

Chapter 1 – Administration

Chapter 1 Delete in its entirety and Replace
(see additional document)

Chapter 2 – Referenced Standards

ADD:

2.1(3) Where the requirements of a reference code or standard, called for within a Chapter of this Code is deleted, replaced, or revised, the source reference code or standard shall be deemed deleted, replaced or revised as such.

DELETE and REPLACE:

2.2 NFPA 70®, *National Electrical Code*®, 2020 edition, **codified as 527 CMR 12.00: Massachusetts Electrical Code (Amendments).**

DELETE and REPLACE:

2.2 NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*, **2019** 2022 edition.

DELETE and REPLACE:

2.2 NFPA 1123, *Code for Fireworks Display*, **2018** ~~2010~~ edition.

DELETE and REPLACE:

2.2 NFPA 1124, *Code for the Manufacture, Transportation, and Storage of Fireworks and Pyrotechnic Articles*, **2021** ~~2006~~ edition.

ADD:

2.3.1

ANSI Z21.11.2, *Gas-fired Room Heaters, Volume II, Unvented Room Heaters*, 2013 edition.
ANSI Z-358.1, *American National Standard for Emergency Eyewash and Shower Equipment*.
ANSI Z49, *Safety in Welding, Cutting, and Allied Processes*, 2012 edition.

ADD:

2.3.7

ASTM D 975-11b, *Standard Specification for Diesel Fuel Oils*.
ASTM D1265, *Standard Practice for Sampling Liquefied Petroleum (LP) Gases, Manual Method*.
ASTM D5305, *Standard Test Method for Determination of Ethyl Mercaptan in LP-gas Vapor*.

DELETE and REPLACE:

2.3.7

ASTM D6751-~~11b~~, *Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuel*, 2019.

ADD:

2.3.7

ASTM D 7462-11, *Standard Test Method for Oxidation Stability of Biodiesel (B100) and Blends of Biodiesel with Middle Distillate Petroleum Fuel (Accelerated Method)*.

2.3.19 UL Publications

UL 217, *Standard for Smoke Alarms*, ~~2015 edition~~ 8th edition

UL 268, *Smoke Detectors for Fire Alarm Systems*, ~~2016 edition~~ 7th edition.

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ANSI/UL 521, *Standard for Heat Detectors for Fire Protective Signaling Systems*, 1999 edition.
ANSI/UL 539, *Standard for Single and Multiple Station Heat Alarms*, 2009 edition.

ADD:

2.3.22 U.S. Government Publications.

Code of Federal Regulations (CFR):

Title 21, United States Code, Chapter 9, *Federal Food, Drug, and Cosmetics Act*.

Title 29, Code of Federal Regulations, 1910.119, Occupational Safety and Health Administration (OSHA) *Process Safety Management of Highly Hazardous Materials*. Regulated hazardous materials which are listed in 29 CFR 1910.119: Appendix A and described in 29 CFR 1910.119(a)(1)(ii).

Title 29, Code of Federal Regulations, Part 1910.1450, Occupational Safety and Health Administration (OSHA) *Occupational Exposure to Hazardous Chemicals in Laboratories*.

Title 29, Code of Federal Regulations, 1910.252 Subpart Q - *Welding, Cutting and Brazing*

Title 33, Code of Federal regulations, Part 126, *Handling of Dangerous Cargo at Waterfront Facilities*.

Title 40, Code of Federal Regulations, Part 60 *Standards of Performance for New Stationary Sources*.

Title 40, Code of Federal Regulations, Part 68, EPA (United States Environmental Protection Agency) *Chemical Accident Prevention Provisions*. Regulated hazardous materials included in 40 CFR 68.130 "List of Substances" with threshold quantities of regulated substances listed in the tables in 40 CFR 68.130.

Title 49, Code of Federal Regulations, *Transportation*.

Title 46, Code of Federal Regulations, Part 194, *Handling, Use, and Control of Explosives and Other Hazardous Materials*.

ADD:

2.3.23 Other Publications.

American Association of State Highway and Transportation Officials (AASHTO). *Uniform Traffic Control Devices (MUTCD) Guidelines*.

APA *Standard 87-1*.

California - Technical Bulletin 117-2013 (TB 117-2013) *Requirements, Test Procedure and Apparatus for Testing the Smolder Resistance of Materials Used in Upholstered Furniture*.

California – Technical Bulletin 133 – 1991 (TB133-1991) *Flammability Test Procedure for Seating Furniture for Use in Public Occupancies, amended 2019*.

IAMPO *Uniform Mechanical Code*.

IME Safety Library Publication No. 20, *Safety Guide for the Prevention of Radio Frequency Radiation Hazards in the Use of Commercial Electric Detonators (Blasting Caps)*.

STI SP 001, *Standard for the Inspection of Aboveground Storage Tanks*. Transport Canada (TC), *Transportation of Dangerous Goods Regulations*.

ADD:

2.3.24 Massachusetts Regulations.

Code of Massachusetts Regulations (CMR) Publications:

105 CMR: *Department of Public Health*

248 CMR: *Board of State Examiners of Plumbers and Gas Fitters (Plumbing Code)*.

257 CMR 2.00: *Certification of Operators of Wastewater Treatment Facilities*. Department of Environmental Protection:

310 CMR 7.00: *Air Pollution Control*.

310 CMR 30.00: *Hazardous Waste*.

310 CMR 80.00: *Underground Storage Tanks*.

522 CMR: *Board of Boiler Rules*

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524 CMR 36: Personnel Hoists and Employee Elevators on Construction and Demolition Sites

527 CMR 1.00: Comprehensive Fire Safety Code Massachusetts (this Code). 527 CMR 12.00: Massachusetts Electrical Code.

528 CMR: Bureau of Pipe Fitters and Refrigeration Technicians. 780 CMR: Massachusetts State Building Code (Building Code).

2.3.25 (M.G.L) Massachusetts General Law.

M.G.L. c. 21E: *Massachusetts Oil and Hazardous Material Release Prevention and Response Act.*

M.G.L. c. 48: *Fires, Fire Departments and Fire Districts.*

M.G.L. c. 22D: *Department of Fires Services.*

M.G.L. c. 148: *Fire Prevention.*

M.G.L. c. 148A: *Code Enforcement Officer.*

M.G.L. c. 141: *Supervision of Electricians.*

M.G.L. c. 142: *Supervision of Plumbing.*

M.G.L. c. 143, § 3L: *Regulations Relative to Electrical Wiring and Fixtures; Notice of Electrical Installation.*

M.G.L. c. 143, § 96: *Specialized Codes Rules or Regulations.*

ADD:

~~2.4 NFPA 1123, Code for Fireworks Display, 2010 edition.~~

DELETE and REPLACE:

~~2.4 NFPA 1124, Code for the Manufacture, Transportation, and Storage of Fireworks and Pyrotechnic Articles, 2017-2006 edition.~~

Chapter 3 – Definitions

DELETE and REPLACE:

3.2.2 * Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure. *(See Enforcement, 1.6, 1.7.1 Administration, 1.7.1 and Official Interpretations, 1.7.3.1)*

DELETE and REPLACE:

3.3.14.2 Control Area. A building or portion of a building, ~~enclosed and bounded by exterior walls, fire walls, fire barriers and roofs, or a combination thereof,~~ or outdoor area within which hazardous materials are allowed to be stored, dispensed, used, or handled in quantities not exceeding the maximum allowable quantities (MAQ). ~~[400,2019]~~

DELETE and REPLACE:

3.3.29 Building. ~~Any structure used or intended for supporting or sheltering any use or occupancy. [101,2021]~~

~~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 any similar covering, whether or not permanent in nature. The word “building” shall be construed where the context allows as though followed by the words “or part or parts thereof”.~~

DELETE and REPLACE:

3.3.56.1 Building Code. ~~The building or construction code adopted by the jurisdiction. [55,2020]~~

~~Building Code. referenced in Sections 2.3.22 and 1.1.~~

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DELETE and REPLACE:

3.3.56.2 Electrical Code. ~~The electrical code referenced in Section 2.2.~~
Massachusetts Electrical Code. referenced in Sections 2.2 and 2.3.22.

DELETE and REPLACE:

3.3.56.3 Mechanical Code. ~~The mechanical or mechanical construction code adopted by the jurisdiction. [55,2020]~~
Mechanical Code. The *Massachusetts State Building Code* as referenced in Section 2.3.22.

DELETE and REPLACE:

3.3.56.4 Plumbing Code. ~~The plumbing code referenced in Section 2.2.~~
Plumbing Code referenced in Section 2.3.22.

ADD:

3.3.56.5 Fire Code. *This Code* as referenced in Section 2.3.22.

DELETE and REPLACE:

3.3.146.12 Oxidizing Gas. A gas that can support and accelerate combustion of other materials. ~~more than air does.~~
~~[55,2020]~~

DELETE and REPLACE:

3.3.153 Handling. The deliberate movement of material by any means to a point of storage ~~or use,~~ *or processing.*

DELETE and REPLACE:

3.3.168 Incident Commander (IC). The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and the release of resources. ~~[472,2018]~~ *The IC has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site.*

DELETE and REPLACE:

3.3.187.12 Physical Hazard Material. A chemical or substance ~~which there is evidence that it is classified as a~~ combustible liquid, ~~compressed gas, cryogenic,~~ explosive, ~~flammable cryogen,~~ flammable gas, flammable liquid, flammable solid, organic peroxide, oxidizer, ~~oxidizing cryogen,~~ pyrophoric, unstable (reactive), or water-reactive material. ~~[400,2019]~~

DELETE and REPLACE:

3.3.187.15 Unstable (Reactive) Material. ~~A material that, in the pure state or as commercially produced, will vigorously polymerize, decompose or condense, become self reactive, or otherwise undergo a violent chemical change under conditions of shock, pressure, or temperature. [400,2019]~~

A material, other than an explosive, which in the pure state or as commercially produced, will vigorously polymerize, decompose, condense or become self-reactive and undergo other violent chemical changes, including explosion, when exposed to heat, friction or shock, or in the absence of an inhibitor, or in the presence of contaminants, or in contact with incompatible materials. Unstable (reactive) materials are subdivided and defined as follows:

Class 1. Materials that in themselves are normally stable, but which can become unstable at elevated temperatures and pressure.

Class 2. Materials that in themselves are normally unstable and readily undergo violent chemical change, but do not detonate. This class includes materials that can undergo chemical change with rapid release of energy at normal temperatures and pressures, and that can undergo violent chemical change at elevated temperatures and pressures.

Class 3. Materials that in themselves are capable of detonation or of explosive decomposition or explosive reaction, but which require a strong initiating source or which must be heated under confinement before initiation. This class includes materials that are sensitive to thermal or mechanical shock at elevated temperatures and pressures.

Class 4. Materials that in themselves is readily capable of detonation or explosive decomposition or explosive reaction at normal temperatures and pressures. This class includes materials that are sensitive to mechanical or localized thermal shock at normal temperatures and pressures.

DELETE and REPLACE:

3.3.187.16 Water-Reactive Material.

~~A material that explodes, violently reacts, produces flammable, toxic, or other hazardous gases; or evolves enough heat to cause self-ignition or ignition of nearby combustibles upon exposure to water or moisture. [400,2019]~~

A material that explodes; violently reacts; produces flammable, toxic or other hazardous gases; or evolves enough heat to cause self-ignition or ignition of nearby combustibles upon exposure to water or moisture. Water-reactive Material are subdivided and defined as follows:

Class 1. Materials that may react with water with some release of energy, but not violently.

Class 2. Materials that may form potentially explosive mixtures with water.

Class 3. Materials that react explosively with water without requiring heat or confinement.

ADD:

3.3.205.1.6 Unclassified Detonable. Organic peroxides that are capable of detonation. These peroxides pose an extremely high explosion hazard through rapid explosive decomposition.

DELETE and REPLACE:

3.3.224 Process or Processing.

~~An integrated sequence of operations. [30,2021] in which the sequence can be inclusive of physical operations such as heating, cooling, mixing, distilling, compressing, and pressurizing, and chemical operations, such as polymerization, oxidation, reduction, and other chemical reaction processes. The sequence can involve, but is not limited to: preparation, separation, combination, purification, or any actions that cause a change in state, energy content, or chemical composition.~~

DELETE and REPLACE:

3.3.230 Pyrophoric. A chemical ~~that spontaneously ignites~~ with an autoignition temperature in air at or below a temperature of 130°F (54.5°C).

DELETE and REPLACE:

3.3.259.2 Flammable Solid. A solid substance, other than a substance defined as a blasting agent or explosive, that is liable to cause fire resulting from friction absorption or moisture, spontaneous chemical change, or retained heat from ~~manufacture, manufacturing or processing, or which~~ that has an ignition temperature below 212°F (100°C), or that burns so vigorously ~~or~~ and persistently when ignited that it creates a serious hazard. A chemical shall be considered a flammable solid as determined in accordance with the test method of CPSC 16 CFR; Part 1500.44, if it ignites and burns with a self-sustained flame at a rate greater than 0.1 inch (2.5 mm) per second along its major axis.

DELETE and REPLACE:

3.3.275 Structure. ~~That which is built or constructed. [101,2021]~~ 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, mast for radio antenna or the like. The word “structure” shall be construed, where the context allows, as though followed by the words “or part or parts thereof”.

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DELETE and REPLACE:

3.3.278.11 Fire Protection System. Any fire alarm device or system or fire-extinguishing device or system, or combination thereof, that is designed and installed for detecting, controlling, or extinguishing a fire or otherwise alerting occupants, or the fire department, or both, that a fire has occurred. A fire protection system shall include any wiring, equipment, and systems used to detect, suppress, or control smoke, fire, and carbon monoxide, or any combination thereof.

ADD:

3.3.279.8 Underground Storage Tank (UST). As defined and regulated by 310 CMR 80.00: *Underground Storage Tanks (UST) Systems.*

ADD:

3.5 Additional Massachusetts Definitions

3.5.1 Boatyard.

A facility used for constructing, repairing, servicing, hauling from the water, storing (on land and in water), and launching of boats.

Comment: This definition is a recommendation from the Marinas and Boatyards Working Group and has been reviewed by the Occupancy Code Committee. It is extracted from NFPA 303.

3.5.2 Cannabis. The plant or any product derived from the plant, of the family cannabaceae; also known as marijuana or hemp.

3.5.3 Certificate. A written document for the purpose of granting permission to conduct or engage in any operation or act for which certification is required by way of one or more of the following:

3.5.3.1 Certificate of Competency. A written document issued by the State Fire Marshal to a person who has passed an examination for a particular profession which allows that person to be in charge of and responsible for the regulated activity.

3.5.3.2 Certificate of Registration. A written document issued by the State Fire Marshal to a person, firm or corporation for the purpose of granting permission to conduct or engage in servicing fire extinguishing systems.

3.5.3.3 Explosives Users Certificate. A certificate issued to a firm or company, indicating the rebuttable presumption of statutory and regulatory compliance with responsible levels of liability insurance and bonds required by M.G.L. c. 148, §§ 19, 20 and 20A, explosive storage magazines, and a general knowledge of the requirements of explosive regulations in the use or handling of explosives.

3.5.3.4 Fireworks User's Certificate. A certificate which allows a person, firm, corporation or other legal entity to use or handle fireworks.

Chapter 4 – General Requirements

Chapter 4 Delete in its entirety.

Chapter 5 – Performance-Based Option

ADD:

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5.1.1 Application. The requirements of this Chapter shall apply to facilities designed to the performance-based option permitted by the *Building Code* and this *Code*.

5.1.2 Goals and Objectives. The performance-based design shall meet the goals and objectives of this *Code* in accordance with the *Building Code* or this *Code*.

5.1.3* Plan Submittal Documentation. When a performance-based design is submitted to the AHJ and the Building Official for review and approval, the owner shall document, in an approved format, each performance objective and applicable scenario, including any calculation methods or models used in establishing the proposed design's fire and life safety performance.

5.1.4* Independent Review. The AHJ shall be permitted to require an approved, independent third party to review the proposed design and provide an evaluation of the design to the AHJ at the expense of the owner.

5.1.5 Final Determination. The AHJ and the Building Official shall make the final determination as to whether the performance objectives have been met.

5.1.6* Operations and Maintenance Manual. An approved Operations and Maintenance (O&M) Manual shall be provided by the owner to the AHJ and shall be maintained at the facility in the fire command center.

DELETE:

5.1.1 through 5.7.14

Chapter 6 – Classification of Occupancy

Chapter 6 Delete in its entirety.

Chapter 7 - Reserved

Chapter 8 - Reserved

Chapter 9 - Reserved

Chapter 10 – General Requirements

DELETE

10.1.2

DELETE and REPLACE:

10.1.3 Building Code. Where a building code has been adopted, All new construction shall comply with this *Code* and the *Building Code*.

DELETE and REPLACE:

10.1.4.1 Where structural elements have visible damage, the AHJ shall be permitted to require a technical analysis prepared in accordance with Section 1.15 to determine if repairs are necessary to restore structural integrity notify the Building Official.

DELETE:

10.1.4.2 through 10.1.5

DELETE and REPLACE:

10.3.4.1 In any building or structure, whether or not a physical alteration is needed, a change from one use or occupancy classification to another shall comply with the *Building Code*. ~~4.6.7 of NFPA 101 [101:4.6.11]~~

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ADD:

10.4.2.1 Overcrowding. Overcrowding or admittance of any person beyond the established posted occupant load shall be prohibited. The AHJ, upon finding overcrowded conditions or obstructions in aisles, passageways or other means of egress, or any condition which constitutes a hazard to life and safety shall cause the performance, presentation, spectacle or entertainment to be stopped until the area posted occupant load is reestablished or the obstruction or hazardous condition is removed.

DELETE and REPLACE:

10.5.1 Where Required. Emergency egress and relocation drills conforming to the provisions of this *Code* shall be conducted as specified by the provisions of Chapter 20 of this *Code*. ~~or Chapters 11 through 42 of NFPA 101, or by appropriate action of the AHJ~~ Drills shall be designed in cooperation with the local authorities.

10.5.2 Drill Frequency. Emergency egress and relocation drills, where required by Chapter 20 of this *Code* ~~or Chapters 11 through 42 of NFPA 101 or the AHJ~~ shall be held with sufficient frequency to familiarize occupants with the drill procedure and to establish conduct of the drill as a matter of routine. Drills shall include suitable procedures to ensure that all persons subject to the drill participate.

DELETE:

10.6.2

DELETE:

10.6.4

ADD:

10.7 Tampering with Fire Safety Equipment. *See M.G.L. c. 266 and M.G.L. c. 148, § 27A.*

DELETE:

10.7.1 through 10.7.3

DELETE and REPLACE:

10.8.1 Where Required. Emergency action plans shall be provided for high-rise, health care, ambulatory health care, residential board and care, assembly, day care centers, special amusement buildings, hotels and dormitories, ~~housing for the elderly for six or more dwelling units~~, detention and correctional occupancies, educational, ~~bulk merchandising retail buildings~~, underground and windowless structures, facilities storing or handling materials covered by Chapter 60, special use and occupancy as defined in 780 CMR, or where required by the AHJ.

DELETE and REPLACE

10.10 Open Flame, Candles, Open Fires, and ~~Outdoor Fires~~ Incinerators.

DELETE and REPLACE:

10.10.1.1 ~~Permits shall not be required~~ **Fires** for cooking and recreational ~~fires~~ **purposes shall comply with the provisions of M.G.L. c. 48, § 13 and the rules and regulations of the State Forester and regulations of the Department of Environmental Protection.**

DELETE:

10.10.1.2 through 10.10.1.4

DELETE and REPLACE:

10.10.3 Outdoor Fires and Incinerators.

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10.10.3.1 Outdoor fires shall ~~not be built, ignited or maintained in or upon hazardous fire areas, except by permit from~~ comply with the ~~AHJ~~ provisions of M.G.L. c. 48, § 13 and the rules and regulations of the State Forester, and regulations of the Department of Environmental Protection. *See 310 CMR 7.07.*

DELETE:

10.3.2

DELETE:

10.10.4.1

ADD:

10.10.4.1.1 Bonfires and the Burning of Christmas Trees. Permits where required, for bonfires and the burning of Christmas trees shall comply with Section 1.12.

10.10.4.1.1.1 Ceremonial Bonfires. The city council of a city with the approval of its mayor, or the board of selectmen or town council of a town, may authorize the fire department of such city or town to issue not more than one permit in any one year for a ceremonial bonfire. Such bonfires shall mark the observance of a significant municipal, state or national event, and such ceremonial bonfire shall be under the continuous supervision of the fire department. Only wood which has not been painted, impregnated, or otherwise treated with any foreign substance shall be permitted to burn in ceremonial bonfires. No bonfire shall burn for more than 12 hours. (M.G.L. c. 111, § 142H.)

10.10.4.1.1.2 Bonfires from July 2nd to July 6th. Any civic, fraternal, veteran, community or business organization may build and ignite bonfires under the supervision and control of the fire department of the city or town in which such burning takes place during the period from July 2nd through July 6th. (M.G.L. c. 111, § 142I.)

10.10.4.1.1.3 Burning of Christmas Trees. Any person may burn Christmas trees during the period from December 26th through January 7th, provided that such burning is under the supervision and control of the fire department. (M.G.L. c. 111, § 142G.)

10.10.4.1.1.4 Burning hours shall be prescribed by the AHJ.

DELETE:

10.10.4.2 through 10.10.5.2

DELETE and REPLACE:

10.10.6 Appliances - Cooking Equipment

10.10.6.1 General. ~~For other than one and two family dwellings, no hibachi, grill, or other similar device used for cooking, heating, or any other purposes shall be used or kindled on any balcony, under any overhanging portion, or within 10 ft (3m) of any structure.~~ Cooking appliances shall be kept clean during and cleaned after each use.

Cooking appliances shall never be left unattended after the cooking appliance is kindled. Cooking appliances shall be stored only after the appliance is cleaned; the appliance is cool to the human touch and; the fuel is disconnected and removed from the appliance. Cooking appliances shall not be altered, used, kindled, placed, or stored in a manner that is not established by the manufacturer's instructions of the appliance and its equipment.

10.10.6.2 ~~For other than one and two family dwellings, no hibachi, grill, or other similar devices used for cooking shall be stored on a balcony.~~ **Terms.** As used in Chapter 10, the enclosed terms shall have the following meaning assigned to them.

- (1) **Appliance (cooking).** Utilization equipment, generally other than industrial, that is normally built in standardized sizes or types and is used, installed or connected as a unit to perform one or more functions such as grills, ranges, cook top units, wall ovens, and chimineas or similar such appliances.
- (2) **Balcony.** A structure attached to a building with no exterior stairs other than through the attached building.

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- (3) **Deck (including porches, and patios).** A structure attached to a building where constructed above grade has exterior stairs extending to grade.
- (4) **Equipment (cooking).** The component of an appliance, such as the hose, burner, heating element, electronic controls, igniters, heat exchanger, container or regulator that is designed specifically for the purpose and constructed with approved safety standards and tested by a recognized product testing agency. *See Chapter 3, for the term Listed in Section 3.2.6*.*
- (5) **Grade (as it applies to balconies and decks).** On earth; or on blocks, slab or of other approved material placed on earth and elevated not greater than 30 inches from earth.
- (6) **Permanent.** Fastened in place, and cannot be easily moved without requiring the disconnection of fasteners, piping, and fittings.
- (7) **Solid Fuel.** Includes wood, charcoal, pellet fuels, and any other non-gaseous fuel but not including fuel generation or co-generation of electric energy.

DELETE and REPLACE:

~~10.10.6.3 Listed equipment permanently installed in accordance with its listing, applicable codes, and manufacturer's instructions shall be permitted.~~ **Solid Fuel, Gaseous Fuel, and Electric Cooking and Heating Appliances Use and Storage on Balconies and Decks or under Overhangs and Structures.**

10.10.6.3.1 All cooking and heating appliances shall be permitted to be used, kindled, or stored on a balcony or deck unless specifically prohibited or restricted below.

10.10.6.3.2 No solid fuel cooking and heating appliances shall be permitted to be used, kindled, or stored on any balcony.

10.10.6.3.3 No gaseous fuel cooking and heating appliances shall be used, kindled, or stored on any balcony located above grade, unless permitted to be permanently installed pursuant to its equipment listings.

10.10.6.3.4 No cooking or heating appliances shall be used, installed, kindled or stored on any fire escape balcony.

10.10.6.3.5 No cooking or heating appliances shall be used, installed, kindled or stored on any balcony or deck where the balcony or deck is enclosed by a roof, walls, other than the wall of the attached building, or any covering that would prevent air circulation, unless a sprinkler system is installed in accordance with the *Building Code*, or such appliance is permitted by the manufacturer's instructions and equipment listings.

10.10.6.3.6 No equipment of any cooking and heating appliances shall be permitted to be used or stored under any overhang; less than ten ft. (3 m) from a building; unless a sprinkler system is installed in accordance with the *Building Code*; or it is permitted by the manufacturer's instructions and equipment listings. The storage of any cooking or heating appliances under the overhang or ten ft. (3 m) from a building shall be permitted only when its fuel is not present within or near any cooking or heating appliance, unless such appliance is permanently installed.

10.10.6.3.7 All appliances that are permanently installed shall be approved by the specialized code official.

ADD:

10.10.6.4 LP-gas Containers (cylinders) 1-lb or Greater, Use, Placement at Dwellings.

10.10.6.4.1 Containers shall only be transported using exterior means independent from the attached building.

10.10.6.4.2 Containers shall not be placed inside or pass through any building.

10.10.6.4.3 Containers shall not be stored or obstruct ingress or egress of any building.

10.10.6.4.4 Containers having water capacities greater than 2.7 lb (1 kg) [nominal one lb (0.5 kg) LP-Gas capacity] shall not be located on decks or balconies of dwellings of two or more living units above the first floor, unless the deck or balcony is served by exterior stairways.

ADD:

10.10.6.5 Table 10.10.6.5 shall be permitted to be used as guidance for the Sections 10.10.6.3.1 through 10.10.6.4.

ADD:

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Table 10.10.6.5 Appliances Used or Stored for Cooking or Heating

Balcony. See 10.10.6.2(2)				Deck, Porch, Patio. See 10.10.6.2(3)		
*NOT Permitted under overhangs, roofs or enclosed in by walls or within 10' of a building ¹ ; unless sprinklered pursuant to the <i>Building Code</i> .						
Fuel	Gaseous Fuels	Solid Fuels	Electric	Gaseous Fuels	Solid Fuels	Electric
Type of Appliance	Cooking and Heating Appliance	Cooking and Heating Appliance	Cooking and Heating Appliances	Cooking and Heating Appliances	Cooking and Heating Appliance	Cooking and Heating Appliances
Grade	Permitted* See 10.1.7; 10.10.6.3.4 and10.10.6.4	Not Permitted See 10.10.6.3.2	Permitted See 10.1.7 and 10.10.6.3.1	Permitted* See 10.1.7; 10.10.6.3.5 and 10.10.6.3.6	Permitted* See 10.1.7; 10.10.6.3.5 and 10.10.6.3.6	Permitted See 10.1.7; and 10.10.6.3.1
Above Grade	Not Permitted, unless permanently installed* See 10.1.7; 10.10.6.3.3; 10.10.6.3.5 and 10.10.6.4					

Note 1. For the purposes of this section, a structure or building is not considered the decking of a balcony, or deck.

DELETE:
10.10.8.1

DELETE:
10.11.1.3 through 10.11.1.8

DELETE and REPLACE:

10.11.3.1 New Enclosed stairs serving three or more stories and existing enclosed stairs ~~other than those addressed in 10.11.3.1.16~~ serving five or more stories shall ~~comply with 10.11.3.1.1 through 10.11.3.1.15~~ be maintained in accordance with the *Building Code* approved at the time of construction and maintenance.

DELETE:
10.11.3.1.1 through 10.11.3.2.2

DELETE and REPLACE:

10.11.3.3 Stairway Tread Marking. ~~Where new contrasting marking is applied to stairs, such marking shall comply with all of the following:~~ Where new contrasting marking is applied to stairs, such marking shall be maintained in accordance with the provisions of the *Building Code*. ~~in effect at the time of construction and maintenance.~~

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Red underline is new or modified MA amendment language

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~~Stricken Language~~

DELETE:

10.11.3.3(1) through (4)

DELETE:

10.11.3.4

ADD:

10.11.4 Inner Courts Specialized Construction.

10.11.4.1 Any inner court not protected by a roof shall have a parapet or guard at least 42 inches high.

10.11.4.2 Where a roof is provided over an inner court it shall be constructed as prescribed by the *Building Code*.

10.11.4.3 Where a skylight is provided it shall support a minimum of 40 lbs. per square foot, or shall have a parapet or guard at least 42 inches high.

DELETE and REPLACE:

10.12 Seasonal and Vacant Buildings and Premises.

10.12.1 Every person owning or having charge or control of any vacant building, premises, or portion thereof shall remove all combustible storage, waste, refuse, and vegetation and shall lock, barricade, or otherwise secure the building or premises to prohibit entry by unauthorized persons pursuant to M.G.L. c. 143, §§ 6 through 14 and the *Building Code*.

DELETE:

10.12.1.1

DELETE and REPLACE:

10.12.2 All fire protection systems shall be maintained in service in vacant buildings, ~~unless otherwise approved by the AHJ.~~

10.12.2.1 With the approval of the AHJ, fire protection and fire alarm systems in vacant buildings shall be permitted to be removed from service as provided in M.G.L. c. 148, § 27A.

10.12.2.2 When required by the AHJ, other systems or components pertaining to fire protection shall be maintained as provided in M.G.L. c. 148, § 27A.

ADD:

10.12.4 Any owner of a building who has been notified that said building shall be made safe or secure under the provisions of the *Building Code*, shall:

(1) Remove all materials determined by the Head of the Fire Department or Building Official to be dangerous in case of fire.

(2) Secure all floors accessible from grade utilizing one of the following methods so long as such method is approved by the Head of the Fire Department and Building Official in writing:

(a) Secure all window and door openings in accordance with the U.S. Fire Administration, Arson Prevention Initiative Board-up Procedures continuously until such time as the building is reoccupied; or

(b) Provide 24-hour watchman services, continuously until such time as the building is reoccupied; or

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

10.12.4.1 Said owner, as the case may be, shall notify the Building Official that the approved method chosen to secure the building has been incorporated.

10.12.4.2 Said owner shall allow the Building Official to enter the building for an inspection to ascertain that the building is secured and made safe. Said owner shall allow the Head of the Fire Department to enter the building.

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~~Stricken Language~~

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10.12.4.3 The Building Official shall be supplied with records of maintenance and operation if the provisions of Section 10.12.4(2)(b) or (c) are used as provided in the *Building Code*.

10.12.4.4 The owner shall maintain any existing fire alarms or sprinkler systems, unless written permission is obtained from the Head of the Fire Department in accordance with M.G.L. c. 148, § 27A to shut off or disconnect said alarms or systems.

10.12.4.5 The owner shall maintain utilities, unless written permission is obtained from the Building Official to disconnect said utilities. Permission to disconnect utilities shall not be granted if it will result in inadequate heat to prevent freezing of an automatic sprinkler system or inadequate utilities to maintain any other protection systems.

10.12.4.6 The requirements of Section 10.12.4 do not prevent a Building Official from ordering or taking expeditious, temporary security measures in emergency situations pending the completion of the requirements of Section 10.12.4.

10.12.4.7 For the purposes of Section 10.12.4.6, an “emergency situation” shall be defined as: an unexpected incident, which by its very nature may present a threat to public safety personnel who may be required to affect a rescue effort or conduct fire extinguishment operations.

10.12.4.8 Upon refusal or neglect of said owner to comply with such notice, any Building Official acting under the authority of the *Building Code*, shall cause to be secured all window and door openings accessible from grade in accordance with the U.S. Fire Administration, Arson Prevention Initiative Board-up Procedures or other equivalent procedure approved by the Head of the Fire Department, continuously until such time as the building is reoccupied.

10.12.4.9 Any building which has been made to conform to the provisions of Section 10.12.4 during vacancy may be reoccupied under its last permitted use and occupancy classification, provided that any systems which were disconnected or shut down during the period of vacancy are restored to fully functional condition and subject to the *Building Code* and M.G.L. c. 40A. The Building Official shall be notified in writing prior to reoccupancy. If said building is changed in use or occupancy or otherwise renovated or altered it shall be subject to the applicable provisions of the *Building Code*.

ADD:

10.12.5 Any building determined to be especially unsafe in case of fire, under the provisions of the *Building Code* shall be identified and caused to be marked by the Building Official, with the cooperation of the Head of the Fire Department, to indicate the degree of hazard.

10.12.5.1 In marking such buildings, the following symbols shall be used:

☐ This symbol shall mean that interior hazards exist to such a degree that interior operations shall be conducted with extreme caution. This symbol shall not in any way limit the discretion of the on scene Incident Commander in directing operations that the Incident Commander deems necessary.

☒ This symbol shall mean that exterior or interior hazards exist to such a degree that consideration should be given to conduct operations from the exterior only. This symbol shall not in any way limit the discretion of the on scene Incident Commander in directing operations that the Incident Commander deems necessary.

10.12.5.2 Markings shall be applied on the front of the building at or above the second floor level, where practical, between openings such that they are visible from the street. Markings may be applied to the sides or the rear of a building if the Head of the Fire Department deems such placement necessary. Markings shall also be applied in a conspicuous place near every entrance, and on penthouses. Markings shall not be applied over doors, windows, or other openings where they may be obscured by smoke or fire.

10.12.5.3 Markings shall be a minimum of 24 inches by 24 inches. Markings shall either be on a placard with a reflective background or painted with a reflective paint of contrasting color directly on the surface of the building. Stripes and borders outside of the marking shall be a minimum of two inches wide.

10.12.5.4 All markings shall bear a date as to when applied or the date of the most recent inspection.

10.12.5.5 Prior to receiving a mark, all buildings shall be inspected thoroughly by the Head of the Fire Department.

ADD:

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~~Stricken Language~~

10.13.310.4 The Use of Mulch.

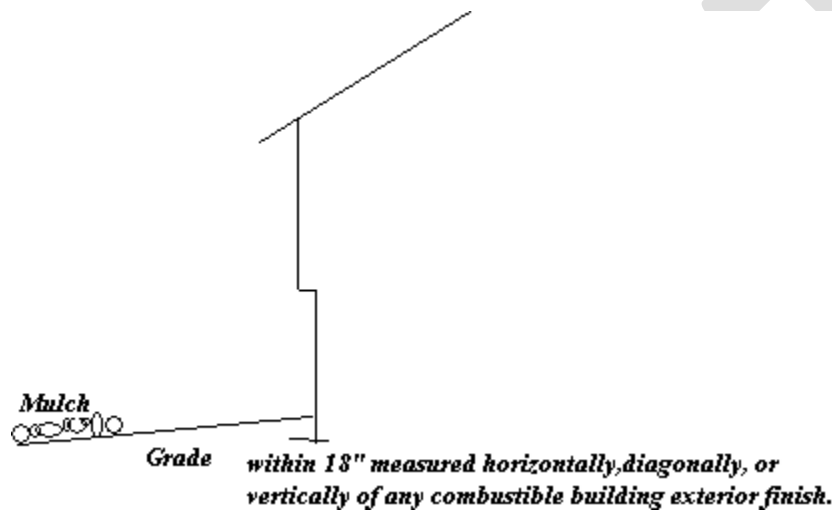
10.13.310.4.1 Mulch shall not be newly applied within 18 inches of any combustible portion of any building [See Figure 10.13.310.4.1(a)].

10.13.3.1.1-Exception: Section 10.13.3.1 shall not apply to any building, regardless of the existence of fire separations, containing six dwelling units or less.

10.13.310.4.2 Mulch, as used here, shall mean any type of forest material that is produced for the purpose spreading or application over the surface of the soil as a protective cover, to retain moisture, reduce erosion, provide nutrients, and suppress weed growth, seed germination and for general landscaping purposes.

ADD:

Figure 10.13.310.4.1(a) Mulch Application



DELETE and REPLACE:

10.14 Special Outdoor Events, Carnivals, and Fairs.

DELETE:

10.14.1

DELETE:

10.14.4

DELETE and REPLACE:

10.14.6 Smoke Alarms and Carbon Monoxide Detection. A minimum of one single station smoke alarm and CO detector shall be located within each sleeping area in all stock or equipment trailers when they are used for sleeping purposes.

DELETE:

10.14.12.1

DELETE and REPLACE:

10.16 Outside Storage.

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ADD:

10.16.1.1 A person shall not store in any building or upon any premises more than 2,500 cubic feet gross volume of combustible empty packing cases, boxes, barrels or similar containers; or rubber tires, baled cotton, rubber, cork or other similarly combustible material without having obtained a permit from the Head of the Fire Department.

10.16.1.2 Permits. Permits, where required, shall comply with Section 1.12.

DELETE and REPLACE:

10.16.2 ~~The separation distance shall be allowed to be reduced to 3 ft (0.9 m) for storage not exceeding 6 ft (1.8m) in height~~ storage of combustible or flammable material shall be confined to approved storage areas.

ADD:

10.16.2.1 Permits. Permits, where required, shall comply with Section 1.12.

DELETE and REPLACE:

10.16.3 Inside Storage. ~~The separation distance shall be allowed to be reduced where the AHJ determines that no hazard to the adjoining property exists~~ Storage in buildings and structures shall be orderly, shall not be within two feet of the ceiling, and shall be located so as not to obstruct egress from the building.

10.16.4 Outside Storage. ~~Combustible material shall not be stored beneath a building or structure unless specifically constructed or protected for this purpose~~ The outside storage of combustible or flammable materials shall not be more than 20 feet in height and shall be compact and orderly. Such storage shall be located as not to constitute a hazard and no less than 25 feet from any other building on the site or from a lot line.

DELETE:

10.17 through **10.17.2**

DELETE and REPLACE:

10.19.6 Attic, Under-floor, and Concealed Spaces. Attic, under-floor, and concealed spaces used for storage of combustible materials shall comply with the protection from hazards requirements for storage rooms in NFPA 101 in the *Building Code*.

DELETE:

10.20 through **10.20.1.5**

ADD:

10.21 Fumigation and Thermal Insecticidal Fogging. Any substance which by itself or in combination with any other substance emits or liberates a gas, fume or vapor used for the destruction or control of insects, fungi, vermin, germs, rats or other pests.

10.21.1 Permit. Permits, where required, shall comply with Section 1.12.

10.21.2 Fumigating Operations. Any building being so fumigated requiring a permit shall post at all entrances a warning sign of the fumigant hazard as described in Section 10.21.3.5.

10.21.3 Fire Safety Requirements.

10.21.3.1 General. Any person conducting fumigation and thermal insecticidal fogging in any building, ship, vessel or enclosed space shall comply with the following fire protection and safety requirements.

10.21.3.2 Sources of Ignition. All fires, open flames and similar sources of ignition shall be eliminated from the space under fumigation or thermal insecticidal fogging.

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10.21.3.3 Electricity. Electricity shall be shut off, except that circulating fans that are to be used shall be designed and installed so as not to create an ignition hazard. Electrical equipment shall be designed and installed in accordance with *Massachusetts Electrical Code*.

10.21.3.4 Notification. The Head of the Fire Department shall be notified in writing at least 24 hours before any building or structure is to be closed in connection with the use of any toxic or flammable fumigant. Such notification shall give the location of the building, structure, ship or enclosed space to be fumigated or fogged as well as its character and use, the fumigants or insecticides to be used, the person or persons in charge of the operation and the date and time when fumigation or fogging will be started. Notice of any fumigation or thermal insecticidal fogging shall be served with sufficient advance notice to the occupants of any building or other enclosed space involved in the operation to enable them to evacuate the premises.

10.21.3.5 Warning Signs. Suitable warning signs indicating the danger, type of chemical involved and recommended precautions, shall be posted on all doors and entrances to the premises and upon all gangplanks and ladders from the deck, pier or land to the ship. Such notice is to be printed in red ink on white background. Letters in the signs are to be at least two inches in height and shall state the date and time of the operation, the name of the operator in charge, together with a warning to the effect that the premises so occupied shall be vacated at least one hour before the operation is started and shall not be reentered until the danger signs have been removed by the proper authorities.

10.21.3.6 Watchman. During the period fumigation is in progress, except when fumigation is conducted in a gastight vault or tank, a capable, alert watchman or watchmen shall remain on duty at the entrance or entrances to the building, ship or enclosed space fumigated until after the fumigation is completed and until the premises are properly ventilated and again safe for human occupancy. Sufficient watchmen shall be provided to prevent any person from entering the building, ship or enclosed space under fumigation without being observed.

10.21.3.7 Thermal Insecticidal Fogging Liquids. Thermal insecticidal fogging liquids with a flash point below 100EF (38EC) shall not be used.

10.21.3.8 Fire Protection Systems. Fire Protection system devices shall be adequately protected by covering or other means to isolate insecticidal fogging liquids from rendering a fire system device inoperable. (M.G.L. c. 148, § 27A)

ADD:

10.22 Canine Guards.

10.22.1 Permit. Permits, where required, shall comply with Section 1.12.

~~10.22 Use and Storage of Alcohol Based Hand Rub Preparations.~~

~~10.22.1~~ The use of wall mounted or free standing units used to dispense an alcohol based hand rub preparation shall comply with the following requirements:

- ~~(1) The maximum capacity of each dispenser shall be 41 ounces; and~~
- ~~(2) The minimum separation distance between dispensers shall be 48 inches.~~

~~10.22.2~~ No alcohol based hand rub preparation dispenser shall be located directly over or adjacent to any ignition source such as, but not necessarily limited to, electrical outlets, light fixtures or electrical appliances or any open flame device.

Comment: Committee decided to remove this MA amendment since it is found elsewhere in 527 CMR 1.00 in Chapter 60.

10.23 Emergency Wash Stations.

10.23.1 Every school, college and university laboratory newly constructed or renovated, or any room used for similar purposes wherein corrosives or flammable liquids are handled or where open flame devices are used, shall be equipped with one or more Emergency Wash Systems.

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~~Stricken Language~~

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10.23.2 Emergency Wash Systems shall include Drench/Deluge Showers, Handheld Body/Face Washers and Deck Mounted Drench Hoses. The permanently mounted showers shall be located as close to the main door of the laboratory as possible (to provide an escape route) but shall not be located greater than 50 feet from an experimental area.

10.23.3 The Drench/Deluge Showers, Hand Held Body/Face Washers and Deck Mounted Drench Hoses shall be installed in accordance with ANSI Z-358.1 and *Board of State Examiners of Plumbers and Gas Fitters*. Each existing laboratory not equipped with an Emergency Wash System shall be equipped with at least one approved Fire Blanket, and a sign that reads:

"In Case of Clothing Fire
STOP, DROP and ROLL"

10.23.4 The location of the Emergency Wash System Stations and Fire Blankets shall be clearly indicated by signs of contrasting color, either RED and WHITE or GREEN and WHITE. The signs shall be at least 70 square inches in area bearing the words "EMERGENCY WASH STATION", or "SAFETY SHOWER" or "FIRE BLANKET".

10.23.4.1 Every wash station shall be tested by the owner of the building or his designee twice annually (every six months) for proper flow and operation. The owner shall, upon request, provide the fire department with the test result, (including but not limited to): date of test, station operation, system malfunctions, and the name of the person performing the test.

10.23.4.2 Each student shall be advised of the location and proper use of the above emergency safety equipment by the teacher, instructor, or person in charge of the class before the first experiment is conducted.

10.23.4.3 Each student shall also be instructed in the proper procedure for the extinguishment of clothing fires at least twice during the course, as directed by the Head of the Fire Department.

10.23.4.3.1 The installation and operation of each safety device noted above shall be in order before the commencement of any class conducting laboratory experiments.

10.24 Maintenance, Inspection, and Testing.

10.24.1 Whenever or wherever any device, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature is required for compliance with the provisions of this *Code*, such device, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or other feature shall thereafter be continuously maintained. Maintenance shall be provided in accordance with *this Code*, the *Building Code* and applicable NFPA requirements, or requirements developed as part of a performance-based design.

10.24.2 No existing life safety feature shall be removed or reduced where such feature is a requirement for new construction. [101: 4.6.12.2]

10.24.2.1 Existing life safety features obvious to the public, if not required by this *Code*, shall be either maintained or removed as provided in M.G.L. c148 §.27A.

10.24.3 Any device, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature requiring periodic testing, inspection, or operation to ensure its maintenance shall be tested, inspected, or operated as specified elsewhere in this *Code* and the *Building Code*.

Chapter 11 – Building Services

DELETE:

11.1.1 through 11.1.2.3

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DELETE:

11.1.6 through 11.1.6.3.4

DELETE:

11.1.7.3 and 11.1.7.3.1

DELETE:

11.2 through 11.3.7

ADD:

11.5.1.1.1 Terms. As used in Chapter 11 the enclosed terms shall have the following meaning assigned to them.

11.5.1.1.1.1 Gravity Feed Burner. A burner which receives its fuel oil supply by static head pressure due to elevation of the supply source.

11.5.1.1.1.2 Post Purge Control. An electrical control that is designed to allow the power-venter or burner to operate after the burner flame has shut off, thus purging the vent system and heating appliance of combustion gases.

11.5.1.1.2 This Section shall not apply to fuel oil burners installed in steam boilers of nine horsepower and over and operated 15 psi, but shall apply to the fuel oil storage.

11.5.1.1.3 Unsafe Heating Appliances. The Head of the Fire Department shall order the sealing (preventing the use) of any existing stove, oven, furnace, incinerator, boiler or any other heat producing device or appliance found to be defective or in violation of code requirements for existing appliances after giving 24 hours' notice to this effect to any person, owner, firm, agent or operator in charge of same. However, the Head of the Fire Department shall seal any device or appliance without notice when inspection shows the existence of an immediate fire hazard or when imperiling human life. The sealed defective appliance shall remain withdrawn from service until all necessary repairs or alterations have been made.

11.5.1.1.3.1 Unauthorized Seal Removal. No person or user, firm or agent shall continue the use of any device or appliance which has been sealed or ordered sealed unless written authority to remove said seal is given by the Head of the Fire Department.

ADD:

11.5.1.10.5 General Requirements.

(1) Installation. All fuel oil burners and all equipment in connection therewith shall be installed and maintained in accordance with the manufacturer's installation and operation manual. Chimneys, connectors, direct vent systems and power-venters shall also be installed in accordance with the *Building Code*.

(a) A person holding a certificate of competency as an oil burner technician may connect or disconnect for the purpose of repair or replacement, any device or control required by this *Code* to be part of an oil burner installation, or being an integral part of the oil burning equipment, at the connection on such device, control or part to be repaired or replaced, notwithstanding any contrary provision of M.G.L. c.141.

(b) Any person licensed as an electrician under M.G.L. c.141 may do any electrical work in connection with the alteration, repair, or installation of oil burning equipment without being certified as an oil burner technician

(2) Automatic Shut Off. An approved automatic means to prevent abnormal discharge of fuel oil shall be provided for any fuel oil burner for which a competent attendant will not be constantly on duty in the room where the burner is located.

(3) Exposure to Fire. If any oil tank, oil burner, oil burner control or wiring related to an oil burner has been exposed to fire and is suspected of being damaged, the entire installation shall be made inoperative by the Head of the Fire Department who shall so notify the owner or occupant of the building or structure. Said installation shall not be operated until approved by the Head of the Fire Department.

(4) Tank Removal. Unless otherwise provided for in Chapter 66, a permit shall be obtained, in accordance with 1.12.8.2, from the Head of the Fire Department for the removal of a fuel oil storage tank. Any person removing a

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fuel oil storage tank from inside a building for a purpose other than replacement or repair, shall remove all fill and vent pipes.

(5) Fuel Oil. The grade of fuel oil used for any fuel oil burner shall be one which tests and experience have been shown to be suitable for use with that burner, but in no case shall the grade of fuel oil be heavier than that for which the burner has been designed or adjusted.

(6) Gravity Feed to Burners. Gravity feed shall be used only with a burner arranged to prevent abnormal discharge of oil at the burner by automatic means specifically approved for the burner in which it is used.

(7) Fuel Oil Delivery. Fuel oil shall not be delivered to any storage tank unless the deliverer has knowledge that a permit has been obtained in accordance with 1.12.8.2.4.

(a) Fuel oil shall not be delivered to a storage tank by means of a pump or under pressure in any case where a tight connection is made between the discharge line and the tank inlet, unless such storage tank is designed to withstand the additional stress to which it may be subjected or unless the vent pipe for such tank is of sufficient size to relieve the tank of any undue pressure in excess of five psi. The delivery truck operator shall remain at the fill point during the entire operation.

(8) Fuel oil equal to the maximum capacity of the storage tank may be delivered without such a permit being in effect whenever an oil burner installation is first made, provided that an application has been made in accordance with 1.12.8.2.

(9) Connection. Cross connection of oil supply and return lines to two or more supply tanks to the same burner shall be acceptable and shall be made by a pipe no smaller than ½ inch iron pipe or ½ inch O.D. tubing.

(10) Two supply tanks may be provided with a single fill and a single vent provided:

(a) The fill and vent pipes are not connected to the same tank;

(b) The crossover pipe is a minimum two inch diameter with swing joints and a ground joint union;

(c) The vent to the outside is a minimum two inch diameter

(11) Tanks shall be mounted on a continuous concrete slab extending eight inches beyond the perimeter of the tank or tanks.

11.5.1.10.5.1 Permit. Permits, where required, shall comply with *Section 1.12*.

11.5.1.10.6 Unenclosed Tanks: Installation Inside Buildings.

When tanks are installed inside garages or other areas subject to vehicular impact, physical barriers shall be provided. The physical barrier shall consist of substantial pipes, or similar barriers.

11.5.1.10.7 Tanks Installations Outside of Buildings.

(1) Tanks installed outside of buildings shall be mounted on a continuous concrete slab at least four inches in thickness and extending eight inches beyond the perimeter of the tank or tanks.

(2) Tanks installed outside of buildings shall be securely supported by rigid noncombustible supports to prevent settling, sliding or lifting.

11.5.1.10.8 Fill and Vent Piping.

(1) Vent pipes shall terminate outside of buildings at a point not less than two feet (0.6m) measured vertically or horizontally from any building opening.

(2) Outer ends of vent pipes shall terminate in a weatherproof vent cap or fitting or be provided with a weatherproof hood. All vent caps shall have a minimum free open area equal to the cross sectional area of the vent pipe and shall not employ screens finer than four mesh. Vent pipes shall terminate at least three feet from grade to avoid being obstructed with snow and ice. Vent pipes from tanks containing heaters shall be extended to a location where oil vapors discharging from the vent will be readily diffused. If the static head with a vent pipe filled with oil exceeds ten psi (70 kPa), the tank shall be designed to withstand the maximum static head which will be imposed.

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(3) A fixed sash window shall not be considered an opening for the purpose of this Section.

11.5.1.10.9 Oil Gauging. All storage tanks in which a constant level of oil is not maintained by an automatic pump shall be equipped with a method of determining oil level. On cross connected tanks provided with a single fill and single vent, the gauge shall be installed on the tank vented to the outside.

11.5.1.10.10 Oil Burners, Light Fuel Oil Type.

11.5.1.10.10.1 Oil Supply and Return Lines.

(1) All threaded joints and connections shall be made tight with suitable lubricant or pipe compound. Teflon tape shall not be used. Unions requiring gaskets or packings, right or left couplings, and sweat fittings employing solder having a melting point of less than 500°F (260°C) shall not be used in oil lines. Compression type fittings shall not be used.

Exception: Mechanical connections on tubing of the flare type or gaugeable, two ferrule, swage type fittings are acceptable.

