

BOSTON FIRE PREVENTION CODE



ORDINANCES OF 1979 - CHAPTER 28

*(Unofficial Copy as amended in 2000 to include Article XXXII
and in 2014 to include Article XXXIII)*

EFFECTIVE DATE, AUGUST 7, 1979



ORDINANCES OF 1979, CHAPTER 28
ADOPTING THE BOSTON FIRE PREVENTION
CODE OF 1979

In the Year Nineteen Hundred and Seventy-nine

Be it ordained by the City Council of Boston as follows:

SECTION 1. The City of Boston Code, Ordinances, Title 11, chapter 3, is hereby amended by inserting after section 81, the following section:

Section 82. (Boston Fire Prevention Code of 1979, attached hereto and incorporated herein.)

SECTION 2. Chapter 3 of the Ordinances of 1959 is hereby repealed.

BOSTON FIRE PREVENTION CODE

TABLE OF CONTENTS

	Page
ARTICLE I. GENERAL PROVISIONS	
Section 1.01 Title	11
Section 1.02 Purpose	11
Section 1.03 Definitions	11
Section 1.04 Organization	12
Section 1.05 Duties of the Head of the Fire Department	13
Section 1.06 Duties of the Fire Marshal	13
Section 1.07 Investigation of Harmful Fires	14
Section 1.08 Investigation of Suspicious Fires	14
Section 1.09 License for Hazardous Materials and Operations	15
Section 1.10 Certificate of Registration	16
Section 1.11 Revocation of License	16
Section 1.12 Replacement and Alteration in Construction	16
Section 1.13 Right of Persons Aggrieved by the Grant of a License	16
Section 1.14 Permits	17
Section 1.15 Revocation of Permit	18
Section 1.16 Fees	18
Section 1.17 Failure to Secure a Permit	18
Section 1.18 Right of Person Aggrieved by Grant of a Permit	18
Section 1.19 Approval of License Applications	18
Section 1.20 Determination of Flammability	19
Section 1.21 Right to Inspect	19
Section 1.22 Investigation and Removal of Fire and Explosion Hazards	19
Section 1.23 Division Records	20
Section 1.24 Frequency of Inspections	20
Section 1.25 Reports to Other City Departments	21
Section 1.26 Penalties	21
Section 1.27 Amendments and Reference Standards	21
ARTICLE II. AUTOMOBILE TIRE REBUILDING PLANTS	
Section 2.01 General	22
Section 2.02 Permit Required	22
Section 2.03 Construction and Protection Requirements	22
Section 2.04 Dust Collection System	22
Section 2.05 Ventilation	22
ARTICLE III. AUTOMOBILE WRECKING YARDS, JUNK YARDS, SALVAGE YARDS, AND WASTE MATERIAL HANDLING PLANTS	
Section 3.01 General	22

	Page
Section 3.02 Permit Required	22
Section 3.03 Location	23
Section 3.04 Fencing	23
Section 3.05 Roadways	23
Section 3.06 Motor Vehicle Fuel Tanks	23
Section 3.07 Construction and Protection Requirements	23
ARTICLE IV. BOWLING ESTSBLISHMENTS	
Section 4.01 General	23
Section 4.02 Permit Required	24
Section 4.03 Lane Resurfacing Operations	24
Section 4.04 Pin Refinishing	24
Section 4.05 Requirements for All Finishing Operations	24
ARTICLE V. COMBUSTIBLE FIBERS — STORAGE AND HANDLING OF	
Section 5.01 Definition, “Combustible Fibers	24
Section 5.02 Permit Required	25
Section 5.03 Loose Storage	25
Section 5.04 Baled Storage Indoors	25
Section 5.05 Baled Storage Outdoors	26
ARTICLE VI. COMBUSTIBLE METALS	
Section 6.01 Scope	26
Section 6.02 Permit	26
Section 6.03 Outdoor Storage	26
Section 6.04 Storage in Buildings	27
Section 6.05 Processing Operations	27
Section 6.06 Conflicting Requirements	27
ARTICLE VII. CONSTRUCTION AND DEMOLITION OPERATIONS	
Section 7.01 Scope	27
Section 7.02 Permit Required	27
Section 7.03 Public Hydrant Service	28
Section 7.04 Fire Extinguishing Service	28
Section 7.05 Public and Private fire Alarm Service	28
Section 7.06 Fire Alarm Services	28
Section 7.07 Portable Fire Extinguishing Service	28
Section 7.08 Guard Service	28
Section 7.09 Access for Fire Department Apparatus and Personnel	29
Section 7.10 Fire Doors and Opening Protectives	29
Section 7.11 Temporary Heating Equipment	29
Section 7.12 Temporary Construction	30
Section 7.13 Waste Materials and Debris	30
ARTICLE VIII. WELDING AND CUTTING	
Section 8.01 Scope	30
Section 8.02 Permit for Welding and Cutting	30
Section 8.03 Certificate of Competency Required	30

	Page
Section 8.04 Individual Job Authorizations	31
Section 8.05 Where Fire Watchers are Required	31
Section 8.06 Cutting and Welding Operations	31
Section 8.07 Cutting and Welding Not Allowed	32
Section 8.08 Storage of Cylinders and Containers	32
Section 8.09 Manifolding of Cylinders	33
Section 8.10 Service Piping Systems	33
Section 8.11 Acetylene Generators	33
Section 8.12 Electric Arc Welding and Cutting	34
ARTICLE IX. DECORATIONS, FURNISHINGS AND INTERIOR FINISHES	
Section 9.01 Definitions	34
Section 9.02 Permit Required	34
Section 9.03 General Requirements	35
Section 9.04 Classification	35
ARTICLE X. DUST EXPLOSIONS, PREVENTION OF	
Section 10.01 Scope	36
Section 10.02 Definition	36
Section 10.03 Permit	36
Section 10.04 General Requirements	36
ARTICLE XI. EXITS	
Section 11.01 Scope of Requirements	36
Section 11.02 Definitions	37
Section 11.03 Means of Egress to be Maintained	37
Section 11.04 Number of Means of Egress	37
Section 11.05 Marked Means of Egress	37
Section 11.06 Exit Doors	37
Section 11.07 Obstruction to Means of Egress	38
Section 11.08 Blocking and Barring Windows	38
Section 11.09 Lighting as Means of Egress	38
Section 11.10 Fire Exit Drills	38
Section 11.11 Equipment and Systems Maintenance	39
ARTICLE XII. FIRE ALARM SYSTEMS	
Section 12.01 Definitions	39
Section 12.02 Fire Marshal to Survey Premises and Specify Equipment to be Provided	40
Section 12.03 Permit to Install, Repair, or Alter Fire Alarm Systems	40
Section 12.04 Certificate of Competency Required	41
Section 12.05 Certificate of Completion	41
Section 12.06 Permit for Fire Alarm	41
Section 12.07 System Requirements	41
Section 12.08 Alarm Initiating Systems	42
Section 12.09 Supervisory System	42
Section 12.10 Systems for Annunciation of Alarms	43

	Page
Section 12.11 Monitoring Systems	44
Section 12.12 Systems for Mechanical Control	44
Section 12.13 Fire Alarm Service	45
Section 12.14 Tests	45
Section 12.15 Orders or Rules	45
Section 12.16 Maintenance of Equipment	46
XIII. FIRE EXTINGUISHERS	
Section 13.01 Definitions	46
Section 13.02 Certificate of Competency Required	46
Section 13.03 Installation	47
Section 13.04 Maintenance	47
Section 13.05 Fire Extinguisher Cylinder Test	47
Section 13.06 Inspection and Regulation	47
Section 13.07 Survey and Specification	47
ARTICLE IV. FIRE EXTINGUISHING SYSTEMS	
Section 14.01 Definitions	48
Section 14.02 Permit Required to Install, Alter or Repair	48
Section 14.03 Tests	48
Section 14.04 Certificate of Completion	48
Section 14.05 System Requirements	49
Section 14.06 Water Supplies	49
Section 14.07 Yards and Private Hydrant Systems	49
Section 14.08 Standpipe Systems	50
Section 14.09 Automatic Sprinkle System	51
Section 14.10 Special Extinguishing Systems	51
Section 14.11 Connections from the Public Water System	52
Section 14.12 Fire Marshal to Survey Premises and Specify Equipment to be Provided	52
Section 14.13 Maintenance of Fire Extinguishing Systems	52
ARTICLE XV. FIRE IN THE OPEN	
Section 15.01 Permit Required	53
Section 15.02 Class I Permits — Open Burning for Cooking Purposes	53
Section 15.03 Class II Permits — Flame Making Implements	53
Section 15.04 Class III Permits — Open Burning of Combustible Materials	54
Section 15.05 Class IV Permits — Incinerators in the Open	54
ARTICLE XVI. FLAMMABLE AND COMBUSTIBLE LIQUIDS	
Section 16.01 Scope	54
Section 16.02 Definitions	55
Section 16.03 Licenses and permits Required	55
Section 16.04 General Provisions	56
Section 16.05 Stationary Tank Storage	56

	Page
Section 16.06 Piping Systems	57
Section 16.07 Container and Portable Tank Storage	57
Section 16.08 Industrial Plants	58
Section 16.09 Bulk Plants	59
Section 16.10 Service Stations	59
Section 16.11 Processing Plants	60
Section 16.12 Refineries, Chemical Plants and Distilleries	60
Section 16.13 Tank Vehicles for Transportation	61
Section 16.14 Oil Burning Equipment	61
Section 16.15 Dry Cleaning Equipment	62
Section 16.16 Stationary Combustion Engines	62
Section 16.17 Removal of Underground Tanks	62
ARTICLE XVII. FLAMMABLE FINISHES, APPLICATION OF	
Section 17.01 Scope	62
Section 17.02 Permit Required	63
Section 17.03 General Provisions	63
Section 17.04 Spraying Operations	63
Section 17.05 Operations Involving Dip Tanks	63
Section 17.06 Operations Which Involve Organic Peroxides	64
ARTICLE XVIII. FUMIGATION AND FOGGING	
Section 18.01 Scope	64
Section 18.02 Definitions	64
Section 18.03 Permit Required	64
Section 18.04 Prohibition	65
Section 18.05 Exemption	65
Section 18.06 Certificate of Competency Required	65
Section 18.07 Notification of Fumigation	65
Section 18.08 Watchman Required	65
Section 18.09 Confinement of Fumigation Agent	66
Section 18.10 Protective Gear Required	66
Section 18.11 Fire and Explosion Prevention	66
ARTICLE XIX. GASES	
Section 19.01 Scope	66
Section 19.02 Definitions	66
Section 19.03 Licenses and Permits Required	67
Section 19.04 General Provisions	67
Section 19.05 Stationary Container Storage	69
Section 19.06 Portable Containers	69
Section 19.07 Piping Systems	70
Section 19.08 Vaporizing Systems	70
Section 19.09 Bulk Gas Transfer Facilities	70
Section 19.10 Portable Container Filling Facilities	71
Section 19.11 Vehicles for Highway Transportation	71

	Page
Section 19.12 Gas Burning Equipment	71
Section 19.13 Gas Therapy Facilities	72
Section 19.14 Stationary Combustion Engines	72
ARTICLE XX. HAZARDOUS MATERIALS	
Section 20.01 Scope	72
Section 20.02 Definitions	72
Section 20.03 Permit Required	73
Section 20.04 General Requirements	74
Section 20.05 Corrosive Materials	74
Section 20.06 Flammable Materials	74
Section 20.07 Oxidizing Materials	74
Section 20.08 Radioactive Materials	75
Section 20.09 Toxic materials	75
Section 20.10 Poisonous Materials	76
Section 20.11 Reactive Materials	76
Section 20.12 Unstable Materials	76
ARTICLE XXI. HAZARDOUS OCCUPANCIES IN BUILDINGS USED FOR HABITATION	
Section 21.01 Permit Required	76
Section 21.02 Location and Separation	77
Section 21.03 Vertical Openings	77
Section 21.04 Fire Protection	77
Section 21.05 Hazardous Materials	77
Section 21.06 Means of Egress	77
ARTICLE XXII. INCINERATORS	
Section 22.01 Permit Required	77
Section 22.02 Incinerator Requirements	78
Section 22.03 Incinerator Charging Equipment	78
Section 22.04 Incinerator Rooms	78
ARTICLE XXIII. LUMBER AND BUILDING MATERIALS STORAGE AND WOODWORKING PLANTS	
Section 23.01 Permit Required	79
Section 23.02 Location	79
Section 23.03 Fencing	79
Section 23.04 Roadways	79
Section 23.05 Outdoor Piles	79
Section 23.06 Waste Material and Debris	79
Section 23.07 Weeds and Brush	80
Section 23.08 Buildings	80
Section 23.09 Blower and Exhaust Systems	80
Section 23.10 Fire Extinguishers	80
Section 23.11 Hydrant Service	80
Section 23.12 Fire Alarm	80

	Page
ARTICLE XXIV. MATCHES	
Section 24.01 Permit Required	80
Section 24.02 Storage	80
Section 24.03 Dangerous Matches	81
ARTICLE XXV. OPEN AIR PARKING SPACE	
Section 25.01 Definitions	81
Section 25.02 License or Permit Required	81
Section 25.03 Terms and Conditions for Approval	81
Section 25.04 Revocation of a License	82
ARTICLE XXVI. OVENS AND FURNACES	
Section 26.01 Scope	82
Section 26.02 Permits Required	82
Section 26.03 Requirements	82
ARTICLE XXVII. PLACES OF ASSEMBLY	
Section 27.01 Definition	83
Section 27.02 Permits Required	83
Section 27.03 Means of Egress	83
Section 27.04 Hazardous Areas	83
Section 27.05 General Requirements	84
ARTICLE XXVIII. REQUIREMENTS FOR ALL PREMISES AND WAYS	
Section 28.01 Definitions	84
Section 28.02 Reporting Requirements	84
Section 28.03 Reasonable Precautions	85
Section 28.04 Safeguards for Firefighting	85
Section 28.05 Aisles in Storage Rooms	85
Section 28.06 Obstructions in Premises or Public or Private Ways	85
ARTICLE XXIX. RUBBISH AND HANDLING	
Section 29.01 Definitions	86
Section 29.02 Permits Required	86
Section 29.03 Special Hazard Rubbish	87
Section 29.04 Containers and Compactors	87
Section 29.05 Fire Protection Compactors	88
Section 29.06 Rubbish Storage Rooms and Vaults	88
Section 29.07 Rubbish Chutes	89
ARTICLE XXX. SMOKING	
Section 30.01 Scope	89
Section 30.02 Definition	89
Section 30.03 Prohibition or Conditions for Smoking	89
Section 30.04 Fire Protection Requirements	90
Section 30.05 Signs	90
Section 30.06 Elevators	90
ARTICLE XXXI. TENTS, AIR-SUPPORTED STRUCTURES AND GRANDSTANDS	
Section 31.01	90

	Page
Section 31.02 Scope	90
Section 31.03 Definitions	91
Section 31.04 License or Permit Required	91
Section 31.05 Construction	91
Section 31.06 Means of Egress	92
Section 31.07 Hazardous Materials	92
Section 31.08 Fire Protection	92
ARTICLE XXXII. BLASTTING	
Section 32.01 Purpose	93
Section 32.02 Definitions	93
Section 32.03 General Requirements	114
Section 32.04 Preblast Information Requirements	114
Section 32.05 Storage of Explosive Materials	116
Section 32.06 Transportation of Explosives	116
Section 32.07 Record Keeping	117
Section 32.08 Preblast Inspection Surveys	118
Section 32.09 Blasting Operations	119
Section 32.10 Seismograph Monitoring of Blasts	119
Section 32.11 Vibration and Airblast	120
Section 32A Construction Blasting	120
Section 32B Quarry Blasting	120
Section 32C Severability	123
ARTICLE XXXIII. OUTDOOR COOKING APPLIANCES, OUTDOOR PATIO AND SPACE HEATERS, OUTDOOR DECORATIVE HEATING APPLIANCES AND OUTDOOR FIREPLACES	
Section 33.01 Purpose	124
Section 33.02 For Brevity	124
Section 33.03 Definitions	124
Section 33.04 Sale of solid fuel outdoor patio and space heaters, outdoor decorative heating appliances, and outdoor fireplaces within the City of Boston	125
Section 33.05 Use of solid fuel outdoor patio and space heaters, outdoor decorative heating appliances and out door fireplaces within the City of Boston	126
Section 33.06 Regulations for the use of Natural Gas or LP-GAS outdoor patio and space heaters and decorative heating appliances	126
Section 33.07 Regulations for the use of outdoor barbecue & cooking grills using solid fuel, charcoal, and LP-Gas	127
Section 33.08 Penalties	128
APPENDIX	
1979 Approved Reference Standards	129
Boston Fire Department Fire Prevention Orders	136

BOSTON FIRE PREVENTION CODE

Article I.

GENERAL PROVISIONS

Section 1.01 — Title

This ordinance shall be known and may be cited as the Boston Fire Prevention Code, and it shall take effect upon its passage.

Section 1.02 — Purpose

(a) This Code is enacted to provide the best method of fire prevention currently available throughout the City of Boston. It shall include all Articles and Sections hereafter stated and it shall also include all current approved reference standards, which shall be on file in the Fire Prevention Division of the Boston Fire Department Compliance with current reference standards shall be a requirement for any permit issued pursuant to this Code.

(b) All lists herein are exemplary only and do not represent an inclusive description of each category.

(c) Where this Code conflicts with St. 1972, c. 802 or G.L. Chapter 148, state law shall control. Where this Code conflicts with other city ordinances or regulations promulgated by other city officials, this Code shall control. The Head of the Fire Department shall have authority to determine whether a conflict exists.

Section 1.03 — Definitions

In this Code the following words, unless a different meaning is required by the context or is specifically prescribed, shall have the following meanings:

(a) “APPROVED” — authorized or sanctioned by the Head of the Fire Department or other authorized member.

(b) “ARSON SQUAD” — Uniformed members of the Fire Department as may be designated “Arson Inspectors” by the Fire Commissioner for the purpose of investigating all multiple alarm fires and all fires or explosions reported as of suspicious, unknown, or undetermined origin or resulting from a violation of law, and fires or explosions resulting in loss of life or injury to persons.

(c) “AUTHORIZED MEMBER” — those members of the Boston Fire Department to whom the Head of the Boston Fire Department has delegated his authority in writing to enforce the provisions of the Boston Fire Prevention Code, and all related rules, regulations, ordinances, and laws.

(d) “BOARD OF FIRE PREVENTION REGULATIONS” — the board established under Section 14 of Chapter 22 of the General Laws.

(e) “CERTIFICATE OF COMPETENCY” — a certificate issued after the passing of an examination conducted by the State or local official having jurisdiction.

(f) “COMMITTEE ON LICENSES” — the Committee on Licenses of the Public Safety Commission in the Building Department of the City of Boston.

(g) “FIRE COMMISSIONER” — the administrative head of the Fire Department appointed by

the Mayor who shall be in charge of extinguishing fires in the City of Boston and the protection of life and property.

(h) “PAID FIRE DETAIL” — off-duty authorized member of the Boston Fire Department, contracted to act as a paid fire detail, who takes immediate and proper steps to prevent injury or loss of life or property. The number, equipment, and duties of the fire detail shall be those specified as necessary by the Head of the Fire Department to handle the hazardous conditions. Compensation shall be at the rate established in the rules of the Boston Fire Department and shall be paid by the outside employer.

(i) “FIRE MARSHAL” — the Deputy Fire Chief in charge Of the Fire Prevention Division of the Boston Fire Department designated by the Fire Commissioner as the Fire Marshal of the City of Boston.

(j) “HEAD OF THE FIRE DEPARTMENT” — the Chief of the Boston Fire Department, designated by the Boston Fire Commissioner as Chief Executive Officer. Any authority conferred on the Head of the Fire Department under this Code may be delegated to such members of the Fire Department as the Head of the Fire Department may authorize in writing.

(k) “LAW, ORDINANCE, REGULATION” — St. 1972, c. 802, Massachusetts State Building Code, the General Laws of the Commonwealth of Massachusetts, the Ordinances of the City of Boston, and regulations promulgated by the Fire Commissioner pursuant to this Code.

(l) “LICENSE” — permission granted by the Committee on Licenses to keep, store, use, manufacture, or sell at specified locations, materials which produce conditions hazardous to life or property.

(m) “PERMIT”

(i) A use permit shall constitute permission from the Head of the Fire Department to keep, store, or transport in limited quantities, or to use, sell, or manufacture flammable, combustible, or explosive fluids, solids or gasses, -or any substance-having such properties that it may spontaneously, or acting under the influence of heat or any contiguous substance or of any chemical or physical agency, ignite or inflame or generate flammable, explosive, or toxic fluids, solids, gasses, or matter to a dangerous extent, or any substance which may contribute fuel to a fire or increase the intensity or spread of fire, or to perform any business, act, process, or operation which may constitute a fire hazard.

(ii) A permit shall constitute permission from the head of the Fire Department to alter, operate, or maintain a fire extinguishing system, fire alarm, evacuation system, or emergency system, or a system for control of smoke, heat, and products of combustion, or a system of equipment, personnel, or trained animals for the purpose of repelling unauthorized intruders which could hinder or expose emergency personnel to danger.

(n) “PERSON” — any person, firm, corporation, partnership, association, or society.

(o) “REFERENCE STANDARD” — a specification, standard, code, rule, guide, or recommended procedure, readily available in published form, prepared under procedures for public notice and review, and so sponsored that it represents the best informed judgment on the subject, authorized for use in supplementing provisions of the Code.

Section 1.04 — Organization

(a) “ There is established an executive division of the Fire Department of the City of Boston which is known as the Fire Prevention Division.

(b) Said Division shall be under the supervision of a Deputy Fire Chief designated ‘as “Fire Marshal” who shall be subordinate to the Fire Commissioner and the Head of the Fire

Department.

(c) Said Fire Marshal shall be designated by the Fire Commissioner from the grade of Deputy Fire Chief established by the Division of Civil Service of the Commonwealth, in accordance with Chapter 31 of the General Laws and Regulations established thereunder.

(d) The Fire Prevention Division shall be comprised of such personnel, both uniformed and civilian, as the Fire Marshal, with the approval of the Fire Commissioner, deems necessary for the proper operation of said Division.

Section 1.05 — Duties of the Head of the Fire Department

(a) Before a permit is issued, the Head of the Fire Department or other authorized member shall inspect the storage installations, receptacles, buildings, or places in which such substances are kept, stored, used, sold, or manufactured, or in which a hazardous business, act, process, or operation is to be performed; and, unless specifically-provided for in this code, shall prescribe the safeguards and other conditions which must be provided and shall approve compliance with the order when the necessary conditions have been met. In those instances which require safeguards involving walls, partitions, floors, ceilings, roof, doors, or other construction features, the Head of the Fire Department shall notify the Boston Building Commissioner of such conditions. In those instances when a substance or process may involve a health' hazard, the Fire Marshal shall notify the Boston Commissioner' of Health and Hospitals

(b) Whenever the maintenance, operation, or use of any land, building, structure, material, or other object, or any part thereof, including vehicles used in the transport-of hazardous materials constitutes a fire or explosion hazard which is dangerous or unsafe or a menace to the public safety and the action to be taken to eliminate such dangerous or unsafe condition or conditions which create, or tend to create, the same is not specifically provided for in this Code, and unless otherwise prohibited by law, ordinance, or regulation, the Head of the Fire Department is hereby authorized and empowered to take such action as may be necessary to eliminate such dangerous or unsafe condition or conditions including the evacuation of buildings and/or the assignment of a paid fire detail pending such elimination. In transport of hazardous materials the speed, routes amounts, and hours of transport through the City of Boston shall also be regulated.

Section 1.06 — Duties-of the Fire Marshal

(a): The Fire Marshal under the supervision and control of the Head of the Fire Department, shall perform all the duties required of him by law, ordinance, rules, and regulations and the provisions of the Boston Fire Prevention Code.

(b) The Fire Marshal shall have power and authority to pass upon any question arising under the provisions of this Code, subject to the supervision and control of the Head of the Fire Department and to the conditions, modifications, and limitations contained herein and as may be conferred from time to time by law, ordinance, rule, or regulation.

(c) The Fire Marshal shall make, or cause to be made, inspections with sufficient frequency: to secure efficient supervision of all buildings, structures, and places used either for manufacturing or commercial purposes or occupied or frequented by large numbers of people, and of all school buildings, miscellaneous and private halls, institutions, theaters, multiple dwellings, places of assembly, ships or vessels, aircraft, transportation facilities, docks, wharves, piers, storage facilities, open- air parking spaces, all places of amusement, recreation, or employment; to determine the safety of the occupants of such buildings, structures, or places in the event of fire or explosion; to examine the working order of all exit doors, fire escapes, fire extinguishers, and

other fire fighting appliances and systems; to determine whether there exist any fire hazards in corridors, stairways, fire escapes, and their approaches with regard to obstructions, in the disposition, quantity, arrangement, and protection of stock and combustible material, in the disposal of waste materials, or in heating devices and ovens; to determine whether there are solids, liquids, or gasses which may be flammable, poisonous, reactive, or explosive, alone or in combination or under fire conditions; to ensure that hazardous machinery and appliances are protected with regard to safety from fire; and to ascertain whether the provisions of this Code are being effectively carried out. Subject to the supervision and control of the Head of the Fire Department, the Fire Marshal shall coordinate the inspection activities of all members of the Fire Department under this and other provisions of this Code.

(d) The Fire Marshal or an authorized member shall approve all plans and specifications and amendments to plans and specifications submitted to the Building Department in application for building permits as required by the Massachusetts State Building Code.

(e) The Fire Marshal shall make or cause to be made an inspection of any building, structure, or place within a reasonable time after any person complains that any provision of this Code is there being violated, or that combustible materials are kept in such building, structure, or place in such a manner as to cause a fire or increase the intensity or spread of fire, or that doors, stairways, corridors, exits, fire escapes, or means of ingress or egress in any factory, workshop, or place of amusement, education, employment, habitation, or recreation facility is obstructed or in an unsafe condition, or that any exit door or exit is kept locked or fastened during the time such places are occupied or frequented by employees or by the public, or that any such building, structure, or place is occupied or crowded beyond the capacity of its exits, or that heating appliances, apparatus, or devices in any such building or structure are insecure or dangerous or that any building, structure, or place is being maintained in such a manner as to be a fire menace or dangerous in case of fire or explosion. If any of the above conditions is found to exist, the Head of the Department shall give notice in writing to the owner, lessee, occupant, or person in control of such building, structure, or place to remedy such condition.

Section 1.07 — Investigation of Harmful Fires

The Chief Officer in charge of a fire or explosion shall investigate the cause, origin, and circumstances of every fire or explosion occurring in the City of Boston, involving loss of life, injury to person, or by which property has been damaged or destroyed and so far as possible shall determine whether the fire or explosion was due to carelessness or design. Such investigation shall begin immediately upon control of the fire and if it appears that the fire or explosion is of suspicious origin or is the result of a violation of law or if the cause cannot be determined, the Chief Officer in charge of the fire shall take charge of all physical evidence and immediately notify the Arson Squad and the State Fire Marshal. Within forty-eight hours, Saturday and Sunday excluded, all other fire or explosions, by which loss is sustained, shall be reported in writing to the State Fire Marshal. A record of all fire or explosions occurring in the City of Boston shall be kept by the Fire Department.

Section 1.08 — Investigation of Suspicious Fires

The Fire Marshal shall investigate the circumstances of all fires or explosions of suspicious or undetermined origin or which may be the result of a violation of law, of which he has notice, and may investigate the circumstances of any fire or explosion occurring anywhere within the City of Boston. For such purposes the Fire Marshal or other authorized member may summon and

examine on oath, administered by the Fire Marshal, any person knowing or having reason to know any material facts touching upon the subject of investigation. Such witnesses may be kept apart and examined separately and such examination shall be reduced to writing. False testimony therein shall be perjury. Any justice of a District Court or of a Superior Court, upon application of the Fire Marshal, may compel attendance of such witnesses and the giving of such testimony in the same manner and to the same extent as before said court. If, upon investigation, the Fire Marshal believes that the evidence is sufficient to charge any person with crime, he shall make a complaint therefor, and shall furnish the proper officers with the evidence and names of the witnesses obtained by him. The Fire Marshal shall, when required, report to the State Fire Marshal and the Commissioner of Insurance his proceedings and the progress of prosecutions instituted thereunder.

