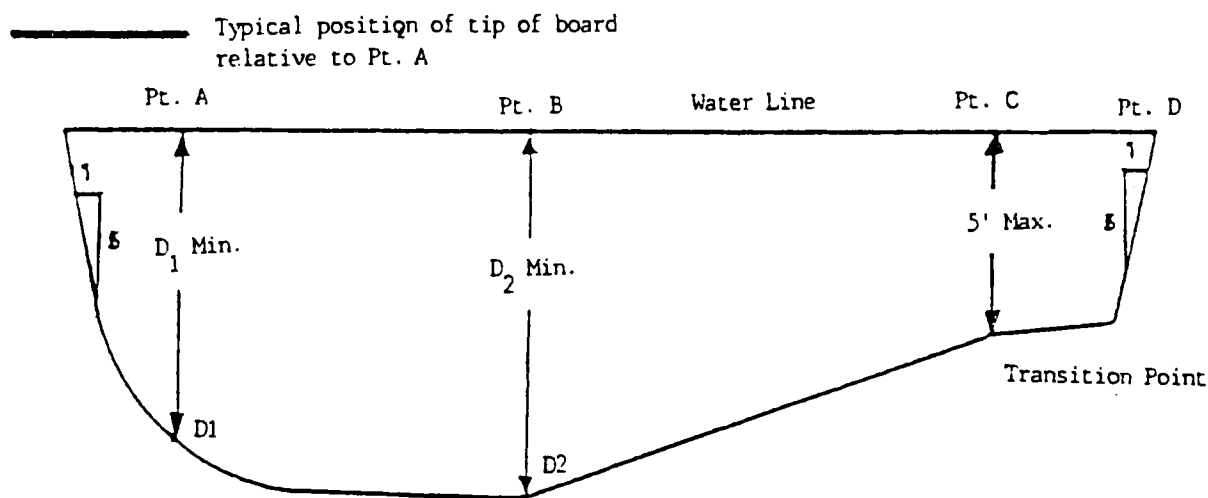


Figure 625
 MINIMUM WATER DEPTHS AND DISTANCES BASED ON BOARD
 HEIGHT FOR PUBLIC AND PRIVATE POOLS

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**Table 625
MINIMUM WATER DEPTHS AND DISTANCE BASED ON BOARD HEIGHT FOR
PUBLIC POOLS**

Board height	Minimum depth at D ₁ directly under end of board	Distance between D ₁ and D ₂	Minimum depth at D ₂
2'-2"	7'-0"	8'-0"	8'-6"
2'-6"	7'-6"	9'-0"	9'-0"
1 meter	8'-6"	10'-0"	10'-0"
3 meter	11'-0"	10'-6"	12'-0"

**Table 625a
MINIMUM WATER DEPTHS AND DISTANCE BASED ON BOARD HEIGHT FOR
PRIVATE POOLS**

Board height	Minimum depth at D ₁ directly under end of board	Distance between D ₁ and D ₂	Minimum depth at D ₂
1'-8"	6'-0"	7'-0"	7'-6"
2'-2"	6'-10"	7'-6"	8'-0"
2'-6"	7'-5"	8'-0"	8'-0"
3'-4"	8'-6"	9'-0"	9'-0"

625.9.2 Draining: Every outdoor in-ground swimming pool open to the public shall be drained or covered within seven (7) days of closing.

625.9.3 Inspection: Every public and semi-public outdoor in-ground swimming pool shall be inspected annually by the inspector of buildings of each city and town in which said pools are located (in accordance with Chapter 140, Section 206, of the Massachusetts General Laws as amended).

625.9.4 General Safety Requirements: Cities or towns may enact by-laws or ordinances for enclosing private swimming pools by requesting the installation of fences or equivalent enclosures or means of protection from access to the pool.

SECTION 626.0 TEMPORARY STRUCTURES

626.1 General: The provisions of this section shall apply to tents, membrane structures and other structures, erected for a period of less than 180 days. Those erected for a longer period of time shall comply with Section 604.0 or all applicable sections of this code when Section 604.0 is not applicable.

626.1.1 Permit required: All temporary structures including tents or membrane structures covering an area in excess of 120 square feet, including all connecting areas or spaces with a common means of egress or entrance, and used or intended to be used for gathering together of ten or more persons shall not be erected, operated or maintained for any purpose without obtaining a permit from the building official. Tents used exclusively for recreational camping purposes shall be exempt from the above requirements. Special permits required by the building code shall be secured from the building official.

626.2 Plans and specifications: A permit application and drawings shall be submitted for each installation and use with specifications indicating the location of the structure on the site and details regarding the location of egress facilities, seating capacity, construction and all mechanical and electrical equipment.

626.3 Location: All temporary structures shall be located in accordance with the requirements of Table 906.2 based on the fire resistance rating of the exterior walls for the proposed type of construction.

626.4 Construction: Tents and air-supported structures shall be constructed as required by this code and NFPA 102 listed in Appendix A.

626.5 Membrane material: All tents shall be constructed of flameresistive materials or materials treated to render the material flameresistant in a manner approved by the building official. The membrane material shall be either noncombustible as defined in Section 903.4 or flameresistant conforming to NFPA 701 listed in Appendix A.

626.6 Certification: An affidavit or affirmation shall be submitted to the building official and a copy retained on the premises on which the tent or air-supported structure is located, attesting to the following information relative to the flameresistance of the fabric:

1. The names and addresses of the owners of the tent or air-supported structure.
2. Date fabric was last treated with flameresistant solution.
3. Trade name or kind of chemical used in treatment.

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4. The name of person or firm treating the material.
5. Name of testing agency and test standard by which the fabric was tested.

626.7 Inflation pressure: Operating pressure shall be maintained at the design pressure specified by the manufacturer to assure structural stability and to avoid excessive distortion during high wind or snow loads.

626.8 Door operation: Under high wind over 50 mph or snow conditions, the use of doors in air-supported structures shall be controlled to avoid excessive air loss. Doors shall not be left open under any conditions.

626.9 Means of egress: All temporary structures including tents and membrane structures shall conform to the means of egress requirements of Article 8 and shall have a maximum length of exit access travel of 100 feet.

SECTION 627.0 FIRE PREVENTION CODES

627.1 Inspections: All buildings and structures involving the use and handling of flammable or explosive materials, places of assembly and other hazardous uses and occupancies shall be inspected in accordance with the BOCA National Fire Prevention Code and 527CMR listed in Appendix A and G, respectively. Such inspection shall be made to insure compliance with the fire prevention codes in respect to protection against fire panic; maintenance of exitways and operation of fire door assemblies; fire protection systems; standpipes; hydrant and fire suppression systems; fire-alarm, signaling and central station alarm systems; conduct of fire drills and fire brigades; and all special fire extinguishing equipment.

627.2 Housekeeping: Periodic inspections of existing uses and occupancies shall be made to insure maintenance of good housekeeping conditions including the removal of waste and rubbish; safe arrangement and storage of merchandise and other contents; proper segregation of hazardous processes; handling of volatile flammables; avoidance of dangerous congestion and maintenance of all means of egress clear of obstructions; and the safe operation of all places of public assembly in which combustible scenery and hazardous equipment are in use while open to the public.

627.3 Coordination of inspections: The building, fire and health officials and other administrative agencies of the jurisdiction to whom the authority is delegated to inspect buildings and structures in respect to the maintenance of safe conditions of use and occupancy shall immediately notify the respective official of any violation of the provisions of this code or the fire prevention and health rules and regulations.

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SECTION 628.0 SPECIAL PERMITS AND CERTIFICATES OF FITNESS

628.1 Special permits: A hazardous or dangerous industry, trade, occupation or use which involves the transportation, storage or handling of explosive, flammable, combustible or other substance involving fire or life hazards shall not be conducted without a permit from the fire official prescribing the conditions and requirements necessary to secure the public safety.

628.2 Certificate of fitness: Before any equipment involving fire or life hazard is placed in operation, the supervisor or operator shall secure a certificate of fitness from the administrative official certifying to the qualifications of the person to whom such certificate is issued. Certificates of fitness shall be required for the operation of boilers and unfired pressure vessels as specified in the mechanical and boiler codes listed in Appendix A and for the conduct of all high hazard uses involving the storage, use or handling of flammable volatile liquids, materials and mixtures, liquified gases and compressed gases under a pressure of more than fifteen (15) pounds per square inch (psi), and all acid and liquid chemicals of a combustible and explosive character. All certificates of fitness may be terminated for cause at any time, and shall be renewed at intervals of not more than one (1) year.

SECTION 629.0 EXISTING BUILDINGS

629.1 Special permit for existing uses: Any existing hazardous use which heretofore authorized by a permit issued under the provisions of law or the regulations of the fire official may be continued by special permit provided the continuance of such use or occupancy does not endanger the public safety.

629.2 Existing use prohibited: An existing building of frame (Type 5) construction which is more than two (2) stories in height or more than five thousand (5,000) square feet in area; or of nonfireproof (Type 3) construction which is more than four (4) stories in height shall not be continued in use or hereafter occupied for the manufacture of pyroxylin plastics or similar materials of high fire hazard and explosive characteristics.

629.3 Places of assembly

629.3.1 Change of use: An existing building or structure or part thereof shall not be altered or converted into a place of assembly unless it complies with the provisions of this code applicable to places of public assembly (see Article 32).

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SECTION 630.0 AMUSEMENT PARKS

630.1 General: All buildings and structures used as part of an amusement park shall be subject to this code. This section specifically includes any building or structure supporting a moving device. The jurisdiction of structures or buildings is limited to the points of interface of the moving device and rails, said device is to be controlled by Form B-11, (520 CMR 5.00) Rules and Regulations for the Safety, Construction and Operation of Ferris Wheels, Carousels, Inclined Railways or Similar Amusement Devices, filed with the Secretary of State.

SECTION 631.0 GROUP RESIDENCE

631.1 Definition: A group residence is a premise licensed by or operated by an agency of the Commonwealth of Massachusetts or subdivision thereof, as a special residence for those who are capable of self-preservation in the following categories:

1. not more than twelve (12) unrelated persons between the ages of seven (7) and fifteen (15) years of age inclusive ; or
2. not more than twenty-five (25) unrelated persons, sixteen (16) years of age or over; or
3. a combination of Category 1 and 2 above consisting of not more than eighteen (18) unrelated persons over seven (7) years of age calculated at the rate of two (2) such persons , or portion thereof , from Category 2 being equal to one (1) such person in Category 1 all in accordance with Table 631.

Note: In determining the classification for proposed use, group residence shall not be construed as being similar in any way to a multi-family dwelling, two-family dwelling, boarding house, lodging house, dormitory, hotel, school or institution of any kind. For building code purposes, it shall be treated as a single-family residential building.

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**Table 631
Group Residence - Maximum Capacity, Combination of Categories**

Category 1	12	11	10	9	8	7	6	5	4	3	2	1	0
Category 2	0	2	4	6	8	10	12	13	14	15	16	17	25
Maximum total residents	12	13	14	15	16	17	18	18	18	18	18	18	25

631.1.1 Special definitions: For the purpose of Section 631.0, the following terms shall be defined exclusively for use with group residences:

Self preservation: Having the capability, both mentally and physically, to take action to preserve one's own life. Specifically, to egress the building within two and one-half (2½) minutes. (Reference inspection procedures in Sections 631.7 and 631.8.)

Egress: A continuous unobstructed path of travel from any space in a building to the open air outside at grade.

Principal means of egress: The primary choice of two (2) routes normally used by occupants to enter or leave a building.

Escape route : To reduce the possibility of entrapment in the event that the principal means of egress is blocked by fire or smoke, an escape route shall be available which performs in accordance with Section 631.8. In an existing building where a second means of egress is physically impractical from above grade floors, any proven, usable path to the open air outside at grade shall be deemed acceptable, including but not limited to connecting doors, porches, windows within six (6) feet of grade, ramps, fire escapes, balcony evacuation systems, etc.

Authorized inspectors: The state or local building official having jurisdiction and a representative of the licensing or operating agency having jurisdiction.

Room: See definition of "Habitable space" and "Occupiable room" in Section 201.0.

631.2 Existing buildings: These regulations shall apply to existing dwelling units which are to be converted to a group residence, notwithstanding Section 106.0.

631.2.1 Height limitations: Existing buildings, of Type 5B construction, greater than two and one-half (2½) stories, or thirty-five (35) feet in height may be allowed to be used (as an exception to Table 501) as a group residence.

631.3 Plans and specifications: Plans shall be filed with the building official having jurisdiction in accordance with Section 113.0 for any building to be

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constructed as, or altered for use as, a group residence under Section 631.0. The floor plans shall show all rooms, spaces, closets, doors, corridors, windows, stairs and stairways, hazardous vertical openings and the location of all required fire warning equipment and proposed fire suppression equipment.

631.4 Hazardous contents: Any contents which represent a fire hazard greater than that which could be expected of ordinary household furnishings, shall not be allowed. Storage shall not be allowed above the second floor.

631.4.1 Interior finish: Only Class I and Class II interior finish materials shall be allowed in the principal means of egress. In refinishing any other area, material having a Class III flame spread rating shall be allowed provided it does not decrease the existing rating. The smoke contribution rating of any material shall not exceed 450 (see Section 904.0).

631.4.2 Exception: In existing buildings, the required flame spread or smoke development classification of interior surfaces may be obtained by applying approved fire retardant paints or solutions to existing interior surfaces having a higher flame spread rating than permitted.

631.5 Egress: In existing buildings there shall be one (1) means of egress and one (1) escape route serving each floor, remote as possible from each other and leading to grade. The stairway between the first and second floors, if unenclosed, may remain unenclosed to preserve functional and aesthetic requirements. In new construction, two (2) means of egress are required in accordance with the One- and Two-Family Dwelling Code, and stairways above the grade floor shall be enclosed with one (1) hour fireresistive construction.

Exception:

1. Where the Group Residence is protected with a fire suppression system according to NFPA 13D or better only one means of egress shall be required from floors above the grade floor in existing buildings and new construction.
2. Where the Group Residence is protected with a fire suppression system according to NFPA 13D or better the enclosure of stairways is not required.

631.6 Fire protection systems

631.6.1 Hazardous vertical openings: Openings to such spaces as laundry chutes, dumbwaiters, heating plenums or combustible concealed spaces shall be permanently blocked with one (1) hour construction, as regulated by the provisions of Article 9.

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631.6.2 Automatic fire warning systems: An approved automatic fire warning system shall be provided in accordance with Article 10.

631.7 Inspections: There shall be three (3) mandatory types of inspections as described below. The results of such inspections shall be on file in the office of the building official with copies sent to the licensing or operating agency on a prepared checklist and signed by the authorized inspectors.

631.7.1 Temporary certificate: The building official shall perform plan review and post-construction inspection to ensure that the building conforms to this code. He shall issue a temporary certificate of occupancy effective for ninety (90) days only.

631.7.2 Final certificate: Before issuance of the final certificate of occupancy, the authorized inspectors shall mutually conduct a test (see Section 631.8.1) to ensure that the occupants are capable of self-preservation. Upon complete satisfaction of all requirements, the building official shall then issue a permanent certificate of occupancy. This test shall be conducted once a year in accordance with Section 108.5.1 for purposes of recertifying both the building and the occupants.

631.8 Inspection procedure: The building and the occupants' capability of self-preservation constitute a system of life safety which are unique for each building and for each occupant in a group residence. Therefore, a simple direct test is specified herein to determine the capability of the occupant and/or the suitability of the building as a life safety system.

631.8.1 Direct test/fire drill: A fire drill shall be conducted as the direct test required by Section 631.8. The building official may require that he be present for the fire drill, or may accept an affidavit signed by the residence manager citing the names of the authorized inspectors present, the names of the occupants who participated, the name(s) of any occupants who failed to egress the building within two and one-half (2½) minutes, the date, time and place where said fire drill was held. During the conduct of the drill, all staff personnel of the group residence shall isolate themselves from the occupants. The authorized inspector(s), when present, shall then cause to be blocked any one point in an egress route where the choice of an alternate route is possible, to simulate a hazardous condition, and the internal alarm system shall be activated for two and one-half minutes.

631.8.2 Evaluation: Any occupant who fails to escape from the building and achieve egress outside the building at ground level within the two and one-half (2½) minute period shall not be permitted to remain living in the residence.

Note: The occupant or the building may be at fault; therefore, the system has failed to perform adequately to provide life safety and is, consequently, unacceptable for that occupant.

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631.8.3 Other tests: Other tests are not necessary and shall not be required by the building official. It shall be the responsibility of the residence manager of the group residence to provide immediate suitable accommodations elsewhere for any occupant deemed unacceptable by the building official. Each occupant must be certified at regular intervals but not less than every quarter at the group residence by the licensing or operating agency. The building official may require an inspection at his discretion when he feels that either the building or the occupant may not conform.

631.9 Certificate of occupancy: Any certificate of occupancy issued for a building intended to be used as a group residence, as defined in Section 631.1, shall become invalid if the premises have not been licensed or authorized by an agency of the Commonwealth of Massachusetts within ninety (90) days of the date of issuance of the certificate of occupancy.

SECTION 632.0 NURSING HOMES, REST HOMES, CHARITABLE HOMES FOR THE AGED, CONVALESCENT HOMES AND HOSPITALS

632.1 New facilities: Buildings to be constructed or proposed for a change of occupancy, to be used as nursing homes, rest homes charitable homes for the aged, convalescent homes and hospitals (in Use Group I-2) shall meet the provisions of NFIPA 101 Life Safety Code, as referenced in Appendix A and the applicable provisions of this code.

632.2 Construction requirements: Hospitals, nursing homes, and convalescent homes shall be built only of Type 1 construction, in accordance with Chapter 111, Sections 51 and 71, of the Massachusetts General Laws, as amended.

SECTION 633.0 CHILD DAY CARE CENTERS

633.1 General: Child day care centers shall be subject to the applicable provisions of this code and the special requirements of this section. Child day care centers licensed by the Office for Children shall also be subject to compliance with the rules and regulations of that authority.

633.2 Applicability: The locations of the child day care centers shall be governed by the provisions of Section 633.0. Locations of the child day care centers shall not be restricted by the limitations of Table 501 for E and/or I-2 use groups solely because of the child day care center's use group classification. The provisions of Section 3203.4 shall not apply to child day care centers. In all buildings in which the introduction of a child day care center changes the use, the child day care center and all portions of the building required for use by the child day care center shall comply with Section 3203.3, 3203.8, 3203.9, 3203.10, 3203.11 and 3204.6.

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633.3 High hazard restrictions: A child day care center shall not occupy the same building with, or be located within two hundred (200) feet of a high hazard occupancy.

633.4 Child day care center use groups:

633.4.1 Less than two years and nine months in age: Buildings and portions thereof licensed by the Office for Children as child day care centers for children two (2) years and nine (9) months in age or younger shall be classified as I-2 use group.

633.4.2 More than two years and nine months in age: Buildings or portions thereof licensed by the Office for Children as child day care centers for children more than two (2) years and nine (9) months in age shall be classified as E use group.

633.5 Story height limitations: The locations of the child day care centers in new and existing buildings shall be limited by the provisions of this section, as applicable to the use group classification of the center, and Table 633. When a child day care center contains children of mixed ages such that it would be classified in both the I-2 and E use groups, the provisions of this section for use group I-2 shall apply.

633.5.1 I-2 limitations: In new and existing buildings, child day care centers which are classified in the I-2 use group shall comply with one of the following compliance options listed below. All required means of egress for child day care centers classified in use group I-2 shall lead directly to grade.

- 1. The location of the child day care center shall be limited to the first floor, cellar and/or basement; or**
- 2. In buildings of Type 2B, 3A or 4 construction which are fully sprinklered and comply with the special provisions of Section 633.15 through 633.15.3 inclusive, the child day care center shall be located no higher than the third floor; or**
- 3. In buildings of Types 1A, 1B or 2A construction which comply with the special provisions of Sections 633.15 through 633.15.3 inclusive and are either fully sprinklered, or in which the child day care center shall be located no higher than the third floor.**

633.5.2 E limitations: In new and existing buildings, child day care centers which are classified in the E use group shall comply with one of the following compliance options listed below. All required means of egress for child day care centers classified in use group E shall lead directly to grade.

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- 1. The location of the child day care center shall be no higher than the second floor; or**
- 2. In buildings of Type 2B, 3A or 4 construction which are fully sprinklered and comply with the special provisions of Section 633.15 through 633.15.3 inclusive, the child day care center shall be located no higher than the fourth floor; or**
- 3. In buildings of Types 1A, 1B or 2A construction which comply with the special provisions of Sections 633.15 through 633.15.3 inclusive and are either fully sprinklered, or in which the child day care center shall be located no higher than the seventh floor.**

633.6 Child day care centers classified as I-2 use group:

633.6.1 Basement and cellar use in Types 3B and 5B construction:

633.6.1.1 Basement use: A basement, as defined in this code, of a building of Type 3B or 5B construction may be used for a child day care center in accordance with the following requirements: there shall be two separate and independent means of egress, remote from each other:

- 1. leading to grade; or**
- 2. leading to a one (1) hour fire-rated enclosed stairway not more than four (4) feet in height vertically which leads directly to grade and is separated from any other use as an egress by one (1) hour fire-rated partitions and self-closing doors.**

633.6.1.2 Cellar use: A cellar, as defined in this code, of a building of Type 3B or 5B construction may be used for a child day care center in accordance with the following requirements:

- 1. There shall be at least two (2) separate and independent interior means of egress, remote as possible from each other and leading directly to grade or to a one (1) hour fire-rated enclosed stairway not more than four (4) feet in height, vertically. Any such stairwell serving as a required means of egress from a child day care center shall serve only the day care center.**
- 2. Smoke detectors shall be located in the story of the use and in the story, if one exists, directly beneath the area being used for the child day care center.**

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- 3. Interior stairways used as required means of egress shall contain smoke detectors connected to alarms audible throughout the child day care center.**

633.7 Egress requirements for I-2 and E child day care center use groups:

633.7.1 Below grade: All child day care centers or parts thereof located below grade, except for I-2 child day care center use in Types 3B and 5B construction as provided in Sections 633.6.1.1 and 633.6.1.2, shall conform to the following requirements:

- 1. There shall be at least two (2) separate and independent means of egress, remote as possible from each other, at least one (1) of which leads directly to grade or to a one (1) hour fire-rated enclosed stairway not more than four (4) feet in height, vertically. Any such stairwell serving as a required means of egress from a child day care center shall serve only the day care center.**
- 2. Required interior stairways shall be of least one (1) hour fire-rated construction enclosed with self-closing fire doors.**
- 3. Required interior stairways shall contain smoke detectors connected to alarms audible throughout the child day care center.**

633.7.2 Egress on floors other than basement or cellar: Each story of the child day care center shall be provided with not less than two (2) independent means of egress, remote as possible from each other, and such additional approved means of egress leading from the occupied spaces so that to reach an egress it will not be necessary to pass through a common corridor or space.

633.7.2.1 Buildings of Types 1, 2A & 2B construction: In these buildings, except for R-2 use group, equipped with a fire suppression system in conformance with Section 1002.0, a single common corridor shall be acceptable for providing access to two (2) means of egress as required in this section.

633.7.2.2 Common corridors used for exitway access: Common corridors may be subdivided, for the purpose of Section 633.7.2.1 to provide separate and independent exitway access by using smoke stop partitions complying with the provisions of this code. Access through interconnected rooms to either side of the smoke stop partition, as provided in Section 633.7.2.3, shall be allowed as a method of complying with Section 633.7.2.1. The doors in the smoke stop partitions may be equipped with an automatic hold open device connected to smoke or smoke and heat detectors and designed to close automatically by activation of the detector system.

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633.7.2.3 Egress from each room: Two (2) approved means of egress located as remotely as possible from each other shall be required for each occupied room. One (1) such required egress may be made by communicating door.

633.7.3 Roof egress: Where the roof is used by a child day care center, two (2) enclosed stairways shall be provided, one (1) leading directly to an enclosed exitway system and one (1) leading to a corridor on a floor below that leads to two (2) remote and independent exitways. The stairways shall comply with all the provisions of Section 633.0 and this code.

633.7.4 Egress lighting: Egress lighting shall be provided in conformance with Article 8, including requirements for emergency lighting. Emergency lighting provided for required egresses for the child day care center shall include battery back-up.

633.7.5 Doorways: All required exitway doorways shall be at least thirty-six (36) inches in width. All other egress doorways shall be at least thirty-two (32) inches in width.

633.7.6 Handrails: All required egress stairways shall be provided with double handrails on both sides, and these shall be continuous including all runs and platforms and shall be built as follows:

1. The upper rail shall not be less than thirty (30) inches nor more than thirty-three (33) inches, measured vertically, above the nosing of the treads.
2. The lower rail shall be installed at approximately twenty (20) inches high measured vertically at the face of the riser.

633.8 Heating system: Any portable or permanent heater in spaces occupied by children shall be separated from the occupied space by partitions, guards, screens, or other means. Space and unit heaters using combustible fuels shall be prohibited.

633.9 Boiler rooms: Boilers, furnaces or other fire units shall be enclosed as required in the BOCA National Mechanical Code listed in Appendix A. Boiler room doors shall not open into occupied areas.

633.10 Roofs: Where a roof is used by a child day care center, there shall be a solid, smooth non-climbable fence or barrier a minimum of seven (7) feet high on all sides and separating the child day care center area from any other uses. Fences shall be set back at least three (3) feet from the outside edge of the exterior wall below. A weatherproof telephone or equivalent means of communication shall be provided for use in emergencies and shall be openable without keys, coins etc.

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633.11 Fire alarm systems: Fire alarm systems shall be provided in child day care centers in accordance with the requirements of this section. The requirements of Sections 633.6.1.2 and 633.7.1 may be combined with the requirements of this sections.

- 1. Facilities for up to twenty-four (24) children shall be provided with a manual alarm system which will sound an alarm audible throughout the child day care center.**
- 2. Facilities for twenty-five (25) or more children shall be provided with an automatic alarm system consisting of approved smoke detectors located as provided in Section 633.12 and audible throughout the child day care center or throughout each floor of the center. In addition, there shall be at least one (1) manual alarm on each floor of the child day care center which will sound on all floors of the child day care center when actuated.**

633.12 Location of detectors: Smoke detectors shall be installed on the ceilings of each story occupied by the day care center above or in front of the doors to the stairways and at not greater than thirty (30) foot spacing in the corridor providing required means of egress on all floors of the child day care center. Smoke detectors shall also be installed in all accessory spaces of the child day care center not used for children, including storage over one hundred (100) square feet in area. All required detectors shall be located on the same circuit and interconnected so that when one (1) sounds, all will sound. Required detectors shall meet the requirements of UL 217 as listed in Appendix A and shall have an alarm decibel rating of at least 85.

633.13 Child day care center separations: When the floor occupied by the child day care center is above any usable space, the floor shall have a minimum of one (1) hour fire resistance rating in buildings of Type 2C, 3B and 5 and two (2) hours in buildings of Type 1, 2A, 2B, 3A and 4 construction. When the floor occupied by the child day care center is below any usable space, the ceiling above shall have at least a one hour fire resistance rating or the floor above shall be equipped with smoke detectors connected to the child day care center alarms. The child day care center shall be separated from all other uses on the same level by fire separation of at least two (2) hour fire resistance rating or greater as per Table 902.

633.14 Elevator doors: The child day care center shall not be exposed directly to the elevator doors opening from the elevator shaft. At least one (1) of the required means of egress shall not be exposed to the elevator openings. Elevator door openings may be separated by two (2) hour fire rated construction.

633.15 Special provisions: In new and existing buildings containing I-2 child care occupancies where the child day care center is located above the first floor, and in

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new and existing buildings containing E child care occupancies where the child day care center is located above the third floor, the child day care center shall meet the requirements of this section or shall meet these requirements through other methods acceptable to the authority having jurisdiction.

633.15.1 Direct communication: The child day care center shall have direct communication from each room in the child day care center to either the fire command center or to the fire department.

633.15.2 Alarm requirements: In addition to meeting the requirements of Section 633.11, on the floor of the child day care center and/or the floor below, the operation of any water flow device, manual pull station, smoke or heat detector will initiate a special announcement for the child day care center to evacuate or proceed to the area specified in Section 633.15.3. A standard announcement shall also be initiated for the rest of the building. Smoke detectors shall be installed on the ceiling of the floor below the child day care center. Manual pull stations shall be required on the floor located below the child care center.