(2) Oil supply lines shall be rigidly secured in place and protected from injury and shall be protected against corrosion. All new oil supply lines in direct contact with concrete or earth shall be enclosed with a continuous nonmetallic sleeve that extends out of the concrete or earth a minimum of four inches on each end. Perimeter lines may be placed in an outer protective covering, in addition to the continuous non-metallic sleeve, when subject to physical damage.

(3) A person holding a certificate of competency as an oil burner technician may connect or disconnect for the purpose of repair or replacement, any device or control required by this *Code* to be part of an oil burner installation, or being an integral part of the oil burning equipment, at the connection on such device, control or part to be repaired or replaced, notwithstanding any contrary provision of M.G.L. c.141.

(4) Any person licensed as an electrician under M.G.L. c.141 may do any electrical work in connection with the alteration, repair or installation of oil burning equipment without being certified as an oil burner technician.

(5) On existing installations, whenever a burner, boiler, furnace or tank is replaced, the oil supply line shall either be replaced or enclosed with a continuous sleeve as for new installations or a listed oil safety valve shall be installed at the tank end of the oil supply line in accordance with the manufacturer's instructions.

(6) An oil safety valve and continuous nonmetallic sleeve is not required when:

(a) The oil supply and return lines are not in direct contact with concrete, earth or any floor surface.

(b) When the burner is located above the oil supply tank and the entire oil supply line is connected to, and above the top of the tank.

(7) Every owner of a residential property defined as a one to four dwelling unit used for living or sleeping (M.G.L. c. 148 § 38J) with oil supply and return lines not enclosed with a continuous non-metallic sleeve or equipped with a listed oil safety valve, shall either replace the line and enclose it with a continuous sleeve as for new installations or shall have a listed oil safety valve installed at the tank end of the supply line in accordance with the manufacturer's instructions.

(8) Nothing in this *Code* shall prohibit overhead installation of oil supply and return lines or cross connection of oil supply lines from multiple tanks.

(9) Oil supply lines and return lines to tanks exposed to freezing temperatures shall be connected to the top of the tank. This shall not apply to gravity feed oil burners using #1 fuel oil, range oil or kerosene.

(10) Oil supply lines shall be properly reamed and joints and connections shall be made oil tight.

11.5.1.10.10.2 Oil Pumps and Valves.

(1) Only readily accessible hand operated, fusible, spring loaded valves of an approved automatic type shall be installed in the oil supply line, one near each burner and one close to each supply tank so as to automatically stop the

flow of oil in case of fire. Manual opening and ball spring check valves shall not be permitted.

11.5.1.10.10.3 Oil Burner Controls.

(1) Each fully automatic oil burner having a firing rate of no more than 20 gallons per hour shall be equipped with a type of approved primary safety control which shall shut off the oil supply to the burner within 15 seconds if ignition is not established or in the event of flame failure after combustion has been established. Once combustion is established and in the event of flame failure, the oil supply shall be shut off to the burner within 3 seconds nominal unless the ignition is reenergized in not less than 0.8 seconds after flame extinguishment occurs. The installation of intermittent (formerly called constant) ignition primary safety controls shall not be permitted.

(2) Each automatically fired, low-pressure steam heating boiler shall have an automatic low-water fuel cutoff, which may be a combined feeder/cutoff device. Each automatically fired hot water heating boiler with heat input greater than ~~500,000~~ 200,000 btus per hour shall have a listed automatic low water fuel cutoff which has been designed for hot water service, so located as to automatically cut off the fuel supply when the surface of the water falls to the lowest safe permissible water level established by the boiler manufacturer. Each automatically fired, high-pressure steam boiler, except miniature boilers, shall have at least two automatic low-water fuel cutoff devices. Each low-water fuel cutoff or combined feeder/cutoff device shall be labeled and listed to UL 353 as a safety control and/or UL 60730-2-15 as a protective control. All non-residential boiler installations shall comply with the Board of Boiler Rules specialized codes 522 CMR.

Comment: This proposal was brought forth by the Boiler and Pressure Vessel Unit from Division of Fire Services to align with their code.

11.5.1.10.10.4 Certificate and License Requirements for Repair or Replacement of Oil Burner Equipment.

In accordance with M.G.L. c.148, § 10D, a person holding a certificate as an oil burner technician may connect or disconnect for the purpose of repair or replacement, any device or control required by rules and regulations of the board to be a part of an oil burner installation, or being an integral part of the oil burning equipment, at the connection on such device, control or part to be repaired or replaced, notwithstanding any contrary provision of M.G.L. c. 141. Any person licensed as an electrician under said M.G.L. c. 141 may do any electrical work in connection with the alteration, repair or installation of oil burning equipment without being certified as an oil burner technician.

(1) Oil burners electrically controlled, driven and/or operated shall be supplied from a separate branch circuit located at the service disconnect panel, or at branch circuit subpanel. This circuit shall be clearly marked for the equipment it controls.

(2) All protective, control and emergency devices shall be series connected from the electrical distribution panel, through the emergency switch, through the thermal switch, to the service switch in the ungrounded line conductors. The burner controls shall be installed in the ungrounded supply conductors of the circuit and shall not exceed 150 volts to ground.

(3) A control (service switch) to start and stop a light fuel oil burner shall be installed at a location where the operator can view the fire. The switch shall be located at a maximum of three feet from the burner.

(4) An electrical thermal switch fused to break the ungrounded conductor in the main circuit at 165°F, shall be installed in the main power line within six feet over the top of the burner boiler or burner furnace.

(5) If the ceiling above the burner boiler or burner furnace exceeds 12 feet in height, an additional thermal switch shall be installed at a height of 10 feet and connected in series with the lower switch.

(6) Electrical equipment shall not obstruct clear access to clean out and service panels.

11.5.1.10.10.5 Certificates. Certificates, where required, shall comply with *Section 1.12.8.51*.

DELETE and REPLACE:

11.5.2.1

Red is existing MA amendment language
Red underline is new or modified MA amendment language

Black is existing base language
~~Stricken Language~~

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~~The use of unvented kerosene burners and oil stoves shall be equipped with a primary safety control furnished as an integral part of the appliance is prohibited by the manufacturer to stop the flow of oil in the event of flame failure. Barometric oil feed shall not be considered a primary safety control. M.G.L. c. 148 § 25B.~~

DELETE:

11.5.2.2 through 11.5.2.3

DELETE:

11.5.3.1

DELETE:

11.5.4 Vents.

DELETE and REPLACE:

11.6.2 Installation and Maintenance. ~~Waste Rubbish chutes and laundry chutes and incinerators shall be installed and maintained in accordance with NFPA 82, *Standard on Incinerators and Waste and Linen Handling Systems and Equipment*, unless such installations are approved existing installations, which shall be permitted to be continued in service.~~ ~~[101: 9.5.2]~~

DELETE:

11.7.3.2

ADD:

11.7.5.1.1 A fuel quality test shall be performed at least annually using tests approved by ASTM standards.

11.7.5.1.2 Diesel fuel shall be tested in accordance with ASTM D 975-11b, *Standard Specification for Diesel Fuel Oils*, or ASTM D 6751-11b, *Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels*, as approved by the engine manufacturer, using ASTM D 7462-11, *Standard Test Method for Oxidation Stability of Biodiesel (B100) and Blends of Biodiesel with Middle Distillate Petroleum Fuel (Accelerated Method)*.

11.7.5.1.2.1 Where diesel fuel is found to be deficient in accordance with testing required in 11.7.5.1.2, the fuel shall be reconditioned or replaced, the supply tank shall be cleaned internally, and the engine fuel filter(s) shall be changed.

11.7.5.1.2.2 After the restoration of the fuel and tank in 11.7.5.1.2.1, the fuel shall be retested every 6 months until experience indicates the fuel can be stored for a minimum of 1 year without degradation beyond that allowed in 11.7.5.1.2.

ADD:

11.8.6 Smoke control systems shall be maintained to ensure to a reasonable degree that the system is capable of controlling smoke for the duration required. The system shall be maintained in accordance with the manufacturer's instructions and the *Building Code*.

11.8.7 A routine maintenance and operational testing program shall be initiated immediately after the smoke control system has passed the acceptance tests. A written schedule for routine maintenance and operational testing shall be established.

11.8.8 A written record of smoke control system testing and maintenance shall be maintained on the premises. The written record shall include the date of the maintenance, identification of servicing personnel, and notification of any unsatisfactory condition and the corrective action taken, including parts replaced.

11.8.9 Dedicated smoke control systems shall be operated for each control sequence semiannually. The system shall also be tested under standby power conditions.

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DELETE:
11.9 through 11.9.6

DELETE:
11.10.1.1

REPLACE WITH THE FOLLOWING:

11.10.2 Two-way radio communication enhancement systems, when required, shall ~~comply~~ be maintained in accordance with Chapter 24 of NFPA 72: National Fire Alarm Signaling Code.

DELETE:
11.10.3

DELETE:
11.12.2 through 11.12.2.1.4.6

DELETE
11.12.2.1.6 through 11.12.2.1.6.3

Chapter 12 – Features of Fire Protection

DELETE and REPLACE:
12.1 General.

This chapter shall apply to ~~new~~ existing, permanent, or temporary buildings.

DELETE:
12.2.1 through 12.2.2

DELETE:
12.3.1 through 12.3.2.2

DELETE and REPLACE:

12.3.3.1 Required fire-resistive construction, including fire barriers, **fire partition**, fire walls, exterior walls due to location on property, fire-resistive requirements based on type of construction, draft-stop partitions, and roof coverings, shall be maintained and shall be properly repaired, restored, or replaced where damaged **as constructed** or replaced where **permitted under the Building Code**. ~~damaged, altered, breached, penetrated, removed, or improperly installed.~~

DELETE:
12.3.3.3 through 12.3.3.3.2

DELETE and REPLACE:

12.4.1* The installation and maintenance of assemblies and devices used to protect openings in walls, floors, and ceilings against the spread of fire and smoke within, into, or out of buildings shall comply with Section 12.4 and NFPA 80, *Standard for Fire Doors and Other Opening Protectives* ~~[80: 1.1]~~ **and with the Building Code.**

DELETE:
12.4.2.6 through 12.4.2.7

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DELETE:

12.5.1 through 12.5.6.2.1

DELETE:

12.5.7 through 12.5.9.2

ADD:

12.6.2.1* Smoldering Ignition of Upholstered Furniture.

(3) The requirements of California Technical Bulletin 117- 2013, Requirements, Test Procedure and Apparatus for Testing the Smolder Resistance of Materials Used in Upholstered Furniture.

ADD:

12.6.3.3 Seating shall not be purchased, leased or rented for use in a particular occupancy unless labeled or identified by the manufacturer.

12.6.3.3.1 The following shall be exempt:

- (1) Cushions and pads intended solely for outdoor use.
- (2) Any article which is smooth surfaced and contains no more than ½ inch of filling material, provided that such article does not have a horizontal surface meeting vertical surface.
- (3) Articles manufactured solely for recreational use or physical fitness purposes, such as weight lifting benches, gymnasium mats or pads, side horses and similar articles.

12.6.3.4 For spaces not protected by an approved sprinkler system, stackable molded plastic seating shall comply with ASTM E 1822, as modified. The test shall consist of a single chair, or prototypes thereof.

12.6.3.5 Labeled Furniture

12.6.3.5.1 The manufacturer shall affix a label to each article of regulated furniture that indicates:

- (1) The article of furniture is composed of materials that meet the performance test.
- (2) The nationally recognized testing laboratory and standards or publications as provided in this *Code*.

12.6.3.5.2 The label shall be stitched or adhered onto each piece of regulated furniture.

12.6.3.6 Documentation of Furniture.

12.6.3.6.1 The building manager shall maintain documentation of furniture within the building.

12.6.3.6.2 The documentation shall be made available to the AHJ upon request.

12.6.3.6.3 The documentation shall include:

- (1) The quantity and type of each article of furniture.
- (2) Certification that the furniture items meet the performance requirements.
- (3) The nationally recognized testing laboratory that conducted the tests.
- (4) Descriptions of the upholstery cover fabric for each type of furniture within the inventory area, if the furniture is upholstered. The description of the upholstery cover fabric shall be provided by the fabric company or the chair manufacturer, and shall include fiber content, fabric type, fabric company name, and either a photo of the fabric for identification, or an actual fabric swatch, clearly labeled, at minimum size 2 in. x 2 in.
- (5) Fire retardant treatment maintenance and compliance documentation, if applicable.

DELETE and REPLACE:

Table **12.6.9.1.1** Provisions for Christmas Trees by Occupancy

Occupancy	No Trees Permitted	Cut Tree Permitted With Automatic Sprinkler Systems Required	Cut Tree Permitted Without Automatic Sprinkler Systems	Balled Tree Permitted
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Ambulatory health care	X			
Apartment Buildings		X Within the unit	X Within the unit	X Within the unit
Assembly	X			
Board and care	X			
Business		X		X With Automatic Sprinklers
Daycare	X			
Detention and correctional	X			
Dormitories	X			
Educational	X			
Health care	X			
Hotels	X			
Industrial		X		X With Automatic Sprinklers
Lodging and rooming				X
Mercantile		X		X With Automatic Sprinklers

Comment: This table was previously included in Chapter 10 and was amended by MA. NFPA 1 reorganized this section from Chapter 10 to Chapter 12 so the table is added into the section indicated but there is no change to the previous MA amendments.

DELETE:

12.7.1 through 12.7.6.2.4

DELETE and REPLACE:

12.8.1 General. Where required elsewhere in this *Code*, smoke partitions shall be ~~provided~~ **maintained** to limit the transfer of smoke. ~~{101:8.4.1}~~

DELETE:

12.8.2 through 12.8.2(3)(c)

DELETE:

12.9 through 12.9.7.4

Chapter 13 – Fire Protection Systems

DELETE and REPLACE:

13.1.1 **For alarms and systems regulated by this *Code*** the AHJ shall have the authority to require that construction documents for all fire protection systems be submitted for review and approval and a permit be issued prior to the installation, rehabilitation, or modification **in accordance with Section 1.14**. Further, the AHJ shall have the authority to require that full acceptance tests of the systems be performed in the AHJ's presence prior to final system certification.

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Red underline is new or modified MA amendment language

Black is existing base language
~~Stricken Language~~

13.1.1.1.2* No person shall shut off, disconnect, obstruct, remove, and/or impair a fire protection system or carbon monoxide protection system without first obtaining a written permit pursuant to Section 1.12 as required by the AHJ. [13.1.8 and 13.7.2.2]

A.13.1.1.1.2 See M.G.L. c. 48, § 27A. Except as hereinafter provided, no person shall shut off, disconnect, obstruct, remove or destroy, or cause or permit to be shut off, disconnected, obstructed, removed or destroyed, any part of any sprinkler system, water main, hydrant or other device used for fire protection or carbon monoxide detection and alarm in any building owned, leased or occupied by such person or under his control or supervision, without first procuring a written permit so to do from the head of the fire department of the city or town wherein such building is situated, which permit such head is hereby authorized to issue subject to such terms and conditions as, in his judgment, protection against fire and the preservation of the public safety may require. This section shall not prevent the temporary shutting off or disconnection or partial removal of such a system, main, hydrant or other device for the purpose of making necessary repairs or preventing freezing or other property damage; provided, however, that the head of the fire department is notified immediately of such emergency action. The head of the fire department shall also be notified when the system, main, hydrant or other device is placed back in service. Violation of this section shall be punished by imprisonment for not more than one year or by a fine of not more than one thousand dollars, or both. The supreme judicial and superior courts shall have jurisdiction in equity to enforce compliance with the provisions of this section.

DELETE and REPLACE:

13.1.10 ~~The AHJ shall be notified when any fire protection system is out of service and on restoration of service~~ No person shall shut off, disconnect, obstruct, remove, and/or modify a fire protection system or carbon monoxide protection system without first procuring a written permit in accordance with Section 1.12 from the AHJ. The AHJ shall be notified when any fire protection system is out of service and on restoration of service.

DELETE:

13.2.1.1

DELETE:

13.2.2 through **13.2.2.5(3)**

DELETE and REPLACE:

13.3.1.1 Automatic sprinklers shall be installed and maintained in full operating condition in occupancies specified in accordance with this Code or in the codes and standards and the applicable standard or document for such system referenced in Chapter 2.

DELETE:

13.3.1.4 Delete.

DELETE:

13.3.2.1 Delete.

DELETE:

13.3.2.7.1 through **13.3.2.21.1.2**

DELETE and REPLACE:

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13.3.2.21.1.3 High-rise Buildings. All high-rise buildings shall be protected throughout by an approved, supervised automatic sprinkler system in accordance with **13.3.2.21.1**. Such systems shall initiate the fire alarm system in accordance with **13.7.1.4**. ~~[101:33.3.3.5.3]~~ See M.G.L. c. 148, §§ 26A and 26A½.

DELETE:

13.3.2.21.1.4 through **13.3.2.21.4.2**

DELETE:

13.3.2.22.1 through **13.3.2.23.2**

DELETE:

13.3.2.22.3 through **13.3.2.23.4.2.3**

DELETE and REPLACE:

13.3.2.23.1 Mercantile occupancies, other than one-story buildings that meet the requirements of a street floor, as defined in 3.3.273, shall be protected by an approved automatic sprinkler system in accordance with NFPA 13 in any of the following specified locations:

- (1) Throughout all mercantile occupancies with a story over 15,000 ft² (1400 m²) in area
- (2) Throughout all mercantile occupancies exceeding 30,000 ft² (2800 m²) in gross area
- (3) Throughout stories below the level of exit discharge where such stories have an area exceeding 2500 ft² (232 m²) and are used for the sale, storage, or handling of combustible goods and merchandise
- (4) Throughout multiple occupancies protected as mixed occupancies in accordance with 6.1.14 where the conditions of 13.3.2.23.1(1), 13.3.2.23.1(2), or 13.3.2.23.1(3) apply to the mercantile occupancy

See M.G.L. c. 148, § 26.

DELETE:

13.3.2.24 through **13.3.2.29**

DELETE:

13.4.2 through **13.4.2.2**

ADD:

13.6.1.1.3 Certificates. Certificates, where required, shall comply with Section 1.13.

DELETE and REPLACE:

Delete 13.7 through 13.7.4.5.6

13.7 Smoke Alarms and Detectors, Permits, Massachusetts General Laws, Primary Power Sources, and Carbon Monoxide Protection Systems.

13.7.1 For systems regulated by this *Code*, the AHJ shall have the authority to require construction documents for all fire protection and carbon monoxide systems to be submitted for review and approval and a permit to be issued prior to the installation, rehabilitation, or modification. Further, the AHJ shall have the authority to require that full acceptance tests of the systems shall be performed in the AHJ's presence prior to final system certification.

13.7.2 Permits. Permits, where required, shall comply with Section 1.12.

13.7.2.1 For installations described in Section 13.7 governed by permits issued, the applicable code shall be determined based on the date of issuance stated on the permit.

13.7.2.2 No person shall shut off, disconnect, obstruct, remove, and/or impair a fire protection system or carbon monoxide protection system without first procuring a written permit pursuant to Section 1.12 as required by the AHJ.

13.7.3 Massachusetts General Laws.

13.7.3.1 For the purpose of compliance with M.G.L. c. 148, §§ 26E and 26F, smoke alarms shall be installed in accordance with the applicable requirements of Section 13.7.

13.7.4 Smoke Detection.

13.7.4.1 General. Where fire warning equipment is required by this *Code* to be installed in a building, such equipment shall be installed in accordance with *Massachusetts Electrical Code*, *NFPA 72: National Fire Alarm and Signaling Code* and Section 13.7.

13.7.4.2 Low voltage system batteries for smoke detectors shall be maintained in accordance with applicable Sections of *NFPA 72: National Fire Alarm Signaling Code* by the owner, landlord or superintendent.

13.7.4.3 Heat Detection.

13.7.4.3.1 The Head of the Fire Department shall be permitted to require the installation and interconnection of heat alarms/detectors in unheated open porches with stairways. Where such heat alarm/detector is required, it shall be listed for such use.

13.7.5 Primary Power Source.

13.7.5.1 Smoke alarms/detectors, and carbon monoxide alarms shall be permitted to have battery power as a primary source, unless otherwise prohibited by applicable laws, codes, or standards.

13.7.5.1.1 Nonrechargeable, Nonreplaceable Battery Power Alarms/Detectors.

- (1) Photoelectric technology shall be required for smoke alarms and detectors.
- (2) A silence button shall be required on each smoke alarm, or detector device; within its control panel.
- (3) Each smoke alarm and detector device shall be equipped with a nonrechargeable battery.
- (4) Each smoke alarm and detector device shall be equipped with a nonreplaceable battery.
- (5) All power requirements for all smoke alarms and detectors shall be met for at least ten years of battery life, including weekly testing.
- (6) All power requirements for combination alarms with smoke/carbon monoxide shall be capable of powering the unit for its service life, including testing.
- (7) Household fire warning systems and smoke detectors shall receive their power in accordance with *NFPA 72: National Fire Alarm and Signaling Code*.

13.7.5.1.2 Battery Powered with Network Technology (wireless) Alarms/Detectors.

- (1) Photoelectric technology shall be required for smoke alarms/detectors.
- (2) All power requirements for all alarms and detectors are met for at least one year of battery life, including weekly testing.

13.7.5.1.3 Other Technologies and Nonrequired Devices.

13.7.5.1.3.1 Where devices in Sections 13.7.5.1.1 and 13.7.5.1.2 have been installed, and placed, alarms and detectors having other technologies and or additional devices shall be permitted as provided in Sections 13.7.5.1.3.1(1) and (2).

- (1) Other technologies that are part of the same unit shall be permitted with photoelectric technology.
- (2) Non-required devices shall be permitted to be connected with required devices or installed within the same or different space, area, or location as provided in Table 13.7A, Table 13.7C and Table 13.7D, provided such devices have been installed in accordance with their applicable listings and have been tested, inspected and maintained pursuant to Section 10.24.

13.7.5.1.4 Types of Device.

13.7.5.1.4.1 The following types of device shall be required:

- (1) A single station or multiple station alarm;
- (2) Detector;
- (3) A device as one unit with one or more technologies; and
- (4) Types of devices listed in Sections 13.7.5.1.4.1(1) through (3) shall be pursuant to Table 13.7B.

13.7.5.1.4.2 Device Requirements.

13.7.5.1.4.2.1 The following device requirements shall comply with the following:

- (1) Devices shall be placed pursuant to Table 13.7A and Table 13.7C as applicable.
- (2) Single station or multiple station alarms shall meet standard ANSI/UL217: *Standard for Safety Smoke Alarms* as provided in Table 13.7B.
- (3) Smoke detectors shall meet standard ANSI/UL268: *Smoke Detectors for Fire Alarm Signaling Systems* as provided in Table 13.7B.
- (4) Devices provided in Sections 13.7.5.1.4.1(1) through (3) with an integrally mounted heat detector shall meet the following standards as provided in Table 13.7B as applicable
 - (a) Standard ANSI/UL 521: *Heat Detectors for Fire Protective Signaling Systems* that covers heat detectors for fire protective signaling systems
 - (b) Standard ANSI/UL 539: *Single and Multiple Station Heat Alarms* that covers heat- actuated, single and multiple station heat alarms
- (5) A combination device as a single unit with two or more technologies shall meet the following standards as provided in Table 13.7B and as provided below:
 - (a) ANSI/UL 217: *Standard for Safety Smoke Alarms* and ANSI/UL 2034: *Standard for Single and Multiple Station Carbon Monoxide Alarms* for combination alarms with smoke/carbon monoxide technologies;
 - (b) ANSI/UL 268: *Smoke Detectors for Fire Alarm Signaling Systems* and ANSI/UL 2075: *Standard for Safety Gas and Vapor Detectors and Sensors* for combination detectors with smoke/carbon monoxide technologies.
- (6) A device shall be permitted to be a single or multiple station alarm or detector with smoke and or heat detection and or carbon monoxide and or intrusion technologies within the same unit provided all of the conditions listed below in Sections 13.7.5.1.4.2.1(6)(a) and for alarms or (b) and (c) for detectors are met:
 - (a) Combination devices with two or more technologies that are incorporated into one unit shall have simulated voice and tone alarm features which clearly distinguishes between two or more events such as carbon monoxide and smoke.
 - (b) Fire alarm signal shall take precedence, even when a non-fire alarm signal is initiated first.
 - (c) Combination detectors shall be permitted to satisfy requirements for both smoke and carbon monoxide detection required by this *Code* when listed in accordance with UL 268: *Standard for Safety Smoke Detectors for Fire Alarm Systems* and UL 2075: *Standard for Safety Gas and Vapor Detectors and Sensors*.
- (7) Such combination devices shall include both simulated voice and tone alarm features which clearly distinguishes between carbon monoxide and smoke notification, unless such system employs the following:
 - (a) Each such combination device produces a distinctive audible and visual alarm signal for smoke and carbon monoxide, in accordance with NFPA 72: *National Fire Alarm Signaling Code* and NFPA 720: *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment*;
 - (b) A control unit or annunciator is installed displaying a distinctive alphanumeric message (digital or embossed) for smoke and carbon monoxide;
 - (c) Where such control unit or annunciator is installed it shall be located in an accessible area within each dwelling unit and be visible at all times; and
 - (d) For transient residential and institutional structures, such control unit or annunciator shall be located at the constantly attended location and shall be monitored.

13.7.6 Carbon Monoxide Detection.

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13.7.6.1 General. For the purposes of M.G.L. c. 148, § 26F½, carbon monoxide detection shall be provided and installed in accordance with *Installation of Carbon Monoxide (CO) Detection and Warning Equipment* and Section 13.7.6.

13.7.6.2 Every owner, superintendent or landlord of every structure that employs carbon monoxide alarm protection by utilizing one or more of the carbon monoxide protection technical options listed in Section 13.7.7 equipped with a voice or annunciator as provided in Section 13.7.6.5.1 shall prepare a written emergency plan that is in effect and available to all personnel. The plan shall be presented to and approved by the Head of the Fire Department.

(1) The plan shall include at a minimum:

- (a) The development of a policy and procedure as a means to immediately communicate the alarm to the fire department;
- (b) An evacuation plan; and
- (c) A list of emergency contact phone numbers of responsible parties.

(2) An annual review by the owner, superintendent or landlord of the plan with all employees, who shall be kept informed in respect to their duties and responsibilities under the plan;

(3) Systems installed in accordance with Section 13.7.6.5.1 shall include information within each room indicating evacuation procedures in the event of an alarm condition.

13.7.6.3 Annually, the owner, superintendent or landlord of every structure shall submit to the Head of the Fire Department an updated emergency plan, record of inspection, maintenance and testing on a form prescribed by the State Fire Marshal.

13.7.6.4 Terms. As used in Chapter 13, the enclosed terms shall have the following meaning assigned to them.

13.7.6.4.1 Adjacent Spaces. Any area, space, room, or dwelling unit located directly next to, below, or above any area space, room, or dwelling unit that contains fossil fuel burning equipment or enclosed parking. It shall not include closets, bathrooms, cabinets, or similar areas used for storage or utility purposes and temporarily occupied for activities relating to such storage or utility use.

13.7.6.4.2 Centralized Fossil Fuel Burning Equipment. A central heating plant, hot water heater, a combustion driven generator or fire pump, central laundry equipment, roof mounted air handling unit or similar equipment that emits carbon monoxide as a by-product of combustion and does not allow for air exchange between centralized fossil fuel burning equipment and dwelling units or common areas.

13.7.6.4.3 Combination Device. A device that employs more than one technology within the same unit such as smoke and carbon monoxide.

13.7.6.4.4 Carbon Monoxide Device. A device intended for the purpose of detecting carbon monoxide gas and alerting occupants either by a distinct audible signal comprising an assembly that incorporates a sensor, control components and an alarm notification appliance in a single unit (alarm) or through a connection to an alarm control unit (detector).

13.7.6.4.5 Daycare Facility. A facility licensed by the Commonwealth under M.G.L. c. 15D, §§ 5, 6, and 7 or 903 CMR: The Department of Early Education and Care as a Child Care Center, School Aged Child Care Program, or Family Child Care Home, including Large Family Child Care and Family Child Care Plus.

13.7.6.4.6 Dwelling Unit. As used in Table 13.7D, Dwelling Unit means a single unit providing facilities for living and sleeping and used for residential purposes, unless specifically identified otherwise.

13.7.6.4.7 Enclosed Parking. A structure or an area or room, or floor or level thereof, enclosed within an overall building or structure or attached thereto that is designed or used for the parking of vehicles and does not comply with the minimum exterior wall opening requirements in the *Building Code*.

13.7.6.4.8 Fossil Fuel Burning Equipment. Any device, apparatus, or appliance which is designed or used to consume fuel of any kind in which such equipment emits carbon monoxide as a by-product of combustion.

13.7.6.4.9 Habitable. An area or space such as a cellar, basement, or attic that is designed, used, or equipped with furnishing for living purposes.

13.7.6.4.10 Intermittent Ignition Device. A device which ignites an automatic gas appliance to begin normal operation thereof and which is activated only at the time such automatic gas appliance is to be so ignited.

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Red underline is new or modified MA amendment language

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~~Stricken Language~~

13.7.6.4.11 Institutional Structures. Any dwelling, building, or structure classified as use group I-1 through I-3, as defined in the *Building Code* and those unclassified occupancies that have the same characteristics as I-1 through I-3. Where there is a dispute regarding use group classification of a structure, a determination shall be made by the municipal or state building inspector having jurisdiction.

13.7.6.4.12 Residential Structures. Any dwelling, building, or structure classified as use group R-1 with less than six dwelling units or R-2 through R-5, as defined in the *Building Code* and those unclassified occupancies that have the same characteristics as an R-1 with less than six dwelling units or R-2 through R-5. Where there is a dispute regarding use group classification of a structure, a determination shall be made by the municipal or state building inspector having jurisdiction.

13.7.6.4.13 Roof Mounted Fossil Fuel Burning Equipment. Any fossil fuel burning equipment mounted on top of a structure that is used to condition any medium through heating or cooling.

13.7.6.4.14 Transient Residential Structures. Any dwelling, building, or structure classified as use group R-1 with six or more dwelling units, as defined in the *Building Code* and those unclassified occupancies that have the same characteristics as R-1 with six or more dwelling units. Where there is a dispute regarding use group classification of a structure, a determination shall be made by the municipal or state building inspector having jurisdiction.

13.7.6.5 Carbon Monoxide Requirements. A carbon monoxide device shall be installed as provided in Section 13.7.6 and Table 13.7D and placed in the following locations:

- (1) On every habitable level of a dwelling unit with or without a sleeping area.
- (2) In habitable portions of basements, cellars, and attics.
- (3) Within the immediate vicinity of a sleeping area but within ten feet measured in any direction from the door to the sleeping area (bedroom).
- (4) In each level of each dwelling unit in transient residential and institutional structures, with fossil fuel burning equipment or enclosed parking.
- (5) One carbon monoxide alarm shall be installed in each room used by children for sleeping, learning, or participating in early education and care activities in daycare facilities.
- (6) Carbon monoxide protection in Family Child Care Homes, Large Family Child Care and Family Child Care Plus facilities shall comply with Sections 13.7.6.5 (1), (2), and (3).

13.7.6.6 Voice or Annunciators.

13.7.6.6.1 Smoke and carbon monoxide technologies shall be permitted to be installed as one unit as a combination device. Combination devices shall include both simulated voice and tone alarm features which clearly distinguishes between carbon monoxide and smoke notification, unless such system employs the following:

Each combination device initiates a distinctive audible and visual alarm signal for smoke and carbon monoxide, in accordance with NFPA 72: *National Fire Alarm Signaling Code* and NFPA 720: *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment* and;

- (1) Within each dwelling unit, a control unit or annunciator is installed displaying a distinctive alphanumeric message (digital or embossed) for smoke and carbon monoxide and;
- (2) Where such control unit or annunciator is installed it shall be located in an accessible area within each dwelling unit and be visible at all times.
- (3) For transient residential and institutional structures, such control unit or annunciator shall be located at the constantly attended location and shall be monitored.

Table 13.7A Smoke Alarms and Detectors Device, Placement, Power Supply, Type and Wiring Household Fire Warning For one and not more than two dwelling units Pre-1975-Dwellings: Pursuant to M.G.L. c. 148, §§ 26E and 26F^{1, 2}

Approved Amendments as voted for promulgation by the Board of Fire Prevention Regulations on July 14, 2022. This document is provided for review by members of the Building Code Coordinating Council (BCCC) at the August 18, 2022 Meeting

(Not substantially altered to constitute new)	
Device	(1) Smoke alarms/detectors installed shall require photoelectric technology.
Placement	(2) Smoke alarms/detectors shall be placed: <ul style="list-style-type: none"> (a) on every habitable level (b) on the basement level (c) on the ceiling of each stairway leading to the floor above, but not within each stairway, at the base of each stairway, including stairways to an unfinished/unheated basement/cellar (d) on ceiling outside of each separate sleeping area (e) in common areas on ceilings
Power Supply	(3) Smoke alarms/detectors pursuant to M.G.L. 148, §26E: <ul style="list-style-type: none"> (a) shall be permitted to have either battery or, primary power pursuant to M.G.L. c.148, § 26E for their power supply; and (b) Smoke alarms/detectors that do not include a secondary power source and have a battery as its primary power source shall meet the power provisions and conditions as provided in Section 13.7.5
Type of Device	(4) Types of device shall be permitted to be a single station or multiple station alarm or detector. See Section 13.7.5.1.3
Type of Technology	(5) Technology <ul style="list-style-type: none"> (a) Photoelectric shall be required, see Sections 13.7.5.1.1 and 13.7.5.1.2 (b) Other types of technologies with required photoelectric technology. See Section 13.7.5.1.3
Wiring	(6) Non-interconnected smoke alarms/detectors shall be permitted within the dwelling unit. (7) Smoke/Heat alarms/detectors: <ul style="list-style-type: none"> (a) in a single family dwelling unit shall be permitted to be interconnected in basements (b) in a two-family dwelling unit shall be interconnected in common areas and in basements

NOTE 1. A dwelling, as used here, means one or more units providing facilities for cooking, sanitary, living, sleeping or eating.

NOTE 2. For compliance with M.G.L. c. 148, § 26F in existing buildings, 527 CMR 1.05: 1.1 may be applicable

Table 13.7B Listings for Smoke and Carbon Monoxide Detectors and Alarms

Smoke and Carbon Monoxide alarms and detectors shall be listed as provided below:		
Smoke Alarm and Detector	Heat Detection	Carbon Monoxide Smoke Alarms and Detectors

Red is existing MA amendment language
Red underline is new or modified MA amendment language

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~~Stricken Language~~

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ANSI/UL 217 covers electrically operated single and multiple station smoke alarms.	ANSI/UL 539 covers heat-actuated, single and multiple station heat alarms.	ANSI/UL 2034 covers electrically operated single and multiple station carbon monoxide (CO) alarms.
ANSI/UL 268 covers smoke detectors for fire protective signaling systems.	ANSI/UL 521 covers heat detectors for fire protective signaling systems.	ANSI/UL 2075 covers toxic and combustible gas and vapor detectors and sensors.
		Combination smoke/carbon monoxide alarms shall be listed and labeled in accordance with ANSI/UL 217 and ANSI/UL 2034.
		Combination smoke/carbon monoxide detectors shall be listed and labeled in accordance with ANSI/UL 268 and ANSI/UL 2075.

Table 13.7C Smoke Alarms and Detectors Device, Placement, Power Supply, Type and Wiring Household Fire Warning For three or more dwelling units, but less than six Pre-1975-Dwellings: Pursuant to M.G.L. c. 148, §§ 26E and 26F^{1, 2}

(Not substantially altered to constitute new)	
Device	(1) Smoke alarms/detectors shall require photoelectric technology.
Placement	<p>(2) Smoke alarms/detectors shall be placed:</p> <ul style="list-style-type: none"> (a) on every habitable level (b) on the basement level (c) on the ceiling of each stairway leading to the floor above, but not within the stairway, at the base of each stairway, including stairways to an unfinished/unheated basement/cellar (d) on ceiling outside of each separate sleeping area. <p>(3) Smoke alarms/detectors shall be placed in common areas on the ceiling.</p> <p>(4) Heat alarms/detectors required by Section 13.7.4.3 shall be placed:</p> <ul style="list-style-type: none"> (a) in open porches with stairs on the ceiling (b) in common areas on the ceiling.

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Power Supply	(5) Smoke alarms/detectors pursuant to M.G.L. 148, §26E: (a) shall be permitted to have either battery or, primary power pursuant to M.G.L. c. 148, § 26E for their power supply for alarms/detectors: (b) Smoke alarms/detectors that do not include a secondary power source and have a battery as its primary power source shall meet the power provisions and conditions as provided in 13.7.5 (c) Common halls and basements shall have their power supply by primary power pursuant to M.G.L. c. 148, § 26E.
Type of Device	(6) Types of device shall be permitted to be a single station or multiple station alarm or detector. <i>See</i> Section 13.7.5.1.3
Type of Technology	(7) Technology (a) Photoelectric shall be required, see Sections 13.7.5.1.1 and 13.7.5.1.2 (b) Other types of technologies with required photoelectric technology. <i>See</i> Section 13.7.5.1.3
Wiring	(8) Non-interconnected smoke alarms/detectors shall be permitted to be within the dwelling unit. (9) Smoke/Heat alarms/detectors shall be interconnected in common areas and in basements.

NOTE 1. A dwelling, as used here, means one or more units providing facilities for cooking, sanitary, living, sleeping or eating.

NOTE 2. For compliance with M.G.L. c. 148, § 26F in existing buildings, 527 CMR 1.05: 1.1 may be applicable

Table 13.7D Carbon Monoxide Requirements for Dwellings¹

Device	(1) Carbon Monoxide Devices.
Placement	(2) Carbon monoxide devices shall be installed in the following locations: (a) on every level of a dwelling unit with or without a sleeping area; (b) in habitable portions of basements, cellars and attics; (c) installed within the immediate vicinity of a sleeping area but within ten feet measured in any direction from the door to the sleeping area [bedroom]; (d) on every level in every dwelling unit of transient or institutional structures with fossil-fuel burning equipment or enclosed parking garage; (e) in each room used for sleeping or learning in daycare facilities; and (f) in locations (d) through (e) for Family Child Care Homes, Large Family Child Care, and Family Child Care Plus facilities.

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Power Supply	(3) Carbon monoxide devices shall be powered as follows: (a) Battery powered, wireless appliances or an A/C (alternating current) plug-in with battery backup in accordance with NFPA 720 shall be installed in day care facilities and residential structures. (b) A/C primary power source with battery backup in compliance or wireless systems with secondary power in compliance with NFPA 720 shall be installed in transient residential or in institutional structures. (c) Carbon Monoxide alarms that do not include a secondary power source and have a battery as its primary power source shall meet the power provisions and conditions as provided in Section 13.7.5.
Type of Device	(4) Single or multiple station smoke alarms/detectors or combination smoke and carbon monoxide technologies in one unit shall be permitted per Sections 13.7.5.1.3 and 13.7.5.1.4.
Technical Options	(5) In lieu of providing carbon monoxide protection within each level of each dwelling unit, it shall be permitted to use one or more of the carbon monoxide protection technical options as provided in Section 13.7.7. However, notwithstanding the use of any alternative compliance option, carbon monoxide protection shall also be installed in any dwelling unit that contains fossil fuel burning equipment.
Wiring	(6) Non-interconnected carbon monoxide alarms and detectors shall be permitted to be within the dwelling unit.

NOTE 1. A dwelling, as it is used, here shall mean a single unit providing facilities for living and sleeping and used for residential purposes.

13.7.7 Technical Options. In lieu of providing carbon monoxide alarm protection within each level of each dwelling unit, it shall be permitted to use one or more of the carbon monoxide protection technical options as described in Section 13.7.7. However, notwithstanding the use of any alternative compliance option, carbon monoxide alarm protection shall also be installed in any dwelling unit that contains fossil fuel burning equipment.

- (1) **Type A.** Carbon monoxide protection shall provide visual and audible notification in the rooms or areas containing the fossil fuel burning equipment. Such protection shall be monitored in accordance with NFPA 720: *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment*. Such method of monitoring is to be determined at the discretion of the building owner. In accordance with NFPA 720, the retransmission of the signal shall be at the discretion of the Head of the Fire Department.
- (2) **Type B.** Carbon monoxide protection for areas or rooms of centralized fossil fuel burning equipment consisting of kitchen appliances equipped with an intermittent ignition device shall comply with the Fuel/Gas Plumbing Code and NFPA 54: *National Fuel Gas Code*. A written certification shall be submitted to the Head of the Fire Department from a registered professional engineer licensed by the Commonwealth, certifying that the kitchen appliances meet Fuel/Gas Plumbing Code and said NFPA 54.
- (3) **Type C.** Carbon monoxide protection for areas or rooms with centralized fossil fuel burning equipment which employ an automatic integrated shutdown device which shall be directly connected to the fossil fuel burning equipment and an A/C primary power source with battery backup in compliance with NFPA 720: *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment* or low voltage or wireless systems

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in compliance with NFPA 720 that will cause a shut down to the fossil fuel burning equipment upon activation of a carbon monoxide device. The device must also provide an audible or visual alarm in the immediate area of the device and fossil fuel burning equipment. The fossil fuel burning equipment must be manually restarted after activation. A sign shall be mounted in the vicinity of the device with a minimum of one inch high letters in contrasting color with the following statement: "If the carbon monoxide device has activated, do not restart the equipment until serviced by a qualified technician".

Exception: Such shut down requirement shall not be applicable to systems that are part of an emergency or standby system required by any municipal, state or federal law or regulation, provided the carbon monoxide detection system shall be monitored in accordance with NFPA 720: Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment.

- (4) **Type D.** Carbon monoxide protection for adjacent spaces of structures, areas or rooms considered enclosed parking, shall employ listed carbon monoxide alarm protection meeting ANSI/UL 2075: *Standard for Safety Gas and Vapor Detectors and Sensors* or a low voltage or wireless system. Such installation shall provide a visual or audible alarm in the rooms or areas containing the fossil fuel burning equipment. Such protection shall be monitored in accordance with NFPA 720: *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment*. Such method of monitoring is to be determined at the discretion of the building owner. In accordance with NFPA 720, the retransmission of the signal shall be at the discretion of the Head of the Fire Department.
- (5) **Type E.** Carbon monoxide protection for enclosed parking shall employ, in the enclosed parking either:
- (a) An automatic mechanical ventilation system that automatically operates upon detection of carbon monoxide in accordance with the *Building Code*, without exception or reduction and provides for a supervisory alarm at 50 parts per million (ppm) in accordance with NFPA 720: *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment*. Such method of monitoring is to be determined at the discretion of the building owner in accordance with NFPA 720 and the retransmission of the signal shall be at the discretion of the Head of the Fire Department; or
 - (b) The enclosed parking has continuous mechanical ventilation at a minimum rate in accordance with the *Building Code* without exception or reduction. Such system shall employ a sensor to ensure the minimum airflow as designed is operating through the system. The sensor shall monitor direct airflow and shall be connected to the fire alarm panel as a supervisory alarm in accordance with NFPA 720: *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment*. A registered professional engineer licensed by the Commonwealth shall provide written certification to the Head of the Fire Department that the subject enclosed parking meets the requirements of Type (E).
- (6) **Type F.** Carbon monoxide protection for roof mounted fossil fuel burning equipment that circulate air from said unit to common areas only, shall be equipped with the following: A duct carbon monoxide gas detection device shall be installed on the discharge side of the roof mounted air handling unit or the common areas on the floor closest to the initial supply discharge from the roof mounted air handling unit. All such devices shall be installed in accordance with the manufacturer's instructions. The carbon monoxide gas detection device shall automatically alarm upon detection of carbon monoxide at 50 parts per million (ppm) and provide for a supervisory alarm in accordance with NFPA 720: *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment*. Such method of monitoring is to be determined at the discretion of the building owner in accordance with NFPA 720, and the retransmission of the signal shall be at the discretion of the Head of the Fire Department. Upon activation of the carbon monoxide detection device and supervisory alarm, the roof mounted fossil fuel burning equipment shall shutdown until manually reset.
- Exception: Such shut down requirement shall not be applicable to systems that are part of an emergency or standby system required by any municipal, state or federal law or regulation.*
- (7) **Type G.** Carbon monoxide protection for roof mounted fossil fuel burning equipment that do not circulate air to any common area or dwelling unit. (Reserved)

- (8) **Type H.** Carbon monoxide protection for certain institutional structures that contain fossil fuel burning equipment that circulates air to patient rooms, inmate rooms or common areas. Carbon monoxide protection for certain institutional structures classified as either use group I-2 or I-3, that contains fossil fuel burning equipment that circulates air to dwelling units occupied by patients or inmates may be equipped with type H protection if the following conditions are met:

- (a) Such structure contains dwelling units occupied by a person or persons who are not capable of self preservation due to age, mental disability, medical condition, incarceration, restraint, or security; and
- (b) The occupants are under constant supervision on a 24-hour basis.

13.7.7.1 Type H protection shall include a duct carbon monoxide gas detection device which shall be installed downstream of air filters, ahead of any branch connections in air supply systems of the fossil fuel air handling unit. All such devices shall be installed in accordance with the manufacturer's instructions. The carbon monoxide gas detection device shall automatically alarm upon detection of carbon monoxide at 50 parts per million (ppm) and provide for a supervisory alarm in accordance with NFPA 720: *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment*. Such method of monitoring is to be determined at the discretion of the building owner in accordance with NFPA 720 and the retransmission of the signal shall be at the discretion of the Head of the Fire Department. Upon activation of the carbon monoxide detection device and supervisory alarm, the fossil fuel burning equipment shall shutdown until manually reset.

13.7.8 Fire alarm systems required by the *Building Code* shall be monitored.

Exception: Single and multiple station smoke alarms required by the Building Code in other than Groups R-1 and R-2 with more than 16 units. Smoke detectors in Group I-3 occupancies automatic sprinkler systems and single- and multi-station smoke in three through five family dwellings. Smoke detectors in patient sleeping rooms in occupancies in Group I-2.

13.7.8.1 In all cases, central stations and those operating approved remote/proprietary station fire alarm system supervising stations shall retransmit alarm signals within 90 seconds of receipt, to the fire department having jurisdiction.

13.7.8.2 Identical control diagrams showing all devices in the system and identifying their location and function shall be maintained current and kept on file with the AHJ and shall be kept on site, adjacent to the fire alarm panel in a format and manner approved by the AHJ.

13.7.8.3 A copy of the final report required by the *Building Code* shall be filed with the fire code official and the building code official and an identical copy shall be maintained in an approved location at the building.

13.7.8.4 All signs required to identify fire protection equipment, equipment rooms and equipment locations shall be constructed of durable materials, be permanently installed, and be readily visible. Letters and numbers shall contrast with the sign background, shall be at least two inches in height, and shall have an appropriate width-to-height ratio to permit the sign to be read easily from a distance of ten feet. The sign and location shall be approved by the AHJ.

13.7.8.5 A-2 Nightclub Use as of January 1, 2007: New Construction, Change of Use, or Substantial Modification. The activation of any "fire protection system" element (signaling system, detection, sprinklers, etc.) shall automatically:

- (1) Cause immediate illumination of all areas and components of the required means of egress, and additionally;
- (2) Cause immediate full activation of all other house lighting; and
- (3) Cause immediate stopping of any and all sounds and visual distractions (public address systems, entertainment and dance lighting, music, etc.) that conflict/compete with the fire protective signaling system. [See the *Building Code*] [See Chapter 1, of this *Code*, Section 1.1.4 for maintaining these provisions]

DELETE and REPLACE:

13.8.1 Where other fire protection systems are required to be installed by the provisions of this *Code*, or are installed with the approval of the AHJ as an alternative or equivalency, the design and installation of the system shall comply

with the appropriate standards listed in Table 13.8.1. ~~The system shall be tested and maintained in accordance with Section 10.24.~~

ADD:

13.10 Inspection, Testing, and Maintenance.

13.10.1 Application. The inspection, testing, and maintenance of single- and multiple-station alarms, fire alarm systems and household fire warning systems shall comply with the requirements of this section.

13.10.1.1 Procedures that are required by other parties and that exceed the requirements of this section or NFPA 72: *National Fire Alarm Signaling Code* and NFPA 720: *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment* shall be permitted.

13.10.1.2 The requirements of Section 13.10 shall apply to both new and existing systems.

13.10.2 Purpose.

13.10.2.1 The purpose for initial and reacceptance inspections is to ensure compliance and to ensure installation is in accordance with this *Code*, and other required installation standards.

13.10.2.2 The purpose for periodic inspections is to assure that obvious damages or changes that might affect the alarm system operability are visually identified.

13.10.3 Deficiencies.

13.10.3.1 Responsibilities.

13.10.3.1.1 Tenants.

13.10.3.1.1.1 Tenants shall ensure that each alarm installed in the tenant's rental unit remains functional and is not disabled.

13.10.3.1.1.2 Tenants or occupants shall not cause or disable any such alarm system or part thereof.

13.10.3.1.1.3 If at any point the tenant believes that the alarm is not functional or malfunctioning, the tenant shall provide notice to the owner, landlord, superintendent or other owner's designated representative.

13.10.3.2 Owner, Landlord, Superintendent or Other Owner's Designee.

13.10.3.2.1 Every owner, superintendent, landlord or designee shall, at a minimum, maintain, test, repair, or replace, if necessary, every alarm upon renewal of any lease term for any dwelling unit or on an annual basis, whichever is more frequent.

13.10.3.2.1.1 Such testing shall be documented by the person performing such inspection on a form designated by State Fire Marshal.

13.10.3.2.2 When repairs or alterations or additions are made to an existing alarm and system the owner, landlord, superintendent or other owner's designated representative shall be responsible for inspection, documentation of the actual repair or alternation and the testing of the alarm and system.

13.10.3.2.3 A written agreement shall be required documenting delegation of responsibilities provided in this section.

13.10.3.2.4 Where the building or system owner, landlord, superintendent or other owner's designated has delegated any responsibilities or an inspection, testing, repair or alternation has been completed, a copy of the written delegation and the report required by Sections 13.10.3.2.3 and 13.10.3.2.2 shall be provided to the AHJ upon request.

13.10.3.2.5 Occupant notification shall be required whenever an alarm system configured for releasing service is being serviced or tested.

13.10.3.2.6 The owner, landlord, superintendent or other owner's designated representative shall not cause or disable any such alarm system or part thereof.

13.10.4 Inspection.

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13.10.4.1 For the purpose of compliance with M.G.L. c. 148, § 26F½ or to confirm compliance with M.G.L. c.148, § 26F, a visual inspection of smoke or carbon monoxide alarms and detectors shall be performed in accordance with Table 13.10.4, or more often if required by this *Code* or the AHJ.

13.10.4.2 The inspection maintenance for fire alarm and fire detection systems shall be in accordance with NFPA 72.

Table 13.10.4 Visual Inspections

Component	Initial Acceptance	Periodic Frequency	Method	Reference
1. All equipment	X	Sale and Transfer	Ensure there are no changes that affect equipment performance. Inspect for building modifications, occupancy changes, changes in environmental conditions, device location, physical obstructions, device orientation, physical damage, and degree of cleanliness.	10.24 13.7.1
2. Batteries and compartment	X	Sale and Transfer	Inspect for corrosion or leakage. Verify tightness of connections.	10.24 13.7.1
3. Device	X	Sale and Transfer	Inspection for expiration date of smoke alarm	10.24 13.7.1
4. Common Area	X	Annually Sale and Transfer	Inspection for compliance	10.24 13.7.1

13.10.5 Testing.

13.10.5.1 Initial Acceptance Testing.

13.10.5.1 All new alarms and systems required by this *Code* shall be inspected and tested in accordance with the requirements of this section.