Section 1.09 — License for Hazardous Materials and Operations

No building or other structure shall be used for the keeping, storage, use, sale, or manufacture of flammable, combustible, or explosive fluids, solids, or gasses, or any substance which may spontaneously or acting under the influence of heat or any contiguous substance or any chemical or physical agency, ignite or inflame or generate flammable, explosive, or toxic fluids, solids, gasses, or matter likely to cause an uncontrolled fire or of any substance which may contribute fuel to a fire or increase the intensity or spread of fire, unless the Committee on Licenses shall have granted a license to use the land on which such building or structure is or is to be situated for the aforementioned uses, after a public hearing, notice of the time and place of which hearing shall have been given, at the expense of the applicant, by the Clerk of the Committee on Licenses, by publication, not less than seven days prior thereto, in a newspaper published in the English language in the City of Boston and also by the applicant by registered mail, not less than seven days prior to such hearing, to all owners of real estate abutting on such land or directly opposite such land on any public or private street as they appear on the most recent local tax list at the time the application for such license is filed and unless the application for such license shall have endorsed thereon the certificate of approval or disapproval of the Head of the Fire Department. The application for such license shall be accompanied by plans and specifications, in duplicate, showing location and amounts of substances, fire protection proposed, lot lines of proposed licensed land, and lot lines of real estate abutting on such land, one copy of which shall be retained by the Fire Department and the other copy by the Committee on Licenses. Solids, liquids, gasses, and substances which are flammable, reactive, or poisonous found on land licensed hereunder which are hazardous to life or property and which are not specified on such license may be ordered removed immediately by an authorized member of the Fire Department.

Such license shall be recorded in the office of the City Clerk and it shall, from the time of the granting thereof by the Licensing authority, be deemed a grant attaching to the land described therein and as an incident of ownership thereof running with the land and shall not be deemed to be merely a personal privilege. Any license granted hereunder shall remain in force unless and until revoked as hereinafter provided. Any such license granted hereunder shall be subject to such conditions and restrictions as may be prescribed in the license by the Committee on Licenses, which may include a condition that the license be exercised to such extent and within such period as may be fixed by the Committee-on Licenses.

Flammable liquids; when in any vehicle which is in a building or other structure, shall be deemed to be kept in such building or other structure within the meaning of this section; provided, that this section shall not apply to any building in existence on July 1, 1911, in which not more than two automobiles or motor vehicles are kept, if such building or part thereof is not used either for human habitation or for holding gatherings of more-than twenty persons, or for entertainment, instruction, or employment to more than that number, or to any private garage not in existence on said July first which is-an appurtenance to a dwelling and in which not more than three automobiles or motor vehicles are kept.

A license for the keeping, storage, use, sale, or manufacture of any of the articles named in this section shall not be required for amounts which do not exceed those prescribed by regulation by the State Board of Fire Prevention Regulations, but a permit from the Head of the Fire Department shall be required to perform any business, act, process, or operation using such limited amounts which may constitute a fire hazard.

Section 1.10 — Certificate of Registration

The owner or occupant of said land licensed as herein provided in Section 1.07 shall annually, on or before April 13 file with the Fire Prevention Division a Certificate of Registration setting forth the name and address of the holder of such license. No Certificate of Registration shall be required for any building used as a garage for storing not more than three vehicles, provided such building is not used as a repair shop, lubritorium, or service station or similar garage used by the general public.

Section 1.11 — Revocation of License

Any license granted by the Committee may be revoked for cause, after notice and hearing given to such owner or occupant, by the Committee on Licenses, and the manufacture, storage, keeping for sale, or selling of the materials specified in the license may be halted immediately by the Head of the Fire Department if such licensed business becomes in any way an extreme fire hazard or a menace to public safety, pending such hearing.

Section 1.12 — Replacement and Alteration in Construction

Any replacement or alteration in the construction of any building or structure erected or maintained under any license granted by the Committee on Licenses shall be subject to such regulations of its use in respect to protection against fire and explosion as the Committee on Licenses or the Head of the Fire Department may prescribe.

Section 1.13 — Right of Persons Aggrieved by the Grant of a License

Any person aggrieved by the grant of a license by the Committee on Licenses on the ground that the exercise thereof would constitute a fire or explosion hazard may, within ten days after the grant thereof, appeal to the State Fire Marshal who, after notice and hearing, shall finally determine whether such a hazard would result. If, in his opinion, such a hazard would result, he shall notify the Committee on Licenses and such notice when received by the Committee shall constitute a revocation of such license and no further license for the same or similar use of the same land shall be granted within one year after receipt of such notice.

Section 1.14 — Permits

(a) All applications for a permit required by this Code shall be made to the Fire Prevention Division in inch form and detail as it shall be prescribe.

(b) Permits shall at all times be posted on the premises designated therein, which shall at all times be subject to inspection by an authorized member of the Fire Department.

(c) One permit only shall be required for establishments dealing in or using two or more of the substances referred to in subparagraph (a) of this section to be kept in the establishment at any one time, provided each of the substances is listed and the amount specified, and further provided that the individual quantities of each substance or the aggregate quantity does not exceed the amount authorized.

(d) The maximum amount of substances referred to in subparagraph of this section authorized by permit shall not exceed such amount as promulgated by the Board of Fire Prevention Regulations or, in the absence of such regulation, shall not exceed the following amounts that may be kept without a license or registration, or either of them, as hereinafter provided:

Class A fluids •	165 gallons
Class B fluids	500 gallons
Class C fluids	1,000gallons
Flammable solids	100 pounds
Flammable gasses (within Building)	3,000.cubic feet
Flammable gasses (outside Building)	10,000 cubic feet

No permit will be required for the keeping or storage of any flammable fluid, solid, or gas, in amounts not exceeding those specified in the table, in any building or other structure used as a wholesale or retail drug establishment, chemical laboratory, doctor’s or dentist’s office, or other similar approved professional establishment, provided that the provisions of this section shall apply only to the keeping and storing of such articles approved as appurtenances and essential to the professional conduct of the business with which they are kept or stored.

No permit will be required for the storage and use of any flammable fluid or gas by a recognized tradesman or artisan and those persons working under his supervision in connection with such construction or repair, in any building or structure in amounts not exceeding those specified in the following table:

Class A liquids, excluding gasoline	5 gallons
L. P. gas	25pounds
Acetylene	40 cubic feet.

provided that:

1. such flammable fluid or gas is removed from the building or structure upon completion of each working day;
2. at least one Class10A, 10B, 10C approved fire extinguisher is immediately available in the area of use of said flammable fluids or gasses;
3. an approved protective fire resistive barrier shall be erected between open flame and any combustible material; and

4. the recognized tradesman or artisan is licensed for his trade or holds a license for limited LPG installation.

(h) Notwithstanding the above limitations, a permit shall be required for all substances, the reactivity of which may be taken to include those which in themselves are normally unstable and readily undergo violent change, materials which may react violently with water or which may form potentially explosive mixtures with water, and materials which are capable of detonation or of explosive decomposition or reaction at normal temperatures or pressures. Materials involving exposure to death or injury shall be taken to include those which on continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical treatment is given, and materials which, on short exposure, could cause residual injury or death even though prompt medical treatment were given.

Section 1.15 — Revocation of Permit

The Head of the Fire Department may revoke a permit if any violation of this Code is found upon inspection or if there has been false statement or misrepresentation as to a material fact in the application on which the permit is based.

Section 1.16 — Fees

The fee for licenses, certificates or registration, and permits issued by the Fire Prevention Division shall be such amount as may be established from time to time by ordinance.

Section 1.17 — Failure to Secure a Permit

Any person required to apply for a permit under any provision of this Code, who fails to make such application, or who performs any act requiring a permit after the permit has been denied or after revocation of a permit, or who fails to file a Certificate of Registration as required by Chapter 148, Section 13, of the General Laws shall be required to pay such fee as is established by ordinance and shall be punished by a fine of not more than one hundred dollars or by imprisonment for not more than one month or both.

Section 1.18 — Right of Person Aggrieved by the Grant of a Permit

Any person aggrieved by the grant of a permit by the Fire Prevention Division on the ground that the exercise thereof would constitute a fire or explosion hazard may, within ten days after the grant thereof, appeal to the State Fire Marshal who, after notice and hearing, shall finally determine whether such a hazard would result. If, in his opinion, such a hazard would result, and he so notifies the Head of the Fire Department, such notice when received by the Head of the Fire Department shall constitute a revocation of such permit and no further permit for the same or similar use at the same location shall be granted within one year after receipt by the Head of the Fire Department of such notice.

Section 1.19 — Approval of License Applications

(a) Before a license application is approved, the Fire Marshal or other authorized member shall inspect the storage installation, receptacles, buildings, or places to be used under such license, and when warranted shall list the conditions, including the provision of adequate fire protection, under which the license may be approved, to prevent or minimize the possibility of fire or

explosion at such location.

b) When a license is granted by the Committee on Licenses after disapproval by the Head of the Fire Department, a report of the reasons therefor shall be submitted to the Head of the Fire Department by the Clerk of said Committee.

(c) Licenses and Certificates of Registration shall at all times be posted on the premises designated therein, and shall at all times be subject to inspection by any authorized member of the Fire Department.

Section 1.20 — Determination of Flammability

(a) Where the provisions of the Code require approval of equipment or materials by the Head of the Fire Department or other authorized member, applicants for approval may be required to submit information necessary to properly identify the suitability of equipment or materials for their intended purposes. Listings or markings of equipment or materials laboratories or testing agencies may be accepted if the laboratories or testing agencies have the necessary facilities, qualified personnel, and established procedures for testing and examination, and provide factory and field inspection, and publish the results of such tests, examinations, and evaluations. The Fire Prevention Division shall determine which laboratories and testing agencies meet these criteria, and shall maintain records of the tests and examinations performed by such agencies, and the published results. In the absence of established examination and testing procedure for any item on which determination is necessary, the Head of the Fire Department may specify what tests or examinations shall be made.

(b) Any substance submitted to the Fire Department for determination as to flammability or composition shall be tested by the Chemist of the Fire Prevention Division who shall, in writing, report his analysis and findings to the Fire Marshal and to the person submitting the sample thereof. When a question arises as to whether a substance is subject to Section 1.09 or 1.14 of the Code, the decision of the Head of the Fire Department shall be based on the report of the Division Chemist and the recommendation of the Fire Marshal and shall prevail.

Section 1.21 — Right to Inspect

The Head of the Fire Department or any authorized member may, in the performance of duties imposed by this Code, or in the furtherance of the purpose of any provision of Chapter 142, as amended, and any law or ordinance relating to the subject matter of this Code, or any rule or regulation of the Board of Fire Prevention Regulations, or any order of the State Fire Marshal or the Head of the Fire Department, enter any building, including individual apartments or other premises including private ways, alleys, yards and driveways adjacent thereto, or any ship or vessel or any transportation or storage facility, to make inspection or investigation, without being held or deemed to be guilty of trespass.

Section 1.22 — Investigation and Removal of Fire and Explosion Hazards

The Head of the Fire Department may, and upon complaint of a person having an interest in any building or premises or property adjacent thereto, shall, at any reasonable hour, enter or cause an authorized member to enter into any building (including a dwelling) or any part thereof (including any dwelling unit therein) or upon premises (including any alley or private way adjacent thereto) and make an investigation as to the existence of any material or condition therein or thereon likely to cause fire or explosion or to increase the intensity or spread of fire or constituting an obstacle to free ingress into or egress from such building (or part thereof) or

premises including any boat, ship or vessel, aircraft, or vehicle in a public or private way or any transportation or storage facility, Whenever he finds any such material or condition to exist as the result of such inspection or investigation, he shall order it, in writing, to be removed or remedied within such time as he shall deem reasonable in the circumstances and so specify in the order. If, in his opinion, such material or condition is extremely hazardous, he may order it to be removed or remedied immediately and order the establishment of a paid fire detail until said hazard no longer exists. Notice of such an order shall be served by an authorized member upon the owner of the building or premises or his agent provided that, if an *occupant* is responsible for such material or condition, such notice may be so served upon him, and provided further, that if after reasonable search neither the owner nor his agent can be found, such notice may be served by posting in a conspicuous place upon the building or premises. Even when notice has been otherwise served the Head of the Fire Department may post notice of the order when, in his opinion, such action is necessary for the public safety. If any such order is not complied with within the time specified therein, the Head of the Fire Department, acting through the agency of a person or persons in the employ of the Fire Department or by an independent contractor, as the Head of the Fire Department shall from time to time determine, may enter into such building or part thereof or upon such premises and remove such material or remedy such condition. Any expense incurred in so doing, including the paid fire detail, shall be a lien upon the estate subject to the provisions of General laws, Chapter 148, Section 5.

Section 1.23 — Division of Records

The Fire Marshal shall cause to be kept records of:

- (a) applications for permits, permits issued, approval of licenses, fees collected;
- (b) fires of suspicious, unknown, or undetermined origin or which result from violation of law, or fires or explosions causing loss of life or injury to persons, and shall include the results of investigations thereof;
- (c) cross-reference files of such fires by street and owner and of arson suspects;
- (d) activities of the Arson Squad;
- (e) complaints received of violations of this Code, of action taken thereon, and of final disposition; and
- (f) inspections by members of the Fire Prevention Division,

Section 1.24 — Frequency of Inspections

- (a) The Fire Marshal shall make, or cause to be made, monthly inspections of theatres, motion picture houses, public halls, and special halls.
- (b) The Fire Marshal shall make or cause to be made, quarterly inspections of hospitals, sanitoriums, convalescent or nursing homes, and boarding homes for the aged licensed by and under the supervision of the State Department of Public Health, and/or hospitals or other institutions (public or private) licensed by and under the supervision of the State Department of Mental Health, of all schools, and of all establishments requiring an innkeeper's license.
- (c) The Deputy Chief of each working group of each firefighting division shall arrange for the regular and frequent inspection of the following occupancies as, in his opinion, the fire and life hazard demands: public buildings, places of assembly, premises in which any hazardous business is conducted, buildings in which people reside, are employed, or assemble in large numbers, transportation facilities, docks, piers, wharves, and other storage facilities.
- (d) Inspections of dwellings and buildings in general shall be performed by members of the

firefighting force as may be prescribed from time to time for in-service building inspections.
(e) All inspections shall be reported in writing to the Fire Prevention Division on prescribed forms by the officer or member of the Fire Department making the inspection.

Section 1.25 — Reports to Other City Departments

When a violation of law, bylaw, ordinance, or regulation is found in a building or other premises which comes under the jurisdiction of a City Department other than the Fire Department, the Fire Inspector shall prepare General Form 65, "Public Safety Inspection Report." The form shall be prepared in triplicate and forwarded to the Fire Prevention Division where one copy shall be retained and two copies shall be forwarded to the relevant department by the Head of the Fire Department. The relevant department shall, within ten days, return one copy to the Head of the Fire Department for the Fire Prevention Division with a notation made of the action taken thereon, which copy shall be returned to the inspector so that he may make a reinspection to determine compliance therewith.

Section 1.26 — Penalties

Unless otherwise provided, whoever violates any provision of this Code shall be punished by a fine of not more than fifty dollars for any one offense or, in the case of a continuing offense; by a fine of not more than ten dollars for every day during any portion of which the violation continues; and not only the person doing the prohibited thing, but also his employer and every other person concerned in so doing shall be punished by such fine.

Section 1.27 — Amendments and Reference Standards

(a) Any article, section, paragraph, sentence, or word of this Code may be amended or deleted; and any additions may be made to this Code from time to time by City Ordinance, upon written recommendation of the Head of the Fire Department and the approval of the City Council and the Mayor.

(b) Reference standards included in this Code may be subject to amendment yearly or at such other times as the Mayor, the City Council, and the Head of the Fire Department deem necessary. When documents so listed are approved, their provisions are hereby made a part of this Code and may be cited as reference standards to define details of performance supplementary to the provisions of this Code on matters not otherwise defined by law, bylaw, ordinance, or regulation. The Head of the Fire Department may recommend for consideration as reference standards documents which he determines are so prepared that they represent the best informed judgment on the subject. As criteria for this determination, he may consider the broad or national character of the body or organization sponsoring the reference standard, the competence of the persons contributing to the standard, and the effectiveness of the procedures followed for public notice and review of the standard. He shall further determine that the document is in such published form as to be readily available. He shall maintain a file of all approved reference standards available for public reference.

ARTICLE II. AUTOMOBILE TIRE REBUILDING PUNTS

Section 2.01 — General

Automobile tire rebuilding plants shall conform to all other applicable requirements of this Code, as well as to the following provisions.

Section 2.02 — Permit Required

A permit shall be required to conduct or maintain any tire recapping and rebuilding plant.

Section 2.03 — Construction and Protection Requirements

(a) Tire recapping and rebuilding plants shall have all floor openings and vertical openings, such as for stairs and elevators, enclosed in accordance with the construction requirements of the State Building Code and shall have fire doors at each floor.

(b) Tire recapping and rebuilding plants in buildings of wood-frame construction or in buildings used in part for residence occupancy shall be separated from other parts of the building by wall or floor assemblies providing one-hour fire resistance installed in accordance with the construction requirements of the State Building Code. Each opening into such room or compartments from other parts of the building shall be protected with an approved automatic, self-closing fire door.

(c) Tire recapping and rebuilding plants in buildings used in part for residence occupancy or in buildings of wood-frame construction or of any construction exceeding 4,800 square feet shall be protected by an approved automatic sprinkler system installed to cover the entire building.

Section 2.04 — Dust Collecting System

Buffing machines shall be located in a room separated from the remainder of the plant by wall or-floor assemblies providing one-hour fire resistance in accordance with the construction requirements of the State Building Code. Each opening into such rooms or compartments from other parts of the building shall be protected with an approved automatic, self-closing fire door. Each machine shall be connected to an ample dust collecting system discharging to a suitable container which shall be cleaned at frequent intervals.

Section 2.05 — Ventilation

Each room where rubber cement is used or mixed, or flammable solvents are applied, shall be equipped with effective mechanical or natural ventilation for hazards.

**ARTICLE III.
AUTOMOBILE WRECKING YARDS, JUNK YARDS, SALVAGE YARDS, AND
WASTE MATERIAL HANDLING PLANTS**

Section 3.01 — General

Automobile wrecking yards, junk yards, salvage yards, and waste material handling plants shall conform to all other applicable requirements of this Code as well as the following provisions.

Section 3.02 — Permit Required

No person shall conduct or maintain any automobile wrecking yard, junk yard, salvage yard, or waste material handling plant without a permit.

Section 3.03 — Location

No automobile wrecking yard, junk yard, salvage yard, or waste material handling plant shall be located so as to seriously expose adjacent properties to fire. Serious exposure shall include situations where materials are stored or operations performed within 15 feet of an adjacent private property line.

Section 3.04 — Fencing

The entire premises devoted to such yard or plant shall be enclosed with a chain link fence not less than 8 feet in height, with two, 15-foot gates for Fire Department access to the roadway. Failure to properly maintain this fence or the gates shall be sufficient grounds for revocation of the permit to operate said yard or plant.

Section 3.05 — Roadways

Piles of wrecked vehicles, junk, salvaged, or waste material shall be limited to 20 feet in height and there shall be a roadway or aisle within 20 feet of any part of the base area of a pile. Roadways shall be at least 15 feet wide at all times. There shall be a roadway between any pile and any building on the premises. Buildings shall include such structures as sheds, temporary buildings, or trailers.

Section 3.06 — Motor Vehicle Fuel Tanks

Fuel tanks of motor vehicles shall be drained and purged before removal and after removal, stored in piles separate from other wrecked vehicles or waste materials. No person shall drain any flammable liquid from the fuel tank of any vehicle except into an approved safety can and such liquid may be either stored in such can or transferred to an approved underground tank or into fuel tanks on operable vehicles.

Section 3.07 — Construction and Protection Requirements

(a) Quantities of waste paper, rags, or other combustible materials in excess of 500 cubic feet shall not be stored or processed in a building of wood frame or ordinary construction, nor in a building of other construction with a floor area in excess of 4,800 square feet unless the building is equipped with a sprinkler system approved by the Head of the Fire Department. Vertical openings in such buildings shall be enclosed in accordance with the construction requirements of the State Building Code and shall have fire doors at each floor.

(b) Picking rooms shall be separated from storage rooms in accordance with construction requirements of the State Building Code with approved automatic, self-closing fire doors at each opening. Picking rooms shall be provided with exhaust systems of sufficient capacity to adequately remove dust and lint.

ARTICLE IV. BOWLING ESTABLISHMENTS

Section 4.01 — General

Bowling establishments shall conform to all other applicable requirements of the Code as well as to the following provisions.

Section 4.02 — Permit Required

(a) The operator of a bowling establishment shall, before performing pin refinishing operations involving the use or application of flammable liquids or materials on the premises, obtain a permit therefor.

(b) Any person shall, before performing bowling lane resurfacing operations involving the use or application of flammable liquids or materials, obtain a permit therefor and twenty-four hours prior to starting such operation shall notify the Fire Prevention Division of the time and location where such work is to be done.

Section 4.03 — Lane Resurfacing Operations

Lane resurfacing operations shall not be carried on while the establishment is open for business. Adequate ventilation shall be provided. Heating, ventilation, and cooling systems employing recirculation of air, and all electrical motors or other equipment which might be a source of ignition of flammable vapors, shall be shut down and all smoking and use of open flames shall be prohibited during the resurfacing and refinishing operations and for one hour thereafter.

Section 4.04 — Pin Refinishing

Pin refinishing involving the application of flammable finishes or materials shall be done only in a special room meeting the requirements of Article 17 of this Code and such room shall not be located below grade nor shall it have ingress or egress to any pits, wells, pockets, or basements. Storage of flammable liquids and materials in such rooms shall not exceed a total of sixty-five gallons in unopened containers of metal or in approved safety containers not exceeding five gallons individual capacity. An approved metal waste can shall be provided for all waste materials and rags and contents shall be removed to a safe storage or disposal place daily. Smoking shall be prohibited at all times in the room.

Section 4.05 — Requirements for All Finishing Operations

(a) At least two means of egress remote from each other shall be maintained from any space where finishing operations are being performed.

(b) An approved metal receptacle shall be provided for all lathes, and sanding, buffing, or grinding machines to collect residuals and dusts caused by the resurfacing and refinishing processes. Such residue shall be removed to a safe storage or disposal place daily and at the finish of the operation.

(c) Power tools, when in use, shall be effectively grounded.

ARTICLE V. COMBUSTIBLE FIBERS — STORAGE AND HANDLING OF

Section 5.01 — Definition, “Combustible Fibers”

“Combustible fibers” shall mean and include readily ignitable and free-burning fibers, such as cotton, sisal, jute, henequen, ixtle, hemp, tow, cocoa-fibre, oakum, and similar materials; also waste, waste paper, hay, kapok, straw, Spanish moss, excelsior, rags, cloth, ignitable synthetics and similar materials, foam sponge plastic, rubber cellular materials, loose or baled, or any combination of same.

Section 5.02 — Permit Required

A permit shall be required for storage, handling, and use of combustible fibers in quantities in excess of 100 cubic feet in any form.

Section 5.03 — Loose Storage

- (a) Loose combustible fibers shall not be stored in the open.
- (b) No more than 100 cubic feet of loose combustible fibers may be kept in any building unless storage is in a metal or metal-lined bin equipped with a self-closing cover.
- (c) Quantities exceeding 100 cubic feet of loose combustible fibers, but not exceeding 500 cubic feet, may be stored in rooms or compartments having floors, walls, and ceilings of fire resistive construction in accordance with the construction requirements of the State Building Code. Each opening into such rooms or compartments from other parts of the building shall be protected with an approved automatic, self-closing fire door.
- (d) Quantities exceeding 500 cubic feet of loose combustible fibers may be stored in approved vaults constructed as follows:
 - (1) Storage vaults shall be located outside of building or, if located inside, shall be provided with vents of approved design to release to the outside any pressures from a flash fire or explosion
 - (2) Walls, floors, and ceilings shall be of two-hour, fire resistive construction and shall conform to the construction requirements for such assemblies in the State Building Code.
 - (3) Openings between the vault and the main building shall be protected on each side of the wall by an approved, self-closing fire door. Wall openings in outside vaults exposing other property (not sufficiently detached to be considered cut off) shall be protected by an approved fire door or equivalent protection.
 - (4) Vaults located within buildings and exceeding 1,000 cubic feet storage capacity shall be protected by an approved fire extinguishing system.
- (e) Not more than 2,500 cubic feet of loose combustible fibers may be stored in a detached building suitably located, with openings protected properly against entrance of sparks. The detached building shall be used for no other purpose.

Section 5.04 — Baled Storage Indoors

- (a) No single block or pile of baled combustible fiber shall contain more than 25,000 cubic feet exclusive of aisles and clearances. Solid blocks or piles of baled combustible fiber shall be limited to 12 feet in height. Blocks or piles of baled combustible fibers shall be separated from adjacent storage by aisles at least 5 feet wide, or by a flash fire barrier consisting of continuous substantially supported sheets of suitable noncombustible material extending from the floor to a height of at least 1 foot above the highest point of the pile and projecting at least 1 foot beyond the sides of the pile.
- (b) Sisal and other fibers in bales bound with combustible tie ropes, also jute and other fibers which swell when wet, shall be stored to allow for expansion in any direction without endangering building walls, columns, or ceilings. At least 3 feet clearance shall be left between walls and sides of piles, except that if the storage compartment is not more than 30 feet in width 1 foot clearance at side walls shall be sufficient, providing a center aisle not less than 5 feet wide is maintained.
- (c) Any building of wood frame or ordinary construction and any building of other type

construction in excess of 4,800 square feet shall be protected by an approved fire extinguishing system.

Section 5.05 — Baled Storage Outdoors

(a) Outdoor storage of baled combustible fiber shall be so located as not to seriously-expose adjacent properties to fire.

(b) Serious exposure shall include cases in which blocks or piles of baled combustible fibers are within 15 feet of an adjacent private property line,

(c) The entire premises devoted to such outdoor block or pile storage of baled combustible fiber shall be enclosed with a chain link fence of at least 8 feet in height with two, 15-foot gates for Fire Department access to roadways. Failure to properly maintain this fence or the gates shall be sufficient grounds for revocation of the permit to use, handle, or store combustible fibers.

(d) Blocks or piles of baled combustible fiber shall be limited to 20 feet in height and there shall be a roadway within 20 feet of any part of the base area of the pile. Roadways shall be at least 15 feet wide at all times. There shall be a roadway between any block or pile of baled combustible fibers and any building on the premises. Buildings shall include such structures as sheds, and temporary or permanent trailers and buildings.

ARTICLE VI. COMBUSTIBLE METALS

Section 6.01 — Scope

This article shall apply to any metal or alloy of metals which is in such form as to be combustible at any time during manufacture, storage, processing, handling, transportation or use, including but not limited to aluminum, iron, magnesium, titanium, zinc, and zirconium.

Section 6.02 — Permit

A permit shall be required for a facility which melts, casts, heat- treats, machines, or grinds a combustible metal or which stores combustible metal. A permit shall be obtained as required by Article X, Section 10.03, of this Code for the operation of any facility through which dust is produced by the handling, processing, storage, or use of a combustible metal. A permit shall be obtained, as required by Section 20.03 of this Code, for the premises, vehicles, or marine vessels in which a combustible metal may be a hazardous chemical or explosive material at any time during manufacture, use, storage, handling, or transportation.

Section 6.03 — Outdoor Storage

(a) Outdoor piles of combustible metals in pigs, ingots, billets, or other form shall be no higher than 20 feet. There shall be a roadway within 20 feet of any part of the base area of such a pile. Roadways shall be at least 15 feet wide and maintained free of obstructions to vehicular movement, There shall be a roadway between any pile and any building.

(b) An approved water supply and an approved system of water mains with hydrants at approved locations shall be installed in premises where combustible metals are stored outdoors, whenever any portion of the premises so occupied is more than 300 feet from a hydrant on the public water system.

Section 6.04 — Storage in Buildings

The size of storage piles of combustible metals in buildings and the space between such piles shall be as required by the Head of the Fire Department for access for firefighting.