633.15.3 Areas of refuge: In new and existing buildings containing E child care occupancies where the child day care center is located on the fourth through seventh floors, the child day care center shall have direct access to a separate area which shall have a minimum of two (2) hour rated construction separating it from the rest of the building. The area shall adjoin an enclosed stairway with a fire resistance rating of at least two (2) hours. The area shall be sized at nine (9) square feet per person to accommodate the licensed capacity and staff of the child day care center. This provision shall apply to all centers located on the sixth or seventh floors of a building and to those centers on the fourth or fifth floors whose licensed capacity exceeds fifty (50) children.
(See Table 633 next page)

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**Table 633
PERMITTED LOCATIONS AND REQUIRED SPRINKLER PROTECTION FOR
CHILD DAY CARE CENTERS**

I-2 Child Care Occupancy / Children Under Two Years Nine Months of Age										
Floor Level of Child Day Care Center	Building Construction Type									
	1A	1B	2A	2B	2C	3A	3B	4	5A	5B
Basement / Cellar	P	P	P	P	P	P	P	P	P	P
1st Story	P	P	P	P	P	P	P	P	P	P
2nd Story	PS	PS	PS	S	NP	S	NP	S	NP	NP
3rd Story	PS	PS	PS	S	NP	S	NP	S	NP	NP
4th Story and Higher	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
E Child Care Occupancy / Children Over Two Years Nine Months of Age										
Floor Level of Child Day Care Center	Building Construction Type									
	1A	1B	2A	2B	2C	3A	3B	4	5A	5B
Basement / Cellar	P	P	P	P	P	P	P	P	P	P
1st Story	P	P	P	P	P	P	P	P	P	P
2nd Story	P	P	P	P	P	P	P	P	P	P
3rd Story	PS	PS	PS	S	NP	S	NP	S	NP	NP
4th Story	PS	PS	PS	S	NP	S	NP	S	NP	NP
5th to 7th Story	PS	PS	PS	NP	NP	NP	NP	NP	NP	NP
8th Story and Higher	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP

Key to Table

- P = Permitted**
- NP = Not Permitted**
- S = Sprinklers Required / See Section 633.15 for Special Provisions**
- PS = Partial Sprinklers Required / See Section 633.15 for Special Provisions**

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SECTION 634.0 SUMMER CAMPS FOR CHILDREN

634.1 Definition: Summer camps for children include premises, operated solely between April and October of each year for recreational or other purposes, and having residential facilities. The use of such accommodations for purposes of inspection, certification and inspection fees shall be considered as being similar to a dormitory in Use Group R-2 and subject to the following provisions of this section.

634.2 New and existing occupancies: These regulations shall apply to existing and new summer camps for children as defined in Section 634.1 of this code.

634.3 Means of egress: All one-story, one-room buildings having one thousand square feet (1,000) or less and having twenty-five (25) occupants or less shall require only one (1) means of egress provided that:

1. the length of travel does not exceed fifty (50) feet from any point in the building to the outside at grade; and,
2. the minimum width for aisles and corridors shall be three (3) feet.

634.3.1 Emergency escape: Every sleeping room shall have at least one (1) exterior door or operable window to permit emergency exit or rescue; the windows shall conform to the following restrictions:

1. must be operable from the inside without the use of separate tools;
2. the sill height shall not be more than thirty-six (36) inches above the finish floor and with a maximum six (6) foot drop from the window sill to grade below the window; and
3. provide a minimum net clear opening area five and seven tenths (5.7) square feet. The minimum net clear opening height dimension shall be 24 inches, The minimum net clear opening width dimension shall be 20 inches.

634.4 Fire protection: Smoke detectors shall be required for existing and new residential units in accordance with Section 1018.0 of this code and may be either A.C. wired or battery-operated.

Exception: Tents and other temporary shelters which are designed to sleep less than eight (8) persons and which have an open side consisting of greater than one sixth (1/6) of the perimeter of the shelter or which have built-in provisions for emergency escape.

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634.5 Mechanical: If camps are heated, then the building must conform to all applicable code sections and specialized codes, notwithstanding any of the provisions in Section 634.0.

634.6 Enforcement and Inspections: Enforcement shall be by the local building official who shall inspect and certify the summer camps yearly, prior to season opening. Fees charged shall be in accordance with Table 108 of this code.

SECTION 635.0 HISTORIC BUILDINGS

635.1 Scope: The provisions of Section 635.0 shall govern all buildings and structures in the Commonwealth which are legally designated as historic buildings. This section shall preempt all other regulations of this code governing the reconstruction, alterations, change of use and occupancy, repairs, maintenance and additions for the conformity of historic buildings and structures to this code, with the exception of Section 126.0 for appeals, or unless otherwise specified (see Appendix H).

635.2 Definitions:

Historic buildings: Any individual building or structure, but excluding districts, so designated by the National Register of Historic Places or certified by the Massachusetts Historic Commission and ratified by the Board of Building Regulations and Standards as listed in Appendix H. Historic buildings shall be further defined as totally or partially preserved buildings.

Partially preserved buildings: Any building or structure designated as a historic building by the State Board of Building Regulations and Standards or listed in the National Register of Historic Places and not designated as totally preserved buildings in Appendix H.

Restoration: Restoration is the process of accurately reconstructing the form 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.

Totally preserved buildings: A totally preserved building is a historic building or structure. The principal use of such a building or structure must be as an exhibit of the building or structure itself which is open to the public not less than twelve (12) days per year, although additional uses, original or ancillary to the principal use, shall be permitted within the same building up to maximum of twenty-five (25) percent of the gross floor area. Totally preserved buildings shall be those listed in Appendix H.

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635.3 Totally preserved buildings:

635.3.1 State Building Code exceptions: A totally preserved building shall be subject to the following exceptions:

- 1. Repairs, maintenance and restoration shall be allowed without conformity to this code if the provisions of Section 635.4 have been fully complied with.**
- 2. In case of fire or other casualty to a totally preserved building, it 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 totally preserved building and the Massachusetts Historical Commission so certifies by affidavit it is submitted to the building official with the permit application, then the building official shall allow the work to proceed under the provisions of this section.**

635.4 Mandatory safety requirements: All totally preserved buildings shall comply to the following requirements:

635.4.1 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, shall have approved manual fire extinguishing equipment, as determined by the fire official.
- 2. Automatic fire warning system:** All residential buildings in use groups R-1, R-2 and R-3 shall conform to the requirements of Section 1018.3.4 of this code. All other use groups shall comply with items a and b below:
 - a. Locations:** Provide one (1) smoke detector, but not less than one, for every twelve hundred (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 with not more than thirty (30) foot 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

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requirements of U.L. 217 and be listed or approved by a nationally-recognized fire-testing laboratory.

- 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. Manual pull stations shall be connected to the building fire warning system in conformance with NFPA 72A as listed in Appendix A.

635.4.2 Exit signs and emergency lights: Approved exit signs and emergency lighting, where designated by the local building official, shall be provided in compliance with Sections 823.0 and 824.0 of this code.

Exception: All totally preserved buildings need not comply with Sections 823.0 and 824.0 if not occupied after daylight hours, except that paths of egress shall have exit signs.

635.4.3 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 as per Section 806.0, whichever is less. Said floor load shall be posted as per the procedures set forth in Sections 119.0, 120.0 and 1105.0. The owner shall submit evidence of this certification and related computations to the building official upon request.

635.4.4 Limited egress: Where one or more floors of a totally preserved building are limited to one (1) means of egress, the occupancy load shall be computed as follows:

- 1. Floors below the first story:** Not more than one (1) occupant per one hundred (100) square feet of gross floor area with a maximum occupancy of forty-nine (49).
- 2. First story:** Not more than one (1) occupant per fifty (50) square feet of gross floor area.
- 3. Second story and above:** Not more than one (1) occupant per one hundred (100) square feet of gross floor area, or thirty (30) occupants per unit of egress width, whichever condition results in the lesser occupancy load.

635.4.5 Inspections: The building official and the fire official shall inspect all totally preserved buildings not less frequently than once every year in order to determine that the building or structure continues to conform to Section 635.4. A qualified Massachusetts registered professional engineer or architect shall certify every five (5) years thereafter as to the exact floor load capacity of the building or structure. The building official shall certify all totally preserved buildings not less

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frequently than once every year. Fees shall be established at \$25.00 per building per inspection.

635.5 Historic buildings not qualified as totally preserved:

635.5.1 Applicability: This section and Article 32 shall apply to all historic buildings which are not defined as totally preserved buildings.

635.5.2 Continuation of use and occupancy: The legal use and occupancy of any partially preserved building may be continued without change or further compliance to this code. The provisions of Section 635.4 shall be required for historic buildings accessible to the public on more than fifty (50) days per year.

635.5.3 Inspection, certification and fees: The building inspector shall inspect all partially preserved buildings not less than once a year in order to determine that the building or structure continues to conform to Sections 635.5 and/or 635.4. If in conformance, then he shall issue a certification. Fees shall be in conformance with Table 108.

635.5.4 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 this code provided these requirements do not compromise the features for which the building was considered historic when listed in Appendix H of this code or the National Register of Historic Buildings.

635.5.5 Repairs and maintenance: See Article 32.

635.5.6 Change in occupancy: See Article 32.

635.5.7 New systems: See Article 32.

635.5.8 Lesser and equal hazard: See Article 32.

635.5.9 Greater hazard: See Article 32.

SECTION 636.0 LIMITED GROUP RESIDENCE

636.1 General: A building licensed by or operated by the Department of Mental Health or the Office for Children, Commonwealth of Massachusetts as a limited group residence: this is a special residence to include residents not capable self-preservation.

636.1.1 Scope: A limited group residence shall have a maximum of twelve (12) residents who are at least four (4) years of age. Not more than four (4) of the residents shall be impaired; provided, however, that more than four (4) such residents may be impaired if the structure complies with Section 636.2. A limited group residence shall be classified in the R-5 use category for code purposes.

636.1.2 Definitions: The following terms shall have the meaning indicated for the purpose of Section 636.0:

Existing building or structure: Any completed building or structure which has been legally occupied and/or legally used for a period of at least five (5) years. Structures which fail to qualify with this definition shall comply with Section 636.2.

Resident: A client in need of care who resides in the limited group residence of the licensing or operation agency. Staff are not considered as residents under the provisions of Section 636.0. The licensing agency shall classify all residents in one (1) of the following three (3) categories:

Impaired: All residents not capable of self-preservation through physical, mental and/or developmental disability and requiring physical assistance to exit the building. All residents under seven (7) years of age shall be classified as impaired.

Partially impaired: All residents physically, mentally and/or developmentally disabled but capable of exiting the limited group residence with either supervision and/or instruction without any physical assistance.

Unimpaired: All residents capable of exiting the building without physical assistance and/or supervision or instruction by staff personnel and capable of negotiating any exitway of the limited group residence.

636.1.3 Application of building code and reference: Except as may otherwise be specifically provided for in Section 636.0, the Massachusetts State Building Code shall apply in its entirety.

Exception: Article 32 shall not apply.

636.1.4 Mixed use occupancy: A limited group residence shall not be housed in a building used for any occupancy other than a limited group residence.

Exception: Dwelling unit(s) meeting the requirements of this section may be incorporated within a building in residential use provided unit separation walls and Floor-ceiling assemblies shall serve to completely separate the

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limited group residence and provided that one of the limited group residence exitways is separate from the other uses.

636.1.5 Plans and specifications: Plans shall be filed with the building official having jurisdiction in accordance with Section 113.0 for any building to be constructed as, or altered for use as, a limited group residence under Section 636.0.

636.1.6 Temporary certificate of occupancy: Upon satisfactory compliance with the code sections pertaining to building requirements, the building official shall issue a temporary certificate of occupancy in accordance with Section 119.4 for a period not to exceed ninety (90) days. This temporary certificate of occupancy specifically prohibits residents as defined in Section 636.1.2 from inhabiting the building overnight until the building official issues the certificate of occupancy under Section 636.1.8.

636.1.7 Rules and regulations of the licensing or operating agency pertaining to and including, but not limited to, smoking regulations, staffing ratios, and resident classifications shall be provided to the building official by the licensing or operating agency prior to the issuance of a certificate of occupancy.

636.1.8 Certificate of occupancy: Certificates of occupancy shall only be issued when a license, if appropriate, and an affidavit from the Department of Mental Health or the Office for Children, Commonwealth of Massachusetts have been, accepted by the building official attesting to the satisfactory compliance with the applicable rules and regulations referenced in Section 636.1.7.

636.1.9 Certificate of inspection: Certificates of inspection shall be issued by the building official in accordance with Section 108.5.1 and Table 108.

636.1.10 Failure to comply: The building official immediately upon being informed by written report or otherwise that a building or structure or anything attached thereto or connected therewith is being occupied in violation of this code may revoke or suspend any permit, license, certificate or other permission regulated by this code and granted by him, and no such building or structure shall be continued to be operated after such revocation or suspension. Such revocation or suspension shall not preclude the building official from instituting appropriate action in accordance with Section 121.0.

636.2 New structures: All new structures shall be constructed, equipped, and maintained to the requirements of the One- and Two-Family Dwelling Code, Section 636.0 of this code, shall be limited to two (2) stories in height, and shall have dwelling unit(s) limited to one story in height with direct access to grade without steps or changes in elevation other than ramps in accordance with Section 512.0. Corridors shall be of one (1) hour fire resistive construction.

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636.2.1 Other requirements: New structures shall also satisfy the general requirements contained in Sections 636.1 and 636.3.

636.3 Existing structures: Existing structures of any construction up to three (3) stories or forty (40) feet in height may be converted and used for limited group residence occupancies. All residents classified as impaired as defined in Section 636.1.2 are restricted to those stories having direct access to grade without steps or changes in elevation other than ramps in accordance with Section 512.0.

636.3.1 Third-story utilization: The third (3rd) story of buildings permitted by Section 636.3 may be only occupied by staff. Other use of the third (3rd) story is restricted to heating, ventilation units and ordinary storage. All doors leading to non-resident areas shall be maintained locked.

636.3.2 Vertical openings: Openings to such spaces as laundry chutes, dumb-waiters, heating plenums or combustible concealed spaces shall be permanently blocked with one (1) hour construction, in accordance with the provisions of Article 9, unless such installation is in compliance with the pertinent provisions of other sections of this code.

636.3.2.1 Firestopping and draftstopping: Firestopping and draftstopping shall be provided in accordance with Sections 921.0 and the One- and Two-Family Dwelling Code or as approved by the building official.

636.3.3 Exitway Details:

636.3.3.1 Corridor width: The minimum clear width of an exitway access corridor shall be three (3) feet.

Exception: In new structures the minimum clear width shall be four (4) feet.

636.3.3.2 Dead ends: In no case shall dead end corridors exceed thirty (30) feet. Existing dead end corridors, wherever possible, shall be altered so that exitways shall be accessible in at least two (2) different directions from all points in corridors.

636.3.3.3 Corridor walls: Corridor walls that separate use areas from exitway access corridors shall be of construction that will resist the passage of smoke.

Exception: Existing openings to congregate living areas, other than kitchens, shall be allowed to remain open.

636.3.3.4 Sleeping room doors: All sleeping room doors shall be of construction that will resist the passage of smoke. All doors shall be equipped with approved positive latching hardware and approved self-closing devices.

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Exceptions:

- 1. Sleeping room doors may be equipped with approved hold-open smoke activated devices in accordance with Section 812.0.**
- 2. Hollow core doors shall not be permitted.**

636.3.3.5 Means of Egress: All habitable floors shall be provided with at least two (2) means of egress, located as remote as practicable from one another. Exitways shall be located to provide a safe path of travel to a public way without traversing any corridor or space exposed to an unprotected open stairway.

Exceptions:

- 1. Open stairs may be used as one (1) of the required means of egress when permitted by Section 636.3.3.6, Exception 3. However, in no case may both required means of egress traverse the unprotected open space.**
- 2. Access to one (1) of the required exitways on sleeping room floors may be through adjoining rooms.**

636.3.3.6 Interior exitway stairs: Every story shall be provide with at least one (1) enclosed interior stairway which discharge directly to grade or through a grade passageway to a public way. The enclosed interior stairway(s) shall be of construction having a minimum fireresistance rating of one (1) hour, properly firestopped. Spaces below the stairway(s) shall be enclosed to maintain the integrity of the one (1) hour fireresistive construction of the stairway enclosure. Stairway(s) openings shall be protected by at least Class "B" label one (1) hour fire door assemblies.

New stair construction shall comply with Section 816.0. Existing stairs shall comply with the One- and Two-Family Dwelling Code or as approved by the building official.

Exceptions:

- 1. Secondary stairs not considered an exitway component may have door openings protected by a minimum one and three-eighths (1 3/8) inch solid bonded wood core doors or equivalent; however, such doors shall be equipped with approved automatic positive latching hardware and approved self-closing devices.**
- 2. Basement/cellar: Stairway(s) shall be separated from the first floor by a twenty (20) minute fire rated, self-closing door or it equivalent.**

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3. One (1) stairway may be allowed to remain unenclosed to preserve functional and aesthetic requirements.

636.3.3.7 Door widths: No single egress door in a doorway shall be less than twenty-eight (28) inches wide.

Exceptions:

1. Exitway door leaves shall not be less than thirty-four (34) inches wide.
2. Door leaves to resident bedrooms occupied by residents who are classified as "Impaired" shall not be less than thirty-four (34) inches wide.

636.3.3.8 Basement/cellar: Basements/cellars shall be provided with at least two (2) acceptable exitways, one (1) of which shall discharge directly to the outside of the building.

Exception: Basement/Cellar areas with only one (1) existing entrance from the outside only, and used solely as a mechanical space shall be permitted to maintain only one (1) doorway which shall be maintained locked as an entrance/exitway.

636.3.3.9 Emergency escape: All sleeping rooms shall have at least one (1) openable window or exterior door to permit smoke control, emergency escape, or rescue. A required door or window must be openable from the inside without the use of separate tools, and shall comply with Section 809.0.

636.3.3.10 Means of egress lighting: Means of egress lighting systems shall be provided in accordance with Section 824.0.

636.3.3.11 Locks: Locks installed in resident sleeping room doors shall be so arranged that they can be locked from the corridor side. All such locks shall be arranged to permit exit from the room by a simple operation without the use of a key. Double cylinder dead bolts requiring key operation on both sides are prohibited throughout this occupancy.

636.3.4 Interior finish: The flame spread of interior finish shall be limited to Class II in exitways or exit access corridors. Rooms shall be permitted to have interior finish of a Class III flame spread. Floor coverings shall conform to the requirements of Section 920.0 except that carpet type floor coverings shall possess a critical radiant flux of 0.22 w/cm² or greater.

636.3.5 Fire suppression systems: Automatic fire suppression systems shall be provided and installed in accordance with NFPA Standard No. 13D, ~~1980~~ edition.

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Additions:

- 1. Exceptions listed in NFIPA Standard No. 13D applicable to dwellings shall not apply.**
- 2. A water flow detector, connected to the fire alarm system, shall be provided.**
- 3. NFIPA Standard No. 13D, Sections 4-6; Exception 1 shall not apply.**
- 4. The control valve(s) shall be secured in the open position.**

636.3.6 Fire alarm system: A manual fire alarm system shall be provided and installed in accordance with Section 1017.0 and specifically NFIPA Standard No. 72A as listed in Appendix A.

636.3.7 Automatic protection alarm system: Approved smoke detectors shall be installed in accordance with Section 1016.0 and specifically NFIPA Standard No. 72E as listed in Appendix A in the following locations:

- 1. exitway access corridors not more than thirty (30) feet on center;**
- 2. congregate living areas other than kitchens;**
- 3. at least one (1) detector in all basement/cellar areas; and**
- 4. all sleeping rooms.**

Exception: Smoke detectors used in combination with automatic closing devices may be substituted in each area aforementioned for the protection herein required.

636.3.8 Fire department connection: All automatic and manual fire alarm systems shall be electrically interconnected; this combined system shall automatically transmit an alarm to the municipal fire department or to such other outside assistance as may be available. Such connection shall be made in accordance with NFIPA Standard Nos. 71 or 72B or 72C as listed in Appendix A.

636.3.9 Heating devices: Portable comfort heating devices and solid fuel burning appliances are prohibited. Any heating device, other than a central heating plant, shall be so designed and installed that combustible material will not be ignited by it or its appurtenances. If fuel-fired, such heating devices shall be chimney or vent connected, shall take air for combustion directly from the outside, and shall be so designed and installed to provide for complete separation at the combustion system

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from the atmosphere of the occupied area. The heating system shall have safety devices to immediately stop the flow of fuel and shut down the equipment in case of either excessive temperature or ignition failure.

Exceptions:

- 1. Approved suspended unit heaters may be used in locations other than means of egress and sleeping areas, provided such heaters are located high enough to be out of the reach of persons using the area and provided they are equipped with the safety devices specified in Section 636.3.9.**
- 2. Fireplaces which comply with Section 2402.0 may be used only in areas other than resident sleeping rooms. The fireplaces shall be equipped with a heat tempered glass fireplace enclosure guaranteed against breakage up to a temperature of 650 Fahrenheit. A lock on the enclosure shall be required.**

636.3.10 Fire drills: The licensing or operating agency shall require that fire drills be held with sufficient frequency so as to familiarize all residents and staff personnel with emergency procedures. Drills shall be held at unexpected times under varying conditions to simulate the unpredictable conditions which may occur in case of fire, including blocking of any point of any means or egress.

636.3.10.1 Log: A log shall be kept of all fire drills and shall be available for inspection and duplication by the building official, fire official, and other parties having jurisdiction.

636.3.10.2 The resident manager shall record in said log the names of any authorized inspectors who may have been present and the names or identifying numbers of the residents who participated.

SECTION 637.0 DETOXIFICATION FACILITIES

637.1 General: A detoxification facility is a facility licensed or operated by the Department of Public Health, Division of Alcoholism in accordance with the Rules and Regulations for Detoxification Facilities issued by the Department of Public Health, Division of Alcoholism, Commonwealth of Massachusetts, and shall be used to treat individuals acceptable to the program in accordance with those Rules and Regulations.

637.2 Scope: Detoxification facilities shall be subject to the requirements of this section for new and existing buildings which are to be used or operated as licensed facilities. This section shall establish the requirements applicable to such facilities. Where specific reference is made to other sections of the Massachusetts State

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Building Code, to reference standards or other regulations, those requirements cited shall apply. Where no reference is specifically made, this code, including Article 32, shall apply.

637.3 Classification of Residents: All residents enrolled in the detoxification program shall be identified according to one of the following classifications when evaluated by the facility personnel in accordance with the Rules and Regulations for Detoxification Facilities of the Division of Alcoholism of the Department of Public Health:

- 1. Impaired**
- 2. Partially Impaired**
- 3. Unimpaired**

637.4 Definitions: The following terms shall have the meaning indicated for the purpose of this section:

Impaired: Anyone who will require assistance to egress the building

Partially Impaired: Anyone who may require assistance to egress the building.

Unimpaired: Anyone who appears able to egress the building without assistance.

637.5 Use group classification: Detoxification facilities licensed and approved in accordance with these provisions shall be classified in the R-1 use group.

637.6 Mixed use occupancy: A portion of a building may be used for a detoxification facility provided that it is completely separated from the rest of the building by both horizontal and vertical fire division assemblies of at least one (1) hour fire-resistance rating.

Exception: Detoxification facilities shall not be located in buildings in which any of the following use groups are located: A-2, F, H, or S-1.

637.7 Submission of plans: Plans shall be filed with the building official in accordance with Section 113.0 for any building to be constructed as, or altered for use as, a detoxification facility under Section 637.0. The plans shall also identify those rooms which comply with these regulations for use by the impaired.

637.8 Inspection and certification: The building official shall inspect and certify detoxification facilities once every two years. Fees shall be applied in accordance with Table 108 for the R-1 Use Group.

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637.9 Resident location limitations: In buildings used as detoxification facilities in accordance with these provisions, resident locations shall be limited according to the use and type of construction as provided in Table 637.9. All heights are in stories above grade. All buildings used as detoxification facilities in accordance with these provisions shall be accessible to the Fire Department wherever escape windows are required.

**Table 637.9
RESIDENT SLEEPING ROOM LOCATION LIMITATION FOR
DIFFERENT TYPES OF CONSTRUCTION**

	1A	1B	2A	2B	2C	3A	3B	4	5A	5B
Impaired	No limit	8 st.	4 st.	2 st.	1 st.	2 st.	1 st.	2 st.	1 st.	1* st.
Partially impaired	No limit	No limit	8 st.	3 st.	1 st.	3 st.	2 st.	3 st.	2 st.	1 st.
Unimpaired	No limit	No limit	9 st.	4 st.	3 st.	4 st.	3 st.	4 st.	3 st.	2 st.

Note: * Impaired sleeping rooms in 5B construction require either full building sprinklering or one (1) hour fire rated separation for floor and ceiling of sleeping room walls.

637.9.1 Sprinklered buildings: Buildings which are completely sprinklered may have resident locations one story higher than allowed in Table 637.9.

637.9.2 Sleeping room limitations: Sleeping facilities in building licensed for use as detoxification facilities shall not be located below the first story.

637.10 Egress: At least two (2) exitways located as remote as practicable from each other shall be provided from each floor of the building.

637.10.1 Every room used for sleeping for the impaired and partially impaired shall have an exitway access door leading directly to an exitway access corridor:

Exceptions:

1. Rooms having a means of egress doorway leading directly to the exterior of the building at grade.
2. Rooms having a means of egress doorway leading directly to the exterior of the building above grade and connected directly to grade by means of an exterior stairway in accordance with Section 819.

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637.10.2 All other sleeping rooms: All other sleeping rooms shall comply with the requirements of Article 8 in accordance with the provisions for the R-1 use group.

637.10.3 Corridors shall provide at least thirty-six (36) inches minimum nominal width.

637.10.4 All means of egress doorways shall be thirty-two (32) inches minimum nominal width.

Exception: Egress doorways from impaired sleeping rooms shall thirty-six (36) inches minimum nominal width.

637.10.5 Every required exitway access corridor shall have a one (1) hour fire-resistance rating and shall provide access to at least two (2) approve exitways without passing through any intervening rooms or spaces other than corridors and lobbies.

Exception: In buildings with a complete sprinkler system, exitway access corridors not required for the impaired or partially impaired may be separated from other use areas by non-fire rated partitions

637.10.6 Stairways: Where not otherwise specified in this section, stairway required as a means of egress shall be subject to these requirements:

637.10.6.1 Stairways required to provide egress for the impaired shall be at least thirty-six (36) inches minimum nominal width. The total capacity of the stairways shall be adequate for the occupancy load served.

637.10.6.2 Stairway enclosures shall have a fireresistance rating of one (1) hour for buildings not exceeding three (3) stories in height, and two (2) hours for buildings exceeding three (3) stories in height.

637.10.6.3 Doors to the required exitway stairways shall comply with the provisions of Section 816.6.3.

637.11 Interior finish: Interior finish requirements shall comply with Table 641.11.

Exceptions:

1. In buildings which are completely sprinklered, the interior finish requirements may be reduced one (1) level except in sleeping rooms for the impaired.

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2. The interior finish classifications in existing buildings may be improved one (1) level by the use of fire retardant coatings which have been approved when tested in accordance with ASTM E-84.

TABLE 637.11
INTERIOR FINISH REQUIREMENTS *font*

Location	Walls	Floor	Ceiling
Sleeping rooms, Impaired	II	II ²	II
Corridors, Impaired	I	I ¹	I
Sleeping rooms, Partially Impaired	I	I ¹	I
Corridors, Partially Impaired	I	I ¹	I
All other exitway access corridors	II	II ²	II
Stairways	I	I ¹	I

Note 1: Carpet type floor coverings shall withstand a test exposure of 0.45 watts per square centimeter when tested in accordance with Section 904.0.

Note 2: Carpet type floor coverings shall withstand a test exposure of 0.22 watts per square centimeter when tested in accordance with Section 904.0.

637.12 Fire alarm systems: Manual and automatic fire alarm systems shall be provided in accordance with Section 1017.0 as they apply to Use Group R-1.

Exceptions:

1. In rooms for the impaired and partially impaired the heat detectors required by Section 1018.0 shall be replaced with approved smoke detectors.
2. Buildings or portions thereof with twenty-five (25) beds or less shall have as a minimum a Type II system as described in Section 1018.0; buildings with twenty-six (26) beds or more shall have as a minimum a Type I system as described in Section 1018.0.
3. All buildings or portions thereof regardless of the number of beds shall incorporate manual pull stations in conformance with Section 1017.0.

637.12.1 All automatic and manual fire alarm systems shall be electrically interconnected; this combined system shall automatically transmit an alarm to the municipal fire department or to another approved source of assistance. Such

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communication shall be made in accordance with NFPA Standards Nos. 71 or 72B or 72C as listed in Appendix A.

637.13 Means of egress lighting: Means of egress lighting including an emergency lighting system shall be provided throughout the facility in accordance with Section 824.

637.14 Smoke enclosure doors: Smoke enclosure doors shall be tight-fitting with approved hardware.

637.15 Heating apparatus: The use of portable heaters, solid fuel burning room heaters and fireplaces shall be prohibited.

637.16 Sprinkler systems: Where a complete building sprinkler system is installed it shall comply with the provisions of NFPA Standard No. 13, 1976 edition as referenced in Appendix A.

637.16.1 All rooms used for sleeping for the impaired shall be sprinklered.

Exception: A partial system required for impaired sleeping rooms may be provided with a sprinkler system serving no more than six (6) sprinklers, which may be connected directly to a domestic water supply system having capacity sufficient to provide 0.15 gallons per minute per square foot of floor area throughout the entire area, An indicating shut-off valve shall be installed in an accessible location between the sprinklers and the connection the domestic water supply.

SECTION 638.0 GROUP DWELLING UNITS

638.1 General: A Group Dwelling Unit is a dwelling unit licensed by or operated by the Department of Mental Retardation or the Department of Mental Health as special residence for up to four (4) persons who may or may not be capable of self preservation from fire or other related hazards. The provisions of this section shall apply to both new and existing Group Dwelling Units.

638.1.1 Classification of Use: Group Dwelling Units shall be classified as follows:

Use Group R-2 - The Group Dwelling Unit(s) is (are) one or more of three or more dwelling units contained in the building.