13.10.5.2 Periodic Testing.

13.10.5.2.1 The owner, landlord, superintendent or other owner's designee shall, for any existing, new, or modified alarm and system test every alarm and system in accordance with its listing when requested by the AHJ.

13.10.6 Testing and Frequency.

13.10.6.1 Every owner, superintendent, or landlord shall, at a minimum, maintain, test, repair, or replace, if necessary, every alarm upon renewal of any lease term for any dwelling unit or on an annual basis, whichever is more frequent. *See* Section 13.10.3.1 for responsibilities.

13.10.6.2 Unless otherwise permitted by other sections of this *Code*, testing shall be performed in accordance with the schedules in Table 13.10.4 or more often if required by the AHJ.

13.10.6.3 Alarms shall be replaced when they fail to respond to operability tests.

13.10.6.4 The testing, for fire alarm and fire detection systems shall be in accordance with NFPA 72: *National Fire Alarm and Signaling Code*.

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13.10.7 Replacement of Single- and Multiple-station Alarms.

13.10.7.1 Alarms shall not remain in service longer than ten years from the date of manufacture, unless otherwise provided by the manufacturer's published instructions.

13.10.7.2 Combination smoke/carbon monoxide alarms shall be replaced when the end-of-life signal activates or ten years from the date of manufacture, whichever comes first, unless otherwise provided by the manufacturer's published instructions.

13.10.7.3 Other than provided in Section 13.7.5.1.1 where batteries are used as a source of energy for smoke alarms or combination smoke/carbon monoxide alarms or single- and multiple- station smoke alarms, the batteries shall be replaced in accordance with the alarm equipment manufacturer's published instructions.

13.10.7.4 The owner, landlord, superintendent or other owner's designated representative shall be responsible to repair, replace or for the modification of an alarm and system.

13.10.8 Maintenance.

13.10.8.1 Maintenance of an alarm and system shall be conducted according to the manufacturer's published instructions and deficiencies shall be corrected as applicable in Section 10.24.

13.10.8.2 The maintenance for fire alarm and fire detection systems shall be in accordance with NFPA 72: *National Fire Alarm and Signaling Code*.

13.10.9 Records.

13.10.9.1 Permanent Records.

13.10.9.1.1 The owner, landlord, superintendent or other owner's designated representative shall be responsible for maintaining records for the life of the alarm and system, for examination.

13.10.10 Inspection, Testing, and Maintenance Records.

13.10.10.1 Records shall be retained until the next test and for one year thereafter.

13.10.10.2 Records shall be on a medium that will survive the retention period. Paper or electronic media shall be permitted.

Chapter 14 – Means of Egress

DELETE and REPLACE:

14.1 Application. Means of egress in new and existing buildings shall comply with this *Code* and ~~NFPA 101~~ *the Building Code*.

14.2 Exit Access Corridors. Corridors used as exit access ~~and serving an area having an occupant load exceeding 30 shall be separated from other parts of the building by walls having not less than a 1-hour fire resistance rating in accordance with Section 12.7, unless otherwise permitted by the following:~~ *the Building Code*.

(1) This requirement shall not apply to existing buildings, provided that the occupancy classification does not change.

(2) This requirement shall not apply where otherwise provided in Chapters 11 through 43 of NFPA 101. ~~[101: 7.1.3.1]~~

14.3 Exits.

14.3.1 Where ~~this~~ *the Building Code* requires an exit to be separated from other parts of the building, the separating construction shall meet the requirements of *the Building Code*.

DELETE:

14.3.1(1) through 14.3.1(12)

DELETE and REPLACE:

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14.4.3 Impediments to Egress.

Any device or alarm installed to restrict the improper use of a means of egress, and any device or system installed to monitor or record use of a means of egress, shall be designed and installed so that it cannot, even in case of failure, impede or prevent emergency use of such means of egress unless otherwise provided in 14.5.3 and Chapters 18, 19, 22, ~~the Building Code~~ and 23 of NFPA 101. ~~[101:7.1.9].~~

ADD:

14.4.4 Exterior Egress. Any fire escape or exterior stairway found to be in a state of deterioration or determined to be unsafe by the Head of the Fire Department shall be repaired immediately. Depending on the structural condition, a load test of any fire escape shall be conducted before it is returned to service.

DELETE and REPLACE:

14.5.1.1* Swinging-Type Door Assembly Requirement.

Any door assembly in a means of egress shall be of the side-hinged or pivoted-swinging type, and shall be installed to be capable of swinging from any position to the full required width of the opening in which it is installed, ~~unless otherwise specified as follows:~~

DELETE:

14.5.1.1(1) through 14.5.1.1(7)

DELETE and REPLACE:

14.5.1.2* Door Leaf Swing Direction.

Door leaves required to be of the side-hinged or pivoted-swinging type shall swing in the direction of egress travel ~~as required by the Building Code under any of the following conditions:~~

DELETE:

14.5.1.2(1) through 14.5.1.2(3)

DELETE and REPLACE:

14.5.1.3.1 During its swing, any door leaf in a means of egress shall leave not less than one-half of the required width of an aisle, a corridor, a passageway, or a landing unobstructed, ~~unless both~~ **and shall project not more than 7 in. (180 mm) into the required** width of **an aisle, a corridor, a passageway, or a landing, when fully open.** ~~the following conditions are met:~~

DELETE:

14.5.1.3.1(1) and (2)

DELETE and REPLACE:

14.5.1.4 Screen Door Assemblies and Storm Door Assemblies. Screen door assemblies and storm door assemblies used in a means of egress shall be subject to the requirements for direction of swing **in accordance with the Building Code.** ~~that are applicable to other door assemblies used in a means of egress. [101:7.2.1.4.4]~~

DELETE and REPLACE:

14.5.1.5.2 The forces required to fully open any door leaf manually in a means of egress shall **be in accordance with the Building Code.** ~~not exceed 30 lbf (133 N) to set the leaf in motion, and 15 lbf (67 N) to open the leaf to the minimum required width, unless otherwise specified as follows:~~

DELETE:

14.5.1.5.2(1) through (4)

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~~Stricken Language~~

DELETE:
14.5.2.2

DELETE:
14.5.2.4

DELETE and REPLACE:

14.5.2.6.1 Where permitted in Chapters 11 through 43 of NFPA 101, **by the Building Code**, key operation shall be permitted, provided that the key cannot be removed when the door leaf is locked from the side from which egress is to be made. ~~[101: 7.2.1.5.6.1]~~

DELETE and REPLACE:

14.5.2.6.2(1) This alternative is permitted in Chapters 11 through 43 of NFPA 101 **by the Building Code** for the specific occupancy.

DELETE:

14.5.2.6.3

DELETE and REPLACE:

14.5.2.7* Stair Enclosure Re-entry. Every door assembly in a stair enclosure serving more than four stories, unless permitted by 14.5.2.7.2, shall meet one the requirements of **the Building Code** following conditions:

DELETE:

14.5.2.7(1) through (3)

DELETE:

14.5.2.7.1 through 14.5.2.7.2

DELETE and REPLACE:

14.5.2.7.3 When the provisions of 14.5.2.7.2 are used, Signage on the stair door leaves **as provided in the Building Code** shall be required as follows;

- (1) Door assemblies allowing re-entry shall be identified as such on the stair side of the door leaf.
- (2) Door assemblies not allowing re-entry shall be provided with a sign on the stair side indicating the location of the nearest door opening, in each direction of travel, that allows re-entry or exit.

DELETE:

14.5.2.9(2)

DELETE and REPLACE:

14.5.2.10* On doors required to release all latching and all locking devices of the door leaf with not more than one releasing motion in accordance with 14.5.2.3.2, devices shall not be installed in connection with any door assembly where such devices prevent or are intended to prevent the free use of the leaf for purposes of egress, ~~unless otherwise provided in 14.5.3. [101: 7.2.1.5.10]~~

DELETE and REPLACE:

14.5.3.1.1 Approved, delayed-egress electrical locking systems shall be permitted to be installed on door assemblies serving low- and ordinary-hazard contents in buildings **in accordance with the Building Code**, protected throughout by an approved, supervised automatic fire detection system in accordance with Section 13.7 or an approved,

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supervised automatic sprinkler system in accordance with Section 13.3, and where permitted in Chapters 11 through 43 of NFPA 101, provided that the following criteria are met:

(1) ~~The delay of the delayed egress electrical locking system shall deactivate allowing unobstructed egress upon actuation of one of the following:~~

~~(a) Approved, supervised automatic sprinkler system in accordance with Section 13.3~~

~~(b) Not more than one heat detector of an approved, supervised automatic fire detection system in accordance with Section 13.7~~

~~(c) Not more than two smoke detectors of an approved, supervised automatic fire detection system in accordance with Section 13.7~~

(2) The delay of the delayed-egress electrical locking system shall deactivate allowing unobstructed egress upon loss of power controlling the lock or locking mechanism.

(3)* An irreversible process shall release the electrical lock in the direction of egress within 15 seconds, or 30 seconds where approved by the AHJ, upon application of a force to the release device as **required by the Building Code** required in 14.5.2.3 under all of the following conditions:

~~(a) The force shall not be required to exceed 15 lbf (67 N).~~

~~(b) The force shall not be required to be continuously applied for more than 3 seconds.~~

~~(c) The initiation of the release process shall activate an audible signal in the vicinity of the door opening.~~

~~(d) Once the electrical lock has been released by the application of force to the releasing device, rearming the delay electronics shall be by manual means only.~~

(4)* A readily visible, durable sign that conforms to the visual characters requirements of ICC A117.1, Accessible and Usable Buildings and Facilities, shall be located on the door leaf adjacent to the release device in the direction of egress, and shall read as follows:

(a) PUSH UNTIL ALARM SOUNDS, DOOR CAN BE OPENED IN 15 SECONDS, for doors that swing in the direction of egress travel

(b) PULL UNTIL ALARM SOUNDS, DOOR CAN BE OPENED IN 15 SECONDS, for doors that swing against the direction of egress travel

(5) The egress side of doors equipped with delayed-egress electrical locking system shall be provided with emergency lighting in accordance with **the Building Code** Section 7.9 of NFPA 101.

PUSH UNTIL ALARM SOUNDS
DOOR CAN BE OPENED IN 15 SECONDS

(6) Hardware for new installations shall be listed in accordance with UL 294, *Access Control System Units*. [101:7.2.1.6.1.1]

DELETE:
14.5.3.1.2

DELETE and REPLACE:

14.5.3.2.1 Where permitted in Chapters 11 through 43 of NFPA 101, **the Building Code**, door assemblies in the means of egress shall be permitted to be equipped with sensor-release electrical locking system hardware provided that all of the following criteria are met:

DELETE:
14.5.3.4

DELETE:
14.5.3.5.4

DELETE and REPLACE:

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~~Stricken Language~~

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14.5.4.1* A door leaf normally required to be kept closed shall not be secured in the open position at any time and shall be self-closing or automatic-closing in accordance with 14.5.4.2, unless otherwise permitted by **the Building Code**. ~~14.5.4.3. [101:7.2.1.8.1]~~

DELETE and REPLACE:

14.5.4.2 In any building of low or ordinary hazard contents, as defined in 3.3.154.2 and 3.3.154.3, or where approved by the AHJ, door leaves shall be permitted to be automatic-closing, provided that all of the following criteria are met:

DELETE:

14.5.4.3

DELETE and REPLACE:

14.6.1.2 Inside stairs, other than those serving as an exit or exit component, shall be protected in accordance with Section 8.6 of **the Building Code**. ~~NFPA 101. [101:7.2.2.5.1.2]~~

DELETE:

14.6.1.3 through 14.6.2.3

DELETE:

14.7.1

DELETE and REPLACE:

14.7.4.1 The width of an exit passageway shall be sized to accommodate the aggregate required capacity of all exits that discharge through it as required by **the Building Code**. ~~, unless one of the following conditions applies:~~

- (1)*-Where an exit passageway serves occupants of the level of exit discharge as well as other stories, the capacity shall not be required to be aggregated.
- (2)-As provided in Chapters 36 and 37 of NFPA ~~101~~, an exit passageway in a mall structure shall be permitted to accommodate occupant loads independently from the mall concourse and the tenant spaces. ~~(See 36.2.2.7.2 and 37.2.2.7.2 of NFPA 101.) [101:7.2.6.4.1]~~

DELETE:

14.7.4.2

DELETE:

14.8.1.2

DELETE:

Table 14.8.1.2

DELETE:

14.8.1.3.1

DELETE:

14.8.1.4 through 14.8.1.6

DELETE and REPLACE:

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14.8.2.1 The width of means of egress shall be ~~in accordance with the Building Code.~~ measured in the clear at the narrowest point of the egress component under consideration, unless otherwise provided in ~~14.8.2.2 or 14.8.2.3.~~ ~~[101:7.3.2.1]~~

DELETE:

14.8.2.2 through 14.8.2.3

DELETE:

14.8.3.1 through 14.8.3.3

DELETE:

Table 14.8.3.1

DELETE and REPLACE:

14.8.3.4.1 The width of any means of egress, ~~unless otherwise provided in 14.8.3.4.1.1 through 14.8.3.4.1.3,~~ shall be ~~in accordance with the Building Code.~~ as follows:

- (1) Not less than that required for a given egress component in this chapter or Chapter 7 or Chapters 11 through 43 of NFPA ~~101~~
- (2) Not less than 36 in. (915 mm) where another part of this chapter and Chapters 11 through 43 of NFPA ~~101~~ do not specify a minimum width. ~~[101:7.3.4.1]~~

DELETE:

14.8.3.4.1.1

DELETE:

14.8.3.4.1.3

DELETE:

14.9.1.1

DELETE and REPLACE:

14.9.1.2 The number of means of egress from any story or portion thereof, ~~other than for existing buildings as permitted in Chapters 11 through 43 of NFPA 101,~~ shall be as follows:

- (1) Occupant load more than 500 but not more than 1000 — not less than 3
- (2) Occupant load more than 1000 — not less than 4
- (3) Or as otherwise allowed by the *Building Code*. ~~[101:7.4.1.2]~~

DELETE and REPLACE:

14.9.1.3 Accessible means of egress ~~shall be in with accordance 521 CMR: Architectural Access Board and the Building Code.~~ in accordance with ~~14.10.4~~ that do not utilize elevators shall be permitted to serve as any or all of the required minimum number of means of egress. ~~[101:7.4.1.3]~~

DELETE:

14.9.1.4 through 14.9.1.6.3

DELETE and REPLACE:

14.10.1.1* Where exits are not immediately accessible from an open floor area, continuous passageways, aisles, or corridors leading directly to every exit ~~such areas~~ shall be maintained. ~~and shall be arranged to provide access for~~

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each occupant to not less than two exits by separate ways of travel, unless otherwise provided in ~~14.10.1.1.3 and 14.10.1.1.4. [101:7.5.1.1.1]~~

DELETE and REPLACE:

14.10.1.1.2 Exit access corridors shall provide access to not less than two approved exits, unless otherwise provided by ~~the Building Code. in 14.10.1.1.3 and 14.10.1.1.4. [101:7.5.1.1.2]~~

DELETE:

14.10.1.1.3

DELETE and REPLACE:

14.10.1.2 Corridors shall provide exit access without passing through any intervening rooms other than corridors, lobbies, and other spaces permitted to be open to the corridor, unless otherwise provided in ~~the Building Code. 14.10.1.2.2 and 14.10.1.2.3. [101:7.5.1.2]~~

DELETE and REPLACE:

14.10.1.2.1* Exit access shall be arranged so that there are no dead ends in corridors, unless permitted by, and limited to the lengths specified in ~~the Building Code, Chapters 11 through 43 of NFPA 101. [101:7.5.1.2.1]~~

DELETE and REPLACE:

14.10.1.2.2 Approved existing corridors that require passage through a room to access an exit shall be permitted to continue to be used, provided that all of the following criteria are met:

- (1) The path of travel is marked in accordance with Section 14.14.
- (2) Doors to such rooms shall comply with ~~the Building Code. 7.2.1 of NFPA 101.~~
- (3) Such arrangement is not prohibited by the applicable occupancy chapter in NFPA 101. ~~[101:7.5.1.2.2]~~

DELETE and REPLACE:

14.10.1.3 Remoteness shall be provided in accordance with ~~the Building Code. 14.10.1.3.1 through 14.10.1.3.7. [101:7.5.1.3]~~

DELETE:

14.10.1.3.1 through 14.10.1.4.2

DELETE and REPLACE:

14.10.1.5 Exit access from rooms or spaces shall be permitted to be through adjoining or intervening rooms or areas, provided that such rooms or areas are accessory to the area served. Foyers, lobbies, and reception rooms constructed as required for corridors shall not be construed as intervening rooms. Exit access shall be arranged so that it is not necessary to pass through any area identified under Protection from Hazards in ~~the Building Code. Chapters 11 through 43 of NFPA 101. [101:7.5.1.5]~~

DELETE and REPLACE:

14.10.2 Impediments to Egress. See also ~~7.1.9 of NFPA 101, and 14.5.2. [101:7.5.2]~~

DELETE and REPLACE:

14.10.2.1* Access to an exit shall not be through kitchens, storerooms other than as provided in ~~Chapters 36 and 37 of NFPA 101, the Building Code, restrooms, workrooms, closets, bedrooms or similar spaces, or other rooms or spaces subject to locking, unless passage through such rooms or spaces is permitted for the occupancy by the Building Code. Chapters 18, 19, 22, or 23 of NFPA 101. [101:7.5.2.1]~~

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DELETE and REPLACE:

14.10.2.2.1 Hangings or draperies shall not be placed over exit doors or located so that they conceal or obscure any exit., unless otherwise provided in ~~14.10.2.2.2~~. [~~101:7.5.2.2.1~~]

DELETE:

14.10.2.2.2 through **14.10.4.9**

DELETE and REPLACE:

14.11.1* Exit Termination. Exits shall terminate directly, at a public way. ~~or at an exterior exit discharge, unless otherwise provided in 14.11.1.3 through 14.11.1.5.~~ [~~101:7.7.1~~]

DELETE:

14.11.1.1 through **14.11.1.5**

DELETE and REPLACE:

14.11.2 Exit Discharge Through Interior Building Areas. Exits shall be permitted to discharge through interior building areas, provided that all of the following are met:

- (1) ~~Not more than 50 percent of the required number of exit stairs serving normally occupied areas of each floor, and not more than 50 percent of the exit stair capacity required for normally occupied areas of each floor, shall discharge through areas on any level of discharge, except as otherwise permitted by one of the following:~~
 - (a) ~~One hundred percent of the exits shall be permitted to discharge through areas on any level of discharge in detention and correctional occupancies as otherwise provided in Chapters 22 and 23 of NFPA 101.~~
 - (b) ~~In existing buildings, the 50 percent limit on egress capacity shall not apply if the 50 percent limit on the required number of exits is met.~~
- (2) ~~Each level of discharge shall discharge directly outside at the finished ground level or discharge directly outside and provide access to the finished ground level by outside stairs or outside ramps.~~
- (3) ~~The interior exit discharge shall lead to a free and unobstructed way to the exterior of the building, and such way shall be readily apparent or shall be identifiable by exit signage from the point of discharge from the exit.~~
- (4) ~~The interior exit discharge shall be protected by one of the following methods:~~
 - (a) ~~The level of discharge shall be protected throughout by an approved automatic sprinkler system in accordance with Section 13.3, or the portion of the level of discharge used for interior exit discharge shall be protected by an approved automatic sprinkler system in accordance with Section 13.3 and shall be separated from the nonsprinklered portion of the floor by fire barriers with a fire resistance rating meeting the requirements for the enclosure of exits. (See 14.3.1.)~~
 - (b) ~~The interior exit discharge area shall be in a vestibule or foyer that meets all of the following criteria:~~
 - i. ~~The depth from the exterior of the building shall be not more than 10 ft (3050 mm), and the length shall be not more than 30 ft (9.1 m).~~
 - ii. ~~The foyer shall be separated from the remainder of the level of discharge by fire barriers with a minimum 1 hour fire resistance rating, and existing installations of wired glass in steel frames shall be permitted to be continued in use.~~
 - iii. ~~The foyer shall serve only as means of egress and shall include an exit directly to the outside.~~
- (5) ~~The entire area on the level of discharge shall be separated from areas below by construction having a fire resistance rating not less than that required for the exit enclosure, unless otherwise provided in 14.11.2(6).~~
- (6) ~~Levels below the level of discharge in an atrium shall be permitted to be open to the level of discharge where such level of discharge is protected in accordance with 8.6.7 of NFPA 101.~~ [~~101:7.7.2~~]

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DELETE:

14.11.3.1 through 14.11.3.3

DELETE and REPLACE:

14.11.4 Components of Exit Discharge. Doors, stairs, ramps, corridors, exit passageways, bridges, balconies, escalators, moving walks, and other components of an exit discharge shall comply with the *Building Code*. ~~detailed requirements of this chapter for such components. [101:7.7.4]~~

DELETE:

14.11.6

DELETE and REPLACE:

14.12.1.1* Illumination of means of egress shall be provided in accordance with the *Building Code*. ~~Section 14.12 for every building and structure where required in Chapters 11 through 43 of NFPA 101. For the purposes of this requirement, exit access shall include only designated stairs, aisles, corridors, ramps, escalators, and passageways leading to an exit. For the purposes of this requirement, exit discharge shall include only designated stairs, aisles, corridors, ramps, escalators, walkways, and passageways leading to a public way. [101:7.8.1.1]~~

DELETE:

14.14.8.1 through 14.14.8.2

DELETE and REPLACE:

14.14.8.3.1 Any door, passage, or stairway that is neither an exit nor a way of exit access and that is located or arranged so that it is likely to be mistaken for an exit shall be identified by a sign that reads as follows: **NO EXIT** ~~as required by the Building Code. [101:7.10.8.3.1]~~

DELETE and REPLACE:

14.15 Secondary Means of Emergency Escape and Rescue.

DELETE and REPLACE:

14.15.1 ~~Secondary means of Emergency~~ *Escape and rescue openings shall comply with the Building Code.* ~~shall comply with 101.~~

DELETE and REPLACE:

14.15.2 Where approved on ~~secondary means of~~, *the emergency-escape and rescue openings*, security bars, grates, grilles, or similar devices shall be equipped with approved release mechanisms that are releasable from the inside without the use of a tool, a key, special knowledge, or force greater than that which it takes for normal operation of the door or window.

Chapter 15 - Fire Department Service Delivery Concurrency Evaluation

Chapter 15 Delete in its entirety.

Chapter 16 – Safeguarding Construction Alteration, and Demolition Operations

Delete and replace the entirety of Chapter 16 with the following:

Chapter 16 Safeguarding Construction, Alteration, and Demolition Operations

16.1 General Requirements.

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16.1.1 Structures undergoing construction, alteration, or demolition operations, including those in underground locations, shall comply with NFPA 241 and this chapter.

16.1.2 A fire protection plan shall be established and submitted in accordance with this code and the building code.

16.1.3 In buildings under construction, adequate escape facilities shall be maintained at all times for the use of construction workers. Escape facilities shall consist of doors, walkways, stairs, ramps, fire escapes, ladders, or other approved means or devices arranged in accordance with the general principles of Chapter 14 and NFPA 101 insofar as they can reasonably be applied to buildings under construction. [101:4.6.10.3]

16.1.4 Fire apparatus access roads provided in accordance with 18.2.3 shall be provided at the start of a project and shall be maintained throughout construction.

16.1.5 Permanent fire apparatus access road markings shall not be required until the building is complete or occupied for use.

16.2 Owner's Responsibility for Fire Protection

16.2.1 The owner shall designate a person responsible for the Fire Prevention Program.

[241:4.1.1]

16.2.1.1 This person shall ensure that the program is carried out to completion. [241:4.1.1.1]

16.2.1.2 This person shall have alternate(s) acceptable to the AHJ. [241:4.1.1.2]

16.2.1.3 This person's title shall be Fire Prevention Program Manager (FPPM). [241:4.1.1.3]

16.2.2 The FPPM shall have the authority to enforce the provisions of this and other applicable fire protection standards. [241:4.1.2]

16.2.3 The FPPM shall be a competent person with knowledge of the applicable fire protection codes and standards, available fire protection systems, and fire inspection procedures. [241:4.1.3]

16.2.3.1 When temporary systems are utilized, the FPPM shall consult with the registered design professional in responsible charge. [241:4.1.3.1]

16.2.4 The FPPM shall have the overall responsibility for safeguarding life and property from fire during construction, alteration, and demolition. [241:4.1.4]

16.2.5 The FPPM, or designee, shall conduct daily inspections to identify deficiencies and hazards.

[241:4.1.5]

16.2.5.1 The FPPM shall ensure action is taken to correct any deficiencies or hazards without delay.

[241:4.1.5.1]

16.2.5.2 Inspection records shall be available for review by the AHJ. [241:4.1.5.2]

16.2.6 The FPPM shall ensure fire prevention awareness and education is provided to personnel associated with that project in accordance with 4.2.2. [241:4.1.6]

16.2.7 The FPPM shall be made aware of all fires in accordance with the fire safety plan. [241:4.1.7]

16.2.8 This plan shall coordinate with other existing safety or action plans as required by other applicable codes and standards. [241:4.1.8]

16.2.9 Where guard service is provided, the FPPM shall be responsible for the guard service.

[241:4.1.9]

16.2.10 The FPPM shall be responsible for ensuring that proper training in the use of protection equipment has been provided. [241:4.1.10]

16.2.11 The FPPM shall be responsible for the presence of adequate numbers and types of fire protection devices and appliances and for their proper maintenance. [241:4.1.11]

16.2.12 The FPPM shall be responsible for supervising the permit system for hot work operations.

(See Section 16.19.1)

16.2.13 A weekly self-inspection program shall be implemented, with records maintained and made available. [241:4.1.13]

16.2.14 Impairments to the fire protection systems or fire alarm, detection, or communications systems shall be authorized only by the FPPM. [241:4.1.14]

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16.2.15 Temporary protective coverings used on fire protection devices during renovations, such as painting, shall be removed promptly when work has been completed in the area. [241:4.1.15]

16.2.16 Pre-incident Plans. 16.2.16.1 Where there is public fire protection or a private fire brigade, the FPPM shall be responsible for the development of pre-incident plans in conjunction with the fire agencies. [241:4.1.16.1]

16.2.16.2 Pre-incident plans shall be updated as necessary. [241:4.1.16.2]

16.2.16.3 The pre-incident plan shall include provisions for on-site visits by the fire agency. [241:4.1.16.3]

16.2.17 Site Security.

16.2.17.1 Where required by the AHJ, buildings with combustibles exposed during construction more than 12.19 m (40 ft) above grade plane shall be provided with guard service when there are no crews on-site. [241:4.1.17.1]

16.2.17.2 Where guard service is provided, the guard(s) shall be trained in all of the following:

- (1) Notification procedures that include calling the fire department and management personnel
- (2) Function and operation of fire protection equipment
- (3) Familiarization with fire hazards
- (4) Use of construction elevators, where provided. [241:4.1.17.2]

16.2.17.3 Guards shall be informed of any special status of emergency equipment or hazards. [241:4.1.17.3]

16.2.17.4 Security fences shall be provided where required by the AHJ. [241:4.1.17.4]

16.2.17.5 Entrances (e.g., doors and windows) to the structure under construction, alteration, or demolition shall be secured where required by the AHJ. [241:4.1.17.5]

16.2.17.6 Egress paths with exit doors available for egress shall remain unobstructed. [241:4.1.17.6]

16.3 Fire Prevention Program.

16.3.1 An overall project-specific Fire Prevention Program shall be developed. [241:4.2.1]

16.3.2 The following items shall be addressed in the Fire Prevention Program:

- (1) Development of a pre-incident plan in accordance with NFPA 1620
- (2) Emergency contacts
- (3) Site emergency communication procedures
- (4) Site personnel responsibilities during an incident
- (5) Signage for site address(es) and building identification acceptable to the AHJ
- (6) Site hot work operations
- (7) Fire protection systems, as follows:
 - (a) For construction operations, installation of new fire protection systems as construction progresses
 - (b) For alteration operations, preservation of existing fire protection systems during alteration
 - (c) For demolition operations, preservation of existing fire protection systems during demolition
 - (d) Procedure for the FPPM to notify the installing contractor when changes need to be made to previously installed temporary protection
- (8) Procedures for reporting specific emergency incident location to first responders
- (9) Emergency evacuation procedures for site personnel
- (10) Good housekeeping
- (11) Waste disposal
- (12) On-site security
- (13) Consideration of special hazards
- (14) Protection of existing structures and equipment from exposure fires
- (15) Documentation for applicable project fire-related inspections, tests, training, and drills, as required by this standard

- (16) A life safety plan that emphasizes the need to do all of the following:
 - (a) Alert personnel of emergencies
 - (b) Provide clear egress paths to safety
 - (c) Ensure lighting and markings are provided to enable safe personnel travel
- (17) Temporary utilities, as follows:
 - (a) Safety plan for gas supplies on site in accordance with NFPA 55 and NFPA 58
 - (b) Verification that direct-fired heaters used for drying and temporary heat do not discharge unsafe levels of carbon monoxide
 - (c) Periodic leak checks and condition checks for temporary piping and hoses used for distribution of fuels
 - (d) Periodic review and verification of temporary bonding and grounding of electrical systems[241:4.2.2]

16.3.3 A fire department status board shall be provided in an approved location and documented in the Fire Prevention Program. [241:4.2.3]

16.4 Fire Protection.

16.4.1 General. The provisions of Chapter 16 shall apply in addition to the specific requirements of this section.

16.4.1.1 Fire protection systems shall be supervised and monitored in accordance with Section 16.2.13.

16.4.2 Sprinkler Protection.

16.4.2.1 If automatic sprinkler protection is to be provided, the system(s) shall be placed temporarily in service in accordance with 16.4.2.2 through 16.4.2.9.

16.4.2.2 Measures used to place permanent fire protection systems temporarily in service during construction shall be as follows:

- (1) In conformance with the Fire Prevention Program
- (2) Evaluated based on the type and status of the system
- (3) Evaluated based on the conditions of the building construction[241:4.3.2.2]

16.4.2.3 Systems temporarily placed in service during construction shall not be required to comply with NFPA standards. [241:4.3.2.3]

16.4.2.4 The details of installation for systems temporarily placed in service during construction shall be in accordance with the Fire Prevention Program, including the following:

- (1) The placement of sprinklers in unfinished spaces including the following:
 - (a) The maximum deflector distance from the deck above
 - (b) The maximum sprinkler spacing before permanent walls are built
 - (c) The position of sprinklers relative to obstructions that will disrupt the discharge pattern
- (2) The design criteria for the temporary sprinkler protection including the following:
 - (a) The discharge density from the sprinklers based on classification of hazard during construction
 - (b) The remote area configuration before permanent walls are built
 - (c) The source and adequacy of the automatic water supply including hose allowance
- (3) The protection of sprinklers and piping including the following:
 - (a) To include or not include protection of sprinklers through the use of protective caps and straps or other means
 - (b) The permissible use of exposed nonmetallic piping
 - (c) The protection of water-filled pipes during the freezing season
- (4) The point in time during construction in which temporary fire protection systems are required
- (5) The procedure for the FPPM to notify the installing contractor when changes need to be made to previously installed temporary protection[241:4.3.2.4]

16.4.2.5 Where sprinklers are required, the building shall not be occupied until the sprinkler installation has been entirely completed and tested so that the protection is not susceptible to frequent impairment caused by testing and correction, unless otherwise permitted by 16.4.2.6.

16.4.2.6 The provision of 16.4.2.5 shall not prohibit occupancy of completed floors of a building, even where other floors are in various stages of construction or protection, provided that both of the following conditions are satisfied:

- (1) The sprinkler protection of the occupied floors has been completed and tested in accordance with 16.4.2.5.
- (2) The sprinkler protection of the floors remaining under construction is supplied by entirely separate systems and separate control valves so that the absence or incompleteness of protection in no way impairs the sprinkler protection of the occupied floors.

16.4.2.7 The operation of sprinkler control valves shall be permitted only by properly authorized personnel and shall be accompanied by the notification of duly designated parties. [241:4.3.2.7]

16.4.2.8 Where the sprinkler protection is regularly turned off and on to facilitate connection of newly completed segments, the sprinkler control valves shall be checked at the end of each work shift to ascertain that protection is in service. [241:4.3.2.8]

16.4.2.9 Fire protection system control valves shall be identified and posted with signs that indicate whether they can be used to place systems in service in an emergency. [241:4.3.2.9]

16.4.3 Fire Pumps.

16.4.3.1 **General.** The installation of fire pumps temporarily placed in service during construction shall be in accordance with 16.4.3.2 or 16.4.3.3 and the Fire Prevention Program.

16.4.3.2 **Permanent Fire Pumps.** Where a permanent fire pump will be used for temporary fire protection, the installation shall include the following:

- (1) Adequately sized water service installed, flushed, and tested per NFPA 24
- (2) Any required backflow prevention
- (3) Electrical wiring associated with the fire pump and jockey pump completed per NFPA 70 and NFPA 20
- (4) Utility meter installed and electrical power turned on to fire pump and jockey pump
- (5) Minimum 4.4°C (40°F) permanent and reliable heat source in pump room
- (6) All required fire alarms associated with the fire pump complete, tested, and in service (local and remote), including tamper switches, fire pump running, fire pump power failure, and power phase reversal, per NFPA 72 or applicable fire alarm code
- (7) Inertia base installed and cured
- (8) Enclosure in accordance with the Fire Prevention Program[241:4.3.3.2]

16.4.3.3 **Temporary Pumps.** Where a temporary pump will be used for temporary fire protection, the installation shall include the following:

- (1) Adequately sized water service
- (2) Any required backflow prevention
- (3) Necessary electrical wiring to power the pump
- (4) Electrical power turned on to the pump
- (5) All required fire alarms in accordance with the Fire Prevention Program
- (6) Where required by the Fire Prevention Program, a room enclosure
- (7) Where required by the Fire Prevention Program, minimum 4.4°C (40°F) permanent and reliable heat source in the room enclosure[241:4.3.3.3]

16.5 **Means of Egress.** The means of egress shall be provided in accordance with 4.6.10 of NFPA 101. [241:4.4]

16.6 Notification and Emergency Reporting.

16.6.1 Fires shall be immediately reported to the appropriate emergency services organization in accordance with the Fire Prevention Program. [241:4.5.1]

Approved Amendments as voted for promulgation by the Board of Fire Prevention Regulations on July 14, 2022. This document is provided for review by members of the Building Code Coordinating Council (BCCC) at the August 18, 2022 Meeting

16.6.2 A method to contact the emergency services organization shall be available. [241:4.5.2]

16.6.3 The emergency services organization contact information and site address shall be conspicuously posted in approved locations. [241:4.5.3]

16.7 Fire Alarm Systems. Where a fire alarm system is installed in a building under alteration, the system shall comply with NFPA 72. [241:4.6]

16.8 Standpipes.

16.8.1 General.

16.8.1.1 The pipe size, hose valves, hose, water supply, and other details for new construction shall be in accordance with NFPA 14 or the Fire Prevention Program. [241:4.7.1.1]

16.8.1.2 On permanent Class II and Class III standpipes with a Class II connection, hose and nozzles shall be provided and made ready for use as soon as the water supply is available to the standpipe. [241:4.7.1.2]

16.8.1.3 In combined systems where occupant hose is not required, temporary hose and nozzles shall be provided during construction. [241:4.7.1.3]

16.8.2 Standpipe Installations in Buildings Under Construction.

16.8.2.1 In buildings under construction that require a standpipe system, a standpipe system, either temporary or permanent, shall be installed in accordance with 16.8.2 and the Fire Prevention Program.

16.8.2.1.1 Standpipes shall be installed when the progress of construction reaches 12.2 m (40 ft) in height above the lowest level of fire department vehicle access. [241:4.7.2.1.1]

16.8.2.1.2 As construction progresses, standpipes shall be extended to within one floor of the highest point of construction having secured decking or flooring. [241:4.7.2.1.2]

16.8.2.1.3 Standpipes shall be tested for integrity in accordance with the Fire Prevention Program as new segments or portions are added. [241:4.7.2.1.3]

16.8.2.1.4 The number and location of temporary standpipes shall be in accordance with the Fire Prevention Program. [241:4.7.2.1.4]

16.8.2.2 Readily accessible standpipe fire department connections shall be provided on the outside of the building at street level. [241:4.7.2.2]

16.8.2.2.1 Standpipes shall be conspicuously identified in accordance with 16.8.5.

16.8.2.3 When temporary standpipes are provided, the sizing, location of hose valves, water supply, if provided, and other requirements shall be in accordance with the Fire Prevention Program. [241:4.7.2.3]

16.8.2.4 The standpipe shall be supported in accordance with NFPA 14 or the Fire Prevention Program. [241:4.7.2.4]

16.8.2.5 Standpipes shall be provided with fire department hose connections in accordance with 16.8.2.5.1 through 16.8.2.5.3.

16.8.2.5.1 Hose connections shall be provided at accessible locations. [241:4.7.2.5.1]

16.8.2.5.2 At least one approved hose connection shall be provided at each floor level in the exit stairway. [241:4.7.2.5.2]

16.8.2.5.3 Where required by the AHJ, one approved hose connection shall be provided on each intermediate landing of the exit stairway. [241:4.7.2.5.3]

16.8.2.6 Hose valves shall be kept closed at all times and hose threads guarded against mechanical damage. [241:4.7.2.6]

16.8.2.7 Hose valves shall have National Hose Standard (NHS) external threads for the valve size specified in accordance with NFPA 1963 unless modified by 16.8.2.8. [241:4.7.2.7]

16.8.2.8 Where local fire department connections do not conform to NFPA 1963, the AHJ shall designate the connection to be used. [241:4.7.2.8]

16.8.2.9 The standpipes shall be extended up with each floor and shall be securely capped at the top to maintain integrity. [241:4.7.2.9]

16.8.2.10 Temporary standpipes shall remain in service until the permanent standpipe installation is complete. [241:4.7.2.10]

Red is existing MA amendment language
Red underline is new or modified MA amendment language

Black is existing base language
~~Stricken Language~~

16.8.2.11 In all new buildings in which standpipes are required or where standpipes exist in buildings being altered or demolished, such standpipes shall be maintained in conformity with the progress of building construction in such a manner that they are always ready for use. [241:4.7.2.11]

16.8.3 Fire department connections shall be located in an area accessible to the fire department, unobstructed by fences or other enclosures. [241:4.7.3]

16.8.4 Standpipe systems shall be supervised and monitored in accordance with Section 16.10

16.8.5 Fire Department Connection Identification.

16.8.5.1 Fire department connections shall be identified by approved signs. [241:4.7.5.1]

16.8.5.2 A light shall be provided above the fire department connection(s) to identify the location. [241:4.7.5.2]

16.8.5.3 The light required by 16.8.5.2 shall be of a color approved by the AHJ.

16.9 Hydrants.

16.9.1 Unobstructed access to fire hydrants and to outside connections for standpipes, sprinklers, or other fire protection equipment, whether permanent or temporary, shall be provided and maintained at all times.

[241:4.8.1]

16.9.2 No material or construction activities shall interfere with access to fire protection features or equipment.

[241:4.8.2]

16.10 Fire Detection and Alarms.

16.10.1 If fire detection, supervision, off-site monitoring, or building notification are required, the installation shall be placed in service in accordance with the Fire Prevention Program. [241:4.9.1]

16.10.2 The use of temporary measures to place fire detection, supervision, monitoring, or alarms in service shall be as follows:

(1) In accordance with the Fire Prevention Program

(2) Evaluated based on the hazard and the scope of the temporary measures [241:4.9.2]

16.10.3 Fire detection, supervision, monitoring, and alarms placed in service shall comply with NFPA 72 in accordance with the Fire Prevention Program. [241:4.9.3]

16.11 First-Aid Fire-Fighting Equipment.

16.11.1 The suitability, distribution, and maintenance of extinguishers shall be in accordance with NFPA 10. [241:4.10.1]

16.11.2 Wherever a toolhouse, storeroom, or other shanty is located in or adjacent to the building under construction or demolition, or where a room or space within that building is used for storage, a dressing room, or a workshop, at least one approved extinguisher shall be provided and maintained in an accessible location, unless otherwise permitted by 16.11.3. [241:4.10.2]

16.11.3 The requirement of 16.11.2 shall be permitted to be waived where the structure does not exceed 14 m² (150 ft²) in floor area or is equipped with automatic sprinklers or other approved protection.

16.11.4 At least one approved fire extinguisher also shall be provided in plain sight on each floor at each usable stairway as soon as significant combustible material is present. [241:4.10.4]

16.11.5 Suitable fire extinguishers shall be provided on self-propelled equipment. [241:4.10.5]

16.11.6 Free access to permanent, temporary, or portable first-aid fire equipment shall be maintained at all times. [241:4.10.6]

16.12 Temporary Protection During Construction, Alteration, or Demolition. During construction, alteration, or demolition, the use of temporary fire sprinkler protection approved by the AHJ shall be permitted as supplemental protection. [241:4.11]

16.13 Access for Fire Fighting.

16.13.1 Command Post.

16.13.1.1 A suitable location at the site shall be designated as a command post and provided with plans, emergency information, keys, communications, and equipment, as needed. [241:4.12.1.1]

16.13.1.2 Command posts and their contents shall be approved by the AHJ. [241:4.12.1.2]

16.13.1.3 Command posts and their contents shall be maintained to be readily available at all times.

[241:4.12.1.3]

16.13.1.4 The FPPM or their alternate shall be available to respond to the location command post whenever fire occurs. [241:4.12.1.4]

16.13.2 Key Box.

16.13.2.1 Where access to or within a structure or an area is unduly difficult because of secured openings or where immediate access is necessary for life-saving or fire-fighting purposes, the AHJ shall be permitted to require a key box to be installed in an accessible location. [241:4.12.2.1]

16.13.2.2 The key box shall be an approved type and shall contain keys to gain access as required by the AHJ. [241:4.12.2.2]

16.13.3 Access Roadways.

16.13.3.1 Every building shall be accessible by fire department apparatus by means of roadways having an all-weather driving surface of not less than 6.1 m (20 ft) of unobstructed width, having the ability to withstand the live loads of fire apparatus, and having a minimum of 4.1 m (13 ft 6 in.) of vertical clearance. [241:4.12.3.1]

16.13.3.2 Dead-end fire department access roads in excess of 46 m (150 ft) in length shall be provided with approved provisions for turning around fire department apparatus unless otherwise permitted by 16.13.3.4.

16.13.3.3 The requirements of 16.13.3.1 through 16.13.3.3 shall be permitted to be modified where, in the opinion of the fire department, fire-fighting or rescue operations would not be impaired by such modification.

16.13.3.4 The required width of access roadways shall not be obstructed in any manner, including obstruction by parked vehicles. [241:4.12.3.5]

16.13.3.5 "No Parking" signs or other appropriate notices, or both, prohibiting obstruction shall be permitted to be required and shall be maintained. [241:4.12.3.6]

16.13.3.6 The access roadway shall be extended to within 46 m (150 ft) of all portions of the exterior walls of the first story of any building. [241:4.12.3.7]

16.13.3.7 Where an access roadway cannot be provided, an approved fire protection system or systems shall be provided as required and approved by the AHJ. [241:4.12.3.8]

16.13.3.8 Where a bridge is required to be used as access, it shall be constructed and maintained using design live loading sufficient to carry the imposed loads of the fire apparatus. [241:4.12.3.9]

16.13.3.9 Fire department access roadways shall not be used as staging or storage areas for modular construction. [241:4.12.3.10]

16.13.4 Stairs.

16.13.4.1 Not less than one half of the required exit stairs in the constructed areas shall be available for egress and fire department access at all times. [241:4.12.4.1]

16.13.4.2 This stairway shall be extended upward as each floor is installed in new construction and maintained for each floor still remaining during demolition. [241:4.12.4.2]

16.13.4.3 The stairway shall be lighted. [241:4.12.4.3]

16.13.4.4 During construction, the stairway shall be enclosed where the building exterior walls are in place. [241:4.12.4.4]

16.13.4.5 All exit stairs shall be provided with stair identification signs to include the floor level, stair designation, and exit path direction as required to provide for safe egress. [241:4.12.4.5]

16.13.5 Hoists and Elevators.

16.13.5.1 Where hoists and elevators provide the only efficient means of transporting hose and other cumbersome fire-fighting equipment to upper floors, they shall be available to the fire department whenever necessary. [241:4.12.5.1]

16.13.5.2 Coordination shall be established to ensure that the fire department is trained in hoist or elevator use when operators are not available in accordance with 524 CMR 36.00.

16.13.5.3 Every opening into a hoistway or shaftway shall be clearly identified and protected against inadvertent entry. [241:4.12.5.3]

16.13.5.4 Identification acceptable to the AHJ shall be readily visible from the car indicating each floor level. [241:4.12.5.4]

16.14 Construction Materials for Enclosures and Fire Separation. 16.14.1

Where required by this standard, construction materials shall meet the requirements of 16.14.1.1, 16.14.1.2, or 16.14.1.3, as applicable.

16.14.1.1 Noncombustible Material. A material that complies with any of the following shall be considered a noncombustible material:

(1)* The material that, in the form in which it is used, and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors when subjected to fire or heat.

(2) The material is reported as passing ASTM E136, *Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C*.

(3) The material is reported as complying with the pass/fail criteria of ASTM E136 when tested in accordance with the test method and procedure in ASTM E2652, *Standard Test Method for Assessing Combustibility of Materials Using a Tube Furnace with a Cone-shaped Airflow Stabilizer, at 750°C*.

16.14.1.2 Limited-Combustible Material. A material shall be considered a limited-combustible material when one of the following is met:

(1) The conditions of 16.14.1.2.1 and 16.14.1.2.2, and the conditions of either 16.14.1.2.3 or 16.14.1.2.4 shall be met.

(2) The conditions of 16.14.1.2.5 shall be met.

16.14.1.2.1 The material does not comply with the requirements for a noncombustible material in accordance with 16.14.1.1.

16.14.1.2.2 The material, in the form in which it is used, exhibits a potential heat value not exceeding 3500 Btu/lb (8141 kJ/kg) when tested in accordance with NFPA 259. [241:4.13.1.2.2]

16.14.1.2.3 The material shall have a structural base of noncombustible material with a surfacing not exceeding a thickness of 1/8 in. (3.2 mm) where the surfacing exhibits a flame spread index not greater than 50 when tested in accordance with ASTM E84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, or UL 723, *Test for Surface Burning Characteristics of Building Materials*.

16.14.1.2.4 The material shall be composed of materials that in the form and thickness used neither exhibit a flame spread index greater than 25 nor exhibit evidence of continued progressive combustion when tested in accordance with ASTM E84 or UL 723 and are of such composition that all surfaces that would be exposed by cutting through the material on any plane would neither exhibit a flame spread index greater than 25 nor exhibit evidence of continued progressive combustion when tested in accordance with ASTM E84 or UL 723.

16.14.1.2.5 Materials shall be considered limited-combustible materials where tested in accordance with ASTM E2965, *Standard Test Method for Determination of Low Levels of Heat Release Rate for Materials and Products Using an Oxygen Consumption Calorimeter*, at an incident heat flux of 75 kW/m² for a 20-minute exposure, and both the following conditions are met:

(1) The peak heat release rate shall not exceed 150 kW/m² for longer than 10 seconds.

(2) The total heat released shall not exceed 8 MJ/m².

16.14.1.3 Fabrics or Plastic Films. Fabrics or plastic films shall meet the requirements of Test Method 2 in NFPA 701. [241:4.13.1.3]

16.14.1.4 Fire walls, fire barriers, smoke barriers, rated floor assemblies, exit stairways, and fire stop systems, where required for the completed building, shall be given construction priority for installation. [241:4.13.1.4]

16.14.1.5 Fire doors with approved closing devices and hardware shall be installed as soon as practical. [241:4.13.1.5]

16.14.1.6 Fire doors, after installation in accordance with NFPA 80 shall not be obstructed from closing. [241:4.13.1.6]

16.14.2 Fire-Resistance-Rated Doors and Opening Protectives.

16.14.2.1 Prior to installation, fire-resistance-rated doors and opening protectives shall be stored where they will not be subject to inclement weather or physical or mechanical damage. [241:4.13.2.1]

16.14.2.2 Rated door assemblies and rated opening protectives, where required for the completed building, shall be given construction priority for installation. [241:4.13.2.2]

16.14.2.3 Rated door assemblies, once installed, shall not be obstructed and shall be able to close and latch. [241:4.13.2.3]

16.14.2.4 A visual inspection of opening protectives shall be performed and documented as part of the weekly self-inspection program required by 16.2.13.

16.14.2.5 Any installation that has been damaged shall be repaired or replaced without delay. [241:4.13.2.5]

16.14.3 Renovations and Alterations.

16.14.3.1 Opening protectives used in renovation, alteration, or demolition operations shall not be altered or obstructed. [241:4.13.3.1]

16.14.3.2 Opening protectives shall remain in place during renovation, alteration, and demolition operations until they are no longer needed or required. [241:4.13.3.2]

16.14.3.3 Opening protectives and systems used in vertical and horizontal means of egress shall remain until they are no longer needed. [241:4.13.3.3]

16.14.4 Temporary Construction Barriers.

16.14.4.1 Barriers shall be provided to separate an occupied portion of the structure from a portion of the structure undergoing alteration, construction, or demolition operations when such operations have a higher level of hazard than the occupied portion of the building. [241:4.13.4.1] 16.14.4.1.1 Barriers shall have at least a 1-hour fire resistance rating. [241:4.13.4.1.1] 16.14.4.1.2 Opening protectives shall have at least a 45-minute fire resistance rating. [241:4.13.4.1.2]

16.14.4.2 Barriers in buildings protected throughout with approved, automatic sprinkler systems that are not impaired in accordance with NFPA 25 shall be permitted to be noncombustible material, limited-combustible material, or fabric or plastic films meeting the requirements of 16.14.1.

16.14.4.3 In conjunction with the Fire Prevention Program, as an alternative to 16.14.4.1 and 16.14.4.2, a risk assessment shall be permitted to be performed to determine the required protective measures between an occupied portion of the structure and the portion of the structure undergoing alteration, construction, or demolition operations.

16.14.4.4 Barriers when erected shall not interfere with the operation of any fire and life safety system or devices. [241:4.13.4.4]

16.15 Installation, Testing, and Maintenance. Where fire alarm, detection, or protection systems are required, they shall be installed, maintained, and tested in accordance with the appropriate NFPA standards. *(See Chapter 2.)* [241:4.14]

16.16 Fire Protection Markings.

16.16.1 While under construction, alteration, or demolition, buildings shall have approved address numbers placed in a position to be plainly legible and visible from the street or road fronting the property. [241:4.15.1]

16.16.2 Address numbers shall contrast with their background. [241:4.15.2]

16.16.3 Address numbers shall be Arabic numerals or alphabet letters. [241:4.15.3]

16.16.4 While under construction, alteration, or demolition, buildings shall have an approved fire fighter safety building marking system (FFSBMS) sign. [241:4.15.4]

16.16.5 The FFSBMS sign shall provide basic building and structure information for fire fighters responding to the building or structure. [241:4.15.5]

16.16.6 The approved FFSBMS sign shall be in a position to be plainly legible and visible from the street, road, or other means fronting the property or as approved by the AHJ. [241:4.15.6]

16.17 Temporary Construction, Equipment, and Storage

16.17.1 Application. For the purposes of Chapter 5, the term *temporary* shall be defined as the duration of the construction project. [241:5.1]

16.17.2 Temporary Offices and Sheds

16.17.2.1 Separation distances between buildings with combustible construction or contents that are unsprinklered and construction-related structures, such as temporary offices, trailers, sheds, modular construction, and other facilities for the storage of tools and materials, shall be in accordance with Table 16.17.2, except as modified by 16.17.2.1.1.