(b) Storage shall be in buildings protected by an approved system of automatic sprinklers when the amount of storage is such that the Head of the Fire Department may require such protection for fire control.

Section 6.05 — Processing Operations

(a) Equipment for processing combustible metals shall be approved and processing operations shall be conducted in accordance with approved reference standards.

(b) Portable fire extinguishers, approved as to type, size, and individual location, shall be provided for all processing operations. When required by the Head of the Fire Department, special extinguishing agents for combustible metal fires shall be provided, together with approved equipment for their use.

(c) Chips, turnings, and other fine metal scrap shall not be allowed to accumulate under machines or elsewhere. Such materials shall be stored in buildings only if they are in approved receptacles. When stored outdoors, such material shall comply with the requirements for such storage.

(d) Where a fire, explosion, or health hazard could result from different metals, or metals and possible contaminants, being brought together, the Head of the Fire Department may require the adoption of approved procedures to minimize such an occurrence.

Section 6.06 — Conflicting Requirements

Where the requirements of law, regulations, ordinances, or approved reference standards present practical difficulties, inconsistent requirements, or different requirements, and where approved reference standards contain advisory requirements, the Head of the Fire Department shall determine which such requirements are applicable.

ARTICLE VII. CONSTRUCTION AND DEMOLITION OPERATIONS

Section 7.01 — Scope

The requirements of this article shall apply to all sites at which material, equipment, or personnel is provided for operations involving the construction, repair, alteration, or demolition of a building or other structure.

Section 7.02 — Permit Required

(a) A permit issued by the Head of the Fire Department shall be required for the establishment of safe access for Fire Department operations prior to the commencement of any construction, repair, alteration, or demolition of buildings or other structures.

(b) A permit issued by the Head of the Fire Department shall be required for the maintenance of fire protection equipment and fire alarm systems prior to the commencement of any construction, repair, alteration, or demolition of buildings or other structures affected. The permit shall state which features of the systems and equipment shall be operative at particular stages of construction, repair, removal, relocation, alteration, or demolition of the building or other

structure.

(c) The Head of the Fire Department may determine that the particular construction, repair, alteration, or demolition is so limited in character that no permit is required under this section. Such determination shall not waive other applicable provisions of this Code or other permits or licenses required thereunder.

(d) The permit application shall be made in the name of the owner or lessee of the site. The application shall contain sufficient information to determine that the proposed work can be done in a manner consistent with operations which must be performed by the Fire Department in the event of fire or emergency and will not pose unreasonable danger of injury to members of the Fire Department or other persons.

Section 7.03— Public Hydrant Service

Service from public hydrants shall be maintained at all times where the Head of the Fire Department determines that there are significant amounts of combustible materials at the site during construction, repair, alteration, or demolition which constitute a fire hazard and he may require additional hydrants to be provided in the public system at locations where they are necessary for the protection of the site, together with the additional mains in the public system to supply these hydrants or connections for fire extinguishing systems which serve the site.

Section 7.04 — Fire Extinguishing Systems Service

Section 14.09 and 14.13 of this Code shall apply to construction, repair, removal, relocation, alteration, and demolition operations.

Section 7.05 — Public and Private Fire Alarm Service

(a) The construction, removal, relocation, repair, alteration, or demolition of buildings and other structures shall not interfere with the operation of any existing public or private fire alarm systems without the approval of the Head of the Fire Department.

(b) At all sites where a permit is required, a fire alarm control center, approved by the Head of the Fire Department, shall be provided with a public telephone and a means of manually operating fire alarm-initiating devices for transmittal of alarms to the Boston Fire Department.

(c) The Head of the Fire Department may require the fire alarm control center to be occupied continuously by one or more competent persons to monitor alarm and supervisory systems.

Section 7.06 — Fire Alarm Systems Service

Sections 12.10 and 12.14 of this code shall apply to construction, repair, removal, relocation, alteration, and demolition operations.

Section 7.07 — Portable Fire Extinguishing Service

Whenever operations are performed which involve construction, repair, alteration, or demolition of buildings or other structures, portable fire extinguishers shall be provided by the owner, lessee, or contractor in locations, numbers, types, and size as required by the Head of the Fire Department.

Section 7.08 — Guard Service

(a) Where guard patrolman are employed for fire control purposes at a site involving the

construction, repair, alteration, or demolition of buildings or structures, the number of guards' reporting stations, their locations, the route to be followed by the guard for operating the stations, and the type of supervisory system shall be subject to approval by the Head of the Fire Department.

(b) The names, addresses, and telephone numbers of those persons employed for fire control purposes and authorized to act on behalf of the permit holder shall be posted at the site fire alarm control center at all times together with the dates and hours at which they will be the permit holders' representatives on the site. The permit holder or a named representative shall be at the site whenever any work is in progress and at other times required by the Head of the Fire Department.

Section 7.09 — Access for Fire Department Apparatus and Personnel

The following requirements shall be observed at all locations where operations involving the construction, repair, alteration, or demolition of buildings or other structures are performed:

(a) Site fencing and the locking of gates and doors which interfere with access to fire extinguishers or the components of any fire extinguishing or fire alarm system shall be subject to approval of the Head of the Fire Department.

(b) Approved hard-surface, all-weather, access fire lanes, not less than 20 feet in width, for use of Fire Department apparatus, shall be provided to within 25 feet of any building or other structure at the site.

(c) In buildings of more than one story, at least one stairway shall be in service to any floor which is in, place.

(d) At all times elevators, including builders' elevators, shall be provided with a means to permit Fire Department use for emergency operations

(e) When portions of a site can be reached only by hoisting equipment, such equipment shall be subject to requirements established by the Head of the Fire Department.

Section 7.10 — Fire Doors and. Opening Protectives

In all buildings and structures under construction, repair, or alteration, labeled, self-closing doors and opening protectives shall be provided in walls and partitions enclosing at least one of the horizontal or vertical means of egress. However, where a building has a partial occupancy, the horizontal access to the exits from the occupied space and the exits themselves from the lowest level of the building to at least one level above an occupied space shall be enclosed and maintained as required in the Massachusetts State Building Code for an approved means of egress at all times.

Section 7.11 — Temporary Heating Equipment

Temporary heating equipment in buildings and structures under construction, repair, or alteration shall comply with applicable law, regulations, ordinances, or approved reference standards.

Temporary heaters, fuel supplies, and refueling practices shall be subject to specific approval by the Head of the Fire Department. They shall be provided with chimney or vent connectors. They shall be designed so that they are not readily overturned and are provided with clearances to combustible material, equipment, or construction, as required for the specific type of appliance.

An employee qualified to operate the heating equipment shall be on duty at all times whenever temporary heaters are being utilized, to supervise the operation and maintenance of such heaters.

Section 7.12 — Temporary Construction

(a) Tarpaulins and similar sheet materials used to cover stored materials or as a temporary wall enclosure shall meet requirements for flame resistance established by the Head of the Fire Department. Tarpaulins and similar sheet materials shall be securely fastened against displacement by wind or other forces.

(b) At a site for which a permit is issued under Section 7.01, the materials used for scaffolding, hoist-frame platforms, sidewalks, sheds, concrete forms, chutes for debris removal, or other temporary construction shall be constructed of noncombustible material or of wood treated by a pressure-impregnating process which meets fire retardant requirements established by the Head of the Fire Department.

Section 7.13 — Waste Material and Debris

At all locations at which buildings or structures are under construction, repair, alteration, or demolition, a routine satisfactory to the Head of the Fire Department shall be established for the regular removal of waste material, debris, rubbish, or other unnecessary, combustible material. Where debris or waste material is of such nature that it can be stored safely in the building or structure only in particular receptacles or facilities, such receptacles or facilities shall be provided. Debris chutes shall be erected only on the outside of buildings or structures and shall be emptied whenever 25 lineal feet or more of the chute is filled. Places shall be designated on the site where waste material may be placed temporarily prior to being removed. These locations shall not be such as endanger buildings or outside storage of other materials.

ARTICLE VII. WELDING AND CUTTING

Section 8.01 — Scope

Welding and cutting shall include the installation and operation of welding and cutting systems of the type which employ oxygen and a fuel gas or gasses, gaseous fuels generated from flammable liquids under pressure when such fuels are used with oxygen, electric-arc systems, or any combination of systems for welding, cutting, heating, or heat-treating operations. It shall also include the generation of acetylene, the storage of calcium carbide, and the storage and handling of any of the gasses used in welding, cutting, or heat-treating.

Section 8.02 — Permit for Welding and Cutting

(a) No person shall install, operate, or maintain any system for welding or cutting, generate acetylene, or store calcium carbide or any of the gasses used in welding, cutting, and heat-treating without a permit for the operations to be performed.

(b) Application shall be made in the name of a person holding a Certificate of Competency for Welding and Cutting Contractor who will be in charge of the operations covered by the permit. The application shall include the location of the proposed work and the additional information called for by approved reference standards applying to the welding and cutting operations, and to the generation, distribution, or storage of fuel gasses.

Section 8.03 — Certificate of Competency Required

(a) No person shall engage in the business of welding or cutting, or perform related operations of

gas generation or storage, or assume charge of welding or cutting or related operations, unless he holds a Certificate of Competency for a Welding and Cutting Contractor.

(b) No person shall serve as a fire watcher under individual job authorizations issued by a welding and cutting contractor unless he holds a Certificate of Competency for a Welding and Cutting Fire Watcher or is an authorized member of the Boston Fire Department employed as a paid fire detail.

(c) Any person desiring a Certificate of Competency shall make application to the Head of the Fire Department and submit to such examination and tests as he may prescribe. The Head of the Fire Department may make such reasonable regulations as he deems suitable for the issuance or renewal of the two classes of certificate. Certificates shall be for a calendar year unless revoked or suspended by the Head of the Fire Department for cause.

Section 8.04 — Individual Job Authorizations

No person shall perform welding or cutting operations except under a written authorization for the individual job by the permit holder. Such authorization shall include the date, time, and specific location at which work is to be done. It shall describe the work, fire protection to be provided, and special precautions to be taken. It shall state the name of the assigned fire watcher or watchers and the length of time for which fire watch standby is to be continued after work is completed. An assigned fire watcher, or another person acting for the welding and cutting contractor, shall sign the work authorization attesting to the fact that no fire existed after the recorded work and standby period. Individual job authorizations shall be kept available for inspection by the Fire Department and a copy shall be delivered to the Fire Department within twenty-four hours of job completion.

Section 8.05 — Where Fire Watchers Are Required

A fire watcher or fire watchers, designated by the Head of the Fire Department as necessary to guard against fire, properly equipped with fire extinguishing equipment, and trained in the use of same, shall be provided as required, whenever cutting or welding operations are performed, when any of the following conditions exist:

(a) appreciable combustible material in building construction; or contents is closer than 35 feet to the point of operation;

(b) appreciable combustible material is more than 35 feet away, but exposed to ignition by sparks;

(c) wall or floor openings exist within a 35-foot radius which expose combustible material in adjacent areas, including concealed spaces in walls, floors, and ceilings, to possible ignition; or

(d) combustible materials are present adjacent to the opposite side of metal walls, partitions, ceilings, or roof, which have not been relocated and are likely to be ignited by conduction or radiation from welding or cutting operations.

Fire extinguishing equipment shall include fire extinguishers, the number, type, size, and location of which are approved by the Fire Marshal, and/or connected lines of hose, of sufficient length to protect the hazard, which run to an adequate water supply that is properly equipped and ready for service.

Section 8.06 — Cutting and Welding Operations

In addition to the requirements of applicable reference standards, the following measures for fire

control in connection with cutting and welding shall be observed:

- (a) Cutting and welding equipment shall be in satisfactory condition and in good repair. Equipment used in welding and cutting shall have components listed and marked by an approved laboratory or testing agency and its application, installation, operation, and maintenance shall be in accordance with applicable approved, reference standards. The Head of the Fire Department shall determine the listings and standards which shall apply to specific systems, applications, or operations.
- (b) Loose combustibles shall be swept from floors in a radius of 35 feet from the central point where sparks may land from the operation. Combustible floors shall be kept wet, covered with damp sand, or protected by approved flame-resistant shields. Where floors are wet, personnel operating arc welding or cutting equipment shall be protected from possible shock
- (c) Combustible material within 35 feet of the work site shall be shielded with metal or asbestos guards or curtains or protected by approved flame-resistant coverings so arranged that sparks cannot get under or pass between said covers.
- (d) Walls, floor openings, cracks, vertical shafts, ducts, conveyors, ramps, or other means by which sparks could carry to adjacent areas shall be made tight against passage of sparks.
- (e) "Hot tapping" or other cutting or welding on a flammable gas, liquid transmission, or distribution utility pipeline shall be performed by a crew qualified to make hot tars.

Section 8.07 — Cutting and Welding Not Allowed

- (a) Cutting and welding shall be performed only in areas authorized by the owner, tenant, or general contractor, and the welding contractor.
- (b) Cutting and welding shall not be performed in buildings or spaces protected by a fire extinguishing system when such system is not fully operative unless this condition is noted in the application for the permit for a specific job of cutting and welding.
- (c) Cutting and welding shall not be performed in the presence of explosive atmospheres (mixtures of flammable gasses, vapors, liquids, or dusts with air) or in hollow spaces, cavities, or containers which have not been purged and vented to remove such atmospheres or on used drums, barrels, tanks, or other containers or equipment which is uncleaned, unpurged, or otherwise improperly prepared and in which explosive atmospheres may develop when heated;
- (d) Cutting and welding on pipes or other metal in contact with combustible walls, partitions, ceilings, or roofs shall not be undertaken if the work is close enough to cause ignition by conduction.
- (e) Cutting and welding shall not be attempted on a metal partition, wall, ceiling, or roof having a combustible covering, nor on walls or partitions of combustible, sandwich-type, panel construction.

Section 8.08 — Storage of Cylinders and Containers

- (a) Fuel gas cylinders stored inside of buildings, except those in actual use or attached ready for use, shall be limited to a total gas capacity of 2,000 cubic feet of acetylene or nonliquefied gas or a total water capacity of 735 pounds for liquefied petroleum gas or methylacetylene propadiene, stabilized. Fuel gas in excess of such amounts shall be stored in a separate location. The ventilation, heating, and control of sources of ignition shall comply with applicable reference standards and electrical work shall comply with the Massachusetts Electrical Code.
- (b) Cylinders of dissolved acetylene shall be stored with the valve up to minimize possibility of solvent being discharged as liquid.

- (c) Oxygen cylinders in storage shall be separated from a fuel gas cylinder or combustible material, including oil or grease, a minimum distance of 20 feet or by a noncombustible barrier at least 5 feet high made of a structural assembly having a fire resistance rating of at least one-half hour.
- (d) Oxygen cylinders stored in outside generator houses shall be separated from the generator or carbide storage rooms by a noncombustible partition having a fire resistance rating of at least one hour. This partition shall be without openings and shall be gas tight.
- (e) Oxygen cylinders shall not be stored inside of acetylene generator rooms.
- (f) Storage of fuel gas and oxygen cylinders and containers may be prohibited inside buildings when, in the opinion of the Head of the Fire Department, such storage may be hazardous to the occupants of the building.

Section 8.09 — Manifolding of Cylinders

- (a) Fuel gas cylinders connected to one manifold inside a building shall be limited to a total gas capacity of 3,000 cubic feet of acetylene or nonliquefied gas or a total water capacity of 735 pounds for liquefied petroleum gas or methyl-acetylene-propadiene, stabilized.
- (b). The ventilation, heating, and control of sources of ignition shall comply with applicable reference standards and electrical work shall comply with the Massachusetts Electrical Code.
- (c) High-pressure, fuel gas manifolds shall be provided with approved pressure-regulating devices.
- (d) Low-pressure oxygen manifolds shall be suitable for use with oxygen at gauge pressure of 250 pounds per square inch, shall have a minimum bursting pressure of 1,000 pounds, and shall be protected by a safety relief device which will relieve at maximum pressure of 500 pounds.

Section 8.10 — Service Piping Systems

- (a) Piping and fittings for service of gas fuel and oxygen in cutting and welding operations shall comply with applicable reference standards. Piping systems shall be tested and proved gas tight at one and one-half times the maximum operating pressure and shall be thoroughly purged of air before being placed in service.
- (b) Protective equipment for piping systems shall be provided by pressure relief devices as required by applicable reference standards.
- (c). Hose connections and hose for oxygen and fuel gas service, including hose used to connect portable outlet headers to service piping, shall comply with the Massachusetts Fuel Gas Code and with applicable reference standards.

Section 8.1 1 — Acetylene Generators

- (a) Operations of acetylene generators shall comply with applicable reference standards.
- (b) Openings from an inside generator room to other parts of the building shall be protected by an approved swinging-type, self-closing fire door. Windows in partitions shall be wired glass in approved metal frames with fixed sash. Fire doors and windows shall comply with applicable reference standards.
- (c) Heating of generator rooms or houses shall be by steam, hot water, or other indirect means. Heating by fire shall be prohibited in all generator houses and generator rooms.

(d) Calcium carbide shall be handled and stored in accordance with applicable reference standards.

Section 8.12 — Electric Arc Welding and Cutting

(a) Electric arc welding and cutting equipment shall be of an approved type and its application, installation, and operation shall be in accordance with applicable reference standards.

(b) The frames or cases of welding machines, except those with internal combustion engines, shall be grounded in an approved manner. Ground connections shall be mechanically strong and electrically adequate for the required current.

(c) Welding current return circuits from the work to the machine shall have electrical contact at all joints and the operators of equipment shall make inspections at approved intervals to ascertain that electrical contact is maintained.

(d) When electric arc welding or cutting is to be disconnected for more than one-half hour, the machine shall be disconnected from the power source, the electrodes shall be removed from their holders, and the holders shall be placed so that accidental contact cannot occur.

ARTICLE IX. DECORATIONS, FURNISHINGS, AND INTERIOR FINISHES

Section 9.01 — Definitions

(a) “Decorations” shall mean items which contain flammable and combustible materials and materials which readily undergo thermal degradation, yielding flammable and combustible gasses or vapors or irritating and toxic smoke, and which are used for decorative purposes such as curtains, drapes, upholstery coverings, streamers, banners, coverings over interior finish, and other items identified as subject to this article.

(b) “Furnishings” shall mean items which contain flammable and combustible materials and materials which readily undergo thermal degradation, yielding flammable and combustible gasses or vapors or irritating and toxic smoke, and which are used as articles of furniture including but not limited to upholstered chairs and couches, solid plastic seating, space separating panels, wall- and ceiling-mounted acoustical devices, and articles which are constructed with foamed cellular plastic in the form of finished exterior or upholstery padding. Bedding including mattresses may be subject to regulation under this article.

(c) “Interior finishes” means the exposed interior surfaces of buildings including but not limited to fixed or movable walls and partitions, certain wall coverings, columns, ceilings, and certain floor coverings.

Section 9.02 — Permit Required

(a) A permit shall be obtained for use of decorations, furnishings, and interior finishes in every mercantile, business, assembly, institutional, and residential hotel occupancy and in certain residential multifamily dwellings as designated by the Head of the Fire Department.

(b) A permit applicant shall furnish information as to the occupancy and location where such decorations, furnishings, and interior finishes will be used and such other information as the Fire Marshal may require, including sample materials for testing by the Fire Department Chemist.

Section 9.03 — General Requirements

- (a) Furnishings, decorations, or other objects shall not be so placed as to obstruct the use of an exit, exit access, or exit discharge.
- (b) Decorations, including hangings, draperies, and mirrors, shall not be placed over exit doors.
- (c) The Head of the Fire Department may prohibit the use of decorations, furnishings, and interior finishes which, on the basis of material analysis, burning, smoke-producing characteristics, or other applicable data, are judged to constitute a fire hazard.
- (d) Furnishings or decorations of an explosive or highly flammable character shall not be used.
- (e) Decorations, furnishings, and interior finishes composed of cellular and foam plastic materials may be prohibited when their use is determined to constitute a fire hazard by the Head of the Fire Department.
- (f) Furnishings, decorations, and interior finishes acceptable for use shall meet the criteria for resistance to ignition, flame spread, heat- release potential, and smoke-producing characteristics for particular occupancies and locations as specified in applicable Fire Prevention Orders issued by the Head of the Fire Department.
- (g) Fire Prevention Orders for the control of interior finishes shall be consistent with applicable requirements of the Massachusetts State Building Code.

Section 9.04 — Classification

- (a) The Fire Department Chemist shall classify decorations, furnishings, and interior finishes as acceptable or not acceptable for use at locations and occupancies for which a permit for the use of decorations, furnishings, or interior finishes is required. The classification determined by the Fire Department Chemist shall be stated in a report to the Fire Marshal which shall include terms and conditions for the maintenance of acceptability or the use of the decorations, furnishings, and interior finishes at a location for which a permit is required;
- (b) Classification of decorations, furnishings, and interior finishes shall be of the finished item or material, in the state in which it will be installed or used.
- (c) The Fire Department Chemist shall make examinations and tests of decorations, furnishings, and interior finishes in accordance with applicable law, regulations, ordinances, approved reference standards, and applicable Fire Prevention Orders. He shall determine the number of tests to be performed on any material under these provisions, the size of the samples of the material to be tested, and the acceptability of the test methods employed.
- (d) The Fire Department Chemist may classify as not acceptable any decorations, furnishings, or interior finishes, the materials of which possess characteristics of reactivity which may be excessively dangerous, other characteristics which may be excessively dangerous, or characteristics which could produce smoke in such amounts as to obscure means of egress whether or not such characteristics are revealed by the specific examinations or tests made.
- (e) The Fire Department Chemist may accept the reports of laboratories or testing agencies which have an established procedure for examinations and testing of the materials involved in decorations, furnishings, and interior finishes. He may require that said laboratories or testing agencies show that they have the necessary facilities and qualified personnel for examinations and tests for the particular materials.
- (f) For materials which depend on a fire retardant treatment to meet the required classification tests, the Fire Department Chemist may issue an acceptable classification when he has satisfactory evidence that the service life of the fire retardant treatment exceeds that of the

planned service life of the finished item. He may also issue an acceptable classification on the basis of restrictions imposed regarding a requirement that permanence of flame retardant treatment be demonstrated after cleaning or extended duration of use.

ARTICLE X. DUST EXPLOSIONS, PREVENTION OF

Section 10.01 — Scope

Processing, manufacturing, and storage operations regulated by the Code shall comply with the applicable reference standards for the prevention of dust explosions in the specific industry. These shall include but not be limited to the following: aluminum and magnesium processing; finishing and powder manufacture; coal preparation and pulverized fuel systems; confectionery, spice grinding, sugar, cocoa, and starch processing; handling, storage, and pneumatic conveying of grain and agriculture dusts; operation of flour and feed mills; plastic manufacture; sulfur processing; wood flour plants; woodworking and industrial plants.

Section 10.02 — Definition

The term “dust” as used in this article shall mean, particles of materials which, if mixed with air in proper proportions, become explosive and may be ignited by flame, spark, or static electricity.

Section 10.03 — Permit

A permit shall be required for the operation of any facility which, through the handling, processing, storing, or use of any animal, vegetable, mineral, natural, or synthetic material, produces dust.

Section 10.04 — General Requirements

- (a) All dust-producing or agitating machinery shall be provided with metal casings and enclosures maintained as nearly dust-tight as possible, and all machines in which the entrance of foreign materials may cause sparks shall be provided with approved separators.
- (b) Suitable dust-collecting equipment shall be installed and the accumulation and storage of dust kept at a minimum.
- (c) All metal parts and machinery shall be electrically grounded, and all wiring and electrical equipment shall be installed in accordance with the requirements of the Massachusetts Electrical Code.
- (d) Smoking, the carrying of matches, the use of heating or other devices employing open flame, or the use of any spark-producing equipment is prohibited in areas containing dust-producing operations.
- (e) Approved explosion venting systems shall be installed according to accepted engineering standards.

ARTICLE XI. EXITS

Section 11.01 — Scope of Requirements

Every building shall be so maintained and operated as to avoid undue danger to the lives of its

occupants and their safety from fire, smoke, fumes, or resulting panic during the period of time reasonably necessary for escape from the building in case of fire or other emergency.

Section 11.02 — Definitions

(a) Means of egress: a means of egress is a continuous and unobstructed way of exit travel from any point in a building to a public way and consists of three separate and distinct parts:

(1) Exitway access: that portion of a means of egress which leads to an entrance to an exitway.

(2) The exitway: that portion of a means of egress which is separated from the building by construction providing a protected way of travel to the exit discharge.

(3) The exitway discharge: that portion of a means of egress between the termination of an exit and a public way.

(b) Public way: any street, alley, or other parcel of land open to the outside air for public use.

(c) Exit doors: any door leading to a means of egress.

Section 11.03 — Means of Egress to be Maintained

Means of egress in every building shall be maintained to afford all occupants convenient facilities for escape. The means of egress shall be maintained in kinds, number, location, and capacity as required by law, ordinance, regulation, or approved reference standard applicable to the particular occupancy and building for the number of persons exposed, height, area, and type of construction of the building and as permissible in consideration of the fire protection provided.

Section 11.04 — Number of Means of Egress

In every building and any section or area thereof of such size, occupancy, and arrangement that reasonable safety of the occupants may be endangered by the blocking of any single means of egress due to fire or smoke, at least two means of egress remote from each other shall be maintained. They shall be so arranged as to minimize any possibility that both may be blocked by fire or other emergency condition.

Section 11.05 — Marked Means of Egress

Every means of egress shall be so maintained as to be clearly visible and shall be so maintained with conspicuous indications that every occupant of every building who is physically or mentally capable will readily know the direction of escape from any point. Exit doors shall have a sign on them with an approved exit symbol and the word "EXIT" in letters not less than 6 inches high in 3/4-inch brush stroke.

Section 11.06 — Exit Doors

(a) Exit doors shall open in the direction of egress.

(b) No lock or fastening shall be installed on exit doors to prevent free escape from the inside of any building, except in mental, penal, or corrective institutions where supervisory personnel are continually on duty and effective provisions are made to remove occupants in case of fire or other emergency.

(c) No exit door which is intended to be kept normally closed shall be blocked open.

(d) No device or arrangement shall be used to prevent a door designed to be self-closing or

automatic-closing from functioning as intended,

(e) Revolving doors, turnstiles, power-operated doors, doors in folding partitions and screen-storm combination doors shall not be used as exit doors in ways of access and discharge except as permitted by law, ordinance, regulation, or approved applicable reference standard.

Section 11.07 — Obstruction to Means of Egress

(a) All means of egress including designated doors, windows, aisles, passageways, corridors, fire escapes, and stairways which are part of the way of exit travel to a public way shall be kept unobstructed either by persons or things and shall be ready for use while such buildings are occupied.

(b) Motor vehicles or other obstructions shall not be placed under cantilevers of fire escapes, nor in such a manner as to block exits or passageways to the street, nor to interfere with the means of egress from buildings or with the operations of the Fire Department in event of fire or emergency. Motor vehicles or other obstructions which, in the opinion of the Head of the Fire Department or an authorized member, have been parked or placed in such a manner as to violate this section shall be immediately removed or notification given by the Head of the Fire Department or an authorized member to the Boston Police Department or other appropriate department or individual or agency to take immediate action for removal of said motor vehicles or obstructions.

(c) No person shall place, store, keep, or permit Co be placed, stored, or kept on or under or at the bottom of any means of egress any materials, the presence or the burning of which would obstruct or render hazardous egress of persons from the building.

Section 11.08 — Blocking and Barring Windows

(a) Exterior windows of any building shall not be bricked in, boarded up, blocked with stock, or in any way prevented from being used in the event of fire as an exit to the outside street level via Fire Department ladders or otherwise by the occupants thereof, or from being used by the Fire Department for rescue work, ventilation, and access to an interior fire, unless approved by the Head of the Fire Department.

(b) Exterior windows shall not be equipped with bars or grille work which would prevent the use of such windows as an exit in case of fire or explosion, unless such bars or grille work are equipped with devices so designed as to permit ready escape therefrom by occupants thereof, and to permit ready access from the outside by the Fire Department, except in places of detention, windows in elevator shafts, and windows facing and within 5 feet of open tanks or moving machinery.