Use Group R-3 or R-4 - The Group Dwelling Unit(s) is (are) contained in a one or two family dwelling.

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638.1.2 Classification of Residents: Persons other than staff of the facility who occupy or intend to occupy Group Dwelling Units shall be classified by the Licensing or Operating Agency in one of the following three categories according to their capabilities for self preservation:

Impaired: Any resident who is incapable of self preservation through physical, mental or developmental disability, so as to require physical assistance from the staff of the Group Dwelling Unit to exit the building or to reach an area of refuge within 2½ minutes.

Partially Impaired: Any resident who is capable with either supervision or instruction from the staff of the Group Dwelling Unit but without physical assistance, of exiting the building or reaching an area of refuge within 2½ minutes.

Unimpaired: Any resident who is capable of exiting the building or reaching an area of refuge within 2½ minutes without physical assistance, supervision or instruction.

638.1.3 Application of building code and reference: Except as may otherwise be specifically provided in Section 638.0, the Massachusetts State Building Code shall apply in its entirety.

Exception:

Article 32 shall not apply. However, existing buildings may be used to house group dwelling units, provided that they comply with the applicable portions of this section, and have no outstanding violations of this code or the specialized codes.

638.1.4 Plans and specifications: Plans shall be filed with the building official having jurisdiction in accordance with Section 113.0 for any building to be constructed as, or altered for use as a Group Dwelling Unit under Section 642.0.

638.0

638.1.5 Temporary Certificate of Occupancy: Upon satisfactory compliance with the code sections pertaining to building requirements, the building official shall issue a temporary certificate of occupancy in accordance with Section 119.4 for a period not to exceed ninety (90) days. This temporary certificate of occupancy specifically prohibits residents as defined in Section 642.1.2 from inhabiting the building overnight the building official issues the certificate of occupancy under Section 638.1.8. ^{until} 638.1.2

638.1.6 Corresponding Rules and Regulations: Rules and regulations of the Department of Mental Retardation (104 CMR 22.53) dated August 1983 or of the Department of Mental Health (104 CMR 17.13) dated December 1981 pertaining to

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and including, but not limited to, smoking regulations, staffing ratios, and resident classifications shall be provided upon request to the building official by the Licensing or Operating Agency prior to the issuance of a certificate of occupancy.

638.1.7 Certification of Residents: The Licensing Agency shall certify the classification of each resident prior to application for a Certificate of Occupancy and shall regularly re-examine and, where necessary, reclassify residents in accordance with Department of Mental Retardation or Department of Mental Health regulations. Copies of the current certification of each resident shall be kept on file at the Group Dwelling Unit, and shall be made available to the building official upon request.

638.1.8 Certificate of Occupancy: Certificates of occupancy shall be issued only when a license and/or affidavit from the Department of Mental Retardation or the Department of Mental Health have been provided to the building official attesting to the satisfactory compliance with the applicable rules and regulations referenced in Section 638.1.6, the capabilities for self preservation of all residents, and, if appropriate, the intent to license the facility. Upon compliance with all building requirements of this section and receipt of the Licensing Agency's affidavit, the building official shall issue a certificate of occupancy within 72 hours. In addition to the contents specified in Section 119.5, the certificate shall indicate the category of Group Dwelling Unit for which the building has been constructed or altered, as defined in Section 638.2.

638.2 Category of Unit/Compliance Options: New and existing building containing Group Dwelling Units shall be required to satisfy at least one compliance option presented for the appropriate category of residency as defined in this Section:

Category A Group Dwelling Unit - May contain any or all of the resident classifications.

Category B Group Dwelling Unit - May contain only partially impaired or unimpaired residents.

Category C Group Dwelling Unit - Shall contain only unimpaired residents.

638.2.1 Category A Unit Compliance Options: Buildings housing Group Dwelling Units classed as "Category A" shall comply with any one of the following compliance options:

- 1. The entire building shall be equipped with a fire suppression system; or**
- 2. The building shall be of a protected construction type (Type 1, 2A, 2B, 3A, 4 or 5A). All interior stairways shall be enclosed to comply with the**

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requirements of this code for interior exitway stairways and shall discharge directly to the exterior of the building or into a code complying grade passageway or lobby. The building shall also be equipped with fire alarms complying with Article 10 for the appropriate use group classification; or

3. The Building shall comply with the provisions of Section 636.0; or
4. The building, if of unprotected construction (Types 2C, 3B or 5B), shall be equipped with fire alarms complying with Article 10 for the appropriate use group classification. No Group Dwelling Unit(s) shall utilize portions of the building above the second story. All stories in the building shall be equipped with two approved, independent exitways (even if the building is classified in Use Group R-3). Interior exitway stairways shall be enclosed to comply with the requirements of this code for interior exitway stairways. and shall discharge directly to the exterior of the building or into a code complying grade passageway or lobby; or
5. In those buildings of unprotected constructed (Types 2C, 3B or 5B) where enclosure of interior exitway stairways is impractical due to physical limitations of configuration of the building (e.g. split entry type stairways), the stairway(s) may be permitted to remain unenclosed, provided that all sleeping rooms are segregated from the open stairway by a minimum of one (1) hour fire resistive construction and the exitways are arranged so that a second means of egress is available from each sleeping area which does not pass through the open stairway area. The building shall also be equipped with fire alarms complying with Article 10 for the appropriate use group classification. No Group Dwelling Unit shall utilize portions of the building above the second story. All stories in the building shall be equipped with two approved, independent exitways (even if the building is classified in Use Group R-3).

638.2.1.1 Limitation on location of Impaired residents: All sleeping rooms of impaired residents shall either be located on the first story or on a story containing a horizontal exit complying with Section 814.

638.2.2 Category B Unit Compliance Options: Buildings housing Group Dwelling Units classified as "Category B" shall comply with any one of the following compliance options:

1. Any Category A compliance option; or
2. All stories in the building shall be provided with two approved, independent exitways (even if the building is classified in Use Group R-3).

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All interior stairways shall be enclosed to comply with the requirements of the code for interior exitway stairways and shall discharge directly to the exterior of the building or into a code complying grade passageway or lobby. The building also shall be equipped with fire alarms complying with Article 10 for the appropriate use group classification.

638.2.3 Category C Unit Compliance Options: Buildings housing Group Dwelling Units classified as "Category C" shall comply with any one of the following compliance options:

1. Any Category A compliance option; or
2. Any Category B compliance option; or
3. The building shall comply with the provisions of Section 631.

638.3 Special Fire Safety Items:

638.3.1 Hazardous Contents: No contents which represent a fire hazard greater than that which could be expected of ordinary household furnishings shall be permitted within a Group Dwelling Unit.

638.3.2 Interior Finish: Interior finish in exitways and exitway access corridors shall be a minimum of Class II, unless the building is equipped with a fire suppression system. Approved fire retardant paints may be used to improve the interior finish classification of existing construction to satisfy this requirement.

638.3.3 Locks: Double cylinder deadbolt locks which require a key operation on the side from which egress is to be made are not permitted in Group Dwelling Units. Locks of any type are prohibited on sleeping room doors of impaired or partially impaired residents or on any door which provides access to an exitway.

638.4 Special inspection/fire drill: Prior to occupancy of the group dwelling unit the Licensing Agency shall conduct a fire drill to test the capability of residents to exit according to their residency classification. At least once every ninety (90) days, the Operating Agency shall also conduct a fire drill to test the capability of residents to exit according to their residency classification. Drills shall be held at unexpected times under varying conditions to simulate the unpredictable nature of fire emergencies. The building official may, at his option, participate in or witness the fire drill, or may accept an affidavit from the Operating Agency attesting to the performance of each resident or prospective resident. The affidavit shall also specify the date, time and conditions of the drill, and shall list all participants and witnesses.

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638.4.1 Conduct of the Fire Drill: During the conduct of the drill, one exit shall be blocked to simulate a hazardous condition and the alarm system shall be activated. Successful performance for each resident shall be defined as his/her ability to exit the building, or where horizontal exits are provided to reach an area of refuge within 2½ minutes of the activation of the fire alarm system. Only those staff members who are normally on duty shall be allowed to assist residents, and the only assistance permitted shall be that which is provided by the staff of the Group Dwelling Unit consistent with the classification of each individual resident.

ARTICLE 7

INTERIOR ENVIRONMENTAL REQUIREMENTS

SECTION 700.0 GENERAL

700.1 Scope: The provisions of this article shall govern the means of light, ventilation and sound transmission control required in all buildings intended for human occupancy. Every building and structure hereafter erected and every building, room or space which is changed in use shall be constructed, arranged and equipped to conform to the requirements of this article.

700.2 Buildings on same lot: Where more than one building is hereafter placed on a lot, or where a building is placed on the same lot with existing buildings, and the several buildings are treated as a single structure for the purpose of this article, equivalent uncovered lot area or other adequate sources of light and ventilation shall be provided for all buildings intended for human occupancy.

700.3 Conflicting laws: The provisions in this article shall not be construed to nullify the provisions of any other law or ordinance regulating yards, courts, or other spaces required for light or ventilation; but the provisions specifying the greater requirements shall control the construction.

700.4 Other standards: Compliance with the applicable provisions of the standards listed in Appendix A shall be deemed to meet the requirements of this article, unless otherwise specifically provided herein.

SECTION 701.0 PLANS AND SPECIFICATIONS

701.1 General: Plans for all buildings and structures other than buildings of Use Groups R-2 and R-3 which are designed for human occupancy shall designate the number of occupants to be accommodated in the various rooms and spaces, and when means of artificial lighting and ventilation are required, the application shall include sufficient details and description of the mechanical system to be installed as herein required or as specified in the BOCA National Mechanical Code listed in Appendix A.

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SECTION 702.0 EXISTING BUILDINGS

702.1 Unsafe conditions: In all existing rooms or spaces in which the provisions for light and ventilation do not meet the requirements of this article and which, in the opinion of the building official, are dangerous to the health and safety of the occupants, the building official shall order the required repairs or installations to render the building or structure livable for the posted use and occupant load.

702.2 Alterations: A building shall not hereafter be altered or rearranged so as to reduce either the size of a room, or the fresh air supply, or the amount of available natural light to less than that required for buildings hereafter erected; or to create an additional room unless made to conform to the requirements of Sections 703.0 and 708.0. The building official shall permit new rooms to be of the same height as existing rooms in the same story unless in the building official's opinion greater provision of artificial light and ventilation is deemed necessary to insure healthful living conditions.

702.3 Uncovered yard and court area: A building shall not be hereafter enlarged, nor shall the lot on which it is located be diminished, so as to decrease the required courts or yards to less than that prescribed in this article for the lighting and ventilation of new buildings.

SECTION 703.0 LIGHT AND VENTILATION REQUIRED

703.1 Light required: Every room or space intended for human occupancy shall be provided with natural or artificial light.

703.1.1 Bathroom and toilet room lighting: Every bathroom and toilet room shall be provided with artificial light. The illumination shall have an average intensity of 3 foot candles measured at a level of 30 inches above the floor.

703.2 Ventilation required: Every room or space intended for human occupancy shall be provided with natural or mechanical ventilation (refer to this Article and/or Article 31 and/or the BOCA National Mechanical Code as listed in Appendix A, as applicable).

SECTION 704.0 NATURAL LIGHT

704.1 General: In the application of the provisions of this article, the standard of natural light for all habitable and occupiable rooms, unless otherwise specifically required by the provisions of Article 6 for special uses and occupancies, shall be based on 250 foot candles of illumination on the vertical plane adjacent to the exterior of the light transmitting device in the enclosure wall and shall be adequate

to provide an average illumination of 6 foot candles over the area of the room at a height of 30 inches above the floor level.

704.2 Minimum glazing area: Every room or space intended for human occupancy shall have an exterior glazing area of not less than 8 percent of the floor area. Natural light shall be provided by glazing areas which open onto courts or yards which comply with the requirements of Sections 710.0, 711.0 and 712.0, or by other approved means.

704.2.1 Adjoining spaces: Where natural light for rooms or spaces without exterior glazing areas is provided through an adjoining room, the unobstructed opening to the adjoining room shall be at least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The exterior glazing area shall be based on the total floor area being served.

704.3 Stairways: Interior stairways shall be provided with an exterior glazing area of not less than 10 square feet on every floor through which the stairway passes.

704.4 Hallways: Natural light shall be capable of penetrating the full length of the hallway.

SECTION 705.0 ARTIFICIAL LIGHT

705.1 General: Artificial light shall be capable of providing a minimum illumination as specified for natural light and may be substituted for the requirements for natural light.

SECTION 706.0 NATURAL VENTILATION

706.1 General: Natural ventilation of an occupied space shall be through windows, doors, louvers or other natural openings to the outdoor air.

Exception: All residential occupancies must have mechanical ventilation in bathrooms and toilets as specified in the BOCA National Mechanical Code listed in Appendix A.

706.2 Ventilation area required: The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated.

706.2.1 Adjoining spaces: Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the unobstructed opening to the adjoining rooms shall be at least 8 percent of the floor area of the interior room or space, but not less than 25 square feet. The ventilation openings to the outdoors shall be based on the total floor area being ventilated.

706.2.2 Openings below grade: Openings below grade shall be acceptable for natural ventilation provided the outside horizontal clear space measured perpendicular to the opening is one and one-half times the depth below the average adjoining grade.

706.3 Contaminants exhausted: Contaminants in the breathing atmosphere should be exhausted to the outdoor and in accordance with the BOCA National Mechanical Code listed in Appendix A.

706.4 Openings on yards or courts: Natural ventilation shall be provided by openings onto yards or courts which comply with the requirements of Sections 710.0, 711.0 and 712.0, or by other approved means.

SECTION 707.0 MECHANICAL VENTILATION

707.1 General: Mechanical ventilation shall conform to the requirements of the BOCA National Mechanical Code listed in Appendix A unless otherwise expressly defined within this Code and may be substituted for the requirements for natural ventilation.

Exception: The minimum amount of fresh outdoor air quantity for schools and office buildings shall be not less than 10 cfm per person. Recirculation of air supplied to kitchens, laboratories, toilet rooms, bathrooms, rest rooms, laboratories and garages shall not be permitted.

SECTION 708.0 ROOM DIMENSIONS

708.1 Ceiling heights: Habitable (spaces) rooms, other than kitchens, storage rooms and laundry rooms shall have a ceiling height of not less than 7 feet 3 inches. Hallways, corridors, bathrooms, toilet rooms, kitchens and habitable basements for use as a recreation room only shall have a ceiling height of not less than 7 feet measured to the lowest projection from the ceiling.

Exception: In buildings of Use Group R-3, the maximum projection below the required ceiling height of beams and girders spaced not less than 4 feet on center shall be 9 inches but in any case such projection shall not reduce the minimum free height, as measured from top of finish floor to underside of projection, to less than 6'-6".

708.1.1 Use Groups A, B, E and M: A clear height from finished floor to ceiling or lowest projection of not less than 7 feet 6 inches shall be provided in all exit access and occupiable rooms of structures of Use Group A, B, E and M.

708.1.2 Sloping ceilings: If any room in a building has a sloping ceiling, the prescribed ceiling height for the room is required in only one-half the area thereof. Any portion of the room measuring less than 5 feet from the finished floor to the finished ceiling shall not be included in any computation of the minimum area thereof.

708.1.3 Furred ceilings: If any room has a furred ceiling, the prescribed ceiling height is required in two-thirds of the area thereof, but the height of the furred ceiling shall not be less than 7 feet.

708.2 Floor area: Habitable rooms except kitchens shall have an area of not less than seventy (70) square feet between enclosing walls of partitions, exclusive of closet and storage spaces.

708.3 Width: A habitable room other than a kitchen shall not be less than 7 feet in any dimension.

SECTION 709.0 VENTILATION OF SPECIAL SPACES

709.1 Roof spaces: Enclosed attics, and enclosed rafter spaces formed where ceilings are applied direct to the underside of the roof rafters, shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain and snow, sized by the following criteria:

1. **With a ceiling vapor barrier installed:** attics with a ceiling vapor barrier shall be ventilated with screened openings of at least one (1) square foot of free vent area for each three hundred (300) square feet of ceiling area.
2. **Without a ceiling vapor barrier installed:** attics without a ceiling vapor barrier installed shall be ventilated with screened openings of at least one (1) square foot of free vent area for each one hundred and fifty (150) square feet of ceiling area.
3. **Flat roofs:** blocking and bridging shall be arranged so as not to interfere with the movement of air. Such roofs shall be ventilated along the overhanging eaves with at least one (1) square foot of free vent area for each two hundred and fifty (250) square feet of ceiling area.
4. **Eave vents:** when eave vents are installed, adequate baffling shall be provided to deflect the incoming air above the surface of the insulation. Baffles shall be installed prior to insulation, and shall be installed over the exterior wall at an angle to provide a two (2) inch minimum clearance under the roof deck for upward flow of ventilation air to the fixed vents in the upper portion of the attic. The ridge or gable vent must be at least three (3) feet above the level of the eave vents.

709.2 Underfloor space ventilation: Enclosed underfloor spaces shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain and snow, sized by the following criteria.

1. With a ground vapor barrier: underfloor spaces with a vapor barrier on the ground surface shall be ventilated with screened openings of one (1) square foot of vent area for each fifteen hundred (1500) square feet of crawl space.
2. Without a ground vapor barrier: underfloor spaces without a vapor barrier installed on the ground surface shall be ventilated with screened openings of one (1) square foot of vent area for each fifty (50) square feet of crawl space.

709.3 Alternative mechanical ventilation: Enclosed attic, rafter and crawl spaces which are not ventilated as herein required shall be equipped with a mechanical ventilation system conforming to the requirements of the BOCA National Mechanical Code listed in Appendix A.

709.4 Alcove rooms: When alcove rooms open without obstruction into adjoining rooms, the required window openings to the outer air shall be based on the combined floor area of room and alcove. An alcove space shall not be more than sixty (60) square feet in area and the opening to the adjoining room shall be not less than eighty (80) per cent of the superficial area of the dividing wall, unless provided with separate means of light and ventilation.

SECTION 710.0 COURTS

710.1 General: All courts required to serve rooms for natural light or ventilation purposes shall comply with the requirements of this section.

710.2 Minimum width: Every such court shall have a minimum width of 3 inches for each foot of height or fraction thereof, but not less than 5 feet for outer courts and twice these values for inner courts.

710.2.1 Irregular court width: In the case of irregular or gore shaped courts, the required minimum width of a court shall be the average width, provided that such a court shall not be less than 5 feet at any point.

710.3 Area of court: The cross-sectional area of a required court shall be not less than one and one-half times the square of its width; nor shall the length of any court be more than twice its width.

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710.4 Access to court: A door or other means of access shall be provided at the bottom of every court that is not otherwise conveniently accessible for purposes of cleaning.

710.5 Air intakes: Every court serving one or more habitable rooms that does not open for its full height on one or more sides to a street or legal yard shall be connected at or near the bottom with a street or yard by a horizontal intake or passage of fireresistive construction. Such intake or passage shall have a cross-sectional area of not less than 21 square feet and shall remain fully open at both ends and unobstructed for its full size and length, except that grilles of noncombustible construction are permitted at the ends of the intake.

710.5.1 Fireresistance rating: The walls, floors and ceilings of such intakes or passages shall have a fireresistance rating of not less than 2 hours in buildings of Types 1, 2, 3 or 4 construction and not less than 1 hour in Type 5 construction.

710.6 Court walls: When, in the opinion of the building official, windows facing on courts do not receive adequate direct light by reason of peculiar arrangement or orientation, the building official shall require the walls to be constructed of light colored masonry, or to be painted and maintained a light color to furnish additional reflected light, or shall require other approved means of providing additional light.

710.7 Court drainage: The bottom of every court shall be properly graded and drained to a public sewer or other approved disposal system complying with the plumbing code listed in Appendix G; and shall be paved with concrete or other nonabsorbent material when required by the building official.

SECTION 711.0 REAR YARDS

711.1 Use Groups R and I: At the rear of every building hereafter erected to be occupied as Use Group R-2, R-3 or I-3, there shall be maintained a yard of the minimum dimensions herein prescribed. When such yard serves as a required light and ventilation court, its minimum dimensions shall be those required for a court in this article.

711.1.1 Depth of yards: The depth of a required yard between the extreme rear of the building and the rear lot line shall be not less than 15 feet at any point for a height of 35 feet, and shall increase 4 inches in depth for each additional foot of height above that limit. For a corner lot, the minimum depth shall be not less than 10 feet. When the lot is less than 65 feet in depth, the required yard depth shall be reduced 6 inches for each foot less than 65 feet.

711.2 Other use groups: In buildings of other than Use Group R-2, R-3, or I-3, rear yards shall be provided to serve all habitable and occupiable rooms requiring

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light and ventilation from such source. The lowest level of such yards shall begin at the sill level of the second story windows, with a depth of not less than 10 feet for a height of 35 feet and shall increase 3 inches for each additional foot of height above that level.

SECTION 712.0 OBSTRUCTION OF COURTS AND YARDS

712.1 Permissible projections: Every required court and yard shall remain unobstructed for its required area and full height, except for the projections permitted in Section 508.0. In Use Groups R and I, clothes poles, arbors, garden trellises and other such accessories shall not be prohibited in the open spaces at ground level.

712.2 Motor vehicle parking: When approved, the use of required court and yard areas for automobile parking spaces or private garages not exceeding one story in height when accessory to and only for the use of the occupants of a Use Group R building is permitted, provided required windows for light and ventilation are not obstructed thereby.

SECTION 713.0 WINDOW CLEANING SAFEGUARDS

713.1 General: All buildings and structures shall be designed to comply with the Dept. of Labor and Industry's Rules and Regulations for the Prevention of Accidents in Window Cleaning, (Industrial Bulletin No. 21), 441 CMR 19.00.

SECTION 714.0 SOUND TRANSMISSION CONTROL IN RESIDENTIAL BUILDINGS

714.1 Scope: This section shall apply to all common interior walls, partitions and floor/ceiling assemblies between adjacent dwelling units or between a dwelling unit and adjacent public areas such as halls, corridors, stairs or service areas in all buildings of Use Group R.

714.2 Airborne noise: Walls, partitions and floor/ceiling assemblies separating dwelling units from each other or from public or service areas shall have a sound transmission class (STC) of not less than 45 for airborne noise when tested in accordance with ASTM E90 listed in Appendix A. This requirement shall not apply to dwelling unit entrance doors, but such doors shall be tight-fitting to the frame and sill.

714.3 Structure borne sound: Floor/ ceiling assemblies between dwelling units and between a dwelling unit and a public or service area within the structure shall have an impact insulation class (IIC) rating of not less than 45 when tested in accordance with ASTM E492 listed in Appendix A.

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714.4 Tested assemblies: When approved, assemblies of building construction listed in GA 600, NCMA TEK 69A and BIA TN 5A listed in Appendix A shall be accepted as having the STC and IIC ratings specified therein for determining compliance with the requirements of this section.

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ARTICLE 8

MEANS OF EGRESS

SECTION 800.0 GENERAL

800.1 Scope: The provisions of this article shall control the design, construction and arrangement of building elements required to provide a reasonably safe means of egress from all buildings and structures hereafter erected, and from all buildings hereafter altered to a new occupant load, or manner of use, or inherent fire hazard. Existing buildings and uses shall be controlled by the provisions of Section 804.0.

800.2 Modification of egress requirements: When strict compliance with the provisions of this code is not practical, the building official shall approve alternative means of egress which will accomplish the same purpose, by the procedure established in Article 1 for modification of this code, or by adoption of approved rules. Existing buildings shall not be occupied during repairs or alterations unless all existing means of egress and any existing fire protection are continuously maintained, or in lieu thereof, other measures are taken which will provide equivalent safety.

800.3 Minimum requirements: It shall be unlawful to alter any building or structure in any manner that will reduce the number of exits or the capacity of exits below the requirements of this code for new buildings of the proposed use and occupancy.

SECTION 801.0 PLANS AND SPECIFICATIONS

801.1 Arrangement of egress: The plans shall show in sufficient detail the location, construction, size and character of all exits together with the arrangement of aisles, corridors, passageways and hallways leading thereto in compliance with the provisions of this code.

801.2 Number of occupants: In other than buildings of Use Groups R-2 and R-3, the plans and the application for a permit shall designate the number of occupants to be accommodated on every floor, and in all rooms and spaces when required by the building official. When not otherwise specified, the minimum number of occupants to be accommodated by the exits shall be determined by the occupant load prescribed in Section 806.0. The posted occupant load of the building shall be limited to that number.

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SECTION 802.0 USE AND OCCUPANCY REQUIREMENTS

802.1 New buildings: Every building and structure and part thereof hereafter erected shall have the prescribed number of exits of one or more of the approved types defined in this article. Exits, in combination with the exit access and exit discharge, shall provide safe and continuous means of egress to a street or to an open space with direct access to a street.

802.2 Mixed use groups: Where a building is occupied for two or more uses, the means of egress requirements shall apply to each portion of the building based on the use of that space.

802.3 Multiple tenants: When more than one tenant occupies any one floor of a building or structure, each tenant shall be provided with direct access to approved exits.

SECTION 803.0 PROHIBITED USE

803.1 General: Exits and exit access corridors shall not be used as supply or return air ducts or plenums.

Exception: The restriction on the use of the space between the corridor ceiling and the floor or roof structure above as a return air plenum shall not apply when the corridor is not required to be of fireresistance rated construction or is separated from the plenum by fireresistance rated construction or is located within a dwelling unit.

SECTION 804.0 EXISTING BUILDINGS

804. 1 Owner responsibility: The owner or lessee of every existing building and structure shall be responsible for the safety of all persons in, or occupying, such premises with respect to the adequacy of means of egress therefrom.

804.2 Unsafe 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 inadequate for safety by the building official, **the building official shall issue an exit order in the form of a violation notice.**

804.2.1 Appeal from exit order: Within seven days after the service of the exit order of the building official, the owner shall have the right to file a written appeal therefrom, and the building official shall appoint a board of survey as required in Section 124.0 to make a determination.

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SECTION 805.0 MAINTENANCE OF EXITS

805.1 Obstructions: It shall be unlawful to obstruct, or reduce in any manner, the clear width of any doorway, hallway, passageway or other means of egress required by the provisions of this code.

805.2 Maintenance: All required means of egress components shall at all times be maintained in a safe usable condition. All exterior stairways, fire escapes, egress balconies and bridges shall be kept free of snow and ice. All corrodible structural parts thereof shall be kept painted, or otherwise protected against rust and corrosion both before and after erection. All wood structural members shall be maintained to prevent rotting and decaying. Where these elements tie directly into the building structural system, all joints shall be sealed to prevent water from damaging or corroding the structural elements.

805.3 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 (5) years, by a Massachusetts Registered Professional Engineer, or others qualified and acceptable to the building official, who shall then submit an affidavit to the building official.

SECTION 806.0 OCCUPANT LOAD

806.1 Design occupant load: In determining required facilities, the number of occupants for whom exit facilities shall be provided shall be established by the largest number computed in accordance with each of Sections 806.1.1 through 806.1.3.

806.1.1 Actual number: The actual number of occupants for which each occupied space, floor, or building is designed.

806.1.2 Number by Table 806: The number of occupants computed at the rate of one occupant per unit of area as prescribed in Table 806.

806.1.3 Number by combination: The number of occupants of any space as computed in Sections 806.1.1 or 806.1.2 plus the number of occupants similarly computed for all spaces that discharge through the space in order to gain access to an exit.

806.1.4 Increased occupant load: The occupant load permitted in any building or portion thereof is permitted to be increased from that number established for the given use by Table 806 when all other requirements of the code are also met based on such modified number. Where required by the building official, an approved aisle, seating, or fixed equipment diagram to substantiate any increase in occupant load

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shall be submitted. Where required by the building official, such diagram shall be posted.

806.1.5 Maximum occupant load: The occupant load of any space or portion thereof shall not exceed one occupant per 3 square feet of occupiable floor space.

806.1.6 Fixed seats: The occupant load for an assembly or educational area having fixed seats shall be determined by the number of fixed seats installed. The capacity of fixed seats without dividing arms shall equal one person per 18 inches. For booths, the capacity shall be one person per 24 inches.

806.2 Mezzanine levels: The occupant load of a mezzanine level discharging through a floor below shall be added to that floor's occupant load, and the capacity of the exits shall be designed for the total occupant load thus established.

806.3 Roofs: Roof areas occupied as roof gardens or for assembly, educational, storage or other purposes shall be provided with exit facilities to accommodate the required occupant load, but there shall not be less than two approved means of egress from roof areas of Use Groups A and E.

SECTION 807.0 TYPES AND LOCATION OF MEANS OF EGRESS

807.1 General: All approved means of egress, including doorways, passage ways, corridors, interior stairways, exterior stairways, escalators, smokeproof enclosures, ramps, horizontal exits, bridges, balconies, fire escapes and combinations thereof shall be arranged and constructed as provided in this code.

807.2 Arrangement: All required exits shall be so located as to be discernable and accessible with unobstructed access thereto.

807.2.1 Egress through adjoining spaces: Egress from a room or space shall not open into an adjoining or intervening room or area, except where such adjoining room or area is accessory to the area served, is not a high hazard use and provides a direct means of egress to an exit. A maximum of one exit access shall be permitted to pass through a kitchen, storeroom, restroom, closet or similar space provided that it is not the only means of access to an exit. An exit access shall not pass through a room subject to locking.