16.17.2.1.1 As an alternative to 16.17.2 and Table 16.17.2, separation distances as accepted by the AHJ shall be permitted to be used. [241:5.2.1.1]

16.17.2.2 Detachment between temporary structures, adequate temporary fixed fire protection systems, and portable equipment shall be provided as required by the AHJ. [241:5.2.2]

16.17.2.3 Only approved heating devices installed in accordance with the manufacturer's specifications shall be used in temporary offices and sheds. [241:5.2.3]

16.17.2.4 Clearance shall be provided around stoves, heaters, and all chimney and vent connectors to prevent ignition of adjacent combustible materials in accordance with NFPA 31 (liquid fuel devices); NFPA 54 (fuel gas devices); and NFPA 211 (connectors and solid fuel). [241:5.2.4]

16.17.2.5 Temporary heating devices shall be in accordance with Section 16.19.3.

Table 16.17.2 Separation Distances

<u>Temporary Structure</u> <u>Exposing Wall Length</u>		<u>Minimum Separation</u> <u>Distance</u>	
<u>m</u>	<u>ft</u>	<u>m</u>	<u>ft</u>
<u>6</u>	<u>20</u>	<u>9</u>	<u>30</u>
<u>9</u>	<u>30</u>	<u>11</u>	<u>35</u>
<u>12</u>	<u>40</u>	<u>12</u>	<u>40</u>
<u>15</u>	<u>50</u>	<u>14</u>	<u>45</u>
<u>18</u>	<u>60</u>	<u>15</u>	<u>50</u>
<u>>18</u>	<u>>60</u>	<u>18</u>	<u>60</u>

Notes:

(1) Where the separation distance between temporary structures is less than the minimum separation distance, then the exposing wall length is considered to be the sum of the individual exposing wall lengths of the temporary structures.

(2) A 75 percent reduction in separation distances shall be permitted to be applied, provided automatic sprinkler protection is used in the exposing structure.

(3) The separation distances apply to single-level structures only. This table does not apply to multilevel, unsprinklered structures. A level, where applying this table, is 3.6 m (12 ft).

16.17.3 Temporary Enclosures.

16.17.3.1 Construction materials shall be noncombustible material, limited-combustible material, or plastic films that meet the requirements of 16.4.4.

Red is existing MA amendment language
Red underline is new or modified MA amendment language

Black is existing base language
~~Stricken Language~~

16.17.3.2 Where used to enclose structures, forming equipment, and similar items, the enclosing material shall be fastened securely or guarded by construction so it cannot be blown by the wind against heaters or other sources of ignition. [241:5.3.2]

16.17.3.3 Fire Extinguishers.

16.17.3.3.1 Temporary enclosures shall be equipped with a minimum of one fire extinguisher suitable for all classes of fires that are expected inside the enclosure. [241:5.3.3.1]

16.17.3.3.2 Fire extinguishers shall be located so that travel distance to a fire extinguisher does not exceed 15 m (50 ft). [241:5.3.3.2]

16.17.4 Equipment.

16.17.4.1 Internal combustion engines and associated equipment, such as air compressors, hoists, derricks, pumps, and similar devices, shall be located so that the exhausts discharge well away from combustible materials. [241:5.4.1]

16.17.4.2 Where the exhausts are piped outside the structure under construction, alteration, or demolition, a clearance of at least 230 mm (9 in.) shall be maintained between such piping and combustible material. [241:5.4.2]

16.17.4.3 Internal combustion engines and associated equipment shall be shut down and allowed to cool sufficiently prior to refueling. [241:5.4.3]

16.17.4.4 Service areas for equipment shall not be located within structures under construction, alteration, or demolition. [241:5.4.4]

16.17.4.5 Fuel for internal combustion engines shall not be stored within structures under construction, alteration, or demolition, unless otherwise permitted in Section 16.19.8.

16.18 Utilities

16.18.1 Electrical.

16.18.1.1 All construction-operation electrical wiring and equipment for light, heat, or power purposes shall be in accordance with the applicable provisions of NFPA 70. [241:6.1.1] 16.18.1.1.1 Electrical devices shall be maintained in a safe condition. [241:6.1.1.1] 16.18.1.1.2 Extension cords shall be maintained free from damage. [241:6.1.1.2]

16.18.1.1.3 Damaged equipment and cords shall be removed from service until rendered safe. [241:6.1.1.3]

16.18.1.1.4 During construction or demolition activities, all temporary and permanent service equipment disconnecting means shall be readily accessible to emergency service personnel and shall be labeled as to which equipment is controlled by such disconnects. [241:6.1.1.4]

16.18.1.2 Temporary Wiring.

16.18.1.2.1 Branch Circuits. All branch circuits shall originate in an approved power outlet or panelboard. [241:6.1.2.1]

16.18.1.2.2 Conductors shall be permitted within multiconductor cord or cable assemblies or as open conductors. [241:6.1.2.2]

16.18.1.2.3 All conductors shall be protected by overcurrent devices rated for the ampacity of the conductors. [241:6.1.2.3]

16.18.1.2.4 Runs of open conductors shall be located where the conductors are not subject to physical damage, and the conductors shall be fastened at intervals not exceeding 3 m (10 ft). [241:6.1.2.4]

16.18.1.2.5 Each branch circuit that supplies receptacles or fixed equipment shall contain a separate equipment grounding conductor where run as an open conductor. [241:6.1.2.5]

16.18.1.3 Lighting.

16.18.1.3.1 Temporary lights shall be equipped with guards to prevent accidental contact with the bulb unless the construction of the reflector is such that the bulb is deeply recessed. [241:6.1.3.1]

16.18.1.3.2 Temporary lighting fixtures, such as quartz, that operate at temperatures capable of igniting ordinary combustibles shall be fastened securely so that the possibility of their coming in contact with such materials is precluded. [241:6.1.3.2]

16.18.1.3.3 Temporary lights shall be equipped with heavy-duty electrical cords with connections and insulation maintained in safe condition. [241:6.1.3.3]

16.18.1.3.4 Temporary lights shall not be suspended by their electrical cords unless such cords and lights have been designed for that purpose. [241:6.1.3.4]

16.18.1.3.5 Splices shall have insulation equivalent to that of the cable. [241:6.1.3.5] 16.18.1.3.6 Temporary wiring and lights shall be removed immediately upon the completion of the construction or purpose for which the wiring and lights were installed. [241:6.1.3.6] **16.18.1.3.7 Emergency Lighting.**

16.18.1.3.7.1 Emergency lighting for egress shall be permitted to be provided by natural light during periods of work from first light until dusk. [241:6.1.3.7.1]

16.18.1.3.7.2 Areas shielded from natural light shall require that each worker have personal lighting to provide illumination for the expected duration of passage to natural light. [241:6.1.3.7.2]

16.18.1.3.7.3 Temporary lighting, supplemented by personal lighting, shall be provided at all other times. [241:6.1.3.7.3]

16.18.2 Fuel Gas.

16.18.2.1 Fuel gas piping shall be properly cleaned and purged prior to it being commissioned or decommissioned in accordance with NFPA 56. [241:6.2.1]

16.18.2.2 Fuel gas shall not be utilized for the cleaning of piping under any circumstance. [241:6.2.2]

16.18.3 Water Supply.

16.18.3.1 A water supply for fire protection, either temporary or permanent, shall be made available as soon as significant combustible material is present. [241:6.3.1]

16.18.3.2 There shall be no delay in the installation of fire protection equipment.

16.18.3.3 Where underground water mains and hydrants are to be provided, they shall be installed, completed, and in service prior to commencing construction work on any structure. [241:6.3.3]

16.18.3.4 Water mains, fire hydrants, and all appurtenances shall not be impaired once placed in service. [241:6.3.4]

16.18.3.5 In the event underground water main sectional valves or individual fire hydrant control valves are impaired, the AHJ shall be notified in accordance with NFPA 25. [241:6.3.5]

16.18.4 Permanent Heating Equipment. The permanent heating equipment for a new building shall be installed and put into operation as soon as practicable. [241:6.4]

16.18.5 Natural Gas.

16.18.5.1 The installation of gas piping for construction purposes, or modifications to existing gas piping, gas utilization equipment, or accessories, shall be performed only by a qualified agency. [241:6.5.1]

16.18.5.2 All such work shall be in accordance with NFPA 54. [241:6.5.2]

16.18.5.3 All modifications to existing gas piping systems shall be performed with the gas turned off, unless otherwise permitted by 16.18.5.4. [241:6.5.3]

16.18.5.4 Hot taps shall be permitted to be made, provided they are installed by a trained and experienced crew utilizing equipment specifically designed for such purpose. [241:6.5.4]

16.19 Hot Work.

16.19.1 General.

16.19.1.1 Responsibility for hot work operations and fire prevention precautions, including permits and fire watches, shall be in accordance with NFPA 51B except as modified in Chapter 41 of this code.

16.19.1.2 Gas-operated cutting and welding equipment using multiple oxygen and fuel gas cylinders shall be in accordance with NFPA 51. [241:7.1.2]

16.19.1.3 Where hot work will be conducted and it is not practical to remove combustibles in the area, the combustibles shall be covered with welding pads, blankets, or curtains tested in accordance with ANSI/FM 4950, *Evaluating Welding Pads, Welding Blankets and Welding Curtains for Hot Work Operations*, for at least a 10.7 m (35 ft) radius of the operation. [241:7.1.3]

16.19.1.4 Fire Watch.

16.19.1.4.1 Fire watches shall be assigned no other duties. [241:7.1.4.1]

16.19.1.4.2 A fire watch shall be posted for the duration of the work and for 2 hours thereafter for torch-applied roofing operations (see 16.22.3.9). [241:7.1.4.2]

16.19.2 Thermit Welding.

16.19.2.1 In Thermit welding, the mold shall be dried thoroughly before the charge is ignited and provided with a cover. [241:7.2.1]

16.19.2.2 Bulk storage of Thermit welding materials shall be maintained in a detached shed at least 15 m (50 ft) from the main buildings. [241:7.2.2]

16.19.2.3 Storage sheds shall be maintained dry, posted as a “No Smoking” area, and kept locked. [241:7.2.3]

16.19.2.4 Containers for the starting material shall be closed tightly immediately after each use. [241:7.2.4]

16.19.2.5 The molds shall not be removed until sufficient cooling has taken place in accordance with the manufacturer’s published instructions. [241:7.2.5]

16.19.2.6 Smoking shall not be permitted in areas where Thermit welding material is being used. [241:7.2.6]

16.19.3 Heating and Cooling Equipment Used During Construction, Alteration, or Demolition.

16.19.3.1 General.

16.19.3.1.1 Permits. Permits, where required shall comply with section 1.12.

16.19.3.1.2 Heaters used in the vicinity of tarpaulins, canvas, or similar coverings shall be located a safe distance from coverings and other combustible materials. The coverings shall be securely fastened to prevent ignition of the covering or upsetting of the heater due to wind action on the covering or other material.

16.19.3.1.3 Tests for the presence of carbon monoxide shall be made by a qualified person within one hour after the start of each work shift and at least every three hours thereafter. If concentrations of carbon monoxide reach 30 parts per million (ppm) by volume, tests shall be made more frequently to determine if there is a continuing increase of carbon monoxide concentration. Records of all tests, including the date, time, results obtained, and person making tests, shall be maintained for a seven day period.

16.19.3.1.4 Each time a salamander is placed in operation it shall be checked to ensure that it is functioning properly and its operation shall be checked periodically thereafter. When concentrations of carbon monoxide attain quantities greater than 50 parts per million (ppm) to air volume at employee breathing levels, the salamander shall be extinguished unless additional natural or mechanical ventilation is provided to reduce the carbon monoxide content to permissible limits.

16.19.3.1.5 No employee shall be permitted to enter the heated area until notification of such entry is given to another person located outside. Periodic checks of at least one every 15 minutes shall be made to ensure the safety of employees entering the heated area.

16.19.3.1.6 Fresh air shall be supplied in sufficient quantities to maintain the safety of employees. Where natural means of fresh air supply is inadequate (less than 16% oxygen by volume) mechanical ventilation shall be provided. Particular attention shall be given to confined spaces and pockets where heat and fumes may accumulate and employees may be present.

16.19.3.2 Heating and cooling equipment shall be listed. [241:7.3.1]

16.19.3.3 Heating and cooling equipment shall be installed in accordance with its listing, including clearance to combustible material, equipment, or construction. [241:7.3.2]

16.19.3.4 Heating and cooling equipment shall be installed, used, and maintained in accordance with the manufacturer’s instructions, except as otherwise provided in 16.19.3.4.

16.19.3.5 Where instructions, as addressed in 16.19.3.3, are not available, heating and cooling equipment shall be used in accordance with recognized safe practices.

16.19.3.6 Heating and cooling equipment shall be designed, placed, or and used in such a manner that it is secured against overturning, overheating, displacement, or electrical heaters with tip- over protection. [241:7.3.5]

Approved Amendments as voted for promulgation by the Board of Fire Prevention Regulations on July 14, 2022. This document is provided for review by members of the Building Code Coordinating Council (BCCC) at the August 18, 2022 Meeting

16.19.3.7 Only personnel familiar with the operation of the heating and cooling equipment shall be allowed to operate such devices. [241:7.3.6]

16.19.3.8 The area where heating and cooling equipment is utilized shall be inspected not less than daily for safe conditions. [241:7.3.7]

16.19.3.9 Heating and cooling equipment and devices determined to be damaged or unsafe shall not be used. [241:7.3.8]

16.19.3.10 Heating equipment using exposed radiant heating wires shall not be used. [241:7.3.9]

16.19.3.11 Electric wiring shall comply with other sections in this standard and with the *Massachusetts Electrical Code*.

16.19.3.12 Chimney or vent connectors, where required from direct-fired heaters, shall be maintained at least 460 mm (18 in.) from combustibles and shall be installed in accordance with NFPA 211 or with the manufacturer's written instructions. [241:7.3.11]

16.19.3.13 Oil-fired heaters shall comply in design and installation features with NFPA 31. [241:7.3.12]

16.19.3.14 Fuel supplies for LP-Gas-fired heaters shall comply with other sections in this chapter and with NFPA 58.

16.19.3.15 Fuel supplies for natural gas-fired heaters shall comply with other sections in this chapter and with NFPA 54.

16.19.3.16 Refueling operations shall be conducted in an approved manner. [241:7.3.15]

16.19.3.17 Only a one day supply of heater fuel shall be stored inside a building in the vicinity of the temporary heating equipment.

16.19.3.18 Areas where equipment is utilizing fossil fuel or wood shall be provided with carbon monoxide detection in accordance with NFPA 72. [241:7.3.16]

16.19.4 Smoking.

16.19.4.1 Smoking shall be prohibited at or in the vicinity of hazardous operations or combustible/flammable materials, and "No Smoking" signs shall be posted in these areas. [241:7.4.1]

16.19.4.2 Smoking shall be permitted only in designated areas. [241:7.4.2]

16.19.4.3 Where smoking is permitted, safe receptacles for smoking materials shall be provided. [241:7.4.3]

16.19.5 Waste Disposal.

16.19.5.1 Accumulations of combustible waste material, dust, and debris shall be removed from the structure and its immediate vicinity at the end of each work shift or more frequently as necessary for safe operations.

[241:7.5.1]

16.19.5.1.1 A metal waste-can with a self-closing cover shall be provided for all waste materials, including wood, dust, and rags. All such materials shall be removed from the building and disposed of daily.

[241:7.5.2]

16.19.5.3 Materials susceptible to spontaneous ignition, such as oily rags, shall be stored in a listed disposal container. [241:7.5.3]

16.19.5.4 Trash chutes, where provided, shall comply with 16.19.5.1 through 16.19.5.4.6.

16.19.5.4.1 A trash chute safety plan shall be submitted to and approved by the AHJ. [241:7.5.4.1]

16.19.5.4.2 Trash chutes located on the exterior of a building shall be constructed of noncombustible or limited-combustible material that meets the requirements of 16.14.1, or protected in accordance with 16.19.5.4.3 through 16.19.5.4.6 if of combustible construction.

16.19.5.4.3 The interior of combustible trash chutes shall be provided with not less than one temporary automatic sprinkler within a recess near the top of the chute. [241:7.5.4.3] 16.19.5.4.4 The temporary sprinkler required by 16.19.5.4.3 shall be protected by the recess as well as a listed sprinkler guard.

16.19.5.4.5 The temporary sprinkler required by 16.19.5.4.3 shall be connected to any available water supply with a listed fire hose, or a flexible, commercial rubber hose, with a diameter of not less than 19 mm (³/₄ in.) and a listed flexible connector.

Red is existing MA amendment language
Red underline is new or modified MA amendment language

Black is existing base language
~~Stricken Language~~

16.19.5.4.6 The temporary sprinkler required by 16.19.5.4.3 shall be protected against freezing where required by the AHJ.

16.19.6 Construction Material and Equipment Storage.

16.19.6.1 Temporary storage of equipment to be installed, or excessive combustible construction or packing materials, shall not be permitted in unprotected structures under construction or alteration unless authorized by the AHJ. [241:7.6.1]

16.19.6.2 In structures required to be protected, combustible storage shall not be permitted until an approved level of protection is provided. [241:7.6.2]

16.19.6.3 Yard storage of equipment to be installed or combustible construction materials shall not be stored closer than 9 m (30 ft) from the structure under construction or alteration. (See 16.17.2.1)

16.19.7 Scaffolding, Shoring, and Forms.

16.19.7.1 Accumulations of unnecessary combustible forms or form lumber shall be prohibited. [241:7.7.1]

16.19.7.2 Combustible forms or form lumber shall be brought into the structure only when needed. [241:7.7.2]

16.19.7.3 Combustible forms or form lumber shall be removed from the structure as soon as stripping is complete. [241:7.7.3]

16.19.7.4 Those portions of the structure where combustible forms are present shall not be used for the storage of other combustible building materials. [241:7.7.4]

16.19.7.5 During forming and stripping operations, portable fire extinguishers or charged hose lines shall be provided to protect the additional combustible loading adequately. [241:7.7.5]

16.19.8 Flammable and Combustible Liquids and Flammable Gases.

16.19.8.1 Storage.

16.19.8.1.1 Storage of flammable and combustible liquids shall be in accordance with NFPA 30 unless otherwise modified by this section. [241:7.8.1.1]

16.19.8.1.2 Storage of Class I and Class II liquids shall not exceed 227 L (60 gal) within 15 m (50 ft) of the structure. [241:7.8.1.2]

16.19.8.1.3 Storage areas shall be kept free of weeds, debris, and combustible materials not necessary to the storage. [241:7.8.1.3]

16.19.8.1.4 Open flames and smoking shall not be permitted in flammable and combustible liquids storage areas. [241:7.8.1.4]

16.19.8.1.5 Such storage areas shall be appropriately posted as “No Smoking” areas. [241:7.8.1.5]

16.19.8.1.6 Storage areas shall be appropriately posted with markings in accordance with NFPA 704. [241:7.8.1.6]

16.19.8.2 Handling of Flammable and Combustible Liquids at Point of Final Use. 16.19.8.2.1

Handling of flammable and combustible liquids shall be in accordance with NFPA 30 except as modified by 16.19.8.2.2 through 16.19.8.2.4.

16.19.8.2.2 Class I and Class II liquids shall be kept in approved safety containers. [241:7.8.2.2] 16.19.8.2.3

Means shall be provided to contain and dispose of leakage and spills promptly and safely. [241:7.8.2.3]

16.19.8.2.4 Class I liquids shall be dispensed only where there are no open flames or other sources of ignition within the possible path of vapor travel. [241:7.8.2.4]

16.19.8.3 Storage and Handling of Combustible and Flammable Gases.

16.19.8.3.1 Storage and handling of combustible and flammable gases shall be in accordance with NFPA 54 and NFPA 58. [241:7.8.3.1]

16.19.8.3.2 Open flames and smoking shall not be permitted in flammable gas storage areas. [241:7.8.3.2]

16.19.9 Explosive Materials.

16.19.1 The storage, handling, and use of explosive materials shall be in accordance with NFPA 495. [241:7.9.1]

16.19.9.2 All blasting operations shall be under the direct supervision of an individual who is legally licensed to use explosives and who possesses the required permits. [241:7.9.2]

16.19.10 Cooking.

16.19.10.1 Cooking equipment shall be placed and used in such a manner so that it is secured against overturning or displacement. [241:7.10.1]

16.19.10.2 Cooking shall only be performed in approved cooking areas that are designated by approved signs, which state the following:

DESIGNATED COOKING AREA — COOKING OUTSIDE THIS AREA IS PROHIBITED
[241:7.10.2]

16.19.10.3 Cooking outside of approved cooking areas shall be prohibited. [241:7.10.3]

16.19.10.4 Mobile cooking operations shall comply with 50.8.

16.19.10.5 Mobile cooking operations shall comply with applicable sections of this standard for site access and separation distances for heat sources and combustibles. [241:7.10.5]

16.19.10.6 Cooking operations shall be documented in the Fire Prevention Program. [241:7.10.6]

16.19.11 Asbestos.

16.19.11.1 The removal of asbestos and other hazardous material shall be done in accordance with 16.19.11.1 through 16.19.11.5.

16.19.11.2 The AHJ and the fire department shall be notified prior to the removal operations. [241:7.11.2]

16.19.11.3 Signs shall be posted at the entrance, exit and exit access door, decontamination areas, and waste disposal areas. [241:7.11.3]

16.19.11.4 The signs shall state that the material is being removed from the area and state any health hazards, contact information, and any personal protective equipment (PPE) requirements. [241:7.11.4]

16.19.11.5 Signs shall have a reflective surface, and lettering shall be a minimum of 50.8 mm (2 in.) in height. [241:7.11.5]

16.20 Safeguarding Construction and Alteration Operations

16.20.1 General. In addition to the specific requirements in other chapters, the provisions of Sections 16.20.2, 16.20.3, and 16.20.4 shall be followed for all construction and alteration operations.

16.20.2 Cultural Resource Properties. Construction and alteration operations within cultural resource properties shall be performed in accordance with other chapters of this standard and NFPA 909. [241:8.2]

16.20.3 Historic Structures. Construction and alteration operations within historic structures shall be performed in accordance with other chapters of this standard and NFPA 914. [241:8.3]

16.20.4 Impairments. Impairments shall be in accordance with 16.2 through 16.16.

16.21 Safeguarding Demolition Operations

16.21.1 General. In addition to the specific requirements of this chapter, the provisions of Chapter 1 and Chapters 3 through 7 shall be followed, as applicable, for all demolition operations. [241:9.1]

16.21.2 Special Precautions.

16.21.2.1 Special precautions shall be taken where demolition work is performed in areas where floors are soaked with oil or other flammable liquid; where dust accumulations are present; or where combustible insulation is present in floors, walls, or ceilings/roofs where hot work is being performed. In these situations, charged hose lines of an adequate number and size shall be provided. [241: 9.2.1]

16.21.2.2 Flammable and combustible liquids shall be drained from tanks and machinery reservoirs in a safe manner and removed from the building immediately. Particular attention shall be paid to the removal of residue and sludge accumulations if hot work operations are involved. [241:9.2.2]

16.21.3 Heating and Cooling Equipment.

16.21.3.1 During cold-weather demolition operations, building heat shall be maintained to allow the operation of sprinklers, hose, and extinguishers in areas not in the process of demolition. [241:9.3.1]

16.21.3.2 The minimum temperature at the extremities of such areas equipped with wet sprinkler systems shall be 4°C (40°F). [241:9.3.2]

16.21.4 Smoking. Smoking shall be prohibited throughout the demolition areas. [241:9.4]

16.21.5 Demolition Using Explosives. Demolition of buildings by use of explosives shall be performed by a qualified agency following approved procedures. [241:9.5]

16.21.6 Utilities.

16.21.6.1 Electrical Service. Electrical service shall be reduced to a minimum, and the identity of energized circuits shall be ensured to avoid any uncertainty. [241:9.6.1]

16.21.6.2 Gas.

16.21.6.2.1 Prior to demolition, gas supplies shall be turned off and capped at a point outside the building. [241:9.6.2.1]

16.21.6.2.2 Gas lines within the building shall be purged after capping unless otherwise permitted by the AHJ. [241:9.6.2.2]

16.21.7 Fire Cutoffs.

16.21.7.1 Vertical and horizontal cutoffs shall be retained until razing operations necessitate their removal as permitted by the AHJ. [241:9.7.1]

16.21.7.2 Fire doors shall be closed at the end of each working day. [241:9.7.2]

16.21.8 Fire Protection During Demolition.

16.21.8.1 General. The provisions of Chapter 4 shall apply in addition to the specific requirements of this section. [241:9.8.1]

16.21.8.2 System Operation. Where a building is equipped with sprinklers, the sprinkler protection shall be retained in service as long as the condition requiring the use of sprinklers exists. [241:9.8.2]

16.21.8.3 Sprinkler Control Valves.

16.21.8.3.1 The operation of sprinkler control valves shall be permitted only by properly authorized personnel and shall be accompanied by the notification of designated parties. [241:9.8.3.1]

16.21.8.3.2 Where the sprinkler protection is regularly turned off and on to facilitate removal and capping of segments, the sprinkler control valves shall be checked at the end of each work shift to ascertain that protection is in service. [241:9.8.3.2]

16.21.8.4 Standpipes. Standpipes shall be maintained in conformity with the progress of demolition activity in such a manner that they are always ready for fire department use. [241:9.8.4]

16.21.8.5 Fire Protection. Approved fire protection shall be provided. [241:9.8.5]

16.22 Safeguarding Roofing Operations

16.22.1 General. All roofing operations involving heat sources and hot processes shall be conducted by a qualified agency. [241:10.1]

16.22.1.1 Permits. Permits, where required shall comply with section 1.12

16.22.2 Asphalt and Tar Kettles.

16.22.2.1 Asphalt and tar kettles and associated LP-Gas cylinders shall be located in a safe place outside of the building at a point that avoids the danger of ignition of combustible material. [241:10.2.1]

16.22.2.2 Asphalt and tar kettles shall not be located on roofs. [241:10.2.2]

16.22.2.3 A lid that can be closed by means of gravity shall be provided on all roofing kettles. [241:10.2.3]

16.22.2.4 The tops and covers of all kettles shall be close-fitting and constructed of steel having a thickness of not less than No. 14 manufacturer's standard gauge [2 mm (0.075 in.)]. [241:10.2.4]

16.22.2.5 Used roofing mops and rags shall be cleaned of excessive asphalt and stored away from the building and combustible materials. [241:10.2.5]

16.22.2.6 Discarded roofing mops and rags shall not be in contact with combustibles. [241:10.2.6]

16.22.2.7 Kettles shall be constantly attended when in operation by a minimum of one knowledgeable of the operations and hazards. The employee shall be within 7.6 m (25 ft) of the kettle and have the kettle within sight. [241:10.2.7]

16.22.2.8 Roofing kettles shall not block exits, means of egress, gates, roadways, or entrances. In no case shall kettles be closer than 3 m (10 ft) from exits or means of egress. [241:10.2.8]

16.22.3 Single-Ply and Torch-Applied Roofing Systems.

16.22.3.1 General.

16.22.3.1.1 Single-ply and torch-applied roofing systems shall be installed using extreme caution.

[241:10.3.1.1]

16.22.3.1.2 Torches or hot-air guns used to secure roofing membranes shall be used in accordance with the manufacturer's recommendations. [241:10.3.1.2]

16.22.3.1.3 In order to prevent smoking or ignition of roofing membranes, they shall not be overheated.

[241:10.3.1.3]

16.22.3.1.4 Personnel applying torch-applied roofing shall be qualified. [241:10.3.1.4]

16.22.3.2 Openings, Penetrations, and Flashings.

16.22.3.2.1 Caution shall be used where working near roof openings, penetrations, or flashings. [241:10.3.2.1]

16.22.3.2.2 The flame of the torch shall not come in direct contact with wood nailers, cant strips, or metal flashing. [241:10.3.2.2]

16.22.3.2.3 Small torches shall be used to heat the underside of the membrane at a safe distance from openings, penetrations, and flashing before securement. [241:10.3.2.3]

16.22.3.2.4 Hot trowels shall be used to feather seams at laps and flashings. [241:10.3.2.4] 16.22.3.2.5 The torch shall not be used in areas where the flame impingement cannot be fully viewed. [241:10.3.2.5]

16.22.3.2.6 Open flames shall not be left unattended. [241:10.3.2.6]

16.22.3.3 Flame Contact Protection.

16.22.3.3.1 The torch flame shall not be applied to a combustible substrate for the membrane. [241:10.3.3.1]

16.22.3.3.2 Base ply shall be used to cover wooden decks, combustible insulation (such as foam plastic, kraft-faced glass fiber, or wood fiber), small crevices, cant strips, plastic fastener plates, or any other combustible surface. [241:10.3.3.2]

16.22.3.3.3 Base ply shall be permitted to consist of either glass fiber felts or minimum 18 kg (40 lb) organic felts. [241:10.3.3.3]

16.22.3.3.4 Torch flames shall not come in contact with exposed plastic roofing cement. [241:10.3.3.4]

16.22.3.4 Installation.

16.22.3.4.1 The installation of torch-applied roofing and, in some cases, single-ply roofing systems is hot work and shall comply with Section 16.19.1, except where otherwise noted.

16.22.3.4.2 Torch-applied roofing shall be exempt from the requirements of 16.19.1, commonly referred to as the "35-foot rule," of NFPA 51B.

16.22.3.5 Personal Protection. Protective clothing and personal protective equipment shall be worn by installers. [241:10.3.5]

16.22.3.6 Equipment.

16.22.3.6.1 Proper equipment shall be used to heat roofing membranes. [241:10.3.6.1] 16.22.3.6.2 Torches shall be equipped with a pilot adjustment, a flame height adjustment, a minimum of 7.6 m (25 ft) to a maximum of 15 m (50 ft) of listed hose, a pressure gauge, and a regulator. [241:10.3.6.2]

16.22.3.6.3 A spark igniter shall be used. [241:10.3.6.3]

16.22.3.6.4 Torch trolleys and multiple torch head machines shall be equipped with listed safety valves. [241:10.3.6.4]

16.22.3.7 Equipment Inspection. Equipment shall be inspected thoroughly and repaired or replaced as needed prior to use. [241:10.3.7]

16.22.3.8 Fuel Gas Cylinders.

16.22.3.8.1 Valves. Fuel gas cylinders shall not be hoisted by their valves. [241:10.3.8.1] 16.22.3.8.2

Straps. Straps placed around the cylinders shall be utilized. [241:10.3.8.2] 16.22.3.8.3 Carts. Carts used to transport fuel gas cylinders shall be stable. [241:10.3.8.3] 16.22.3.8.4 Caps. Safety caps shall be attached to all fuel gas cylinders and installed on the valves whenever cylinders are not in use.

[241:10.3.8.4]

16.22.3.8.5 Size. The fuel gas cylinder shall be sized for the torch used. [241:10.3.8.5]

16.22.3.8.6 Frost Buildup.

16.22.3.8.6.1 If frost buildup occurs on fuel gas cylinders and the rate of vapor withdrawal is no longer adequate for operating conditions, the cylinder shall not be placed on its side or heated with the torch flame.

[241:10.3.8.6.1]

16.22.3.8.6.2 If frost buildup occurs on fuel gas cylinders and the rate of vapor withdrawal is no longer adequate for operating conditions, the hose shall be disconnected and a cylinder with greater propane volume shall be used. [241:10.3.8.6.2]

16.22.3.9 Fire Watch. A fire watch shall be conducted for at least 2 hours after torches have been extinguished. [241:10.3.9]

16.22.4 Fire Extinguishers for Roofing Operations.

16.22.4.1 There shall be at least one portable fire extinguisher having a rating of not less than 20-B no closer than 1.5 m (5 ft) and no more than 7.6 m (25 ft) of horizontal travel distance from every kettle at all times while such kettle is in operation. [241:10.4.1]

16.22.4.2 Fire extinguishers shall be located in an accessible, visible, or identified location. [241:10.4.2]

16.22.4.3 There shall be at least one multipurpose 2-A:20-B:C portable fire extinguisher on the roof being covered or repaired, or other fire protection shall be provided as determined by the AHJ. [241:10.4.3]

16.22.4.4 There shall be at least one multipurpose 2-A:20-B:C portable fire extinguisher within 6.1 m (20 ft) of horizontal travel distance from torch-applied roofing equipment. [241:10.4.4]

16.22.4.5 All kettle operators and torch-applied roof installers shall be trained in the use of fire extinguishers. [241:10.4.5]

16.22.5 Fuel for Roofing Operations.

16.22.5.1 Fuel containers, burners, and related appurtenances of roofing equipment in which LP- Gas is used for heating shall comply with all the applicable requirements of NFPA 58. [241:10.5.1]

16.22.5.2 Fuel containers having capacities greater than 0.45 kg (1 lb) shall be located at least 3 m (10 ft) from the burner flame or at least 0.6 m (2 ft) therefrom where properly insulated from heat or flame. [241:10.5.2]

16.22.5.3 Solid fuel or Class I liquids shall not be used as fuel for roofing kettles. [241:10.5.3]

16.22.5.4 LP-Gas cylinders shall be secured to prevent accidental tip over. [241:10.5.4]

16.22.5.5 Fuel containers shall be protected against physical damage as approved. [241:10.5.5]

16.23 Safeguarding Underground Operations

16.23.1 General.

16.23.1.1 Modifications. In addition to the specific requirements of this chapter, the provisions of Chapter 1 and Chapters 3 through 9 shall apply to all underground operations unless otherwise modified by this chapter.

[241:11.1.1]

16.23.1.2 Tunnels. The tunnels covered by this standard shall be underground structures with a design length greater than 23 m (75 ft) and a diameter greater than 1.8 m (6 ft). [241:11.1.2]

16.23.1.3 Drainage. Drainage systems shall be properly designed and installed to remove water from sprinkler discharge and fire hose streams. [241:11.1.3]

16.23.1.4 Fire Safety. Fire safety for existing, operating, fixed guideway underground transportation systems undergoing alteration or renovation shall be in accordance with NFPA 130. [241:11.1.4]

16.23.1.5 Means of Egress. Means of egress for existing, operating, underground structures shall be in accordance with the building code.

16.23.1.6 Security.

16.23.1.6.1 At each aboveground entrance, underground operations shall have a check-in/check-out system, supervised by a qualified individual at all times, that provides an accurate record of each person who is underground. [241:11.1.6.1]

16.23.1.6.2 The location of the check-in/check-out system shall be within 7.6 m (25 ft) of the entrance and shall be easily identified. [241:11.1.6.2]

16.23.1.6.3 Completed or unused sections of the underground facility shall be barricaded, properly marked, and made off limits. [241:11.1.6.3]

16.23.1.7 Compartmentation. Compartmentation by means of the installation of fire and smoke barriers shall be at intervals that limit the extent and severity of the fire and that provide areas of refuge for occupants. [241:11.1.7]

16.23.1.8 Water Supply.

16.23.1.8.1 A fire protection water supply system shall be provided in accordance with 16.18.3.

16.23.1.8.2 A standard fitting with outlet threads compatible with the equipment of the local fire department shall be provided so that travel distance does not exceed 46 m (150 ft). [241:11.1.8.2]

16.23.2 Emergency Procedures.

16.23.2.1 Evacuation Plans.

16.23.2.1.1 A written fire prevention, fire suppression, and emergency evacuation plan shall be developed, maintained, and kept current. [241:11.2.1.1]

16.23.2.1.2 The AHJ shall be provided with a copy of the current plan for its review and shall have the opportunity to comment on the plan. [241:11.2.1.2]

16.23.2.1.3 Special attention shall be given to rescue and smoke-venting procedures, to means of ingress/egress, and to training and orientation of employees and visitors. [241:11.2.1.3]

16.23.2.2 All personnel, including visitors, shall be trained in emergency and evacuation procedures and informed of the hazards prior to going underground. [241:11.2.2]

16.23.2.3 Drills.

16.23.2.3.1 Underground operations shall conduct disaster and evacuation drills for each shift at least once at the start of underground operations and every 6 months, or more frequently as appropriate. [241:11.2.3.1]

16.23.2.3.2 A record of such drills shall be maintained. [241:11.2.3.2]

16.23.3 Fire Detection, Protection, and Communications Systems.

16.23.3.1 Fire Detection and Protection Systems.

16.23.3.1.1 Fire protection extinguishing equipment applicable to the hazard shall be provided at the head, tail, drive, and take-up pulley areas of belt conveyors and at intervals along belt conveyor lines that shall not exceed 91 m (300 ft). [241:11.3.1.1]

16.23.3.1.2 Belt conveyors installed in underground locations, other than belts that carry the load of the belt on a low-friction metal deck without rollers, shall meet all of the following requirements:

- (1) Conveyor belting shall be approved.
- (2) Entrances in which belt conveyors are installed shall be kept free of accumulations such as muck, debris, and combustibles.
- (3) All belt conveyors shall be equipped with an approved slippage switch system designed to shut down the belt when sliding friction develops between the drive pulley(s) and the belt, and both of the following shall apply:
 - (a) The slippage switch system shall be tested weekly.
 - (b) On each new installation, the slippage switch system shall be tested before the conveyor is used.
- (4) All conveyor belt systems shall be equipped with approved interlock systems that shut down belt conveyors when any of the following occurs:
 - (a) Any conveyor in the system stops or reduces its normal speed.
 - (b) Any required fire protection system is activated.
- (5) Fixed combustible materials such as posts, cribbing, and roof supports shall be protected against frictional ignition by one of the following methods:
 - (a) The material shall be guarded from contact by the belt using metal.
 - (b) The material shall be located at a distance of at least 1/2 the width of the belt from any idler or pulley.

- (c) Alignment switches shall be provided at intervals sufficient to prevent the belt from contacting such materials.
- (6) Guarding, if provided, for machinery in the drive area and at other points along the belt shall be of noncombustible material.
- (7) New installations of belt conveyors shall utilize a structure that does not provide a deck between the upper and lower strands of the belt. [241:11.3.1.2]
- 16.23.3.1.3 Suitable fire extinguishers shall be installed so that travel distance from any one point in a tunnel does not exceed 91 m (300 ft) on a horizontal plane. [241:11.3.1.3] 16.23.3.1.4 Audible and visible alarm and emergency lighting for safe evacuation shall be required. [241:11.3.1.4]
- 16.23.3.2 Fire Communications Systems.
- 16.23.3.2.1 Two means of communications with the surface shall be available at all times from all areas of the underground facility. [241:11.3.2.1]
- 16.23.3.2.2 All communications systems shall be tested weekly. [241:11.3.2.2]
- 16.23.4 Electrical.
- 16.23.4.1 Electrical cords and plugs shall be heavy duty and suitable for use in damp locations. [241:11.4.1]
- 16.23.4.2 Conductors.
- 16.23.4.2.1 Conductors shall be located or guarded so as to be protected from physical damage. Multiconductor portable cable shall be permitted to supply mobile equipment. [241:11.4.2.1] 16.23.4.2.2 An equipment grounding conductor shall be run with circuit conductors inside the metal raceway or inside the multiconductor cable jacket. [241:11.4.2.2]
- 16.23.4.2.3 The equipment grounding conductor shall be permitted to be insulated or bare. [241:11.4.2.3]
- 16.23.4.3 Oil-filled transformers shall only be used underground where located in a fire-resistant enclosure suitably vented to the outside and surrounded by a dike to retain the contents of the transformers in the event of rupture. [241:11.4.3]
- 16.23.4.4 Enclosures.
- 16.23.4.4.1 Bare terminals of transformers, switches, motor controllers, and other equipment shall be enclosed to prevent accidental contact with energized parts. [241:11.4.4.1]
- 16.23.4.4.2 Enclosures for use in tunnels shall be raintight, rainproof, or watertight as defined in NFPA 70 where necessitated by the environmental conditions. [241:11.4.4.2]
- 16.23.4.5 Special attention shall be given to maintaining clear access and adequate work space around electrical equipment in accordance with NFPA 70E. Proper housekeeping shall be maintained to avoid fire hazards. [241:11.4.5]
- 16.23.4.6 All nonenergized metal parts of electrical equipment and metal raceways and cable sheaths shall be effectively grounded and bonded to all metal pipes and rails at the portal and at intervals not exceeding 300 m (1000 ft) throughout the tunnel. [241:11.4.6]
- 16.23.5 Hazardous Operations and Procedures.
- 16.23.5.1 Hot work operations shall be in accordance with NFPA 51B except as modified in Chapter 41.
- 16.23.5.2 A suitable fire extinguisher or other fire control device shall be ready for instant use in any location where hot work is performed. [241:11.5.2]
- 16.23.5.3 Acetylene, LP-Gas, liquefied oxygen (LOX), and methylacetylene propadiene stabilized gas (MPS) shall be permitted to be used underground where both of the following conditions are met:
- (1) The material is used only for welding, cutting, and hot work.
- (2) The quality of air is within approved limits. [241:11.5.3]
- 16.23.5.4 The quantity of combustible materials to be used underground shall be kept to a minimum. Advance planning shall provide for the use of materials having the most favorable combination of high ignition points, low rates of combustion, and low emissions of smoke and harmful gases. [241:11.5.4]

16.23.5.5 Flammable and Combustible Liquids.

16.23.5.5.1 Class I flammable liquids shall not be taken, stored, or used underground or within 30 m (100 ft) of a tunnel portal or shaft opening. **[241:11.5.5.1]**

16.23.5.5.2 Class II and Class III liquids shall be transported and stored in approved closed containers, safety cans, or tanks. **[241:11.5.5.2]**

16.23.5.5.3 Quantities shall be limited to those necessary for one work shift. **[241:11.5.5.3]** **16.23.5.5.4** Lubricating oils, greases, and rope dressings taken underground shall be in closed and reclosable approved containers that do not allow the contents to leak or spill. **[241:11.5.5.4]** **16.23.5.5.5** Oil, grease, and diesel fuel stored underground shall be kept in tightly sealed containers in fire-resistant areas located at least 30 m (100 ft) from shafts and inclines. **[241:11.5.5.5]**

16.23.5.5.6 Storage areas shall be positioned or diked so that the contents of ruptured or overturned containers cannot flow from the storage area. **[241:11.5.5.6]**

16.23.5.5.7 Areas within 7.6 m (25 ft) of major electrical installations and unburied tanks for storage of combustible liquids shall be free of transient combustible materials. **[241:11.5.5.7]**

16.23.6 Storage.

16.23.6.1 No combustible structure shall be erected and no combustible materials shall be stored within 30 m (100 ft) of an access shaft, shaft hoist, or other entry. **[241:11.6.1]**

16.23.6.2 Metal containers with self-closing lids shall be provided and used to store combustible waste and debris and shall be removed and taken to the surface daily. **[241:11.6.2]**

16.23.7 Equipment.

16.23.7.1 Less hazardous hydraulic fluids that are listed shall be used in underground machinery and equipment unless the machinery and equipment are protected by an approved fire suppression system or by approved multipurpose fire extinguishers rated at least 4-A:40-B:C. **[241:11.7.1]**

16.23.7.2 Wherever self-propelled equipment is used underground, a fire suppression system or a fire extinguisher rated at least 4-A:40-B:C shall be provided on the equipment. **[241:11.7.2]**

16.23.7.3 Ventilation.

16.23.7.3.1 Where single-entry shafts/tunnel ventilation systems are used, they shall be reversible from a location outside and in close proximity to the shaft/tunnel. **[241:11.7.3.1]**

16.23.7.3.2 The ventilation system shall be sufficient for the number of personnel and equipment underground. **[241:11.7.3.2]**

16.23.7.3.3 Air-sampling logs shall be maintained. Air tests shall be conducted before or after each shift. **[241:11.7.3.3]**

16.23.7.3.4 Air-sampling logs shall be available to the AHJ. **[241:11.7.3.4]**

16.23.7.3.5 Fan houses, fan bulkheads for main and booster fans, and air ducts connecting main fans to underground openings shall be constructed of noncombustible materials. **[241:11.7.3.5]**

16.23.8 Standpipe Installations in Tunnels Under Construction. Where required by the AHJ, a Class I, II, or III standpipe system shall be installed and tested in tunnels under construction in accordance with 16.23.8.1 through 16.23.8.6, NFPA 14, and NFPA 25.

16.23.8.1 A standpipe system shall be installed before the tunnel has exceeded a length of 61 m (200 ft) beyond any access shaft or portal. **[241:11.8.1]**

16.23.8.1.1 The standpipe system shall be extended as work progresses so that a hose valve connection is available within 61 m (200 ft) of the most remote portion of the tunnel or tunnel heading. **[241:11.8.1.1]**

16.23.8.2 Standpipe and hose valves shall be securely supported and the system shall be securely capped at the end. **[241:11.8.2]**

16.23.8.3 Threaded connections for hose valves and fire department connections shall be of the size and type required by the responding fire department. **[241:11.8.3]**

16.23.8.4 Standpipe hose valves shall be spaced at not greater than 61 m (200 ft) intervals, and be positioned in the tunnel and kept clear to ensure ready access from the walking surface. **[241:11.8.4]**

16.23.8.5 Standpipe system water supply and fire department connection(s) shall be provided at a location(s) adjacent to the tunnel construction access point and shall be readily accessible to fire department apparatus.

[241:11.8.5]

16.23.8.6 Temporary standpipe systems shall remain in service until the permanent standpipe system is complete. [241:11.8.6]

16.23.8.7 Underground Operations.

16.23.8.7.1 Where required, an underground rescue plan shall be developed and addressed in the Fire Prevention Program in accordance with 16.3.2.

16.23.8.7.1.1 Technical rescue professional qualifications regarding underground operations shall be in accordance with NFPA 1006. [241:11.8.7.1.1]

16.23.8.7.1.2 Technical rescue regarding underground operations shall be in accordance NFPA 1670. [241:11.8.7.1.2]

16.24 Safeguarding Construction Operations for Tall Mass Timber Wood Structures

16.24.1 General. The provisions of Chapter 1, Chapters 3 through 8, and this chapter shall apply for all construction, as applicable. [241:12.1]

16.24.2 Roofing Operations. The requirements of Chapter 10 shall apply for roofing operations, except that torch-applied roofing systems shall be prohibited. [241:12.2]

16.24.3 Fire Exposure Analysis. Before construction begins, a study shall be conducted to ensure that the installation of passive and active fire protection features, combined with the separation provided between other structures on the same or adjacent lots, are adequate to allow safe egress and to prevent fire spread to the exposed structures. [241:12.3]

16.24.3.1 The analysis shall be included with the construction documents submitted with the building permit and acceptable to the AHJ. [241:12.3.1]

16.24.3.2 Construction shall comply with the requirements established by the fire exposure analysis. [241:12.3.2]

16.24.4 Wood Structural Panels. Wood structural panels shall be designed, manufactured, and identified in accordance with the building code.

16.24.4.1 Structural wood members that are required to receive passive fire protection shall have the protection installed as required by the fire exposure analysis outlined in Section 16.24.3.

16.24.5 Site Security.

16.24.5.1 Guard service trained in accordance with 16.2.17.2 or other methods acceptable to the AHJ shall be required at all times that combustible construction has exceeded three stories and workers are not on the site.

16.24.5.2 Minimum 1.8 m (6 ft) high security fences shall be provided around the entire exterior of the construction site. [241:12.5.2]

16.24.6 Water Mains, Standpipes, Hydrants, and Fire Department Connections.

16.24.6.1 Underground fire protection water mains and hydrants shall be installed in accordance with 16.18.3.3.

16.24.6.2 Each stairwell required for egress in the constructed areas of the structure shall be equipped with an operational standpipe during construction in accordance with Section 4.7. [241:12.6.2]

16.24.6.3 The distance between the fire department connection and hydrant shall not exceed 30.5 m (100 ft). [241:12.6.3]

16.24.7 Fire Protection Systems. Fire protection systems that are temporarily placed in service shall be in accordance with the Fire Prevention Program. [241:12.7]

16.24.8 Hot Work. Fire watches shall remain in place for 2 hours after hot work is complete. [241:12.8]

16.24.9 Temporary Heat.

16.24.9.1 The use of direct-fired heaters shall be prohibited inside the structure. [241:12.9.1]

16.24.9.2 Heating shall be indirect fired or ducted heat from heaters located outside the structure or by permanent heating systems. [241:12.9.2]

16.24.10 Temporary Lighting. The use of high-intensity lighting, such as quartz or metal halide, shall be prohibited during construction or alterations. [241:12.10]

16.25 Safeguarding Construction Operations for Large Wood Frame Structures

16.25.1 General.

16.25.1.1 The provisions of Chapter 1, Chapters 3 through 8, and this chapter shall apply for all construction, as applicable. [241:13.1.1]

16.25.1.2 A large wood structure shall be considered all wood structures that meet one of the following:

- (1) Up to, and including, three stories and greater than 13,935 m² (150,000 ft²) aggregate total floor area
- (2) Over three stories, or over 12.2 m (40 ft) above the lowest level of fire department vehicular access, and greater than 4645.2 m² (50,000 ft²) aggregate total floor area [241:13.1.2]

16.25.2 Roofing Operations.

16.25.2.1 The requirements of Chapter 10 shall apply for roofing operations except as specified in 16.25.2.2.

16.25.2.2 Torch-applied roofing systems shall be prohibited. [241:13.2.2]

16.25.3 Fire Exposure Analysis. Before construction begins, a study shall be conducted to ensure that the installation of passive and active fire protection features, combined with the separation provided between other structures on the same or adjacent lots, or adjacent buildings under construction simultaneously, are adequate to allow safe egress and prevent fire spread to the exposed structures. [241:13.3]

16.25.3.1 The analysis shall be included with the construction documents submitted with the building permit and acceptable to the AHJ. [241:13.3.1]

16.25.3.2 Construction shall comply with the requirements established by the fire exposure analysis. [241:13.3.2]

16.25.4 Site Security.

16.25.4.1 Guard service trained in accordance with 16.2.17.2 or other methods acceptable to the AHJ shall be required at all times.

16.25.4.2 Minimum 1.8 m (6 ft) high security fences shall be provided around the entire exterior of the construction site. [241:13.4.2]

16.25.5 Water Mains, Standpipes, Hydrants, and Fire Department Connections.

16.25.5.1 Underground fire protection water mains and hydrants shall be installed in accordance with 16.18.3.3.

16.25.5.2 Where standpipes are required in the occupied building or by the Fire Prevention Program, the number of temporary standpipes to be provided shall be in accordance with the Fire Prevention Program. [241:13.5.2]

16.25.5.3 The distance between the fire department connection and hydrant shall not exceed 30.5 m (100 ft). [241:13.5.3]

16.25.6 Fire Protection Systems. Fire protection systems that are temporarily placed in service shall be in accordance with the Fire Prevention Program. [241:13.6]

16.25.7 Hot Work. Fire watches shall remain in place for 2 hours after hot work is complete. [241:13.7]

16.25.8 Temporary Heat.

16.25.8.1 The use of direct-fired heaters shall be prohibited inside the structure. [241:13.8.1]

16.25.8.2 Heating shall be indirect-fired or ducted heat from heaters located outside the structure or by permanent heating systems. [241:13.8.2]

16.25.9 Temporary Lighting. The use of high-intensity lighting, such as quartz or metal halide, shall be prohibited during construction or alterations. [241:13.9]

16.26 Floor Finishing or Refinishing.

16.26.1 General. Floor finishing or refinishing requirements shall apply to persons, or other entities, that engage in sanding, finishing, or refinishing wood floors, with or without compensation, in any building or structure. No person or entity shall apply or otherwise use any flammable floor finishing product during the course of any activity relating to the refinishing or finishing of the surface of a wood floor. This shall be in addition to the prohibitions of

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M.G.L. c. 94, § 329 relating to the sale and use of certain lacquer sealers during the course of commercial wood floor finishing operations.