Section 11.09 — Lighting of Means of Egress

Means of egress shall be lighted at night while the building is occupied and shall be lighted during daylight hours when natural lighting is inadequate. To light adequately all corridors, stairwells, and other means of egress, an approved source of emergency lighting shall also be provided as required by the Massachusetts State Building Code.

Section 11.10 — Fire Exit Drills

(a) Fire exit drills shall be carried out by all occupants of buildings such as schools where occupants are under discipline and subject to habitual control. In buildings where the occupants are not under discipline and occupants are subject to change from time to time, fire exit drills

shall be carried out by personnel to be furnished by the management of the building and trained to direct properly other occupants of the building in case of fire. Fire exit drills shall be held as required by applicable provisions of law, ordinance, regulation, and approved reference standards.

(b) Fire exit drills shall be held in any building which is in any one of the following categories as determined by the Head of the Fire Department:

(1). Buildings in which there are occupants located above or below, grade of such total numbers that their movement under ordinary conditions could involve crowding of the exit facilities and under emergency conditions could expose them to conditions dangerous to life from panic, fire, smoke, and fumes before they could be evacuated.

(2) Buildings, the occupancy of which involves significant amounts of combustible materials which could under fire conditions rapidly produce heat, smoke, flame, or other dangerous products of combustion, making it difficult or impossible to evacuate the occupants without subjecting them to possible loss of life or injury to person.

(3) Buildings where a particular configuration due to length, width, depth, height, number of stories or levels, type of construction, or topography would hinder either the promptness or effectiveness of Fire Department operations. Excluded from this section are buildings under 70 feet in height, having no floor area over 4,800 square feet and having not more than one level below grade.

(c) The conduct of fire exit drills in any building shall be in accordance with a plan of procedure for such drills which has been approved by the Head of the Fire Department. The owner, lessee, or agent of a building shall be responsible for the preparation of such a plan or procedure and for the maintenance of facilities and personnel required by the Head of the Fire Department for the approval of the plan. The plan of procedure shall be subject to review and updating when the Head of the Fire Department determines that changes have occurred in the building or its occupancy.

Section 11.11 — Equipment and Systems Maintenance

(a) In every building of such size, arrangement, or occupancy that a fire may not itself provide adequate warning to occupants, fire alarm facilities shall be maintained where necessary to warn all occupants of the existence of fire so they may escape or to facilitate orderly conduct of fire exit drills.

(b) Fire extinguishment, fire alarm, and fire protective systems, and equipment on which the safe use of exits may depend, shall be continuously maintained in reliable operating condition, subject to periodic inspection and test in accordance with approved reference standards.

ARTICLE XII. FIRE ALARM SYSTEMS

Section 12.01 — Definitions

(a) “Alteration of a fire alarm system” shall include the shutting off, disconnecting, obstructing, removing, destroying, or causing or permitting to be shut off, disconnected, obstructed, removed, or destroyed any part of any fire alarm system or other device used for fire alarm purposes in any building or premises by the owner, lessee, or occupant thereof or by a person under his control or supervision.

(b) “Fire alarm systems” shall include:

(i) alarm-initiating systems actuated by manually operated devices, by heat-actuated, smoke-actuated, or flame-energy-actuated automatic devices, or by waterflow or discharge of an extinguishing agent in fire extinguishing systems.

(ii) supervisory systems for receiving and recording signals of guard patrolmen or signals from a transmitter actuated by abnormal conditions in a fire extinguishing system or fire alarm or supervisory system. Conditions in a fire extinguishing system subject to such supervision shall include position of valves in fire protection water supplies, water level, air and water pressure, and temperature in tanks, air pressure in dry-pipe sprinkler systems, and steam pressure or electric supply voltage for fire pumps. Conditions in a fire alarm or supervisory system subject to such supervision shall include notification of those requiring maintenance action or trouble, such as a break or ground;

(iii) systems for notification by alarm to occupants that a fire or emergency condition exists requiring evacuation or movement within the premises to a place of safety, including communication equipment associated with such systems;

(iv) monitoring systems for reporting and recording conditions constituting a fire or explosion emergency, such as an abnormal condition in a process monitoring system or heating or refrigeration system; and

(v) systems of mechanical control for reporting and recording conditions in mechanical or other equipment which could affect the action possible in an emergency, such as operation of elevators and ventilating fans, position of doors or dampers, or failure of supply from an electric or other utility.

Section 12.02 — Fire Marshal to Survey Premises and Specify Equipment to be Provided

The Fire Marshal shall survey or cause to be surveyed every commercial and industrial establishment, mercantile, educational, and institutional occupancy, place of assembly, hotel, multi-family house, mobile home, and building changing occupancy status, in addition to those required by law, ordinance, or regulation. He shall require, by order approved by the Fire Commissioner in compliance with the Massachusetts State Building Code and the General Laws of the Commonwealth, installation of approved fire alarm systems, including those for automatic detection of fire, smoke, or products of combustion, either throughout the premises, or in or near boiler rooms, kitchens of restaurants, clubs, and like establishments, areas, or rooms in which hazardous manufacturing or other process are carried on, and other places of a generally hazardous nature.

Section 12.03 — Permit to install, Repair, or Alter Fire Alarm Systems

(a) No person shall repair or alter a fire alarm system without a permit from the Head of the Fire Department. The person to be in charge of the installation, repair, or alteration must be the holder of a Certificate of Competency for a Fire Alarm System Contractor and the work must be done by a person or persons under the direction of the holder of a Certificate of Competency as Fire Alarm Systems Contractor's Representative. The permit is issued for the purpose of providing the Fire Department with notice that a fire alarm system is to be repaired or altered and that its operation will be in accord with operations which must be performed by the Fire Department at fires or emergencies. The permit shall not take the place of the permit required by the Boston Building Department.

(b) This section shall not prevent the temporary shutting off, disconnection, or partial removal of such a system or other device for the purpose of making emergency repairs or preventing property damage, provided an oral notification is given to the Fire Department at the time of

such action and application is made for a permit for such alteration within twenty-four hours of such action. An oral notification may be a telephone report to the alarm communication center of the Boston Fire Department. The temporary shutting off, disconnection, or partial removal of any portion of a system shall be in accordance with the conditions described in a permit to repair or alter a fire alarm system.

(c) Application for a permit shall be made in the name of the person or persons who will hold title to the system after repair or alteration. The application shall include information about the proposed installation, repair, or alteration which is required by applicable approved reference standards and such additional information as the Head of the Fire Department may require. The application shall describe the location of fire alarm boxes, the wiring in the system at the point or points nearest to the premises involved, the wiring by which connections are to be made from the system to the lines of the property involved, and the number and location of any additional fire alarm boxes which are to be installed. It shall show that these connections will be extended into the building or structure to be protected as soon as foundation or other construction work makes this possible.

Section 12.04 — Certificate of Competency Required

(a) No person shall engage in the business of installing, repairing, or altering fire alarm systems in compliance with Section 12.03 (a) of this Code or assume charge of such installation, repair, or alteration as owner or agent of the owner, unless he holds a Certificate of Competency for a Fire Alarm System Contractor issued by the Board of Examiners of the City of Boston. A certificate may cover one or more types of fire alarm systems or be limited in its application to a specific type of system or the system of a single manufacturer.

(b) Any person who shall install or participate in the installation of any type of fire prevention system or device shall be registered with the Board of Examiners of the City of Boston.

Section 12.05 — Certificate of Completion

The person to whom a permit to repair or alter a fire alarm system has been issued shall file a certificate of completion of the authorized work with the Head of the Fire Department certifying that the work has been done in accordance with applicable reference standards, and meets requirements of the State Building Code and other law, regulation, and ordinance. The certificate shall enumerate the performance and acceptance tests which have been made.

Section 12.06 — Permit for Fire Alarm

No person shall operate or maintain a fire alarm system without a permit. On receipt of a certificate of completion for work done to install, repair, or alter a fire alarm system, the Head of the Fire Department shall inspect or cause to be inspected the installation, repair, or alteration. If such inspection shows that the system complies with applicable law and reference standards, he shall issue a permit. The Head of the Fire Department may revoke or suspend a permit if the owner of the system does not furnish sufficient evidence that he is observing the maintenance procedures and making the periodic tests required for the type of system. The Head of the Fire Department may require a Fire Department representative to be present at certain periodic tests.

Section 12.07 — System Requirements

(a) Fire alarm systems shall have components listed and marked by an approved laboratory or testing agency and be compatible to system operation. The Head of the Fire Department shall

determine the listing or markings which apply to specific components.

(b) Requirements for the installation, operation, and maintenance of fire alarm systems shall be as described in General Laws, Chapter 148, and the State Building Code. The Head of the Fire Department shall consider circumstances which diminish the effectiveness of any systems, including spatial limitations, burning characteristics of goods to be protected, and difficulty in the safe evacuation of occupants.

Section 12.08 — Alarm-Initiating Systems

(a) Alarm-initiating systems shall include those with fire alarm signal-initiating devices which are operated manually or are actuated automatically by smoke, by heat, by flame energy, or by waterflow or discharge of extinguishing agent in a fire extinguishing system. A low- pressure switch, the operation of which shall initiate a fire alarm signal, shall be provided on the system side of any device actuated by waterflow. The systems shall cause the signals initiated by these devices to be received at a fire alarm control center on protected premises. The location of any such center must be approved and the center shall be provided with approved alarm recording and annunciating equipment.

(b) All signals actuated by manually operated devices, by automatic devices responding to heat, smoke, or flame energy, by waterflow or discharge of extinguishing agent in fire extinguishing systems other than automatic sprinkler systems, or selected signals so actuated, shall be transmitted to the alarm communication center of the Boston Fire Department in an approved manner and may include connections to the public fire alarm system or to an approved central station which undertakes to transmit the signal to the alarm communication center. All fire alarm control centers shall be provided with public telephone service.

(c) During the repair or alteration of existing alarm-initiating systems, the system shall be maintained to provide protection to the property involved. During the installation of a new alarm-initiating system the Head of the Fire Department may require the extension of the system to certain areas to provide protection prior to complete system installation.

Section 12.09 — Supervisory Systems

(a) Supervisory systems shall include those for assuring the performance of fire alarm systems, fire extinguishing systems, and systems of guard patrolmen. Supervisory systems for assuring the performance of fire alarm systems shall receive and record signals from approved devices actuated by abnormal conditions, including trouble of any nature, such as a circuit break, a ground occurring in the devices or wiring, or loss of power supply. Supervisory systems for assuring the performance of fire extinguishing systems shall receive and record signals from approved devices actuated by abnormal conditions in a fire extinguishing system, such as position of valves in fire protection water supplies, water level, air and water pressure, temperature in tanks, air pressure in dry pipe systems and steam pressure or electric supply voltage in fire pumps. Supervisory signals shall be received at approved locations on the protected premises, one of which may be a fire alarm control center, a remote station; or a central station providing approved supervisory service. Locations on the protected premises where supervisory signals are received shall be provided with approved signal recording and annunciating equipment. Except in a building or structure the total floor area of one floor of which is no more than 4,800 square feet, which has no more than one basement, and which does not exceed three stories or 40 feet in height, the Head of the Fire Department may require that the fire alarm control center or other location on the protected premises be continuously attended

by one or more persons able to maintain the respective supervisory services unless approved supervisory service is provided.

(b) All fire alarm-initiating or annunciating systems, including those associated with fire extinguishing systems, shall be provided with supervisory equipment and facilities required by approved reference standards. Such supervisory equipment and facilities shall indicate abnormal conditions, including circuit breaks or groundings occurring in the devices or wiring, and loss of the primary or secondary power supply. Except in a building or structure the total floor area of one floor of which is no more than 4,800 square feet, which has no more than one basement, and which does not exceed three stories or 40 feet in height, the Head of the Fire Department may require supervisory equipment and facilities for indicating abnormal conditions in a fire extinguishing system when he determines that they are required because of circumstances which diminish the effectiveness of any system, including spatial limitations, burning characteristics of goods to be protected, and difficulty in the safe evacuation of occupants. The Head of the Fire Department may also require supervisory equipment and facilities to furnish a record of the operation of reporting stations of any guards provided for periodic surveillance of the premises:

(c) The installation, repair, or alteration of any system providing equipment for the supervision of any condition in a fire extinguishing system shall allow for supervision of all components of a fire extinguishing system which is in service. "In service" shall mean that, in connection with the signal-initiating and annunciating equipment at required locations, including the fire alarm control center, equipment shall be provided to indicate, audibly and visually, conditions in a fire extinguishing system subject to supervision. This supervisory equipment shall also be considered to be in service where equipment is provided for indicating such conditions at an attended station providing approved supervisory service.

(d) The installation, repair, or alteration of any system providing equipment for the supervision of guard patrols shall be conducted so that equipment required at guards' reporting stations is in service at locations requiring periodic surveillance by a guard patrolman. For this supervisory equipment, "in service" shall mean that, at required locations, including the fire alarm control center, equipment shall be provided to furnish a record of the operation of guards' reporting stations. For this supervisory service, guards' time-recording, fixed apparatus shall be considered to be in service when it is located at the fire alarm control center or other approved location, and guards' portable time recorders shall be considered to be in service when the records of such recorders are kept available for inspection at the fire alarm control center or other approved location. Guards' tour supervisory equipment shall be considered to be in service when the fire alarm control center or other approved location is continuously attended by one or more persons able to assure the performance of guard patrols, or where equipment is provided to furnish a record of the operation of guards reporting stations at an attended station providing approved supervisory service.

Section 12.10 — Systems for the Annunciation of Alarms

(a) Systems for the annunciation of alarms shall include those provided for the purpose of notifying occupants that a fire or emergency condition exists on the premises that requires evacuation or movement within the premises to a place of safety, including communication equipment associated with such systems.

(b) Systems for the annunciation of alarms shall have one or more audible or visual signaling devices so located as to provide notification to occupants as required by approved reference standards. Such audible and visual signaling devices shall be approved and provide a signal

distinctive from those of other devices in the same area. Equipment shall be provided which automatically actuates signals for the general evacuation of the premises whenever an alarm-initiating system initiates an alarm. Coded signals for general evacuation or for controlled movement of occupants shall be transmitted to the notification devices only from an approved location. Such approved location shall be provided with equipment which broadcasts over the notification devices of the system general evacuation signals, coded or selected evacuation signals, or voice instructions to direct the movement of affected persons, as the Fire Commissioner determines may be required by the particular premises.

(c) Approved, two-way voice communication facilities shall be provided from the fire alarm control center to locations on the premises, as may be determined by the Head of the Fire Department, in order to maintain effective alarm annunciation to occupants. Such systems may be required by the Head of the Fire Department in buildings where the length, width, depth, height, number of stories or levels, type of construction, or topography would hinder either the promptness or effectiveness of Fire Department operations. Such communications may be required in locations from which the movement of persons may have to be reported during firefighting or rescue operations, such as elevators, stairways, and floor areas. For such communication, loud speakers may be required on individual floors, elevators, and stairways, with equipment to operate them located in the fire alarm control center.

(d) The installation, repair, & alteration of systems, including associated communication equipment, for the annunciation of alarms for the purpose of notifying occupants shall be conducted so that devices for giving audible or visual notification shall be in service on the lowest floor or any basement or other floor of a building or structure whenever the floor immediately above is in place. With respect to floors, "in place" shall mean that a floor arch, slab, or other structural floor element is in place. "In service" shall mean that audible and visual devices are located and will give the required notification; that means for their operation is provided at required locations, including the fire alarm control center and any command center; and that components of the system, including equipment for automatic or manual operation, coding equipment, power supplies, and supplementary communication equipment, have been provided and approved.

Section 12.11 — Monitoring Systems

Monitoring systems shall be in service whenever the process or equipment monitored is in operation. "In service" shall mean that signals from devices detecting such abnormal conditions shall be received and recorded at a location attended by a person able to take required action in response to the signal.

Section 12.12 — Systems for Mechanical Control

(a) Switches or other devices for manual operation, and devices actuated by heat or smoke for automatic operation, located on air handling equipment in buildings and structures, shall be provided for fan motors and for the mechanism of dampers and vents as required by the applicable provisions of law, regulation, ordinance, or reference standard.

(b) Except in a building or structure the total floor area of one floor of which is no more than 4,800 square feet which has no more than one basement, and which does not exceed three stories or 40 feet in height, the Head of the Fire Department may require that the devices which manually or automatically operate fan motors or dampers or vents shall cause a fire alarm signal or a condition-indicating signal to be received and recorded visually and audibly at required

locations on the premises, including a fire alarm control center and any command center, where signals which are fire alarms shall be treated as any other fire alarm and be transmitted to the alarm communication center of the Boston Fire Department. The Head of the Fire Department may require facilities for automatic operation of controls of mechanical equipment on receipt of any fire alarm signal. Examples include equipment to override the programming of car stops by elevators to bring them nonstop to designated floor levels, and equipment to provide facilities to operate manually the controls of mechanical equipment from a fire alarm control center or command center. The Head of the Fire Department may also require facilities for automatically or manually transferring an operation involving mechanical equipment from one power source to another or the provision of equipment to prevent one control operation from interfering with another.

(c) Systems to control conditions associated with the operation of mechanical or other equipment which could affect the action possible in an emergency shall be in service whenever such equipment is in operation in any building or structure.

(d) The installation, repair, or alteration of a fire alarm system shall be conducted so that service from fire alarm boxes is maintained at all times when the Head of the Fire Department determines that there are significant amounts of combustible material on the premises. Where foundation work, or other construction or demolition work, requires the removal of fire alarm boxes on the public system or their associated wiring, or delays the installation of wiring to supply either the public fire alarm boxes or connections for fire alarm systems, approved temporary installations shall be made to provide the necessary service at the times required. The owner or lessee of premises, at which the operations are performed that require alterations of the public fire alarm systems, shall bear the expense for all equipment, material, and labor involved in complying with this Code.

Section 12.13 — Fire Alarm Service

(a) The Fire Commissioner shall determine under what conditions a fire alarm system on the premises may be connected to the fire alarm system under the jurisdiction of the Fire Alarm Division of the Boston Fire Department. He may permit alarm-initiating devices to be connected to the system by approved means and he may require any fire alarm control center or command center to be provided with a manually operated, signal-initiating device connected to the system when he determines that it is necessary for effective fire alarm service.

(b) Within the property lines, connections to the system shall be approved as to number and location. Equipment and wiring shall be approved types and shall conform to applicable reference standards.

Section 12.14 — Tests

Where tests of components or the entire assembly of a fire alarm system are required as the work progresses, on completion, or on a periodic basis, the holder of a permit to install, repair, or alter a system shall notify the Head of the Fire Department and arrange, to have the tests made in the presence of a representative of the Fire Department. Tests to which this requirement applies are those described in reference standards applicable to the type of system or which may be required by the State Building Code or other law or regulation.

Section 12.15 — Orders or Rules

The Head of the Fire Department may make or cause to be made an inspection of a fire alarm

system at any time to determine that it is in operating condition. He may promulgate such reasonable orders or regulations as are necessary to assure that the provisions of this article are carried out. The purpose of such orders or rules is to insure that fire alarm systems are installed, maintained, and operated in a manner consistent with operations which must be performed by the Fire Department in event of fire or emergency, to prevent delayed alarm, and to minimize the possibility of injury to members of the Fire Department or to other persons.

Section 12.16 — Maintenance of Equipment

Owners of fire alarm systems and occupants of premises protected by such systems shall exercise diligence in maintaining such systems in operative condition. It shall be unlawful for any owner, occupant, or other person to reduce the effectiveness of the protection provided by such systems.

ARTICLE XIII. FIRE EXTINGUISHERS

Section 13.01 — Definitions

- (a) “Fire extinguisher” shall mean a portable device designed for extinguishing or holding in check fires in their incipency. It shall bear the label or listing mark of an approved testing laboratory or agency.
- (b) “Certificate of Competency” shall mean a certificate issued by the Boston Fire Department to a person, firm, or corporation signifying that the holder has the necessary equipment facilities, qualifications, and skills to install, service, inspect, and test fire extinguishers, in accordance with approved applicable reference standards and practices limited to the terms and conditions of issue.
- (c) “Class E1 fire extinguisher serviceman” shall mean a person, firm, or corporation to which has been issued a Certificate of Competency to sell, install, service, and test fire extinguishers and to employ holders of certificates as Fire Extinguisher Serviceman of Competency E1-2-3.
- (d) “Class E2 fire extinguisher serviceman” shall mean a person to whom has been issued a Certificate of Competency to install, service, test, or inspect fire extinguishers.
- (e) “Class E3 fire extinguisher serviceman” shall mean a person to whom has been issued a Certificate of Competency to install, service, or inspect fire extinguishers.
- (f) “Class E4 Certificate of Competency issued to limited fire extinguisher serviceman” shall mean a Certificate of Competency limited to installation, inspection, and service or visual inspection of fire extinguishers at one establishment or location.

Section 13.02 — Certificate of Competency Required

- (a) No person shall engage in the business of servicing fire extinguishers or assume charge of such servicing as owner or agent of the owner of said fire extinguishers unless he holds a Certificate of Competency as a Class E1 Fire Extinguisher Serviceman.
- (b) No person shall install, service, test, or inspect fire extinguishers unless he holds a Certificate of Competency as a Class E2 Fire Extinguisher Serviceman.
- (c) No person shall install, service, or inspect fire extinguishers unless he holds a Class E3 or E4 Certificate of Competency as a Fire Extinguisher Serviceman.
- (d) A person shall be deemed to violate this section if he installs, tags, services, or hydrostatically tests fire extinguishers without the required Certificate of Competency.
- (e) Any person desiring a Certificate of Competency shall make written application to the Fire

Marshal and pass such examination and tests as may be prescribed.

(f) The following fees shall be paid annually:

Class E1 fire extinguisher serviceman \$25.00

Class E2 fire extinguisher serviceman \$20.00

Class E3 and E4 fire extinguisher serviceman \$15.00

All Certificates of Competency shall be renewable annually on April 30. All applications for renewal shall be filed with the Fire Marshal prior to April 30.

(g) The Certificate of Competency for fire extinguisher serviceman may be revoked for cause by the Fire Marshal.

Section 13.03 — Installation

Fire extinguishers shall be installed in the manner prescribed by approved applicable reference standards in every location where required by Section 13.07 of this Code. Fire extinguishers, when installed, shall be fully charged, ready for immediate use, and properly tagged. Where an extinguisher is likely to be obscured by piles of stock or lumber or otherwise, a sign shall be installed and maintained which will mark the location of such extinguisher in a manner visible at a distance of at least 50 feet.

Section 13.04 — Maintenance

Fire extinguishers shall be maintained in good condition and ready for immediate use at all times. It shall be unlawful for any owner, occupant, or other person to reduce the effectiveness of the protection provided by fire extinguishers. No person shall damage, destroy, obstruct access to, or remove any fire extinguisher, except for authorized maintenance, without a permit from the Head of the Fire Department.

Section 13.05 — Fire Extinguisher Cylinder Test

All extinguisher cylinders shall be subjected to a periodic hydrostatic pressure test, in accordance with the applicable approved reference standard. Hydrostatic test of the cylinder shall also be conducted upon discovery of any mechanical malfunction or indication of corrosion to the extinguisher shell. Every extinguisher shall have affixed thereto by a heatless method, a suitable metallic label (or approved equal) stating the date test was performed and passed, the test pressure used, and the signature and certificate of competency number of the person performing the test.

Section 13.06 — Inspection and Regulation

The Fire Marshal may promulgate such rules and regulations as he deems necessary to carry out the provisions of this article and he may make or cause to be made by an authorized member an inspection of the contents and working condition of any fire extinguisher.

Section 13.07 — Survey and Specification

The Fire Marshal shall survey or cause to be surveyed every commercial and industrial establishment; mercantile, educational and institutional occupancy; place of assembly; hotel; multifamily' house; and mobile home park. By order endorsed by the Head of the Fire Department, he may require fire extinguishers of a type suitable for the probable class of fire in or near boiler rooms, kitchens, areas, or rooms in which considerable combustible material is

stored, rooms in which hazardous manufacturing processes are carried on, and other places of a generally hazardous nature. He may also survey or cause to be surveyed any other building, structure, or premises and, by order endorsed by the Head of the Fire Department, require therein or thereon fire extinguishers to the extent he deems necessary for the protection of persons from fire.

ARTICLE XIV. FIRE EXTINGUISHING SYSTEMS

Section 14.01 — Definitions

(a) “Fire extinguishing systems” shall include private and yard hydrants on mains on private property, standpipes with hose outlets in buildings, automatic sprinkler systems and special extinguishing systems for automatic or manual operation for the diffusion of water, water solutions, chemical compounds, or gasses.

(b) “Alteration of a fire extinguishing system” shall mean the shutting off, disconnection, obstruction, removal, or destruction, or the causing or permitting of such actions to any part of any fire extinguishing system used for fire protection of any building or premises owned, leased, occupied, or under the control or supervision of any person.

Section 14.02 — Permit Required to Install, Alter, or Repair

(a) Except as hereinafter provided, no person shall install, alter, or repair any part of any fire extinguishing system without first obtaining a permit. Permit application shall be made in the name of the person or persons who will hold title to said system after repair or alteration.

(b) The work shall be performed under the direct and continued supervision of a person holding a Certificate of Competency who shall be named on the permit.

(c) This section shall not prevent the temporary shutting off, or partial removal or disconnection, of a fire extinguishing system for the purpose of making repairs, provided oral notification (a telephone report) to the Fire Alarm Office of the Boston Fire Department is made prior to such action, and application is made to the Head of the Fire Department for a permit to alter or repair within twenty-four hours of such action.

Section 14.03 — Tests

Where tests of components or the entire assembly of a fire extinguishing system are required as the work progresses, upon completion, or on a periodic basis, the holder of a permit to install, repair, or alter such a system shall notify the Head of the Fire Department of such tests so that the tests may be made in the presence of an authorized member of the Fire Department. Tests to which this requirement applies are those described in the reference standards applicable to the type of system or those which may be required by law, ordinance, or regulation.

Section 14.04 — Certificate of Completion

The person to whom a permit to install, repair, or alter a fire extinguishing system has been issued shall file a Certificate of Completion of the authorized work with the Head of the Fire Department certifying that the installation, repair, or alteration has been made in accordance with the reference standards applicable to the type of system and other applicable laws, ordinances,

and regulations. The certificate shall enumerate the performance and acceptance tests that have been made.

Section 14.05 — System Requirements

(a) Fire extinguishing systems shall have components listed and marked by an approved laboratory or testing agency and shall be used and installed in accordance with their listings. The Head of the Fire Department shall determine the listing or marking which shall apply to specific components.

(b) Requirements for installation, operation, and maintenance of fire extinguishing systems shall be as described by law, ordinance, or regulation, except that the Head of the Fire Department, as a condition for the issuance of a permit to alter or repair a fire extinguishing system, may determine that modifications of these requirements or additional requirements are necessary for the specific system. Modifications of the requirements may be made where circumstances hinder the effectiveness of any system, such as spatial dimensions, configurations of storage, or burning characteristics of the contents to be protected. The Head of the Fire Department may determine the components of the system and the supplies of water or other extinguishing agents which are to be provided in addition to the minimum protective amounts stated in this article or in other law, ordinance, or regulations. Such modifications or additional requirements shall be consistent with the requirements of the approved reference standards applicable to the specific systems, including those systems not covered by law, ordinance, or regulation.

Section 14.06 — Water Supplies

(a) As a condition for the issuance of a permit to alter or repair a fire extinguishing system or to maintain and operate a fire extinguishing system, the applicant shall show that facilities have been or are to be provided to supply water at the minimum rates stated in this article for each type of system for a period of not less than two hours. The Head of the Fire Department may, however, in conformance with approved reference standards and listings for the specific system, increase or decrease this period of time based on the hazard involved, the configuration of the building, and available water supplies.

(b) Facilities to obtain the required water supplies shall conform to applicable approved reference standards and to the listings of approved testing and laboratory agencies. The performance and arrangement of such facilities shall be approved by the Head of the Fire Department. These facilities shall be provided by the applicant and may include a connection or connections to the public water supply, gravity tanks, pressure tanks, automatic fire pumps with suction tanks, or any combination of these facilities. By the conditions of the permit, the Head of the Fire Department shall state which water supply facilities shall be provided for a particular system and where.

(c) When control valves in water supply facilities are required to be open, they shall be either provided with supervised tamper switches or locked in the open position.