**Table 806
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT**

Use	Floor area in square feet per occupant
Assembly with fixed seats Assembly without fixed seats Concentrated (chairs only-not fixed) Standing space Unconcentrated (tables and chairs)	See Section 806.1.6 7 net 3 net 15 net
Bowling alleys, allow 5 persons for each alley including 15 feet of runway, and for additional areas Business areas	7 net 100 gross
Court rooms-other than fixed seating areas Educational Classroom area Shops and other vocational room areas	40 net 20 net 50 net
Industrial areas Institutional areas Inpatient treatment areas Outpatient areas Sleeping areas	100 gross 240 gross 100 gross 120 gross
Library Reading rooms Stack area	50 net 100 gross
Mercantile, basement and grade floor areas Areas on other floors Storage, stock, shipping areas Parking garages	30 gross 60 gross 300 gross 200 gross
Residential Storage areas, mechanical equipment room	200 gross 300 gross

807.2.2 Assembly buildings: All buildings used for assembly purposes shall front on at least one street on which the main entrance and exit discharge shall be located. Where there is a single main entrance, the entrance shall be capable of serving as the main exit and shall provide an egress capacity for at least one-half of the total occupant load. In addition to having access to a main exit, each level of a building of Use Group A shall be provided with additional exits which shall provide an egress capacity for at least two-thirds of the total occupant load served by that level.

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Table 807
LENGTH OF EXIT ACCESS TRAVEL (IN FEET)^a

Use group	Without fire suppression system	With fire suppression system
A, B, E, F-1, M, R, S-1	200	250
F-2, S-2	300	400
H	-	75
I-2, I-3	150	200

Note a. See the following sections for modifications to travel distance requirements.
 Section 601.4.1: For the exit access travel distance limitation in covered malls.
 Section 602.3.1.4.5: For the exit access travel distance limitation in high-rise buildings under the automatic fire suppression system alternatives.
 Section 603.1.4: For the exit access travel distance limitation in HPM use facilities.
 Section 606.2.4: For the exit access travel distance limitation through an atrium space.
 Section 626.9: For the exit access travel distance limitation in temporary structures,
 Section 807.5.1: For increased limitation in Use Groups F and S.
 Section 807.5.2: For increased limitation in Use Group A-5.
 Section 809.3: For buildings with one exit,

807.2.3 Skating rinks: Places of assembly used for skating rinks shall not be located below the floor nearest grade.

807.2.4 Foyers and waiting spaces: The term "foyer" shall mean an enclosed space surrounding or in the rear of the auditorium of a theater or other place of assembly which is completely separated from the auditorium and is used as an assembly or waiting space for the occupants. In Use Group A-1, a foyer, waiting space, or lobby shall be provided with a net floor area, exclusive of stairs or landings, of not less than 1 1/2 square feet for each occupant having access thereto. The use of foyers and lobbies and other available spaces for harboring occupants until seats become available shall not encroach upon the clear floor area herein prescribed or upon the required clear width of front exits.

807.2.4.1 Egress: When the foyer is not directly connected to the public street through the main lobby, an unobstructed corridor or passage shall be provided which leads to, and equals the required minimum width of, main entrances and exits. A mirror shall not be placed so as to give the appearance of a doorway, exit or passageway.

807.2.4.2 Gradient: The rear foyer shall be at the same level as the back of the auditorium and the means of egress leading therefrom shall not have a steeper gradient than one unit vertical in eight units horizontal (1:8).

807.2.4.3 Construction: The partitions separating the foyer from the auditorium and other adjoining rooms and spaces of a theater shall be constructed of not less than 2-hour fireresistance rating. Where opening protectives are constructed of noncombustible materials, fireresistance rating of the opening protectives is not required.

807.3 Exit discharge: All exits shall discharge directly at a public way or at a yard, court or open space of the required width and size to provide all occupants with a safe access to a public way.

807.3.1 Level of exit discharge protection: In all buildings having habitable or occupiable stories or basements below grade, the floor/ceiling assemblies and supports below the level of exit discharge shall provide a fireresistance rating of not less than 1 hour.

Exceptions:

1. Buildings of Use Group R-3.
2. Buildings of Type 1 construction.
3. When such floor/ceiling assemblies and supports are constructed of Type 4 construction.
4. When the floor areas below the level of exit discharge are equipped throughout with an approved automatic fire suppression system.

807.4 Remote location: Whenever more than one exit is required from any room, space or floor of a building, they shall be placed as remote from each other as practicable, and shall be arranged and constructed to provide direct access in separate directions from any point in the area served so as to minimize the possibility that both would be blocked by any one fire or other emergency condition.

807.4.1 Remoteness: Where two exits or two exit access doors are required, they shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served. Where exit enclosures are provided as a portion of the required means of egress and are interconnected by a corridor conforming to the requirements for corridor construction, the exit separation distance shall be measured along the line of travel within the corridor. In all other cases, the separation distance shall be measured in a straight line between exits or exit access doors.

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Exception: In buildings equipped throughout with an approved automatic fire suppression system, the minimum separation distance shall be one fourth the length of the maximum overall diagonal dimension.

807.4.1.1 Three or more: When three or more exits or exit access doors are required, at least two exits or exit access doors shall be separated as provided in Section 807.4.1.

807.5 Length of travel: Except as modified by provisions of Section 809.3 for buildings with one exit, all exits shall be so located that the maximum length of exit access travel, measured from the most remote point to an approved exit along the natural and unobstructed line of travel, shall not exceed the distances given in Table 807. In single exit buildings covered by Section 809.3, where the area is subdivided into rooms or compartments, and the egress travel in the room or compartment is not greater than 50 feet or 100 feet in buildings equipped throughout with an approved automatic fire suppression system, the exit access travel distance shall be measured from the exit access entrance to the nearest exit.

807.5.1 Roof vent increase: In buildings of Use Group F or S, one story in height, equipped with automatic heat and smoke roof vents complying with Section 930.0 and equipped throughout with an approved automatic fire suppression system, the exit access travel distance limitation in Table 807 shall be increased to 400 feet.

807.5.2 Use Group A-5: Buildings and structures of Use Group A-5, where all portions of the means of egress are essentially open to the outside, shall have an exit access travel distance of not more than 400 feet, except that such buildings and structures of Type 1 or 2 construction shall not have an exit access travel distance limit.

807.6 Elevators: Elevators shall not be accepted as a required element of the means of egress.

SECTION 808.0 CAPACITY OF EGRESS COMPONENTS

808.1 General: The capacity of means of egress for a floor, balcony, tier or other occupied space shall be sufficient for the occupant load thereof.

808.2 Minimum width: The width of each means of egress component shall not be less than the width computed in accordance with Table 808 for the required capacity of the component, but not less than the minimum width as prescribed by this code for each such component.

**Table 808
EGRESS WIDTH PER OCCUPANT**

Use group	Without fire suppression system (inches per person)		With fire suppression system (inches per person)	
	Stairways	Doors, ramps and corridors	Stairways	Doors, ramps and corridors
A, B, E, F, M, R, S	0.3	0.2	0.2	0.15
H	-	-	0.3	0.2
DELETED	-	-	-	-
I-2	1.0	0.7	0.6	0.5
I-3	0.3	0.2	0.3	0.2

808.3 Exit design per floor: Where exits serve more than one floor, only the occupant load of each floor considered individually shall be used in computing the required capacity of the exits at that floor, provided that the exit capacity shall not decrease in the direction of egress travel.

808.4 Egress convergence: When means of egress from floors above and below converge at an intermediate floor, the capacity of the means of egress from the point of convergence shall not be less than the sum of the two.

SECTION 809.0 NUMBER OF EXITS

809.1 General: The following general requirements apply to buildings of all use groups. Where more restrictive requirements are provided in this code, such requirements shall take precedence over the general provisions of this section.

809.2 Minimum number: Every floor area shall be provided the minimum number of approved independent exits as required by Table 809.2 based on the occupant load, except as modified in Section 809.3.

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**Table 809.2
MINIMUM NUMBER OF EXITS FOR OCCUPANT LOAD**

Occupant load	Minimum number of exits
500 or less	2
501 - 1000	3
over 1000	4

809.3 Buildings with one exit: Only one exit shall be required in buildings of the Use Groups and characteristics specified in Table 809.3.

**Table 809.3
BUILDINGS WITH ONE EXIT**

Use group	Max. height above grade	Max. size	Max. exit access travel distance	Min. fire-resistance rating of exit enclosure	Min. fire-resistance rating of opening protection
DELETED	-	-	-	-	-
B and S-2 ^a	2 stories	3,500 sq. ft. per floor	75 ft.	1 hour	1 hour

Note a. For the required number of exits for open parking structures, see Section 809.5.

809.3.1 Buildings with a single exit at level of exit discharge: Only one exit shall be required in stories at the level of exit discharge having an occupant load not exceeding 50 persons and an exit access travel distance not exceeding 75 feet in buildings of any use group; and in airport traffic control towers which comply with Section 616.0.

Exception: Buildings of Use Group R-3 are required to have two (2) exits at the level of exit discharge.

809.4 Emergency escape: Every sleeping room below the fourth story in buildings of Use Group R shall have at least one operable window or exterior door approved for emergency escape or rescue. The units shall be operable from the inside without the use of separate tools. Where windows are provided as a means of egress or rescue, the windows shall have a sill height not more than 44 inches above the floor. All egress or rescue windows from sleeping rooms shall have a minimum net clear opening of 5.7 square feet. The minimum net clear opening height dimension shall be 24 inches. The minimum net clear opening width dimension shall be 20 inches. Bars, grilles or screens placed over emergency escape windows shall be releasable or removable from the inside without the use of a key, tool or excessive force or special knowledge.

Exceptions:

1. The minimum net clear opening for grade floor windows shall be 5 square feet.
2. In buildings where the sleeping room is provided with a door to a corridor having access to two remote exits in opposite directions, an outside window or an exterior door for emergency escape from each such sleeping room is not required.
3. Buildings equipped throughout with a complete automatic fire suppression system.

809.5 Open parking structures: Parking structures shall have not less than two exits from each parking tier, except only one exit is required where vehicles are mechanically parked. Unenclosed vehicle ramps shall not be considered as required exits unless pedestrian facilities are provided. Interior exit stairways are not required to be enclosed.

SECTION 810.0 EXIT ACCESS PASSAGEWAYS AND CORRIDORS

810.1 Access passageway: Direct exit access shall be provided to required exits through continuous passageways, aisles or corridors, conveniently accessible to all occupants and maintained free of obstruction.

810.1.1 Use Group I-2: Every patient sleeping room in buildings of Use Group I-2 shall have an exit access door leading directly to an exit access corridor.

Exceptions: Direct corridor access is not required where:

1. There is an exit door opening directly to the outside from the room at ground level;
2. One adjacent room, such as a sitting room or anteroom, intervenes and all doors along the means of egress are equipped with nonlockable hardware in accordance with Section 610.4.2, and the intervening room is not used as an exit access for more than eight patient beds.

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3. A patient sleeping room is subdivided with nonfireresistance-rated, noncombustible partitions, provided that the arrangement allows for direct and constant visual supervision by nursing personnel and the suite complies with this section and Section 812.0. Such rooms which are so subdivided shall not exceed 5,000 square feet.

810.1.2 Turnstiles and gates: Access through turnstiles, gates, rails or similar devices shall not be permitted unless such a device is equipped to readily swing in the direction of exit travel under a total force of not more than 15 pounds.

810.1.3 Restrictions: The required width of passageways, aisles or corridors shall be maintained free of projections and restrictions; except that the minimum clear width resulting from doors opening into such spaces shall be one-half the required width. When fully open, the door shall not project more than 7 inches into the required width.

810.2 Dead ends: Exit access passageways and corridors in all stories which serve more than one exit shall provide direct connection to such exits in opposite directions from any point in the passageway or corridor, insofar as practicable. The length of a dead end corridor shall not be more than 20 feet.

810.3 Width: The minimum required width of passageways, aisles and corridors shall be determined by the greater of the following criteria:

1. 44 inches where serving an occupant load of greater than 50.
2. 36 inches where serving an occupant load of 50 or less.
3. 96 inches in buildings of Use Group I used for the movement of beds.
4. 72 inches in buildings of Use Group E with more than 100 occupants.
5. The width required for capacity as determined by Section 808.0.

Aisles shall conform to the requirements of this section or Section 826.0.

810.4 Enclosures: In buildings of other than Use Group I-2, all corridors serving as exit access shall be enclosed in fire separation walls having a fireresistance rating of at least 1 hour. Corridors in buildings of Use Group I-2 shall comply with Section 610.4. Tenant and dwelling unit separations which are also corridor walls shall comply with this section and the requirements of Table 401.

Exceptions:

1. In all uses other than Use Groups R-1 and R-2, a fireresistance rating is not required for exit access corridors serving 30 or fewer occupants.
2. A fireresistance rating is not required for corridors contained within a dwelling unit.

810.4.1 Automatic fire suppression system alternatives: When an approved automatic fire suppression system is installed and supervised in accordance with Section 1020.1, parts 1, 2 or 3, and has its water flow alarm device connected to an approved central station system, proprietary system or remote station system of the jurisdiction, a fire-resistance rating for exit access corridors, and tenant separation walls which are also corridor walls, is not required in Use Groups A, B, E, F, M, and S. In Use Groups R-1 and R-2, the corridor enclosure walls, and dwelling unit separation walls which are also corridor walls, shall have a fire-resistance rating of not less than 1/2 hour. Corridor walls, and dwelling unit separation walls which are also corridor walls, in Use Groups R-1 and R-2 shall be constructed tight to the underside of the ceiling directly above.

810.4.2 Opening protectives: All door assemblies from rooms opening onto a corridor required to be of fire-resistance rated construction shall be fire doors complying with Section 916.0.

SECTION 811.0 LEVEL OF EXIT DISCHARGE PASSAGEWAYS USED AS AN EXIT ELEMENT

811.1 Passageways: Every required interior and exterior exit element which does not adjoin a public way shall be directly connected to the public way or to an open court leading to the public way by an enclosed passageway at the level of exit discharge or other unobstructed exit element constructed as provided in this section.

811.2 Vestibule: Where an exit discharges into an interior vestibule, the vestibule shall be used for ingress and egress only, and the vestibule shall comply with Sections 811.2.1 and 811.2.2.

811.2.1 Depth and width: The vestibule depth from the exterior of the building is not greater than 10 feet and the width is not greater than 20 feet.

811.2.2 Separation: The vestibule is separated from the remainder of the level of discharge by self-closing doors and the equivalent of 1/4 inch thick wired glass in steel frames.

811.3 Lobby: Where an exit discharges into an interior lobby, located at the level of exit discharge, such lobby shall be provided with an automatic fire suppression system, and any other portion of the floor with access to the lobby shall be provided with an automatic fire suppression system or shall be separated therefrom in accordance with the requirements for the enclosure of exits.

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811.4 Width and height: The effective width of the passageway shall be not less than three-quarters of the aggregate width of all required exit stairways leading thereto and all required exit doorways opening into the passageway. Such passageway shall have a minimum width of 44 inches and a minimum clear ceiling height of 8 feet.

811.5 Maximum stairway limitations: Not more than 50 percent of the required stairways shall discharge through the same passageway. Multiple lobbies constructed in accordance with Section 811.3 located adjacent to one another shall be separated from each other in accordance with the requirements for enclosure of exits.

SECTION 812.0 MEANS OF EGRESS DOORWAYS

812.1 General: The requirements of this section shall apply to all doorways serving as a component or element of a means of egress from habitable and occupiable rooms: except as provided in Sections 816.6, 818.6.1, 818.6.2, 818.7.1 and 819.2.

812.2 Number of doorways: Every room or tenant space with an occupant load of more than 50 or in which the travel distance exceeds 75 feet shall have at least two egress doorways leading from the room or tenant space to an exit or corridor.

Exceptions:

1. --DELETED--
2. Boiler, incinerator and furnace rooms shall be provided two egress doorways when the area exceeds 500 square feet and individual fuel-fired equipment exceeds 400,000 Btuh input capacity. Doorways shall be separated by horizontal distance equal to not less than one-half of the diagonal dimension of the room. When two doorways are required by this exception, a fixed ladder access out of the room shall be permitted in lieu of one doorway.
3. In buildings of Use Group I-2, any room and any suite of rooms as permitted in Section 810.1.1, Exception No. 3, of more than 1,000 square feet, shall have at least two exit access doors remote from each other.

812.2.1 Entrance and egress doorways: Where separate doors are provided for entrance and egress use, the entrance door shall be clearly marked *ENTRANCE ONLY* in letters not less than 6 inches in height and legible from both inside and outside.

812.2.2 Location of doors: The required doorways opening from a room or space within a building and leading to an exit access shall be located as remote as practicable from each other and shall conform to Section 807.4.1. The distance of exit access travel from any point in a room or space to a required exit door shall not exceed the limitations of Section 807.5.

812.2.3 Door arrangement: Doors in series shall have a space between them of not less than 7 feet when measured in their closed positions.

Exception: Power-operated doors in buildings of Use Group R-3.

812.3 Size of doors: The minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a clear width of not less than 32 inches except that for door openings to resident sleeping rooms in buildings of Use Group I-3 and door openings within a dwelling unit the clear width shall be not less than 28 inches. The maximum width of a door leaf shall be 48 inches nominal. Means of egress doors in Use Group I used for the movement beds shall be at least 44 inches wide. The height of doors shall not be less than 6 2/3 feet, except that within a dwelling unit the height of the doors shall be not less than 6 1/2 feet.

Exception: An egress door serving a storage area of not more than 800 square feet and which is normally unoccupied shall have a maximum width of 10 feet.

812.4 Door hardware: All egress doors shall be of a side-hinged swinging type. All doors shall swing in the direction of egress when serving an occupant load of 50 or more persons or a high hazard occupancy. The door latch shall release when subjected to a 15-pound force. The door shall be set in motion when subjected to a 30-pound force. The door shall swing to a full open position when subjected to a 15-pound force. Forces shall be applied to the latch side.

Exceptions:

1. Private garages, factory and storage areas with an occupant load of 10 or less.
2. Horizontal sliding type doors complying with Section 611.4.2 shall be permitted in a means of egress in buildings of Use Group I-3.
3. Doors within or serving a single dwelling unit.
4. Revolving doors conforming to Section 813.0.
5. Horizontal sliding doors complying with Section 812.4.4.

812.4.1 Locks and latches: All egress doors shall be readily openable from the side from which egress is to be made without the use of a key or special knowledge or effort (for apartment houses/exterior doors and locks, also see Section 812.7).

Exceptions:

1. Key operation shall be permitted from a dwelling unit provided the key cannot be removed from the lock when the door is locked from the side from which egress is to be made.
2. Locking devices conforming to Section 610.4.2 shall be permitted in buildings of Use Group I-2.

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3. Locks conforming to Section 611.5 shall be permitted in buildings of Use Group I-3.
4. Egress doors from individual dwelling units and guest rooms of Use Group R having an occupant load of 10 or less shall be permitted to be equipped with a night latch, dead bolt or security chain, provided such devices are operable from the inside without the use of a key or tool and mounted at a height not to exceed 48 inches above the finished floor.
5. Special locking arrangements conforming to Section 812.4.1.2.

812.4.1.1 Flush and surface bolts: Manually-operated edge or surface mounted flush bolts and surface bolts are prohibited, except on doors not required for egress within a dwelling unit. When egress doors are used in pairs and approved automatic flush bolts are used, the door leafs having the automatic flush bolts shall not have a door knob or surface mounted hardware. The unlatching of any leaf shall not require more than one operation.

812.4.1.2 Special locking arrangements: In Use Groups A-3, A-4, B, E, F, I, M, S and R-1, protected throughout by an approved automatic fire suppression system, or an approved automatic fire alarm system, doors in a means of egress shall be unlocked or be equipped with approved egress control devices which shall unlock in accordance with items 1 through 7 below.

1. Actuation of the automatic fire suppression system, or automatic fire alarm system.
2. Loss of power to the egress control device.
3. Loss of power to the building.
4. Be capable of being unlocked manually by a signal from a required central control station on the premises.
5. The initiation of an irreversible and automatic process which will release the latch within 15 seconds when a force of not more than 15 pounds is applied for 1 second to the release device and not relock until the door has been opened and returned to the closed position for not less than 30 seconds. Any reopening of the door shall restart the 30-second relocking cycle. Any attempt to exit which exceeds 1 second must render the door operable. The time delay and the minimum relocking cycle time shall not be field-adjustable.

Exceptions:

1. An increase in the time delay to 30 seconds shall not be permitted except as approved by the building official.
2. An increase in the relocking cycle time to 45 seconds shall not be permitted except as approved by the building official.

6. Initiation of the irreversible process shall activate an audible alarm in the vicinity of the door.
7. A sign having block letters 1 inch in height shall be provided on the door above and within 12 inches of the release device stating *Keep pushing. This door will open in 15 seconds. Alarm will sound.*

812.4.2 Panic hardware: All doors equipped with latching devices in buildings of Use Groups A and E or portions of buildings used for assembly or educational purposes and serving rooms or spaces with an occupant load greater than 100 shall be equipped with approved panic hardware. Acceptable panic hardware will be a door latching assembly incorporating a device which causes the door latch to release and the leaf to open when a force of 15 pounds is applied in the direction of egress to a bar or panel, the activating portion of which extends not less than one-half the width of the door leaf, and applied at a height greater than 30 inches but less than 44 inches above the floor. The force shall be applied at the lock side of the door or 30 inches from the hinged side, whichever is farther from the hinge. Where fire door assemblies are required to have panic hardware, approved fire exit hardware shall be used.

812.4.3 Power-operated doors: Where egress doors are operated by power, such as doors with a photoelectric-actuated mechanism to open the door upon the approach of a person, or doors with power-assisted manual operation, the design shall be such that in the event of power failure the door is capable of being opened manually to permit egress travel or closed where necessary to safeguard means of egress. The forces required to open these doors manually shall not exceed those specified in Section 812.4 except that the force to set the door in motion shall not exceed 50 pounds. The door shall be so designed and installed that when a force is applied to the door on the side from which egress is made, it shall be capable of swinging from any position to the full use of the opening in which it is installed.

Exceptions:

1. Buildings of Use Group I-3.
2. Horizontal sliding doors complying with Section 812.4.4

812.4.4 Horizontal sliding doors: To be considered as components of a means of egress, horizontal sliding doors shall comply with all of the following criteria:

1. The door shall be power operated and be capable of being operated manually in the event of power failure; and
2. The door shall be openable from both sides without special knowledge or effort;
3. The force required to open the door shall not exceed 30 pounds to set the door in motion and 15 pounds to close the door or to open the door to the minimum required width;

4. The door shall be openable with a force not to exceed 15 pounds when a force of 250 pounds is applied perpendicular to the door adjacent to the operating device;
5. The door assembly shall comply with the applicable fireresistance rating and, when rated, shall be self-closing or automatic-closing by smoke detection, shall be installed in accordance with NFPA 80 as listed in Appendix A, and shall comply with Section 916.0;
6. The door assembly shall have a standby power supply;
7. The door shall open to the minimum required width within 10 seconds after activation of the operating device; and
8. The door assembly power supply shall be electrically supervised at a constantly attended location.

812.5 Security grilles: Horizontal sliding or vertical security grilles which are a part of a required means of egress shall be openable from the inside without the use of a key or special knowledge or effort when the space is occupied. The grilles shall remain secured in the full open position during the period of occupancy by the general public. Grilles shall not be brought to the closed position when there are more than ten persons occupying spaces served by a single exit or 50 persons occupying spaces served by more than one exit. When two or more exits are required, not more than one-half of the exits shall be equipped with horizontal sliding or vertical grilles.

812.6 Level of exit discharge doors: Where glazed, doors at the level of exit discharge shall be glazed with approved safety glazing. Approved doors having one or more unframed edges shall be constructed of safety glazing not less than 1/2 inch thick.

812.7 Apartment houses; exterior doors and locks: Refer to Chapter 143, Section 3R of Massachusetts General Law.

SECTION 813.0 REVOLVING DOORS

813.1 General: All revolving doors shall comply with Sections 813.2 through 813.5. Revolving doors to be considered a component of a means of egress shall comply with Sections 813.2 through 813.6.

813.2 Collapse: Each revolving door shall be capable of collapsing into a book-fold position with parallel egress paths having an aggregate width of not less than 36 inches. The revolving door shall collapse when a force of not more than 180 pounds is applied within 3 inches of the outer edge of a wing.

Exception: The maximum collapsing force shall not apply if the force required to collapse the door is reduced to not more than 130 pounds when:

1. There is a power failure or power is removed to the device holding the wings in position.
2. There is an actuation of the automatic sprinkler system when such system is provided.
3. There is an actuation of a smoke detection system which is installed to provide coverage in all areas within the building which are within 75 feet of the revolving doors.
4. There is the actuation of a manual control switch which reduces the holding force to not more than the 130-pound force level. Such switch shall be in an approved location and shall be clearly identified.

813.3 Dispersal area: A revolving door shall not be located within 10 feet of the foot or top of stairs or escalators. A dispersal area shall be provided between the stairs or escalators and the revolving doors.

813.4 Speed control: The revolutions per minute for a revolving door shall not exceed the speeds indicated in Table 813.4.

**Table 813.4
REVOLVING DOOR SPEED**

Inside diameter	Power-driven type speed control (rpm)	Manual-type speed control (rpm)
6'6"	11	12
7'0"	10	11
7'6"	9	11
8'0"	9	10
8'6"	8	9
9'0"	8	9
9'6"	7	8
10'0"	7	8

813.5 Adjacent area: Each revolving door shall have a conforming side-hinged swinging door in the same wall as, and within 10 feet of, the revolving door.

Exception: The adjacent swinging door is not required for street floor elevator lobbies if a stairway, escalator, or door from other parts of the building does not discharge through the lobby and the lobby does not have any occupancy or use other than as a means of travel between the elevators and street.

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813.6 Means of egress: A revolving door to be considered as a component of a means of egress shall comply with Sections 813.2 through 813.5 and the following conditions:

1. Revolving doors shall not be given credit for more than 50 percent of the required exit capacity of the building.
2. Each revolving door shall not be credited with more than a 50-person capacity.
3. Each revolving door shall be capable of being collapsed when a force of not more than 130 pounds is applied within 3 inches of the outer edge of a wing.

SECTION 814.0 HORIZONTAL EXITS

814.1 General: Horizontal exits as herein defined shall be accepted as an approved element of a required means of egress when complying with the requirements of this article. The connection between the areas of refuge as herein specified shall be accomplished by protected openings in a fireresistance rated wall, by a vestibule, or by an open-air balcony or bridge.

814.2 Separation: The separation between fire areas shall be provided by at least a 2-hour fireresistance rated fire wall or fire separation wall complying with Article 9 and Table 401.

814.2.1 Opening protectives: All doorway opening protectives shall be fire doors complying with Section 916.0. All doors shall swing in the direction of egress travel. When serving as a dual element of a means of egress, there shall be adjacent openings with swinging fire doors opening in opposite directions.

814.3 Size of doors: Size of openings in fire walls and fire separation walls shall comply with the provisions of Sections 909.0 and 910.0.

814.4 Area of refuge: The discharge area of a horizontal exit shall be either public areas or spaces occupied by the same tenant, and each such area of refuge shall be adequate to house the total occupant load of both connected areas. The capacity of areas of refuge shall be computed on a minimum net floor area allowance for each occupant to be accommodated therein, not including areas of stairs, elevators and other shafts or courts, as follows:

1. At least 30 square feet per patient for hospitals and nursing homes.
2. On stories not housing bed or litter patients in buildings of Use Group I-2, and in all buildings of Group I-3, 6 square feet.
3. 3 square feet in all other cases.

814.5 Unlocked doors: All horizontal exit doors shall be readily openable from the side or sides from which egress is to be made without the use of a key or special knowledge or effort.

814.6 Stairway exit: In multi-story buildings of other than Use Group I-3, there shall be at least one interior enclosed stairway or smokeproof enclosure on each side of the horizontal exit, and any fire area not having a stairway accessible thereto shall be considered as part of an adjoining section with such stairway; but the length of exit access travel distance to the horizontal exit or the required exit shall not exceed the requirements of Section 807.5. Buildings of Use Group I-3 shall conform to Section 611.4.3.

814.7 Auxiliary elevator: When horizontal exits are provided in floors located 12 or more stories above the level of exit discharge, the required stairway shall be supplemented by at least one passenger elevator maintained ready for use during normal occupancy of the building.

SECTION 815.0 RAMPS

815.1 Capacity: The capacity of a ramp used as an egress component shall be computed in accordance with Section 808.0.

815.2 Minimum dimensions: The minimum dimensions of egress ramps shall comply with Sections 815.2.1 through 815.2.3.

815.2.1 Width: The minimum width of an egress ramp shall be not less than that required for corridors by Section 810.3.

815.2.2 Headroom: The minimum headroom in all parts of the egress ramp shall be not less than 6 feet 8 inches.

815.2.3 Restrictions: Egress ramps shall not reduce in width in the direction of egress travel. Projections into the required ramp and landing width are prohibited except for handrails and stringers. Doors opening onto a landing shall not reduce the clear width to less than 42 inches.