16.26.2 Flammable Floor Finishing Product. Flammable floor finishing product as used herein, shall mean any clear or pigmented wood finish, formulated with nitrocellulose or synthetic resins to dry by evaporation and without chemical reaction, having a flashpoint below 100EF, and having a vapor pressure not exceeding 40 psi at 100°F, including clear lacquer sanding sealers.

16.26.3 Fire Safety Requirements. No person shall sand, strip, or refinish wood floors where such sanding, stripping, or vapor would create an explosive atmosphere from dust or vapor that when dispersed could be ignited in the air without first complying with the following fire/explosion safety requirements. The requirements in Sections 16.9.3(1) and (3) are not applicable if ventilation or a dust collection equipment system is used continuously to reduce vapor or dust from accumulating in concentrations that could cause ignition or explosion:

(1) **Sources of Ignition.** All fires, open flames, or other sources of ignition, including smoking materials, spotlights, halogen lights or appliance pilot lights shall be eliminated from the area or unit.

(2) **Electrical Permit Required.** An electrical permit is required when connecting any floor-refinishing machine directly to the electrical panel in accordance with *Massachusetts Electrical Code*.

(3) **Warning Signs.** Any person or other entity sanding or stripping floors in a building containing more than one dwelling unit shall post suitable warning signs indicating the danger of dust and fire/explosion hazard and shall be conspicuously posted on all doors and entrances to the building and/or unit. Such notice is to be printed in contrasting colors and shall have lettering at least two inches high and shall state the name of the operator in charge, the date and time of the operation, and the area or unit where work is to be performed. Warning signs shall be posted at least 24 hours prior to engaging in such work.

(4) **No Smoking signs,** featuring the international pictograph prohibiting smoking, must be posted at all entrances to the house or building before floor sanding or finishing begins and until 24 hours after the end of all floor sanding and finishing activities.

Chapter 17 – Wildlife Urban Interface

Chapter 17 Delete in its entirety.

Chapter 18 – Fire Department Access and Water Supply

DELETE AND REPLACE:

18.1 General Scope. Fire department access and water supplies shall comply with this chapter. The provisions of this chapter shall not apply to any city, or town which has accepted the provisions of M.G.L. c. 41, § 81 *et. seq.* or similar laws which provide local jurisdiction over fire department access and water supply. In the absence of any such laws, fire department access and water supply shall comply with this chapter.

ADD:

18.1.1.3 This chapter shall apply to new one- or two-family dwellings, not provided with adequate frontage and located behind an existing building that has frontage. For purposes of this section, adequate frontage shall mean at least 20 feet or more abutting a public way.

18.1.1.3.1 Existing and new one- and two-family detached dwellings, not located behind a building with adequate frontage, and their accessory structures such as garages, carports, and sheds shall be exempt from the provisions of *section 18.2.3*.

ADD:

18.1.1.4 The fire apparatus access road plans must include an analysis and evaluation of fire apparatus maneuvers

Red is existing MA amendment language

Red underline is new or modified MA amendment language

Black is existing base language

~~Stricken Language~~

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throughout the access roads created by swept path analysis and turn simulation software.

18.1.1.5 The fire apparatus access plans shall bear the seal and signature of the responsible registered professional engineer.

18.1.1.6 Nothing in this Section shall reduce the requirements established by cities or towns under M.G.L. c. 40A and planning and zoning bylaws.

DELETE AND REPLACE:

18.1.3.1 Fire Apparatus Access. Plans, where required, for fire apparatus access roads shall be submitted to the fire department for review and approval prior to construction.

ADD:

18.2.2.1.1 Approval of access roads shall be subject to the AHJ and capable of supporting the imposed loads of fire apparatus and shall be provided with an all-weather driving surface and shall be maintained as provided.

DELETE AND REPLACE:

18.2.2.3 Access Maintenance. The owner or occupant of a structure or area, with required fire department access as specified in *Section 18.2.2.1 or 18.2.2.2*, shall notify the AHJ when the access is modified.

DELETE

18.2.3.1.3*(1) through 18.2.3.1.3*(4)

ADD:

18.2.3.1.3* (6) Other detached buildings having an area not exceeding 400 ft.²

ADD:

18.2.3.1.4 When fire department access roads cannot be installed due to location on property, topography, waterways, nonnegotiable grades, or other similar conditions, the AHJ shall be permitted to accept alternatives proposed by the owner of the building to allow additional fire protection features, up to and including the installation of an approved fire sprinkler system installed in accordance with the *Building Code*, cistern(s), additional fire hydrant(s), or similar devices or systems.

DELETE AND REPLACE:

18.2.3.2 Access to Buildings and Facilities.

DELETE AND REPLACE:

18.2.3.2.1.1 Where a new building, not provided with adequate frontage, is to be located behind an existing building that has frontage, a fire department access road shall extend to within 25 feet of at least one exterior door that can be opened from the outside and that provides access to the interior of the building.

ADD:

18.2.3.2.1.1.2 Where a townhouse as defined in the Building Code, is protected with an approved automatic sprinkler system that is installed in accordance with NFPA 13D or NFPA 13R, as applicable, the distance in *section 18.2.3.2.1* shall be permitted to be increased to 150 ft. (46 m).

DELETE AND REPLACE

Red is existing MA amendment language
Red underline is new or modified MA amendment language

Black is existing base language
~~Stricken Language~~

18.2.3.2.2.1 When buildings are protected throughout with an approved automatic sprinkler system that is installed in accordance with NFPA 13: *Standard for the Installation of Sprinkler Systems* the distance in *Section 18.2.3.2.2* shall be permitted to be increased to 250 feet.

ADD:

18.2.3.2.2.2 Except new one- or two-family dwellings, and townhouses, not provided with adequate frontage and located behind an existing building that has frontage.

DELETE AND REPLACE:

18.2.3.5.1.1 Fire department access roads shall have an unobstructed width of not less than 20 feet (6.1 m). Fire department access roads constructed in the boulevard-style shall be allowed where each lane is less than 20 feet but not less than ten feet when they do not provide access to a building or structure.

ADD:

18.2.3.5.2.1 Permeable drivable surfaces, that meet loading of Section 18.2.3.4.2, are allowed when approved by the AHJ. When approved, the permeable surfaces shall be identified by a method acceptable to the AHJ.

DELETE AND REPLACE

18.2.3.5.3.1 The minimum inside turning radius of a fire department access road shall be 25 feet. The AHJ shall have the ability to increase the minimum inside turning radius to accommodate the AHJ's apparatus.

DELETE AND REPLACE:

18.2.3.5.6.1 The gradient for a fire department access road shall not exceed 10%, unless approved in writing by the AHJ.

ADD:

18.2.3.5.8 Travel in the Opposing Lane. The use of the opposite travel lane is prohibited in the design of all new fire apparatus access roads.

DELETE:

18.2.4.2.3 through 18.5.4.4

Chapter 19 – Combustible Waste and Refuse

ADD:

19.3 Special Hazards, Rubbish.

19.3.1 Spontaneous Combustion. Substances subject to spontaneous heating or ignition, such as oily or greasy rags, or other materials or combinations of materials, shall not be deposited in combustible containers or so kept or stored as to ignite combustible material.

19.3.1.1 Such substances shall not be mixed with combustible rubbish or stored in the same containers.

19.3.1.2 Materials subject to spontaneous ignition shall be kept in listed metal receptacles equipped with self-closing hinged covers designed to guard against the hazard of spontaneous combustion.

19.3.1.3 Contents shall be emptied every night and disposed of properly.

19.3.2 Hot Waste. Hot coals, cinders, hot scrap metal, and similar substances shall not be deposited in combustible containers, or kept or stored so as to ignite combustible material.

19.3.2.1 Such substances shall not be mixed with combustible rubbish or stored in the same containers.

19.3.2.2 Such substances shall be kept, handled, or stored inside buildings only in noncombustible receptacles

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approved by the Head of the Fire Department for that purpose and location.

19.3.2.3 Such substances shall be kept, handled, or stored outside of building locations so that they cannot ignite buildings on the premises or adjacent premises and will not endanger people.

19.3.3 Containers which require mechanical assistance to be moved, shall be marked with the name and telephone number of the company or person from which emergency service to expedite movement of the container can be obtained.

19.3.4 Waste storage rooms shall not contain boilers or furnaces used for the central heating of buildings, nor shall rooms with boilers or furnaces be used for waste storage of any kind.

Chapter 20 – Occupancy Fire Safety

DELETE and REPLACE:

20.1.1 Application. New and existing assembly occupancies shall comply with Section 20.1 and NFPA ~~101~~.

DELETE:

20.1.1.2

DELETE and REPLACE:

20.1.3.1 General. Interior finish shall be in accordance with the Building Code. Section ~~12.5~~. [~~101:12.3.3.1~~]

DELETE:

20.1.3.2 and 20.1.3.3

DELETE:

20.1.3.5 through 20.1.3.5.4

DELETE and REPLACE:

20.1.4.1.1* Special amusement buildings, regardless of occupant load, shall meet the requirements for assembly occupancies in addition to the requirements of 20.1.4 and the Building Code, unless the special amusement building is a multilevel play structure that is not more than 10 ft (3050 mm) in height and has aggregate horizontal projections not exceeding 160 ft² (15 m²). [~~101:12.4.9.1.1; 101:13.4.9.1.1~~]

DELETE and REPLACE:

20.1.4.2.1.1 Exit marking shall be in accordance with the Building Code. Section ~~14.14~~. [~~101:12.4.9.2.1.1; 101:13.4.9.2.2.1~~]

DELETE:

20.1.4.2.1.2

DELETE:

20.1.4.2.2 and 20.1.4.2.2.1

DELETE and REPLACE:

20.1.4.3 Interior Finish. Interior wall and ceiling finish materials complying with Section ~~12.5~~ shall be Class A throughout. [~~101:12.4.9.3; 101:13.4.9.3~~] shall be in accordance with the Building Code.

DELETE:

20.1.4.4.2.2 and 20.1.4.4.3

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DELETE:

20.1.4.5.2 through 20.1.4.5.2

DELETE:

20.1.5.1.2

DELETE and REPLACE:

20.1.5.1.3 Inspection of Door Openings. Door openings shall be inspected **by the owner or their representative and be in an operable condition at all times.** ~~in accordance with 14.5.10. [101:12.7.1.3]~~

ADD:

20.1.5.4.5 Upholstered furniture shall be tested in accordance with the provisions of 12.6.2.

DELETE:

20.1.5.5.2 through 20.1.5.5.3

DELETE:

20.1.5.5.4.1 through 20.1.5.5.4.3

DELETE and REPLACE:

20.1.5.5.4.4 Exhibit booth construction materials shall be limited to the following:

- ~~(1) Noncombustible or limited combustible materials~~
- ~~(2) Wood exceeding 1/4 in. (6.3 mm) nominal thickness~~
- ~~(3) Wood that is pressure treated, fire retardant wood meeting the requirements of NFPA 703~~
- ~~(4) Flame-retardant materials complying with one of the following:~~
 - ~~(a) They shall meet the flame propagation performance criteria contained in Test Method 1 or Test Method 2, as appropriate, of NFPA 701.~~
 - ~~(b) They shall exhibit a heat release rate not exceeding 100 kW when tested in accordance with NFPA 289 using the 20 kW ignition source.~~
- ~~(5) Textile wall coverings, such as carpeting and similar products used as wall or ceiling finishes, complying with the provisions of 12.5.3 and 12.5.5~~
- ~~(6) Plastics limited to those that comply with 20.1.3 and Section 12.5~~
- ~~(7) Foamed plastics and materials containing foamed plastics having a heat release rate for any single fuel package that does not exceed 100 kW where tested in accordance with one of the following:~~
 - ~~(a) UL 1975, Standard for Fire Tests for Foamed Plastics Used for Decorative Purposes~~
 - ~~(b) NFPA 289, Standard Method of Fire Test for Individual Fuel Packages, using the 20 kW ignition source~~
- ~~(8) Cardboard, honeycombed paper, and other combustible materials having a heat release rate for any single fuel package that does not exceed 150 kW where tested in accordance with one of the following:~~
 - ~~(a) UL 1975, Fire Tests for Foamed Plastics Used for Decorative Purposes~~
 - ~~(b) NFPA 289, using the 20 kW ignition source~~

~~[101:12.7.5.3.4; 101:13.7.5.3.4]~~

DELETE:

20.1.5.5.4.7 through 20.1.5.5.4.7.3

DELETE and REPLACE:

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Approved Amendments as voted for promulgation by the Board of Fire Prevention Regulations on July 14, 2022. This document is provided for review by members of the Building Code Coordinating Council (BCCC) at the August 18, 2022 Meeting

20.1.5.6.1 Assembly occupancies shall be provided with a minimum of one trained crowd manager or crowd manager supervisor. **A nightclub, dance hall, discotheque or bar with an occupant load of 100 or more, shall be provided with a minimum of one trained crowd manager.** Where the occupant load exceeds 250, additional trained crowd managers or crowd manager supervisors shall be provided at a ratio of 1 crowd manager or crowd manager supervisor **for every 250 occupants.** ~~unless otherwise permitted by one of the following:~~

- (1) This requirement shall not apply to assembly occupancies used exclusively for religious worship with an occupant load not exceeding 500.
- (2) The ratio of trained crowd managers to occupants shall be permitted to be reduced where, in the opinion of the AHJ, the existence of an approved, supervised automatic sprinkler system and the nature of the event warrant.

~~[101:12.7.6.1; 101:13.7.6.1]~~

ADD:

20.1.5.6.1.1 A nightclub, dance hall, discotheque or bar shall be defined as:

- (1) Any facility classified as a A-2 or A-3 use group under the Building Code, which is principally designed or used as a nightclub, dance hall, discotheque, or bar; or
- (2) Any facility that features entertainment by live band or recorded music generating above normal sound levels and has a specific area designated for dancing.

20.1.5.6.1.2 A crowd manager is not required for:

- (1) A temporary structure erected at the same location for no more than ten days in any calendar year; or
- (2) A facility that features fixed seating, such as a theatre, auditorium, concert hall or similar place of assembly; or
- (3) A facility used for organized private function where:
 - (a) Each guest has a seat and table for dining purposes; and
 - (b) Attendance for each event is limited by pre-arrangement between the facility operator and the private event organizers; and
 - (c) The legal capacity of the facility provides not less than 15 square feet (net) per occupant.

DELETE and REPLACE:

20.1.5.6.2 The crowd manager and crowd manager supervisor shall receive ~~approved training in crowd management techniques as required by the State Fire Marshal. The State Fire Marshal shall develop a reasonable method to confirm, on a three-year basis, that a crowd manager has completed the training in regards to their responsibility.~~

~~[101:12.7.6.2; 101:13.7.6.2]~~

ADD:

20.1.5.6.2.1 Certificates. Certificates where required, shall comply with Section 1.13.

DELETE and REPLACE:

20.1.5.6.3 ~~Duties and responsibilities for the crowd manager and crowd manager supervisor shall be documented within a written emergency plan as required by 12.7.13 of NFPA 101. [101:12.7.6.3; 101:13.7.6.3]~~ **A crowd manager shall be at least 21 years of age, shall be the owner or operator of the business or under the direct control and supervision of said owner or operator and shall be responsible for all of the following:**

- (1) Maintaining clear paths of egress, assuring that the facility does not exceed its occupant load limit, initiating a fire alarm if necessary, directing occupants to exits;
- (2) Assuring general fire and life safety awareness of employees and occupants, including assuring that exit announcements are made in accordance with the 20.1.5.8.3;
- (3) Accurately completing the safety plan checklist required by 20.1.5.6.4.

DELETE and REPLACE:

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20.1.5.6.4 Fire and Building Safety Checklist The training for the duties and responsibilities of crowd managers shall include the following:

- (1) Understanding crowd manager roles and responsibilities
- (2) Understanding safety and security hazards that can endanger public assembly
- (3) Understanding crowd management techniques
- (4) Introduction to fire safety and fire safety equipment
- (5) Understanding methods of evacuation and movement
- (6) Understanding procedures for reporting emergencies
- (7) Understanding crowd management emergency response procedures
- (8) Understanding the paths of travel and exits, facility evacuation and emergency response procedures and, where provided, facility shelter in place procedures
- (9) Familiarization with the venue and guest services training
- (10) Other specific event warranted training

~~{101:12.7.6.4; 101:13.7.6.4}~~

- (1) The crowd manager shall be responsible for the completion of the Fire & Building Safety Checklist, as prescribed by the State Fire Marshal, on each day of operation prior to opening the facility to patrons.
- (2) This checklist shall include, but not be limited to, the routine safety check of existing fire protection systems, fire extinguishers, signage, interior finish, exits, unobstructed egress, crowd control procedures and building occupancy limits.
- (3) The original completed checklists shall be kept on the premises for at least one year and shall be subject to inspection by the AHJ.

ADD:

20.1.5.6.4.1 Certificates. Certificates where required, shall comply with section 1.13.

DELETE:

20.1.5.7

DELETE:

20.1.5.8.2

DELETE and REPLACE:

20.1.5.8.3* In the following assembly occupancies, an audible announcement shall be made, or a projected image shall be shown, prior to the start of each program that notifies occupants of the location of the exits to be used in case of a fire or other emergency:

- (1) Theaters
- (2) Motion picture theaters
- (3) Auditoriums
- (4) Other similar assembly occupancies with occupant loads exceeding 300 where there are noncontinuous programs~~{101:12.7.7.3; 101:13.7.7.3}~~
- (5) Nightclubs, dance halls, discotheques or bars.

DELETE:

20.1.5.10 through 20.1.5.10.2.3

DELETE:

20.1.5.11 through 20.1.5.12.2

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DELETE and REPLACE:

20.1.5.13 Integrated Fire Protection and Life Safety Systems. Integrated fire protection and life safety systems shall be tested in accordance with ~~13.1.3.1~~ the Building Code. ~~[101:12.7.14; 101:13.7.14.1]~~

DELETE:

20.2.2 through 20.2.2.5

DELETE and REPLACE:

20.2.1 Application. New and existing educational occupancies shall comply with Section 20.2 ~~and NFPA 101.~~

DELETE:

20.2.2 through 20.2.2.5

DELETE:

20.2.3.2 through 20.2.3.3.4

DELETE and REPLACE:

20.2.4.2.1* Emergency egress drills shall be conducted in accordance with ~~Section 10.5~~ and the applicable provisions of ~~20.2.4.2 20.2.4.2.3 as otherwise provided in 20.2.4.2.2.~~ ~~[101:14.7.2.1; 101:15.7.2.1]~~

ADD:

20.2.4.2.1.1 The responsible school official in charge of the school or the school system, shall formulate a plan for the protection and evacuation of all person in the event of fire, and shall include alternate means of egress for all persons involved. Such plan shall be presented to and approved by the Head of the Fire Department.

20.2.4.2.1.2 The responsible school official in charge of the school or school system shall see that each instructor or supervisor shall receive proper instructions on the fire drill procedures specified for the room or area in which that person carries out their duties before they assume such duties.

20.2.4.2.1.3 Every student in all schools shall be advised of the fire drill procedure or shall take part in a fire drill within three days after entering such school.

20.2.4.2.1.4 The Head of the Fire Department, or person designated by him, shall visit each school at least four times each year for the purpose of conducting fire drills and questioning the teachers and supervisors. These drills shall be conducted without advance warning to the school personnel other than the person in charge of the school at the time.

20.2.4.2.1.5 Records. A record of all fire exit drills shall be kept on the premises and persons in charge of such occupancies shall file written reports at least twice a year with the Head of the Fire Department giving the following information:

- (1) Time of drill;
- (2) Date of drill;
- (3) Weather conditions when occupants were evacuated;
- (4) Number of occupants evacuated;
- (5) Total time of evacuation;
- (6) Other information relevant to the drill.

20.2.4.2.1.6 Evacuation. Fire exit drills shall include the complete evacuation of all persons from the building.

20.2.4.2.1.7 A drill of the multi-hazard evacuation plan, required by the provisions of St. 2000, c. 159, § 363, shall be permitted to be substituted for one of the fire drills required by 20.2.4.2.

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20.2.4.2.2 through 20.2.4.2.3

DELETE:

20.2.4.3.2 through 20.2.4.3.3

DELETE and REPLACE:

20.2.4.4.2 Upholstered and molded plastic seating furniture shall be tested in accordance with the provisions of 12.6.

~~Clothing and personal effects shall not be stored in corridors, unless otherwise permitted by one of the following:~~

- ~~(1) This requirement shall not apply to corridors protected by an automatic sprinkler system in accordance with Section 13.3.~~
- ~~(2) This requirement shall not apply to corridor areas protected by a smoke detection system in accordance with 13.7.1.4.~~
- ~~(3) This requirement shall not apply to storage in metal lockers, provided that the required egress width is maintained.~~

~~[101:14.7.4.2; 101:15.7.4.2]~~

DELETE and REPLACE:

20.2.4.4.3 Artwork and teaching materials shall be permitted to be attached directly to the walls in accordance with the following:

- ~~(1) In new educational occupancies, the artwork and teaching materials shall not exceed 20 percent of the wall area in a building that is not protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 13.3. [101:14.7.4.3(1)]~~
- ~~(2) In existing educational occupancies, the artwork and teaching materials shall not exceed 20 percent of the wall area in a building that is not protected throughout by an approved automatic sprinkler system in accordance with Section 13.3. [101:15.7.4.3(1)]~~
- ~~(3) In new educational occupancies, the artwork and teaching materials shall not exceed 50 percent of the wall area in a building that is protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 13.3. [101:14.7.4.3(2)]~~
- ~~(4) In existing educational occupancies, the artwork and teaching materials shall not exceed 50 percent of the wall area in a building that is protected throughout by an approved automatic sprinkler system in accordance with Section 13.3. [101:15.7.4.3(2)]~~

~~[101:14.7.4.3; 101:15.7.4.3]~~

Paper materials displayed in educational use occupancies shall be permitted on walls only in accordance with the following:

- (1) In classrooms, paper materials displayed shall not exceed 20% of the total wall area.
- (2) Paper materials displayed shall be attached directly to the walls and shall not be permitted to cover an egress door or be placed within five feet of an egress door, unless approved by the AHJ. When determining wall area, the door and window openings shall be included unless:
 - (a) Paper materials are displayed in fully enclosed viewing cabinets with glass or polycarbonate viewing panels or covered with glass or polycarbonate sheet material in accordance with the *Building Code*.
 - (b) Flame retardant paper material is used for display.
- (3) Paper material displays shall be permitted to cover up to 50% of the total wall area in classrooms that are fully sprinklered in accordance with Chapter 13.

ADD:

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20.2.4.4.4 Exit Access, Passageways, Assembly Areas, and Corridors. Paper materials shall be permitted on walls only in accordance with the following:

- (1) Paper materials displayed shall not exceed 10% of the surface of any wall;
- (2) Such paper material shall be positioned in such manner to avoid concentration of materials to reduce flame spread in the event of a fire;
- (3) In no event shall any one grouping exceed a maximum horizontal measurement of 12 feet and a maximum vertical measurement of six feet. Groups of paper material shall be allowed as long as there is space between each group equal to the horizontal width of the largest adjacent group;
- (4) Paper material used for display shall be attached directly to the walls and shall not be permitted to cover an egress door or be placed within five feet of a egress door unless approved by AHJ or unless: Paper materials are displayed in fully enclosed viewing cabinets with glass or polycarbonate viewing panels or covered with glass or polycarbonate sheet material in accordance with the Building Code. Flame retardant paper material is used for display
- (5) Paper material displays may cover up to 50% of the total wall area in classrooms that are fully sprinklered in accordance with Chapter 13.

20.2.4.4.5 Exits and Enclosed Exit Stairs. Displayed paper materials shall not be permitted in exit and enclosed exit stairs

20.2.4.4.6 This Section shall not prohibit the posting of exit signage or evacuation plans in accordance with this Code.

20.4.4.4.7 The provisions of 20.4.4.3 or 20.4.4.4 shall not be applicable to any election materials required by law to be posted during any local, state or federal election.

DELETE and REPLACE:

20.2.4.5 Unvented Fuel-Fired Heating Equipment. Unvented fuel-fired heating equipment, other than gas space heaters in compliance with NFPA 54: *National Fuel Gas Code* shall be prohibited. ~~[101:14.5.2.2; 101:15.5.2.2]~~ shall not be used in accordance with the following:

- (1) Prohibited Installations. Unvented room heaters shall not be installed in bathrooms or bedrooms
- (2) Listing and Installation. Unvented room heaters shall be listed in accordance with ANSI Z21.11.2, Gas-Fired Room Heaters – Volume II, Unvented Room Heaters, and shall be installed in accordance with the manufacturer's installation instructions.

ADD:

20.2.4.5.1 Permit. Permits, where required, shall comply with *Section 1.12*.

DELETE and REPLACE:

20.3.1 Application. New and existing day-care occupancies shall comply with Section 20.3 and NFPA 101.

DELETE:

20.3.1.1 through 20.3.1.4

DELETE:

20.3.1.5.1 through 20.3.1.5.3

DELETE and REPLACE:

20.3.2.1 Unvented Fuel-Fired Heaters. Unvented fuel-fired heating equipment, other than gas space heaters in compliance with NFPA 54: *National Fuel Gas Code* shall be prohibited. ~~[101:16.5.2.2; 101:17.5.2.2]~~ shall not be used in accordance with the following:

- (1) Prohibited Installations. Unvented room heaters shall not be installed in bathrooms or bedrooms.

(2) Listing and Installation. Unvented room heaters shall be listed in accordance with ANSI Z21.11.2, Gas-Fired Room Heaters – Volume II, Unvented Room Heaters, and shall be installed in accordance with the manufacturer's installation instructions.

ADD:

20.3.2.1.1 Permit. Permits, where required, shall comply with *Section 1.12*.

DELETE:

20.3.2.4 through 20.3.2.4.6

DELETE and REPLACE:

20.3.3.1 General. Interior finish shall be in accordance with *the Building Code, Section 12.5*.

~~[101:16.3.3.1; 101:17.3.3.1]~~

DELETE:

20.3.3.2 through 20.3.4.2.3.6

DELETE and REPLACE:

20.4.1 Application. New and existing health care occupancies shall comply with Section 20.4, ~~NFPA 101, and NFPA 99~~.

DELETE and REPLACE:

20.4.2.5.7.1* Soiled linen or trash collection receptacles with capacities greater than 64 gal (242 L) shall be located in a hazardous area when not attended. ~~[101:18.7.5.7.1; 101:19.7.5.7.1]~~ shall not exceed 32 gal (121 L) in capacity and shall meet the following requirements:

- (1) The average density of container capacity in a room or space shall not exceed 0.5 gal/ft² (20.4 L/m²).
- (2) A capacity of 32 gal (121 L) shall not be exceeded within any 64 ft² (6 m²) area.
- (3) Mobile soiled linen or trash collection receptacles with capacities greater than 32 gal (121 L) shall be located in a room protected as a hazardous area when not attended.
- (4) Container size and density shall not be limited in hazardous areas.

DELETE and REPLACE:

20.4.2.5.7.2* Containers greater than 64 gal (242 L) used solely for recycling clean waste or for patient records awaiting destruction shall be permitted to be excluded from the limitations of **20.4.2.5.7.1** where all the following conditions are met:

- (1) Each container is limited to a capacity of 96 gal (363 L) except as permitted by 20.4.2.5.8 (2), (3) or (4).
- (2) Containers for combustibles shall be labeled and listed as meeting the requirements of FM Approval 6921, *Approval Standard for Containers for Combustible Waste*; however, such testing, listing, and labeling shall not be limited to FM Approvals.
- (3) Containers with capacities greater than 96 gal (363 L) shall be located in a room protected as a hazardous area when not attended.
- (4) Container size shall not be limited in hazardous areas.

DELETE and REPLACE:

20.4.2.6* Portable Space-Heating Devices. Portable space-heating devices shall be prohibited in all health care occupancies, unless both of the following criteria are met:

- (1) Such devices are permitted to be used only in nonsleeping staff and employee areas.
- (2) Such devices are listed and labeled for use as a freestanding, movable heater in accordance with UL 1278, Movable and Wall- or Ceiling-Hung Electric Room Heaters.

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(3) The heating elements of such devices do not exceed 212°F (100°C)

DELETE and REPLACE:

20.4.3.1 General. Interior finish shall be in accordance with the Building Code, Section 12.5, [101:18.3.3.1; 101:19.3.3.1]

DELETE:

20.4.3.2 through 20.4.3.5.3

DELETE and REPLACE:

20.5.1 Application. New and existing residential board and care occupancies shall comply with Section 20.5 ~~and NFPA 101.~~

DELETE and REPLACE:

20.5.2.3.6 Residents who cannot meaningfully assist in their own evacuation or who have special health problems shall not be required to actively participate in the drill Subsection 20.4.2 shall apply in such instances.

DELETE and REPLACE:

20.5.2.5.1 New draperies, curtains, and other similar loosely hanging furnishings and decorations in board and care facilities shall comply with **20.5.2.5.1.1** and **20.5.2.5.1.2.** ~~[101:32.7.5.1; 101:33.7.5.1]~~

DELETE

20.5.3 through 20.5.3.3.2

DELETE and REPLACE:

20.6.1 Application. New and existing ambulatory health care centers shall comply with Section 20.6 ~~and NFPA 101.~~

DELETE and REPLACE:

20.6.2.5.5.1 Soiled linen or trash collection receptacles shall not exceed 32 gal (121 L) in capacity, and the following also shall apply: with capacities greater than 64 gal (242 L) shall be located in hazardous area when not attended.

(1) The average density of container capacity in a room or space shall not exceed 0.5 gal/ft² (20.4 L/m²).

(2) A capacity of 32 gal (121 L) shall not be exceeded within any 64 ft² (6 m²) area.

(3) Mobile soiled linen or trash collection receptacles with capacities greater than 32 gal (121 L) shall be located in a room protected as a hazardous area when not attended.

(4) Container size and density shall not be limited in hazardous areas.

~~[101:20.7.5.5.1; 101:21.7.5.5.1]~~

DELETE and REPLACE:

20.6.2.5.5.2* Containers greater than 64 gal (242 L) used solely for recycling clean waste or for patient records awaiting destruction shall be permitted to be excluded from the requirements of 20.6.2.5.5.1 where all the following conditions are met:

(1) Each container shall be limited to a maximum capacity of 96 gal (363 L), except as permitted by 20.6.2.5.5.2 (3) or (4)

(2) Containers for combustibles shall be labeled and listed as meeting the requirements of FM Approval 6921, Approval Standard for Containers for Combustible Waste; however, such testing, listing, and labeling shall not be limited to FM Approvals.

(3) Containers with capacities greater than 96 gal (363 L) shall be located in a room protected as a hazardous area when not attended.

(4) Container size shall not be limited in hazardous areas

[101:20.7.5.5.2; 101:21.7.5.5.2]

DELETE and REPLACE:

20.6.2.6 Portable Space-Heating Devices. Portable space-heating devices shall be prohibited in all ambulatory health care occupancies, unless both of the following criteria are met:

(1) Such devices are used only in nonsleeping staff and employee areas.

(2) Such devices are listed and labeled for use as a freestanding, movable heater in accordance with UL 1278, Movable and Wall- or Ceiling-Hung Electric Room Heaters.

(3) The heating elements of such devices do not exceed 212°F (100°C)

[101:20.7.8; 101:21.7.8]

DELETE:

20.6.3 through 20.6.3.4

DELETE and REPLACE:

20.7.1 Application. New and existing detention and correctional occupancies shall comply with Section 20.7 ~~and NFPA 101.~~

DELETE and REPLACE:

20.7.2.1.1 Detention and correctional facilities, or those portions of facilities having such occupancy, shall be provided with 24-hour staffing, ~~and the following requirements also shall apply:~~

~~(1) Staff shall be within three floors or a 300 ft (91 m) horizontal distance of the access door of each resident housing area.~~

~~(2) For Use Condition III, Use Condition IV, and Use Condition V, the arrangement shall be such that the staff involved starts the release of locks necessary for emergency evacuation or rescue and initiates other necessary emergency actions within 2 minutes of alarm.~~

~~(3) The following shall apply to areas in which all locks are unlocked remotely in compliance with 22.2.11.1.8 or 23.2.11.1.8 of NFPA 101.~~

~~(a) Staff shall not be required to be within three floors or 300 ft (91 m) of the access door.~~

~~(b) The 10 lock, manual key exemption of 22.2.11.1.8.2 or 23.2.11.1.8.2 of NFPA 101 shall not be permitted to be used in conjunction with the alternative requirement of 20.7.2.1.1(3)(a).~~

~~[101:22.7.1.1; 101:23.7.1.1]~~

ADD:

20.7.2.1.1.1 For Use Condition III, Use Condition IV and Use Condition V. The arrangement shall be such that the staff involved starts the release of locks necessary for emergency evacuation or rescue and initiates other necessary emergency actions within 2 minutes of alarm.

DELETE:

20.7.2.1.2 through 20.7.2.2

DELETE:

20.7.2.4.7 through 20.7.2.5

DELETE and REPLACE:

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20.7.3.1 General. Interior finish shall be in accordance with **the Building Code**. ~~Section 12.5. {101:22.3.3.1; 101:23.3.3.1}~~

DELETE:

20.7.3.2 through 20.7.3.6.2.3

DELETE and REPLACE:

20.8.1 Application. New and existing hotels and dormitories shall comply with Section 20.8 ~~and NFPA 101.~~

DELETE and REPLACE:

20.8.2.6 Unvented Fuel-Fired Heaters. Unvented fuel-fired heaters, other than gas space heaters in compliance with NFPA 54/**ANSI Z223.1, National Fuel Gas Code**, shall not be used in accordance with the following:

~~{101:28.5.2.2; 101:29.5.2.2}~~

(1) Prohibited Installations. Unvented room heaters shall not be installed in bathrooms or bedrooms.

(2) Listing and Installation. Unvented room heaters shall be listed in accordance with ANSI Z21.11.2, Gas-Fired Room Heaters-Volume II, Unvented Room Heaters, and shall be installed in accordance with the manufacturer's installation instructions.

ADD:

20.8.2.6.1 Permit. Permits, where required, shall comply with Section 1.12.

DELETE:

20.8.3 through 20.8.3.5

DELETE and REPLACE:

20.9.2.1 Emergency Instructions for Residents of Apartment Buildings **Residential Housing for the Elderly.**

Emergency instructions shall be provided annually **by the housing complex administrator** to each dwelling unit **when containing 6 or more** to indicate the location of alarms, egress paths, and actions to be taken, both in response to a fire in the dwelling unit and in response to the sounding of the alarm system. ~~{101:30.7.1; 101:31.7.1}~~

ADD:

20.9.2.1.1 The AHJ shall visit four times a year to:

(1) to conduct a fire drill; or

(2) Ascertain the evacuation process and procedure.

DELETE and REPLACE:

20.9.3.1 General. Interior finish shall be in accordance with **the Building Code** ~~Section 12.5. {101:30.3.3.1; 101:31.3.3.1}~~

DELETE:

20.9.3.2 through 20.9.3.5

DELETE and REPLACE:

20.10.1 Application. New and existing lodging or rooming houses shall comply with Section 20.10 ~~and NFPA 101.~~

DELETE and REPLACE:

Red is existing MA amendment language
Red underline is new or modified MA amendment language

Black is existing base language
~~Stricken Language~~

20.10.2 Unvented Fuel-Fired Heaters. Unvented fuel-fired heaters, other than gas space heaters in compliance with NFPA 54 / ANSI Z223.1, National Fuel Gas Code, shall not be used. ~~[101:26.5.2.2]~~, shall not be used in accordance with the following:

(1) Prohibited Installations. Unvented room heaters shall not be installed in bathrooms or bedrooms.

(2) Listing and Installation. Unvented room heaters shall be listed in accordance with ANSI Z21.11.2, Gas-Fired Room Heaters-Volume II, Unvented Room Heaters, and shall be installed in accordance with the manufacturer's installation instructions.

ADD:

20.10.2.1 Permit. Permits, where required, shall comply with Section 1.12.

DELETE and REPLACE:

20.10.3.1 General. Interior finish shall be in accordance with ~~the Building Code Section 12.5. [101:26.3.3.1]~~

DELETE:

20.10.3.2 through 20.10.3.3.2

DELETE and REPLACE:

20.11.1 Application. New and existing one- and two-family dwellings shall comply with Section 20.11 and NFPA 401.

DELETE AND REPLACE:

20.11.2 Unvented Fuel-Fired Heaters.

Unvented fuel-fired heaters, other than gas space heaters in compliance with NFPA 54 / ANSI Z223.1, National Fuel Gas Code, shall not be used. [101:14.5.2.2; 101: 15.5.2.2], shall not be used in accordance with the following:

(1) Prohibited Installations. Unvented room heaters shall not be installed in bathrooms or bedrooms.

(2) Listing and Installation. Unvented room heaters shall be listed in accordance with ANSI Z21.11.2, Gas-Fired Room Heaters-Volume II, Unvented Room Heaters, and shall be installed in accordance with the manufacturer's installation instructions.

20.10.2.1 Permit. Permits, where required, shall comply with Section 1.12.

DELETE:

20.11.3 through 20.11.4.2

DELETE:

20.11.4.5 through 20.11.5

DELETE and REPLACE

20.12.1 Application. New and existing mercantile occupancies shall comply with Section 20.12 and NFPA 401.

DELETE:

20.12.2.3

DELETE and REPLACE:

20.12.3.1 General. Interior finish shall be in accordance with ~~the Building Code Section 12.5. [101:36.3.3.1; 101:37.3.3.1]~~

Red is existing MA amendment language

Red underline is new or modified MA amendment language

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~~Stricken Language~~

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DELETE:

20.12.3.2 through 20.12.3.3.4

DELETE and REPLACE:

20.13.1 Application. New and existing business occupancies shall comply with Section 20.13 ~~and NFPA 101.~~

DELETE:

20.13.2.3

DELETE and REPLACE:

20.13.3.1 General. Interior finish shall be in accordance with ~~the Building Code Section 12.5. [101:38.3.3.1; 101:39.3.3.1]~~

DELETE:

20.13.3.2 through 20.14.4.3.2

DELETE and REPLACE

20.15.1 Application. New and existing storage occupancies shall comply with ~~NFPA 101, Chapter 34,~~ the appropriate codes or standards referenced in Chapter 2, and Section 20.15.

DELETE:

20.15.4 through 20.15.4.3.2

ADD:

20.15.4 Storage, Arrangement, Protection and Quantities of Hazardous Commodities. The storage, arrangement, protection, and quantities of hazardous commodities shall be in accordance with the applicable provisions of the following:

- (1) NFPA 13, Standard for the Installation of Sprinkler Systems
- (2) NFPA 30, Flammable and Combustible Liquids Code
- (3) NFPA 30B, Code for the Manufacture and Storage of Aerosol Products
- (4) NFPA 400, Hazardous Materials Code, Chapter 14, for organic peroxide formulations
- (5) NFPA 400, Hazardous Materials Code, Chapter 15, for oxidizer solids and liquids
- (6) NFPA 400, Hazardous Materials Code, various chapters, depending on characteristics of a particular pesticide [101:36.4.5.3]
- (7) NFPA 1124. Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles, as modified by the Building Code

DELETE:

20.15.6 through 20.15.6.2

DELETE:

20.16 through 20.17.3

ADD:

20.18 Special Provisions for Certain Places of Worship Which have been Issued a Valid Certificate of Occupancy for Use as a Temporary Overnight Shelter Pursuant to the *Building Code*.

Red is existing MA amendment language
Red underline is new or modified MA amendment language

Black is existing base language
~~Stricken Language~~

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20.18.1 A place of worship which has been issued a valid certificate of occupancy for use as a temporary overnight shelter in accordance with the provisions of the *Building Code* shall not be deemed in violation of the provision of this *Code* as a result of such temporary use, as long as the facility meets the following conditions:

- (1) The temporary overnight shelter is in possession of a valid certificate of occupancy for such temporary use which has been reviewed and approved by the Head of the Fire Department in accordance with the *Building Code*.
- (2) The approved temporary overnight shelter is used, occupied, and operated in accordance with the terms and conditions specified in said certificate of occupancy and said certificate of occupancy is posted in a conspicuous location.
- (3) In addition to the terms and conditions specified in the certificate of occupancy, the following fire safety requirements shall be applicable:
 - (a) The building which houses the approved temporary overnight shelter shall have no known existing or outstanding violations of this *Code*, or M.G.L. c. 148;
 - (b) A copy of the fire safety and evacuation plan, approved in accordance with the provisions of the *Building Code* shall be kept on the premises and posted near the main entrance;
 - (c) The responsible person(s) identified in the application for the Temporary Certificate of Occupancy shall maintain the condition of the shelter in accordance with the layout contained in the approved fire safety and evacuation plan.
 - (d) The employees, volunteers, or attendants of the temporary overnight shelter shall be trained and drilled in the duties that they are to perform in case of fire, panic, or other emergency in accordance with the provisions of 20.2.4.2.1.1.
 - (e) No person shall be permitted to smoke within the temporary overnight shelter.
 - (f) Smoking may be allowed outside in an area approved by the Head of the Fire Department.
 - (g) A document shall be posted, in a location approved by the Head of the Fire Department, containing an accurate number of sheltered occupants on a nightly basis.
 - (h) Such document shall also contain the names of all workers and volunteers who are overseeing or assisting in the temporary overnight shelter usage on a nightly basis. In the event of an evacuation, a copy of the document shall be in the possession of the person in charge at a designated meeting point.
 - (i) The temporary overnight shelter shall maintain a working landline phone that must be accessible to initiate a call for assistance in the event of an emergency. A cell phone is not acceptable for compliance with this requirement.
 - (j) The use of battery operated smoke alarms and carbon monoxide detectors, as outlined in Chapter 13. All temporary overnight shelters shall be equipped with monitored and interconnected smoke and carbon monoxide detection system as described in the *Building Code*.

Red is existing MA amendment language
Red underline is new or modified MA amendment language

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~~Stricken Language~~

(k) Carbon monoxide alarms shall be installed in accordance with Chapter 13. For purpose of compliance with Chapter 13, the dwelling unit of an approved temporary shelter shall be considered that portion of the building used for sleeping purposes.

(l) An approved temporary overnight shelter shall feature working and approved smoke detectors in accordance with the requirements of the *Building Code*, if applicable. If smoke detectors are not currently required under the *Building Code*, the shelter shall, at a minimum, feature approved working smoke detectors in accordance with the provisions of Chapter 13:

(1) *Approved Smoke Detectors*. Such smoke detectors shall be installed in any room or area used for sleeping purposes and in any room or area directly adjacent to said sleeping area.

(m) The Head of the Fire Department shall be notified, in writing, at least 48 hours prior to the actual activation of an approved temporary overnight shelter and shall be notified, in writing, upon the termination of such activation.

Chapter 21 – Airports and Heliports

Delete in its entirety.

Chapter 22 – Automobile Wrecking Yards

DELETE AND REPLACE:

22.8 Burning Operations. Burning operations shall ~~not be allowed in accordance with Section 10.10.~~

DELETE:

Sections 22.9.3-22.9.5.2

Comment: Both deletions are carried forward from previous version of 527 CMR 1.00.

Cost Impact: None.

Chapter 23 – Cleanrooms

ADD:

23.2.1 Maximum Quantities of Hazardous Chemicals. The maximum quantities of hazardous chemicals for a single fabrication area or at a workstation are limited by the *Building Code*. A permit shall not be issued until such time that the Building Official has confirmed the facility is classified and constructed as the appropriate H-use group or is exempt.

Comment: Amendment is needed for coordination with the building code.

Cost Impact: None.

Chapter 24 – Drycleaning

No amendments

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~~Stricken Language~~

Chapter 25 - Grandstands and Bleachers, Folding and Telescopic Seating, Tents, and Membrane Structures
Delete in its entirety.

Chapter 26 — Laboratories Using Chemicals

ADD:

26.1.1.1 Amendments to NFPA 45 include:

- 1. The term “laboratory unit” shall also mean “laboratory suite” in coordination with 780 CMR.**
- 2. Delete Section 10.1.6.9**

Comment: These amendments to 2019 NFPA 45 align with the working group discussion pertaining to 780 CMR 428 and terminology used throughout that section. Additionally, the limitation of compressed and liquified gas is set to 10% of the allowed amounts since all educational laboratories are considered instructional laboratories. A separate limit is not necessary and leads to confusion in the standard.

Cost: None.

ADD:

26.1.5

- (2) The special fire protection required when handling radioactive materials *(See NFPA 801)*

Comment: This information is added for clarification.

Cost: None.

ADD:

26.1.6.1.1 Documentation In addition to all other documents required by 780 CMR and 527 CMR, the building management company, or a designated representative, must submit the following documents with the permit documents. These shall be reviewed with the Building and Fire Official and updated accordingly to receive a Certificate of Occupancy.

- 1. Emergency Action Plan**
- 2. Hazardous Materials Management Plan**
- 3. Hazardous Materials Inventory Statement**

It is it responsibility of the building management company, or designated representative, to keep these documents current.

26.1.6.1.1.1 Documentation shall be maintained in accordance with 527 CMR 1.00 and reviewed annually, or at the discretion of the Fire Official.

Comment: This documentation is elsewhere the fire code. However, the HMMP and HMIS is only required to be done when requested by the AHJ. As such, it is not getting the attention it deserves. These documents are frequently not being done. Forcing this onto the building management company can help defer the review to people who manage these buildings. This is generally a paper-work scope and does not have a big financial impact (compared to rated construction or increasing sprinkler densities). However, proper tracking, documentation, and management can have gigantic impacts on outcomes.

Cost Impact: None.

26.1.6.1.2 Information required. A report shall be submitted to the AHJ identifying the maximum expected quantities of hazardous materials to be stored, used in a closed system and used in an open system, and subdivided to separately address hazardous material classification categories. The methods of protection from such hazards, including but not limited to control areas, laboratory suites, fire protection systems and Group H occupancies shall be indicated in the report and on the construction documents. The opinion and report shall be prepared by a qualified person, firm or corporation approved by the AHJ and provided without charge to the enforcing agency. For buildings and structures with control areas, laboratory suites, or Group H occupancies, separate floor plans shall be submitted identifying the locations of anticipated contents and processes so as to reflect the nature of each occupied portion of every building and structure.

Comment: This information is required in the 2021 IBC Section 414.3 (modified here) which includes critical information for AHJ review of buildings and maintenance of fire protection systems based on the original building design. This is more of a paper-work requirement than a design requirement and should be conducted as a matter of safe hazardous materials usage.

Cost Impact: Minimal. This is part of the design of the laboratory space and building design, not an additional requirement.

ADD:

26.3 Penetrations. Penetrations through fire-rated floor/ceiling, floor, and wall assemblies shall be protected in accordance with the Building Code.

Comment: This amendment is for informational purposes for coordination with 780 CMR and is carried from the previous edition of 527 CMR 1.00.

Cost Impact: None.

Chapter 27 – Manufactured Home and Recreational Vehicle Sites

Delete in its entirety.

Chapter 28 – Marinas, Boatyards, Maine Terminals, Piers, and Wharves

DELETE and REPLACE:

28.1.1.1 Section 28.1 also applies to support facilities and structures used for construction, repair, storage, hauling and launching, or fueling of vessels, and independent storage and or service areas if fire on a pier would pose an immediate threat to these facilities, or if a fire at a referenced facility would pose an immediate threat to a docking facility. ~~[303:1.1.1]~~

DELETE and REPLACE:

28.1.1.3 Section 28.1 is not intended to ~~shall not~~ apply to a private, noncommercial docking facility constructed or occupied for the use of the owners or residents of the associated single-family dwelling. ~~[303:1.1.3]~~

DELETE and REPLACE:

28.1.2.1.2 Visibility and Identification. All portable fire extinguishers shall be clearly visible and ~~marked~~ installed in compliance with NFPA 10. ~~[303:6.1.2]~~

DELETE:

28.1.2.2.1.2

DELETE and REPLACE:

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28.1.2.2.1.3 Existing facilities shall not be required to be protected by an automatic fire-extinguishing system, unless required by the building code or other code or standard, ~~where acceptable to the AHJ. [303:6.2.1.3]~~

DELETE and REPLACE:

28.1.2.2.2.2 Existing facilities shall not be required to be protected by an automatic fire-extinguishing system ~~where acceptable to the AHJ~~ unless required by the building code or other applicable code or standard. ~~[303:6.2.2.2]~~

DELETE and REPLACE:

28.1.2.2.3.1 Combustible piers and substructures in excess of 25 ft (7.62 m) in width or in excess of 5000 ft² (465 m²) in area, or within 30 ft (9.14 m) of other structures ~~or superstructures~~ required to be so protected, shall be protected in accordance with Section 4.3 of NFPA 307 unless otherwise permitted by 28.1.2.2.3.2, 28.1.2.2.3.3, or 28.1.2.2.3.4. ~~[303:6.2.3.1]~~

DELETE and REPLACE:

28.1.2.2.3.4 Existing facilities shall not be required to be protected by an automatic fire-extinguishing system ~~where acceptable to the AHJ~~ unless required by the building code or other applicable code or standard. ~~[303:6.2.3.4]~~

DELETE and REPLACE:

28.1.2.2.4.3 Existing facilities shall not be required to be protected by an automatic fire-extinguishing system ~~where acceptable to the AHJ~~ unless required by the building code or other applicable code or standard. ~~[303:6.2.4.3]~~

DELETE and REPLACE:

28.1.2.4.1 Fire protection shall be provided as described in ~~either 28.1.2.4.1.1 or 28.1.2.4.1.2~~. ~~[303:6.4.1]~~

DELETE:

28.1.2.4.1.1

DELETE:

28.1.2.4.2

DELETE and REPLACE:

28.1.3.1.3 Electrical lighting shall be provided and meet the requirements of NFPA 70 to ensure adequate illumination of all exterior areas, piers, and floats. ~~[303:7.1.3]~~

DELETE:

28.1.3.2.1.2

DELETE and REPLACE:

28.1.3.2.1.3 The use of blow torches or other hot works devices shall comply with Chapter 41, flammable paint remover shall be prohibited ~~unless permitted by 8.7.1 of NFPA 303~~. ~~[303:7.2.1.3]~~

DELETE and REPLACE:

28.1.3.2.1.4 The use of ~~gasoline or other~~ flammable solvents for cleaning purposes, paint removal, or other similar activities shall only be allowed in well-ventilated areas in accordance with the manufacturer's instructions ~~shall be prohibited~~. ~~[303:7.2.1.4]~~

DELETE and REPLACE:

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28.1.3.2.1.6 No unattended electrical equipment shall be in use aboard boats unless being used in accordance with manufacturer's operational guidelines. ~~[303:7.2.1.6]~~

ADD:

28.1.3.2.1.8.1

Exceptions: (1) Yards with a preapproved plan accepted by the AHJ.