Section 14.07 — Yard and Private Hydrant Systems

(a) A system of mains and hydrants at locations approved by the Head of the Fire Department shall be installed on any premises including a building for storage of significant amounts of combustible material, whenever any portion of the premises is more than 300 feet from a hydrant on the public water supply.

(b) The installation, repair, or alteration of systems of mains and hydrants within the premises

shall be so conducted as to provide hydrant service by approved permanent or temporary installation at all times.

(c) For a fire extinguishing system which consists of one or more hydrants on mains within the protected premises, the water supply system shall provide a minimum of 500 gallons per minute at each hydrant up to a total minimum flow for each premises of 2,000 gallons per minute.

Residual pressure shown on a gauge at the hydrant shall be not less than 65 pounds per square inch when total flow is 500 gallons per minute from one hydrant or, in systems which have more than one hydrant, when total flow is 1,000 gallons per minute. Each monitor nozzle assembly in such a system shall be required to meet the actual flow conditions for the assembly provided.

Where conditions at the premises require substantially larger flows because of protection required for outside storage or because of protection required because of the size and number of buildings, the Head of the Fire Department may increase the flow requirements as a condition for a permit to alter or repair the system. Facilities shall be provided as part of the system itself to provide the stated flows and pressures for a period of not less than thirty minutes independent of aid from the Fire Department pumpers. Acceptable facilities may include a connection or connections to the public water supply, gravity tanks, automatic fire pumps with suction tanks, or any combination of these facilities.

Section 14.08 — Standpipe Systems

(a) Standpipe systems shall be installed in buildings to provide outlets on all floors for Fire Department use, and outlets with hose for use by occupants when required. A standpipe system shall be installed in all buildings required by the State Building Code to provide outlets for Fire Department use. Such standpipes may be combined with an automatic sprinkler system. The number and location of outlets for standpipe service provided, and the valves, hose, and equipment associated with such outlets, shall be subject to approval by the Head of the Fire Department.

(b) The installation of a standpipe system shall be conducted so as to provide service to the floor immediately below the topmost floor in place and to all lower floors at all times. Repair or alteration of a stand- pipe system shall be so conducted as not to interfere with service on any floor below that upon which such work is being done. With respect to floors, the words “in place” shall mean that a floor arch, slab, or other structural floor element is in place, on a permanent or temporary basis, so that significant amounts of combustible building materials or other combustible materials may be brought to the floor. The words “in service” shall mean that the standpipe system is provided with 1) vertical risers; 2) approved outlets for Fire Department use at approved permanent or temporary locations; 3) risers with the necessary horizontal runs; and 4) approved permanent or temporary connections to water supplies, including fire department connections. The system shall remain in continuous operation except during installation, alteration, or repairs.

(c) For a standpipe system with hose outlets for Fire Department use in a building, the water supply system shall supply 500 gallons of minimum flow per minute from the outlets of one standpipe, and 250 gallons per minute from each additional standpipe in the building, up to a maximum flow of 2,500 gallons per minute. For a standpipe system with hose outlets for use only by occupants, the water supply system shall supply a minimum flow of 100 gallons per minute in any standpipe. Residual pressure measured on a gauge at the topmost outlet of each standpipe shall be not less than 65 pounds per square inch when 500 gallons per minute is flowing in a standpipe with outlets for Fire Department use and when 100 gallons per minute is

flowing in a standpipe with hose outlets for use by occupants only. Facilities shall be provided as a part of the system itself to provide the stated flows and pressures for a period of not less than thirty minutes independent of aid from Fire Department pumpers. Acceptable facilities may be a connection or connections from the public water system, gravity tanks, pressure tanks, automatic fire pumps, or any combination of these facilities. Fire pumps may take suction either from public connections or from suction tanks.

Section 14.09 — Automatic Sprinkler Systems

(a) All buildings and structures under construction or substantial alteration after January 1, 1975, which are 70 feet or more in height above grade shall be protected throughout with complete systems of automatic sprinklers, in compliance with General Laws, Chapter 148, Section 26A.

(b) Those occupancies referred to in Section 14.12 of this Code shall be protected by automatic sprinklers where required by the Fire Marshal.

(c) The installation of automatic sprinkler systems in new buildings shall commence as soon as a story is in place and the exterior of such story is fully enclosed. Such installation shall consist of branch lines, feeders, risers, horizontal runs, and connections to water supplies. Sprinkler heads shall be installed simultaneously with the finished ceiling.

(d) The repair or alteration of automatic sprinkler systems in existing buildings shall be so conducted as to provide service on those floors not being worked on. At the end of each day's work, those portions of the floor being worked on which are capable of operation shall be restored to service. If the system also provides standpipe service, approved outlets shall be provided and maintained for fire department use.

(e) Automatic sprinkler systems shall furnish a minimum flow of water of 0.10 gallons per minute per square foot over a calculated area of application of 1,500 square feet in low-hazard occupancies, or of 0.15 gallons per minute per square foot over a calculated area of application of 3,000 square feet in ordinary-hazard occupancies. They shall meet design requirements where applicable approved reference standards for the occupancy require other flows. As a condition for the issuance of a permit to repair or alter an automatic sprinkler system, the Head of the Fire Department may increase or reduce the minimum flows stated above to conform with the requirements of particular occupancies or areas. Residual pressure at the topmost sprinkler outlet shall be not less than 15 pounds per square inch at the required flows. Facilities shall be provided as a part of the system itself to provide the stated flows and pressures for a period of not less than thirty minutes independent of aid from Fire Department pumpers. A connection or connections from the public water supply, gravity tanks, pressure tanks, automatic fire pumps, or any combination of these facilities may be acceptable facilities. Fire pumps may take suction either from the public connection or from suction tanks.

Section 14.10 — Special Extinguishing Systems

(a) Special extinguishing systems shall be installed where the Head of the Fire Department determines that there are functions to be performed in addition to those which can be performed by other fire extinguishing facilities or that equipment for special extinguishment and fire control purposes is necessary. The Head of the Fire Department shall designate the function for which special extinguishing systems shall be designed, i.e., explosion prevention, cooling of surfaces, control of burning, protection against exposure, or the dissolving, dispersal or cooling of flammable and hazardous materials. He shall also designate the places in buildings or areas of premises in which they shall be installed.

(b) The installation, repair, or alteration of a special extinguishing system for automatic or manual operation shall be so conducted as to provide service at times when the functions for which it is designed need to be performed.

(c) Special extinguishing systems for automatic or manual operation shall conform to approved reference standards applicable to each type of system, shall be installed in conformity with their listings and with the protective functions for which they are listed, and shall be provided with amounts of the respective extinguishing agents at delivery rates to enable them to perform the extinguishing function or other protective function for which they are designed.

Section 14.11 — Connections from the Public Water System

(a) Where a fire extinguishing system is to be provided with water from a public water supply system, the applicant to install, repair, or alter the system shall furnish information certified by the municipal agency responsible for the water supply system. Such information shall set forth the location of hydrants and the water flows and pressures available from the public system to the lines of the property involved, including the location of additional public or private hydrants and yard systems which are to be installed.

(b) Fire extinguishing systems within property lines shall be provided with adequate water supplies and approved Fire Department connections in quantities, numbers, and locations within a reasonable time limit as set forth by the Head of the Fire Department.

(c) The installation, repair, or alteration of a fire extinguishing system shall be performed in such a manner as to minimize disruption of service to the public -water supply system and: hydrants thereon. On job sites which have large amounts of combustible materials, which are situated at excessive distances from public water supplies, or which use construction methods that require the elimination or disconnection of public water mains or hydrants, the Head of the Fire Department may require such temporary hydrants and mains as he deems necessary. All costs for the disconnection or elimination of a public water system or the provision of a temporary system-required by the Head of the Fire Department shall be borne by the owner, lessee, or agent of the property involved.

Section 14.12 — Fire Marshal to Survey Premises and Specify Equipment to be Provided

The Fire Marshal shall survey or cause to be surveyed every commercial and industrial establishment; mercantile, educational, and institutional occupancy; place of assembly; hotel; multifamily house; and mobile home park, and by order endorsed by the Head of the Fire Department may require the installation of fire extinguishing systems either throughout the premises or in or near boiler rooms, kitchens or restaurants, clubs and, like establishments, areas or rooms in which hazardous manufacturing or other processes are carried on, and other places of a generally hazardous nature. The Fire Marshal may also survey or cause to be surveyed any other building or premises and by order endorsed by the Head of the Fire Department require therein such fire extinguishing. systems as he deems necessary for the protection of life and property against fire.

Section 14.13 — Maintenance of Fire Extinguishing Systems

Owners of fire extinguishing systems and the occupants of premises protected by such systems shall exercise diligence in maintaining such systems in operative condition and it shall be unlawful for any owner, occupant, or other person to reduce the effectiveness of the protection provided by fire extinguishing systems.

**ARTICLE XV.
FIRES IN THE OPEN**

Section 15.01 — Permit Required

- (a) No person shall set, maintain, or increase a fire in the open without obtaining a permit. Permits may be issued for periods not to exceed one year.
- (b) The following classes of permits may be issued:
- (i) Open Burning for Cooking Purposes
 - (ii) Flame-Making Implements
 - (iii) Open Burning of Combustible Material
 - (iv) Incinerators in the Open
- (c) Any fire set or maintained under the authority of a permit shall be extinguished when 1) the fire would violate air pollution standards for the City of Boston; 2) wind velocity exceeds 15 m.p.h.; 3) fire hazard conditions are high or extreme 4) a fire is not supervised or controlled in a responsible manner; or 5) any combination of the above factors would make an open fire hazardous.
- (d) Acceptance of a permit shall constitute an agreement on the part of the person to whom it is issued to indemnify and save harmless the City of Boston from any damage it may sustain or liability it may incur toward third persons by reason of the issuance of the permit or any action taken thereunder.
- (e) Violation of any applicable law, ordinance, regulation, or any condition contained therein shall render the permit void.
- (f) Fires shall at all times be under the personal supervision of the permit holder or another adult person acting under his direction who shall remain at the location of the fire until the fire is thoroughly extinguished. All fires must be extinguished at dates and times and under conditions specified in the permit.
- (g) No fire set or maintained under authority of a permit shall be within 100 feet of another fire in the open, within 30 feet of any building or structure, or within 30 feet of any combustible rubbish, wood, debris, trees, bushes, standing piles of lumber, combustible fibers, leaves, branches, grass, or similar material.
- (h) The permit holder shall have the premises equipped with fire hose sufficiently long to reach the fire. The hose shall be connected to an adequate water supply with water in the hose ready for immediate use at all times while the, fire is burning, or such other arrangements for firefighting as may be specified in the permit which may include the assignment of a paid fire detail.

Section 15.02 — Class I Permits — Open Burning for Cooking Purposes

Class I permits may be issued to a responsible adult, to be exercised at a prescribed location for a specific period for open burning for cooking purposes. Spark arrestors shall be provided when the fuel used may give off embers. Such permits shall not authorize fires contrary to restrictions in the Regulations of the Air Pollution Control Commission of the Commonwealth of Massachusetts and the City of Boston.

Section 15.03 — Class II Permits — Flame-Making Implements

- (a) Class II permits will authorize the operation of devices using an open flame, the use of tar kettles, tanks and other means for the heating of materials for liquid dispensing, and the use of

blow torches and other flame-making implements in the open air. Such permits shall not authorize fires contrary to Regulations of the Air Pollution Control Commissions of the Commonwealth of Massachusetts and the City of Boston. Open-flame devices used in connection with cutting and welding shall have a permit as required by Section 8-02 of this Code.

(b) Class II restricted permits shall be issued when 1) required by letter from the State or City Air Pollution Control Commission; 2) the permit request is for a limited use only; 3) the nature of the activity is extra hazardous; or 4) required by the Fire Commissioner.

(c) The validity of Restricted Class II permits shall be confined to locations described in them, shall run for a specified period of not more than one year, and may be issued to responsible adults only. General Class II permits shall not be confined to a particular location, shall run for a period of not more than one year, and may be issued to responsible adults only.

Section 15.04 — Class III Permits — Open Burning of Combustible Materials

(a) Class III permits will authorize the setting and maintenance of fires for the purpose of burning any quantity of rubbish, debris, trees, brush, grass, or agricultural products, open burning for the purpose of training or research, or any other open burning. Such permits shall not authorize fires contrary to regulations of the Air Pollution Control Commissions of the Commonwealth of Massachusetts and the City of Boston.

(b) Class III permits shall be confined to locations described in the permit and shall be issued to responsible adults only. Such permits shall run for a designated period to be determined by the Fire Commissioner according to the character of the location and the nature of the material burned.

(c) Class III permits shall contain such additional terms and conditions, which may include a paid fire detail, as in the judgment of the authorized member designated by the Fire Commissioner are necessary for the public safety.

Section 15.05 — Class IV Permits — Incinerators in the Open

Class IV permits may be issued to responsible adults to be exercised at a prescribed location for the purpose of consuming rubbish or other material in an outdoor incinerator approved by the Fire Department. Such permits shall not authorize use of an incinerator the site of which, the design and construction of which, or operating procedures of which do not comply with regulations of the Air Pollution Control Commissions of the Commonwealth of Massachusetts and the City of Boston or other applicable regulations, ordinances, or General Law.

ARTICLE XVI. FLAMMABLE AND COMBUSTIBLE LIQUIDS

Section 16.01 — Scope

This article shall govern the locations, areas, and persons involved in the storage, handling, manufacturing, transportation, and use of flammable and combustible liquids in connection with the following or other facilities, equipment, or operations:

- (a) stationary tank storage;
- (b) piping systems;
- (c) containers and portable tank storage;

- (d) industrial plants;
- (e) bulk plants;
- (f) service stations;
- (g) processing plants;
- (h) refineries, chemical plants, and distilleries;
- (i) tank vehicles for transportation;
- (j) oil burning equipment
- (k) dry cleaning plants;
- (l) stationary combustion engines;
- (m) abandonment or removal of underground tanks.

Section 16.02 — Definitions

- (a) ‘Bulk plants’ shall include those premises where flammable or combustible liquids are stored in tanks or containers, where there are tank vehicle or tank car loading and unloading facilities, or where there are facilities for tank and container filling and discharge. Such plants shall include any wharf, pier, bulkhead, or other structure over or contiguous to navigable water, a function of which is the transfer of flammable or combustible liquid cargo in bulk between shore installations and any tank vessel, ship, barge, lighter boat, or other mobile floating craft. The provisions of this section shall not apply to marine service stations covered by Section 16.10.
- (b) “Combustible liquids” shall mean any liquid having a flash point below 140 degrees Fahrenheit. Flash point and vapor pressure shall be determined by test procedures and apparatus specified by applicable approved reference standards.
- (c) “Flammable liquids” shall mean any liquid having a flash point below 140 degrees Fahrenheit and having a vapor pressure not exceeding 40 pounds per square inch (absolute) at 100 degrees Fahrenheit.
- (d) “Piping systems” shall include pipe, tubing, flanges, bolting, gaskets, valves, fittings, pressure-containing parts of other components such as expansion joints and strainers, and devices which serve such purposes as mixing, separating, snubbing, distributing, metering, or controlling flow.
- (e) “Processing plants” shall mean those plants which contain flammable or combustible liquids in connection with chemical operations such as oxidation, reduction, halogenation, alkylation, polymerization, and other chemical processes, but shall not apply to refineries, chemical plants, and distilleries covered by Section 16.12 of this Code.
- (f) “Service stations” shall include automotive and marine service stations handling flammable and combustible liquids.

Section 16.03 — Licenses and Permits Required

- (a) A license shall be obtained for a location devoted to storage, handling, manufacture, distribution, or use of flammable and combustible liquids. No new tank with a capacity in excess of the one removed shall be installed unless a license has been obtained for the increased capacity.
- (b) A permit shall be obtained for the storage, handling, manufacture, distribution, or use of flammable or combustible liquids, and for the facilities, equipment, and operations involved, except where other sections of this article state that the amount of liquid or the facilities, equipment, or operations are beyond the scope of this article. No underground tank that has been used for the keeping or storage of flammable or combustible liquids shall be rendered

temporarily out of service, abandoned, removed, or relocated without a permit.

(c) A permit shall be required for the operation of a dry-cleaning or dry-dyeing plant.

(d) A permit shall be required for the use and storage of flammable or combustible fluids or gasses in stationary combustion engines.

Section 16.04 — General Provisions

(a) Portable fire extinguishers shall be provided for all locations where flammable or combustible liquids are stored, handled, or used. The number of such extinguishers and their individual location, type, and size shall be subject to the approval of the Head of the Fire Department.

(b) All flammable and combustible liquids and flammable or combustible compounds or mixtures offered for sale at retail in containers shall bear an approved conspicuous mark or label to indicate flammability or combustibility. The Head of the Fire Department may require the marking of tanks, tank vehicles, containers, and piping for flammable liquids in accordance with the approved reference standards applicable to such marking to indicate flammability, reactivity, and health hazard, when the reactivity of the liquid involved is excessively dangerous or constitutes a health hazard or potentially excessive exposure to persons.

(c) The regular fueling of motor vehicles in any location shall be by approved dispensing equipment.

(d) Flammable liquids shall not be dispensed into portable containers unless the nozzle and container are electrically interconnected by approved means.

(e) The Head of the Fire Department shall prohibit the sale or use of any heating, lighting, or cooking appliance using a flammable or combustible liquid which presents a hazard.

(f) Rooms inside buildings in which spills could occur, such as inside storage rooms for flammable and combustible liquids and dry cleaning rooms, shall be provided with emergency drainage to direct spills, leakage, or water used in firefighting to a safe location. The room shall be liquid-tight where the walls join the floor. Either 1) in floor in the room shall be at least 6 inches below the surrounding floors; or 2) non-combustible, liquid-tight, raised sills or ramps at least 6 inches in height shall be provided at openings to other rooms or buildings; or 3) an open-grated trench which drains to a safe location shall be provided within the room. Provisions shall be made to prevent flammable or combustible liquids from spilling or leaking to any point inside or outside buildings, and from discharging to adjoining property, public sewers, or waterways. An emergency drainage system, if connected to a public sewer or discharging to a waterway, shall be equipped with an approved trap or separator. Emergency drainage systems shall not be so installed that they endanger persons using exits. Crankcase drainings and other flammable or combustible liquids shall not be dumped into sewers, but shall be stored in outside tanks or closed containers until removed from the premises.

(g) The Head of the Fire Department shall classify those hazards, and their locations, which require special electrical wiring and apparatus.

(b) Where law, regulation, ordinance, or approved reference standards contain advisory requirements, the Head of the Fire Department shall determine which such requirements are applicable.

Section 16.05 — Stationary Tank Storage

(a) Tanks shall be built of steel or other materials approved for installation underground, depending on the properties of the liquid stored. Tanks located above ground or inside buildings

shall be of non- combustible construction. Tanks built of materials other than steel shall be subject to approval by the Head of the Fire Department.

(b) Above-ground tanks shall be spaced as required by applicable law, regulation, ordinance, and approved reference standards. When tanks are compacted in three or more rows in an irregular pattern, the spacing or other protective arrangements shall be subject to approval by the Head of the Fire Department so that the tanks are accessible for firefighting purposes.

(c). The area surrounding a tank or a group of tanks located above ground shall be provided with approved drainage or the tanks may be diked in compliance with approved reference standards, to prevent accidental discharge of liquid from endangering adjoining property or reaching waterways.

(4) The supports, foundation, and anchorage for all tanks, however located, shall be subject to approval by the Head of the Fire Department, including those locations in an area which may be subject to flooding or locations where tanks may become buoyant due to a rise in the level of the water table. Approved water spray protection or its equivalent may be used alternatively to the required fire resistive rating of steel supports or exposed piling when authorized.

Section 16.06 — Piping Systems

(a) The requirements of this article do not apply to piping systems of a motor vehicle; aircraft, boat, portable combustion engine, or piping systems within the scope of any applicable boiler or pressure vessel code.

(b) The design (including the selection of materials), fabrication, assembly, testing, and inspection of piping systems containing flammable or combustible liquids shall be suitable for the expected working pressures and structural stresses and shall conform to applicable law, regulations, ordinances, and approved reference standards.

(c) Materials for piping systems shall be steel or modular iron, except that materials other than steel or modular iron may be used in underground installations or where they are required by the properties of the liquid handled. Materials other than steel or modular iron shall either be subject to approval by the Head of the Fire Department or conform to approved reference standards.

Section 16.07 — Container and Portable Tank Storage

(a) This section shall apply only to the storage of flammable or combustible liquids, including flammable aerosols, in drums or other approved metal containers not exceeding 60 gallons individual capacity and those portable tanks not exceeding 660 gallons individual capacity.

(b) Only approved containers and portable tanks shall be used for flammable and combustible liquids. Containers and portable tanks shall conform to provisions of applicable law and approved reference standards in their location, material, and size. Each portable tank shall be provided with one or more devices with sufficient emergency venting capacity to limit internal pressure under fire exposure conditions. Containers and portable tanks shall be electrically bonded or grounded during transfer of flammable liquids.

(c) Design, construction, marking, and location of storage cabinets for flammable and combustible liquids shall conform with applicable law and approved reference standards. Not more than 60 gallons of a flammable liquid, or not more than 120 gallons of a combustible liquid may be stored in a storage cabinet. The number of such cabinets in a single fire area shall be determined by the Head of the Fire Department.

(d) Inside storage rooms for flammable and combustible liquids shall conform with applicable law and approved reference standards as to allowable quantities of such liquids which may be

stored, the locations where they may be stored, liquid tightness drainage, construction — including fire resistive rating and protection of openings, ventilation, electric wiring and equipment, presence of open flame, and fire extinguishing systems.

(e) Materials which react with water, oxidizing materials, or oxygen shall not be permitted in the same room with flammable or combustible liquids. Portable tanks may be stored only in general purpose or industrial plant warehouses, flammable and combustible liquid warehouses, or storage buildings. Storage in other occupancies shall be permitted only in approved closed containers. In connection with storage inside buildings, the Head of the Fire Department may impose a limitation on 1) the quantity of liquid stored in any occupancy; 2) the type or capacity of the container or portable tank; and 3) the use of storage cabinets or inside storage rooms. He may require protection additional to that required by law and reference standards, where unusual hazard to life or property is involved. He may increase the quantity of liquid permitted to be stored where the type of construction, protection provided by fire extinguishing systems, or other factors substantially reduce the hazard.

(f) Storage of flammable and combustible liquids outside buildings shall conform with provisions of applicable law and approved reference standards as to grading or curbing for diversion of possible spills away from buildings or other exposures, and as to maximum storage adjacent to buildings, maximum storage per pile of containers or portable tanks, distance between piles, and distance to property lines, streets, alleys, and private or public ways. The storage area shall be kept free of weeds, debris, and other combustible material not necessary to the storage and shall be protected in an approved manner against tampering and trespassers.

Section 16.08 — Industrial Plants

(a) This section shall apply to those portions of an industrial plant where the use and handling of flammable and combustible liquids is only incidental to the principal business, such as automobile assembly, construction of electronic equipment, furniture manufacturing, or similar activities and to those portions of industrial plants where flammable or combustible liquids are handled or used in unit physical operations such as mixing, drying, evaporating, filtering, distilling, and similar operations which do not involve chemical change. Examples of the latter are plants which compound pharmaceuticals, solvents, cleaning fluids, insecticides, or do similar types of activities. Where portions of such plants involve chemical reactions, those portions shall comply with Section 16.11 of this Code.

(b) Flammable or combustible liquids shall be stored in tanks or closed containers. Industrial plants covered by this section shall conform with applicable law and approved reference standards for quantities of liquid which may be stored, handling of liquids, location of buildings with respect to lines adjoining property, separation of the area of the plant in which unstable liquids are handled or small-unit chemical processes are carried on, emergency drainage systems, ventilation, tank vehicle and tank car loading and unloading, control of sources of ignition, electrical equipment, repairs to equipment, hot work, and housekeeping.

(c) Industrial plants shall be located so that each building or unit of equipment is accessible from at least one side for firefighting and fire control purposes. Aisles shall be maintained for unobstructed movement of Fire Department personnel so that fire protection equipment may reach any part of flammable or combustible liquid storage, use, or unit physical operation.

(d) Water shall be available in approved volume and pressure to supply water hose, streams, foam-producing equipment, automatic sprinklers, or water spray systems as the need is indicated by the special hazards of operations, dispensing, and storage. Approved special extinguishment

systems shall be provided as the need is indicated by the special hazards of the operation. An approved, supervised fire alarm system shall be provided, properly maintained, and capable at all times of promptly transmitting an alarm to the fire alarm communicating center of the Boston Fire Department. An approved, fire alarm signal annunciating system shall be provided for promptly notifying people of fire on the premises. When special hazards require, processing equipment, major piping, and supporting steel shall be protected by approved water spray systems, approved fire resistant coatings, or approved insulation as may be required by the Head of the Fire Department.

Section 16.09 — Bulk Plants

(a) Bulk plants shall conform to provisions of applicable law and approved reference standards for storage in containers or tanks; piles of tanks or containers; heating of buildings; ventilation of rooms, buildings, or enclosures in which liquids are pumped or dispensed; tank car loading and unloading facilities, including separation of such facilities from above-ground tanks, warehouses, other buildings, or nearest line of adjoining property; bonding facilities for protection against static sparks during the loading or unloading and protection against stray currents; tank or container filling or discharge facilities; electrical equipment; and control of sources of ignition.

(b) Wharves associated with bulk plants shall conform to provisions of applicable law and approved reference standards for distance from any bridge over a navigable waterway; for distance from an entrance to or superstructure of any vehicular or railroad tunnel under a waterway; for distance from the termination of the wharf loading and unloading fixed piping to bridges or entrances to or the superstructure of a tunnel; for tanks on wharves; for cargo hose or loading arms; and, where there are special provisions, for piping systems on wharves.

(c) Approved fire control equipment shall, be provided with sufficient capacity to extinguish a fire in the largest tank, where an unusual exposure hazard exists from surrounding property and where the bulk plant has a tank of more than 50,000 gallons individual capacity which contains a flammable liquid. A supervised, approved fire alarm system shall be provided, properly maintained, and capable at all times of promptly transmitting an alarm to the fire alarm communication center of the Boston Fire Department. An approved fire alarm signal-annunciating system shall be provided for prompt notification of fire to people within the premises.

(d) Where any wharf used for the transfer of flammable or combustible liquids in bulk is accessible to vehicular traffic, an unobstructed roadway to the shore and end of the wharf shall be maintained for access of firefighting apparatus. Material shall not be placed on wharves in such a manner as to obstruct access to firefighting equipment or important pipe line control valves. Hose connected to a source of water shall be installed so that manifolds where connections are made or broken can be reached by at least one approved hose stream with approved nozzle.

Section 16.10 — Service Stations

(a) Service stations shall conform to provisions of applicable law and approved reference standards for tanks and containers, the location of tanks and containers, piping systems, remote pumping systems, the location of fuel dispensing systems, fuel dispensing units, emergency power cutoff on dispensing devices, electrical equipment, heating equipment, fuel delivery nozzles, attendance or supervision of dispensing, self-service stations, drainage, and control of sources of ignition.

- (b) Under limitations stated in applicable approved reference standards a tank supplying marine service stations and pumps not integral to the dispensing unit may be installed on a pier; a tank in an enclosure may be installed in a building; approved dispensing units may be located inside buildings; and flammable liquids may be dispensed in the open from a tank vehicle to a motor vehicle, subject to specific approval of the Head of the Fire Department. The temporary use of movable tanks in conjunction with the dispensing of flammable or combustible liquids into the fuel tanks of motor vehicles or other motorized equipment on premises not normally accessible to the public may be authorized by a permit including a definite time limit.
- (c) Accurate inventory records shall be maintained and reconciled for indication of possible leakage from tanks or piping on all tanks which store flammable liquids.
- (d) No delivery of any flammable liquid shall be made into portable containers unless the container is constructed of metal or approved material, has a tight enclosure, and is fitted with a spout or is so designed that the contents can be poured without spilling.