815.3 Maximum slope: The maximum slope of egress ramps shall be one unit vertical in 8 units horizontal (1:8); except ramps required for the physically handicapped according to Section 512.0, in which case the maximum slope shall be one unit vertical in 12 units horizontal (1:12).

815.4 Landings: Landings shall be provided at all points of turning, entrance and exit and at doors. Ramps with a slope of greater than one unit vertical in ten units horizontal (1:10) shall not have a vertical rise of greater than 12 feet between

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landings. Ramps required for the physically handicapped according to Section 512.0 shall not have a vertical rise greater than 30 inches between landings. All landings shall have a minimum length of 60 inches.

815.5 Guards and handrails: Guards shall be provided on both sides and constructed in accordance with Section 827.0. Handrails conforming to Section 828.0 shall be provided on at least one side of every ramp having a slope greater than one unit vertical in 12 units horizontal (1:12). Ramps required by Section 512.0 for the physically handicapped shall have handrails on both sides of the ramp whenever the vertical rise between landings exceeds 6 inches.

815.6 Ramp construction: Ramps used as an exit shall conform to the applicable requirements of Section 816.9 as to materials of construction and enclosure.

815.6.1 Surface: For all slopes exceeding one unit vertical in 12 units horizontal (1:12) and wherever the use is such as to involve danger of slipping, the ramp shall be surfaced with approved slip-resistant materials.

SECTION 816.0 INTERIOR STAIRWAYS

816.1 Capacity: The capacity of stairways and doors shall be computed in accordance with Section 808.0.

816.2 Minimum dimensions: The minimum dimensions of interior exit stairways shall comply with Sections 816.2.1 through 816.2.3.

Note: All stairways, whether such stairways serve as a part of a required means of egress or not, shall conform dimensionally to Sections 816.2, 816.3, 816.4, 816.5, 816.7 and/or 816.11 as applicable.

816.2.1 Width: All interior exit stairways shall be not less than 44 inches in width.

Exceptions:

1. Exit stairways in buildings of single exit construction where permitted by Section 809.3 shall be not less than 36 inches in width.
2. Spiral stairways as provided in Section 816.7.
3. Exit stairways in buildings of Use Group R-3 shall not be less than 36 inches in width.
4. Exit stairways serving and contained within a single residential dwelling unit shall be not less than 36 inches in width.
5. Exit stairways in buildings having a total occupant load of 50 or less shall be not less than 36 inches in width.

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816.2.2 Headroom: The minimum headroom in all parts of the stair enclosure shall be not less than 6 feet 8 inches measured vertically from the tread nosing or from the floor surface of the landing or platform.

816.2.3 Restrictions: Stairways shall not reduce in width in the direction of exit travel. Projections into a stairway width are prohibited, except for handrails as indicated in Section 828.2.1 and for stairway stringers which shall project not more than 1 1/2 inches at each side.

816.3 Landings and platforms: Landings and platforms of interior exit stairways shall comply with Sections 816.3.1 and 816.3.2.

816.3.1 Width: The least dimension of landings and platforms shall be not less than the required width of stairway.

816.3.2 Vertical rise: In all buildings, a stairway shall not have a height of vertical rise of more than 12 feet between landings and intermediate platforms.

816.4 Treads and risers: Treads and risers of interior exit stairways shall comply with Sections 816.4.1 through 816.4.3.

816.4.1 Limiting dimensions: Maximum riser height shall be 7 inches and minimum riser height shall be 4 inches. Minimum tread depth shall be 11 inches, measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge.

Exceptions:

1. Winders in accordance with Section 816.4.3.
2. Spiral stairways in accordance with Section 816.7.
3. Circular stairways in accordance with Section 816.7.1.
4. Stairways serving as aisles in assembly seating areas where the stairway pitch or slope is set, for sightline reasons, by the slope of the adjacent seating area.
5. --DELETED--
6. Existing stairways.
7. In Use Group R-3 and within dwelling units in Use Group R-2, the maximum riser height shall be 8 1/4 inches and the minimum tread depth shall be 9 inches.

816.4.2 Dimensional uniformity: There shall not be variation exceeding 3/16 inch in the depth of adjacent treads or in the height of adjacent risers. The tolerance between the largest and smallest riser or between the largest and smallest tread shall not exceed 3/8 inch in any flight of stairs.

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Exceptions:

1. Where the bottom riser adjoins a sloping public way, walk or driveway having an established grade and serving as a landing, a variation in height of the bottom riser shall not exceed 3 inches in every three feet of stairway width.
2. On stairways serving as aisles in assembly seating, where necessitated by changes in the gradient of adjoining seating areas to maintain adequate sightlines, the maximum nonuniformity of riser heights within a flight and the nonuniformity between adjacent risers shall not apply. Where a nonuniformity exceeds 3/16 inch between adjacent risers, the exact location of the nonuniformity shall be indicated with a distinctive marking stripe on each tread at the nosing or leading edge adjacent to the nonuniform risers.
3. On stairways serving as aisles in assembly seating, where smaller intermediate steps are provided between larger treads level with seating platforms, such smaller intermediate steps shall have a uniform tread depth of not less than 13 inches.

816.4.3 Winders: Winders shall not be permitted in required exit stairways except in Use Group R-3 and stairways serving a single dwelling unit and in ornamental stairways not required as an element of an exit. Such winders shall have a tread depth of not less than 9 inches at a point not more than 12 inches from the side where the tread is narrower and the minimum tread depth shall not be less than 6 inches.

816.5 Stairway guards and handrails: Stairways shall have continuous guards and handrails on both sides, and in addition thereto, stairways more than 88 inches in required width shall have intermediate handrails dividing the stairway into portions not more than 88 inches wide. Only one handrail is required on stairways having a width of less than 44 inches. Guards shall be constructed in accordance with Section 827.0. Handrails shall be constructed in accordance with Section 828.0.

816.6 Stair exit doors: Stairway exit doors shall comply with Sections 816.6.1 through 816.6.3.

816.6.1 Width: The minimum required width of every exit door to or from a stairway shall be determined by the greater of the following criteria;

1. 28-inch clear width in buildings of Use Group R-3.
2. 36-inch minimum width of door leaf in buildings of Use Group I-2.
3. 32-inch clear width in all other cases.
4. The width required for the capacity of the stairway which serves the floor area from which the exit door leads.

816.6.2 Direction of swing: All doors shall swing on a landing in the direction of egress travel. When opening, stair exit doors shall not reduce the width of landings to less than one-half the required width. When fully open, the exit door shall not project more than 7 inches onto the landing.

Exception: Doors leading from a room or tenant space to a stairway in buildings in which only one exit is required are not required to swing in the direction of egress travel.

816.6.3 Door construction: All doorway opening protectives shall be fire doors complying with Section 916.0. Labeled fire doors shall have a maximum transmitted temperature end point of not more than 450 degrees F. (232 degrees C.) above ambient at the end of 30 minutes of standard fire test exposure.

816.7 Spiral stairways: Spiral stairways shall not be used as an element of a means of egress except in buildings of Use Group R-3 and within a single dwelling unit and from a mezzanine area not more than 250 square feet in area and serving not more than five occupants. The minimum width shall be 26 inches with each tread having a 7 1/2 inch minimum tread width at 12 inches from the narrow edge. All treads shall be identical and the rise shall be not more than 9 1/2 inches. A minimum headroom of 6 feet 6 inches shall be provided.

816.7.1 Circular stairways: Circular stairways shall not be used as an element of a means of egress except where a minimum tread depth and maximum riser height are provided in accordance with Section 816.4.1 and the smaller radius is not less than twice the width of the stairway.

816.8 Supplemental stairways: Stairways which are not a required means of egress element, serve one adjacent floor, are not connected with an exit access corridor, and are not connected with a stairway serving other floors, are permitted in all use groups except Use Group I (also see Section 816.2).

816.9 Stairway construction: All required interior stairways shall be built of materials consistent with the types of materials permitted in Table 401 for the type of construction of the building; except that wood handrails shall be permitted for all types of construction. Such stairways shall have solid treads and landing platforms, and all finish floor surfaces shall be of slip-resistant materials.

816.9.1 Strength: All stairways, platforms, landings and exits in other than buildings of Use Group R-3 shall be adequate to support a live load of 100 pounds per square foot and a concentrated load of 300 pounds.

816.9.2 Enclosures: Required interior exit stairways shall be enclosed in fire separation assemblies of the fire-resistance rating specified in Table 401. An exit

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enclosure shall not be used for any purpose other than means of egress. A space below a stairway shall be enclosed as required or kept open. Only exit doors shall open into the stairway enclosure.

Exceptions:

1. This section shall not apply to exits in buildings of Use Group R-3.
2. This section shall not apply to exits serving and contained within a single residential dwelling unit.
3. This section shall not apply to supplemental stairways as provided in Section 816.8.
4. This section shall not apply to exits in open parking structures as provided in Section 809.5.
5. The minimum required fire-resistance rating for exit enclosures connecting three floor levels or less shall be 1 hour.

816.10 Discharge identification: Stairways which continue beyond the level of exit discharge shall be interrupted at the level of exit discharge by partitions, doors or other effective means of preventing persons from continuing past the floor of discharge while egressing. A sign shall be provided at each floor landing in all interior stairways connecting more than three stories designating the floor level above and below the level of exit discharge.

816.11 Alternating tread stairways: Alternating tread stairways of noncombustible construction are permitted as an element of a means of egress in buildings from a mezzanine area not more than 250 square feet in area and serving not more than 5 occupants. Alternating tread stairways are also permitted for access to roofs as provided in Section 817.0.

816.11.1 Handrails of alternating tread stairways: Stair handrails shall be provided on both sides of alternating tread stairways and shall conform to Section 828.0.

816.11.2 Treads of alternating tread stairways: Alternating tread stairways shall have a minimum projected tread of 5 inches, a minimum tread depth of 8 1/2 inches, a minimum tread width of 7 inches and a maximum riser to the next surface of the alternating tread of 9 1/2 inches. The initial tread of the stairway shall begin at the same elevation as the platform, landing or floor surface.

Exception: Alternating tread stairways of noncombustible construction used as an element of a means of egress in buildings from a mezzanine area not more than 250 square feet in area and serving not more than 5 occupants shall have a minimum projected tread of 8 1/2 inches with a minimum tread depth of 10 1/2 inches. The rise to the next alternating tread surface shall not be more than 8 inches.

SECTION 817.0 ACCESS TO ROOF

817.1 By stairway or ladder: In buildings more than three stories in height except those with a roof slope greater than four units vertical in 12 units horizontal (4:12), access to the roof shall be provided by means of a stairway, an alternating tread stair in accordance with Section 816.11 or a ladder and trap door. The ladder shall not be on the exterior of the building. Where the roof is used as a roof garden or for other habitable purposes, sufficient stairways shall extend to the roof to provide the necessary exit facilities from the roof as required for such occupancy. Roof trap doors shall be constructed to comply with Section 927.2.

817.1.1 Optional stairway or ladder: In buildings not required to have a stairway, alternating tread stair or ladder to the roof, such devices, if provided, shall conform to the provisions of this section. Ladders placed on the exterior of the building shall be metal, and if exceeding 20 feet in height, shall have a protective cage or other safety device. The siderails of exterior ladders shall be carried over the coping or parapet to afford handhold. Other design details of such exterior ladders are subject to approval.

817.2 Roof enclosures: Stairways extending through roofs shall be enclosed in roof structures of fireresistance rated construction meeting the requirements of Section 927.0.

Section 818.0 SMOKEPROOF ENCLOSURES

818.1 General: A smokeproof enclosure shall consist of an interior exit stairway conforming to Section 816.0, enclosed from the highest point to the lowest point, and meeting the requirements of this section. When access to the roof is required by Section 817.0, such access shall be from the smokeproof enclosure where a smokeproof enclosure is required.

818.2 Where required: At least one of the required exits shall be a smokeproof enclosure in buildings having floors used for human occupancy located more than 70 feet above the lowest level of fire department vehicle access.

Exceptions: None

818.3 Access: Access to the smokeproof enclosure shall be from every story and shall be by way of a vestibule or by way of an open exterior balcony.

818.4 Outlet: The smokeproof enclosure shall discharge into a street, yard or open court with direct access to a public way, or into a level of exit discharge passageway leading to a public way. The level of exit discharge passageway shall be without other

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other openings and shall be separated from the remainder of the building by 2-hour fireresistance rated construction.

818.5 Construction; The walls of the smokeproof enclosure and the vestibule shall provide a 2-hour fireresistance rating without openings other than the required doorways. The open exterior balcony shall be constructed in accordance with the fireresistance rating requirements for floor construction.

818.6 Smokeproof enclosure by natural ventilation: The provisions of Sections 818.6.1 through 818.6.4 shall apply to ventilation of smokeproof enclosures by natural means.

818.6.1 Balcony doors: Where access to the smokeproof enclosure is by way of an open exterior balcony, the door assembly into the enclosure shall be a fire door complying with Section 916.0.

818.6.2 Vestibule doors: Where access to the smokeproof enclosure is by way of a vestibule, the door assembly into the vestibule shall be a fire door complying with Section 916.0. The door assembly from the vestibule to the stairs shall have not less than a 20-minute fireresistance rating complying with Section 916.0.

818.6.3 Vestibule ventilation: Each vestibule shall have a minimum net area of 16 square feet of opening in a wall facing an outer court, yard, or public way at least 20 feet in width.

818.6.4 Vestibule size: The minimum dimension of the vestibule shall be not less than the required width of the corridor leading to the vestibule.

818.7 Smokeproof enclosure by mechanical ventilation: The provisions of Sections 818.7.1 through 818.7.8 shall apply to ventilation of smokeproof enclosures by mechanical means.

818.7.1 Vestibule doors: The door assembly from the building into the vestibule shall be a fire door complying with Section 916.0. The door assembly from the vestibule to the stairway shall have not less than a 20-minute fireresistance rating complying with Section 916.0. The door to the stairway shall be provided with a drop sill or other provisions to minimize air leakage.

818.7.2 Vestibule size: The vestibule shall have a minimum width of 44 inches and a minimum length of 72 inches in the direction of exit travel.

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818.7.3 Vestibule ventilation: The vestibule shall be supplied with not less than one air change per minute, and exhausted at a rate sufficient to maintain an underpressure relative to the atmosphere of 0.05 inch of water column, and of 0.10 inch of water column relative to the stair shaft. Supply air shall enter and exhaust air shall discharge from the vestibule through separate, tightly-constructed ducts used only for that purpose. Supply air shall enter the vestibule within 6 inches of the floor level. The top of the exhaust register shall be located at the top of the smoke trap but not more than 6 inches down from the top of the trap and shall be entirely within the smoke trap area. Doors, when in the open position, shall not obstruct duct openings. Duct openings with controlling dampers are permitted where necessary to meet the design requirements, but dampers are not otherwise required.

818.7.3.1 Engineered ventilation system: Where a specially engineered system is used, the system shall provide 2,500 cubic feet per minute (cfm) exhaust from a vestibule when in emergency operation and shall be sized to handle three vestibules simultaneously. The smoke detectors located outside each vestibule shall, upon release, open the supply and exhaust duct dampers in that affected vestibule.

818.7.4 Smoke trap: The vestibule ceiling shall be at least 20 inches higher than the door opening into the vestibule to serve as a smoke and heat trap and to provide an upward moving air column. The height shall not be decreased unless approved and justified by design and test.

818.7.5 Stair shaft air movement system: The stair shaft shall be provided with a dampered relief opening at the top and supplied with sufficient air to discharge a minimum of 2,500 cfm through the relief opening while maintaining a minimum positive pressure of 0.05 inch of water column in the shaft relative to atmosphere with all doors closed.

818.7.6 Ventilating equipment: The activation of ventilating equipment shall be by a smoke detector installed outside the vestibule door in an approved location. When the closing device for the stair shaft and vestibule doors is activated by smoke detection or power failure, the mechanical equipment shall operate at the levels specified in Sections 818.7.3 and 818.7.5.

818.7.7 Standby power: Mechanical vestibule and stair shaft ventilation systems and detector systems shall be powered by an approved standby power system conforming to 527 CMR (12.00) and/or NFPA 70, article 701 as applicable (also see Section 602.9.1).

818.7.8 Acceptance and testing: Before the mechanical equipment is approved, the system shall be tested in the building official's presence to confirm that the system is operating in compliance with these requirements.

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SECTION 819.0 EXTERIOR STAIRWAYS

819.1 As required exit: Exterior stairways used as an element of a required means of egress shall conform to the requirements for interior stairways as required in Section 816.0, except as to enclosures and fire doors and except as herein specifically modified. Exterior stairways and exit access balconies in climates subject to snow or ice shall be protected to prevent accumulation of same. Exterior exit stairways shall not be used as an element of a required means of egress in the following cases.

1. Buildings of Use Group I-2 exceeding four stories or 50 feet in height.
2. Buildings of Use Group I-3.
3. Floors exceeding five stories or 65 feet in height above the level of exit discharge.

819.1.1 Location and arrangement: Exterior stairways utilized as a means of egress shall have at least one door from each tenant space opening onto a roofed-over open balcony served by at least two stairways, except where one stairway is permitted in Section 809.3, so located as to provide a choice of independent, unobstructed means of egress directly to the grade. The stairways shall be located remotely from each other. Balconies shall conform to the same width requirements as corridors as required by Section 810.0. The maximum travel distance from any tenant space to the nearest stairway shall be as specified in Table 807. Balconies and stairways shall be located at least 10 feet from adjacent lot lines and from other buildings on the same lot unless openings in such buildings are protected by 3/4-hour fireresistance rated doors or windows.

Exception: Noncombustible exterior stairways constituting not more than 50 percent of the required means of egress shall be exempt from the 10-foot fire separation distance requirement.

819.2 Opening protectives: All openings below and within 10 feet horizontally of the stairway and all doors opening onto the stairway except at the top story shall be protected with approved 3/4-hour fireresistance rated fixed or automatic opening protectives.

Exceptions:

1. Buildings two stories or less above grade when the level of exit discharge is the first story above grade.
2. Opening protectives are not required when two independent exterior stairways serve an exterior balcony.

819.3 Location: All required exterior stairways shall be located so as to lead directly to a street or open space with direct access to a street; or when located on the rear of the building shall lead through a passageway at the level of exit discharge

complying with Section 811.0. Exterior stairways shall not project beyond the street lot line.

819.4 Construction: Exterior stairs, porches and balconies shall be constructed of materials consistent with the types of materials permitted in Table 401 for the type of construction of the building to which the stairway is attached.

SECTION 820.0 ESCALATORS AND MOVING WALKS

820.1 Means of egress: Escalators and moving walks shall not constitute a part of the required means of egress.

820.2 Reference standards: Escalators and moving walks shall conform to Massachusetts Regulations - 524 CMR listed in Appendix G and Section 2617.0.

SECTION 821.0 FIRE ESCAPES

821.1 Where permitted: Fire escapes shall be permitted only as provided in Sections 821.1.1 through 821.1.4.

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

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

821.1.3 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.

821.1.4 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.

821.2 Location: When located on the front of the building and projecting beyond the building line, the lowest landing shall be not less than 7 feet or more than 12 feet above grade, equipped with a counterbalanced stairway to the street. In alleyways and thoroughfares less than 30 feet wide, the clearance under the lowest landing shall be not less than 12 feet.

821.3 Construction: The fire escape shall be designed to support a live load of 100 pounds per square foot and shall be constructed of steel or other approved

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noncombustible materials. Fire escapes constructed of wood not less than 2 inches thick are permitted on buildings of Type 5 construction.

821.3.1 Dimensions: Stairs shall be at least 22 inches wide with risers not more and treads not less than 8 inches and landings at the foot of stairs not less than 40 inches wide by 36 inches long, located not more than 8 inches below the access window or door.

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

SECTION 822.0 SLIDESCAPES

822.1 Where permitted: Slidescapes and safety chutes shall be permitted in buildings of Use Group H, in existing school buildings of Use Group E and in existing buildings of Use Group I when approved and constructed in an approved manner.

822.2 Location: The arrangement and location of slidescapes shall conform to this article for means of egress and shall be designated by Exit signs and lights as provided in Section 823.0.

822.3 Construction: All chutes shall be constructed of approved noncombustible materials with a pitch in the line of travel of not less than 24 nor more than 42 degrees, measured on the developed circumference of spiral chutes. Straight chutes shall be not less than 24 inches and spiral chutes not less than 28 inches in clear width; nor more than 44 inches wide in any case. When erected on the interior of a building, they shall be enclosed as required in Section 816.9.2 for interior stairways with direct means of egress to a street or other public way.

822.4 Capacity: Slidescapes, where permitted as an element of a required exit, shall be rated at one unit of egress width per slide, with a rated capacity of 60. Slidescapes, except as permitted for buildings of Use Group H, shall not constitute more than 25 percent of the required number of units of egress width from any building or structure or any individual story.

SECTION 823.0 EXIT SIGNS AND LIGHTS

823.1 Location: In all buildings, rooms or spaces required to have more than one exit or exit access, all required means of egress shall be indicated with **approved illuminated** signs reading *Exit*, visible from the exit access and, when necessary, supplemented by directional signs in the exit access corridors indicating the direction and way of egress. All Exit signs shall be located at exit doors or exit access areas, so as to be readily visible.

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Exception: Exit signs are not required in sleeping room areas in buildings of Use Group I-3.

823.2 Size and color: Exit signs shall have red letters at least 6 inches high and the minimum width of each stroke shall be 3/4 inch on a white background or in other approved distinguishable colors. If an arrow is provided as part of an Exit sign, the construction shall be such that the arrow direction cannot be readily changed. The word *Exit* shall be clearly discernible when the illuminated sign is not energized.

823.3 Illumination: Each sign shall be illuminated by a source providing not less than five foot candles at the illuminated surface.

Exception: Approved self-luminous signs which provide evenly illuminated letters shall have a minimum luminance of 0.06 foot lamberts.

823.4 Power source: All Exit signs shall be illuminated at all times when the building is occupied. To assure continued illumination for a duration of not less than 1 hour in case of primary power loss, the Exit signs shall be connected to an emergency electrical system that complies with 527 CMR (12.00) and/or NFPA 70, article 700, as applicable.

Exception: Approved self-luminous signs which provide continuous illumination independent of external power sources are not required to have emergency electrical power.

SECTION 824.0 MEANS OF EGRESS LIGHTING

824.1 Artificial lighting: All means of egress in other than buildings of Use Group R-3 shall be equipped with artificial lighting facilities to provide the intensity of illumination herein prescribed continuously during the time that conditions of occupancy of the building require that the exits be available. Lighting shall also be provided to illuminate the exit discharge. In buildings of Use Group R-2, means of egress lighting, except that lighting within a dwelling unit, shall be wired on a circuit independent of circuits within any dwelling unit. The disconnecting means and overcurrent protection device shall not be located within a dwelling unit or such that access is obtained by going through a dwelling unit.

824.2 Intensity of illumination: The intensity of floor lighting shall be not less than 1 foot candle except as provided in Section 824.3.

824.3 Use Groups A and E: In buildings of Use Groups A and E for the exhibition of motion pictures or other projections by means of directed light, the minimum required illumination of aisles during such period of projection shall be 0.2 foot candle.

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824.3.1 Control: The lighting of exits, aisles and auditoriums shall be controlled from a location inaccessible to unauthorized persons. Supplementary control shall be provided as specified in Section 613.4 in the motion picture projection room.

824.4 Power source: Means of egress lighting in all buildings, rooms or spaces required to have more than one exit or exit access shall be connected to an emergency electrical system that complies with 527 CMR (12.00) and/or NFPA 70, article 700, as applicable, to assure continued illumination for a duration of not less than 1 hour in case of emergency or primary power loss.



Section 825.0 HAZARDS TO MEANS OF EGRESS

825.1 Floor openings: Manholes or floor access panels shall not be located in the line of egress which reduce the clearance to less than 32 inches.

825.2 Protrusions: There shall not be low-hanging door closers that remain within the opening of a doorway when the door is open, or that protrude hazardously into the corridor or line of egress when the door is closed. There shall not be low-hanging signs, ceiling lights or similar fixtures which protrude into corridors or lines of egress.

825.3 Identification of hazardous exits: Doors leading to dangerous areas such as fire escapes, loading platforms, switch rooms and mechanical rooms shall be equipped with knobs, handles or push bars that have been knurled.

825.4 Floor surface: All floors of corridors and lines of egress shall have a slip-resistant surface.

825.5 Open-sided floor areas: Guards shall be located along open-sided walking surfaces, mezzanines and landings. The guards shall be constructed in accordance with Section 827.0.

825.6 Elevation change: Where changes in elevation exist in exit access corridors, exits or exit discharge, ramps shall be used when the difference in elevation is less than 12 inches.

Exception: At exterior doors not required for the physically handicapped and aged by Section 512.0, a maximum of 8 inches step down shall be permitted.

SECTION 826.0 ASSEMBLY AISLES

826.1 Where required: Buildings or portions of buildings of Use Group A which contain seats, tables, displays, equipment or other material shall be provided with aisles leading to exits in accordance with this section.

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826.2 Aisle width: The aisle width shall provide sufficient egress capacity for the number of persons accommodated by the catchment area served by the aisle (see Section 826.2.3). The catchment area served by an aisle is that portion of the total space that is naturally served by that section of the aisle. In establishing catchment areas the assumption shall be made that there is a balanced use of all means of egress, with the number of persons in proportion to egress capacity.

826.2.1 Converging aisles: Where aisles converge to form a single path of egress travel, the required egress capacity of that path shall be not less than the combined required capacity of the converging aisles.

826.2.2 Uniform width: Those portions of aisles, where egress is possible in either of two directions, shall be uniform in required width.

826.2.3 Capacity: The width of aisles shall provide sufficient capacity in accordance with the following formulas where clear width is measured to walls, edges of seating and tread edges; except that handrail projections are permitted.

1. At least 0.3 inch of width for each person served shall be provided on stairs having riser heights 7 inches or less and tread depths 11 inches or greater, measured horizontally between tread nosings.
2. At least 0.005 inch of additional stair width for each person shall be provided for each 0.10 inch of riser height above 7 inches.
3. Where egress requires stair descent, at least 0.075 inch of additional width for each person shall be provided on those portions of stair width not having handrails within a horizontal distance of 30 inches.
4. Level or ramped means of egress with slopes less than one unit vertical in eight units horizontal (1:8), shall have at least 0.2 inch of clear width for each person served.

826.2.4 Minimum width: The minimum clear width of aisles shall be: 48 inches for stairs having seating on each side; 36 inches for stairs having seating on only one side; 23 inches between a stair handrail or guardrail and seating when the aisle is subdivided by a handrail (see Section 826.5); 42 inches for level or ramped aisles having theater style seating on both sides; 36 inches for all other level or ramped aisles; and 23 inches between a stair handrail and seating when an aisle does not serve more than five rows on one side.

826.3 Termination: Each end of a cross aisle shall terminate at an aisle, foyer, doorway or vomitory giving access to an exit. Dead end aisles which terminate only at one end with a cross aisle, foyer, doorway or vomitory giving access to an exit shall be not greater than 20 feet in length.

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Exception: A longer dead end aisle is permitted where seats served by the dead end aisle are not more than 24 seats from another aisle, measured along a row of seats having a minimum clear width of 12 inches plus 0.6 inch for each additional seat above seven in the row.

826.4 Walking surfaces: Aisles with a gradient of one unit vertical in eight units horizontal (1:8) or less shall consist of a ramp having a slip-resistant walking surface. Aisles with a gradient exceeding one unit vertical in eight units horizontal (1:8) shall consist of a series of risers and treads extending across the full width of aisles and complying with Sections 826.4.1 and 826.4.2.

826.4.1 Treads: Tread depths shall be a minimum of 11 inches and be uniform within each aisle.

Exception: Nonuniformities shall not exceed 3/16 inch between adjacent treads.

826.4.2 Risers: Where the gradient of aisle stairs is to be the same as the gradient of adjoining seating areas, the riser height shall be not less than 4 inches nor more than 8 inches and shall be uniform within each flight.

Exception: Riser height nonuniformity shall be limited to the extent necessitated by changes in the gradient of the adjoining seating area to maintain adequate sightlines. Where nonuniformities exceed 3/16 inch between adjacent risers, the exact location of such nonuniformities shall be indicated with a distinctive marking stripe on each tread at the nosing or leading edge adjacent to the nonuniform risers. Such stripe shall be a minimum of 1 inch wide and a maximum of 2 inches wide.

826.5 Handrails: Ramped aisles having a gradient exceeding one unit vertical in fifteen units horizontal (1:15) and aisle stairs shall be provided with handrails located either at the side or within the aisle width.

Exceptions:

1. Handrails are not required if, at the side of the aisle, there is a guard that complies with the requirements for handrails.
2. Handrails are not required for aisles with seating on both sides unless there is more than one riser per row of seating. The single riser shall be indicated by a distinctive marking stripe on the leading edge of the tread.

826.5.1 Discontinuous rails: Where there is seating on both sides of the aisle, the handrails shall be discontinuous with gaps or breaks at intervals not exceeding five rows to facilitate access to seating and to permit crossing from one side of the aisle to the other. These gaps or breaks shall have a clear width of at least 22 inches and

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not greater than 36 inches, measured horizontally, and the handrail shall have rounded terminations or bends.