DELETE and REPLACE:

28.1.3.2.1.8.2 Access to buildings in which boats are stored shall comply with Chapter 18 of this code ~~be such that the hose lay distance from the fire apparatus to all exterior portions of the building shall not exceed 150 ft (45 m).~~ ~~[303:7.2.1.8.2]~~

DELETE and REPLACE:

28.1.3.2.1.8.3 ~~Wet~~ Class I standpipe systems shall be permitted to be used to meet the requirement in 28.1.3.2.1.8.1 or 28.1.3.2.1.8.2. ~~[303:7.2.1.8.3]~~

DELETE and REPLACE:

28.1.3.2.2 Indoors Storage and Repair.

DELETE:

28.1.3.2.3.4 and 28.1.3.2.3.5

DELETE and REPLACE:

28.1.3.2.4 Battery On Board for Long Term Storage.

Where due to size and weight the removal of batteries for storage or charging is impractical, batteries shall be permitted to remain onboard provided the following conditions are met:

- (1) The battery compartment is arranged to provide adequate ventilation.
- (2) A listed battery charger is used to provide a suitable charge.
- (3) The power connection to the charger consists of a three-wire cord of not less than No. 14 AWG conductors connected to a source of 110 V to 125 V single-phase current, with a control switch and approved circuit protection device designed to trip at not more than 125 percent of the rated amperage of the charger.
- (4) There is no connection on the load side of the charger to any other device except the battery, and the boat battery switch is turned off.
- (5) The battery is properly connected to the charger, and the grounding conductor effectively grounds the charger enclosure.
- (6) ~~Unattended battery chargers are checked at intervals not exceeding 8 hours while in operation.~~ ~~[303:7.2.4]~~ Boats are stored at ground level

DELETE and REPLACE:

28.1.4.1.1 ~~The m~~ Management shall have an inspection made of each boat received for major repair or storage as soon as practicable after arrival of the boat and before commencement of any work aboard. ~~[303:8.1.1]~~

DELETE and REPLACE:

28.1.4.1.3 ~~The m~~ Management shall, as a condition to accepting a boat received for major repair or storage, require the owner to correct any inadequacies found in 28.1.4.1.2 or to authorize management to do so. ~~[303:8.1.3]~~

DELETE and REPLACE:

28.1.4.2.7 The information on fueling procedures shall be in accordance with 42.9.10.8 ~~referred to in 28.1.4.2.6(6) shall include at least the following information:~~

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~~Stricken Language~~

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(1) Procedures before fueling

- (a) Stop all engines and auxiliaries
- (b) Shut off all electricity, open flames, and heat sources
- (c) Check bilges for fuel vapors
- (d) Extinguish all smoking materials
- (e) Close access fittings and openings that could allow fuel vapors to enter the boat's enclosed spaces
- (f) Remove all personnel from the boat except the person handling the fueling hose

(2) Procedures during fueling

- (a) Maintain nozzle contact with fill pipe
- (b) Attend fuel filling nozzle at all times
- (c) Wipe up spills immediately
- (d) Avoid overfilling

(3) Procedures after fueling and before starting engine

- (a) Inspect bilges for leakage or fuel odors
- (b) Ventilate until odors are removed [303:8.2.7]

DELETE and REPLACE:

28.2.1 Section 28.2 shall apply to marine terminals as defined herein. Special use piers and wharf structures that are not marine terminals, such as public assembly, residential, business, or recreational occupancies that differ in design and construction from cargo handling piers, require special consideration. The general principles of NFPA 307 shall be applicable for the construction and fire protection of piers and wharves and shall be applicable to such structures and shall comply with NFPA 307 and Section 28.2 unless otherwise regulated by the building code or other applicable code or standard.

DELETE and REPLACE:

28.2.1.1 Fueling operations at marine Marine terminals, piers, and wharves shall comply with 28.1.4.2.7.

Chapter 29 – Parking Garages

DELETE and REPLACE:

29.1.1 The protection of new and existing parking garages, as well as the control of hazards in open parking structures, enclosed parking structures, and basement and underground parking structures shall comply with this chapter and the Building Code Section 42.8 of NFPA 101.

ADD:

29.1.1.1 Parking garages that have elevator equipment used as motor vehicle parking devices shall also comply with the Elevator Code.

29.1.1.2 Barriers, textile, scrim or other covering added to an exterior wall of an open parking garage shall comply with the Building Code.

DELETE:

29.1.2

Chapter 30 – Motor Fuel Dispensing Facilities and Repair Garages

ADD:

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Red underline is new or modified MA amendment language

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~~Stricken Language~~

30.1.1.4 Underground Storage Tanks. Associated Piping and Other Environmental Requirements see 310 CMR: Department of Environmental Protection.

DELETE AND REPLACE:

30.1.5.1* For an unattended, self-serve, motor fuel dispensing facility, additional fire protection shall be provided where required by the **State Fire Marshal**. ~~AHJ. [30A:7.3.5.1]~~

ADD:

30.1.5.3 The fire protection system shall be installed in accordance with the requirements of the State Fire Marshal.

DELETE AND REPLACE:

30.2.5 Fixed Fire Protection. ~~If in the opinion of the AHJ, it is deemed necessary,~~ automatic sprinkler protection shall be installed in accordance with ~~the requirements of Section 13.3 NFPA, when any vehicle containing or using gasoline or any other petroleum product or fuel or power is kept in a garage and are loaded with merchandise, which is of such a flammable nature as to be readily ignitable.~~ shall be provided throughout all buildings containing major repair garages, as herein defined, ~~when any one of the following conditions exist:~~

(1) ~~The building housing the major repair garage is two or more stories, including basements, and the aggregate area of the major repair garage exceeds 10,000 ft² (930 m²).~~

(2) ~~The major repair garage is one story and exceeds 12,000 ft² (1115 m²).~~

(3) ~~The major repair garage is servicing vehicles parked in the basement of the building. [30A:7.4.5]~~

ADD:

30.2.6 Gas Detection System. Repair garages used for repair of vehicle engine fuel systems fueled by nonodorized gases, such as hydrogen and non-odorized LNG/CNG, shall be provided with an approved flammable gas detection system. Gas detection systems in repair garages for hydrogen vehicles shall be in accordance with NFPA 2. [30A:7.4.6]

ADD:

30.2.6.1.2 The gas detection system shall be designed to activate when the level of flammable gas exceeds 25 percent of the lower flammable limit (LFL). Gas detection shall also be provided in lubrication or chassis repair pits of garages used for repairing non-odorized LNG/CNG fueled vehicles [30A:7.4.6.1.2]

ADD:

30.2.8.2.2 Heat-producing appliances shall be of an approved type. Solid fuel stoves, improvised furnaces, salamanders, and space heaters shall not be permitted in areas of repair garages used for repairing or servicing of vehicles or in a fuel dispensing area. [30A:7.6.2.2]

ADD:

Exception 1: Unit heaters, when installed in accordance with Chapter 7 of NFPA 30A, need not meet this requirement.

ADD:

30.2.9 Pits, Below Grade Work Areas, and Subfloor Work Areas.

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30.2.9.1 Pits, below grade work areas, and subfloor work areas used for lubrication, inspection, and minor automotive maintenance work shall comply with the provisions of this chapter, in addition to other applicable requirements of NFPA 30A. [30A: 7.4.4.1]

30.2.9.2 Walls, floors, and structural supports shall be constructed of masonry, concrete, steel, or other approved noncombustible materials. [30A: 7.4.4.2]

30.2.9.3 In pits, belowgrade work areas, and subfloor work areas, the required number, location, and construction of means of egress shall meet the requirements for special purpose industrial occupancies in Chapter 40 of NFPA 101. [30A: 7.4.4.3]

30.2.9.4 Pits, below grade work areas, and subfloor work areas shall be provided with exhaust ventilation at a rate of not less than 1 ft³/min/ft² (0.3 m³/min/m²) of floor area at all times that the building is occupied or when vehicles are parked in or over these areas. Exhaust air shall be taken from a point within 12 in. (0.3 m) of the floor. [30A: 7.4.4.4]

*Comment: This language was base language in 2015 NFPA 1 but was deleted in 2021. Adding the MA amendment retains the information in the current edition of 527 CMR 1.00.
Cost Impact: None.*

ADD:

30.2.8.6* Where major repairs are conducted on CNG-fueled vehicles or LNG lighter-than-air-fueled vehicles, open flame heaters or heating equipment with exposed surfaces having a temperature in excess of 750°F (399°C) shall not be permitted in areas subject to ignitable concentrations of gas. [30A:7.6.6]

Chapter 31 – Forest Products and Biomass Feedstocks

DELETE and REPLACE:

31.1 General. The ~~outside~~ storage, manufacturing, and processing of timber, lumber, plywood, veneers, biomass feedstock, and by-products shall be in accordance with this chapter and NFPA 664. of forest product materials within the purpose and scope of this Chapter shall be in accordance with the provisions of this Chapter.

DELETE and REPLACE:

31.3.2.1.4 ~~Storage areas shall be enclosed with a fence equipped with effective gates located as necessary to allow the entry of fire department apparatus. Where the storage of materials regulated by this Chapter are permitted to accumulate in a quantity or location that may constitute an undue public safety hazard, adequate fencing of not less than six (6) ft. (1.8388 m) in height with an approved locked gate located as necessary to allow the entry of fire department apparatus, shall be provided. The fencing shall encompass the material or property.~~

DELETE and REPLACE:

31.3.3.4 Where stacks are supported clear of the ground, 6 in. (150 mm) of clearance shall be provided for cleaning operations under the stacks ~~or, as otherwise approved by the AHJ.~~

DELETE and REPLACE:

31.3.3.4.1.1 Open yard stacking shall be located with not less than 15 ft (4.6 m) clear space to buildings ~~or, as otherwise approved by the AHJ.~~

Red is existing MA amendment language
Red underline is new or modified MA amendment language

Black is existing base language
~~Stricken Language~~

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DELETE and REPLACE:

31.3.3.4.1.2 Boundary posts with signs designating stacking limits shall be provided to designate the clear space to unsprinklered buildings in which hazardous manufacturing or other operations take place ~~or, as otherwise approved by the AHJ.~~

DELETE and REPLACE:

31.3.6.4.3* ~~Property line~~ ~~Pile to pile~~ clearance of not less than ~~25 ft (7.62 m)~~ ~~30 ft (9 m)~~ at the base of the pile shall be provided.

Chapter 32 – Motion Picture and Television Production Studio Soundstages and Approved Production Facilities

ADD:

32.1.1 Terms. As used in Chapter 32 the enclosed terms shall have the following meaning assigned to them.
On-Site Personnel. Cast, crew, vendors, contractors, and any other personnel servicing the production.

DELETE and REPLACE:

32.2.2

- (3) Welding, ~~cutting, and other hot work~~
- (4) ~~Use of flammable or combustible liquids or gases~~ Storage and use of flammable or combustible liquids or gases
- (8) ~~Change of use or change of occupancy classification~~ Use of fog and haze
- (9) Use of the site as a production location ~~where more than 30 on-site personnel are present.~~

ADD:

32.2.2

(10) Use of liquified petroleum gases

DELETE and REPLACE:

32.3.1 Where required by the AHJ, a fire watch, or standby fire personnel shall be provided for soundstages and approved production facilities where pyrotechnic special effects are used.

DELETE and REPLACE:

32.6.2 ~~When an audience is present, NFPA 1126 shall be used to regulate any pyrotechnic use. [140:4.3.2] [140:5.3.2]~~ Chapter 65 shall be used to regulate any pyrotechnic use.

DELETE and REPLACE:

32.9.3.1 Means of egress shall be in accordance with ~~NFPA 101~~ the Building Code unless otherwise modified by **32.9.3.2** through **32.9.3.6**. ~~[140:4.10.1]~~

DELETE and REPLACE:

32.9.4.1.2 A new soundstage or new approved production facility shall be equipped with an approved, supervised automatic sprinkler system in accordance with the Building Code. ~~[140:4.11.1.2]~~

DELETE and REPLACE:

32.10.1.1 Electrical power connections made to the site electrical service shall be ~~made by an approved electrician under permit from the AHJ. [140:5.8.1]~~ in accordance with the Massachusetts Electrical Code.

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DELETE:

32.10.1.2 and 32.10.1.3

Chapter 33 – Outside Storage of Tires

Chapter 33 Delete in its entirety.

Chapter 34 – General Storage

DELETE and REPLACE:

34.3.10.3 Lightweight Class. Lightweight class shall be defined so as to include all papers having a basis weight [weight per 1000 ft² (93 m²)] of less than 10 lb (4.5 kg). ~~{13:20.4.10.3}~~

DELETE and REPLACE:

34.5.2.2* ~~If the commodity is stored above the lower chord of roof trusses, not less than 1 ft (0.3 m) of clear space shall be maintained to allow wetting of the truss, unless the truss is protected with 1-hour fireproofing.~~ **Storage in buildings and structures shall not be within two feet of a ceiling, or roof deck or otherwise required by NFPA 13.**

DELETE and REPLACE:

34.11.4.1* ~~The outside storage of wood and wood composite pallets or listed pallets equivalent to wood on the same site as a pallet manufacturing or pallet recycling facility shall comply with 34.11.4.~~ **The outside storage of pallets on the same site as a manufacturing or recycling facility shall comply with 34.11.4.**

Chapter 35 – Animal Housing Facilities

Chapter 35 Delete in its entirety.

Chapter 36 – Telecommunication Facilities and Information Technology Equipment

Chapter 36 Delete in its entirety.

Chapter 37 – Fixed Guideway Transit and Passenger Rail Systems

Chapter 37 Delete in its entirety.

Chapter 38 – Cannabis Growing, Processing, or Extraction Facilities

DELETE and REPLACE:

38.5.1 Ventilation for Light Fixtures. Light fixture ductwork shall be installed in accordance with the manufacturer and NFPA 90A ~~and the~~ ***mechanical code.***

DELETE and REPLACE:

38.5.4.1 Interior finish, including the use of any plastic, mylar, or other thin film sheeting to enclose rooms or cover any walls or ceilings shall be in accordance with Sections 12.5 ~~and~~ 12.6 **and the Building Code.**

Chapter 39 – Wastewater Treatment and Collection Facilities

Chapter 39 Delete in its entirety.

Chapter 40 – Dust Explosion and Fire Prevention

No amendments

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~~Stricken Language~~

Chapter 41 – Welding, Cutting and Other Hot Work

ADD:

41.1.1.1 Terms. As used in Chapter 41, the enclosed terms shall have the following meaning assigned to them.

- (1) **Hot Work.** Work involving, burning, welding, or a similar operation that is capable of initiating fires or explosions.
- (2) **Hot Work Operator.** A qualified person and if required, shall be certified pursuant to the provisions of this chapter and standards referenced in this chapter.
- (3) **Qualified Person.** A person who has successfully completed the training criteria pursuant to Section 41.7.
- (4) **Management.** For the purpose of hot work, all persons, including owners, contractors, educators, and so on, who are responsible for hot work operations.
- (5) **Permissible Areas.**
 - (a) **Designated Area.** A specific location designed and approved for hot work operations that is maintained fire-safe, such as a maintenance shop or a detached outside location, that is of noncombustible or fire-resistive construction, essentially free of combustible and flammable contents, and suitably segregated from adjacent areas.
 - (b) **Permit-required Area.** Any location other than a designated area that is approved for hot work and is made fire-safe by removing or protecting combustibles from ignition sources.
- (6) **Permit.** For the purposes of hot work, a document issued, by the AHJ, to a qualified person as defined in Section 41.1.1.1(3) for the purpose of authorizing that individual to carry out the activity of hotwork.
- (7) **Permit Authorizing Individual (PAI).** An individual designated by management to authorize hot work.
- (8) **Welding and Allied Processes.** Processes such as arc welding, oxy-fuel gas welding, open-flame soldering, brazing, thermal spraying, oxygen cutting, and arc cutting.

ADD:

41.1.5.3 Hot Work Permit. Hot work permits, where required shall comply with Section 1.12 and Chapter 41.

ADD:

41.2.1.8 Management shall ensure that the contractor has evidence of financial responsibility, which can take the form of an insurance certificate or other document attesting to coverage or responsibility, a copy and an education certification of completion shall be submitted to the AHJ when requested.

41.2.1.9 Management shall assure that welders and their supervisors are trained in the safe operation of their equipment, the safe use of the process, and emergency procedures and maintain education certificates of completion on file and if requested submit to the AHJ.

41.2.1.10 Management or designated agent shall select contractors to perform welding who provide trained and qualified personnel, and who have an awareness of the risks involved. [ANSI Z49, 2012]

DELETE and REPLACE:

41.2.2 Permit Authorizing Individual (PAI). In conjunction with management ~~and in consultation with the AHJ if required,~~ the PAI shall be responsible for the safe operation of hot work activities. ~~[51B:4.2]~~

ADD:

41.2.3(4) The hot work operator shall be permitted to be the PAI, however, in those cases, the hot works operator shall not be permitted to issue a hot work permit for the work to be performed by himself, *see* the provisions of Section 41.4(1) or 41.4(2).

Red is existing MA amendment language
Red underline is new or modified MA amendment language

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~~Stricken Language~~

ADD:

41.2.4.8 A fire watch, when required, shall be maintained for at least ½ hour after completion of hot work operations in order to detect and extinguish smoldering fires. The duration of the fire watch shall be permitted to be extended if the PAI or the AHJ determines the fire hazards warrant the extension.

41.2.4.8.1 More than one fire watch shall be required if determined by the AHJ that combustible materials could be ignited by the hot work operation which cannot be directly observed by the initial fire watch.

DELETE and REPLACE:

41.2.5.1 ~~Contractors, when requested, shall provide education certificates of completion, completed within the past 12 months by themselves and individuals they employ who perform hot work, See 41.7~~ **Certificates.** A hot work training certificate shall be carried on person at all times, and shall be produced upon request.

DELETE and REPLACE:

41.3.5.1 Before a hot work permit is issued the following conditions in 41.3.5.1.1 through 41.3.5.1.15 shall be verified by the PAI, **and with the AHJ if required.**

DELETE and REPLACE:

41.3.5.1.1 The decision tree in Figure 41.3.5.1.1 shall be permitted to be used to determine if a hot work permit is necessary. ~~The hot work equipment to be used shall be in satisfactory operating condition and in good repair.~~
~~[51B:5.5.1.1]~~

Figure 41.3.5.1.1 Hot Work Permit Decision Tree

1. Is there an acceptable alternative to hot work?	YES →	Complete job with cold work. No hot work permit is needed.
NO ↓		
2. Can hot work be performed in a designated area? (e.g., maintenance shop)?	YES →	Examine designated area, then complete hot work there. No hot work permit or a permit from the AHJ required.
NO ↓		
3. Is the proposed work to be performed in a nondesignated area (e.g., NOT in a maintenance shop)?	YES →	Hot work permit and a permit from the AHJ required.
NO ↓		
4. Will the proposed work be performed in a required permit area?	YES →	Hot work permit and a permit from the AHJ required.
NO ↓		
5. Hot Work Permit Program has not been established and hot work is to be performed.	YES →	A permit from the AHJ required.

41.3.5.1.1.1 A Hot Work Permit shall be used when hot work is to be carried out in a Permitted Required Area.

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~~Stricken Language~~

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Figure 41.3.5.1.1.1 Sample Hot Work Permit

<h1 style="margin: 0;">HOT WORK PERMIT</h1> <p style="margin: 5px 0;">Seek an alternative/safer method if possible!</p> <p style="margin: 5px 0;">Before initiating hot work, ensure precautions are in place as required by NFPA 51B and ANSI Z49.1. Make sure an appropriate fire extinguisher is readily available.</p> <p style="margin: 5px 0;">This Hot Work Permit is required for any operation involving open flame or producing heat and/or sparks. This work includes, but is not limited to, welding, brazing, cutting, grinding, soldering, thawing pipe, torch-applied roofing, or chemical welding.</p>	
Date _____	Hot work by <input type="checkbox"/> employee <input type="checkbox"/> contractor
Location/Building and floor _____	Name (print) and signature of person doing hot work _____
Work to be done _____	I verify that the above location has been examined, the precautions marked on the checklist below have been taken, and permission is granted for this work.
Time started _____ Time completed _____	Name (print) and signature of permit-authorizing individual (PAI) _____
THIS PERMIT IS GOOD FOR ONE DAY ONLY	
<input type="checkbox"/> Available sprinklers, hose streams, and extinguishers are in service and operable.	
<input type="checkbox"/> Hot work equipment is in good working condition in accordance with manufacturer's specifications.	
<input type="checkbox"/> Special permission obtained to conduct hot work on metal vessels or piping lined with rubber or plastic.	
Requirements within 35 ft (11 m) of hot work	
<input type="checkbox"/> Flammable liquid, dust, lint, and oily deposits removed.	
<input type="checkbox"/> Explosive atmosphere in area eliminated.	
<input type="checkbox"/> Floors swept clean and trash removed.	
<input type="checkbox"/> Combustible floors wet down or covered with damp sand or fire-resistive/noncombustible materials or equivalent.	
<input type="checkbox"/> Personnel protected from electrical shock when floors are wet.	
<input type="checkbox"/> Other combustible storage material removed or covered with listed or approved materials (welding pads, blankets, or curtains; fire-resistive tarpaulins), metal shields, or noncombustible materials.	
<input type="checkbox"/> All wall and floor openings covered.	
<input type="checkbox"/> Ducts and conveyors that might carry sparks to distant combustible material covered, protected, or shut down.	
Requirements for hot work on walls, ceilings, or roofs	
<input type="checkbox"/> Construction is noncombustible and without combustible coverings or insulation.	
<input type="checkbox"/> Combustible material on other side of walls, ceilings, or roofs is moved away.	
Requirements for hot work on enclosed equipment	
<input type="checkbox"/> Enclosed equipment is cleaned of all combustibles.	
<input type="checkbox"/> Containers are purged of flammable liquid/vapor.	
<input type="checkbox"/> Pressurized vessels, piping, and equipment removed from service, isolated, and vented.	
Requirements for hot work fire watch and fire monitoring	
<input type="checkbox"/> Fire watch is provided during and for a minimum of 30 min. after hot work, including any break activity.	
<input type="checkbox"/> Fire watch is provided with suitable extinguishers and, where practical, a charged small hose.	
<input type="checkbox"/> Fire watch is trained in use of equipment and in sounding alarm.	
<input type="checkbox"/> Fire watch can be required in adjoining areas, above and below.	
<input type="checkbox"/> Yes <input type="checkbox"/> No Per the PAI/fire watch, monitoring of hot work area has been extended beyond the 30 min.	

ADD:

41.3.5.1.1.2 The hot work equipment to be used shall be in satisfactory operating condition and in good repair.

Comment: Base 2021 NFPA 1 language needs to be moved from 42.3.5.1.1 to 41.3.5.1.1.2 to align with MA amendments.

DELETE and REPLACE:

41.3.5.3 The PAI **in consultation with the AHJ, if required** shall determine the length of the period for which the hot work permit is valid.

DELETE and REPLACE:

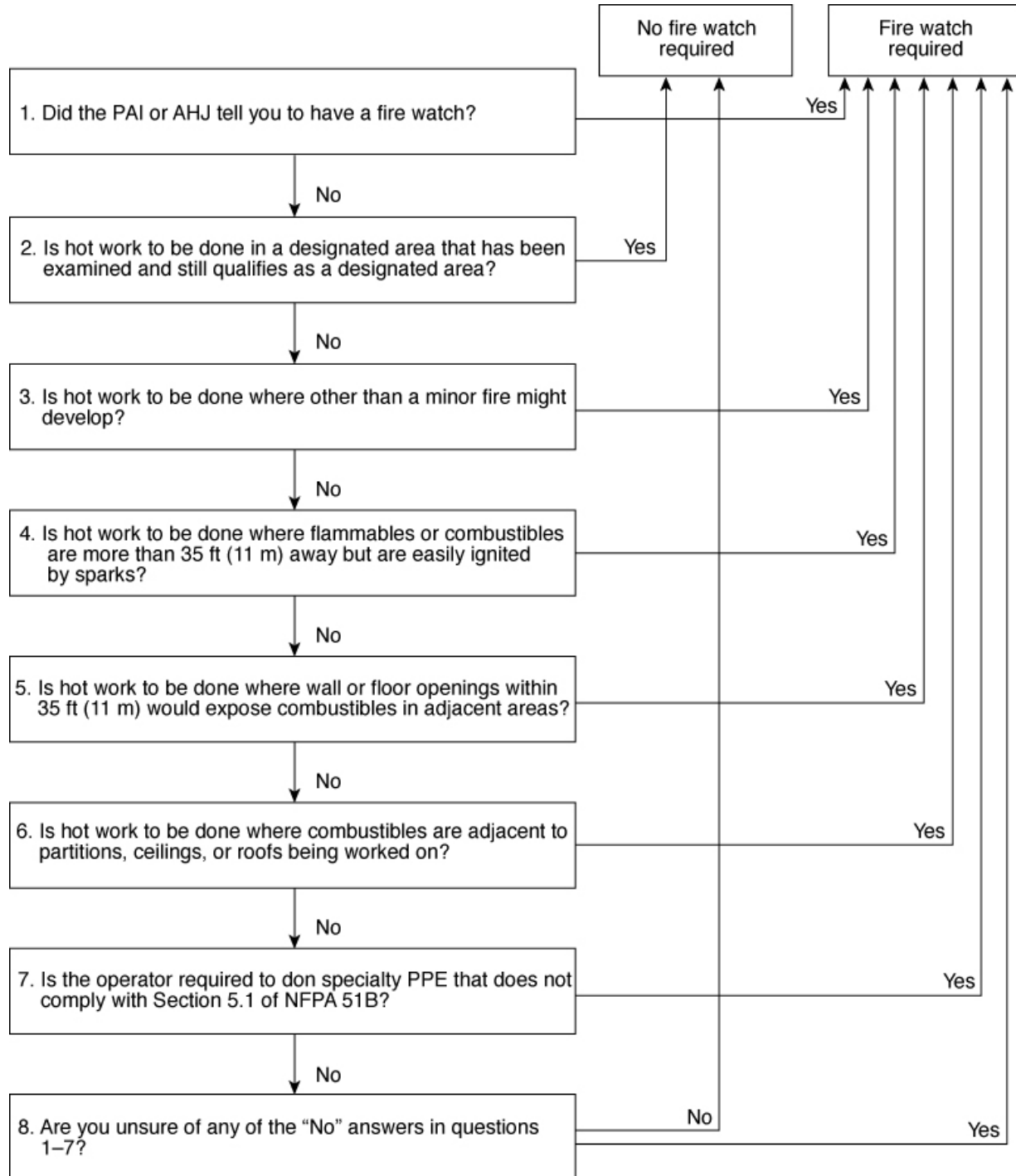
41.3.6.1 A fire watch shall be required by the PAI **in consultation with the AHJ**, when hot work is performed in a location where other than a minor fire might develop or where the following conditions exist:

- (1)* Combustible materials in building construction or contents closer than 35 ft (11 m) to the hot work operation
- (2) Combustible materials more than 35 ft (11 m) away from the hot work operation but easily ignited by sparks
- (3) Wall or floor openings within a 35 ft (11 m) radius that expose combustible materials in adjacent areas, including concealed spaces in walls or floors
- (4) Combustible materials adjacent to the opposite side of partitions, walls, ceilings, or roofs and likely to be ignited

ADD:

41.3.6.1.1.3 ~~Table~~ Figure 41.3.6.1.1.3 entitled Fire Watch Decision Tree shall be permitted to be used by the PAI and AHJ to determine if a fire watch is necessary.

Table Figure 41.3.5.1.1.3 Fire Watch Decision Tree



Red is existing MA amendment language
 Red underline is new or modified MA amendment language

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DELETE and REPLACE:

41.4 Sole Proprietors and Individual Operators.

41.4.1 All hot work operations shall require a permit from the Head of the Fire Department unless specifically otherwise allowed by 41.4.1(1) through (3):

- (1) **Hot Work Operations Conducted by Persons Licensed by Other Jurisdictions.** Pursuant to Section 1.1.2, a hot work permit shall not be required from the fire department when the hot work activity is performed by a person, or under the direct supervision of a person, licensed and permitted pursuant to a specialized code as defined in M.G.L. c. 143, § 96. Any licensed person performing hot work must have obtained training for hot work safety either:
 - (a) by obtaining training approved by the authority issuing them a license to perform specialized code work; or
 - (b) by meeting the requirements of Section 41.7 of Chapter 41.
- (2) **Hot Work Operations Conducted by Persons on Their Own Equipment on Their Own Premises.** A permit from the Head of the Fire Department for hot works shall not be required by individuals who conduct hot work operations on their own equipment on their own premises. Any person performing such hot work shall be trained as provided by 41.7 of Chapter 41.
- (3) **Homeowners and Hobbyists.** Homeowners and hobbyists are exempt from the permit requirements as provided by 1.12, and the training requirements required in 41.7 of Chapter 41. *See exhibitions 41.5.*

DELETE and REPLACE:

41.4.2 Assignment of PAI and Fire Watch. Sole proprietors and individual operators as provided in Sections 41.4.1(1) and (2) shall be permitted to serve as PAI, fire watch and operator.

41.4.3 Written Hot Work Permit. A checklist shall be permitted to serve as the written hot work permit.

ADD:

41.5.4.4 Inspection by the AHJ.

41.5.4.4.1 The AHJ shall be permitted to require annual inspection for designated areas.

41.5.4.4.2 The AHJ shall be permitted to inspect a premise for compliance before any hot work is carried out.

ADD:

41.7 Qualifications. An individual to be qualified to be a PAI, perform fire watches, perform, supervise or delegate any activities of hot work as defined in this chapter shall first provide documentation that he or she has successfully completed training approved by the State Fire Marshal in the following areas:

- (1) 527 CMR 1.00: *Massachusetts Comprehensive Fire Safety Code*, Chapter 41: *Hot Work Operations*;
- (2) 29 CFR 1910.252 Subpart Q: *Welding, Cutting and Brazing*;
- (3) NFPA 51B: *Standard for Fire Prevention During Welding, Cutting, and Other Hot Work*;
- (4) NFPA 241: *Standard for Safeguarding Construction, Alteration, and Demolition Operations*;
- (5) ANSI Z49: *Safety in Welding, Cutting, and Allied Processes*.

41.7.1 Successfully completed as used here means training successfully completed on the currently adopted standard as provided in 41.7(1) through (5).

41.7.2 A certificate of completion shall be issued to the individual with the date of completion on the certificate and a providers/instructor's signature acknowledging such individual attended and completed the training as provided in 41.7(1) through (5).

Chapter 42 – Refueling

Red is existing MA amendment language

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~~Stricken Language~~

DELETE and REPLACE:

42.1 General. Chapter 42 shall apply to refueling of automotive vehicles and marine vessels ~~and aircraft. It shall not be applied to the transportation of fuel gases over the highways in interstate commerce or vehicles complying with Federal Motor Vehicle Safety Standards.~~

DELETE and REPLACE:

42.1.1 Terms. As used in Chapter 42, the enclosed terms shall have the following meaning assigned to them.

42.1.1.1 Point of Delivery. The outlet of the service meter assembly or the outlet of the service regulator or the crash valve or service shut off valve where no meter is provided.

ADD:

42.1.3 Certificates. Certificates, where required, shall comply with Section 1.12.8.51 and Section 1.13, as applicable.

ADD:

42.2.2.2 This Chapter shall apply to the transportation of Class II and Class IIIA combustible liquids, by Massachusetts registered motor vehicles in cargo tanks, portable tanks and transfer tanks by transport vehicles and flammable liquids in non-bulk packaging.

42.2.2.3 The intent of this Chapter is to protect the public safety and welfare from the danger of fire due to tank or container leakage of flammable or combustible liquids and is in addition to the requirements of the U.S. Department of Transportation, (DOT) Title 49 CFR.

DELETE and REPLACE:

42.3.3.1.1.1 Underground Tanks. Underground storage tanks shall comply with 310 CMR 80.00: *Underground Storage Tank (UST) Systems* and meet all applicable requirements of NFPA 30, Chapters 21: *Storage of Liquids in Tanks - Requirements for All Storage Tanks* and 23: *Storage of Liquids in Tanks - Underground Tanks*.

DELETE and REPLACE:

42.3.3.7 Corrosion Protection. Any portion of a tank or its piping that is in contact with the soil shall have properly engineered, installed, and maintained corrosion protection ~~that meets the requirements of 66.21.4.5 in accordance with the American Petroleum Institute, the American Society of Mechanical Engineers, or Underwriters Laboratories Inc.~~ If corrosion is anticipated beyond the applicable design formulas or standards, metal thickness or approved protective coating or liners shall be provided to compensate for corrosion loss expected during the design life of the tank. If requested by the AHJ, an engineering analysis shall be permitted required to assure compliance.

ADD:

42.5.3.4.1 Dispensing devices shall:

- (1) Be rigidly mounted;
- (2) Be protected from vehicle damage by ~~at least one of~~ the following:
 - (a) The dispensing device shall be mounted on a concrete platform at least six inches in height;
 - (b) ~~and~~ Vertical barriers shall be installed at the ends of pumps.

Comment: This change aligns with the wording of the previous MA amendment but resolved the language issue.

DELETE and REPLACE:

Red is existing MA amendment language
Red underline is new or modified MA amendment language

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~~Stricken Language~~

42.5.3.6.3 Maintenance. At least annually or when maintenance to dispensing devices is necessary and such maintenance is capable of causing accidental release or ignition of liquid, the following precautions shall be taken before such maintenance is begun:

- (1) Only persons knowledgeable in performing the required maintenance shall perform the work.
- (2) All electrical power to the dispensing devices, to the pump serving the dispensing devices, and to all associated control circuits shall be shut off at the main electrical disconnect panel.
- (3) The emergency shutoff valve at the dispenser, if installed, shall be closed.
- (4) All vehicular traffic and unauthorized persons shall be prevented from coming within 20 ft (6 m) of the dispensing device.

DELETE and REPLACE:

42.5.7.8 The manner of resetting shall be approved by the AHJ.

DELETE:

42.5.7.10.1 through 42.5.7.10.3

DELETE:

42.7.2.1

ADD:

42.7.2.4.3 No gasoline shall be handled outside of storage tanks or portable gasoline tanks except in approved safety cans or approved metal or plastic containers, and they shall be kept tightly closed except when in use. Containers used for the handling and storage of gasoline in garages shall have a total quantity not to exceed 12 gallons.

DELETE and REPLACE:

42.7.2.6.3 Fire Suppression Systems. ~~Where required,~~ For attended self-serve facilities, automatic fire suppression systems shall be installed in accordance with the appropriate NFPA standard, manufacturers' instructions, and the listing requirements of the systems.

ADD:

42.7.4.5 The dispensing of motor fuel by means of self-service automated dispensing systems shall be permitted, provided that the applicant for such a system has submitted complete plans and specifications of the proposed installation to the State Fire Marshal, accompanied by the required examination fee as authorized in M.G.L. c. 7, § 3B and has obtained approval of such plans, and further provided that there is compliance with the following:

- (1) Attended Self-service Motor Fuel Dispensing Facility may be allowed provided that:
 - (a) The service station is under the control of the owner, operator, or duly authorized employee who shall be on duty at all times while motor fuel is being sold or dispensed.
 - (b) The motor fuel shall be dispensed only by a competent licensed motor vehicle operator or by the service station attendant.
 - (c) Approved signs bearing the wording "Extinguish All Smoking Materials" and "Stop Engine While Refueling" shall be conspicuously posted at both ends of the pump dispensing island visible to approaching vehicles. All approved signs required shall consist of block letters not less than two inches in height and be either red letters on a white background or white letters on a red background.
 - (d) The controlling mechanism console providing power to the pump motor is in constant attendance by the owner, operator or duly authorized employee at all times while motor fuel is being dispensed and is properly protected against physical damage from motor vehicles. Constant attendance shall mean that the console operator must be at the console during its operation.

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- (e) There is constant contact between the controlling mechanism console operator and the pump island by means of an intercommunication system which shall be maintained in proper operating condition at all times while motor fuel is being dispensed.
- (f) A means is provided for the controlling mechanism console operator to observe the filling operation at each vehicle, and the dispensing of motor fuel shall be continuously observed by the console operator during the time that any of the pumps have been activated to dispense motor fuel.
- (g) The controlling mechanism console includes a disconnect switch which will instantly cut off all pumping power to all motor fuel pumps at the service station.
- (h) The controlling mechanism console, switches and related equipment are of a design and type listed for use with the dispensing devices.
- (i) Any person, firm, or corporation constructing a self-service facility or making changes or alterations, in the method of dispensing motor fuel, or to the pre-engineered fixed fire extinguishing system(s) other than normal maintenance, or to the self-service dispensing island arrangement(s) resulting in a change of hazard area protection, or environmental changes resulting in the inability of a console operator to constantly observe the fuel dispensing operation, shall notify the Head of the Fire Department, in writing, prior to submitting plans to the State Fire Marshal.
- (j) Self-service automated motor fuel dispensing systems shall be equipped with an overhead fixed fire extinguishing system of a type approved by the State Fire Marshal, details of which shall be included with plans submitted to the State Fire Marshal for approval.
- (k) The use of automatic credit card reading devices as a means of payment at the pump island shall be allowed provided that:
 - 1. Each sale shall be individually authorized by the self-serve attendant; authorization functions shall not be overridden.
 - 2. The automatic credit card reading device shall not be used as physical authorization for the dispensing of motor fuel; and
 - 3. The automatic credit card reading devices are included on plans submitted to and approved by the State Fire Marshal.
- (l) Activation of such new fire extinguishing system shall be electrically supervised by a listed fire alarm control unit and such alarm signal shall be automatically transmitted in accordance with the requirements of 780 CMR.
- (2) Split island facilities shall be permitted provided that:
 - (a) There shall be installed on the full service islands an additional switch which will activate the overhead fire extinguishing system, and deactivate power to the self-service island dispensing pumps.
 - (b) Whenever the self-service dispensing mechanism is in operation, the service station operator shall be within visual range of the filling operation by either being at the controlling mechanism console or at the full service pump island within 25 feet of the switch.

Comment: Proposal to link the alarm activation of the new fire extinguishing system to electrical supervision requirements of the building code and NFPA 72 by reference.

DELETE:

42.7.5 through 42.7.5.6

DELETE and REPLACE:

42.7.6.3 The dispensing hose shall not exceed **150 ft. (46 m)** ~~50 ft (15 m)~~ in length.

ADD:

42.9.1.2(4)

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(4) Foreign vessels regulated under Title 33 CFR 155 and U.S. and foreign public vessels, *i.e.*, warships, naval auxiliaries or other ships owned and operated by a country when engaged in noncommercial service.

ADD:

42.9.3.7 Wharf of a Marine Fueling Facility.

42.9.3.7.1 Any wharf of a Marine Fueling Facility shall be equipped with only listed and labeled control valves and devices.

42.9.3.7.2 Authorized Fueling Facility System Operators shall be aware of the location of all such shut-off control devices.

42.9.3.7.3 The use of additional shut-off control valves in excess of the required minimum shall be permitted to facilitate fuel system servicing and to control fuel flow during both normal and emergency operation.

42.9.3.7.4 Cast iron valves or fittings shall not be used in any pipe connection located between the tank and dispensing nozzle.

42.9.3.7.5 Items (1), (2) (3) and (5) shall be required for all fixed facilities. Items (4), and (6) shall be permitted on a site specific basis.

(1) Dispensing Nozzle shall be approved.

(2) Dispenser Shut-off.

(a) All dispensers shall be provided with an approved shut-off valve at the fuel- dispensing unit.

(b) This valve shall be permitted to be the dispenser unit shut-off.

(3) Manual Electrical Emergency Fuel Shut-off Pull Stations shall be U.L. listed; and

(a) Shall be provided to disrupt power to all dispensers and fuel storage tank discharge pump(s).

(b) These Pull Stations shall be located within 25 ft. of any metering unit; and shall be located to be in the path of exit travel.

(c) Additional pull station shall be provided as required by the Head of the Fire Department or the State Fire Marshal.

(d) Pull stations shall not be located on gangways.

(e) All pull stations shall be marked "EMERGENCY FUEL SHUT-OFF" in two inch red block capital letters; and shall be accessible at all times.

(4) Fuel piping systems to floats shall be provided with a readily accessible approved shut off valve on the fixed pier (or land if applicable) within 15 ft. of the flexible connector from the pier (or land) to the float.

Said shut-off controls shall be marked "EMERGENCY FUEL SHUT-OFF" in two inch red block capital letters; and shall be accessible at all times.

(5) Fuel piping systems on fixed piers shall be provided with a readily accessible shut-off valve on the pier within four feet of the flexible connector to the land and on the land within 15 ft. of the pier.

Shut-off controls shall be marked "EMERGENCY FUEL SHUT OFF" in two inch red block capital letters and shall be accessible at all times.

(6) Emergency shut-off valves, incorporating a fusible link or other approved thermally actuated device designed to close automatically in event of fire exposure or severe impact, shall be installed in accordance with the manufacturer's instructions in the flammable or combustible liquid supply line.

(a) The shut-off valve shall be located at the base of each individual dispenser or at the inlet to the overhead dispenser.

(b) The automatic closing feature of excess flow valves shall be tested at least once per month by manually tripping the hold open device.

(c) The valves shall be readily accessible; and

1. shall employ cover or similar means located on the shore side of the wharf; and

2. shall be so marked by two inch red block capital letters.

(7) Divisional valves shall be installed on the marine wharf so that the maximum length of the piping system is 300 ft. between divisional valves.

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- (a) Divisional valves shall be marked by two inch red block capital letters.
- (b) Each valve shall be clearly identified, by marking with a permanent plate or tag indicating its system function.
- (8) At marine fueling facilities where tanks are at an elevation which produces a gravity head on the dispensing unit, the tank outlet shall be equipped with a device, such as a solenoid valve, positioned adjacent to, and downstream, so installed and adjusted that liquid cannot flow by gravity from the tank in case of piping or hose failure when the dispenser is not in use.
- (9) Shut-off and check valves shall be equipped with a pressure-relieving device that will relieve any pressure generated by thermal expansion of the contained liquid back to the storage tank.

ADD:

42.9.3.7 Shut-off and check valves shall be equipped with a pressure-relieving device that will relieve any pressure generated by thermal expansion of the contained liquid back to the storage tank.

ADD:

42.9.3.8 Marine piping systems shall contain a sufficient number of approved valves to control the flow of flammable or combustible liquid during normal operations and to provide adequate shut-off protection in the event of fire or physical damage.

ADD:

42.9.4.1.1.1 Said hose shall be a rubber like material resistant to petroleum products and petroleum product, containing a continuous static ground, not exceeding 30 feet in length. Where hose length at a marine fueling facility exceeds 30 feet, the hose shall be secured by a hose retrieving mechanism so as to protect it from damage.

ADD:

42.9.4.8 If a remote pumping system is used, a labeled or listed rigidly anchored emergency shut-off valve incorporating a fusible link or other thermally actuated device, designed to close automatically in event of fire exposure or severe impact, shall be installed in accordance with the manufacturer's instructions in the flammable or combustible liquid supply line at the base of each individual dispenser or at the inlet of each overhead dispenser.

42.9.4.8.1 The automatic closing feature of this valve shall be checked at least once a month by manually tripping the hold-open linkage.

42.9.4.8.2 An emergency shut-off valve incorporating a slip-joint feature shall not be used.

42.9.4.9 The fueling facility shall be located so as to minimize exposure to all other operational marina or pleasure boat berthing area facilities. Where tide and weather conditions permit, all flammable and combustible liquid fuel handling shall be outside the main berthing area. Inside marina or pleasure boat berthing area, fueling facilities shall be so located that in case of fire aboard a boat alongside, the danger to other boats near the facility will be minimal. No vessel or craft shall be made fast to or berthed at any marine wharf, except during fueling operations, and no vessel or craft shall be made fast to any other vessel or craft occupying a berth at a marine wharf, or other fueling facility.

42.9.4.10 Fueling of floating marine craft at other than a fueling facility is prohibited, except by prior written authorization by the AHJ.

ADD:

42.9.7.4 All marine fueling facilities shall provide roadways to provide for adequate access for emergency vehicles, including fire apparatus to within 150 feet (45 m) or less travel distance to the shore end of the marine wharf.

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42.9.7.4.1 When approved by the Head of the Fire Department, a manual standpipe system shall be permitted to be installed along marine wharfs when conditions are such that providing fire department access roads to within 150 feet (45 m) of the shore end of the marine wharf is not practical.

ADD:

42.9.7.5 A manual standpipe system shall be installed at all fueling wharfs where the travel distance from the closest point of access for the fire department apparatus to the most remote accessible portion of the marine wharf exceeds 150 feet (45 m).

42.9.7.5.1 The type and location of standpipe systems and standpipe outlets shall be approved by the Head of the Fire Department, but in no case shall they be more than 150 feet (45 m) of travel distance apart, and no more than 150 feet (45 m), travel distance from a dead end.

42.9.7.5.2 The fire department pumper can be considered as a standpipe system discharge point if it is within 150 feet (45 m) of the shore end of the marine wharf.

42.9.7.5.3 The standpipe piping shall be no less than three inches (76.2 mm) inside nominal diameter and sized to provide a minimum of 500 gpm (1893L/min) at 100 psi outlet pressure at the hydraulically most remote outlet with an outlet.

ADD:

42.9.7.6 Hydrants shall be provided on marine fueling facility wharfs where fire apparatus is expected to drive onto the wharf to protect a fueling facility.

42.9.7.6.1 The hydrants shall be installed, tested and maintained in accordance with NFPA 307: *Standard for the Construction and Fire Protection of Marine Terminals, Piers, and Wharves* in locations approved by the Head of the Fire Department.

42.9.7.6.2 In a hydrant shall be within 100 feet (30.48 m) of the required standpipe connection.

42.9.7.6.3 If available, the type and capacity of the water supply system for the fire hydrants shall be sufficient to deliver adequate water and water pressure as determined by the Head of the Fire Department, who shall take into consideration the relative fire hazard, the property involved, the availability of marine firefighting equipment, and the time frame that the water supply volume will be required to be maintained.

ADD:

42.9.8.4 No cargo tank, portable tank or transfer tank shall be mounted in the bed or body of any vehicle which contains a hoist to raise such bed or body.

ADD:

42.9.9.8 Vehicles, other than approved tank vehicles, shall be permitted to transport combustible liquids in transfer tanks, provided that an application has been made and a permit to transport has been issued. The vehicle shall be approved for the transportation of the combustible liquid provided that:

(1) The tank shall be constructed of not less than 14 USS gauge standard open hearth steel tank plate or 1/8 inch aluminum and otherwise constructed to withstand any stress to which it may reasonably be subjected.

(2) The liquid is drawn only from the top of the tank by means of a suitable pump to which is attached a durable hose equipped with a self-closing nozzle.

(3) All openings in the tank are secured by plugs or caps maintained wrench tight while the vehicle is in transit.

(4) The tank is securely mounted to the vehicle body or truck bed and its capacity does not exceed 110 gallons.

42.9.9.9 Any flammable or combustible liquid transported by other than cargo tank, portable tank or transfer tank shall be transported in listed containers, with all openings tightly closed, and in an upright and secured position.

ADD:

42.9.10.5(5)

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(5) In the event of a leak, rupture, spill, overflow or other incident involving the handling of flammable or combustible liquids, at the fuel facility, both the Fire Department and the State Fire Marshal shall be notified immediately by the fueling operations supervisor or the permit holder.

DELETE:

42.10 through 42.10.6.2.9

DELETE:

42.11.1

DELETE:

42.11.1.1.2 through 42.11.1.1.4

ADD:

42.11.1.1.5 Marker Plate, Sign. Any liquefied gaseous system container or cylinder installation shall be provided with a marker plate or sign indicating the name and telephone number of the supplier, facility maintenance person, owner, or operator responsible for responding to the permitted location in the event of an emergency.

ADD:

42.13.1 Fuel Vessels and Barges.

42.13.2 No fuel barge or fuel vessel shall be permitted to anchor or moor for fueling purposes within a marina or pleasure boat berthing area.

42.13.3 A 200 ft. (60.96 m) radius marine fueling safety zone shall be maintained between the fuel barge, or fuel vessel acting as a fueling facility, and any marina or pleasure boat berthing area.

42.13.4 This 200 ft. (60.96 m) radius marine fueling safety zone if required, shall be subject to written review by the Head of the Fire Department in specific instances.

42.13.5 The State Fire Marshal shall approve the marine fueling safety zone written review.

42.13.6 Fuel barges and fuel vessels shall be subject to assignment as to location by the harbor master in accordance with the authority vested in him by M.G.L. c. 102. When located on waters where no harbor master is provided, such assignment shall be made by the State Fire Marshal. The State Fire Marshal shall approve the permanent assignment of fuel barges and fuel vessels.

42.13.7 Fuel barges, fuel vessels, and fueling facilities shall be open to inspection by the AHJ or a harbor master having jurisdiction.

42.13.8 Flammable and combustible liquids kept for resale on fuel barges or fuel vessels shall be stored in metal tanks. Such tanks shall be constructed, braced and secured so as to prevent injury, rupture or displacement and to withstand the normal stresses to which they may be subjected. Tanks constructed in accordance with 46 CFR Part 30 through 40, Subchapter D - *Tank Vessels*, will be considered as complying with the requirements of this chapter.

42.13.9 Every fuel barge or fuel vessel used for the keeping of flammable or combustible liquids for resale and every fuel barge or fuel vessel used for the transportation of flammable or combustible liquids, shall be identified by a name marked in clearly legible letters not less than four inches in height on some clearly visible exterior part of the port and starboard bow and the stern of that fuel barge or fuel vessel.

42.13.10 Fuel barges and fuel vessels which, in the opinion of the Head of the Fire Department or the State Fire Marshal, pose a substantial fire hazard due to the cargo they are carrying or the location they are moored shall rig fire warps. Fire warps shall consist of haulers of sufficient size to take the barge or vessel under tow in the event of an emergency. Fire warps shall be secured to the deck of the barge or vessel and shall hang over the outboard side to within six feet of the surface of the water. An eye shall be spliced into the outboard end of the warp of sufficient size to permit the rapid attachment of a towing shackle.

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42.13.11 Every fuel barge, fuel vessel, or fueling facility used for the keeping of flammable or combustible liquids for resale shall be provided with such fire extinguishing appliances as required by Section 13.6.

ADD:

42.14 Containers and Movable Tanks.

42.14.1 The temporary use of movable tanks in conjunction with the dispensing of liquids into the fuel tanks of marine craft shall be permitted. Such use shall only be made with the approval of the AHJ.

42.14.2 Class I or Class II liquids shall not be dispensed into a portable container, unless the container is constructed of metal or is listed for its use, has a tight closure, and is fitted with a spout or is so designed that the contents can be dispensed without spilling.

42.14.3 Portable containers of 12 gal. (45 L) capacities or less shall not be filled while they are in or on a marine craft.

42.14.4 Smoking is prohibited on any fuel barge or fuel vessel used for the keeping of flammable or combustible liquids for resale and on any fuel barge or fuel vessel used for the transportation, storage or delivery of flammable or combustible liquids.

ADD:

42.15.1 All electrical components shall be installed and used in accordance with the *Massachusetts Electrical Code*.

42.15.2 Clearly identified emergency switches, readily accessible in case of fire or physical damage at any dispensing unit, shall be provided on each marine wharf so interlocked as to shut off power to all pump motors from any individual location and to reset only from the master switch at the main electrical disconnect panel. Each such switch is to be identified by an approved sign stating "EMERGENCY PUMP SHUT-OFF" in two inch red block capital letters.

42.15.3 A readily accessible valve to shut off the liquid supply from shore shall be provided in each pipeline, at or near the approach to the pier and at the shore end of each marine pipeline adjacent to the point where each flexible hose is attached. Each valve shall be marked "EMERGENCY FUEL SHUT-OFF" in two inch red block capital letters.

ADD:

42.16 Transportation by Transfer Tanks.

42.16.1 Vehicles other than approved tank vehicles shall be permitted to transport combustible liquids in transfer tanks, provided that an application has been made in accordance with this *Code*.

42.16.2 The vehicle shall be approved for the transportation of the combustible liquid provided that:

- (1) The tank is securely mounted to the vehicle body or truck bed and its capacity does not exceed 119 gallons.
- (2) The tank shall be constructed of not less than 14 USS gauge standard open hearth steel tank plate or 1/8" inch aluminum and otherwise constructed to withstand any stress to which it may reasonably be subjected;
- (3) The liquid is drawn only from the top of the tank by means of a suitable pump to which is attached a durable hose equipped with a self-closing nozzle;
- (4) All openings in the tank are secured by plugs or caps maintained wrench tight while the vehicle is in transit; and
- (5) The vehicle is equipped with a fire extinguisher in accordance with Section 13.6.