Section 16.11 — Processing Plants

- (a) Processing plants shall conform with provisions of applicable law and approved reference standards for the location of each processing vessel, its distance to lines of adjoining property, the construction of processing buildings, emergency drainage systems, ventilation, explosion relief, liquid handling, piping systems, transfer of large quantities of flammable or combustible liquids, equipment — including explosion prevention equipment, tank vehicle and tank car loading and unloading, control of sources of ignition, electrical equipment, maintenance and repair operations, hot work, and housekeeping.
- (b) All areas of processing plants shall have exit facilities arranged to prevent occupants from being trapped in the event of fire.
- (c) Processing plants shall be so located that there is access for firefighting and fire control equipment and personnel. Aisles shall be maintained for unobstructed movement of personnel to enable fire protection equipment to reach any part of the processing equipment. Provision for smoke and heat venting shall be made when required by the Head of the Fire Department.
- (d) Processing plants shall be protected by an approved automatic sprinkler system or special extinguishing system. Hose connected to a source of water shall be installed so that all vessels, pumps, and other equipment containing flammable or combustible liquids can be reached with a least one approved hose stream from an approved nozzle. Approved hydrant service shall be provided. A water supply approved as to reliability, volume, and pressure shall be provided to supply hydrants automatic sprinkler systems, and special extinguishing systems.
- (e) An approved manual fire alarm signal-initiating system shall be provided within the processing plants together with approved means for such signals to be transmitted to the fire alarm control center of the Boston Fire Department. An approved fire alarm signal-annunciating system shall be provided for promptly notifying people of fire on the premises. Where required by the Head of the Fire Department, a public fire alarm box shall be provided at an approved location in or near the plant.

Section 16.12 — Refineries, Chemical Plants, and Distilleries

- (a) This section shall apply to refineries, other plants storing or handling crude petroleum, chemical plants, and distilleries.
- (b) Such plants shall conform with provisions of applicable law, regulations, ordinances, and approved reference standards for operations at such plants including storage, handling, and

transportation of flammable and combustible liquids, location for process units, construction of fired and unfired pressure vessels, and fire control.

(c) An approved manual fire alarm signal-initiating system shall be provided within such plants together with approved means for such signals to be transmitted to the fire alarm control center of the Boston Fire Department. An approved fire alarm signal-annunciating system shall be provided for prompt notification of fire to persons within the plant. Where required by the Head of the Fire Department, a public fire alarm box shall be provided at an approved location in or near the plant.

Section 16.13 — Tank Vehicles for Transportation

(a) This section shall apply to tank vehicles used for the transportation of asphalt or normally stable flammable and combustible liquids with a flash point below 200 degrees Fahrenheit. Normally stable materials shall be those having the relative capacity to resist changes in their chemical composition which would produce violent reactions or detonations despite exposure to air, water, or heat and including the normal range of conditions encountered in handling, storage, and transportation. Unstable (reactive) flammable or combustible liquids shall be those which in the pure state, or as commercially produced or transported, vigorously polymerize, decompose, condense, or become self-reactive under conditions of shock, pressure, or temperature. The Head of the Fire Department may require additional safeguards for tank vehicles used for liquids having characteristics such as high rates of expansion, instability, corrosiveness, and toxicity.

(b) Applicable law and approved reference standards shall govern tank vehicle design and construction, cargo tanks' piping and connections, emergency venting for fire exposure provided for the cargo tanks, emergency discharge control facilities, marking of vehicles, auxiliary internal combustion engines, auxiliary electric generators and motors, burner and burner tubes for asphalt tank vehicles, pumps, hose, and the operation of tank vehicles, including loading and unloading and parking procedures.

(c) Tank vehicles shall be loaded, unloaded, and parked only in approved locations.

Section 16.14 — Oil Burning Equipment

(a) This section shall apply to stationary and portable oil burning equipment except internal combustion engines, oil lamps, and portable devices such as blow torches, melting pots, and-weed burners.

(b) Oil burning equipment covered by this section shall conform with provisions of applicable law and approved reference standards for use of approved equipment, location of installations, air for combustion and ventilation, chimneys and chimney connectors, special venting arrangements, electrical wiring and equipment, construction and installation of tanks — including supports, foundations, and draining or diking of above-ground tanks, limits on capacity of tanks according to location, normal and emergency relief ventilation of tanks, piping systems, installation of oil burners and oil-fired units, installation of heating and cooking appliances, controls of burners or units or appliances, requirements for specific appliances, machine mountings, and clearances to combustible materials or construction.

(c) Approved oil burners may be installed in boilers and furnaces and for approved use in firing ovens, water heaters, ranges, special furnaces, and similar equipment.

(d) Rooms or spaces where oil burning equipment is install shall have an approved air supply for combustion and ventilation.

(e) Burner units and appliances shall have approved mounting and clearances from combustible materials and constructions.

Section 16.15 — Dry-Cleaning Equipment

Dry-cleaning, dry-dyeing, and the keeping, storage, and use of cleaning and dyeing fluids in connection therewith, shall be governed by the rules and regulations of the State Board of Fire Prevention Regulations (F2.R. 2).

Section 16.16 — Stationary Combustion Engines

Flammable or combustible fluids may be stored in amounts in excess of those permissible in Fire Prevention Regulation No: 3 covering oil burning equipment under terms and conditions authorized by a permit issued by the Head of the Fire Department.

Section 16.17 — Removal of Underground Tanks

(a) Underground tanks shall be removed, replaced, or abandoned only after:

- (i) all flammable liquid from the tank and connecting lines has been removed;
- (ii) the suction, inlet, gauge, and vent lines have been disconnected;
- (iii) the tank has been flushed with water and rendered gas-free as indicated by a combustible gas indicator;
- (iv) inlets and outlets have been capped and plugged for transportation and storage of the tank; and
- (v) the District Chief has inspected the premises and approved the removal, replacement, or abandonment.

(b) No replacement tank with a capacity in excess of the one removed shall be installed without a license for the increased capacity. No replacement tank of any capacity shall be installed until it has been inspected and approved.

(c) No tank shall be disposed of as junk until it has been retested for explosive vapors and, if necessary, rendered gas-free by being filled with inert gas and having a sufficient number of holes or openings made to render it unfit for further use as a gas tank.

**ARTICLE XVII.
FLAMMABLE FINISHES, APPLICATION OF**

Section 17.01 — Scope

This article and approved reference standards shall govern locations, areas, and persons involved in any of the following activities:

- (a) The application of flammable or combustible finishing materials when applied as a spray by compressed air, atomization, steam, electrostatic methods, or any other means in continuous or intermittent processes;
- (b) the application of combustible powders when applied by powder spray guns, electrostatic powder spray guns, fluidized beds, or electrostatic fluidized beds;
- (c) the application of noncombustible finishing materials which may leave combustible residues upon evaporation of the liquid carrier;
- (d) dip tank operations in which articles or materials are passed through the contents of tanks, vats, or containers of flammable or combustible liquids, including coatings, finishes, treatments,

and similar processes;
(c) the application of coatings involving the use of organic peroxides.

Section 17.02 — Permit Required

A permit shall be obtained for application of finishing materials by spraying, dipping, or other means which use more than one gallon of flammable or combustible liquids or fluidized powders in any working day. No permit will be required for small, intermittent spraying operations for domestic or other incidental use unless required by the Head of the Fire Department when such operations are a major process of a business.

Section 17.03 — General Provisions

(a) Fire extinguishers or fire extinguishing systems shall be provided for all locations and areas where the operations enumerated in Section 17.01 are performed, when required by this Code or the Head of the Fire Department. He shall designate the location, type, number, and size of such extinguishers.

(b) Equipment, including approved metal waste cans, shall be provided, and a routine subject to the approval of the Head of the Fire Department shall be observed, in the cleaning and disposal of combustible residues and the handling and disposal of used filters, rags, and waste. Dust or overspray residues resulting from the preparation or spraying of finishing materials containing organic peroxides shall not be mixed with other materials.

(c) Where approved reference standards contain advisory requirements, the Head of the Fire Department shall determine when such requirements are applicable to a particular situation.

Section 17.04 — Spraying Operations

(a) The construction of spray booths and the ventilation system shall conform to approved reference standards.

(b) “Spraying and Vapor Area,” as used in this Code, shall mean any area in which dangerous quantities of flammable vapors or combustible residues, dusts, or deposits are present due to the spraying operation. The Head of the Fire Department may define the limits of the spraying or vapor area in any specific case.

(c) Each spray booth shall be separated from other operations by not less than 3 feet, or by such greater distance, partition, or wall as the Head of the Fire Department may require.

(d) Exhaust ducts from spray booths and spraying areas shall have and maintain approved clearances from combustible construction and materials.

(e) Drying, curing, and fusion apparatus, in addition to conforming with the requirements of this article, shall comply with the applicable provisions of Article 26 of this Code.

(f) Electrostatic hand-spraying outside of a spray booth in a building must be performed in compliance with the terms and conditions of the permit.

Section 17.05 — Operations involving Dip Tanks

(a) The construction and locations of dip tanks shall conform to approved reference standards.

(b) “Spraying and vapor area,” as used in this Code, shall mean any area containing dangerous quantities of flammable vapors in the vicinity of dip tanks or their drain boards, or associated drying, conveying, or other equipment, during operation or shut-down periods. The Head of the Fire Department may define the extent of the vapor area, taking into consideration the characteristics of the liquid, the degree of sustained ventilation, and the nature of the operations.

(c) Approved automatic extinguishing equipment shall be provided for dip tanks if required by the Head of the Fire Department. He shall consider the size or location of the dip tank and the nature of its contents when he determines whether extinguishing equipment is required.

Section 17.06 — Operations Which Involve Organic Peroxides

(a) Operations which involve the use of organic peroxides and other dual component coatings shall not be conducted in buildings used for assembly or educational, institutional, or residential occupancies. Subject to the approval of the Head of the Fire Department, such operations may be conducted in other occupancies when specifically trained personnel are provided to work with these materials, when minimum daily requirements of the materials in the processing area are consistent with the potential exposure to other occupancies, and when the materials can be handled with measures to protect against their contamination or exposure to factors which could cause detonation.

(b) Spray guns and related handling equipment specifically manufactured for use with organic peroxides shall be used. Separate pressure vessels and inserts specifically designed for the application shall be used for resin and for organic peroxides and shall not be interchanged.

ARTICLE XVIII. FUMIGATION AND FOGGING

Section 18.01 — Scope

This article shall apply to fumigation and thermal fogging operations and the use of gasses, liquids, or solids in connection therewith.

Section 18.02 — Definitions

(a) “Fumigation” shall mean the application of a fumigant, predominantly a gas, to a tightly closed treatment space.

(b) “Fumigation” shall mean any material identified by applicable law, regulations, ordinances, or approved reference standards to be a fire or explosion hazard or acutely toxic to humans.

(c) “Fogging” shall mean the application of any liquid or powder by discharge through a fog-generating unit or by means of heat, pressure, or turbulence, in the form of an aerosol fog or mist that is blown into a space to be treated.

(d) “Fogging liquid” shall be any material in the form of an aerosol fog which is lethal to pest organisms and insects and involves a potential fire or explosion hazard under conditions of use as identified by applicable law, regulations, ordinances, or approved reference standards.

Section 18.03 — Permit Required

(a) In order to provide the Head of the Fire Department with notice that fumigation or fogging is to be done, and so that operations which must be performed by the Fire Department may be adjusted to these conditions, no person shall perform fumigation or fogging operations without a permit.

(b) Application for a permit shall be made in the name of the owner of the premises, vehicle, or marine vessel in which the operations are to be performed. Evidence shall be provided that the person to be in charge of the fumigation or fogging operation is the holder of a Certificate of Competency for a fumigator.

Section 18.04 — Prohibition

No fogging liquid or gas shall be used which has a flash point below 100 degrees Fahrenheit.

Section 18.05 — Exemption

This article shall not apply to the household use of one quart or less in a twenty-four-hour period.

Section 18.06 — Certificate of Competency Required

(a) No person shall engage in the business of fumigation or fogging, or assume charge of such operations as the owner or agent of the owner of the premises, vehicle, or marine vessel involved, unless he holds a Certificate of Competency for a fumigator.

(b) Any person desiring a Certificate of Competency for a fumigator shall make application in writing to the Head of the Fire Department and submit to such examination and test as may be prescribed by the Board of Examiners of the Building Department of the City of Boston. Such examination and test shall show the training, experience, and qualifications of the applicant and demonstrate his knowledge of the properties of the fumigants and fogging materials used and the practices to be observed in fumigation and fogging.

(c) The Head of the Fire Department may, for cause, revoke a Certificate of Competency for a fumigator.

Section 18.07 — Notification of Fumigation

(a) The holder of a permit for fumigation or fogging shall notify the Boston Fire Department at least twenty-four hours prior to the beginning of an ordinary fumigation or fogging operation, except in public health emergencies. On shipboard, at least two hours prior oral notification to the Fire Alarm Office of the Boston Fire Department shall be required. Notification shall give the location of the building, ship, or enclosed space to be fumigated or fogged, the fumigant or insecticide to be used, the person or persons in charge of the operations, the permit holder's name, address, and emergency telephone number, and the date and time operations will be started and completed.

(b) Notice of any fumigation or fogging operations shall be served sufficiently in advance upon occupants of any building, adjoining buildings, or other space involved in or exposed to the operations to enable them to evacuate human beings and domestic animals by a specific time. The permit holder shall be responsible for seeing that applicable provisions of law, ordinance, regulations, and approved reference standards are observed both for evacuation and for re-entry of buildings, ships, vessels, or affected spaces.

(c) Prior to fumigation or fogging, warning signs shall be posted on all entrances to buildings; fumigation rooms; vaults; tanks; gangplanks or ladders from the dock, pier, or land to a marine vessel; and doors of wheeled transit vehicles. These signs shall give the name of the fumigant, the name of the permit holder or the holder of the Certificate of Competency, and the date and time period of fumigation or fogging. All signs shall be approved as to style, size, location, and number.

Section 18.08 — Watchmen Required

Unless waived by the Head of the Fire Department, a sufficient number of approved watchmen shall be on duty at the entrances to fumigated buildings, ships, or enclosed spaces during fumigation, until the fumigation is complete, and until spaces are ventilated and safe for occupancy. –

Section 18.09 — Confinement of Fumigation Agent

(a) Confinement of fumigation agents to the designated spaces shall be assured. Tests shall be conducted to determine the presence of leaks that may constitute a hazard to persons occupying adjacent spaces, and to ascertain the sufficiency of ventilation following fumigation or fogging and the completeness of the removal of fumigants or insecticides.

Section 18.10 — Protective Gear Required

All persons conducting fumigation or fogging operations shall maintain and have available approved protective breathing apparatus and protective clothing.

Section 18.11 — Fire and Explosion Prevention

Clean-up operations prior to fumigation or fogging shall be conducted in accordance with applicable law and approved reference standards. The automatic sprinkler systems, fire extinguishing systems, fire alarm systems, fire pumps, flammable fuel controls, lighting, electric power equipment, and heating equipment shall be in service during fumigating and fogging operations. Open flames and other sources of ignition shall be eliminated during fumigation and fogging operations.

ARTICLE XIX. GASSES

Section 19.01 — Scope

This article shall include: petroleum gasses, methane, acetylene, and other combustible gasses; oxygen, nitrous oxide, air, and other gasses which are not combustible but which can support or accelerate combustion; and nitrogen, carbon dioxide, and other gasses which are not combustible but which can displace air necessary to human life. It shall include all gasses which at any time during manufacture, storage, handling, use, or transportation are either above or below ambient atmospheric pressures or temperatures, including those which are compressed, dissolved in a liquid, liquefied, or refrigerated. This article shall govern locations, areas, and persons involved in the manufacture, storage, handling, or use of gasses in connection with the following or other facilities, equipment, or operations:

- (a) stationary containers;
- (b) portable containers;
- (c) piping systems;
- (d) vaporizer systems;
- (e) bulk gas transfer facilities;
- (f) portable container filling facilities;
- (g) vehicles for highway transportation;
- (h) gas burning equipment; and
- (i) gas therapy facilities.

Section 19.02 — Definitions

(a) “Gasses” shall mean any substance which is in gaseous form at any time during its manufacture, storage, handling, transportation, or use.

(b) “Gas piping systems” shall include the pipe, tubing, valves, fittings, and other components

which control the flow of gas.

(c) “Vaporizer systems” shall include vaporizers, tank heaters, and vaporizer burners associated with liquified gas.

Section 19.03 — Licenses and Permits Required

(a) A license or permit shall be obtained for locations where gasses are stored, handled, controlled, or used in quantities specified by this article or by applicable law, regulation, or ordinances.

(b) The applicant for any permit required by this article shall furnish evidence that all persons to be engaged in the handling and use of any gas have received training in the handling and use of the gas and that they are otherwise qualified to handle or use the gas. Applications for permits for gas therapy facilities shall conform to the requirements of Section 19.13 of this Code.

(c) In the interest of public safety, a permit may be required for the storage, handling, or use of any amount of gas or for the facilities, equipment, or operations involved, except where other sections of this article state that the amount of gas or the facilities, equipment, and operations are beyond the scope of this article:

(d) A permit shall be obtained for the storage, use, and operation of the following:

(i) all premises at which gas in excess of 3,000 cubic feet, measured at normal atmospheric temperature and pressure, is kept in any stationary container or in a container with a capacity greater than 60 gallons of water unless other law, ordinance rule, or regulation applies;

(ii) all premises which consist of a location for the loading or unloading of gas or liquefied gas, and at which are involved marine vessels or pipelines for the transfer of gas or liquefied gas between a tank car and a tank truck or a tank vessel or between one of these and a piping system or container;

(iii) all premises which consist of a location for the transfer of gas between a piping system and a container or between containers;

(iv) any vehicle for the highway transportation of gas in containers which has a capacity for gas in excess of 3,000 cubic feet, measured at normal atmospheric temperature and pressure, or in excess of 60 gallons water capacity;

(v) gas burning equipment in premises other than residences for four families or less — however, the Head of the Fire Department may require that a permit be obtained for any premises where the gas burning equipment has a rated heat input of more than 400,000 British Thermal Units per hour;

(vi) any location where there are vaporizer systems, except those to which this article does not apply;

(vii) all premises where chambers are maintained above or below normal atmospheric pressures or with special atmospheres for gas therapy, or any premises where 3,000 cubic feet or more of gas, measured at normal atmospheric temperature and pressure, is stored for use in gas therapy; or

(viii) all premises at which there are stationary combustion engines covered by Section 16.16 of this Code which employ gas fuel.

Section 19.04 — General Provisions

(a) All containers, including those in which gasses are offered for sale at retail, shall have the proper mark, label, and color coding to indicate the name of the gas and other information required by approved reference standards. When the reactivity of the gas involved is excessively

dangerous, or its health hazard constitutes an excessive exposure to persons, the Head of the Fire Department may require the marking and color coding of containers and piping for gasses to be done in accordance with approved reference standards for such marking and coloring, to indicate the relative flammability, reactivity, and health hazard of the gas.

(b) Equipment for the storage, handling, and use of any gas shall be installed, maintained, and tested in accordance with approved reference standards.

(c) All rooms and spaces where gasses are stored, handled, or used shall be ventilated as required by approved reference standards.

(d) The Head of the Fire Department shall classify the degree of hazard at any location involving a gas for which an approved reference standard specifies special electrical equipment for such location.

(e) Where the requirements of law, regulations, ordinances, or approved reference standards present practical difficulties, inconsistent requirements, or different requirements, and where approved reference standards contain advisory requirements, the Head of the Fire Department shall determine which such requirements are applicable.

(f) All areas of buildings or premises where gas is stored, handled, or used shall have a means of egress arranged to prevent occupants from being trapped in attempting to escape from gas or fire. Means of egress shall not be exposed to emergency drainage systems.

(g) Emergency plans may be required by the Head of the Fire Department for locations where gasses are stored, handled, or used. The procedures established by such plans shall cover the routine for shutting off the gas supply, isolating portions of the equipment involved, and taking other steps to reduce hazard of gas.

(h) On premises where there is gas of excessively dangerous reactivity, or where the health hazard of the gas constitutes an excessive exposure to persons, approved breathing apparatus and protective clothing shall be available and maintained. On premises where the gas is flammable, to the extent that it can be ignited under almost all ambient temperature conditions, the Head of the Fire Department may require that approved equipment for indication of combustible gas be provided.

(i) Where gasses are stored, handled, or used, fire extinguishers approved in type, size, and individual location shall be provided.

(j) Whenever any portion of the premises is more than 300 feet from a hydrant on the public water system, an approved water supply and an approved system of mains with hydrants shall be installed at any location for which a permit is required by this article.

(k) On all premises where an aggregate of 25,000 cubic feet or more of gas, measured at normal atmospheric temperature and pressure, is present at any time in containers, tank vehicles, or tank cars, the Head of the Fire Department may require that buildings, containers, piping, and other gas handling equipment be provided with approved fire extinguishing systems, fire alarm equipment, supplies of water, and other extinguishing agents when there are exposures to or from adjoining property or other conditions which make such fire extinguishing systems necessary for the control of a fire or emergency on the premises.

(l) On all premises where an aggregate of 25,000 cubic feet or more of gas, measured at normal atmospheric temperature and pressure, is present at any time in containers, tank vehicles, or tank cars, the Head of the Fire Department may require that a public fire alarm box be provided at a location in or near the plant. He may require that an approved manual fire alarm signal-initiating system be provided on the premises, together with means for such signals to be transmitted to the fire alarm control center of the Boston Fire Department, and that a fire alarm signal-annunciating

system be provided for prompt notification of fire to persons on the premises

(m) Approved access for firefighting apparatus shall be provided on premises for which a permit is issued for container storage or gas transfer facilities.

(n) Where the characteristics, amount, and location of gas, gas containers, and gas transfer equipment makes it necessary for the public safety to minimize access by unauthorized persons, the Head of the Fire Department may require the premises or a portion of the premises where gas containers and gas transfer equipment is located to be fenced by chain link or an equivalent at least 8 feet high, or otherwise secured against, trespass for the containers and equipment requiring protection. When only a portion of the premises is protected, a fence less than 8 feet high may be used unless the Head of the Fire Department requires a higher fence.

(o) Fences shall be provided with one or more approved gates which can be locked. Where roadways in the premises are provided for highway vehicles, two, 15-foot gates shall be provided, located so that, if a gas spill or fire prevents a vehicle from exiting or if emergency fire apparatus enters by one gate, the other will be reasonably accessible for vehicle use. Failure to maintain required fences and gates shall be sufficient grounds for the revocation of the permit applying to the premises.

Section 19.05 — Stationary Container Storage

(a) Stationary containers for gas shall be located, designed, installed, and filled in conformance with approved reference standards. Refrigerated containers shall be designed for the service temperature limits and the products to be stored. The containers shall be provided with safety relief devices, container shut-off valves, back-flow check valves, internal valves, excess-flow check valves, plugs, liquid-level gauges, and pressure gauges, as required.

(b) Containers shall be constructed of steel or other approved materials where required by the properties of the gas stored.

(c) All containers shall have approved supports, foundations, and anchorage, including those which may become buoyant due to rising water table levels or which may be subject to flooding.

(d) The separation of individual containers and the distance between individual containers and buildings or equipment lines shall conform to the provisions of approved reference standards. The spacing or other protective arrangements shall be subject to approval of the Head of the Fire Department so that containers are accessible for firefighting purposes

(e) The area surrounding a container or group of containers shall be provided with approved means of drainage for water used in firefighting. Impounding areas shall be provided for containers for water reactive gasses as required by approved reference standards to prevent accidental discharge of liquid gas from endangering adjoining property or reaching waterways.

Section 19.06 — Portable Containers

(a) Portable containers for gas shall be constructed, hydrostatically tested, filled, and stored in conformance with approved reference standards. Containers shall be provided with approved safety relief devices

(b) Approved regulators or other gas flow control devices shall be provided wherever portable containers are used.

(c) The size of individual portable containers, the number of containers, and the amount of gas which may be allowed in any room or building or at any other location shall conform to the restrictions of approved reference standards.

(d) Portable containers shall not be stored, handled, or used at any location where they are

unreasonably subject to tampering by unauthorized persons or to mechanical injury. Free-standing containers shall be chained in position or otherwise supported during storage or transportation.

(e) Transferring gas from a stationary container to a portable container, or from one portable container to another, shall not be done except at a location where approved procedures have been established for such operations.

Section 19.07 — Piping Systems

(a) The requirements of this section do not apply to piping systems of portable gas equipment which is not connected to a fixed, fuel-piping system, such as plumbers' torches, portable heaters, portable welding and cutting equipment, and portable combustion engines, or to piping systems of a motor vehicle, aircraft, or boat, or to piping systems between the outlet of a meter or regulator and the inlet of appliances for domestic and commercial fuel gasses at pressures not to exceed one-half pound per square inch or 14 inches water column where such systems comply with provisions of approved reference standards.

(b) The design of piping systems containing gasses (including the section of materials) shall be suitable for the expected working pressures and structural stresses. The fabrication, assembly, test, and inspection of piping systems containing gasses shall conform to approved reference standards.

(c) Approved materials shall be used for, piping systems as required by the properties of the gas handled.

(d) Approved ventilation shall be provided for all spaces occupied by gas piping systems. This requirement shall not apply to underground or totally encased piping which conforms to approved reference standards.

(e) Shut-off valves with approved marking shall be provided in gas piping systems at approved locations. The procedure specified by approved reference standards shall be followed for turning gas on or off.

Section 19.08 — Vaporizing Systems

(a) The requirements of this section do not apply to engine fuel vaporizers or to integral vaporizer burners, such as those used with weed burners or portable heaters.

(b) Vaporizer systems shall be designed, constructed, located, and marked (including identification of the manufacturer), and operated in conformance with approved reference standards. Vaporizer systems shall be provided with approved safety relief valves, manual and automatic shut-off valves, pressure-limit controls, means to prevent Liquid from passing out of the vaporizer to its vapor discharge piping, and other components located and operated as required by these provisions.

(c) The locations where vaporizer systems are used with a gas which is reactive with water shall be graded and drained in a manner that will minimize the possibility of accidental spills and leaks from endangering important structures, equipment, or adjoining property or from reaching waterways.

Section 19.09 Bulk Gas Transfer Facilities

The loading or unloading of gas or liquefied gas which involves marine vessels or pipelines shall conform with applicable law, regulations, ordinances, and approved reference standards.

Facilities and equipment required by these provisions shall be approved, including the location

and construction of piers, docks, and wharves, the arrangements for vehicular traffic, the transfer of other cargo, the type and location of isolation valves, bleed connections and vents, and check valves.

Section 19.10 — Portable Container Filling Facilities

(a) Facilities for filling portable containers shall conform to applicable law, regulations, ordinances, and approved reference standards, as such facilities relate to:

- (i) the transfer of gas between a piping system and containers, or between containers;
- (ii) the construction, ventilation, and heating of buildings and structures at such gas transfer location;
- (iii) the required distances from a gas transfer location to buildings on the premises, to adjoining property lines which may be improved, to outdoor places of public assembly, to public ways, to driveways, to main-line railroad tracks, and to unconnected containers.

(b) Facilities and equipment, including hose and pipe connections, supports for transfer piping, the location of transfer piping, pumps, and compressors, and the type and location of isolation valves, emergency valves, bleeder connections, and vents, shall be approved by the Head of the Fire Department.

(c) Portable containers shall be checked before they are filled to determine that they are qualified by design, fabrication, and markings for the gas to be stored.

(d) Portable containers shall be filled only with the types and amounts of gas for which they have been tested and approved.

Section 19.11 — Vehicles for Highway Transportation

(a) This section shall apply to vehicles with containers for normally stable gasses. The Head of the Fire Department may require additional safeguards for vehicles and containers when they are used for gasses having such properties as instability, corrosiveness, or toxicity.

(b) Applicable law, regulations, ordinances, and approved reference standards shall govern the highway transportation of gas, including those provisions which apply to vehicle design and construction, cargo containers, safety relief valves, piping and connections, emergency discharge control facilities, marking of vehicles, pumps, and hose, the operations of vehicles, and loading and unloading procedures.

(c) Vehicles shall be parked, loaded, and unloaded only in approved locations.

Section 19.12 — Gas Burning Equipment

(a) This section shall apply to gas burning equipment on premises other than residences for four families or less. It shall not apply to internal combustion engines or to approved portable gas burning devices such as blow torches, weed burners, or portable heaters.