826.5.2 Intermediate rails: Where handrails are provided in the middle of aisle stairs, there shall be an additional intermediate handrail located approximately 12 inches below the main handrail.

826.6 Row width: The row minimum clear width shall be not less than 12 inches measured as the clear horizontal distance from the back of the row ahead and the nearest projection of the row behind. Where chairs have automatic or self-rising seats, the measurement shall be made with seats in the raised position. Where any chair in the row does not have an automatic or self-rising seat, the measurement shall be made with the seat in the down position.

826.6.1 Dual access: For rows of seating served by aisles or doorways at both ends, there shall be not more than 100 seats per row and the row minimum clear width of 12 inches in rows shall be increased by 0.3 inch for every additional seat beyond 14 but the minimum clear width is not required to exceed 22 inches.

826.6.2 Single access: For rows of seating served by an aisle or doorway at only one end of the row, the minimum clear width of 12 inches between rows shall be increased by 0.6 inch for every additional seat beyond seven but the minimum clear width is not required to exceed 22 inches. However, the path of travel shall not exceed 30 feet from any seat to a point where a person has a choice of two paths of travel to two exits.

826.7 Guardrails: Guardrails shall be provided on balconies and galleries in accordance with Section 827.4.

SECTION 827.0 GUARDS

827.1 General: Where required by the provisions of Sections 609.2.3, 607.6, 815.5, 816.5, 825.5 and 1223.5, guards shall be designed and constructed in accordance with the requirements of this section and Section 1109.7. A guardrail system is a system of building components located near the open sides of elevated walking surfaces for the purpose of minimizing the possibility of an accidental fall from the walking surface to the lower level.

827.2 Height: The guards shall be at least 42 inches in height measured vertically above the leading edge of the tread or adjacent walking surface.

Exceptions:

1. In buildings of Use Group E, guards shall be not less than 34 inches in height above the leading edge of the tread along stairs which are not

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more than 20 feet in height or which reverse direction at an intermediate landing with 12 inches or less measured horizontally between successive flights.

2. Guards in buildings of Use Group R-3 shall be not less than 36 inches in height.

827.3 Construction: Open guards shall have intermediate rails, balusters or other construction such that a sphere with a diameter of 6 inches cannot pass through any opening.

Exception: In buildings of Use Groups F, H or S, the construction shall not permit a sphere with a diameter of 14 inches to pass through any opening.

827.4 Railings: Metal or other approved noncombustible railings shall be provided on balconies and galleries as prescribed in Sections 827.4.1 through 827.4.3.

827.4.1 At fascia: At the fascia of boxes, balconies and galleries not less than 26 inches in height; not less than 36 inches in height at the end of aisles extending to the fascia for the full width of the aisle; and not less than 42 inches in height at the foot of steps for the full width of the steps.

827.4.2 At cross aisles: Along cross aisles, not less than 26 inches in height except where the backs of the seats along the front of the aisles project 24 inches or more above the floor of the aisle.

827.4.3 Successive tiers: Where seatings are arranged in successive tiers, and the height of rise between platforms exceeds 18 inches, not less than 26 inches in height along the entire row of seats at the edge of the platform.

SECTION 828.0 HANDRAILS

828.1 General: Where required by the provisions of Sections 612.2, 815.5, 816.5, 816.11 and 826.5, handrails shall be designed and constructed in accordance with this section and Section 1109.7. A handrail is a horizontal or sloping rail grasped by hand for guidance or support, and for arresting falls on the adjacent walking surface.

828.2 Handrail details: Handrails shall conform to the requirements of Sections 828.2.1 through 828.2.5.

828.2.1 Projection: Handrails shall not project more than 3 1/2 inches into the required stair or ramp width.

828.2.2 Height: Handrails shall not be less than 34 inches nor more than 38 inches, measured vertically, above the nosing of the treads or above the finished floor of the landing or walking surfaces.

Exception: Handrails that form part of a guardrail shall have a height not less than 34 inches and not more than 42 inches.

828.2.3 Handrail ends: Except for stairways within a dwelling unit, handrails shall extend at least 12 inches beyond the top riser and at least 12 inches plus the width of one tread beyond the bottom riser. At the top, the handrail extension shall be parallel to the walking surface. At the bottom, the handrail shall continue to slope for a distance of the width of one tread from the bottom riser with the remainder parallel to the walking surface. The handrail ends shall be returned to a wall or post. Handrails between runs of stairs shall be continuous around newel posts or shall terminate 12 inches beyond the last riser as required above.

828.2.4 Handrail grip size: For all stair handrails located within a dwelling unit, the maximum horizontal cross-sectional dimension of the handrail shall not exceed 2 5/8 inches.

828.2.5 Handrails of alternating tread stairways: Stair handrails of alternating tread stairways shall be of such a configuration as to provide an adequate hand-hold for a person grasping the handrail to avoid falling. A minimum distance of 6 inches shall be provided between the stair handrail and any other object. A minimum of 12 inches shall be provided between the stair handrails of adjacent alternating tread stairways. Handrails on alternating tread stairways shall be spaced a minimum width of 17 inches, not to exceed 24 inches, between the handrails.

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ARTICLE 9

FIRERESISTIVE CONSTRUCTION

SECTION 900.0 GENERAL

900.1 Scope: The provisions of this article shall govern the use and design of all materials and methods of construction in respect to required fireresistance rating and flameresistance, as determined by the potential fire hazard of the use and occupancy of the building or structure and the location and function of all integral structural and other fireresistive elements of the building; and the installation of safeguards against the spread of fire to and from adjoining structures.

900.2 Performance standards: The requirements of this article shall constitute the minimum functional performance standards for fire protection purposes; and shall not be deemed to decrease or waive any strength provisions or in any other manner decrease the requirements of this code in respect to structural safety.

900.3 Use of combustibles: All materials and forms of construction that develop the fireresistance ratings required by this code shall be acceptable for fireproofing and structural purposes; except that the use of combustible component materials in structural units or structural assemblies shall be limited in types of construction specified in Sections 402.0, 403.0, 404.0 and 405.0, and in Section 900.3.1.

900.3.1 Combustible components: Combustible aggregates are permitted in concrete mixtures approved for fireresistance rated construction as provided in Section 1604.0 for gypsum concrete, in Article 15 for cinder concrete, and other approved component material or admixture is permitted in assemblies that meet the fireresistive test requirements of this code; and wood nailing strips or any other materials of similar combustible characteristics are permitted in concrete and masonry construction for securing trim and finish.

SECTION 901.0 PLANS AND SPECIFICATIONS

901.1 General: Plans for all buildings shall designate the type of construction and the fireresistance rating of all structure elements as required by this code. The plans and specifications shall include documentation or supporting data substantiating all required fireresistance ratings.

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901.2 Penetrations: Plans for buildings more than two stories in height shall indicate where penetrations will be made for electrical, mechanical, plumbing and communications conduits, pipes and systems, and shall also indicate the materials and methods for maintaining the required structural integrity, fireresistance rating and firestopping.

SECTION 902.0 FIRE HAZARD CLASSIFICATION

902.1 General: The degree of fire hazard of buildings and structures for each specific use group as defined by the fire grading in Table 902 shall determine the requirements for fire walls, fire separation walls, and horizontal and vertical assemblies separating mixed uses as prescribed in Section 313.0 and all structural members supporting such elements unless otherwise provided for in this code.

902.2 Unclassified uses: The building official shall determine the fire hazard classification of a building or structure designed for a use not specifically provided in Table 902 in accordance with the fire characteristics and potential fire hazard of the use group which it most nearly resembles; or its designation shall be fixed by the approved rules.

**Table 902
FIRE GRADING OF USE GROUPS**

Use Group	Description	Fire grading in hours
A-1	Assembly, theaters	3
A-2	Assembly, night clubs	3
A-3	Assembly, recreation centers, lecture halls, terminals, restaurants	2
A-4	Assembly, churches	1½
B	Business	2
E	Educational	1½
F	Factory and industrial	3
H	High hazard	4
I-2	Institutional, incapacitated	2
I-3	Institutional, restrained	3
M	Mercantile	3
R-1	Residential, hotels	2
R-2	Residential, multi-family dwellings	1½
R-3	Residential, 1- and 2- family dwellings	1
S-1	Storage, moderate hazard	3
S-2	Storage, low hazard	2

SECTION 903.0 FIRE TESTS

903.1 Structural building assemblies: Built-up masonry units and composite assemblies of structural materials including walls, partitions, columns, girders, beams, slabs and assemblies of slabs and beams or other combinations of structural units for use in floor and roof construction shall be regulated by the fireresistance ratings of Table 401. Floor assemblies which are required to be fireresistance rated shall extend to and be tight against exterior walls, or other provisions shall be made for maintaining the fireresistance rating of the assembly at such locations.

903.1.1 Fireresistance ratings: The fireresistance ratings of building assemblies and structural elements shall be determined in accordance with the test procedures set forth in ASTM E119 listed in Appendix A. The fireresistance rating of concrete assemblies and structural elements shall be established as heretofore required, or shall be determined in accordance with the procedures of the CRSI book *Reinforced Concrete Fire Resistance* or PCI MNL 124-77 listed in Appendix A. The fireresistance rating of protected steel shall be established as heretofore required or shall be calculated in accordance with *AISI Designing Fire Protection for Steel Columns*, *AISI Designing Fire Protection for Steel Beams* and *AISI Designing Fire Protection for Steel Trusses* listed in Appendix A. The calculations shall be based upon the fire exposure and acceptance criteria specified in ASTM E119 listed in Appendix A.

903.1.2 Tested assemblies: Assemblies of building construction shall be tested according to Section 903.1.1 or be detailed in GA-600 or in the *UL Fire Resistance Directory* listed in Appendix A as having the fireresistance ratings specified therein for determining compliance with the requirements of this code.

903.2 Alternative protection: Where it can be shown to the building official that the structural integrity of structural framing elements will not be reduced below a safe level by a fire within the building or in an adjacent building having a severity corresponding to the fireresistance rating required for the elements through the use of heat shields, separations or other approved means of protection, fireresistive coverings or insulating enclosing materials are not required for such elements.

903.3 Opening protectives: Opening protectives shall include the fire door, fire shutter, fire window, or fire damper and all required hardware, anchorage, frames and sills necessary for the assembly.

903.4 Combustibility tests: Where the behavior of materials under exposure to fire is specified in this code, the characteristics of materials shall be determined by the tests and criteria set forth in Sections 903.4.1 and 903.4.1.1.

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903.4.1 Tests: The tests indicated in Sections 903.4.1.1 and 903.4.1.2 shall serve as criteria for acceptance of building materials as set forth in Sections 402.0, 403.0, 404.0 and 405.0 governing the combustibility of building materials for use in Types 1, 2, 3 and 4 construction. The term "noncombustible" does not apply to the flame spread characteristics of interior finish or trim materials. A material shall not be classed as a noncombustible building construction material which is subject to an increase in the combustible or flame spread rating beyond the limits herein established through the effects of age, moisture or other atmospheric conditions.

903.4.1.1 Elementary materials: Materials which are intended to be classified as noncombustible shall be tested in accordance with ASTM E136 listed in Appendix A. Such materials shall be acceptable as noncombustible materials when at least three of the four specimens tested meet all of the following criteria:

1. The recorded temperature of the surface and interior thermocouples shall not at any time during the test rise more than 54 degrees F. (30 degrees C.) above the furnace temperature at the beginning of the test.
2. There shall not be flaming from the specimen after the first 30 seconds.
3. If the weight loss of the specimen during testing exceeds 50 percent, the recorded temperature of the surface and interior thermocouples shall not at any time during the test rise above the furnace air temperature at the beginning of the test, and there shall not be flaming of the specimen.

903.4.1.2 Composite materials: Materials having a structural base of noncombustible material as defined in Section 903.4.1.1. with a surfacing not more than 1/8 inch thick which has a flame spread rating not greater than 50 when tested in accordance with ASTM E84 listed in Appendix A shall be acceptable as noncombustible materials.

903.5 Fire-retardant treated wood: Fire-retardant treated wood shall comply with Sections 903.5.1 and 903.5.2.

903.5.1 General: Where permitted for use as a structural element, fire-retardant treated wood shall be defined as any wood product which when impregnated with chemicals by a pressure process, or other means during manufacture, shall have, when tested in accordance with ASTM E84 listed in Appendix A, a flame spread rating not greater than 25 when the test is continued for a period of 30 minutes, without evidence of significant progressive combustion and the flame front shall not progress more than 10½ feet beyond the centerline of the burner at any time during the test. The material shall bear the identification of an approved agency having a reexamination service, and such identification shall show the performance rating of the material. Fire-retardant treated wood shall be dried to a moisture content of 19 percent or less for lumber and 15 percent or less for plywood before use.

903.5.2 Use limitations: An assembly of wood which has been pressure treated with fire-retardant chemicals in accordance with AW PA C20 and AW PA C27 listed in Appendix A, or treated by other approved means during manufacture, is permitted to be used in Types 1 and 2 construction for partitions, structural elements and roof framing and sheathing as indicated by Note d in Table 401, and shall produce the required fireresistance rating when tested in accordance with ASTM E119 listed in Appendix A. When the material is to be exposed to the weather, the material shall be further identified to indicate that there is not an increase in the listed flame spread classification after being weathered in accordance with ASTM D2898 listed in Appendix A. Fireretardant treated wood subjected to high humidity conditions shall be identified to indicate the treated wood has a moisture content of not over 28 percent when tested in accordance with ASTM D3201 listed in Appendix A at 92 percent relative humidity.

SECTION 904.0 FLAME SPREAD AND FLAMERESISTANCE TESTS

904.1 General: All materials which are required to restrict the spread of flame or to be flameresistant under the provisions of this code, including but not limited to interior finish materials, fire-retardant treated wood, tents and tarpaulins, and interior hangings and decorations, shall meet the requirements for their respective use and classifications as determined by the applicable test procedures listed in this section.

904.2 Interior finish and trim materials: All materials used for interior finish and trim shall be classified in accordance with ASTM E84 listed in Appendix A.

904.3 Interior floor finish materials: Interior floor finish materials which are judged by the building official to represent an unusual hazard and are to be installed in exits, passageways and corridors shall be classified in accordance with ASTM E648 listed in Appendix A.

904.4 Interior hangings and decorations: Interior hangings and decorations shall comply with Sections 904.4.1 through 904.4.4.

904.4.1 Acceptance criteria: Where required to be flameresistant under the provisions of this code, all materials used for artistic enhancement, decorations, draperies, curtains, scenery and hangings shall comply with this section **and the requirements for Flammable Decorations in 527 CMR 21.00**, listed in Appendix G. If treated to be flameresistant, these materials shall not generate smoke more dense than that given off by untreated wood or paper burning under comparable conditions when tested in the vertical flame test in accordance with NFPA 701 listed in Appendix A.

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904.4.2 Limitation of approval: All approvals of organic decorative material shall be limited to one year. The owner or the owner's authorized agent shall file an affidavit with the building official certifying that the process and materials used comply with this code and stating the date of treatment and the warranted period of effectiveness of the process.

904.4.3 Field test for decorative materials: The building official shall subject decorative materials, where required to be flameresistant, to a field test in accordance with Chapter 6 of NFPA 701 listed in Appendix A.

904.4.4 Replacement of defective materials: All treated hangings, draperies, canvas and other decorative and tent materials that fail to meet the field test requirements shall be retreated or replaced by an approved installation.

SECTION 905.0 SPECIAL FIRERESISTIVE REQUIREMENTS

905.1 General: In buildings or parts thereof of the uses and types of construction herein specified, the general fireresistive requirements of Table 401 and the height and area limitations of Table 501 shall be subject to the exceptions and modifications described in Sections 905.2 and 905.3 and to the requirements for Garages, Service Stations and Gasoline Stations and Gasoline in 527 CMR 5.00, listed in Appendix G.

905.2 Use Groups B, M and R: Buildings of Use Groups B, M and R shall comply with the special fireresistive requirements of Sections 905.2.1 through 905.2.3.

905.2.1 Type 3A construction: The height limitation for buildings of Use Group R-2 of Type 3A construction shall be increased to six stories and 75 feet where the first floor construction above the basement has a fireresistance rating of not less than 3 hours and the floor area is subdivided by 2-hour fire walls into fire areas of not more than 3,000 square feet.

905.2.2 Type 2B construction: The height limitation for buildings of Use Group R-2 of Type 2B construction shall be increased to nine stories and 100 feet where the building is separated by not less than 50 feet from any other building on the lot and from interior lot lines, the exits are segregated in a fire area enclosed by a fire wall of 2-hour fireresistance rating and the first floor construction has a fireresistance rating of not less than 1½ hours.

905.2.3 Use Groups B and M: The first floor of buildings of Type 2C, 3B or 5B construction shall not be occupied for Use Groups B and M, unless the floor/ceiling assembly and enclosure walls are protected to afford 1-hour fireresistance rating and the exits from the residential floors are separately enclosed in accordance with the requirements of Article 8.

905.3 Interior partitions: In buildings or structures of other than Use Groups I and R of Types 1, 2A and 2B construction, partitions of a single thickness of wood or approved composite panels, and glass or other approved materials of similar combustible characteristics, are permitted to subdivide rooms or spaces into offices, entries, or other similar compartments, provided they do not establish a corridor serving an occupant load of more than 30 in areas occupied by a single tenant and do not exceed 5,000 square feet between fire separation assemblies or fire walls. The maximum allowable compartment size shall be increased to 7,500 square feet where subdivided with fire-retardant treated wood complying with Section 903.5.

SECTION 906.0 EXTERIOR WALLS

906.1 General: All exterior walls shall comply with the applicable provisions of this code and with the fireresistance rating requirements of this section and Section 401.0, except as provided in Section 906.1.1 for open parking structures.

Exception: The provisions of Sections 906.2 and 906.3 shall not apply to exterior walls which face buildings on the same lot when the buildings are such that, if combined into one structure, the resulting building would otherwise comply with the height and area limits of Section 501.0 (see Section 501.2. 1).

906.1.1 Omission of exterior walls: The provisions of this code shall not be deemed to prohibit the omission of exterior walls for all or part of a story where the provisions of Section 906.2 do not require a nonloadbearing exterior wall to provide a fireresistance rating. Except as otherwise specifically permitted in Section 912.5, the piers, columns and other structural elements within the open portion shall be constructed with the fireresistance rating required for exterior bearing walls in Table 401.

Open parking structures erected without exterior walls shall have an enclosure wall having a fireresistance rating of not less than 2 hours without openings when located with a fire separation distance of less than 6 feet from an interior lot line.

906.2 Fireresistance ratings: The fireresistance rating of exterior walls shall comply with Table 906.2. Loadbearing exterior walls shall also comply with the fireresistance rating requirements of Section 401.0. The fireresistance rating of exterior walls with a fire separation distance of greater than 5 feet shall be rated for exposure to fire from the inside. The fireresistance rating of exterior walls with a fire separation distance of 5 feet or less shall be rated for exposure to fire from both sides.

**Table 906.2
EXTERIOR WALL FIRERESISTANCE RATINGS (hours)**

Fire separation distance (feet)	Use Group				
	H	F-1, M, S-1	R-2	R-3	A, B, E, F-2, I, R-1, S-2
0 to 5	4	3	1	1	2
Greater than 5 to 10	3	2	1	0	1
Greater than 10 to 15	2	1	0	0	0
Greater than 15 to 30	1	0	0	0	0
Greater than 30	0	0	0	0	0

906.2.1 Wall height: The wall shall extend the full height of the building and shall be constructed so that it will remain in place for the duration of time indicated by the required fireresistance rating.

906.2.2 Automatic fire suppression: In buildings protected throughout with an approved automatic fire suppression system, the required fireresistance rating of nonloadbearing exterior walls shall be reduced by 1 hour. This reduction shall not apply to buildings of Use Group H.

906.2.3 Noncombustible construction exemptions: One-story buildings of Type 2C construction which do not exceed 3,000 square feet in area shall be exempt from all protected exterior wall requirements. This exemption shall not apply to buildings of Use Groups A, E, H and I.

906.2.4 Unexposed surface temperature: Where protected openings are not limited by Table 906.3, the limitation on the rise of temperature on the unexposed surface of exterior walls as required by ASTM E119 listed in Appendix A shall not apply. Where protected openings are limited by Table 906.3, the limitation on the rise of temperature on the unexposed surface of exterior walls as required by ASTM E119 listed in Appendix A shall not apply provided correction is made for radiation from the unexposed exterior wall surface in accordance with the following formula:

$$A_e = A + (A_f \times F_{eo})$$

where:

- A_e = equivalent area of protected openings
 A = actual area of unprotected and protected openings
 A_f = area of exterior wall surface in the story under consideration exclusive of openings, on which the temperature limitations of ASTM E119 for walls is exceeded.
 F_{eo} = an equivalent opening factor derived from Figure 906.2.4.

906.3 Openings: The maximum area of unprotected or protected openings permitted in an area of exterior wall in any story shall not exceed the values given in Table 906.3. Where both unprotected and protected openings are used in the exterior wall in any story, the total area of the openings shall comply with the following formula:

$$\frac{A}{a} + \frac{A_u}{a_u} \leq 1.0$$

where:

- A = actual area of protected openings, or the equivalent area of protected openings A_e , (see Section 906.2.4)
 a = allowable area of protected openings
 A_u = actual area of unprotected openings
 a_u = allowable area of unprotected openings

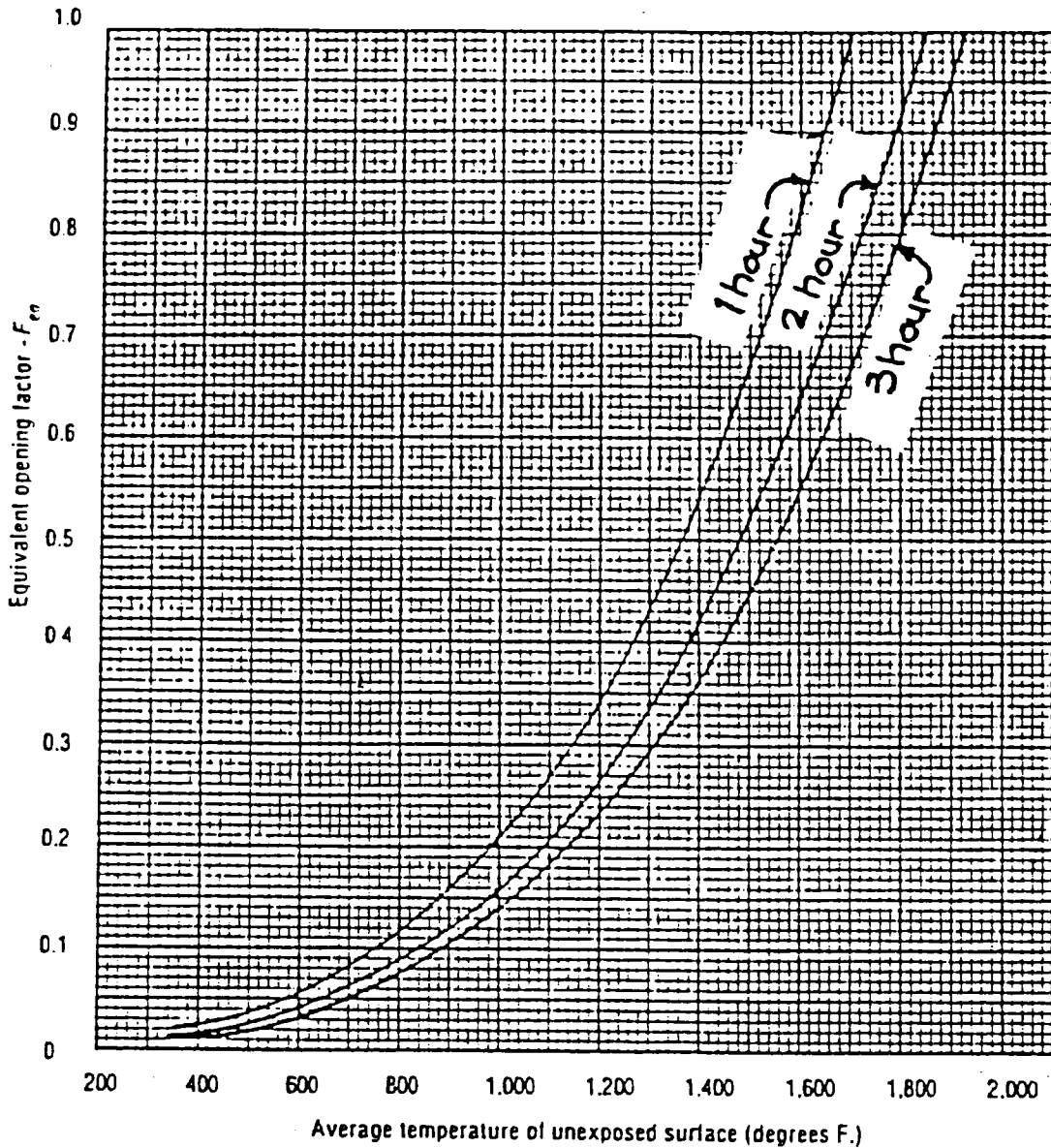


Figure 906.2.4
EQUIVALENT OPENING FACTOR

Table 906.3
MAXIMUM PERCENT AREA OF EXTERIOR WALL OPENINGS^{b,c}

Classification of opening	Fire separation distance (feet)							
	0 to 3	Greater than 3 to 5	Greater than 5 to 10	Greater than 10 to 15	Greater than 15 to 20	Greater than 20 to 25	Greater than 25 to 30	Greater than 30
Unprotected	NP	NP ^a	10%	15%	25%	45%	70%	NL
Protected	NP	15%	25%	45%	75%	NL	NL	NL

Note a. For buildings of Use Group R-3, the maximum percentage of unprotected exterior wall openings shall be 5 percent.

Note b. This table assumes that the openings are reasonably uniformly distributed. Where openings are not reasonably uniformly distributed, the portion of the wall used to calculate compliance with Table 906.3 shall not be approved.

Note c. NP = not permitted; NL = no limit.

906.3.1 Automatic fire suppression: In buildings equipped throughout with an approved automatic fire suppression system, other than buildings, or portions thereof, of Use Group H, the area of unprotected openings shall not exceed the tabulated limits for protected openings.

906.3.2 First story: In all buildings, other than buildings, or portions thereof, of Use Group H, unlimited unprotected openings are permitted in the first story of exterior walls facing a street and having a fire separation distance of greater than 15 feet.

906.4 Vertical separation of openings: Openings in exterior walls in adjacent stories shall be separated vertically to protect against fire spread on the exterior of the buildings where the openings are within 5 feet of each other horizontally and the opening in the lower story is not a protected opening in accordance with Section 907.0. Such openings shall be separated vertically at least 3 feet by spandrel girders, exterior walls, or other similar assemblies with a fireresistance of at least 1 hour or by flame barriers which extend horizontally at least 30 inches beyond the exterior wall. Flame barriers shall also have a fireresistance rating of at least 1 hour. The unexposed surface temperature limits specified in ASTM E119 listed in Appendix A shall not apply to the flame barriers or vertical separation unless otherwise required by the provisions of this code.

Exceptions:

1. This section shall not apply to buildings of three stories or less in height.
2. This section shall not apply to buildings equipped throughout with an approved automatic fire suppression system.

906.5 Vertical exposure: Approved protectives shall be provided in every opening which is less than 15 feet vertically above the roof of an adjoining building or adjacent structure that is within a horizontal fire separation distance of 15 feet of the wall in which the opening is located, unless such roof construction affords a fireresistance rating of not less than 1 hour.

906.6 Continuity of exterior walls: Exterior walls required to be fireresistance rated by Section 906.2 because of fire separation distance, shall be continuous from the foundation to not less than 30 inches above the roof surface.

Exceptions:

1. Where the roof deck or sheathing is constructed of approved noncombustible materials or of fire-retardant treated wood for a distance of not less than 4 feet from the wall, and the roof covering has a minimum of a Class C rating, the exterior wall shall be permitted to stop at the underside of the roof deck or sheathing.
2. Exterior walls in buildings of Use Group R-3 or buildings not exceeding 1,000 square feet in area.

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3. Exterior walls of a building where the roof has an angle of more than 20 degrees with the horizontal.

SECTION 907.0 EXTERIOR OPENING PROTECTIVES

907.1 Where required: Exterior opening protectives shall be provided in all exterior wall openings required to be protected by Section 906.0.

907.1.1 Outside sprinklers: Approved outside automatic sprinklers used for the protection of exterior openings shall be installed in accordance with NfiPA 13 listed in Appendix A, shall have an automatic source of water supply and shall be provided with a fire department connection.

907.2 Automatic protection: Approved fire protective assemblies shall be fixed, self closing or equipped with approved automatic closing devices meeting the requirements of this section and Sections 903.0, 916.0, 917.0, 918.0 and 919.0.

907.3 Fire resistance rating: An exterior opening in a wall required by Section 906.0 to have a fire resistance rating greater than 1 hour shall be protected with an assembly having a fire resistance rating of not less than 1½ hours. An exterior opening in a wall required by Section 906.0 to have a fire resistance rating of 1 hour shall be protected with an assembly having a fire resistance rating of not less than ¾ hour.

907.4 Unprotected openings: Where protected openings are not required by Section 906.0, windows and doors shall be constructed of any approved materials. Glazing shall conform to the requirements of Articles 20, 21 and 22.