42.16.3 Any flammable or combustible liquid transported by other than cargo tank, portable tank or transfer tank shall be transported in listed and labeled containers, with all openings tightly closed, and in an upright and secured position.

42.16.4 No person shall transport by cargo tank or transport vehicle, any combustible liquid within the Commonwealth, unless such liquid is transported in accordance with the requirements of this Chapter. No person shall transport by cargo tank or transport vehicle, any flammable liquid unless such liquid is transported in accordance with U.S. DOT, Title 49 CFR.

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Chapter 43 – Spraying, Dipping, and Coating Using Flammable or Combustible Materials

DELETE and REPLACE:

43.1.3.1.1.2 Air intake filters that are a part of a wall or ceiling assembly shall be listed as Class 1 or Class 2, in accordance with ANSI/UL 900, *Standard for Air Filter Units*. [33:5.1.1.2]

DELETE and REPLACE:

43.1.5.3* Make-Up Air. An adequate supply of clean make-up air shall be provided to compensate for the air exhausted from spray operations. The intake for this make-up air shall be located so that the air exhausted from spray operations is not recirculated. [33:7.3]

Chapter 44 – Solvent Extraction

ADD:

44.3.1 Permits may be required by Chapter 60, or other chapters, based on the type of process and level of hazard.

Comment: Committee determined a link between this chapter and other applicable chapters would be helpful for the user.

Chapter 45 – Combustible Fibers

DELETE and REPLACE:

45.5.3.1 Quantities exceeding 100 ft.³ (2.8 m³) of loose combustible fibers, but not exceeding 500 ft.³ (14.2 m³), shall be permitted to be stored in rooms or compartments in which the floors, walls, and ceilings have a fire-resistance rating of not less than ~~¾~~ **1** hour.

DELETE and REPLACE:

45.6.1.1 No single block or pile shall contain more than **7,500 ft.³ (212.376 m³)** ~~25,000 ft.³ (708 m³)~~ of combustible fibers, exclusive of aisles or clearances. **However, a single block or pile shall be permitted containing 25,000 ft.³ (708 m³) of combustible fibers, exclusive of aisles or clearances, if the criteria of NFPA 13: *Standard for the Installation of Sprinkler Systems* are met.**

Chapter 46 – Additive Manufacturing (3D Printing)

Comment: This chapter is new to 2021 NFPA 1. It regulates both industrial and nonindustrial additive manufacturing. There are references to NFPA 70, NFPA 484 or NFPA 652 for combustible printing powers, and Chapter 60 for inerted gas operations. The requirements could be found elsewhere in NFPA 1 but this chapter gathers the applicable provisions into one processing chapter.

Chapter 47 – Reserved

Chapter 48 – Reserved

Chapter 49 – Reserved

Chapter 50 – Commercial Cooking

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DELETE and REPLACE:

50.1.3* Cooking equipment used in fixed, mobile, or temporary concessions, such as trucks, buses, trailers, pavilions, tents, or any form of roofed enclosure, shall comply with NFPA 96 or this chapter unless otherwise exempted by the AHJ in accordance with 1.3.2 of NFPA 96. [96.1.13]

ADD:

50.2.1.1 Cooking equipment used in processes producing smoke or grease-laden vapors shall be equipped with an exhaust system that complies with all the equipment and performance requirements of this chapter.

(1) Type 1 hoods are required for the removal of grease-laden vapors provided they meet all the material and performance requirements of this *Code*.

(2) The following are types of hoods used for exhaust:

(a) **Type I.** Hoods designed for grease exhaust applications.

(b) **Type II.** Hoods designed for heat and steam removal and other non-grease applications. These hoods are not applicable to this standard.

ADD:

50.2.1.2.1 Certificates. Certificates, where required, shall comply with Section 1.13.

ADD:

50.6.4.1 If the AHJ determines that the exhaust system of such operation has not been inspected pursuant to Section 50.6.4 for grease buildup within the past 12-month period, the AHJ shall issue an order to cease such operation pending such inspection. Section 50.5.4.1 shall not limit the ability of the AHJ to issue such other reasonable orders relating to compliance with this Chapter.

DELETE and REPLACE:

50.6.6.2 Hoods, grease removal devices, fans, ducts, and other appurtenances shall be cleaned to remove combustible contaminants ~~prior to surfaces becoming heavily contaminated with greasy or oily sludge~~ a minimum of 50 µm (0.002 in.). A measurement system of deposition shall be established for each facility to trigger a need to clean, to verify the requirements contained in Table 50.6.4, in addition to a time reference based on equipment emissions.

ADD:

50.6.6.2.1 The owner or operator of the commercial cooking operation, or employee thereof, shall not be prohibited from conducting the actual cleaning and grease removal of hoods, grease removal devices, fans, ducts and other appurtenances of his or her own commercial cooking operations, as long as said owner, operator, or employee holds a "restricted" Certificate of Competency issued by the State Fire Marshal. However, this provision does not allow such owner, operator, or employee to conduct such cleaning services for any other commercial kitchen operation.

DELETE and REPLACE:

50.6.6.13 When an exhaust cleaning service is used, a certificate showing the name of the servicing company, the name of the person performing the work, and the date of inspection or cleaning shall be maintained on the premises. [96:12.6.13]. ~~The content, size, design, and placement of any label shall be prescribed by the State Fire Marshal.~~

ADD:

50.6.6.14.1 If a qualified individual determines that a commercial cooking system, after cleaning or inspection thereof, is not in compliance with this Chapter, relative to grease buildup and related contaminants, said individual shall, within 48 hours, notify in writing, on a form prescribed by the State Fire Marshal, the Head of the Fire

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Department of the location of said system and the nature of such noncompliance. A copy of said form shall also be given to the owner and operator of the system.

50.6.6.14.1.1 A record of each inspection for grease and related contaminants and each cleaning activity relating to grease buildup shall be produced by the qualified person who conducted said inspection or cleaning. Said record shall include:

- (1) The dates of inspection or cleaning;
- (2) Location;
- (3) The CR number for the contractor and CC number for the inspector and cleaner;
- (4) Signatures of each involved in the inspection and cleaning;
- (5) Any other information as determined by the State Fire Marshal; and
- (6) A copy of such record shall be maintained by:
 - (a) The operator within the building or structure where the system is located; and
 - (b) The qualified person who conducted said inspection or cleaning activity.

50.6.6.14.1.2 Such records shall be open to the inspection of the AHJ during regular hours of operation and shall be maintained for a period of at least three years.

Chapter 51 – Industrial Ovens and Furnaces

No amendments

Chapter 52 – Energy Storage Systems

ADD:

52.1.1.1 One- and Two-Family Dwelling and Townhouse Units. Where one- and two-family dwellings and townhouse units are provided with energy storage systems (ESS) they shall be in accordance with Chapter 15 of NFPA 855 and Section 52.9.

DELETE and REPLACE:

52.1.8.2

Operational permits ~~might be required, see Table 1-12.8(a)~~ shall be in accordance with 52.1.2.

DELETE and REPLACE

52.9 One- and Two-Family Dwelling and Townhouse Units.

Where one-and two-family dwellings and townhouse units are provided with energy storage systems (ESS) they shall be in accordance with Chapter 15 of NFPA 55.

ADD:

52.9.1* Other technology

Where other than lithium-ion energy storage systems are provided, they shall be in accordance with Table 1.3 of NFPA 855 and this code.

52.9.2 Construction Documents. The plans and specifications associated with an ESS and its intended installation, replacement or renewal, commissioning, and use shall be submitted to the AHJ for approval and include the following:

1. Location and layout diagram of the room or area in which the ESS is to be installed
2. Details on wall construction for rooms or areas where ESS are installed
3. The quantities and types of ESS units
4. Manufacturer's specifications, ratings, and listings of ESS
5. Description of energy storage management systems and their operation

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6. Location and content of required signage

7. Details on fire suppression, smoke or fire detection, gas detection, thermal management, ventilation, exhaust, and deflagration venting systems, if provided

8. Support arrangement associated with the installation, including any required seismic support.

9. Description of scope of work for retrofit or repairs of ESS

52.9.3 Decommissioning. A decommissioning plan shall be prepared in accordance with Chapter 8 of NFPA 855, submitted to the AHJ and approved prior to decommissioning the system.

52.9.4 Location. ESS shall only be installed in the locations specified by Chapter 15 of NFPA 855 and 52.9.4.1

52.9.4.1 ESS installed in enclosed utility closets, storage, or utility spaces is permitted only where the enclosed utility closet, storage, or utility space does not open into a sleeping area.

Exception: Buildings provided throughout with an automatic fire sprinkler system complying with NFPA 13D, 13R, or 13.

52.9.5 Operation, Testing and Maintenance. Operation, maintenance, and testing of ESS shall be in accordance with the manufacturer's instructions. Records shall be provided to the AHJ upon request.

52.9.6 Combustible Storage. Combustible materials not related to the ESS shall not be stored in rooms, cabinets, enclosures, or closets containing ESS equipment.

52.9.6.1 Where ESS is installed in a garage and not separated from the remainder of the room by an enclosure, combustible materials shall not be stored within 3 ft. of the ESS equipment.

52.9.7 Equipment. Repairs and retrofitting of ESS shall only be done by qualified persons, comply with the applicable provisions of NFPA 855, and documented per 52.9.2.

52.9.7.1 Replacements.

Replacement of ESS shall be considered new ESS installations and comply with the provisions applicable to new ESS.

52.9.7.2* Increase in power rating or maximum stored energy.

A complete new ESS that is added to an existing installation of one or more systems shall be treated as a new system and meet the applicable requirements. The increased system shall be evaluated in the aggregate.

Chapter 53 – Mechanical Refrigeration

ADD:

53.1.1.4 Hazardous Materials Processing

53.1.1.4.1 Ammonia and LP Gas Refrigeration systems shall comply with 60.8.

DELETE:

53.1.2.1

Chapter 54 – Ozone Gas Generating Equipment

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Chapter 54 Delete in its entirety.

Chapter 55 – Cleaning and Purging of Flammable Gas Piping Systems

No amendments

Chapter 56 – Reserved

Chapter 57 – Reserved

Chapter 58 – Reserved

Chapter 59 – Reserved

Chapter 60 – Hazardous Materials

ADD:

60.1.2

(14) Consumer fireworks, 1.4G in mercantile occupancies complying with Section 65.10 [5000:34.1.1.2]

(15) Closed piping systems containing flammable or combustible liquids or gases utilized for the operation of machinery or equipment.

(16) The storage or utilization of materials for agricultural purposes on the premises complying with the Building Code Appendix C Group U—Agricultural Buildings.

(17) The storage of black powder, smokeless propellants, small arms primer in use group M or R-3 and special industrial explosive devices in use group B, F, M, and S provided the storage conforms to Chapter 65.

DELETE and REPLACE:

60.4.2.1.1.3 The MAQ of hazardous materials per control area shall be as specified in Table 60.4.2.1.1.3 except as modified by 60.4.2.1.2 through 60.4.2.1.5. Ammonium nitrate shall also comply with Chapter 11 of NFPA 400. ~~[400:5.2.1.1.3]~~ A permit shall not be issued in excess of these quantities until such time that the Building Official has confirmed the facility is classified and constructed as the appropriate a H- use, control area, or is exempt.

REPLACE table as follows:

Table 60.4.2.1.1.3 Maximum Allowable Quantity (MAQ) of Hazardous Materials per Control Area a,p,q,s,u,v

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		High	Storage ^a			Use – Closed Systems ^a			Use – Open Systems ^a	
Material	Class	Hazard		Liquid			Liquid			Liquid
		Protection	Solid	Gallons	Gas ^b scf	Solid	Gallons	Gas ^b scf	Solid	Gallons
		Level	Pounds	(lb)	(lb)	Pounds	(lb)	(lb)	Pounds	(lb)
Physical Hazard Materials										
Combustible liquid ^{m,o}	II	2 or 3	N/A	120c,d	N/A	N/A	120 ^d	N/A	N/A	30 ^d
	IIIA	2 or 3	N/A	330c,d	N/A	N/A	330 ^d	N/A	N/A	80 ^d
	IIIB	N/A	N/A	13200 ^{c,e}	N/A	N/A	13200 ^e	N/A	N/A	3300 ^e
Combustible dust	N/A	2	See note v	N/A	N/A	See note v	N/A	N/A	See note v	N/A
Combustible fiber ^t	Loose	3	(100)	N/A	N/A	(100)	N/A	N/A	(20)	N/A
	Baled ^r	3	(1000)	N/A	N/A	(1000)	N/A	N/A	(200)	N/A
Cryogenic fluid [55:Table 6.3.1]	Flammable	2	N/A	45 ^d	N/A	N/A	45 ^d	N/A	N/A	45 ^d
	Oxidizing	3	N/A	45 ^d	N/A	N/A	45 ^d	N/A	N/A	45 ^d
	Inert	N/A	N/A	N/A	NL	N/A	N/A	NL	N/A	N/A
Explosives	Division 1.1	1	1 c,i	(1) c,i	N/A	¼ i	(1/4) ⁱ	N/A	¼ i	(1/4) ⁱ
	Division 1.2	1	1 c,i	(1) c,i	N/A	¼ i	(1/4) ⁱ	N/A	¼ i	(1/4) ⁱ
	Division 1.3	1 or 2	5 c,i	(5) c,i	N/A	1i	(1) ⁱ	N/A	1 i	(1) ⁱ
	Division 1.4	3	50 c,i	(50) ^{c,i}	N/A	50 ⁱ	(50) ⁱ	N/A	N/A	N/A
	Division 1.4G	3	125 c,i	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Division 1.5	1	1 c,i	(1) c,i	N/A	¼ i	(1/4) i	N/A	¼ i	(1/4) i
	Division 1.6	1	1 c,i	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flammable Gasl [55: Table 6.3.1]	Gaseous	2	N/A	N/A	1000 c,d	N/A	N/A	1000 c,d	N/A	N/A
	Liquefied	2	N/A	N/A	(150) c,d	N/A	N/A	(150) c,d	N/A	N/A
	Liquefied Petroleum (LP)	See note	See note	See note	See note	See note	See note	See note	See note	See note

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~~Stricken Language~~

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		High	Storage ^a			Use – Closed Systems ^a			Use – Open Systems ^a	
Material	Class	Hazard		Liquid			Liquid			Liquid
		Protection	Solid	Gallons	Gas ^b scf	Solid	Gallons	Gas ^b scf	Solid	Gallons
		Level	Pounds	(lb)	(lb)	Pounds	(lb)	(lb)	Pounds	(lb)
Flammable Liquid ^m	IA	2	N/A	30c,d	N/A	N/A	30 ^d	N/A	N/A	10 ^d
	IB and IC	3	N/A	120 c,d	N/A	N/A	120 ^d	N/A	N/A	30 ^d
	Combination (IA, IB, IC)	2 or 3	N/A	120 c,d,n	N/A	N/A	120 d,n	N/A	N/A	30 d,n
Flammable Solid	N/A	3	125 c,d	N/A	N/A	125 ^d	N/A	N/A	25 ^d	N/A
Inert Gas	Gaseous	N/A	N/A	N/A	NL	N/A	N/A	NL	N/A	N/A
	Liquefied	N/A	N/A	N/A	NL	N/A	N/A	NL	N/A	N/A
Organic Peroxide	UD	1	1c,i	(1) c,i	N/A	¼i	(1/4) ⁱ	N/A	¼ i	(1/4) ⁱ
	I	2	5 c,d	(5) c,d	N/A	1 ^d	(1) ^d	N/A	1 d	(1) ^d
	II	3	50 c,d	(50) ^{c,d}	N/A	50 ^d	(50) ^d	N/A	10 ^d	(10) ^d
	III	3	125 c,d	(125) ^{c,d}	N/A	125 ^d	(125) ^d	N/A	25 ^d	(25) ^d
	IV	N/A	NL	NL	N/A	NL	NL	N/A	NL	NL
	V	N/A	NL	NL	N/A	NL	NL	N/A	NL	NL
Oxidizer	4	1	1i	(1) ⁱ	N/A	¼i	(1/4) ⁱ	N/A	¼ i	(1/4) ⁱ
	3f	2 or 3	10c,d	(10) ^{c, d}	N/A	2d	(2) ^d	N/A	2 d	(2) ^d
	2	3	250,c, d	(250) ^{c, d}	N/A	250 ^d	(250) ^d	N/A	50 ^d	(50) ^d
	1	N/A	4000 ^{c,e}	(4000) ^{c,e}	N/A	4000 ^e	(4000) ^e	N/A	1000 ^e	(1000) ^e
Oxidizing Gas	Gaseous	3	N/A	N/A	1500g,c,d	N/A	N/A	1500 g,c,d	N/A	N/A
	Liquefied	3	N/A		(1500) ^{g,c,d}	N/A		(1500) ^{g,c,d}	N/A	N/A
Pyrophoric		2	4c,i	(4) c,i	N/A	1i	(1) ⁱ	N/A	0	0
Pyrophoric Gas	Gaseous	2	N/A	N/A	50 c,i	N/A	N/A	10c,i	N/A	N/A
	Liquefied	2	N/A	N/A	(4) c,i	N/A	N/A	(4) c,i	N/A	N/A
Unstable (reactive)	4	1	1c,i	(1) c,i	N/A	¼i	(1/4) ⁱ	N/A	¼ i	(1/4) ⁱ
	3	1 or 2	5c,d	(5) c,d	N/A	1 d	(1) ^d	N/A	1 d	(1) ^d
	2	2	50 c,d	(50) ^{c,d}	N/A	50 ^d	(50) ^d	N/A	10 ^d	(10) ^d
	1	N/A	NL	NL	N/A	NL	NL	N/A	NL	NL
Unstable (reactive) Gas	Gaseous 4 or 3	1	N/A	N/A	10 c,i	N/A	N/A	2 i	N/A	N/A

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		High	Storage ^a			Use – Closed Systems ^a			Use – Open	
		Hazard		Liquid			Liquid			Liquid
		Protection	Solid	Gallons	Gas ^b scf	Solid	Gallons	Gas ^b scf	Solid	Gallons
Material	Class	Level	Pounds	(lb)	(lb)	Pounds	(lb)	(lb)	Pounds	(lb)
	Detonable 3	2	N/A	N/A	50 c,d	N/A	N/A	10 ^d	N/A	N/A
	Nondetonable 2	3	N/A	N/A	750 c,d	N/A	N/A	750 ^d	N/A	N/A
	1	N/A	N/A	N/A	NL	N/A	N/A	NL	N/A	N/A

		High	Storage ^a			Use – Closed Systems ^a			Use – Open Systems ^a	
		Hazard		Liquid			Liquid			Liquid
		Protection	Solid	Gallons	Gas ^b scf	Solid	Gallons	Gas ^b scf	Solid	Gallons
Material	Class	Level	Pounds	(lb)	(lb)	Pounds	(lb)	(lb)	Pounds	(lb)
Water (reactive)	3	2	5 c,d	(5) c,d	N/A	5 d	(5) ^d	N/A	1 d	(1) ^d
	2	3	50 c,d	(50) ^{c,d}	N/A	50 ^d	(50) ^d	N/A	10 ^d	(10) ^d
	1	N/A	NL	NL	N/A	NL	NL	N/A	NL	NL
Corrosive	N/A		5000 ^d	500 ^d	N/A	5000 ^d	500c,d	N/A	1000 ^d	100 ^d
Corrosive gas	Gaseous	4	N/A	N/A	810 ^c	N/A	N/A	810 c,d	N/A	N/A
	Liquefied	4	N/A	N/A	(150) ^c	N/A	N/A	(150) ^{c,d}	N/A	N/A
Highly Toxic	N/A		10 ^d	(10) ^d	N/A	10 ^d	(10) ^{c,d}	N/A	3 d	(3) ^d
Highly Toxic Gas	Gaseous	4	N/A	N/A	20d,g	N/A	N/A	20 d,g	N/A	N/A
	Liquefied	4	N/A	N/A	(4) d,g	N/A	N/A	(4) d,g	N/A	N/A
Toxic	N/A		500 ^d	(500) ^d	N/A	500 ^d	(500) ^d	N/A	125 ^d	(125) ^d
Toxic Gas	Gaseous	4	N/A	N/A	810 c,d	N/A	N/A	810 c,d	N/A	N/A
	Liquefied	4	N/A	N/A	(150) ^{c,d}	N/A	N/A	(150) ^{c,d}	N/A	N/A

UD: Unclassified detonable

For SI units, 1 lb = 0.454 kg; 1 gal = 3.785 L; 1 scf = 0.0283 Nm³. N/A: Not applicable. NL: Not limited. NP: Not permitted.

Note: The hazardous material categories and MAQs that are shaded in this table are not regulated by Chapter 60 or NFPA 400: *Hazardous Materials Code* but are provided here for informational purposes. See Chapter 2 for the reference code or standard governing these materials and establishing the MAQs. In accordance with 1.1.1.2 of NFPA 400, materials having multiple hazards that fall within the scope of NFPA 400 shall comply with NFPA 400.

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- a. Table values in parentheses correspond to the unit name in parentheses at the top of the column. The aggregate quantity in use and storage is not permitted to exceed the quantity listed for storage.
- b. Measured at NTP or 70°F (21°C) and 14.7 psia (101.3 kPa).
- c. Quantities are permitted to be increased 100% where stored or used in approved cabinets, gas cabinets, exhausted enclosures, gas rooms explosives magazines, or safety cans, as appropriate for the material stored, in accordance with this *Code*. Where footnote d also applies, the increase for both footnote c. and footnote d. is permitted to be applied accumulatively.
- d. Maximum quantities are permitted to be increased 100% in buildings equipped throughout with an automatic sprinkler system in accordance with NFPA 13: *Standard for the Installation of Sprinkler Systems*. Where footnote c. also applies, the increase for both footnote c. and footnote d. is permitted to be applied accumulatively.
- e. The permitted quantities are not limited in a building equipped throughout with an automatic sprinkler system in accordance with NFPA 13: *Standard for the Installation of Sprinkler Systems*.
- f. A maximum quantity of 200 lb (91 kg) of solid or 20 gal (76 L) of liquid Class 3 oxidizer is permitted where such materials are necessary for maintenance purposes, operation, or sanitation of equipment. Storage containers and the manner of storage are required to be approved.
- g. Allowed only where stored or used in gas rooms or approved cabinets, exhausted gas cabinets or exhausted enclosures, as specified in this *Code*. [5000: Table 34.1.3.1]
- h. Conversion. Where quantities are indicated in pounds and when the weight per gallon of the liquid is not provided to the AHJ, a conversion factor of 10 lb/gal (1.2 kg/L) shall be used.
- i. Permitted only in buildings equipped throughout with an automatic sprinkler system in accordance with NFPA 13: *Standard for the Installation of Sprinkler Systems*.
- j. None allowed in unsprinklered buildings unless stored or used in gas rooms or in approved gas cabinets or exhausted enclosures, as specified in this *Code*.
- k. With pressure-relief devices for stationary or portable containers vented directly outdoors or to an exhaust hood. [55: Table 6.3.1.1]
- l. Flammable gases in the fuel tanks of mobile equipment or vehicles are permitted to exceed the MAQ where the equipment is stored and operated in accordance with this *Code*. [400: Table 5.2.1.1.3]
- m. The quantities of alcoholic beverages in retail and wholesale sales occupancies shall not be limited provided the liquids are packaged in individual containers not exceeding 1.3 gallons. In retail and wholesale sales occupancies, the quantities of medicines, foodstuffs or consumer products, and cosmetics containing not more than 50% by volume of water-miscible liquids with the remainder of the solutions not being

flammable, shall not be limited, provided that such materials are packaged in individual containers not exceeding 1.3 gallons.

n. Containing not more than the maximum allowable quantity per *control area* of Class IA, IB or IC flammable liquids.

o. The maximum allowable quantity shall not apply to fuel oil storage complying with Section 603.3.2 of the *International Fire Code* in accordance with the *Building Code*.

p. For gallons of liquids, divide the amount in pounds by ten in accordance with Section 5003.1.2 of the *International Fire Code* in accordance with the *Building Code*.

q. For storage and display quantities in Group M and storage quantities in Group S occupancies complying with the *Building Code*.

r. Densely packed baled cotton that complies with the packing requirements of ISO 8115: *Cotton Bales -- Dimensions and density* shall not be included in this material class in accordance with the *Building Code*.

s. The following shall not be included in determining the maximum allowable quantities in accordance with the *Building Code*:

1. Liquid or gaseous fuel in fuel tanks on vehicles.

2. Liquid or gaseous fuel in fuel tanks on motorized equipment operated in accordance with the *International Fire Code*.

3. Gaseous fuels in piping systems and fixed appliances regulated by the *International Fuel Gas Code*.

4. Liquid fuels in piping systems and fixed appliances regulated by the *International Mechanical Code*.

5. Alcohol-based hand rubs classified as Class I or II liquids in dispensers that are installed in accordance with Sections 5705.5 and 5705.5.1 of the *International Fire Code*. The location of the alcohol-based hand rub (ABHR) dispensers shall be provided in the construction documents.

t. Where manufactured, generated or used in such a manner that the concentration and conditions create a fire or explosion hazard based on information prepared in accordance with the *Building Code*.

u. For use of control areas, see the *Building Code*.

v. Quantities in parenthesis indicate quantity units in parenthesis at the head of each column.

DELETE:

60.4.2.1.2 through 60.4.2.1.4

DELETE:

Table 60.4.2.1.2.1

DELETE and REPLACE

60.5.1.3.7.1 The person, firm, or corporation responsible for an unauthorized release shall institute and complete all actions necessary to remedy the effects of such unauthorized release, whether sudden or gradual, at no cost to the AHJ, **in accordance with M.G.L. 21E, Massachusetts Oil and Hazardous Material Release Prevention Act.**

~~[400:6.1.3.7.1]~~

ADD:

60.5.1.4.3.2

(5) Identify Emergency Coordinators who will either be on the premises or on call and available to respond to an emergency within one hour of an emergency situation.

(6) Maintain an updated list containing the names, and the office, home, and/or mobile telephone number(s) of all designated Emergency Coordinators and the times of their availability. If for a particular period more than one individual is listed, the primary Emergency Coordinator shall be identified and others shall be listed in the order in which they will assume responsibility to fulfill the requirements of this role.

(7) Maintain and provide to the AHJ, a facility floor plan, not to scale, showing the locations of the hazardous material stored, the typical volumes, location of emergency spill containment equipment (pads, booms, etc.).

(8) For those facilities covered by Section 60.8 and having either Category 3, Category 4 and Category 5 processes, their Emergency Response Liaison personnel shall communicate to the fire department any concerns and establish a protocol in conjunction with the AHJ on the shutdown of any of the process that would pose a risk to the public in the event of loss of any controls. This protocol shall include a facility liaison to meet with the Incident Commander upon arrival to ensure a safe shutdown if necessary.

(9) Notify the AHJ of any material changes to the Emergency Response Plan, including the name of the primary Emergency Coordinator, within 14 calendar days of the change.

DELETE and REPLACE:

60.5.1.19.1.1 **Underground storage tanks** ~~used for the storage of liquid hazardous materials shall be provided with secondary containment.~~ ~~[400:6.1.19.1.1]~~ **are regulated by 310 CMR 80.00: Underground Storage Tank (UST) Systems.**

DELETE and REPLACE:

60.7 Performance Alternative. In lieu of complying with Chapter 60 in its entirety, occupancies containing high hazard Level 1 to high hazard Level 5 contents shall be permitted to comply with Chapter 10 of NFPA 400, *Hazardous Materials Code*, subject to an independent review in accordance with Section 1.15 and a copy, including its recommendations, shall be submitted to the Building Official.

ADD:

60.8 Hazardous Material Process or Processing.

60.8.1 General. This section shall apply to both new and existing facilities that process hazardous materials.

60.8.1.1 This section shall not apply to the following:

- (1)** Motor vehicle service stations regulated in accordance with Chapter 30;
- (2)** Construction and maintenance projects regulated in accordance with this Code;

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- (3) Products that are designed pre-mixed in accordance with the manufacturer's instructions or products that are labeled and packaged for sale to the consumer at retail;
- (4) The activities of healthcare professional offices or facilities under the supervision of a licensed medical doctor, dentist, or veterinarian;
- (5) Retail facilities such as pharmacies, hardware stores, department stores, or restaurants regulated by and in accordance with the provisions of this Code;
- (6) Refrigeration systems which employ a refrigerant other than ammonia or LPG;
- (7) The processing or treatment of potable water and sanitary wastewater;
- (8) Wastewater treatment operations that are operated by Grades 1I, 1M, 2I, and 2M operators as classified according to 257 CMR 2.00: Certification of Operators of Wastewater Treatment Facilities;
- (9) The consumption of fuels solely for the purpose of the operation of equipment, such as generators, torches, and consumptive use boilers regulated in accordance with the provisions of this Code;
- (10) The storage of hazardous materials in atmospheric vessels, if they are maintained below the stored material's normal boiling point without benefit of chilling, refrigeration, or heat;
- (11) The processing of hazardous materials and their byproducts which has a hazard ratings of two or less, according to criteria of NFPA 704;
- (12) Hazardous waste activities regulated and in compliance with the provisions of 310 CMR 30.00: Hazardous Waste;
- (13) Biological and medical activities regulated by the Department of Public Health;
- (14) Handling and use of liquid nitrogen cooling systems at atmospheric pressure;
- (15) The handling and repackaging of products regulated in accordance with the provisions of this Code;
- (16) Use of inert gas;
- (17) Swimming pools regulated by Department of Public Health under 105 CMR 435.000: Minimum Standards for Swimming Pools (State Sanitary Code: Chapter V);
- (18) Air pollution control devices that are a component of a process regulated by Massachusetts Department of Environmental Protection under 310 CMR 7.00: Air Pollution Control;
- (19) The production and handling of explosives and fireworks regulated in accordance with Chapter 65;
- (20) The equipment, process, handling, storage, or use of compounds, liquids, pesticides, fertilizers, or soil treatments regulated in accordance with the provisions of this Code or as regulated by 248 CMR: Board of State Examiners of Plumbers and Gas Fitters.

ADD:

60.8.1.1.1 Permits. Permits where required, shall comply with Section 1.12.

ADD:

60.8.2 Terms. As used in Chapter 60, the enclosed terms shall have the following meaning assigned to them.

60.8.2.1 Capacity. The nominal capacity of the vessel as specified by the manufacturer.

60.8.2.2 Category 3 Hazard Evaluation. A written evaluation performed or procedure conducted to identify hazards, including adjacent vessels that contain hazardous materials, and determine the required preventive, protective, and safety control measures in conformance with recognized and generally accepted good engineering and safe work practices associated with a particular process or condition and the facility wherein such process or condition is taking place.

60.8.2.3 Category 4 Limited Safety Program. A documented evaluation, policy, or required procedure to ensure compliance with all of the following:

- (1) Process information including, but not limited to, MSDS for the chemicals and products being processed, process chemistry, piping and instrumentation diagram, safety relief design, process control safety alarms and interlocks;

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- (2) Facility suitability including, but not limited to, the Building Code compliance, electrical hazard (Check article 500) classification, ventilation design, fire alarm and fire protection, spill containment and control;
- (3) A process hazard safety analysis including but not limited to, effects in the event of failure, suitable administrative and engineering controls to minimize failure and to control unanticipated releases, and emergency responses to safeguard life and property;
- (4) Written procedures, including routine operating and maintenance, as well as precautionary, shut-down and emergency response measures;
- (5) A written training program for operating and maintenance personnel and outside contractors whose work or activity may affect process safety;
- (6) A written records management protocol which tracks any changes, including but not limited to changes to chemicals, equipment, operating procedures training program. Such records shall include the date of such change and the name of the manager responsible for such change; and an internal review at a maximum every three years.

60.8.2.4 Competent Professional. A person who, based upon education, training, skill, experience or professional licensure or a combination thereof, has a specialized knowledge beyond that of an average person, about risk assessment, process hazard analysis, and/or process safety management principles, for the process or processes being evaluated.

60.8.2.5 Facility. A structure, building or complex of buildings or structures where hazardous materials are processed.

60.8.2.6 Facility Category. Since multiple hazardous material processes may exist within a facility, each facility shall identify all the categories of processes present and verify compliance with all the categories for each process identified at the facility.

60.8.2.6.1 For purposes of determining facility category classification under Section 60.8, the highest level of actual or possible hazardous process category shall determine the appropriate Facility Category.

60.8.2.7 High-hazard Group H. High-hazard Group H occupancy includes, among others, the use of a building or structure, or a portion thereof that involves the manufacturing, processing, generation or storage of materials that constitute a physical or health hazard in quantities in excess of those allowed in control areas complying with the Building Code.

60.8.2.8 Incident. An unplanned event arising from a hazardous material process resulting in a fire, explosion, reportable release, or injury.

60.8.2.9 Mixture. A combination of materials in a vessel. The mixture shall be considered a different material from those before being added to the vessel, regardless of whether a reaction or change of state occurred in the vessel, and regardless of whether the mixture is homogeneous or heterogeneous. Material hazards of the mixture shall be classified based on the hazards of the mixture as a whole, in accordance with nationally recognized reference standards, by an approved qualified organization, individual, or Material Safety Data Sheets (MSDS), or by other approved methods.

60.8.2.10 Person. An individual, firm, corporation, company, partnership, association, including any officer, trustee, assignee, receiver, personal representative, designee, manager or employee thereof.

60.8.2.11 Vessel. The container in which partial or the actual process takes place. Examples of vessels are beakers, pails, tanks, reactor kettles, pipe reactors, and drums. The size of a vessel is its capacity.

ADD:

60.8.3 Hazardous Process Category. Hazardous Material processes shall be defined per 60.8.3.1 through 60.8.3.5.

60.8.3.1 Category 1 Process. A process which involves or produces a Hazardous Material which occurs in a vessel with a capacity that is less than or equal to 2.5 gallons.

60.8.3.2 Category 2 Process. A process which involves or produces a Hazardous Material which occurs in a vessel with capacity that is greater than 2.5 gallons but less than or equal to 60 gallons.

60.8.3.3 Category 3 Process. A process which involves or produces a Hazardous Material which occurs in a vessel that is greater than 60 gallons but is less than or equal to 300 gallons that contains a hazardous material that is processed or a process area that is classified as being a H Occupancy as defined by the Building Code.

60.8.3.4 Category 4 Process. A process which involves or produces a Hazardous Material which occurs in a vessel with a capacity that is greater than 300 gallons and is not considered a Category 5 Process.

60.8.3.5 Category 5 Process. A process which involves or produces Hazardous Material which occurs in a vessel with a capacity that is equal or in excess of threshold quantities stated in 29 CFR 1910.119 or 40 CFR Part 68 and regulated by such standard.

60.8.3.6 Multiple Processes. Since multiple hazardous material processes may exist within a facility, each facility shall identify all the categories of processes present and verify compliance with all the categories for each process identified at the facility.

60.8.3.6.1 For purposes of determining category classification under this Code the actual or possible Hazardous Processing activity shall determine the appropriate Category.

ADD:

60.8.4 Permits. Permits, where required, shall comply with Sections 1.12 and 60.8.4.1 through 60.8.4.4.

60.8.4.1 No person shall engage in the Process or Processing of any Hazardous Material at any Facility identified in Section 60.8 as Category 2 through Category 5 unless said Facility is in compliance with the permit requirements of the provisions of this Code.

60.8.4.1.1 A permit holder shall apply for the renewal of said permit on an annual basis.

60.8.4.1.2 The application shall contain such information and be in a form as prescribed by the State Fire Marshal.

60.8.4.2 An applicant for the permit required by Section 1.12 shall submit an application for Permit to Process Hazardous Material to the Head of the Fire Department on a form prescribed by the State Fire Marshal.

60.8.4.3 As provided in M.G.L. c. 148, § 10A the AHJ may deny or withhold the issuance of a permit however, such denial or withholding shall be in writing. Said notice of denial shall contain specifications of the alleged violation or deficiency together with their interpretation of Section 60.8. The AHJ shall be permitted to require technical assistance in accordance with Section 1.15 to evaluate the adequacy of Category 3 or Category 4 process safety conditions, programs, procedures, and practices undertaken at the facility but only after a notice of denial has been properly served upon the person making application.

60.8.4.4 Any person who has been permitted to engage in the Process or Processing of Hazardous Material at any Facility or any person creating a new process facility, shall, prior to engaging in any new or modified hazardous material process activity which results in a change to the highest process category authorized by the current permit, notify the Head of the Fire Department of such new change or modification and submit a new application to appropriately modify the existing permit.

ADD:

60.8.5 Compliance Requirements.

60.8.5.1 Facilities operating hazardous material processes as defined by this Code shall maintain, for each process in their facility, the following required documents and procedures at their facility for periodic inspection and review by the Head of the Fire Department to remain in compliance with this Section.

60.8.5.1.1 Category 1 Process Documents. Provide the following documentation for Category 1 processes.

(1) Documentation that adequately demonstrates that the facility maintains and implements a policy in compliance with 29 CFR 1910.1200 and 29 CFR 1910.1450 as applicable, and

(2) Documentation that adequately demonstrates that the facility maintains and implements a policy in compliance with Chapter 66, Flammable and Combustible Liquids, Chapter 67, Flammable Solids, as applicable, and

(3) Demonstrate compliance with Sections 60.1.5.1 Emergency Action Plan and Sections 60.5.1.4.3.2 (5) through (9).

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(4) Comply with the permitting requirements of Sections 1.12 and 60.8.4.

60.8.5.1.2 Category 2 Process Documents. Provide the following documentation for Category 2 processes.

(1) Provide documentation that adequately demonstrates that the facility complies with the requirements for a Category 1 Process in accordance with Section 60.8.5.1.1.

60.8.5.1.3 Category 3 Process Documentation and Analysis. Provide the following documentation and evaluations for Category 3 processes.

(1) Provide documentation that adequately demonstrates that the facility complies with the requirements for a Category 2 Process in accordance with Section 60.8.5.1.2; and

(2) Complete a Category 3 Hazard Evaluation for each Category 3 process; and

(3) Ensures a Hazard Evaluation policy is in place and has been completed prior to conducting such process or activity modification thereto; and

(4) Implement appropriate process safety controls to mitigate the hazards associated with normal and abnormal operating conditions as identified in the Category 3 Hazard Evaluation; and

(5) Maintain Category 3 Hazard Evaluation documents and records for review by the Head of the Fire Department or Marshal for a minimum of two years following issuance of a permit.

60.8.5.1.4 Category 4 Process Documentation and Analysis. Provide the following documentation and evaluations for Category 4 processes.

(1) Provide documentation that adequately demonstrates that the facility complies with the requirements for a Category 3 Process in accordance with Section 60.8.5.1.3; and

(2) Complete a Category 4 Limited Process Safety Program for each Category 4 Process.

(3) Ensure a Category 4 Limited Process Safety Program policy is in place and has been completed prior to each process or being modified.

(4) Implement appropriate process safety controls to mitigate the hazards associated with normal and abnormal operating conditions as identified in the Category 4 Process Limited Safety Program; and

(5) Maintain Category 4 Limited Safety Program documents and records for review by the Head of the Fire Department or Marshal for a minimum of two years following issuance of a permit.

60.8.5.1.5 Category 5 Process Documentation and Analysis. Provide the following documentation and evaluation for Category 5 processes.

(1) Provide documentation that adequately demonstrates that the facility complies with the requirements for Category 4 process in accordance with Section 60.8.5.1.4; and

(2) Implement and self-certify compliance with 29 CFR 1910.119 Process Safety Management of Highly Hazardous Chemicals program or with 40 CFR Part 60 Chemical Accident Prevention Provisions.

(3) Maintain Hazard Evaluation documents and records for review by the Head of the Fire Department or Marshal for a minimum of two years following issuance of a permit.

ADD:

60.8.6 Post-incident Analysis.

60.8.6.1 Post-incident analysis shall be applicable to Category 3 and Category 4 processes. For a Category 5 Process, a copy of the report submitted in accordance with the OSHA or EPA Risk Management Standard, shall be considered acceptable.

60.8.6.1.1 In the event of an incident involving a process in which there is fire department, EMS response, or a notification of unauthorized release, a written post incident analysis must be initiated within 48 hours. Upon completion of the analysis, the AHJ shall be given a duplicate copy of the analysis.

60.8.6.1.2 A completed post-incident written analysis report shall be completed within 45 days, unless an extension is provided by the AHJ for just reason.

60.8.6.1.3 The post-incident analysis report shall provide the following information:

(1) A summary of the cause of the incident and contributing factors;

(2) Recommendations to prevent a future recurrence;

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(3) A summary of the dates of implementation of the post-incident analysis recommendations and corrective actions;

(4) A reassessment and confirmation of the category under which the facility is operating or application for a new permit as part of the report.

ADD:

60.8.7 Trade Secrets. A facility owner or operator subject to this Code and required to submit to the AHJ a permit application and/or supporting documents may claim information as a trade secret as provided in this Section.

60.8.7.1 A facility owner/operator shall be permitted to withhold the name of a specific hazardous material when notifying the fire department under Section 60.8 if that chemical is claimed as a trade secret or confidential business information.

60.8.7.2 If the hazardous material is claimed as a trade secret:

(1) The generic class or category that is structurally descriptive of the chemical must be provided on the permit application as a matter of public record;

(2) The Material Safety Data Sheet (MSDS) for the hazardous substance shall be available for review on-site by representatives of the Fire Department or the State Fire Marshal.

60.8.7.3 A facility owner or operator shall be permitted to claim information, required under this Code, is treated as confidential and not as a matter of public record if:

(1) The information has not been disclosed to anyone else, other than employees of the facility or the AHJ, an officer or employee of the United States or a state or local government, or anyone who is bound by a confidentiality agreement;

(2) The facility has taken reasonable measures to protect the confidentiality of such information and intends to continue to take such measures;

(3) The information is not required to be disclosed, or otherwise made available to the public under any other federal or state law; and

(4) Disclosure of the information may cause substantial harm to the competitive position of the facility.

60.8.7.4 All documentation and records claimed as trade secret or confidential information, including but not limited to the "Permit to Process Hazardous Material Application", "hazard evaluation documentation", "process safety program documentation", shall be clearly marked as "Trade Secret", "Confidential", or other words of similar meaning.

Chapter 61 – Aerosol Products

(No amendments)

Chapter 62 – Reserved

Chapter 63 – Compressed Gases and Cryogenic Fluids

(No amendments)

Chapter 64 – Corrosive Solids and Liquids

(No amendments)

Chapter 65 - Explosives, Fireworks, Model Rocketry, Cannons, and Mortars.

ADD:

65.1.3 Certificates. Certificates, where required, shall comply with Section 1.13.

65.1.4 Terms. As used in Chapter 65 the enclosed terms shall have the following meaning assigned to them.

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Comment: Terms were moved from 65.9 to 65.1.4 in order to consolidate all of the MA-specific terms in one location.

65.1.4.1 Barrier. as used in Chapter 65, is an object or structure, such as, but not limited to, a fence with warning sign, or tape, that prohibits or restricts passage or travel.

65.1.4.2 ~~65.9.1.2.1~~ Blasting Mat. A mat of woven steel wire, rope, scrap tires, or other suitable material, earth fill or construction to cover blast holes, for the purpose of preventing flyrock.

65.1.4.3 ~~65.9.1.2.2~~ Blasting Operation. Any person engaged in the conduct of blasting under the terms of a contract or otherwise.

65.1.4.4 Maximum charge per delay. The maximum weight of explosives detonated per eight (8) milliseconds or less when using pyrotechnic initiation (non-electric and electric) or the maximum weight of explosives detonated per millisecond when using non-pyrotechnic electronic initiation.

Comment: This proposal was brought forth from BFPR member, Ken Smith. The criterion of 8 milliseconds is antiquated and based on equipment capabilities that have been surpassed as technology advances. In some cases, detonation under 8 milliseconds lead to less ground vibration and better practice. This change allows for a practice allowance within the code. Ken Smith is planning to propose this change through an industry group to a future edition of NFPA 495.

65.1.4.5 Natural Barrier. A restrictive terrain, or body of water, that in itself, will assist in restricting the display area at a fireworks show without the need for an additional barrier to be erected. Natural barriers must be approved by the State Fire Marshal in advance of a show.

65.1.4.6 Physical Barrier. A structure of substantial strength that is uniformly supported and provides an uninterrupted barrier both vertically and horizontally that consists of a height no less than 40 inches including, but not limited to, snow fencing or its equivalent.

65.1.4.7 ~~65.9.1.2.3~~ Special Industrial Explosives Device. Shaped materials, sheet forms, and various other extrusions, pellets, and packages of high explosives used for high-energy-rate forming, expanding, and shaping in metal fabrication and for dismemberments and reduction of scrap metal.

65.1.4.7.1 ~~65.9.1.2.3.1~~ The high explosives used include dynamite, trinitrotoluene (TNT), PETN, and cyclotrimethylenetrinitramine (RDX).

65.1.4.7.2 ~~65.9.1.2.3.2~~ Special industrial explosive material shall also include explosive materials used exclusively for research and development including, but not limited to, explosive detection and explosive safety.

DELETE and REPLACE:

65.2.1 The construction, handling, and use of fireworks intended solely for outdoor display as well as the general conduct and operation of the display, shall comply with the requirements of NFPA 1123, *Code for Fireworks Display*, including its annexes A, D and E.

DELETE and REPLACE

65.2.2 All storage of display fireworks shall comply with NFPA 1124, *Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles*.

ADD:

65.2.4 Delivery of Fireworks.

65.2.4.1 Delivery of fireworks shall be made only to authorized persons who are in possession of a valid Certificate of Competency (Fireworks Display) and a Permit to Display Fireworks (Supervised Display of Fireworks).

65.2.4.2 As soon as the fireworks have been delivered to a display site, they shall not be left unattended, and they shall be kept dry.

65.2.4.3 Upon delivery of the fireworks to the display site, members of the public, the audience, spectators, and other persons not otherwise authorized by the AHJ, shall be kept at a distance not less than those specified in NFPA

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1123, Table 5.1.3.1 *Distances for Outdoor Aerial Shell Display Sites: Minimum Separation Distances from Mortars to Spectators for Land or Water Displays.*

65.2.4.3.1 Where it is impractical to locate the delivery vehicle within the perimeter of the display site the vehicle shall be parked and secured.

65.2.4.3.1.1 The minimum secured radius from any point of transfer of fireworks from the vehicle to the display site shall be 150 ft.

65.2.4.3.1.2 Audience members, spectators and the general public shall not be allowed within this area.

65.2.5 Requirements for Display Fireworks.

65.2.5.1 The audience at a supervised display of fireworks shall be restrained behind a physical or natural barrier.

65.2.5.1.1 Such barrier shall clearly define the restricted display site.

65.2.5.1.2 This restricted area shall be defined based on the minimum separation distances specified by NFPA 1123, Table 5.1.3.1 *Distances for Outdoor Aerial Shell Display Sites: Minimum Separation Distances from Mortars to Spectators for Land or Water Displays.*

65.2.5.2 A portable anemometer or similar device for measuring wind velocity shall be available for use at all times by the operator.

65.2.5.2.1 Any supervised display of fireworks shall be stopped immediately in the event that upper level wind conditions cause the fall out area to change and pose a threat to public safety or property.

65.2.5.2.2 A test shot shall be provided to check for high level winds at the request of the AHJ.

65.2.5.2.3 The term high winds as used in this section are when the wind velocity exceeds 20 miles per hour at ground level.

65.2.6 Nighttime Fireworks. Where fireworks are displayed at night, a thorough search of the display site shall be made by the competent operator immediately after the display and again at first light the following morning to ensure recovery of all unexploded shells.

65.2.6.1 If the competent operator is unavailable due to unforeseen circumstances such as illness or injury, a substitute competent operator, upon approval of the AHJ, shall be permitted conduct the aforementioned searches. A thorough search shall include, but not be limited to:

- (1) A Search as described above;
- (2) Completed form prescribed by the State Fire Marshal that indicates the start and stop time of the search; and
- (3) Acknowledgement by the operator and Head of the Fire Department or his or her designee that they have completed the requirements of this section.

65.2.7 Fire Department Coordination. The sponsor shall be responsible for the detailing of one or more members of the fire department as may be required by the Head of the Fire Department.

65.2.7.1 The fire department detail shall be on duty from the time the fireworks are delivered to the site until the termination of the display and removal of all fireworks and debris from the site and in compliance with Section 65.2.6.

65.2.8 Mortar and Shells.

65.2.8.1 No fireworks display shall include mortars or shells in excess of 12 inches in diameter, unless the certificate holder shall have obtained prior written approval from the State Fire Marshal.

65.2.8.2 Multiple shot mortar devices using mortars less than three inches in diameter including, but not limited to cakes, and repeaters, shall be buried of their length in a trench, mortar trough, or sturdy drum filled with clean sand or substantial wooden boxes.

65.2.8.2.1 The Head of the Fire Department shall be permitted to allow for an equivalent alternative, such as sandbags or racks constructed with material similar to mortar rack construction, provided the same degree of protection is provided.

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65.2.8.3 The use of aluminum mortars is prohibited.

65.2.8.4 All supervised displays of fireworks shall be electrically fired. Mortars shall not be reloaded.

65.2.8.5 Electrical Firing Units.

65.2.8.5.1* All electrical firing units shall be included on an approved list from the State Fire Marshal's Office, or display be inspected by the State Fire Marshal and a decal issued by the State Fire Marshal for a term determined by the State Fire Marshal shall be displayed on the panel.

A65.2.8.5.1 Electronic firing panels that have been approved by the State Fire Marshal are published on a list maintained by the State Fire Marshal's office.

Comment: The State Fire Marshal's office maintains a list of approved electrical firing panels. By allowing the device to be approvable if on the list, it eliminates the need for an inspection and decal. The decal option is available if the proposed firing panel is not included on the list. The list is extremely specific as to make and model of the panels.

65.2.8.5.2 The panel shall contain a key operated safety switch which controls the overall power and functionality of the firing unit.

65.2.8.5.3 The unit shall be operated in accordance with the manufacturer's instructions.

65.2.8.5.4 All electrical firing units, and any associated devices, wiring, or connections shall be adequately maintained.

65.2.8.6 Racks.*

A65.2.8.6 Guidance for the construction of racks is included in the appendix of NFPA 1123.

65.2.8.6.1 Parallel racks or rows of racks shall be separated by a minimum distance not less than twice the inside diameter of the largest mortar in an adjacent rack.

65.2.8.6.2 Dense Pack Modular Racks, approved for use on licensed trailers and trailer launched portable barges shall be permitted.

65.2.8.6.3 Dense Pack Modular Racks shall be made of aluminum or other suitable metal framework system and shall be subject to restrictions and inspections as established by the State Fire Marshal.

65.2.8.6.4 All mortars approved for use in dense pack modular racks must be secured to the framework system.

65.2.8.6.4.1 Spacing between mortars in a rack shall be at least ½ the diameter of the adjacent mortar.

Comment: Proposal from Matt Murray. The industry standard is to space mortars at least ½ the diameter of the adjacent mortar but it is based on a prior MA amendment. Codifying the language allows vendors outside of MA or unfamiliar with the practice to be informed and allows for better enforcement of the provision.

65.2.8.6.5 Only single break shells shall be fired.

65.2.8.6.6 Dense Pack Modular Racks shall be permitted to be placed on firm ground, bridge, barge or secured to an approved trailer or barge licensed for the use of firing display shells utilizing dense pack modular racks.

65.2.8.6.7 Dense Pack Modular Racks placed on the ground or on a barge, not part of an approved trailer or barge system shall be placed in rows of racks separated by twice the diameter of the largest mortar within the rack.