(b) Gas burning equipment shall conform with approved reference standards for the use of approved equipment, location of installations, air for combustion and ventilation, chimneys and chimney connectors or vents, electrical wiring and equipment, construction and installation of gas containers, limits on capacity of gas containers according to location, safety relief devices, piping systems, installation of gas burners and gas-fired units, installation of heating and cooking appliances, burner controls, units, or appliances, specific appliances, and other applicable requirements.

(c) Gas burners may be installed in approved boilers, furnaces, ovens, water heaters, ranges, special furnaces, and similar equipment.

(d) Rooms or spaces where gas burning equipment is installed or used shall have an approved air supply for combustion and ventilation.

(e) Burner units and appliances shall have approved mounting and clearances from combustible materials and construction.

Section 19.13 — Gas Therapy Facilities

(a) The applicant for a permit for gas therapy facilities shall name an anesthesiologist or other qualified person whom authorized members of the Boston Fire Department may consult in connection with rescue work or other operations of the Boston Fire Department which might involve gas therapy.

(b) Gas therapy facilities and the performance of gas therapy, including inhalation anesthesia, shall conform to approved reference standards. Storage of gas and piping systems, ventilation, humidification and cooling, electrical wiring and equipment, reduction of electrostatic hazard, installation and maintenance of an equipotential grounding system, and labeling of equipment and supplies shall be as required by such provisions.

(c) At any premises where gas therapy is performed, piping systems shall not be used for the distribution of flammable anesthetic gasses.

Section 19.14 — Stationary Combustion Engines

Stationary combustion engines which employ gas fuel shall comply with the requirements of Section 16.16 of this Code and other applicable provisions of law, regulations, ordinances, and approved reference standards.

ARTICLE XX. HAZARDOUS MATERIALS

Section 20.01 — Scope

This article applies to materials not otherwise covered in this Code which are flammable, may react to cause fire or explosions, which by their presence create or augment a fire or explosion hazard, or which because of their toxicity, flammability, or reactivity render firefighting and storage abnormally dangerous or difficult. This article applies also to materials and formulations which are chemically unstable and which may spontaneously form explosive compounds or undergo spontaneous or exothermic reactions of explosive violence or sufficient heat to be a fire hazard.

Section 20.02 — Definitions

(a) “Corrosive materials” shall mean those acids, alkalines, or caustic materials which, when in contact with living tissue, can cause severe damage or, when in contact with other materials, as by leakage, can materially damage or destroy containers of other commodities by chemical action and thereby cause fire. Examples include hydrogen fluoride, bromine, formic acid, and nitric acid.

(b) “Flammable material” shall mean and include substances which can cause fires by igniting combustible vapor, by friction, through absorption of moisture, by spontaneous chemical changes, or as the result of retained heat from manufacturing or processing. Examples include white phosphorous, sodium metal, foam rubber, and cotton batting.

- (c) “Hazardous materials” shall mean materials which are corrosive, flammable, oxidizing, radioactive, toxic, poisonous, unstable, or reactive, or other materials which the Head of the Fire Department may designate as hazardous because of the amounts involved or the conditions under which they are manufactured, used, stored handled, or transported.
- (d) “Oxidizing material” shall mean any solid, liquid, or gas which yields oxygen or otherwise supports combustion by readily oxidizing fuels and other combustible materials. Examples include ammonium nitrate, sodium, and benzoyl peroxide.
- (e) “Poisonous materials” shall mean noxious substances, particularly gasses or liquids with high vapor pressures at room temperature, of such nature that a small amount in the atmosphere is dangerous to life. Examples include chlorine, hydrogen cyanide, hydrogen sulfide, and carbon monoxide.
- (f) “Radioactive material” shall mean any material or combination o materials that spontaneously emits ionizing radiation. Examples include radioactive isotopes and compounds labeled for medical purposes.
- (g) “Reactive material” shall mean any substance which will vigorously and energetically react with water or other materials and thereby generate oxygen, combustible gas, excessive heat, or some other hazardous condition. Examples include calcium hypochlorite (HTH), diethylzine, and aluminum chloride.
- (h) “Storage” —
- (i) “Isolated storage” shall mean storage in a separate detached building located at an approved distance from hazardous occupancies, exposures, and inhabited buildings.
- (ii) “Segregated storage” shall mean storage in one fire area of a building or structure, but with physical detachment from incompatible materials by approved partitions or walls, or with containment in a tank.
- ... (iii) “Separated storage” shall mean storage in one fire area of a building or structure, but with physical detachment by an approved space from incompatible materials by the use of sills or curbs to maintain spacing or by means of an intervening storage of non- hazardous compatible commodities.
- (i) “Toxic material” shall mean a material so toxic to man as to afford an unusual hazard to life and health during firefighting or other emergency operations. Examples include parathion, organic phosphates (insecticides and pesticides), and vinyl chloride.
- (j) “Unstable material” shall mean any substance which can vigorously and energetically react with water or other materials, which is explosive or potentially explosive, which can polymerize, which will instantaneously decompose, which will undergo uncontrollable autoreaction, or which can be exploded by heat, pressure, shock, or combinations thereof. Examples include nitromethane, ammonium nitrate, and styrene monomer.

Section 20.03 — Permit Required

- (a) No person shall manufacture, use, store, or handle hazardous materials without a permit. This permit is issued for the purpose of providing the Fire Department with notice of the existence of hazardous materials so that operations which must be performed by the Fire Department may be adjusted to the conditions they create. Permits for radioactive, toxic, and poisonous materials shall comply with section 20.08, 20.09, and 20.10 of this Code.
- (b) Permit application shall be made in the name of the owner of the premises. Evidence may be required of the applicant’s training, experience, and qualifications, and of his knowledge of the

properties of the chemicals or materials involved and of the practices to be observed in the manufacture, use, storage, and handling of the chemicals and materials.

Section 20.04 — General Requirements

(a) The manufacture, use, storage, and handling of hazardous chemicals and explosive materials shall be safeguarded with such protective facilities as public safety requires.

(b) The Head of the Fire Department may require that the substances, their containers, or the buildings, rooms, and piping in which they are manufactured, used, stored, and handled, shall be marked with the name of the substances and an indication of their flammability, reactivity, or health hazard, in accordance with applicable law, ordinance, regulations, and approved reference standards.

(c) The Head of the Fire Department may require the separation, segregation, or isolation of any chemical or material that, in combination with other substances, may bring about a fire or explosion or may liberate a hazardous material. He may require the isolation of the manufacture, use, storage, or handling of any hazardous material from other facilities, dwellings, places of assembly, educational occupancies, institutional occupancies, railroad yards, and public highways when the quantity of chemical or material constitutes a hazard to the public safety.

(d) Defective leaking containers shall be repaired or disposed of in a manner approved by the governmental authority having jurisdiction. No spillage of leaking chemicals or materials shall be allowed to accumulate at any location.

(e) Persons who manufacture, use, store, or handle hazardous materials may be required to have available such approved protective clothing and equipment as designated by the Head of the Fire Department.

Section 20.05 — Corrosive Materials

Provisions shall be made, in a manner approved by the Head of the Fire Department, for containing and neutralizing, or flushing to safe locations, any leakage which may occur in the manufacture, list, storage, or handling of corrosive materials.

Section 20.06 — Flammable Materials

Special extinguishing equipment, including specific extinguishing agents, may be required by the Head of the Fire Department for use in the event of fires involving flammable materials, in compliance with approved reference standards.

Section 20.07 — Oxidizing Materials

(a) Oxidizing materials shall be stored in dry locations and separated from stored organic or other combustible or incompatible materials. Bulk oxidizing materials shall be stored neither on nor against combustible surfaces.

(b) Oxidizing materials which are severe fire hazards and may burn very rapidly on exposure to fire, shock, or friction, but which are not expected to detonate, shall be in segregated or isolated storage. The Head of the Fire Department may require that a building in which oxidizing materials are stored and which does not allow for isolated storage be protected with an approved system of automatic sprinklers.

(c) Oxidizing materials which may detonate on exposure to fire, shock, or friction shall be manufactured; used, stored, and handled in compliance with Section 20.12 of this Code.

Section 20.08 — Radioactive Materials

(a) Signs and markings to warn of radioactive materials as required by applicable provisions of law, ordinance, regulations, and approved reference standards shall be provided at all entrances to areas where such materials are manufactured, used, stored, or handled.

(b) The applicant for a permit to use or store radioactive materials shall furnish the Head of the Fire Department with a copy of his license from the United States Nuclear Regulatory Commission, listing all radioactive materials authorized by the license and a statement or diagram of where the storage and use areas are located. The Head of the Fire Department may require the licensee to furnish him with notification of any change in the storage and use areas, license authorization, temporary use, or storage of a radiation source at any location. He may also require the licensee to formulate and furnish him with details of emergency plans to protect employees of the licensee and the general public against potential hazards of the radioactive materials involved.

(c) Radioactive materials shall be used, stored, and handled in a manner that will provide reasonable assurance that no person will be exposed to a quantity of radiation designated as excessive by law, ordinance, regulation, or approved reference standards. Approved measures shall be provided to secure designated storage areas against unauthorized access or removal of radioactive materials. Approved means shall be taken to deal with inadvertent entry by an individual into an area where he could be exposed to an unacceptable amount of radiation or become unacceptably contaminated by radioactive materials. Storage facilities shall be designed to minimize exposure to radiation of any person in the event of fire, earthquake, flood, windstorm, explosion, or other emergency.

(d) All bins, shelving, partitions, and pallets in storage areas for radioactive materials shall be made of approved materials. Approved automatic sprinkler systems or approved special extinguishing systems shall be provided for buildings in which are used, stored, or handled radioactive materials which may be expected to melt, vaporize, oxidize, or otherwise deteriorate under fire conditions. Where significant amounts of water used in firefighting by any means could be contaminated by radiation, approved arrangements shall be made for such water to drain to detention tanks and ultimately be discharged safely. Fire extinguishers approved as to location, numbers, types, and sizes shall be provided for areas in which radioactive materials are stored or used and for vehicles in which such materials may be transported.

(e) Hazardous materials manufactured, used, stored, or handled in conjunction with radioactive materials shall meet the applicable requirements of this Section.

Section 20.09 — Toxic Materials

(a) Approved warning sign stating the nature and location of toxic materials shall be placed at all entrances to areas where such materials are manufactured, stored, used, or handled.

(b) Toxic materials shall be separated from other chemicals, flammable liquids, and hazardous materials by storage in approved rooms or compartments separated from other areas by approved walls and floor-ceiling assemblies. The storage room shall be provided with approved drainage facilities and natural or mechanical ventilation to the outside air. Ventilation facilities shall be adequate to remove leaking toxic gas and fumes. Such ventilation shall not discharge to a point where gasses may endanger any person.

(c) The Head of the Fire Department may require the preparation of medically approved antidote information for the toxic materials under the permit.

Section 20.10 — Poisonous Materials

(a) Approved warning signs stating the nature and danger of poisonous materials shall be placed at all entrances to areas where such materials are manufactured, used, stored, or handled.

(b) Poisonous materials shall be separated from other chemicals, flammable liquids and hazardous materials by storage in approved rooms or compartments separated from other areas by approved walls and floor-ceiling assemblies. Storage rooms shall be provided with natural or mechanical ventilation, and drainage facilities may be required. Ventilation facilities shall be adequate to remove poisonous gas and fumes. Such ventilation shall not discharge to a point where the poison may endanger any person.

(c) The Head of the Fire Department may require the preparation of medically approved antidote information for the poisonous materials under the permit.

Section 20.11 — Reactive Materials

(a) Reactive materials shall be separated, segregated, or isolated from all incompatible chemicals and contaminating materials and shall be protected from external heat, fire or explosion in accordance with applicable law, ordinances, regulations, and approved reference standards.

(b) Quantities of reactive materials, at any location during theft manufacture, use, storage, or handling maybe subject to the approval of the Head of the Fire Department with respect to dwellings, places of assembly, educational occupancies, institutional occupancies, railroad yards, and public highways, as provided by law, ordinances, regulations, or approved reference standards.

(c) Approved warning signs stating the danger of reactivity with certain materials, particularly their reactivity with water or other common extinguishing agents, shall be placed at all entrances to areas where such materials are manufactured, used, stored, or handled.

Section 20.12 — Unstable Materials

(a) Unstable materials shall be separated, segregated, or isolated from all incompatible chemicals and contaminating and sensitizing materials. They shall be protected from external heat, fire, or explosion in accordance with approved reference standards.

(b) Quantities of unstable material, at any location of manufacture, storage, or handling, shall be subject to the approval of the Head of the Fire Department with respect to dwellings, places of assembly, educational occupancies, institutional occupancies, railroad yards, and public highways, as provided by law, ordinances, regulations, and approved reference standards.

ARTICLE XXI.

HAZARDOUS OCCUPANCIES IN BUILDINGS USED FOR HABITATION

Section 21.01 — Permit Required

No part of any building used for habitation, nor that part of any lot within 50 feet of any building so used, except as permitted by applicable law, regulations, ordinances, or approved reference standards, shall be used for the storage, keeping, handling, or use of any article or material or for any occupancy or operation which is or may become dangerous to the public safety as a fire menace. No part of any such building shall be used as a carpenter shop or paint shop, nor for the storage keeping or handling of excelsior, shavings, sawdust, cotton, paper stock, feathers, rags, or other quick-burning material, unless a permit has been obtained from the Head of the Fire

Department for such use. This permit shall define the portion of the building used for habitation which is a hazardous occupancy.

Section 21.02 — Location and Separation

Hazardous occupancy in a building used for habitation shall be in a location defined in the permit for such occupancy. Such occupancy shall be separated from the rest of the building by approved ceiling, floor, and wall assemblies having the fire resistive rating required for the habitation or occupancy by applicable law, regulations, and ordinances. Each opening to such room or compartment from other parts of the building shall be protected with approved automatic, self-closing fire doors.

Section 21.03 — Vertical Openings

All lights and ventilating shafts, elevators, and stairwells passing through a room or compartment defined for hazardous occupancy in a building used for habitation shall be separated from the rest of the building by approved walls having the fire resistive rating required for the habitational occupancy by applicable law, regulations, and ordinances.

Section 21.04 — Fire Protection

A room or compartment permitted for hazardous occupancy in a buildings used for habitation shall be provided with fire extinguishers in approved locations, numbers, types, and sizes. An approved, automatic, fire extinguishing system shall be provided for the room or compartment, if the conditions of the permit for the occupancy so require.

Section 21.05 — Hazardous Materials

Material in any form — solid, liquid, or gas — which is toxic or otherwise hazardous to people, which is or may become flammable, combustible, explosive, or reactive, and which could increase the intensity or spread of fire, shall be used or stored in accordance with this Code and other applicable law, regulations, ordinances, and approved reference standards.

Section 21.06 — Means of Egress

At least two means of egress remote from each other shall be maintained in every building any section or area of which is of such size, occupancy, and arrangement that reasonable safety of the occupants in case of fire or emergency may be endangered by the blocking of any single means of egress by fire or smoke. Such means of egress shall be so arranged as to minimize the possibility that both may be blocked simultaneously by fire or other emergency condition.

ARTICLE XXII. INCINERATORS

Section 22.01 — Permit Required

No incinerator shall be fired unless a current permit for its use has been granted by the Head of the Fire Department. Approval in writing from the Air Pollution Control Commissions of the Commonwealth of Massachusetts and the City of Boston shall accompany each application for a permit for an incinerator.

Section 22.02 — Incinerator Requirements

- (a) Self-contained incinerator units shall be approved types, installed and operated in conformance with approved reference standards. Such reference standards shall govern the design, construction, placement, clearances to combustible materials, chimney connectors, and chimneys of such units.
- (b) Field-erected incinerators shall be installed and operated in conformance with approved reference standards. Such standards shall govern the design and construction, placement, clearances to combustible materials, chimney connectors, and chimneys of such incineration.
- (c) The terminus of the chimney flue for the incinerator shall be equipped with an approved spark arrestor if the incinerator does not include approved means for arresting sparks and fly ash.

Section 22.03 — Incinerator Charging Equipment

- (a) Equipment for charging an incinerator shall apply with approved reference standards. Hoppers or other means of manually feeding or stoking incinerators shall be approved types. Approved equipment for automatically feeding or stoking incinerators may be employed.
- (b) Waste or rubbish shall not be left at the charging equipment for more than three hours between charging operations.
- (c) No incinerator shall be charged through its flue or chimney.

Section 22.04 — Incinerator Rooms

- (a) Approved, self-contained incinerators in which the combined hearth and grate area of the combustion chamber is 7 square feet or less, may be installed in any room of a dwelling occupied by not more than three families, if the installation and operation of the incinerator complies with approved reference standards and the terms of any listing on which the approval for the incinerator is based.
- (b) Other incinerators and their charging equipment installed in buildings shall be located in rooms occupied for no other purpose than to house the incinerator, its charging equipment, and the storage of containers of waste material to be burned. The walls and floor and ceiling assemblies of such rooms shall be noncombustible with fire resistance ratings of not less than two hours.
- (c) Doors or other openings in rooms for such other incinerators and their charging equipment, which communicate with other areas of the building, shall be protected by approved, self-closing, automatic fire doors.
- (d) In accordance with approved reference standards and the terms of any listing on which approval of an incinerator unit is based, provisions shall be made for a supply of air for combustion and ventilation to enter the room in which an incinerator is located.
- (e) Air ducts extending from the room in which an incinerator is placed shall be constructed and protected in accordance with approved reference standards.
- (f) Rooms in which waste or rubbish is handled, kept, or stored; in containers or otherwise, shall comply with the requirements for such rooms in Article 29 of this Code.

ARTICLE XXIII. LUMBER AND BUILDING MATERIALS STORAGE AND WOODWORKING PLANTS

Section 23.01 — Permit Required

A permit shall be obtained for all premises where more than 100,000 board feet of lumber is stored, for all premises where building materials are stored for sale, and for all premises occupied by a commercial woodworking plant.

Section 23.02 — Location

No storage of lumber or building materials and no commercial woodworking plant shall be so located as to seriously expose adjacent properties to fire. Serious exposure shall include the storage of lumber or building materials, or the location of a commercial woodworking plant, in a building not protected with an approved system of automatic sprinklers. Neither the storage of lumber nor the location of a woodworking plant may be within 15 feet of an adjacent private property line.

Section 23.03 — Fencing

Lumber or building materials and other combustible materials shall be stored in buildings or in outdoor areas which are enclosed by a chain link fence not less than 8 feet high with approved gates which can be locked. Two, 15-foot approved gates shall be provided in these fences for highway vehicles. The gates shall be so located that, if a fire prevents a vehicle from entering or leaving a fenced area by one gate, the other gate will be reasonable accessible. Failure to maintain the required fences or gates shall be sufficient grounds for revocation of the permit for the premises.

Section 23.04 — Roadways

There shall be a roadway within 20 feet of any part of the base area of an outdoor pile of lumber, building materials, or other combustible stored materials. Roadways shall be at least 15 feet wide and maintained free of obstructions to vehicular movement. There shall be a roadway between any pile and any building on the premises. Buildings shall include such structures as sheds, temporary buildings, and portable buildings.

Section 23.05 — Outdoor Piles

Outdoor piles of lumber, building materials, or other combustible materials shall be no more than 20 feet high. Such piles shall be on clean, solid ground. Piles on land filled with sawdust or other refuse shall be prohibited because of the danger of underground fires. If supports are used for piles, sufficient space shall be provided between the support platforms and the ground that the space may be conveniently inspected and cleaned.

Section 23.06 — Waste Material and Debris

Sawdust, chips, shorts, or other debris shall not be allowed to accumulate in spaces under piles or in other locations. Such waste materials shall be stored on the premises only in approved receptacles. The burning of shavings, sawdust and refuse materials shall be permitted only in approved boilers, furnaces, or refuse burners, on a site and under operation procedures which comply with the regulations of the Air Pollution Control Commissions of the Commonwealth of Massachusetts and the City of Boston.

Section 23.07 — Weeds and Brush

Weeds and brush shall not be allowed to accumulate in storage areas. Grass shall be cut and kept raked at a height which minimizes fire spread. Weed burners shall not be used on the premises. Weed and brush control shall be maintained by removing growth or using herbicides or ground sterilizing agents.

Section 23.08 — Buildings

Buildings used for storing and handling lumber, building materials, or other combustible materials, and sawmills, planing mills, and other commercial woodworking plants, which are larger than 4,800 square feet in floor area or are occupied by more than 100,000 board feet of lumber, shall be protected by an approved, automatic sprinkler system.

Section 23.09 — Blower and Exhaust Systems

Blower and exhaust systems in woodworking plants shall be installed, maintained, and operated in conformance with approved reference standards.

Section 23.10 — Fire Extinguishers

Fire extinguishers, in approved types, sizes, and individual locations, shall be provided as required by the Head of the Fire Department in premises which are used as woodworking plants or upon which are stored lumber or combustible building materials.

Section 23.11 — Hydrant Service

An approved water supply and an approved system of mains with hydrants at approved locations shall be installed on premises occupied by lumber, combustible building materials, and woodworking plants, whenever any portion of the premises so occupied is more than 300 feet from a hydrant on the system of the Sewer and Water Commission of the City of Boston.

Section 23.12 — Fire Alarm

When required by the Head of the Fire Department, a fire alarm master box which is directly connected to the Boston Fire Alarm System or a central station signalling system shall be provided at an approved location in or near premises which are used to store lumber or other combustible building materials, or which are used as woodworking plants.

**ARTICLE XXIV.
MATCHES**

Section 24.01 — Permit Required

- (a) No person shall manufacture matches without a permit for the hazardous or other materials used in such manufacture, as may be required by any section of this Code.
- (b) No person shall store without a permit matches aggregating more than sixty matchman's gross (14,400 matches in each gross).
- (c) No person shall play with matches.

Section 24.02 — Storage

- (a) Whenever matches exceeding sixty matchman's gross are stored, shipping containers shall be

arranged in approved piles to provide access for firefighting equipment and personnel and to prevent spread of fire through unprotected vertical openings in buildings.

(b) Where shipping containers of matches are opened, the contents of such broken containers shall be removed and stored in approved metal or metal-lined bins equipment with approved self-closing metal or metal-lined covers. Where matches are sold at retail and when original sealed packages are broken, individual boxes shall be stored in approved metal or metal-lined bins or other approved receptacles, with covers closed except when necessary to obtain access thereto.

Section 24.03 — Dangerous Matches

The Head of the Fire Department may prohibit the sale, distribution, or use of any matches he determines to have characteristics such as to make them unreasonably dangerous. Among characteristics he may consider as dangerous are:

- (a) ignition temperature below 250 degrees Fahrenheit;
- (b) a tendency in the matches to explode or burn violently when struck;
- (c) the ability of the match to burn more than one minute in a horizontal position;
- (d) sensitivity to ignition by friction;
- (e) a tendency for match heads to fly off when struck;
- (f) a tendency for match stems to break when struck because of poor quality in the stem material or fragile stem material.

ARTICLE XXV. OPEN AIR PARKING SPACES

Section 25.01 — Definitions

“Open air parking space” shall mean a place which may be occupied by an automobile or by a component which may be attached to or transported by an automobile, trailer, or semi-trailer as defined in General Laws, Chapter 90.

Section 25.02 — License or Permit Required

- (a) License: No person shall engage in the business of conducting or maintaining an open air parking space without a license issued by the Commissioner of Traffic and Parking and approved by the Head of the Fire Department.
- (b) Permit: Any person conducting or maintaining an open air parking space (other than a business operation requiring a license shall obtain a permit from the Head of the Fire Department.
- (c) Exemption: This section shall not apply to the owner or occupant of a one-, two-, or three-family dwelling with regard to the parking of his private automobiles.
- (d) No person shall park or deposit upon any public or private way or premises any automobile or component which maybe attached to or transported by an automobile, trailer, or semi-trailer, which may contain gasses, liquids, solids compounds, or any other materials that are or may become hazardous to people because of their flammability reactivity, or toxicity, unless that person has obtained a permit or license to do so.

Section 25.03 — Terms and Conditions for Approval

- (a) Approval by the Head of the Fire Department for a license or a permit for open air parking

may be conditioned upon the availability of approved service from hydrants and other fire control equipment on the premises. Likewise, it may be required that lanes be provided in the parking area to maintain movement of an access for automobiles and fire apparatus. Approved drainage for water used in firefighting may be required, as well as other conditions that the Head of the Fire Department determines are necessary to maintain the public safety. For these purposes, he may require that vehicles be parked in designated spaces which are marked in an approved manner and in compliance with applicable laws and regulations.

(b) The Commissioner of Traffic and Parking shall submit to the Head of the Fire Department the information contained in all applications for the issuance or renewal of licenses to conduct open air parking spaces. The Head of the Fire Department shall inspect or cause to be inspected the premises specified in the application and shall furnish the Commissioner of Traffic and Parking with the terms and conditions with which the Fire Commissioner requires compliance before issuance or renewal of the license.

Section 25.04 — Revocation of a License or a Permit

Failure or refusal of the holder of a license or a permit to allow an inspection by the Head of the Fire Department or an authorized member shall be grounds for revocation of the license or permit.

ARTICLE XXVI. OVENS AND-FURNACES

Section 26.01 — Scope

This article shall apply to all ovens and furnaces involving a fire or explosion hazard by reason of, the temperatures at which the oven or, furnace is operated; the fuel that is used; the presence of flammable volatiles from materials in the oven, furnace, or combustion system;-or a combination of the fuel and the flammable volatiles.

Section 26.02 — Permit Required

A permit shall be required to operate an oven or furnace to which this Code applies.

Section 26.03 — Requirements

(a) Ovens and furnaces shall conform to applicable reference standards where they consist of a heated enclosure operating at approximately atmospheric pressure (including bakery ovens and ovens for drying or baking materials that contain flammable volatiles such as sprayed or dipped paint work, impregnated materials and coated fabrics). Information concerning the oven's or furnace's location and construction, heating system, furnace ventilation, safety control, and fire protection equipment or systems shall be furnished with each permit application.

(b) Furnaces consisting of a heated enclosure operating at approximately atmospheric pressure which use special processing atmosphere within the furnace, and vacuum furnaces, shall require approval.

ARTICLE XXVII. PLACES OF ASSEMBLY

Section 27.01 — Definition

“Place of Assembly” shall mean any building designed, constructed, reconstructed, remodeled, altered, used, or intended to be used for fifty or more persons to assemble therein and use the building as a theatre, special hall, dance hall, cabaret, restaurant, night club, lodge hall, skating rink, funeral parlor, broadcasting studio, court room, school or college room or auditorium, passenger transportation waiting room, or place in which alcoholic beverages-are sold or for sale to be consumed on the premises. Included also as a place of assembly shall be any building, room, or space which is designed, intended to be used, or used for public or private occupancy for such purposes as banquets, catering in private premises, feasts, dances, socials; card parties, games of beano, weddings, meetings, religious services, or recreation, including billiards, pool, and table tennis. Not included as a place of assembly are any single- or two-family dwellings, private homes used for funeral services, places of incarceration, or schoolhouses in which not more than fifty persons may assemble in any room, or any convents, monasteries, churches, synagogues, or places used solely for religious worship.

Section 27.02 — Permits Required

- (a) No place of assembly shall be maintained or used without a permit.
- (b) The permit for a place of assembly shall be so posted in a conspicuous place in the location for which it is issued as to be clearly visible.
- (c) The permit shall state the occupancy limit for each room.
- (d) Permits required by Article IX of this Code for flammable decorations and furnishings shall be obtained for use of decorations, furnishings, and interior finishes in all places of assembly. The permits shall be issued for a specific period of time. Approved materials may require re-examination or recertification from time to time.

Section 27.03 — Means of Egress

- (a) Each place of assembly shall be provided with means of egress conforming to Article XI of this Code.
- (b) It shall not be permitted to stand or wait in aisles, passageways, landings, or stairways which are part of a means of egress in a place of assembly.
- (c) Furnishings, including tables and chairs, used in a place of assembly shall not be so placed as to impede access to each means of egress. The Head of the Fire Department shall require that a plan of egress be submitted with the application for a permit for a place of assembly, showing the location of furnishings and aisles. An approved copy of the plan shall be kept on display on the premises.