SECTION 908.0 FIRE WALLS AND PARTY WALLS

908.1 General: Fire walls and party walls shall conform to the requirements of this section. Party walls are fire walls required by the presence of an interior lot line or joint service between two buildings. These walls shall have sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall, and shall be constructed of any approved noncombustible materials providing the required strength and fire resistance rating specified in Table 401 for the type of construction, but not less than the fire grading of the use group specified in Table 902. Strength and stability shall comply with the provisions of Articles 11 and 21.

908.2 Cutting walls: A wall 8 inches or less in thickness shall not be cut for chases or socketed for insertion of structural members subsequent to erection (see Section 1413.0).

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908.3 Hollow walls: When combustible members frame into hollow walls or walls of hollow units, all hollow spaces shall be solidly filled for the full thickness of the wall and for a distance not less than 4 inches above, below and between the structural members with noncombustible materials approved for firestopping in Section 921 .0. The wall shall be not less than the minimum thickness specified in NBS 211 for nonreinforced masonry, NBS H74 for reinforced masonry, BIA *Building Code Requirements for Engineered Brick Masonry*, NCMA TR75-B or ACI 531 listed in Appendix A.

908.4 Combustible insulation: The building official shall permit the application of cork, fiber board or other combustible insulation where laid up without intervening air spaces and attached directly to the face of the wall, and protected on the exposed surface as provided in Sections 1709.0 and 928.0.

908.5 Continuity of walls: In all buildings or structures, walls shall be continuous from foundation to 2 feet 8 inches above the roof surface, except as provided in Sections 908.5.1 through 908.5.3. Fire walls shall be made smoke-tight at their junction with exterior walls. In exterior wall construction employing studs, the wall shall extend through the stud space to the exterior sheathing.

908.5.1 Noncombustible roofs: The wall is permitted to terminate at the underside of the roof deck where the roof is of noncombustible construction and is properly firestopped at the wall.

908.5.2 Combustible roofs: The wall is permitted to terminate at the underside of the roof deck in Types 3, 4 and 5 construction where all of the following conditions below are met.

1. The wall is properly firestopped at the deck.
2. The roof sheathing or deck is constructed of approved noncombustible materials, or fire-retardant treated wood, for a distance of 4 feet on either side of the wall.
3. Combustible material does not extend through the wall.
4. The roof covering has a minimum of a Class C rating.

908.5.3 Noncombustible frame: The wall shall not be supported on the structural frame in buildings of noncombustible construction unless such supporting frame has a fireresistance rating at least equal to that required for the wall.

908.6 Offset fire walls: Where fire walls are offset at intermediate floor levels in protected skeleton-frame construction, the offset floor construction and the intermediate wall supports shall be constructed of noncombustible materials with a fireresistance rating not less than that required for the fire wall.

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SECTION 909.0 FIRE WALL OPENINGS

909.1 General: Openings in fire walls shall not exceed the limits in size and area herein prescribed, and the opening protectives shall conform to the provisions of Sections 903.0 and 907.0.

909.2 Size of opening: Except in sprinklered buildings, an opening through a fire wall shall not exceed 120 square feet in area, and the aggregate width of all openings at any floor level shall not exceed 25 percent of the length of the wall.

909.2.1 First story: Where the entire first story areas on both sides of a fire wall are provided with an approved automatic fire suppression system complying with the requirements of Article 10, the maximum allowable size of openings on the first story of the building designed for the passage of trucks shall be increased to 240 square feet in area with a minimum distance of 3 feet between adjoining openings. Such openings shall be protected with approved automatic opening protectives of 3-hour fire resistance rating, and provided with an approved water curtain in addition to all other requirements.

909.3 Opening protectives: Every opening in a fire wall shall be protected with an approved automatic opening protective assembly as herein required or the approved labeled equivalent in accordance with Section 916.2, except as provided in Section 814.2.1 for horizontal exit openings.

909.3.1 Hold-open devices: Heat actuated hold-open devices shall be installed on both sides of the wall, interconnected so that the operation of any single device will permit the door to close. Heat detectors or fusible links shall be installed at the door opening and at the ceiling in conformance with NFPA 80 listed in Appendix A for the particular type of door to be installed. Swinging fire doors, where the ceiling is less than 3 feet above each side of the opening, are permitted to be actuated by a single fusible link incorporated in the hold-open arm of an approved automatic door closer. Doors opening in a means of egress shall be closed by an approved door closer, or shall be closed by actuation of a smoke detector located in conformance with NFPA 80 listed in Appendix A.

SECTION 910.0 FIRE SEPARATION WALLS

910.1 General: Fire separation walls used for subdividing purposes shall be constructed of the types of materials and shall have the minimum fire resistance rating as prescribed by Table 401 for the type of construction, except as provided in Section 910.4.

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910.2 Mixed uses: When a building contains more than one occupancy, and each part of the building is separately classified as to use, the mixed uses shall be completely separated with fire separation walls as specified in Section 313.0.

910.3 Multiple single-family dwellings: Single-family dwelling units (Use Group R-3) located above or adjacent to other single-family dwelling units (Use Group R-3) shall be considered as one building classified as Use Group R-3 for the purpose of determining the applicable provisions of this code, provided each dwelling unit is completely separated from the adjacent dwelling unit(s) by fire separation wall(s) and floor/ceiling assemblies of not less than 1-hour fire-resistance rated construction and each unit has independent means of egress.

910.4 Exits: Fire separation walls required for the enclosure of exits and areas of refuge shall be constructed of masonry, reinforced concrete or any other approved noncombustible materials having the minimum fire-resistance rating prescribed by Table 401. Such walls, where permitted to be of combustible materials by Section 816.9, shall comply with Section 910.4.1.

910.4.1 Combustible stair enclosures: Where permitted by Section 816.9, combustible stair enclosures shall be constructed of approved combustible assemblies protected with component materials to afford the required fire-resistance ratings; shall be continuous through combustible floor construction; and shall provide an unbroken fire barrier in combination with protected floors, ceilings and fire doors, separating the exits from the unprotected areas of the building. Such enclosures shall be firestopped to comply with Section 921.0.

910.4.2 Openings for lighting: Openings for the purpose of providing light in combustible stair enclosures are permitted to be protected with wired glass with single panes not more than 360 square inches in area and a total area in one story of not more than 720 square inches. Such light panels shall comply with the provisions of Section 919.0, and shall be contained in stationary sash and frames of steel or other approved noncombustible material.

910.5 Openings: Exit doors located in fire separation walls shall be limited to a maximum aggregate width of 25 percent of the length of the wall and the maximum area of any single opening shall not exceed 48 square feet.

910.5.1 Protectives: All opening protectives in fire separation walls shall comply with the provisions of Section 903.0 and shall have the minimum fire-resistance rating as set forth in Section 916.0.

910.6 Continuity: All fire separation walls shall extend from the top of the fire-resistance rated floor/ceiling assembly below to the fire-resistance rated floor/ceiling or roof/ceiling assembly above, unless otherwise provided for in this code, and

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shall be securely attached thereto. Where these walls enclose required exits, areas of refuge and shafts, or where these walls separate mixed uses, they shall be continuous through all concealed spaces such as the space above a suspended ceiling, and they shall be constructed tight to the underside of the floor slab or roof deck above. The supporting construction shall be protected to afford the required fire resistance rating of the wall supported, except for exit access corridor walls in buildings of Types 2C, 3B and 5B construction. All hollow vertical spaces shall be firestopped at every floor level as required in Section 921.0.

910.7 Exterior walls: Where exterior walls serve as a part of a required fire resistance rated enclosure, such walls shall comply with the requirements of Table 401 for exterior walls and the fire resistance rated enclosure requirements shall not apply.

SECTION 911.0 SMOKE BARRIERS

911.1 Where required: Smoke barriers shall be provided as required in Section 610.5 for buildings of Use Group I-2 and Section 611.8 for buildings of Use Group I-3.

911.2 Construction: Smoke barriers shall have a fire resistance rating of not less than 1 hour. Such barriers shall form an effective membrane continuous from outside wall to outside wall and from floor slab to floor or roof deck above, including continuity through all concealed spaces, such as those found above suspended ceilings, and including interstitial structural and mechanical spaces. Transfer grilles, whether equipped with fusible link-operated dampers or not, shall not be used in these partitions. The supporting construction shall be protected to afford the required fire resistance rating of the wall supported in buildings of other than Types 2C, 3B and 5B construction.

Exceptions:

1. Smoke barriers are not required in interstitial spaces when such spaces are designed and constructed with ceilings that provide resistance to the passage of fire and smoke equivalent to that provided by smoke barriers.
2. Smoke barriers in buildings of Use Group I-3 are permitted to be constructed of nominal 0.10 inch thick steel plate.

911.3 Doors: Doorways separating corridors in adjoining smoke compartments shall be equipped with a pair of swinging type doors, each swinging in a direction opposite from the other, and the minimum clear width of each door shall be 44 inches for corridors used for the movement of beds and 32 inches for other corridors. Other doors in smoke barriers shall be of the swinging type of required width.

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Exception: Horizontal sliding doors complying with Section 611.0 are permitted to be used in smoke barriers in buildings of Use Group I-3.

911.4 Opening protectives: Doors in smoke barriers shall have a fire-resistance rating of not less than 20 minutes when tested in accordance with ASTM E152 listed in Appendix A without the hose stream and labeled by an approved agency. Double egress corridor doors shall have vision panels of ¼ inch thick labeled wired glass mounted in approved steel frames. Vision panels provided in other doors in smoke barriers shall be ¼ inch thick labeled wired glass mounted in approved steel frames. The glass area of the vision panels shall be limited to 1,296 square inches for each door. The doors shall close the openings with only the clearance necessary for proper operation under self-closing or automatic closing and shall be without undercuts, louvers or grilles. Rabbits or astragals are required at the meeting edges of double egress doors, and stops are required on the head and jambs of all doors in smoke barriers. Positive latching devices are required on double egress corridor doors.

Exceptions:

1. Protection at the meeting edges of doors and stops at the head and sides of door frames shall not be required in buildings equipped throughout with an approved engineered smoke control system. The engineered smoke control system shall respond automatically, preventing the transfer of smoke across the barrier.
2. In buildings of Use Group I-2, positive latching devices are not required on double egress doors, and center mullions are prohibited.

911.4.1 Door closers: Doors in smoke barriers shall be self-closing or shall be provided with approved door hold-open devices of the fail-safe type which shall release the doors, causing them to close upon the actuation of smoke detectors as well as upon the application of a maximum manual pull of 50 pounds against the hold-open device.

911.5 Smoke damper: An approved damper designed to resist the passage of smoke shall be provided at each point a duct penetrates a smoke barrier. The damper shall close upon detection of smoke by an approved smoke detector located within the duct.

Exceptions:

1. In lieu of an approved smoke detector located within the duct, ducts which penetrate smoke barriers above smoke barrier doors required by Section 911.4 shall have the approved damper arranged to close upon detection of smoke by the local device designed to detect smoke on either side of the smoke barrier door opening.

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2. Dampers are not required in buildings equipped throughout with an approved engineered smoke control system.
3. Dampers are not required where the openings in ducts are limited to a single smoke compartment and the ducts are of steel construction.

SECTION 912.0 FIRERESISTANCE RATING OF STRUCTURAL MEMBERS

912.1 Requirements: The fireresistance rating of structural members and assemblies shall comply with the requirements for the type of construction and not less than the rating required for the fireresistance rated assemblies supported, except as provided in Section 910.6 for support of exit access corridor walls and in Section 911.2 for support of smoke barriers.

912.2 Protection of structural members: Columns, girders, trusses, beams, lintels, or other structural members that are required to have a fireresistance rating and that support more than two floors or one floor and roof, or support a bearing wall or a nonbearing wall more than two stories high, shall be individually protected on all sides for their length or height with materials having the required fireresistance rating. All other structural members required to have a fireresistance rating shall be protected by individual encasement, by a membrane or ceiling protection as specified in Section 913.0, or by a combination of both.

912.3 Embedments and enclosures: Pipes, wires, conduits, ducts or other service facilities shall not be embedded in the required fire protective covering of a structural member that is required to be individually encased.

912.4 Impact protection: Where the fire protective covering of a structural member is subject to impact damage from moving vehicles, the handling of merchandise, or other activity, the fire protective covering shall be protected by corner guards or by a substantial jacket of metal or other noncombustible material to a height adequate to provide full protection, but not less than 5 feet from the finished floor.

912.5 Exterior structural members: Structural members located in exterior walls or along the outer lines of a building or structure shall be protected as required by Table 401 for exterior bearing walls for the type of construction involved and shall be protected against corrosion by an approved method complying with Section 1808.1. The interior faces of exterior structural members shall be protected with coverings of not less than the required fireresistance rating specified for interior structural members in Table 401. Where a fireresistance rating is required in Table 401 for exterior bearing walls in buildings of Type 2C, 3B and 5B construction, the interior faces of any exterior structural member of such buildings shall be protected

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to provide a fireresistance rating not less than that required for exterior bearing walls.

912.6 Bottom flange protection: Fire protection is not required for the bottom flange of lintels, shelf angles and plates not a part of the structural frame or with a span of 6 feet or less.

912.7 Stone lintels: The use of stone lintels on spans exceeding 4 feet shall not be permitted, unless supplemented by fireresistance rated structural members or masonry arches of the required strength to support the superimposed loads.

SECTION 913.0 FIRERESISTANCE RATED FLOOR/ROOF/CEILING ASSEMBLIES

913.1 Installation of ceiling fixtures: Openings to accommodate noncombustible piping, ducts or electric outlets in fireresistive ceilings which constitute an integral part of a floor or roof assembly to meet a required fireresistance rating shall be not greater in aggregate area than 100 square inches in any 100 square feet of ceiling area. The fixtures and attachments shall be installed so as not to decrease the fireresistance rating of the assembly. All duct openings shall be protected with approved noncombustible ceiling dampers.

Exception: Ceiling dampers shall not be required when fire tests show that the integrity of the fireresistance rated assembly is maintained without the ceiling dampers.

913.2 Ceiling panels: Where the weight of lay-in ceiling panels, used as part of fireresistance rated floor/ceiling or roof/ceiling assemblies, is not adequate to resist an upward force of 1 psf, wire or other approved devices shall be installed above the panels to prevent vertical displacement under such upward force.

913.3 Unusable space: In an assembly required to have 1-hour fireresistance rating, the ceiling membrane of a tested assembly is not required to be installed over unusable space, or the flooring is not required to be installed where unusable space occurs above.

913.4 Openings in fireresistance rated floors: The required fireresistance rating of floor or floor/ceiling assemblies shall be maintained where a penetration is made for electrical, mechanical, plumbing and communication conduits, pipes and systems.

SECTION 914.0 ROOF CONSTRUCTION

914.1 General: Roofs shall be constructed of materials or assemblies of materials designed to afford the fireresistance rating required by Table 401 as herein modified.

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914.2 Stadiums: The roof construction, including beams, trusses, framing, arches and roof decks, enclosing stadiums of Type 1 or Type 2 construction shall be of noncombustible materials without a specified fireresistance rating or of Type 4 construction.

914.3 Roofs 20 feet or higher: Where every part of the structural framework of roofs in buildings of Type 1 or Type 2 construction is 20 feet or more above the floor immediately below, omission of all fire protection of the structural members is permitted, including the protection of trusses, roof framing and decking.

914.4 Roof slabs, arches and decking: Where the omission of fire protection from roof trusses, roof framing and decking is permitted, roofs in buildings of Type 1 and Type 2 construction shall be constructed of noncombustible materials without a specified fireresistance rating, or of Type 4 construction in buildings not over five stories or 65 feet in height.

914.5 Firestopping: Firestopping of ceiling and attic spaces shall be provided as required by Section 921.0.

SECTION 915.0 VERTICAL SHAFTS

915.1 General: The provisions of this section shall apply to all vertical shaft enclosures, except as provided for stairway enclosures in Sections 816.9 and 910.0, refuse chutes in Section 2506.0, and elevator and dumbwaiter hoistways in Section 2608.0.

915.2 Open shaft enclosures: The enclosing walls of shafts that are open to the outer air at the top shall be constructed of materials specified in Article 21 for exterior walls of buildings and structures of the required fireresistance rating specified in Table 401.

915.3 Covered shaft enclosures: The enclosing walls of interior covered shafts shall be constructed of approved materials with the fireresistance rating specified in Table 401. The tops of covered shafts shall comply with Section 915.5.

Exceptions:

1. Shafts in buildings of Use Group R-3 and serving a single dwelling unit are not required to be enclosed.
2. The minimum required fireresistance rating for shaft enclosures connecting three floor levels or less shall be 1 hour.

915.4 Duct and pipe shafts: In all buildings other than buildings of Use Group R-3, vertical pipes arranged in groups of two or more which penetrate two or more

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floors and occupy an area of more than 1 square foot, and vertical ducts which penetrate two or more floors, shall be enclosed by construction having the fireresistance rating specified in Table 401. All combustible pipes and ducts connecting two or more stories shall be enclosed as indicated herein.

915.4.1 Shaft alternative: Where a shaft is required by Section 915.4, a shaft shall not be required where a pipe penetration protection system tested according to ASTM E814 listed in Appendix A is provided and has an F rating and T rating of 1 hour but not less than the required fireresistance rating of the assembly being penetrated. The test shall be conducted with a minimum positive pressure differential of 0.03 inches of water column.

915.5 Top enclosure: A shaft that does not extend to the underside of the roof deck of the building shall be enclosed with top construction of the same strength and fireresistance rating as the floors of the building or structure in which it occurs, but not less than that of the fireresistance rating of the shaft enclosure.

915.6 Bottom enclosure: All shafts that do not extend to the bottom of the building or structure shall be enclosed at the lowest level with construction of the same strength and fireresistance rating as the lowest floor through which it passes, but not with a fireresistance rating less than that of the shaft enclosure.

915.7 Shaft openings: Openings other than those necessary for the purpose of the shaftway shall not be constructed in shaft enclosures. All openings shall be protected with approved fire doors, fire windows or fire dampers complying with the provisions of Sections 907.0, 916.0, 917.0, and 918.0.

915.7.1 Shaft wall penetrations: Noncombustible pipe, tube and conduit penetrating a shaft wall shall have approved firestopping installed around the penetrating pipe, tube and conduit. Such firestopping shall be capable of maintaining the integrity of the shaft wall when subjected to the test temperatures prescribed in ASTM E119 listed in Appendix A for the duration of time equal to the rating of the assembly to be penetrated and then subjected to the hose stream test as prescribed in ASTM E119 listed in Appendix A. Each penetration of a shaft wall by a combustible pipe, tube or conduit shall be protected by a through-penetration firestop system that has been tested according to ASTM E814 listed in Appendix A or a system that has been tested according to ASTM E119 listed in Appendix A. The through penetration firestop system tested according to ASTM E814 shall have an F rating and T rating not less than the required fireresistance rating of the shaft wall penetrated. The system tested according to ASTM E119 shall have a fireresistance rating not less than the required fireresistance rating of the shaft wall penetrated. The ASTM E814 test shall be conducted with a minimum positive pressure differential of 0.03 inches of water column.

SECTION 916.0 FIRE DOOR ASSEMBLIES

916.1 Fire door assemblies: Approved fire door assemblies as defined in this code shall be constructed of any material or an assembly of component materials which meets the test requirements of ASTM E152 listed in Appendix A and the fireresistance rating herein required in Table 916, unless otherwise specifically provided for in this code.

916.1.1 Twenty-minute doors: One-third hour (20-minute) fire doors shall be tested in accordance with ASTM E152 listed in Appendix A without the hose stream test.

916.2 Labeled protective assemblies: All fire door assemblies shall be labeled by an approved agency. Labeled protective assemblies meeting the requirements of this section or UL 10A, 14B and 14C for tin-clad fire door assemblies, and NFiPA 80 listed in Appendix A, shall be approved for use as provided for in this code.

916.2.1 Labeling requirements: Fire doors shall have a label or other identification showing the name of the manufacturer, the fireresistance rating and, where required for stairway fire doors by Section 816.6.3, the maximum transmitted temperature end point. Such label shall be approved and shall be permanently affixed. The label shall be applied at the factory where fabrication and assembly are done. Inspection shall be made by an approved agency.

916.2.2 Oversize doors: Approval of doors which cannot be labeled because of size shall be based on a certificate of inspection furnished by an approved testing agency for such oversize doors. The certificate shall state that the door conforms to the requirements of design, materials and construction, but has not been subjected to the fire test.

916.3 Multiple doors in fire walls: Two doors, each with a fireresistance rating of 1½ hours, installed on opposite sides of the same opening in a Fire wall, shall be deemed equivalent in fireresistance rating to one 3-hour fire door.

916.4 Glass panels: Wired glass panels shall be permitted in fire doors within the limitations of Section 919.0 and as herein specifically prescribed.

916.5 Closing devices: Except as otherwise provided for openings in fire walls and fire separation walls, all fire doors shall be self-closing and shall be closed during occupancy of the building or part thereof. The use of rate-of-rise heat-actuated devices, fusible links, or smoke detection devices on doors that are normally required to be open for ventilation or other specified purposes shall be permitted when the safety of the occupants is not endangered thereby.

916.5.1 Smoke-actuated closing devices: Where fire doors open onto an exit access, exit or horizontal exit and are not self-closing, door closers shall be smoke-actuated.

916.5.2 Closing time: Doors which are automatic-closing by smoke detection or by rate-of-rise detection, or self-closing, shall not have a delay in closing or reclosing of more than 10 seconds.

**Table 916
FIRE DOOR RESISTANCE RATINGS**

Location	Fireresistance ratings in hours
Exit access corridor enclosures of 1-hour construction	1/3 ^a
Fire walls and fire separation walls of 3 or more hour construction	3
Fire walls, fire separation walls and exit enclosures of 1½- or 2-hour construction	1½
Shaft and exit enclosures of 1-hour construction	1
Shaft enclosures and elevator hoistways of 2-hour construction	1½
Other fire separation walls of 1-hour construction	¾

Note a. For testing requirements, see Section 916.1.1.

SECTION 917.0 FIRE WINDOWS AND SHUTTERS

917.1 Fireresistance rating: Approved assemblies of fire windows and fire shutters shall meet the test requirements of ASTM E163 listed in Appendix A. Fire windows shall be in the fixed closed position or be automatic-closing.

917.1.1 Exception: Steel window frame assemblies of 1/8-inch minimum solid section or of not less than nominal 0.048 inch thick formed sheet steel members fabricated by pressing, mitering, riveting, interlocking or welding and having provision for glazing with 1/4-inch wired glass as required in Section 919.0 when securely installed in the building construction and glazed with 1/4-inch labeled wired glass, shall be deemed to meet the requirements for a ¾-hour fire window assembly.

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917.2 Window mullions: All metal mullions which exceed a nominal height of 12 feet shall be protected with materials to afford the same fireresistance rating as required for the wall construction in which the protective is located.

917.3 Swinging fire shutters: When fire shutters of the swinging type are used in exterior openings, not less than one row in every three vertical rows shall be arranged to be readily opened from the outside, and shall be identified by distinguishing marks or letters not less than 6 inches high.

917.4 Rolling fire shutters: When fire shutters of the rolling type are used, they shall be of approved counterbalanced construction that can be readily opened from the outside.

SECTION 918.0 FIRE DAMPERS

918.1 Approval: Fire dampers shall comply with UL555 listed in Appendix A and shall bear the label of an approved agency. Fire dampers shall be installed in accordance with the manufacturer's installation instructions. Fire dampers shall be capable of maintaining the integrity of the required fireresistance rating.

918.2 Where required: Fire dampers shall be provided at locations where air distribution systems penetrate assemblies required to have a fireresistance rating.

Exceptions: Fire dampers are not required:

1. Where proper fire tests have shown that fire dampers are not necessary to maintain the integrity of the fireresistance rated assembly.
2. Where an exhaust duct penetrates a fireresistance rated shaft wall and the subduct extends not less than 22 inches vertically upward.
3. At penetrations of tenant separation and corridor walls in buildings equipped throughout with an approved automatic fire suppression system.
4. Where the ducts are constructed of steel and are part of an engineered smoke removal system.
5. At penetrations of corridor walls when the ducts are constructed of steel and do not have openings which communicate the corridor with adjacent spaces or rooms.
6. At penetrations of a roof assembly when ducts are open to the atmosphere.
7. In hazardous exhaust systems as defined in the BOCA National Mechanical Code listed in Appendix A.
8. Where ceiling dampers are installed in accordance with Section 913.1.

918.3 Accessibility: Fire dampers shall be accessible.

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SECTION 919.0 WIRED GLASS

919.1 Maximum size: One-quarter inch wired glass, which has been labeled for use in approved labeled opening protectives, shall conform to the size limitations set forth in Table 919.

Table 919
LIMITING SIZE OF WIRED GLASS PANELS

Rating, opening	Max. area sq. in.	Max. height inches	Max. width inches
3-hour	0	0	0
1½-hour doors in exterior wall	0	0	0
1-and 1½-hour	100	33	10
¾-hour	1,296	54	54
Fire windows	1,296	54	54

919.1.1 Fire walls: Wired glass in fire doors located in fire walls shall be prohibited except that where serving as a horizontal exit, a self-closing swinging door shall be permitted to have a vision panel of not more than 100 square inches without a dimension exceeding 10 inches.

919.1.2 Fire separation walls: Wired glass vision panels shall not be used in fire doors of 1½-hour fireresistance rating intended for use in fire separation walls, unless the glass panels are not more than 100 square inches in area.

919.2 Exit and elevator protectives: Unless specifically required by Article 6 to be solid in such locations where unusually hazardous conditions prevail, approved wired glass vision panels used in fire doors in elevator and stairway shaft enclosures shall be so located as to furnish clear vision of the passageway or approach to the elevator or stairway and shall not exceed the size limitations specified in Table 919.

919.3 Fire separation walls: One-quarter inch wired glass panels shall not be used in fire separation walls used for subdividing purposes as set forth in Section 910.1 when the required fireresistance rating of the wall exceeds 1 hour. The maximum size of such panels shall not exceed the limitations for a ¾-hour door.

SECTION 920.0 FIRERESISTIVE REQUIREMENTS FOR PLASTER

920.1 Thickness of plaster: The required thickness of fireresistance rated plaster protection shall be determined by the prescribed fire tests for the specified use and type of construction and in accordance with the provisions of Section 1601.0 for interior plastering and Section 1602.0 for exterior plastering. The thickness in all cases shall be measured from the face of the lath when applied to gypsum lath or metal lath.

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920.2 Plaster equivalents: For fireresistive purposes, ½ inch of unsanded gypsum plaster shall be deemed equivalent to ¾ inches of one-to-three sanded gypsum or 1 inch portland cement sand plaster.

920.3 Noncombustible furring: In Types 1 and 2 construction, plaster shall be applied directly on masonry or on approved noncombustible plastering base and furring.

920.4 Double reinforcement: Except in solid plaster partitions, or when otherwise determined by the prescribed fire tests, plaster protection more than 1 inch in thickness shall be reinforced with an additional layer of approved lath embedded at least ¾ inch from the outer surface and fixed securely in place.

920.5 Plaster alternates for concrete: In reinforced concrete construction, gypsum or portland cement plaster is permitted to be substituted for ½ inch of the required poured concrete protection, except that a minimum thickness of ¾ inch of poured concrete shall be provided in all reinforced concrete floors and 1 inch in reinforced concrete columns in addition to the plaster finish. The concrete base shall be prepared in accordance with Section 1602.0.

SECTION 921.0 FIRESTOPPING AND DRAFTSTOPPING

921.1 General: To prevent the free passage of flame and products of combustion through concealed spaces or openings in the event of fire, provisions shall be made to provide effective firestops or draftstops as herein specified.

921.2 Firestopping materials: All firestopping shall consist of approved noncombustible materials securely fastened in place. Firestops of approved noncombustible materials or of materials of two thicknesses of 1-inch lumber with broken lap-joint, or one thickness of 23/32-inch plywood with joints backed by 23/32-inch plywood, or of 2-inch lumber installed with tight joints, shall be used in open spaces of wood framing.

921.3 Draftstopping materials: Draftstopping materials shall be not less than ½-inch gypsum board, ¾-inch plywood or other approved materials adequately supported.

921.4 Integrity: The integrity of all firestopping and draftstopping shall be continuously maintained.

921.5 Required inspection: Firestopping and draftstopping shall not be concealed from view until inspected and approved.

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921.6 Firestopping required: Firestopping shall be provided in the locations specified in Sections 921.6.1 through 921.6.7.

921.6.1 Concealed wall spaces: In concealed spaces of stud walls and partitions, including furred or studded-off spaces of masonry or concrete walls, at the ceiling and floor or roof levels.

921.6.2 Connections between horizontal and vertical spaces: At all interconnections between vertical and horizontal spaces such as occur at soffits over cabinets, drop ceilings, cove ceilings and similar locations.

921.6.3 Stairs: In concealed spaces between stair stringers at the top and bottom of the run.

921.6.4 Ceiling and floor openings: At openings around vents, pipes, ducts, chimneys and fireplaces at ceiling and floor levels, with noncombustible materials.

921.6.5 Architectural trim: In exterior cornices and other exterior architectural elements where permitted of combustible construction in Section 926.0, or when erected with combustible frames, at maximum intervals of 20 feet. If noncontinuous, they shall have closed ends, with at least 4 inches of separation between sections.