65.2.8.6.8 Parallel rows of racks shall be separated by a minimum distance not less than 24 inches.

ADD:

65.3.4 The use of pyrotechnic special effects indoors is prohibited in nightclubs, discotheques, dance halls, bars, or similar occupancies (defined as A-2 or A-3 by the Building Code).

65.3.5 The use of pyrotechnic special effects indoor in entertainment venues (defined as A-3 by the Building Code) and theatres (defined as A-1 by the Building Code) shall be permitted provided the facility is protected throughout with automatic sprinklers.

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65.3.6 Approval of the use of pyrotechnic special effects shall be subject to such terms and conditions as the Head of the Fire Department may require.

65.3.7 No bombs, salutes, roman candles, skyrocketes, firecrackers, torpedoes, or similar pyrotechnic shall be used before a proximate audience unless specifically approved in writing by the State Fire Marshal.

65.3.8 The theatre, auditorium, or similar facility shall certify that the proscenium protection is in compliance with the Building Code.

65.3.9 Electrical firing panels shall comply with Sections 65.2.12 and 65.2.13. A performer shall not be required to comply with Section 65.2.12, if firing a single special effect.

ADD:

65.4.1.1 The use of flame effects indoors is prohibited in nightclubs, discotheques, dance halls, bars, or similar occupancies. The use of flame effects indoors, in entertainment venues (defined as A-3 by the Building Code) and theatres (defined as A-1 by the Building Code), shall be permitted provided the facility is protected throughout with automatic sprinklers.

DELETE and REPLACE:

65.5.1 The manufacture, transportation, or storage of fireworks shall comply with NFPA 1124 **Chapters 1 through 5 and Chapter 8.**

65.5.3 No person shall manufacture fireworks except in accordance with this Code. The manufacture of any fireworks, as defined in this Code, shall be prohibited unless it is authorized by federal license or permit, and a license issued by the local licensing authority and a permit issued by the State Fire Marshal.

ADD:

65.6.1 Permit. Permits, where required, shall comply with Section 1.12.

DELETE:

65.7.2

DELETE and REPLACE:

65.9.1 The manufacture, transportation, storage, sale, and use of explosive materials shall comply with NFPA 495: *Explosive Materials Code*, including appendix A, C, D and E, and NFPA 498, *Standard for Safe Havens and Interchange Lots for Vehicles Transporting Explosives*.

ADD:

65.9.1.1 All magazines containing explosive materials shall be opened and inspected at maximum intervals of seven days to determine whether there has been unauthorized or attempted entry into the magazines or whether there has been unauthorized removal of the magazines or their contents.

65.9.1.2 Terms. As used in Chapter 65, additional terms are defined in 65.1.4.

ADD:

65.9.3 Reserved

ADD:

65.9.4 Storage of Explosives on Water.

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65.9.4.1 No person shall store any explosives on the waters of the Commonwealth unless a permit for such storage has been secured from the State Fire Marshal, and unless the explosives are stored in accordance with the following requirements:

- (1) Such explosives shall be stored in a magazine located on a boat or vessel used exclusively for the purpose, and such boat or vessel shall be securely moored or anchored according to the direction of the harbor master. The storage magazines shall be subject to the requirements of Chapter 65;
- (2) No detonators shall be stored or transported on a boat or vessel on which any explosives are kept or stored, except in accordance with the applicable provisions of Chapter 65;
- (3) No explosives shall be delivered or removed from a boat or vessel during foggy weather;
- (4) In the loading or unloading of any explosive, care shall be taken in the handling of same and it shall be so placed or stowed as to prevent displacement during transit;
- (5) No explosives shall be carried or transported on the waters of the Commonwealth on any vessel which is carrying passengers;
- (6) Any vessel containing explosives in transit on any of the waters of the Commonwealth shall display on a suitable staff an international Code Flag B (a red flag) readily discernible from a distance of not less than 1,000 feet by day and which shall be properly illuminated at night;
- (7) No smoking shall be allowed on any vessel containing explosives;
- (8) All such boats and vessels shall display the word "EXPLOSIVES" in a conspicuous manner so that it shall be permitted to be seen by day from all sides at a distance of not less than 200 feet, and shall be properly illuminated at night.

65.9.5 Magazines. The requirements of Section 65.9 shall be in addition to applicable U.S. Department of Transportation (U.S. Coast Guard) Regulations, 33 CFR 126, and 46 CFR 194.

65.9.5.1 Magazine Alteration. No alteration changing the constructed storage capacity of a magazine shall be made without notifying the State Fire Marshal and the Head of the Fire Department in writing and then receiving written acknowledgment of receipt of the notification from the State Fire Marshal and the Head of the Fire Department.

65.9.5.2 Equivalent Alternate Construction Standards. Alternate storage facilities for explosive materials shall be permitted to be approved by the State Fire Marshal when it is shown that such alternate facilities are or will be constructed in a manner substantially equivalent to the standards of construction contained in Chapter 65 and such construction has been approved in accordance with 27 CFR 201(b).

65.9.5.3 Magazines shall be sequentially numbered by a minimum of two inch block numbers plainly visible on the outside.

65.9.5.3.1 This number shall correspond to those drawn on a storage facility site diagram, drawn to scale, clearly indicating the separation distances between magazines, inhabited buildings, railways, highways, and other magazines.

65.9.5.4 The owner shall plainly post on the interior side of the magazine door the current Table of Distance storage capacity.

65.9.5.5 Each magazine shall at all times be under the control of a competent person.

65.9.5.5.1 This shall mean that any penetration of the magazine or magazine area shall be protected by the continuous surveillance of an individual or by an electronic sensing device which shall upon such penetration notify either the police or fire department, as the Head of the Fire Department may direct.

65.9.6 Operational Procedure Manual for Storage of Explosives. A Magazine Facility Operational Procedure Manual shall be maintained on the storage facility which shall include the following:

- (1) facility emergency policy and procedures;
- (2) administrative and emergency notification procedures;
- (3) scaled plot plan of the storage facility site;

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(4) showing magazines, inhabited buildings railways and highways within 2,000 feet of the closest magazine, Explosive Material Manufacturers Safety Data Sheets (MSDS) for all explosive materials and SARA Title III Hazardous Materials on the site.

65.9.6.1 This manual shall be kept current and a copy provided upon request to the Head of the Fire Department and the State Fire Marshal or their designees.

65.9.6.2 A magazine facility containing 10,000 or less pounds of explosive materials shall be exempt from this requirement.

65.9.6.3 Delivery of explosives shall only be made to persons displaying proper permits and licenses and shall be delivered into magazines or temporary storage or handling areas as authorized by this Code.

65.9.6.4 No person shall deliver explosive materials to any magazine, building or structure that is not permitted by the State Fire Marshal.

65.9.6.5 Any person who delivers explosive materials shall keep a record of the delivery transaction.

65.9.6.5.1 The record shall contain the permit number assigned by the State Fire Marshal to the magazine, building or structure where said materials are to be stored.

65.9.7 Explosives shall be transported in accordance with 29 CFR 1926.903.

65.9.8 Blast Analysis. Before conducting a blast, the blaster shall conduct a blast analysis of the overall factors affecting the blasting operations. This analysis shall consider;

(1) adjacent area structure(s), building(s), building foundations, utilities, including gas and water supply lines, septic systems and swimming pools,

(2) area geology within 250 ft. (76.2 m) of the center of the blast site,

(3) the identification of commercial equipment such as computers, electron microscopes, laser equipment, relays etc., which are sensitive to vibrations,

(4) other underground objects that might be damaged by the effects of a blast.

65.9.8.1 A blast analysis shall be compared to the blast design plan to establish a sound relationship between the blast design and the effects of blasting upon the neighborhood within the blast area.

65.9.8.1.1 The blast analysis shall contain a discussion of plan factors to be used which protect the public and meet the applicable airblast, flyrock, and ground vibration standards.

65.9.8.2 The area of the blast analysis shall be within 250 ft. (76.2 m) from the closest borehole.

65.9.8.3 Blast Plan. When blasting is done in a congested area or within 250 ft. (76.2 m) of a building, structure, railway, or highway, or any other installation that may be affected, precautions shall be taken by the blaster in the design of the blast plan to prevent damage and to minimize adverse effects including ground vibrations, air overpressure and flyrock.

65.9.8.3.1 Such precautions shall include but not be limited to, review of each shot variable or dimension to ensure a blast design plan which establishes sound relationships between current industry standards and the allowable limits of the effects of blasting.

65.9.8.3.2 A blast design plan shall describe as a minimum, the amount of material to be removed, benches and lifts, sketches of proposed drill patterns, spacings, free face, borehole size, depth, and angle, stemming, decking, weight of explosive material per delay, delay periods, initiation techniques, the amount of explosive material to be used, critical dimensions, location and descriptions of building(s) and structure(s) to be protected, their number, and the placement of seismographs.

65.9.8.3.3 All shots shall be designed using the most current industry standards, to prevent excessive air overpressure, ground vibration, and flyrock.

65.9.8.4 Blasting Precautions. Blasting mats shall be required if the material to be blasted lies within 100 feet of a highway, an inhabited building or structure not under the control of the project.

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65.9.8.4.1 A blaster authorized to prepare explosive charges or to conduct blasting operations shall use every reasonable precaution, including but not limited to warning signals, flags, barricades, or other equally effective means to ensure the safety of the general public and workers.

65.9.8.4.1.1 A code of blasting signals shall be posted on one or more conspicuous places at the operation.

65.9.8.4.1.2 All employees shall be required to familiarize themselves with the blasting signal code. The code shall be:

(1) **WARNING SIGNAL:** Three long blasts five minutes prior to blast signal.

(2) **BLAST SIGNAL:** Two blasts one minute prior to the shot.

(3) **ALL CLEAR SIGNAL:** A prolonged blast following the inspection of the blast area.

65.9.8.4.2 Blast signals shall be clearly audible for a distance of 250 ft. (76.2 m) of the blast site.

65.9.8.4.3 No person shall fire a blast in any blasting operation on Sunday or between the hours of sunset and sunrise unless otherwise authorized in writing by the State Fire Marshal or the Head of the Fire Department, but in any case the authority of the State Fire Marshal shall prevail.

65.9.9 Reserved

65.9.10 No blast shall be fired without a positive signal from the blaster-in-charge and only the blaster-in-charge shall fire the blast.

65.9.11 Reserved

65.9.12 Whenever quarry blasting is conducted within 500 ft. (152.4 m) of building(s) used for human habitation a series of durable warning signs shall be erected along the entire perimeter of any rock face more than six feet high.

65.9.12.1 They shall be spaced not more than 75 ft. (22.86 m) apart and set back a reasonable distance from the face.

65.9.12.2 Each sign shall contain the words "WARNING BLASTING AREA DANGER" in letters at least two inches in height. (See St. 2014, c. 149, § 7: An Act Relative to Natural Gas Leaks.)

65.9.13 Alternative Allowable Vibration Levels. Alternative limits of the effect of blasting shall permitted to be adopted for quarry operations located adjacent to inner city areas as a local municipal regulation adopted in accordance with M.G.L. c. 148, § 9.

65.9.14 Blaster's Log.

65.9.14.1 A blaster who performs blasting operations shall maintain a blaster's log on a form approved by the State Fire Marshal recording each blast.

65.9.14.1.1 The blaster's log shall be completed within six hours of a blast and retained for a minimum of three years from the date of the blast.

65.9.14.1.2 Blasters' logs shall be made readily available to the State Fire Marshal, the Head of the Fire Department or their designees.

65.9.14.1.3 The blaster's log shall contain:

(1) Name, signature, and Certificate of Competency Number of the blaster in charge;

(2) Blast location, address, city, description;

(3) Date and time of blast;

(4) Type of material blasted;

(5) Distance, in feet, to the nearest inhabited building or structure, neither owned or leased by holder or holder client of the Explosives User Certificate;

(6) Scaled distance or alternative option used to determine blast design;

(7) Type of matting or cover over blast if applicable;

(8) Weather conditions, including temperature, cloud cover, and wind direction;

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- (9) Blast plan and sketch showing blast hole diameter, delay, delay pattern and types of detonators, spacing, depth of blast hole, hole pattern, and number of holes;
- (10) Explosive material type, size, total weights of each explosive byhole;
- (11) Type of initiation system (methods of firing and type of circuit);
- (12) Feet of over burden, depth, and type of stemming;
- (13) *Maximum charge per delay; (See 65.1.4)*

Comment: Added reference to term in 65.1.4. See 65.1.4 for explanation of change in term.

- (14) The seismograph(s) location(s), including distance and direction from the seismograph to the closest borehole, and from the seismograph to the closest structure;
- (15) Seismograph readings, including peak particle velocity, frequency, and airblast;
- (16) Type of seismograph, instrument make, model serial number, calibration date, and sensitivity settings;
- (17) Name of person taking the seismograph reading. The name and firm analyzing the seismograph record if applicable; and
- (18) Complaints or comments following the blast.

65.9.14.2 Blasts that exceed the maximum allowable peak particle velocity frequency or decibel levels established by Chapter 65 or are known by the blaster in charge to have produced flyrock, shall be reported to the Head of the Fire Department within 24 hours and a written report shall be provided within five days.

65.9.14.3 Seismograph Placement. The seismograph shall be placed at the nearest inhabited building adjacent to the blast area that is not owned, leased, or controlled by the blasting operation.

65.9.14.3.1 If there is no suitable location for seismograph placement within ten feet of the structure that is mutually agreed upon by the blaster and the Head of the Fire Department or his designee, the condition which made it unsuitable to place to seismograph within ten feet of the structure and the alternative location agreed upon by the Head of the Fire Department or his designee shall be noted, in writing, in the blast plan.

65.9.14.3.2 If the person in control of said nearest structure refuses to grant permission for seismograph placement as required by this Code the Head of the Fire Department shall be immediately notified.

65.9.14.3.2.1 Such refusal shall be further documented in writing by the blaster and be placed in the blasting record.

65.9.14.3.2.2 Placement of the seismograph shall then be at a location mutually agreed upon by the blaster and the Head of the Fire Department or his or her designee.

65.9.14.3.3 In the case of underground pipelines, bridges, roadways, steel construction, and other heavy construction, where prescribed vibration or airblast levels would be overly restrictive in relation to the nature of the project, vibrations and airblast levels in excess of the tables listed above shall be allowable when authorized in writing by the owner or representative of the owner of adjacent inhabited building(s) or structure(s) within the blast area.

65.9.14.3.4 Seismograph monitoring shall be required for all blasting operations.

65.9.15 Pre-blast Inspection Surveys.

65.9.15.1 The intent of a pre-blast survey is to provide documentation of the existing physical condition of buildings and structures within the blasting area with the dimensions of each observed defect clearly noted.

65.9.15.1.1 With the approval of the AHJ, requirements for pre-blast survey may be suspended if the blaster adheres to a Scaled Distance 50 [$\text{Allowed Charge Weight per Delay} = (\frac{\text{distance to structure}}{50})^2$], and a peak particle velocity limit of 0.5in/s. If this option is selected, the blaster named on the Use and Handling Permit shall sign a statement of compliance on a form approved by the Marshal to adhere to a Scaled Distance 50.

65.9.15.1.2 When blasting within 250 ft. (76.2 m) of a structure, as measured from the closest borehole to the structure, or structures, not owned or controlled by the project, a pre-blast inspection survey shall be offered.

65.9.15.1.3 It shall be the responsibility of the blaster to notify structure owners of the survey.

65.9.15.1.4 Surveys in excess of the above shall be permitted to be conducted at the discretion of the blaster.

65.9.15.1.5 If the owner or occupant request surveys in excess of the above, the cost of the survey(s) shall be paid by the owner or occupant of the structure.

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65.9.15.1.6 The pre-blast survey shall document the existing visual conditions of the interior and exterior of the structure including improvements to the property and other physical factors that could reasonably be affected by the blasting.

65.9.15.1.7 Structures such as pipelines, cables, transmission lines, cisterns, wells, and other water systems warrant special attention; however the assessment of these structures shall be permitted to be limited to surface conditions and other readily available data.

65.9.15.1.8 The survey shall accurately record deficiencies by means of written notes, sketches, photographs, video tape, cassette tape narrative, or any other format or combination that sufficiently depicts the pre-existing conditions prior to the blasting.

65.9.15.1.9 If the owner refuses the survey the inspector shall request that he sign a waiver of the survey.

65.9.15.1.10 A pre-blast survey waiver shall be made on a form approved by the State Fire Marshal.

65.9.15.1.11 If the owner or occupant refuses to sign a waiver, the inspector shall sign the waiver attesting to the refusal.

65.9.15.1.12 Three attempts shall be made to contact the owner to offer the survey.

65.9.15.1.12.1 If no response is made after the second attempt, or the owner refuses to sign a survey waiver, a notice offering the survey shall be sent via any carrier capable of providing a receipt of delivery.

65.9.15.1.12.2 A receipt of delivery shall satisfy this requirement.

65.9.15.1.13 Surveys shall be conducted by technicians familiar with construction methods and materials, familiar with blasting procedures, and this *Code*.

65.9.15.1.14 When a blast inspection is made, the results of that inspection shall be permitted to only be made available to the Head of the Fire Department, the State Fire Marshal or their designees upon request with the written consent of the occupant of the structure.

65.9.15.1.14.1 The blast inspection shall be made available to the owner of the inspected property within a reasonable time after request is made in writing.

65.9.15.1.14.2 Failure to provide a blast inspection report within 30 days of such request shall be grounds for revocation of a Use and Handling Permit.

65.9.16 Underwater blasting shall be conducted in accordance with 29 CFR 1926.912.

65.9.17 Charge Activated Device. The use of charge activated devices shall comply with the following:

- (1) Use and Handling Permits shall be obtained as required in Section 1.12.
- (2) The charge activated device shall be exempt from the following, blast analysis and the use of a seismograph. However, the blast design plan is required.
- (3) A blaster's log shall be maintained.
- (4) Matting of sufficient size and strength shall be utilized during all detonations.
- (5) All holes must be drilled to the manufacturer's specifications and no hole shall be re- drilled.

65.9.18 Blasting Regulatory Review.

65.9.18.1 Any person or firm alleging damage as a result of blasting operations shall make a complaint on a "Blasting Regulatory Review" form approved by the State Fire Marshal and obtained from the fire department of the city or town where damage occurred.

65.9.18.1.1 The Blasting Regulatory Review Form shall contain a signed certification.

65.9.18.1.2 Completed forms shall be returned within 30 days of the blasting incident to the Head of the Fire Department.

65.9.18.2 The Head of the Fire Department upon receiving a Blasting Regulatory Review Form shall cause the holder of the "Explosives Users Certificate" and the blaster in charge, to report to the fire department with copies of pertinent blasters' logs for the dates in question and to provide copies of the blaster's log for the dates alleged.

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65.9.18.2.1 The blaster in charge shall be interviewed and blast logs examined to determine any violations of this Code.

65.9.18.2.2 The fire department authority shall record the results of his or her inquiry on the Blasting Regulatory Review Form.

65.9.18.3 The Head of the Fire Department shall retain the original of the Blasting Regulatory Review Form and forward a copy to the State Fire Marshal's Office.

65.9.18.4 The holder of the Explosives Users Certificate shall receive a copy of the complaint form and acknowledge receipt by signature and date in the space provided on the complaint form.

65.9.18.5 The holder of the Explosives Users Certificate or the holder's insurance carrier shall respond to the claimant within 30 days after the date that the holder received the complaint form.

65.9.19 Manufacture of Explosive.

65.9.19.1 General.

65.9.19.1.2 A manufacturer of explosives shall mean any person licensed in accordance with 27 CFR Part 55, and engaged in the business of manufacturing explosives for the purpose of sale or distribution.

65.9.19.1.2.1 A federal manufacturer license is required when a binary system is used and the components are mixed in the course of a trade or business to create an explosive material.

65.9.19.1.2.2 In the case of binary systems, the supplier of pre-weighted or pre-measured ingredients, not the person mixing the ingredients, is considered the manufacturer of any pyrotechnic materials created from binary components.

65.9.19.1.2.3 The person loading binary materials into devices supplied by the manufacturer of binary systems shall not be considered a manufacturer when such loading is performed according to the instructions of the manufacturer.

65.9.19.2 Explosives Manufactories.

65.9.19.2.1 All explosives manufactories shall be supplied with some means of direct communication with the Head of the Fire Department, such as radio, telephone or fire alarm boxes, for immediate notice in case of fire.

65.9.19.2.2 There shall be a competent watchman on guard at all explosive manufactories except when the same are in actual operation.

65.9.19.2.3 No dry vegetation or combustible rubbish shall be allowed to accumulate within 50 feet of any building connected with such manufactories.

65.9.19.2.4 Persons younger than 18 years old shall not be employed in an explosive manufactory and shall not be permitted to enter such manufactory unless accompanied at all times by a responsible adult person.

65.9.20 Explosives Transaction Records.

65.9.20.1 All persons keeping, storing, using, selling, manufacturing, handling, or transporting explosive material shall maintain records so that the quantity and location of such explosive materials are readily available for inspection by the Head of the Fire Department, the State Fire Marshal, their designees, or a police officer.

65.9.20.1.1 Quantity and location records shall be delivered to the State Fire Marshal forthwith upon demand.

65.9.20.2 Daily Summary of Magazine Transactions:

65.9.20.2.1 In taking the inventory required by Chapter 65, a licensee or permittee shall enter the inventory in a record of daily transactions which shall be kept for each magazine on a storage facility.

65.9.20.2.2 These records shall be permitted to be kept at one central location on the business premises if separate records of daily transactions are kept for each magazine.

65.9.20.2.3 Not later than the close of the next business day, each licensee or permittee shall record by the manufacturer's name or brand name, the total quantity received in and removed from each magazine during the day, and the total quantity remaining on hand at the end of the day.

65.9.20.2.4 Any discrepancy which might indicate a theft or loss of explosive materials shall be reported to the State Fire Marshal immediately.

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65.9.21 Discontinuance of Business. Where an explosive materials business or operation is discontinued or succeeded by a new licensee or registrant, the records prescribed by Chapter 65 shall appropriately reflect such facts and shall be delivered to the successor.

65.9.21.1 Where discontinuance of the business or operation is absolute, copies of the records required shall be delivered to the State Fire Marshal within 30 days following the business or operation discontinuance.

65.9.22 Any person who transports or delivers explosive materials to any magazine, building or structure shall keep a record of the permit number assigned to said magazine, building, or structure by the State Fire Marshal in accordance with Chapter 65.

65.9.23 Theft. The loss or theft of any explosives shall be immediately reported to the State Fire Marshal and confirmed in writing within 24 hours.

65.9.24 The State Fire Marshal or his or her designee shall be permitted, in his or her discretion, upon discovering a violation of this Code or upon determination of a fire or explosion hazard, require the removal of any explosive material or that a watchman be placed continuously in charge of it.

65.9.24.1 The expense of said removal or watchman shall be the responsibility of the person in whose possession the explosive material is found.

65.9.25 Any explosion, fire, or collision occurring in connection with the keeping, storage, manufacture, sale, transportation or use of explosive material causing loss of life or injury to any person or damage to property shall be reported immediately to the State Fire Marshal and the Head of the Fire Department, giving an account of the same, and then confirmed giving a detailed account in writing within 24 hours.

65.9.26 Any person, firm, or corporation in the Commonwealth who keeps, uses, sells, transports, or stores any explosive shall keep a record of the disposition of such explosive by recording the batch number, if any, from the case from which individual explosive has been removed, if sold in less than case lots, or the number of cases with their batch numbers if sold in case lots.

65.9.26.1 The person to whom such explosive has been transferred shall record the transaction and such records shall be maintained for ready inspection by the State Fire Marshal, the Head of the Fire Department, or the Head of the Police Department, or their designees, for a period of three years.

65.9.27 Laboratories. Industrial laboratories, laboratories of technical institutes, colleges, universities, and similar institutions shall be permitted to keep, store, and use explosives or blasting agents when confined to the purpose of scientific or technical instruction or research, provided the storage and use of explosives or blasting agents is conducted or supervised by a person holding a Certificate of Competency and not more than 50 lbs. of explosive are kept on hand at any time in such laboratories.

65.9.27.1 Such Certificate of Competency can be issued by the State Fire Marshal without testing, providing a curriculum vitae is provided.

65.10 The possession and use of consumer fireworks is prohibited in the Commonwealth unless part of a display firework show in accordance with Section 65.2 or part of a Pyrotechnics Before a Proximate Audience in conformance with Section 65.3.

65.11 Cannon or Mortar Firing.

65.11.1 The firing of muzzle-loading cannons during patriotic celebrations and reenactments, including all such cannons ranging from pre-Revolutionary War vintage to present day facsimiles shall comply with Section 65.11.

65.11.1.1 This Section shall not apply to any cannon exhibit in which explosives are not being used.

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65.11.1.2 This Section shall not apply to the storage of ammunition for any cannon and shall be subject to all the applicable requirements in Section 65.9.

65.11.2 Permits. Permits, where required, shall comply with Section 1.12.

65.11.3 Terms. As used in Chapter 65, the enclosed terms shall have the following meaning assigned to them.

65.11.3.1 Blank-fire. The supervised discharge of a cannon or mortar without projectile.

65.11.3.2 Cannon. Any gun designed to be fired from a carriage resting on the ground and which is loaded from the muzzle with rigid noncombustible black powder cartridge.

65.11.3.3 Display. The supervised discharge of cannon or mortar, whether blank-fire without projectile or live-fire with projectile.

65.11.3.4 Live-fire. The supervised discharge of cannon or mortar with projectile.

65.11.3.5 Mortar. Any cannon whose length is less than six times its bore diameter, or any cannon fired at an elevation of 45E or more from the horizontal.

65.11.3.6 Range. An area designated for the discharge of various weapons, having a minimum unobstructed length of 100 yards (99.44 m), a minimum unobstructed width of 25 yards (22.86 m), equipped with a natural or manmade down range barrier a minimum of ten feet in height.

65.11.4 Range Conditions and Other Pre-firing Requirements.

65.11.4.1 A cannon be only be fired with ball, shot or projectile on ranges approved by the AHJ.

65.11.4.1.1 Such ranges shall be clear and unobstructed between discharge point and target area and for a safe distance to the rear of target in event of an overshoot.

65.11.4.1.2 The target area shall not exceed 250 yards (228.6 m) from the point of discharge.

65.11.4.2 There shall be no permanent building, public highway, railroad, or other public way within the forward sector of a 180E arc having a radius of 100 ft. (30.48 m) from the muzzle of the cannon.

65.11.4.2.1 A similar sector of 180E directed toward the rear 75 ft. (22.86 m) in radius shall be clear of all public ways, permanent buildings, or other obstructions.

65.11.4.3 The firing of the cannon shall comply with the following:

(1) No cannon shall be discharged during any windstorm in which the direction and velocity of the wind renders the display dangerous to the public safety and/or surrounding property.

(2) There shall be no discharging of cannon between the hours of sunset and sunrise without prior written approval from the Head of the Fire Department.

(3) The Head of the Fire Department shall designate the location and type of fire extinguishing equipment as may be required.

(4) No firing of any cannon shall be conducted unless the crew is present in adequate numbers for the particular cannon or mortar.

(5) The competent operator shall be responsible to ensure that all members of the crew have been fully trained in the safe operation of the cannon or mortar.

(6) No member of the gun crew shall be younger than 18 years old.

(7) Smoking shall be prohibited in the discharge area.

(8) No member of the audience shall be allowed in the forward or flank zone of the muzzle of a cannon firing a projectile within a forward sector of 180E having a radius of 150% of the estimated range of the piece.

(9) The audience at a supervised firing of cannon shall be restrained behind lines 60 ft. (18.29 m) on the flank area back of the muzzle and 60 ft. (18.29 m) to the rear of the gun.

(10) Unless otherwise allowed by the State Fire Marshal, no piece shall be discharged with blank ammunition, unless all spectators are at a safe distance from the front of the piece and at least 60 ft. (18.29 m) to the rear or flank. Adjacent pieces shall be at a safe interval.

65.11.5 Magazines and Powder.

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65.11.5.1 All ammunition and powder shall comply with the following:

- (1) All ammunition for cannon shall be transported and temporarily stored at the firing location in the finished state in a portable magazine.
- (2) Such magazine shall be constructed of at least 24-gauge sheet metal lined with a minimum of ¾ inch marine plywood or other non-sparking material, and shall be of sturdy sealed construction held together with non-sparking fastenings. A suitable lock and hasp of non-sparking material shall be provided.
- (3) In the discharge area, a ready-service box constructed of wood with non-sparking fastenings and cover designed to be self-closing shall be positioned at ground level approximately 25 ft. (7.62 m) to the rear of the piece being served with the hinges toward the piece.
- (4) All magazines and ready-service boxes shall be closed prior to the loading of each cartridge of the piece being served and adjacent pieces.
- (5) Ready-service boxes for each gun shall contain the minimum number of cartridges required for the gun during that particular display.
- (6) Magazines and ready-service boxes shall at all times be under the control of a competent member of the gun crew.
- (7) No loose or bulk powder other than priming powder in quantities not exceeding ½ ounce shall be used in the firing of any cannon, and no loose or bulk powder shall be transported or stored in any portable magazine with cartridges.
- (8) Blank artillery cartridges shall be made up of black powder only, not to exceed four ounces per inch of largest bore diameter.
- (9) Cartridges must have a minimum of three wraps of heavy-duty aluminum foil and be packed to a firm consistency.
- (10) Only cannon grade, 1F, or 2Fg black powder will be used.
- (11) Powder grades cannot be mixed.
- (12) No artillery cartridges shall be constructed at the event site.
- (13) No wadding of any kind is permitted in blank firing.
- (14) The amount of black powder used in each cartridge shall be such as to not present an undue hazard to persons, property, or the piece itself.
- (15) Powder cartridges for cannons shall not exceed four ounces of powder per inch of bore diameter.
- (16) Powder cartridges for mortars shall not exceed four ounces of powder per inch of chamber diameter.
- (17) No torch shall be used to ignite any cartridge to be fired from cannon.
- (18) All cannons used to fire a projectile shall be provided with an instant source of ignition such as an electrical squib, or bridge wire or percussion cap, or other approved instant firing device. Exception to the foregoing shall apply to the use of fuses for the firing of mortars.
- (19) No firing of any steel or iron cannon or mortar shall be conducted unless the weapon contains a seamless steel safety sleeve with breech plug, designed for such firing and have had a boroscope inspection conducted by a qualified person.
- (20) Original guns and bronze guns shall be permitted to be used without a safety sleeve, provided that they have had a boroscope inspection conducted by a qualified person. Pits, scratches, or other defects more than 3/16 inch deep shall render the cannon unusable.
- (21) Cannons and mortars used for live-firing shall have a boroscope inspection conducted at least once every five years.
- (22) Cannons and mortars used exclusively for blank-firing shall have a boroscope inspection conducted at least once every ten years.
- (23) Projectiles shall not be so constructed as to develop any unsafe pressures; and no combustible, explosive, or pyrotechnic projectiles shall be used.
- (24) Reloading shall not commence until the worming and wet sponging have been completed after firing.

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- (25) The piece shall be wormed and wet sponged between shots and the vent stopped from the time the worm enters the muzzle until the rammer is removed from the bore after the cartridge is rammed in blank-firing, or the projectile is rammed in live-firing.
- (26) At no time shall any cannon be left unattended while loaded or during a misfire until the piece has been cleared.
- (27) In the event of a misfire, the competent operator shall take the following steps:
- (a) The gunner shall give an audible warning.
 - (b) No personnel shall approach the front of the muzzle.
 - (c) A mandatory three minute cooling off period shall be observed.
 - (d) The piece shall be re-primed from a safe position and a repeated attempt made to fire the piece.
 - (e) If the attempt to re-fire the piece is unsuccessful, the piece shall be flooded with water through the vent and allowed to soak for a period of at least one hour unless the water or compressed gas can be used to flush the cartridge out of the muzzle.
 - (f) The projectile and/or cartridge shall be removed through the muzzle.
- (28) If, after a display, the competent operator has reason to believe that there are any unignited charges or remnants thereof containing explosives in the area, he shall make a thorough search of the area for such explosives. The responsibility for disposition of it shall be assumed by the certificate holder.
- (29) Any explosion, fire, or other accident occurring in connection with the keeping, storage, manufacture, handling, transportation, supervised display, or other disposition of ammunition for cannon causing loss of life or injury to any person or damage to property, shall be immediately reported to the State Fire Marshal by the competent operator, giving a detailed account of same and confirmed in writing.

Chapter 66 – Flammable and Combustible Liquids

DELETE and REPLACE:

66.1.1* The storage, handling, and use of flammable and combustible liquids, including waste liquids, as herein defined and classified, shall comply with this chapter; NFPA 30, *Flammable and Combustible Liquids Code*; Sections 60.1 through 60.4 of this *Code*; and NFPA 35: *Standards for the Manufacture of Organic Coatings*, as applicable.

DELETE and REPLACE:

66.1.4 Installations made in accordance with the applicable requirements of the following standards shall be deemed to be in compliance with this *Code* except that the maximum allowable quantities of hazardous materials are limited to the quantities listed in the *Building Code* and Table 60.4.2.1.1.3 of this *Code*:

ADD:

66.4.1.1.1.1 For the purposes of this classification if an accurate boiling point is unavailable for the material in question or if a mixture does not have a constant boiling point, the 20% evaporated point of a distillation performed in accordance with ASTM D 86: *Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure* shall be used as the boiling point of the liquid.

ADD:

66.21.4.1.6 Pre-fabricated Tanks and Dikes.

- (1) Pre-fabricated tanks and dikes shall provide 110% containment.
- (2) If a rain shield is provided, it shall have provisions that an overflow of the tank will go directly into the dike.

DELETE:

66.21.5.2.1(2)

ADD:

66.21.6.4 Automotive Lubrication Service Centers.

66.21.6.4.1 Tanks shall be located in a separate room from the main work area by a two hour fire rated enclosure.

66.21.6.4.2 The storage room shall be equipped with a fixed fire suppression system designed and installed in accordance with Section 13.8.

66.21.6.4.3 The storage room shall have an area not less than 110% of the largest tank capacity plus 10% of the aggregate amount of all other tanks in that room.

66.21.6.4.3.1 If water is utilized for suppression the containment area shall comply with the *Building Code*.

DELETE and REPLACE:

66.21.7.4*~~Leak Detection and Inventory Records for Underground Storage Tanks.~~

~~Accurate inventory records or a leak detection program shall be maintained on all Class I liquid [FP < 100°F (37.8°C)] storage tanks for indication of leakage from the tanks or associated piping. [30:21.7.5]~~ **Removal from Service of Storage Tanks.**

ADD:

66.21.7.4.1 Closure of Aboveground Storage Tanks.

Aboveground tanks taken out of service or abandoned shall be emptied of liquid, rendered vapor-free, and safeguarded against trespassing in accordance with NFPA 326, *Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning, or Repair*, or in accordance with the requirements of the AHJ.

66.21.7.4.2 Reuse of Aboveground Storage Tanks.

Aboveground tanks shall be permitted to be reused for flammable or combustible liquids service provided they comply with applicable sections of this *Code* and are approved.

66.21.7.4.3 Removal from Service of Underground Storage Tanks.

66.21.7.4.3.1 General. Underground tanks taken out of service shall comply with 310 CMR 80.00: *Underground Storage Tank (UST) Systems* and be emptied of liquid and residuals, rendered vapor-free, and safeguarded against trespassing in accordance with this section and in accordance with NFPA 326 or in accordance with the requirements of the AHJ. The procedures outlined in this section shall be followed when taking underground tanks temporarily out of service, closing them in place permanently, or removing them.

66.21.7.4.3.2 Temporary Closure. Underground tanks shall comply with 310 CMR 80.00: *Underground Storage Tank (UST) Systems* and be rendered temporarily out of service only when it is planned that they will be returned to active service, closed in place permanently, or removed within an approved period not exceeding five years. The following requirements shall be met:

- (1) Corrosion protection and release detection systems shall be maintained in operation.
- (2) The vent line shall be left open and functioning.
- (3) The tank shall be secured against tampering.
- (4) All other lines shall be capped or plugged.

66.21.7.4.3.2.1 Tanks remaining temporarily out of service for more than five years shall be permanently closed in place or removed in accordance with Section 66.21.7.4.3.3 or 66.21.7.4.3.4, as applicable.

66.21.7.4.3.3 Permanent Closure in Place. Underground tanks shall be permitted to be permanently closed in place if approved by the AHJ and in accordance with 310 CMR 80.00: *Underground Storage Tank (UST) Systems*. All of the following requirements shall be met:

- (1) All applicable AHJs shall be notified.
- (2) A safe workplace shall be maintained throughout the prescribed activities.
- (3) All flammable and combustible liquids and residues shall be removed from the tank, appurtenances, and piping and shall be disposed of in accordance with regulatory requirements and industry practices, using a written procedure.

(4) The tank, appurtenances, and piping shall be made safe by either purging them of flammable vapors or inerting the potential explosive atmosphere. Confirmation that the atmosphere in the tank is safe shall be by testing of the atmosphere using a combustible gas indicator if purging, or an oxygen meter if inerting, at intervals in accordance with written procedures.

(5) Access to the tank shall be made by careful excavation to the top of the tank.

(6) All exposed piping, gauging and tank fixtures, and other appurtenances, except the vent, shall be disconnected and removed.

(7) The tank shall be completely filled with an inert solid material.

(8) The tank vent and remaining underground piping shall be capped or removed. Underground steel storage tanks used for the storage of flammable liquids shall be disposed of at a Tank Dismantling Yard approved by the State Fire Marshal.

(9) The tank excavation shall be backfilled.

66.21.7.4.3.4 Removal and Disposal.

Underground tanks and piping shall be removed in accordance with the following requirements:

(1) The steps described in 66.21.7.4.3.3(1) through 66.21.7.4.3.3(5) shall be followed.

(2) All exposed piping, gauging and tank fixtures, and other appurtenances, including the vent, shall be disconnected and removed.

(3) All openings shall be plugged, leaving a 1/4 in. (6 mm) opening to avoid buildup of pressure in the tank.

(4) The tank shall be removed from the excavated site and shall be secured against movement.

(5) Any corrosion holes shall be plugged.

(6) The tank shall be labeled with its former contents, present vapor state, vapor-freeing method, and a warning against reuse.

(7) The tank shall be removed from the site as authorized by the AHJ, preferably the same day.

66.21.7.4.3.5 Temporary Storage of Removed Tanks. If it is necessary to temporarily store an underground tank that has been removed, it shall be placed in a secure area where public access is restricted. A 1/4 in. (6 mm) opening shall be maintained to avoid buildup of pressure in the tank.

66.21.7.4.3.6 Disposal of Tanks. Disposal of underground tanks shall meet the following requirements:

(1) Before a tank is cut up for scrap or landfill, the atmosphere in the tank shall be tested in accordance with 66.21.7.4.3.3(4) to ensure that it is safe.

(2) The tank shall be made unfit for further use by cutting holes in the tank heads and shell.

66.21.7.4.3.7 Documentation. All necessary documentation shall be prepared and maintained in accordance with all federal, state, and local rules and regulations.

Comment: This amendment is needed to bring forth the requirements from 2015 NFPA 1 Ch 66 that were deleted in the 2021 edition.

ADD:

66.21.7.5 Reserved. (Needed for numbering)

ADD:

66.21.7.6 Application for Approval of Tank Dismantling Yards.

66.21.7.6.1 Underground steel storage tanks used for the storage of flammable liquids shall only be disposed of at tank dismantling yards approved by the State Fire Marshal.

66.21.7.6.2 Application for approval of a tank dismantling yard shall be made on a form approved by the State Fire Marshal (Form FP-295). Completed applications shall be submitted to: Department of Fire Services, Division of Fire Safety, P.O. Box 1025, 1 State Road, Stow, MA 01775.

66.21.7.7 Tank Dismantling Yard.

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66.21.7.7.1 Each tank dismantling yard shall hold valid licenses or permits from any and all local city and town Boards, Agencies, Departments, where necessary to conduct operation for underground steel storage tank dismantling and storage.

66.21.7.7.2 Each tank dismantling yard shall comply with all the provisions of regulation and be approved by the State Fire Marshal and endorsed by the Head of the Fire Department.

66.21.7.8 Operation of Tank Dismantling Yards.

No person at a tank dismantling yard shall accept an underground steel storage tank that in any way would be used for reuse or resale purposes

66.21.7.8.1 Each approved tank dismantling yard shall maintain a written ledger listing all underground steel storage tanks received, a receipt of disposition thereof and any other data required by the Marshal.

66.21.7.8.2 All underground steel storage tanks shall be pumped out dry before transported to a tank dismantling yard.

66.21.7.8.3 The vapors in an underground steel storage tank may be made inert. Solid carbon dioxide (dry ice) crushed and distributed evenly over the greatest possible area in the amount of 1.5 (lbs) pounds per 100 gallons of tank capacity may be used to inert the tank.

66.21.7.8.4 The cleaning and residue of the underground steel storage tank must be treated as a hazardous waste and removed by a licensed hazardous waste or waste oil transporter, as required by the 310 CMR: Department of Environmental Protection. The hazardous waste manifest number shall be recorded on the fire department permit.

66.21.7.8.5 The underground steel storage tank shall be purged with an inert gas, such as nitrogen or carbon dioxide, while all connecting lines to the tank including the vent, shall be removed.

66.21.7.8.6 Holes or openings shall be drilled or made in the tank when received at the tank disposal yard.

66.21.7.8.7 Each tank dismantling yard shall have a device capable of measuring flammable vapors. The device shall be properly calibrated, and employees shall be trained in its use.

66.21.7.8.8 No tank dismantling yard shall accept any tank that has not been purged of product and inerted.

66.21.7.8.9 All tanks shall be stored on the secured premises of an approved dismantling yard where they can be safeguarded from the general public.

66.21.7.8.10 If a tank yard finds product in a tank, such as sludge or other contaminated waste, the material shall be treated as a hazardous waste and removed by a hazardous waste or waste oil transporter in accordance with 310 CMR: Department of Environmental Protection.

66.21.7.8.11 All underground steel storage tanks accepted at approved tank yards must be dismantled within two working days of the date of acceptance. No tanks shall be stored in excess of 72 hours without approval of the Head of the Fire Department.

ADD:

66.21.9 Storage tanks that undergo a change of stored liquid that represents a change in liquid classification, as defined in Section 66.4.2, or change in physical properties, shall be re-evaluated for compliance with Sections 66.21 through 66.25, as applicable.

66.21.9.1 Where a storage tank does not comply with Sections 66.21 through 66.25 and was legally constructed in accordance with the applicable fire code at the time of its construction or where a requirement was waived by the applicable AHJ, a hazard analysis shall be completed in accordance with Section 66.6 and the following:

1. The hazard analysis shall be prepared and certified by a Massachusetts Registered Professional Engineer.
2. The analysis shall demonstrate that the change in liquid classification does not constitute an increase in fire or explosion hazards or risks to life and property.

66.21.9.2 The AHJ may require additional measures of protection.

Red is existing MA amendment language
Red underline is new or modified MA amendment language

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~~Stricken Language~~

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Comment: This proposal was submitted by Rob Coluccio, P.E. in regards to changing flammable or combustible liquids within a tank. The committee discussed the proposal and included "change in physical properties" as well as the proposed change in classification of a liquid. The proposal requires an evaluation if a tank will be re-used for a flammable or combustible liquid for which it was not originally intended, Staff edited the proposal to align with NFPA formatting and numbering.

Chapter 67 – Flammable Solids

(No amendments)

Chapter 68 – Highly Toxic and Toxic Solids and Liquids

(No amendments)

Chapter 69 – Liquefied Petroleum Gases and Liquefied Natural Gases

DELETE and REPLACE:

69.1.1.1 The storage, use, and handling of liquefied petroleum gases (LP-gas) **upstream from the outlet of the first stage regulator** shall comply with the requirements of this chapter; NFPA 58, *Liquefied Petroleum Gas Code*; and Sections 60.1 through 60.4 of this *Code*.

ADD:

69.1.1.4 Certificates. Certificates of completion, where required, shall comply with Section 1.12.8.51 and Section 1.13 as applicable.

ADD:

69.1.3 Terms. As used in Chapter 69, the enclosed terms shall have the following meaning assigned to them.

69.1.3.1 Abandoned. Any container which has not been used either for filling or draw off of LP-gas for a continuous period in excess of 12 months.

69.1.4 LP-container, Filling, Shipment, Odorization, and Testing Requirements. If odorization is required, as provided in NFPA 58: *Liquefied Petroleum Gas Code*, Section 4.2.1, one of the testing thresholds required in Section 69.1.4.2(2) shall be completed and documented. The presence of the odorant shall be permitted thereafter by sniff testing each time the propane changes in the distribution network. If the amount of odorant in the propane is questionable by sniff testing or the records are not accepted by or made available to the AHJ as required in Section 69.1.4.3.1, the testing as prescribed in accordance with the Section 69.1.4.2(2) shall be repeated. If necessary, thresholds shall be met by adding additional odorant to obtain proper odorized propane levels as prescribed in Section 69.1.4.2(1) or 69.1.4.2(2). In such situations where the propane odorant is questionable, immediate verbal notification shall be given to the AHJ, which shall be followed by written notification within 24 hours documenting the date, time, and location of discovery and status of such event.

69.1.4.1 Railcar Shipments. Each railcar shipment of LP-gas intended for distribution within Massachusetts shall comply with the provisions in Section 69.1.4.2(1). Each railcar shipment delivered for distribution shall be tested for odorization using one of the tests prescribed in Section 69.1.4.2(2) and Sub-sections (a), (b), (c).

69.1.4.2 Odorization Thresholds, Testing and Filling of Containers:

(1) If ethyl mercaptan is used for odorization purposes, it shall be injected at a minimum rate of one lb per 10,000 gallons of propane.

(2) For testing purposes one of the following tests listed in (a), (b) or (c) shall be required to determine adequate ethyl mercaptan odorant levels equivalent to one lb per 10,000 gallons of propane.

(a) Vapor Test using stain tubes resulting in a minimum of five ppm of ethyl mercaptan utilizing ASTM D 5305: *Standard Test Method for Determination of Ethyl Mercaption in LP-gas Vapor*.

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- (b) Flash Vapor Test using stain tubes resulting in a minimum of 17 ppm of ethyl mercaptan utilizing ASTM D 5305: *Standard Test Method for Determination of Ethyl Mercaptan in LP-gas Vapor*.
- (c) Liquid Test for analysis of volatile sulfurs using gas chromatography resulting in a minimum of 17 ppm of ethyl mercaptan utilizing ASTM D1265: *Standard Practice for Sampling Liquefied Petroleum (LP) Gases, Manual Method*.
- (3) Newly filled tanks and containers shall be purged according to manufacturer's instructions.
- (4) Newly installed tanks greater than 125 gallons shall comply with the following:
 - (a) Within two business days of the tank installation approval by the AHJ, such tank shall be filled with LP-gas and;
 - (b) If the tank is not placed into service within 30 days of the tank installation approval date, such tank shall be tested by the LP-gas company in accordance with Section 69.1.4.2(2), prior to being placed into service and;
 - (c) Maintain records in accordance with Section 69.1.4.3 and report findings, if applicable, in accordance with Section 69.1.4.

69.1.4.3 Records. Records of all testing required by this *Code* shall be maintained. The results shall be kept by both the shipper and user for a minimum of three years from the date of delivery.

69.1.4.3.1 Test results shall be made available to the AHJ upon request.

69.1.4.4 ~~Effective September 1, 2014, Each person handling LP-gas in the quantities of 42 lbs (ten gallons) or greater, shall be trained, at applicable level, in accordance with the "Dispensing Propane Safely" program published by the Propane Education and Research Council Certified Employee Training Program (CETP) or other education programs acceptable to the State Fire Marshal.~~

Comment: Industry representatives proposed this code change to align with the renovation of the training program and the applicability of the training to the intention of the code.

69.1.4.4.1 Certificates of completion shall be maintained by the employer for three years and a copy of said certificate shall be given to the trainee at the completion of each program.

69.1.4.4.2 Certificates of completion shall include the date of completion, the course name, and be signed by the instructor or provider. Such certificates shall be submitted to the AHJ upon request.

69.1.4.5 Field Equipment Identification. All LP-gas installations of 125 gallons or greater shall be provided with a sign identifying the responsible party for the installation and maintenance of the LP-gas installation.

69.1.4.5.1 The sign shall be installed in a plainly visible location.

69.1.4.5.2 Such sign shall include the name and telephone number of the LP-gas supplier, plant installer, owner, or operator.

69.1.4.6 Emergency and Reporting Procedure. In situations where a gas leak results in imminent danger, immediate verbal notification shall be given to the 911 dispatch center.

69.1.4.6.1 The AHJ shall receive written notification within 24 hours of said notification documenting the date, time, and location of discovery, status, and remediation of such event.

69.1.4.6.2 In situations where the AHJ has directed an LP-gas provider to take corrective action, the provider shall immediately respond verbally to the AHJ, as directed, such provider's response shall be followed by written notification, if requested, within 24 hours after resolution, documenting the date, time, and the location of discovery and status of the LP-gas installation.

ADD:

69.3.5.4.3 The distance measured ~~horizontally~~ with a three ft arc from the point of discharge of a container pressure relief valve to any building opening below the level of such discharge shall be in accordance with Table 69.3.5.4.3.

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ADD:

69.3.14.6.3 The owner of the storage equipment shall be responsible for the installation of the LP-gas facility and for maintaining it in a safe operating condition.

69.3.14.6.4 No person shall install, remove, connect, disconnect, fill, or refill any LP-gas container without permission of the owner of the container.

69.3.14.6.4.1 In the event that the container owner denies permission and a homeowner wishes to have the container on their property disconnected and removed, the homeowner or an authorized representative acting on their behalf shall make a written demand to the container owner to disconnect and remove the tank within 30 days of receipt of said demand. If the owner of the container cannot or will not disconnect and remove the tank within 30 days of receiving said demand, the homeowner may have any trained individual, complying with Section 69.1.4.4, disconnect and remove the container and which shall be collected by the container owner forthwith.

Comment: Language proposed by DFS legal to resolve the issue of container removal after a company has ceased or when a new homeowner wishes to hire a different company.

69.3.14.6.5 Only a trained individual complying with Section 69.1.4.4 shall install, remove, connect, disconnect, sell, fill, refill, deliver or permit to be delivered, or operate any LP-gas system utilizing containers of over 42 lbs (ten gallons) product capacity.

69.3.14.6.6 The State Fire Marshal shall be permitted to order the user of a system in writing to meet requirements:

- (1) Where unusual conditions exist;
- (2) When it is necessary for the protection of life and property;
- (3) Provided the requirements are within the intent and purpose of this *Code*.

ADD:

69.3.15.4.4 "NO SMOKING" and "STOP ENGINE WHEN REFUELING" signs shall be displayed on the front and rear of each dispenser at the filling station. The signs shall have block letters at least one inch high with either red letters on a white background or white letters on a red background.

ADD:

69.5.2.1.6 Areas used for the storage of containers or cylinders awaiting use or resale shall post a readily accessible and clearly visible warning sign stating "NO SMOKING" and "FLAMMABLE GAS" or otherwise indicate the contents of such containers or cylinders, such as "FLAMMABLE GAS PROPANE" or "FLAMMABLE GAS BUTANE".

Chapter 70 – Oxidizer Solids and Liquids

(No amendments)

Chapter 71 – Pyrophoric Solids and Liquids

(No amendments)

Chapter 72 – Unstable (Reactive) Solids and Liquids

(No amendments)

Chapter 73 – Water-Reactive Solids and Liquids

(No amendments)

Chapter 74 – Ammonium Nitrate

(No amendments)

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Chapter 75 – Organic Peroxide Solids and Liquids
(No amendments)

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