921.6.6 Combustible finish and trim: In the space behind combustible trim and finish where permitted under this code and all other hollow spaces where permitted in fire-resistance rated construction at 10 foot intervals; or the space shall be solidly filled with noncombustible materials.

921.6.7 Concealed sleeper spaces: In concealed spaces formed by floor sleepers in areas of not more than 100 square feet; or the space shall be solidly filled with noncombustible materials.

921.7 Draftstopping required: Draftstopping shall be provided in Types 3, 4 and 5 construction in the locations specified by Sections 921.7.1 and 921.7.2.

921.7.1 Floors: Where ceilings are suspended below solid wood joists or suspended or attached directly to the bottom of open web wood floor trusses, the space between the ceiling and the floor above shall be divided by providing draftstopping as specified in Sections 921.7.1.1 through 921.7.1.3.

921.7.1.1 Use Groups R-1 and R-2: In buildings of Use Groups R-1 and R-2, draftstopping shall be in line with the tenant separation walls when the walls do not extend to the floor sheathing above.

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921.7.1.2 Use Group R-3: In buildings of Use Group R-3, the space shall be divided into approximately equal areas not greater than 500 square feet. The draftstopping shall be provided parallel to the main framing members.

921.7.1.3 Other use groups: In all other use groups, draftstopping shall be provided so that horizontal areas do not exceed 1,000 square feet.

Exception: Where the space above a ceiling is of combustible construction and the building is sprinklered above and below the ceiling, the draftstopping is not required.

921.7.2 Attics and concealed spaces: Attics and concealed roof spaces shall be provided with draftstopping as specified in Sections 921.7.2. 1 and 921.7.2.2.

921.7.2.1 Use Group R: In buildings of Use Group R, in the attic, mansard, overhang or other concealed roof space, above and in line with the tenant separation walls which do not extend to the roof sheathing above. (See exceptions next page.)

Exceptions:

1. Where corridor walls provide a tenant separation, draftstopping shall only be required above one of the corridor walls.
2. Where flat roofs with solid joist construction are used, draftstopping over tenant separation walls is not required.
3. Where the space above a ceiling is of combustible construction and the building is sprinklered above and below the ceiling, the draftstopping is not required.
4. Draftstopping is not required in detached one- and two-family dwellings.

921.7.2.2 Other use groups: In attics and concealed roof spaces, so that any horizontal area does not exceed 3,000 square feet.

Exceptions:

1. Where flat roofs with solid joist construction are used, draftstopping over tenant separation walls is not required.
2. Where the space above a ceiling is of combustible construction and the building is sprinklered above and below the ceiling, the draftstopping is not required.

921.8 Ventilation: Ventilation of concealed roof spaces shall be maintained in accordance with Section 709.0.

921.9 Access to attics: A readily-accessible access opening not less than 22 inches by 30 inches shall be provided to any attic area having a clear height of over 30

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inches. When doors or other openings are provided in the draftstopping, they shall be self-closing and of approved materials specified in this section, and the construction shall be tightly fitted around all pipes, ducts or other assemblies piercing the draftstopping.

SECTION 922.0 INTERIOR FINISH AND TRIM

922.1 General: Interior finish and trim of buildings shall conform to the requirements of this section. Interior finish shall include all wainscoting and paneling or other finish applied structurally or for acoustical treatment, insulation, decoration or similar purposes. The use of a surface finish of paper or of material of not greater fire hazard than paper shall not be prohibited provided such finish does not exceed 1/28 inch in thickness and is applied directly to a noncombustible base or substrate meeting the requirements of Section 903.5.2. Show windows in the first story of buildings are permitted to be of wood or unprotected metal framing.

922.2 Exposed construction: These requirements shall not be considered as requiring the installation of interior finish, but where construction or fire protection materials are exposed in rooms or spaces used for the occupancies specified in Section 922.5, the hazard from rate of flame spread of such exposed materials shall be not greater than that of the interior finish permitted for such occupancy or use. Exposed portions of structural members complying with the requirements for Type 4 construction in Sections 405.0 and 1702.0 shall not be subject to interior finish regulations.

922.3 Smoke or gases: Interior finish materials shall not be permitted that have a smoke developed rating greater than 450 when tested in accordance with ASTM E84 listed in Appendix A. When restrictions are not otherwise established in this code, interior finish is not controlled, except that pyroxylin or similar finishes shall not be applied which, as dry films, produce excessive smoke or toxic fumes when exposed to fire.

922.4 Materials: Materials shall only be used for interior finish and trim as specifically provided in this code for the occupancy or use of the space in which it is installed. Use of any material for floor finish, interior finish, and trim in a building of Type 1 or 2 construction within the scope permitted in this section or Section 924.0 shall not declassify the building with respect to its type of construction.

922.4.1 Foam plastics: Foam plastics shall not be used as interior trim or finish except in compliance with this section and Section 2002.0.

922.5 Interior finish: Interior finish of walls and ceilings shall have a flame spread rating not greater than that designated by the class prescribed for the various use

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groups listed in Table 922.5, when tested in accordance with the requirements of Section 904.2.

922.5.1 Basements: In buildings or structures other than Use Group R-3, Class I or II interior finish shall be used in all basements or other underground spaces from which there is not direct exit to the outside of the building, if subject to occupancy for any purpose other than storage or service facilities.

922.5.2 Maximum flame spread: Interior finish materials with flame spread classifications greater than 200 shall not be used in any room or space subject to human occupancy, except to such extent as specifically approved on the basis of a finding that such use does not significantly increase the life hazard.

922.5.3 Flame spread classifications: The classifications of interior finishes referred to herein correspond to flame spread ratings determined by ASTM E84 listed in Appendix A as follows: Class I flame spread, 0 - 25; Class II flame spread, 26 - 75; Class III flame spread, 76 - 200.

922.5.4 Rooms and enclosed spaces: Requirements for rooms or enclosed spaces are based upon spaces enclosed in partitions of the building or structure, and where fire-resistance rating is required for the structural elements, the enclosing partitions shall extend from the floor to the ceiling. Partitions which do not comply with this shall be considered as enclosing spaces and the rooms or spaces on both sides thereof shall be counted as one. In determining the applicable requirements for rooms or enclosed spaces, the specific use or occupancy thereof shall be the governing factor, regardless of the use group classification of the building or structure. Where an approved automatic fire suppression system is provided, interior finish of Class II or III materials is permitted to be used in place of Class I or II materials respectively, where required in Table 922.5.

922.6 Interior trim: Baseboards, chairrails, moldings, trim around openings and other interior trim, not in excess of 10 percent of the aggregate wall and ceiling areas of any room or space, shall be of Class I, II or III materials, except that trim around fire windows and fire doors shall comply with the requirements of Sections 916.0 and 917.0.

922.7 Interior floor finish: Finished floors or floor covering materials of a traditional type, such as wood, vinyl, linoleum, terrazzo and other resilient floor covering materials are exempt from the requirements of this section. Floor coverings judged by the building official to represent an unusual hazard shall meet the classification prescribed for the various use groups listed in Table 922.7 when tested in accordance with the requirements of Section 904.3.

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922.7.1 Suppression system exception: Where an approved automatic fire suppression system is provided, Class II materials are permitted in any area where Class I materials are required and materials complying with the DOC FF-1 "pill test" listed in Appendix A are permitted in any area where Class II materials are required.

922.7.2 Test report: All carpet required by this section to meet critical radiant flux limits in accordance with Section 904.3 shall be tested by an approved agency. A copy of the test report identifying and representing the style to be installed shall be provided to the building official upon request. The test report shall identify the carpet by manufacturer (or supplier) and style name, and shall be representative of the current construction of the carpet.

The carpet shall be identified as to manufacturer (or supplier) and style by a hang tag or other suitable method, which shall indicate the classification of the material based upon the limits specified in Section 904.3.

922.7.3 Rooms and enclosed spaces: Requirements for rooms or enclosed spaces are based upon the spaces being enclosed with partitions extending from the floor to the ceiling. Where partitions do not satisfy this criteria, the room or space is considered part of the corridor.

922.7.4 Other materials: All carpet manufactured for sale in the United States is required by federal regulations to pass the DOC FF-1 "pill test" (16 CFR, Part 1630) listed in Appendix G. If a material other than carpet is used, the material shall be shown to be at least as resistant to flame propagation as a material which passes DOC FF-1 (minimum critical radiant flux of 0.04 watts/cm²).

922.7.5 Classifications: The classifications in Table 922.7 correspond to that determined by ASTM E648 listed in Appendix A as follows: Class I, 0.45 watts/cm²; Class II, 0.22 Watts/cm².

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**Table 922.5
INTERIOR FINISH REQUIREMENTS^g**

Use Groups	Required vertical exits and passageways ^c	Corridors providing exit access	Rooms or enclosed spaces ^a
A-1 Assembly, theaters	I	I ^e	II ^b
A-2 Assembly, night clubs	I	I ^e	II ^b
A-3 Assembly halls, terminals, restaurants	I	I ^e	II ^b
A-4 Assembly, churches	I	II	III
B Business	I	II	III
E Educational	I	II	III
F Factory	I	II	III
H High hazard	I	II	III ^f
I-2 Institutional, incapacitated	I ^h	I ^h	I ^h
I-3 Institutional, restrained	I	I	III
M Mercantile walls, ceilings	I	II	III
	I	II	II ^d
R-1 Residential, hotels	I	II	III
R-2 Residential, multi-family dwelling	I	II	III
R-3 Residential, 1- and 2- family dwellings	III	III	III
S-1 Storage, moderate hazard	II	II	III
S-2 Storage, low hazard	II	II	III

Note a. For requirements applicable to rooms and enclosed spaces, see Section 922.5.4.

Note b. Class III interior finish materials are permitted in places of assembly with a capacity of 300 persons or less.

Note c. Class III interior finish materials are permitted for wainscoting or paneling for not more than 1,000 square feet of applied surface area in the grade lobby when applied directly to a noncombustible base or over furring strips applied to a noncombustible base and firestopped as required by Section 923.0.

Note d. Class III interior finish materials are permitted in mercantile occupancies of 3,000 square feet or less gross area used for sales purposes on the street floor only (balcony permitted).

Note e. Lobby areas shall be not less than Class II.

Note f. Where building height is over two stories, Class II shall be required.

Note g. For the classifications of interior finishes referred to herein, see Section 922.5.3. For interior finish requirements for exposed insulation, see Section 928.2.

Note h. Walls and ceilings shall be a minimum of Class II materials in individual rooms of not over four persons capacity. Where a complete approved automatic fire suppression system is provided, the minimum requirement for interior finish shall be Class II.

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**Table 922.7
INTERIOR FLOOR FINISH REQUIREMENTS^c**

Use Groups	Required vertical exits and passageways	Corridors providing exit access	Rooms or enclosed spaces ^a
A-1 Assembly, theaters	II	II	DOC FF-1 ^b
A-2 Assembly, night clubs	II	II	DOC FF-1 ^b
A-3 Assembly halls, terminals restaurants	II	II	DOC FF-1 ^b
A-4 Assembly, churches	II	II	DOC FF-1 ^b
B Business	II	II	DOC FF-1 ^b
E Educational	II	II	DOC FF-1 ^b
F Factory and Industrial	DOC FF-1 ^b	DOC FF-1 ^b	DOC FF-1 ^b
H High hazard	DOC FF-1 ^b	DOC FF-1 ^b	DOC FF-1 ^b
I-2 Institutional, incapacitated	I	I	DOC FF-1 ^b
I-3 Institutional, restrained	II	II	DOC FF-1 ^b
M Mercantile	II	II	DOC FF-1 ^b
R-1 Residential, hotels	II	II	DOC FF-1 ^b
R-2 Residential, multi-family	II	II	DOC FF-1 ^b
R-3 Residential, 1 & 2- family	DOC FF-1 ^b	DOC FF-1 ^b	DOC FF-1 ^b
S-1 Storage, moderate hazard	DOC FF-1 ^b	DOC FF-1 ^b	DOC FF-1 ^b
S-2 Storage, low hazard	DOC FF-1 ^b	DOC FF-1 ^b	DOC FF-1 ^b

Note a. For requirements for rooms and enclosed spaces, see Section 922.7.3.

Note b. For requirements for use of other than carpet materials, see Section 922.7.4.

Note c. For classifications of floor finishes required herein, see Section 922.7.5.

SECTION 923.0 APPLICATION OF INTERIOR FINISH

923.1 Attachment: Where interior finish is regulated by the requirements of this code, interior finish materials shall be applied or otherwise fastened in such a manner that they will not readily become detached when subjected to room temperatures of 200 degrees F. (93 degrees C.) or less for 30 minutes, or otherwise become loose through changes in the setting medium from the effects of time or conditions of occupancy.

923.2 Application to structural elements: Interior finish materials applied to walls, ceilings or structural elements of a building or structure which are required to be fire-resistance rated or to be constructed of noncombustible component materials shall be applied directly against the exposed surface of such structural elements or

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to furring strips attached to such surfaces with all concealed spaces created thereby firestopped where in excess of 10 feet in any dimension (see Section 921.6.6).

3.3 Furred construction: Where walls, ceilings or other structural elements are required to be fireresistance rated or to be constructed of noncombustible component materials and interior finish is set out or dropped distances greater than 1¾, inches from the surface of such elements, only material of which both faces qualify as Class I shall be used.

Exceptions:

1. Class II finish materials shall be permitted when protected on both sides by an approved automatic fire suppression system.
2. Class II or III materials shall be permitted when attached to a noncombustible backing complying with Section 923.6 or to furring strips applied directly to such backing as provided in Section 923.2.

923.4 Type 4 construction: Interior finish materials shall be applied directly to the wood members and decking of Type 4 construction, or to furring strips applied to such members or wood decking as provided in Section 923.2.

923.5 Class II and III materials: Interior finish materials, other than Class I materials, which are less than ¼ inch in thickness shall be applied directly against a noncombustible backing or a backing complying with the requirements of Section 903.5.2 unless the tests under which such material has been classified were made with the materials suspended from the noncombustible backing.

923.6 Backing material: Backing for interior finish materials shall be a continuous surface with permanently tight joints, equal in area to the area of the finish, and extending completely behind such finish in all directions; and shall be of fire-retardant treated wood or any materials meeting the requirements of this code for noncombustible classification of material under Section 903.4.1.

When the backing does not constitute an integral part of the structural elements or system, it shall be attached directly to the structural elements or to furring strips as required for the application of finish according to Section 923.2, or shall be suspended from the structural members at any distance provided concealed spaces created thereby shall be firestopped in accordance with Section 921.0.

SECTION 924.0 COMBUSTIBLE MATERIALS PERMITTED IN FLOORS OF TYPES I AND 2 CONSTRUCTION

924.1 General: Except as provided in Section 816.0 for stairs and Section 615.0, the use of combustible materials in or on floors of buildings of Types 1 and 2 construction shall be as herein specified.

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924.2 Sleepers, bucks, and grounds: Floor sleepers, bucks, nailing blocks and grounds shall not be constructed of combustible materials, unless the space between the fireresistance rated floor construction and the flooring is either solidly filled with noncombustible materials or firestopped in accordance with Section 921.6.7, and provided such open spaces shall not extend under or through permanent partitions or walls.

924.3 Flooring: Wood finish flooring is permitted to be attached directly to the embedded or firestopped wood sleepers, and shall be permitted when cemented directly to the top surface of approved fireresistance rated construction or directly to a wood subfloor attached to sleepers as provided in Section 924.2. Combustible insulating boards not more than ½ inch thick and covered with approved finished flooring are permitted for sound deadening or heat insulating when attached directly to a noncombustible floor assembly or to wood subflooring attached to sleepers as provided in Section 924.2.

SECTION 925.0 DECORATIVE MATERIAL RESTRICTIONS

925.1 General: In buildings of Use Groups A, E, I-2, I-3 and R-1, all curtains, draperies, hangings and other decorative materials suspended from walls or ceilings shall be noncombustible or maintained flameresistant meeting the requirements of Section 904.0 as herein specified and 527 CMR 21.00.

925.2 Noncombustible: The permissible amount of noncombustible decorative hangings shall not be limited.

925.3 Flameresistant: The permissible amount of flameresistant decorative hangings shall not exceed 10 percent of the total wall and ceiling area.

SECTION 926.0 EXTERIOR TRIM RESTRICTIONS

926.1 Gutters and leaders: All gutters and leaders hereafter placed on buildings or structures of other than Type 5 construction, buildings of Use Group R-3 and private garages and similar accessory buildings shall be constructed of noncombustible materials.

926.2 Architectural trim: Architectural trim shall be constructed and installed in accordance with Sections 926.2.1 through 926.2.3.

926.2.1 Construction requirements: All architectural trim, such as cornices, veneers and other exterior architectural elements, which exceeds 40 feet in height above grade shall be constructed of approved noncombustible materials and shall be secured to the wall with metal or other approved noncombustible brackets. Combustible architectural trim, other than fire-retardant treated wood complying

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with Section 903.5 for exterior use, shall not exceed 10 percent of an exterior wall surface area where the fire separation distance is 5 feet or less.

926.2.2 Location: Where combustible architectural trim is located along the top of exterior walls, it shall be completely backed up by the exterior wall and shall not extend over or above the top of exterior walls.

926.2.3 Firestopping: Continuous exterior architectural trim constructed of combustible materials shall be firestopped as required in Section 921.0.

926.3 Combustible half-timbering: In buildings of Types 3 and 4 construction that do not exceed three stories or 40 feet in height above grade, exterior half-timbering and similar architectural decorations are permitted to be constructed of wood or other equivalent combustible materials, provided such trim is backed up solidly with approved noncombustible materials.

926.4 Balconies and similar appendages: All balconies, porches, decks and supplemental exterior stairs attached to or supported by buildings of Types 1 and 2 construction shall be constructed of noncombustible materials. Such appendages attached to or supported by buildings of Types 3, 4 and 5 construction shall be of either noncombustible or combustible construction. Such appendages of combustible construction, other than fire-retardant treated wood, shall afford the fire-resistance rating required by Table 401 for floor construction or shall be of Type 4 construction as described in Section 405.0 and the aggregate length shall not exceed 50 percent of the building perimeter on each floor.

926.5 Bay and oriel windows: All bay and oriel windows attached to or supported by walls of other than Type 5 construction shall be of noncombustible construction, framed with brackets of steel, concrete or other approved noncombustible materials.

SECTION 927.0 ROOF STRUCTURES

927.1 General: All construction, other than aerial supports, clothes dryers and similar structures less than 12 feet high, water tanks and cooling towers as hereinafter provided and flag poles erected above the roof of any part of any building or structure more than 40 feet in height shall be constructed of noncombustible materials.

927.2 Scuttles: Trap doors and scuttles as required by Section 817.0 shall be not less than 2 feet by 3 feet in size. In Types 1 and 2 construction, trap doors and scuttles shall be of approved noncombustible materials.

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927.3 Penthouses: Penthouses shall be considered a part of the next lower story, and the enclosure shall conform to the requirements for exterior walls of the building type as regulated by Table 401 and Article 21 except as modified herein.

927.3.1 Recessed walls: When the exterior wall of a penthouse is recessed 5 feet or more from the exterior wall of the next lower story and the exterior wall of the next lower story is required to have a fire-resistance rating of greater than 1½ hours, the Penthouse exterior wall shall be constructed with a fire-resistance rating of not less than 1½ hours, covered on the outside with noncombustible, weatherproof material and supported on protected steel or reinforced concrete construction.

927.3.2 Doors, frames, and sash: Doors, frames and window sash, except where otherwise specifically required to be fire-resistance rated under this code, shall be constructed the same as other similar elements in the building or structure.

927.4 Other enclosed roof structures: Enclosed roof structures, other than penthouses as defined in Article 2, shall be considered a story of the building and shall conform to the requirements for the building type as regulated by Table 401 and Article 21.

927.5 Mansards and other sloping roofs: Mansards and other sloping roofs shall comply with Sections 927.5.1 and 927.5.2.

927.5.1 High slope roofs: Every mansard roof or other sloping roof having a pitch of more than 60 degrees to the horizontal hereafter erected on any building or structure of other than Type 5 construction more than three stories or 40 feet in height shall be constructed of noncombustible materials with a fire-resistance rating of not less than 1 hour. When the building is more than seven stories or 85 feet in height, such roofs shall afford the same fire-resistance rating required for the exterior walls of the building, but need not exceed 1½-hour fire-resistance rating.

927.5.2 Low slope roofs: Where the pitch is 60 degrees or less to the horizontal, the mansard or other sloping roof located on any building shall be constructed of not less than the same materials as required for the roof of the building.

927.6 Dormers: The sides and roofs of dormers shall be of the same type of construction as the main roof, except that where a side of the dormer is a vertical extension of an exterior wall it shall be subject to the same fire-resistance rating requirements as apply to the wall of the building. The roofs of dormers shall be protected with approved roof coverings complying with Section 2301.0. The sides of dormers shall be protected with approved roof coverings or with material permitted for covering the exterior walls of the building.

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927.7 Water tanks: Water tanks shall be constructed and installed in accordance with Sections 927.7.1 through 927.7.5.

927.7.1 Supports: Water tanks having a capacity of more than 500 gallons laced in or on a building shall be supported on masonry, reinforced concrete, steel or other approved noncombustible framing or on timber conforming to Type 4 construction; provided that, when such supports are located in the building above the lowest story, they shall be fireresistance rated as required for Type 1A construction.

927.7.2 Emergency discharge: A pipe or outlet shall be located in the bottom or in the side close to the bottom, or the tank shall be fitted with a quick opening valve, to enable the contents to be discharged in an emergency to a suitable drain complying with the Massachusetts State Plumbing Code (248 CMR 2.00) listed in Appendix G.

927.7.3 Location: A tank shall not be located over or near a stairway or elevator shaft unless a solid roof or floor deck is constructed underneath the tank.

927.7.4 Tank cover: All roof tanks exposed to the weather shall have approved covers sloping towards the outer edges.

927.7.5 Hoop and strap protection: When metal hoops are used in the construction of wood tanks, they shall be protected with approved corrosion-resistive coatings or manufactured from approved corrosion-resistive alloys.

927.8 Cooling towers: Cooling towers erected on the roofs of buildings when the base of the tower is more than 55 feet above grade shall be constructed of noncombustible materials or of fire-retardant treated wood except that drip bars are not required to be of noncombustible material or of fire-retardant treated wood.

927.9 Miscellaneous roof structures: Except as herein specifically provided, all towers, spires, dormers or cupolas shall be erected of the type of construction and fireresistance rating required for the building to which they are accessory as regulated by Table 401 and 501. When the height of such appurtenant structures exceeds 85 feet above grade or when the area at any horizontal section of the tower, spire, dormer or cupola exceeds 200 square feet, or when it is used for any purpose other than as a belfry or architectural embellishment, the structure and its supports shall be of Type 1 or 2 construction, or of fire-retardant treated wood complying with Section 901.5. Radio and television towers and antennae shall be constructed to comply with Sections 623.0 and 624.0.

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SECTION 928.0 THERMAL AND SOUND INSULATING MATERIALS

928.1 General: Insulating batts, blankets, fills or similar types of materials, other than fiberboard insulation, including vapor barriers and breather papers or other coverings, incorporated in construction elements shall be installed as required by this section. Fiber board insulation shall be installed as required by Section 1709.0.

928.2 Exposed installations: Such materials, when exposed as installed in rooms or spaces, including attics and crawl spaces of buildings of any type construction, shall have a flame spread rating of 25 or less and a smoke developed rating of 450 or less when tested in accordance with ASTM E84 listed in Appendix A. Plenum installations shall comply with the requirements of Section 929.0 and the BOCA National Mechanical Code listed in Appendix A.

928.3 Concealed installations: Insulating materials, when concealed as installed in buildings of any type construction, shall have a flame spread rating of 75 or less and a smoke developed rating of 450 or less when tested in accordance with ASTM E84 listed in Appendix A.

928.3.1 Facings: Where such materials are installed in concealed spaces such as wall, floor or ceiling cavities, attics or crawl spaces in buildings of Types 3, 4 and 5 construction, the flame spread and smoke developed rating limitations do not apply to facings, provided that the facing is installed behind and in substantial contact with the unexposed surface of the ceiling, floor or wall finish.

928.4 Cellulosic insulation: Cellulosic insulation shall meet the requirements of CPSC Standard 16 CFR, Parts 1209 and 1404, listed in Appendix G.

SECTION 929.0 PLENUMS

929.1 General: Supply and return air plenums shall be limited to uninhabited crawl spaces, areas above a ceiling or below the floor, or attic spaces. Plenums shall be limited to one fire area. Fuel-fired equipment shall not be installed within a plenum. Plenums shall be classified as noncombustible plenums (929.2), as combustible plenums (929.3) or as stud and joist space plenums (929.4).

929.2 Noncombustible plenums: Plenums shall be constructed with noncombustible material. Combustible material shall not be exposed within a plenum except as permitted in Sections 929.2.1 through 929.2.5.

929.2.1 Pipe: Pipe shall be noncombustible and, where insulated, the insulation shall have a flame spread of 25 or less and smoke developed rating of 50 or less when tested in accordance with ASTM E84 listed in Appendix A.

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929.2.2 Ceiling and thermal material: Thermal and acoustical materials shall have a flame spread of 25 or less and a smoke developed rating of 50 or less when tested in accordance with ASTM E84 listed in Appendix A.

929.2.3 Ducts: Rigid or flexible ducts and connectors shall conform to the BOCA National Mechanical Code listed in Appendix A.

929.2.4 Duct coverings: Duct coverings, linings, tape and connectors shall conform to the BOCA National Mechanical Code listed in Appendix A.

929.2.5 Wire: Wire shall be low voltage or power-limited wire or cable. Wire shall have a peak optical density not greater than 0.50, an average optical density not greater than 0.15 and a flame spread of not greater than 5.0 feet when tested in accordance with UL 910 listed in Appendix A and shall bear the label of an approved agency.

929.3 Combustible plenums: In Types 3, 4 and 5 construction, the plenum shall be constructed with approved material. Combustible material, pipe or wire exposed within the plenum shall be permitted.

929.3.1 Size: Combustible plenums shall be draftstopped every 3,000 square feet in area.

Exception: Plenums shall be limited to one fire area without draftstopping in buildings equipped throughout with an approved automatic fire suppression system.

929.4 Stud and joist spaces: The space between studs or joists shall not be used as a plenum for supply air. The space between studs or joists used as a plenum for return air shall not be part of a required fire-resistance rated assembly. Air shall be removed from one floor level only. All connections shall be firestopped and draftstopped.

SECTION 930.0 SMOKE AND HEAT VENTS

930.1 General: Where exit access travel distance is increased in accordance with Section 807.5.1, smoke and heat vents shall be constructed and installed in accordance with this section.

930.2 Vent size and spacing: The vent area and the spacing of the vents shall comply with Table 930.

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930.2.1 Releasing devices: Smoke and heat vents shall open automatically by activation of a heat-responsive device rated at 100 degrees F. (38 degrees C.) to 220 degrees F. (104 degrees C.) above ambient. The releasing mechanism shall be capable of operation such that the vent shall fully open when the vent is exposed to a time-temperature gradient that reaches an air temperature of 500 degrees F. (260 degrees C.) within 5 minutes. Vents shall be capable of being opened by an approved manual operation.

930.3 Curtain boards construction: Curtain boards shall be provided to subdivide a vented building. Curtain boards shall be constructed of material that will resist the passage of smoke and is consistent with the building type of construction. Curtain board location and depth shall comply with Table 930. The bottom of the curtain board shall be level.

Table 930
SMOKE AND HEAT VENT SIZE AND SPACING

Use Group	Hazard classification*	Vent height above the floor (H)	Minimum Curtain board depth from vent bottom	Maximum area formed by curtain boards	Vent area to floor area ratio	Maximum spacing of vent centers	Maximum distance from wall of curtain boards	Maximum distance between curtain boards
F	-----	-----	0.2 x H but \geq 4 ft.	50,000 sq. ft.	1:100	120 ft.	60 ft.	8 x H but \leq 250 ft.
S	I thru IV	20 ft. or less	6 ft.	10,000 sq. ft.	1:100	100 ft.	60 ft.	8 x H
S	I thru IV	Over 20 ft. to 40 ft.	6 ft.	8,000 sq. ft.	1:75	100 ft.	55 ft.	8 x H but \leq 250 ft.
S	I thru IV	20 ft. or less	4 ft.	3,000 sq. ft.	1:75	100 ft.	55 ft.	8 x H
S	I thru IV	Over 20 ft. to 40 ft.	4 ft.	3,000 sq. ft.	1:50	100 ft.	50 ft.	8 x H but \leq 250 ft.
S	V	20 ft. or less	6 ft.	6,000 sq. ft.	1:50	100 ft.	50 ft.	8 x H
S	V	Over 20 ft. to 30 ft.	6 ft.	6,000 sq. ft.	1:40	90 ft.	45 ft.	8 x H
S	V	30 ft. or more	4 ft.	2,000 sq. ft.	1:30	75 ft.	40 ft.	8 x H but \leq 100 ft.

Note: See NFPA 231C listed in Appendix A for classification of Contents Class I through IV. Class V commodities are products which present special fire hazards beyond those of Class I, II, III or IV, such as aerosols, foamed plastic, PVC, PU, PS and asphalt paper.

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