Section 27.04 — Hazardous Areas

- (a) Rooms in which hazardous equipment, operations, or storage is located, including kitchens and service pantries, shall be separated from rooms which constitute a place of assembly by walls and floor and ceiling assemblies having not less than one-hour, fire resistance rating.
- (b) Openings between rooms or enclosures in which hazardous equipment, operations, or storage are located and other parts of the building shall be protected by approved, self-closing or automatic fire doors, except for the food service openings or doors of kitchens and service pantries.
- (c) Every place of assembly in which is projected motion pictures of 35 millimeter or larger film

shall have a projection booth permanently installed and constructed and used in accordance with applicable law, regulations, ordinances, and approved reference standards for such booths.

Section 27.05 — General Requirements

- (a) Emergency lighting for a place of assembly shall conform to applicable law and approved reference standards. The emergency lighting in all places of assembly, including all means of egress, shall automatically provide the required illumination in the event of any failure of normal lighting.
- (b) In areas of a place of assembly designated as a “Smoking Area” by the Head of the Fire Department, approved ashtrays, or match receivers shall be provided at the location, in the number he may require.
- (c) No open flame for decorative or display purposes shall be permitted, including any open flame which would otherwise be part of a performance in any place of assembly.
- (d) Portable fire extinguishers shall be provided in each place of assembly. Regular employees of the premises or tenants shall be trained in their use as required by the Head of the Fire Department. The number, individual locations, types, and sizes of such extinguishers; and the facilities provided for their maintenance shall be subject to his approval.
- (e) The Head of the Fire Department may assign a paid fire detail to any place of assembly during its occupancy when, in his opinion, such a detail is essential for the public safety to ascertain the placement and working order of portable fire extinguishers or other fire control equipment, to maintain required aisles and means of egress, and to enforce other applicable provisions of this Code.

ARTICLE XXVIII. REQUIREMENTS FOR ALL PREMISES AND WAYS

Section 28.01 — Definitions

- (a) “Fire” shall mean any uncontrolled combustion which endangers people or property.
- (b) “Vehicle” shall include automobiles, motorcycles, trailers, semi- trailers, or vehicle components.
- (c) “Vehicle component” shall include any component which, may be attached to or transported by a vehicle, such as dumpsters, compactors, storage boxes, tanks, containers, kettles, and construction equipment.

Section 28.02 — Reporting Requirements

- (a) Upon any person’s discovery of a fire in a building or premises, or of evidence of fire even though it appears to have been extinguished, he shall immediately notify the Fire Alarm Office of the Boston Fire Department of the location of the discovery and of the circumstances he has observed.
- (b) This section shall not be construed to forbid any person who discovers a fire, or the owner, lessee, person in charge of the building or premises, any occupant, or any of their agents, after notifying the Fire Department, from using all means necessary to extinguish or control the fire prior to the arrival of the Fire Department.
- (c) No person shall require, make, issue, post, or maintain any order, direction, or regulation, written or verbal, that would require or direct anyone to delay reporting a fire to the Fire Department.

(d) Any person who discovers a condition which could result in uncontrolled combustion that endangers a person or property shall immediately notify the Fire Alarm Office of the Boston Fire Department of the location of the condition he has observed. Such notification shall include apparent abnormal heating of any merchandise, commodity, cargo, or other material in any building, vehicle, floating craft, aircraft, appliance, apparatus, tank, pile, or accumulation of material. Such notification shall also include any juxtaposition of materials which are inherently dangerous because of amount or configuration, and any uncontrolled leak or spill of combustible, explosive, reactive, or toxic material.

Section 28.03 — Reasonable Precautions

(a) No person shall use a flame, torch, or heat source of any kind or ignite any combustible material unless he has taken reasonable precautions to prevent ignition of materials not intended to be burned. Such use shall not unreasonably endanger the person or property of another.

(b) No person who owns, has charge of, or controls any device, appliance, apparatus, equipment, tank, vehicle, ship, vessel, structure, building, business, premises, or other place or thing shall permit it to be in condition that could result in uncontrolled combustion that could endanger people or property.

Section 28.04 — Safeguards for Firefighting

(a) Owners of buildings shall be responsible for placing and maintaining approved safeguards, where necessary for the protection of the. Fire Department personnel in their operations in the event of fire, about or over roof skylights and about outer and inner courts or shafts at the roof line of any building.

(b) Every outside window in a building which opens directly into any hoistway or other vertical means of access between two floors, other than a stairway, shall be plainly marked with the word "SHAFTWAY" in red letters at least 6 inches high on a white background. Such warning shall be so placed as to be easily discernible from the outside of the building. Every door or window opening into such shaftway from the interior of the building shall be similarly marked with the warning word "SHAFTWAY," so placed as to be easily visible to anyone approaching the shaftway from the interior of the building, unless the construction of the partition surrounding the shaftway is of such distinctive nature as to make the purpose of the shaft evident at a glance.

Section 28.05 — Aisles In Storage Rooms

(a) Any building used for storage shall have aisles of approved width to permit removal or transfer of stored materials.

(b) Approved aisles leading to outside windows shall be provided. Every such window shall be plainly marked with a white cross visible from the outside to indicate the presence of an aisle for access by Fire Department personnel in the event of fire.

Section 28.06 — Obstructions In Premises or Public or Private Ways

No person shall maintain an obstruction on any premises, public or private, including ways, private alleys, yards, and driveways adjacent thereto, which in the opinion of the Head of the Fire Department, would be hazardous to public safety prior to a fire or emergency; would interfere with egress of the occupants of a building or with the movement of persons away from any location during a fire or emergency or threat of a fire or emergency; would interfere with the access of emergency personnel to the fire or emergency; or would delay prompt response or

effective operation of Fire Department personnel at a fire or emergency. Material in any form — solid, liquid, or gas — which is toxic or otherwise hazardous to persons, or such material which is or may become flammable, combustible, explosive, or reactive and which could increase the intensity or spread of a fire, shall be considered an obstruction as an object itself or as the contents of a container. Fences, barriers, posts, poles, barrels, and other articles, or equipment shall be considered an obstruction. Any vehicle which has been left unattended or abandoned, or which has been deposited, parked, or placed to be used as a storage facility shall be considered an obstruction. Wherever the Head of the Fire Department determines that any material, vehicle, or object is such an obstruction, he shall order the person responsible to remove it from the location at which it constitutes an obstruction with no more delay than the head of the Fire Department may specify in the interest of public safety. If a responsible person cannot be reached on whom to serve such an order, or if the responsible person fails to comply with the order after due notice, the Head of the Fire Department shall notify the Boston Police Department to take whatever immediate action may be necessary to obtain compliance with the order.

ARTICLE XXIX. RUBBISH HANDLING

Section 29.01 — Definitions

- (a) “Rubbish” shall mean any fragmented combustible material, regardless of value, and any combustible waste material, including floor sweepings, paper, packing, upholstery materials, cardboard, shavings, wood scrap, furniture, equipment which is kept, handled, or stored for repair, hay, straw, grass, combustible fiber materials, clothing, bed clothing, furnishings which are kept, handled, or stored for cleaning, garbage consisting of animal and vegetable wastes, human and animal remains consisting of carcasses, organs, and organic wastes, by-product waste from industrial operations, mixtures of any of these, or similar combustible materials in any proportions.
- (b) A “rubbish room” shall mean a room separated from the remainder of the building by a fire separation having at least a two-hour fire resistive rating, where such a room is used for storing, containing, or compacting rubbish prior to its removal from the building.
- (c) A “refuse vault” shall mean a room separated from the remainder of the building by a fire separation having at least a three-hour fire resistive rating, where such a room is used for storing rubbish that has been conveyed to it by a rubbish chute, pneumatic conveying system, or other conveyor prior to the rubbish’s incineration, compaction, or containment and removal from the building.

Section 29.02 — Permits Required

- (a) The owner or lessee of any premises shall obtain a permit if, for a period exceeding twenty-four hours, he keeps, stores, or handles combustible rubbish on the premises in an amount exceeding 3 cubic yards. In determining if the amount exceeds 3 cubic yards, the rubbish shall be measured in uncompacted form.
- (b) Permits for approved metal rubbish containers which can be moved only with mechanical assistance shall state the locations at which the permits may be exercised and shall require that the containers be identified and marked.
- (c) The owner of any container that requires mechanical assistance to move it and which is used

for keeping, handling, or storing combustible rubbish, shall obtain a permit to place the container in locations other than the premises or vehicles owned or under the control of the container's owner.

Section 29.03 — Special Hazard Rubbish

(a) 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. Such substances shall not be mixed with combustible rubbish or stored in the same containers. Such substances shall be kept, handled, or stored inside buildings only in noncombustible receptacles approved for the purpose and at approved locations. Such substances shall be kept, handled, or stored outside of buildings at approved locations so that the substances cannot ignite buildings on the premises or on adjacent premises and will not endanger people.

(b) Substances subject to spontaneous heating or igniting, 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. Such substances shall not be mixed with combustible rubbish or stored in the same containers. Such substances shall be kept in approved receptacles when not in use. They shall be handled or stored only in approved receptacles at approved locations, indoors or outdoors.

(c) Materials such as those compounded with hazardous chemicals which tend to be reactive with other materials shall not be mixed with combustible rubbish or kept, handled, or stored in the same containers. Such materials shall be kept or stored in approved receptacles only.

Section 29.04 — Containers and Compactors

(a) Loose combustible rubbish or rubbish in combustible containers shall not be kept, handled, or stored in any building for more than twenty-four hours except in a rubbish storage room conforming to the requirements of this article. Loose combustible rubbish or rubbish in combustible containers may be kept, handled, or stored on premises outside of buildings, but only at approved locations in approved metal rubbish containers. Otherwise, loose combustible rubbish or rubbish in combustible containers may be kept, handled, or stored outside of buildings only on premises which conform to Article III.

(b) Approved metal rubbish containers when are small enough to be moved by one man shall have a removable cover which shall be kept in place unless .the container is being filled or emptied.

(c) Approved metal rubbish containers, including those which are part of a compactor unit, and which require mechanical assistance to be moved, shall be provided with approved means of access to their interior. They shall have an approved Fire Department connection through which water may be introduced, in an approved manner, for extinguishing fire. Containers which are not part of a compactor unit shall not be required to have additional openings or hose connections for fire extinguishment, if they are provided with a cover to make the contents accessible during firefighting operations. The cover of such a container shall remain closed except when the container is being filled or emptied.

(d) Such containers shall not be so placed at any location as to become an obstacle to the egress of persons from buildings or to vehicular traffic or as to obstruct operations of Fire Department personnel during a fire or other emergency.

(e) The required marking of containers shall include the name, address, and telephone number of

the owner, or of an agent acting for the owner, including a telephone number from which emergency service to expedite movement of the container can be obtained.

Section 29.05 — Fire Protection Compactors

(a) All compactor containers that are located outside of a building in a location which, under fire conditions, could create a hazard to the occupants or the building, that are of such size that mechanical assistance is necessary to move them, or that are located within buildings, shall be located in automatic sprinkler areas. The compactor hopper of such units shall be protected by automatic sprinklers, approved for the purpose, unless the sprinkler system protecting the area has been designed to provide protection for the compactor hopper.

(b) All compactor container units which can be moved in and about buildings without mechanical assistance shall have fire extinguishers attached to them in the numbers, types, and sizes required by the Head of the Fire Department.

(c) All compactor container units which can be moved without mechanical assistance shall, at the end of each rubbish collection cycle, be emptied, secured, and properly stored as required by the Head of the Fire Department.

Section 29.06 — Rubbish Storage Rooms and Vaults

(a) All openings in rubbish rooms or refuse vaults shall be protected by approved, automatic self-closing fire doors. These doors may not open into approved paths of egress.

(b) Rooms used as rubbish rooms or refuse vaults shall be of sufficient size to contain all the rubbish or refuse which may accumulate between normal intervals of removal.

(c) A room of a building or structure shall comply with the requirements for a rubbish storage room if it is used for keeping, handling, or storing rubbish, loose, compacted, baled, or in combustible containers, in an amount exceeding 3 cubic yards for more than twenty- four hours. In determining if the amount of rubbish exceeds 3 cubic yards, it shall be measured in uncompacted form.

(d) Boilers and furnaces for the central heating of buildings shall not be located in rubbish storage rooms or refuse vaults.

(e) A refuse vault shall not be used for the collector equipment of duct or conveying systems for combustible material unless the systems conform to approved reference standards, the refuse vault is approved for such use, and the refuse vault is constructed in compliance with applicable law and approved reference standards.

(f) Rubbish storage rooms and refuse vaults as defined in this section shall be protected by an approved system of automatic sprinklers.

(g) The walls and floor and ceiling assemblies of rubbish storage rooms and refuse vaults shall be of noncombustible construction with a fire resistance rating equal to the fire separation requirement of this section.

(h) A door into openings between a rubbish storage room or refuse vault and a separate incinerator room need not be self-closing if arranged for approved automatic closing in case of fire.

(i) Refuse storage rooms and refuse vaults shall be provided with an approved air supply and exhaust. Ducts extending from refuse storage rooms or vaults shall be constructed and protected in accordance with approved reference standards.

(j) Rubbish storage rooms and refuse vaults shall be provided with a water supply, approved hose and nozzle, and approved clog-free drains.

Section 29.07 — Rubbish Chutes

- (a) Rubbish chutes shall comply with approved reference standards except as modified by this section.
- (b) Rubbish chutes may discharge outside a building if allowed under a permit issued for the construction, repair, or alteration of a building at a site authorized under Article VII of this Code. All other rubbish chutes shall discharge into inside rubbish storage rooms only. The outlet of the chute shall be equipped with a self-closing steel door held open by a fusible link or other approved closing device. Rubbish chutes shall not discharge into incinerator rooms, but equipment for automatically stoking or feeding an incinerator may be employed, if approved.
- (c) The interior of chutes shall be protected by an approved system of automatic sprinklers, with sprinklers at the top of the chute and at alternate floor levels in vertical sections of the chute at the charging opening. The installation of sprinklers at floor levels shall be arranged to protect the sprinklers from mechanical injury due to falling materials and shall not cause obstruction within the chute.
- (d) The inside dimensions of the enclosure shall be sufficient to permit access for inspection and to provide space for workmen to repair the rubbish chute. Fire doors for such access shall be provided on alternate floors in vertical enclosures and at not greater than 30-foot intervals in other enclosures.
- (e) Service openings into rubbish chutes be provided with self-closing, self-latching, doors of approved type. Doors shall be firmly secured and the design and installation shall be such that no part of the frame or door project into the chute. The opening to the chute interior will be closed while the service door is fully opened.
- (f) Each service opening door shall be located in a room, compartment or area which is not part of an exit and which is cut off from the rest of the building by walls and floor-ceiling assemblies having a fire resistance of not less than one hour. Doors or other openings into such rooms, compartments, or other areas, which communicate with other areas of the building, shall be protected by approved, self-closing fire doors.
- (g) Instructions describing the size and type of waste which may be deposited in the chute shall be posted at each service opening.

ARTICLE XXX SMOKING

Section 30.01 — Scope

This article regulates smoking in theatres, public halls, special halls, miscellaneous halls, places of assembly, public buildings, schools, colleges, universities, factories, workshops mercantile establishments, wharves, docks, warehouses, and passenger and freight elevators.

Section 30.02 — Definition

“Smoking” shall mean possessing a lighted cigarette, cigar, pipe, or other smoking articles.

Section 30.03 — Prohibition or Conditions for Smoking

(a) Smoking shall be prohibited in factories, workshops, mercantile establishments, or warehouses where the material being handled in and about the structure may readily be ignited by smoking materials or where such structures are of a combustible construction, and where either or both of these conditions may, in the opinion of the Head of the Fire Department,

constitute a fire hazard. However, smoking may be permitted in a room, area, or space designated for such use when approved by the Head of the Fire Department.

(b) Smoking shall be prohibited in every theatre, public hall, special hall, or miscellaneous hall, except that smoking may be permitted in a public hall or a special hall when they are not used as an auditorium requiring fixed seats and aisles. These occupancies may be provided with a room or space designated and approved by the Head of the Fire Department as a “Smoking Area.”

(c) Smoking shall be prohibited in schools, colleges, and universities, including buildings used for dormitory purposes, public buildings, and institutions, except that smoking shall be permitted in areas or rooms designated and approved by the Head of the Fire Department.

(d) Smoking shall be prohibited on all docks, wharves, and waterfront areas. However, smoking may be permitted in smoking areas so designated and approved by the Head of the Fire Department.

(e) Smoking shall be prohibited or regulated in places of assembly.

Section 30.04 — Fire Protection Requirements

Each room, area, or space designated for smoking shall be provided with one or more buckets of sand or other suitable receptacles for disposing of smoking articles. An approved number of fire extinguishers shall be provided. Such fire extinguishers or other safety appliances shall be at approved locations and shall be provided in such sizes, types, and numbers as may be required by the Head of the Fire Department.

Section 30.05 — Signs

(a) Durable red and white signs with the words “NO SMOKING” in letters at least 3-inches high shall be conspicuously posted in and around no-smoking areas.

(b) Durable green and white signs with the words, “SMOKING AREA,” in letters at least 3-inches high, shall be posted conspicuously in and around the designated smoking areas.

Section 30.06 — Elevators

No person shall smoke or carry a lighted cigarette, cigar, or pipe in any passenger or freight elevator. Durable signs with the words, “NO SMOKING IN ELEVATOR,” in letters at least 3-inches high shall be posted conspicuously in full view of persons entering elevators. Suitable receptacles filled with sand shall be kept at entrances to elevators at each floor for disposing of smoking articles.

ARTICLE XXXL TENTS, AIR-SUPPORTED STRUCTURES, AND GRANDSTANDS

Section 31.01 — Scope

This article covers the location, construction, protection, and maintenance of tents, air-supported structures, and grandstands, whether temporary, portable, or permanent, to the extent that these or other factors affect the hazards of fire, storm, or collapse in any use of such facilities.

Section 31.02 — Definitions

(a) “Tents” shall mean shelters more than 400 square-feet in area, the covering of which is made of a pliable material which depends on mechanical support including beams, columns, poles,

arches, ropes, or cables. The term “tent” shall include tarpaulins or other coverings of fabric or film if used to cover more than 400 square feet.

(b) “Air-supported structure” shall mean a shelter or structural element consisting of skin diaphragms which are made of pliable materials, which achieves its structural shape, function, and basic support from a blower system that creates internal pressure within the shelter or structural element.

(c) “Grandstand” means any structure primarily intended to support people for purposes of assembly. The term shall not include permanent seating in theatres, churches, auditoriums, and similar buildings, or movable seats, chairs, sectional benches, or folding and telescoping seating.

Section 31.03 — License or Permit Required

(a) No tent, air-supported structure, or grandstand shall be erected or maintained except under the terms and conditions of a license issued by the Licensing Division of the Mayor’s Office and a permit issued by the Head of the Fire Department.

(b) This license or permit shall define the site to which it applies, with respect to the location of property lines of public and private ways and intended use of occupancy.

(c) This article shall govern all licenses and permits issued for the conduct of circuses, fairs, bazaars, carnivals, or similar entertainments, and other gatherings held in or near tents or air-supported structures. It shall govern all licenses or permits issued for the use of grandstands, reviewing stands, and other similar structures which must be approved.

(d) The application for a license or permit shall include all data necessary to assess the terms and conditions necessary at the specified site in order to provide for emergency contingencies as defined in section 31.01.

Section 31.04 — Location

(a) The locations of tents, air-supported structures, and grandstands shall comply with applicable law, ordinances, and approved reference standards.

(b) Tents, air-supported structures, and grandstands shall be placed only at locations which have at least two unrestricted means of access from public ways for firefighting and rescue operations. Such ways shall be remote from each other. Fencing shall be considered a restriction to access.

(c) Tents, air-supported structures, and grandstands shall be placed only at approved locations which have been cleared of dry or fire hazardous vegetation or other combustible material during periods when the facility is located on the site, as approved by the Head of the Fire Department or another authorized member.

Section 31.05 — Construction

(a) The design and construction of tents, air-supported structures, and grandstands shall comply with applicable law, ordinances, and approved reference standards.

(b) The pliable materials of which tents and air-supported structures are composed shall meet the classification test prescribed in Article IX. They must be classified as acceptable by the Chemist of the Fire Prevention Division for use in the construction of tents and air-supported structures. The Chemist shall require, for materials which depend on a fire-retardant treatment to meet this test, satisfactory evidence that the service life of the fire-retardant treatment exceeds that of the planned service life of the material.

(c) The design, installation, maintenance, and operation of the system provided for inflating the

shelter or the structural elements of which an air-supported structure is composed shall comply with applicable law, regulations, ordinances, and approved reference standards.

Section 31.06 — Means of Egress

- (a) Grandstands shall be provided with means of egress as required by applicable law, ordinances, and approved reference standards.
- (b) Tents and air-supported structures used as places of assembly shall be provided with means of egress as required for buildings by Articles XI and XXVII of this Code. The provisions of these articles for marking exits, means of egress, and emergency lighting shall be observed when tents and air-supported structures are used as places of assembly.
- (c) Exit doors in air-supported structures shall swing in the direction of exit travel. Such doors shall be self-closing against normal operating pressures. The opening force at the door edge for such exit doors shall not exceed 15 pounds regardless of the structure's operational pressure.
- (d) There shall be space for exit paths from tents and air-supported structures to public ways or approved open areas. Such spaces shall provide at least 10 feet between tents and air-supported structures or between such facilities and buildings or fences. The spaces shall be unobstructed by the guy ropes of tents or other objects.

Section 31.07 — Hazardous Materials

- (a) The storage, handling, or use of hazardous materials of any sort in tents, air-supported structures, and grandstands shall comply with the Code.
- (b) Approval shall be required for the storage, handling, and use of hay, straw, shavings, or similar quick-burning materials in such facilities.

Section 31.08 — Fire Protection

- (a) Portable fire extinguishers shall be provided in tents, air-supported structures, and grandstands in approved numbers, types, sizes, and locations.
- (b) The Head of the Fire Department may direct the holder of a license or permit for a site involving tents, air-supported structures, or grandstands to maintain a paid fire detail when, in his judgement, such a detail is necessary for public safety.

SECTION 3. Notwithstanding the provisions of section 752 of Title 2 of the City of Boston Code, Ordinances, this ordinance shall be published by the action of the City Council in passing the same and the publication once a week for three weeks successively in two daily newspapers published in this city of the following notice: "The City of Boston Fire Code has been revised. For information about the new rules and regulations contained therein, consult the Fire Department or the City Clerk."

SECTION 4. That all the organizations mentioned heretofore: the Greater Boston Building Trades Council, AFL-CIO; the Boston Society of Architects; the Greater Boston Chamber of Commerce; the Retail Trade Association of Boston; the Associated General Contractors of Massachusetts; the Massachusetts Society of Civil Engineers; the Central Labor Council of Boston; and any other organized group that will be affected by the enforcement of this ordinance be so notified by the City Clerk forthwith.

In City Council July 18, 1979. Passed — yeas nine.

The foregoing, having been presented to the Mayor on the twentieth day of July, 1979, and within fifteen days after such presentation having been neither signed by him nor returned by him with his objections thereto in writing, is deemed in force under St. 1948, s. 17D, as appearing in St. 1951, c. 376, § 1, not later than August 7, 1979. See CBC Title 2, s. 362.

Attest:

City Clerk.

ARTICLE XXXII BLASTING

Section 32.01 PURPOSE

All blasting within the Corporate Limits of the City of Boston shall comply with the requirements of 527 CMR, Board of Fire Prevention, Chapter 13.00, Explosives and Application Sections of the Massachusetts General Laws, Chapter 148. In addition, blasting shall comply with the following general and specific requirements and standards for the protection of people and property, land, and other natural resources. Unless otherwise provided for in this regulation, the provisions of 527CMR 13.00 are applicable and must be complied with at all times.

Section 32.02 DEFINITIONS

If any of the following definitions are inconsistent with definitions that appear in 527CMR 13.00, the definition in 527CMR 13.00 is the definition that governs.

AIBLAST The airborne shock wave or acoustic transient generated by an explosion.

“ALWAYS AND NEVER” List of precautions (IME Safety library Publication No. 4) printed by the Institute of Makers of Explosives pertaining to the transportation, storage, handling and use of explosive materials. Formerly titled 'DO'S AND DON'TS'.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) A non-governmental organization concerned with developing safety and health standards for industry.

AMERICAN TABLE OF DISTANCES A quantity-distance table, prepared and approved by IME, for storage of explosive materials to determine safe distances from inhabited buildings, public highways, passenger railways, and other stored explosive materials.

AMMONIUM NITRATE The ammonium salt of nitric acid represented by the formula NH_4NO_3 .

AMPERE A unit of electrical current produced by 1 volt acting through a resistance of 1 ohm.

ANFO A blasting agent (1.5D) containing no essential ingredients other than prilled ammonium nitrate and fuel oil.

ANSI See AMERICAN NATIONAL STANDARDS INSTITUTE.

APPROPRIATE AUTHORITY See COMPETENT AUTHORITY

APPROVED, APPROVAL, OR AUTHORIZED Terms which means APPROVED, APPROVAL, or by the authority having jurisdiction.

ARTIFICIAL BARRICADE An artificial mound or revetted wall of earth of a minimum thickness of three feet

ATF See BUREAU OF ALCOHOL, TOBACCO, AND FIREARMS.

AUTHORIZED PERSON An individual approved or assigned by management to perform a specific duty or duties or to be at a specific location or locations.

AUTHORITY HAVING JURISDICTION The governmental agency, office, or individual responsible for approving equipment, an installation, or a procedure.

AVAILABLE ENERGY The energy from an explosive material that is capable of performing useful work.

BACKBREAK Rock broken beyond the limits of the last row of holes in a blast, synonymous with **OVERBREAK**.

BARRICADED The effective screening of a building containing explosive materials from a magazine or other building, railway, or highway by a natural or an artificial barrier. A straight line from the top of any sidewall of the building containing explosive materials to the eave line of any magazine or other building or to a point twelve feet above the center of a railway or highway shall pass through such barrier.

BARRIER A material object or objects that separates, keeps apart, or demarcates in a conspicuous manner such as cones, a warning sign, or tape.

BASE CHARGE The main explosive charge in the base of a detonator.

BINARY EXPLOSIVE (see Phosphoric Materials)

BATF See BUREAU OF ALCOHOL, TOBACCO, AND FIREARMS.

BENCH A horizontal ledge from which holes are drilled vertically down into the material to be blasted; benching is a process of excavating where a highwall is worked in steps or lifts.

BENCH HEIGHT The vertical distance from the top of a bench to the floor or to the top of the next lower bench.

BLACK POWDER A deflagrating or low explosive compound of an intimate mixture of sulfur, charcoal, and an alkali nitrate, usually potassium or sodium nitrate.

BLAST, (BLASTING) The firing of explosive materials for such purposes as breaking rock or other material, moving material, or generating seismic waves.

BLAST AREA The area including the blast site and the immediate adjacent area within the influence of flying rock missiles, gases, and concussion. (**)

BLASTHOLE See DRILL HOLE and BOREHOLE.

BLAST PATTERN The plan of the drill holes as laid out for blasting; an expression of the burden distance and the spacing distance and their relationship to each other. Synonymous with DRILL PATTERN.

BLAST SITE The area in which explosive materials are being or have been loaded and which includes all holes loaded or to be loaded for the same blast and for a distance of 50 feet in all directions. (**)

BLASTER A person who holds a valid Certificate of Competency issued by the State Fire Marshal and qualified to be in charge of and responsible for the design, loading, and firing of a blast. A blaster is recognized in his field as an explosives craftsman. (**)

BLASTING ACCESSORIES Non-explosive devices and materials used in blasting, such as, but not limited to, cap crimpers, tamping bags, blasting machines, blasting galvanometers, and cartridge punches.

BLASTING AGENT An explosive material which meets prescribed criteria for insensitivity to initiation.

For storage, Title 27, Code of Federal Regulations, Section 5511 defines a blasting agent as any material or mixture, consisting of fuel and oxidizer intended for blasting, not otherwise defined as an explosive: provided, that the finished product, as mixed for use or shipment, cannot be detonated by means of a No. 8 test blasting cap (detonator) when unconfined (Bureau of Alcohol, Tobacco and Firearms Regulation).

For transportation, Title 49 CFR, Section II 73.50, defines Class 1, Division 1. 5 (blasting agent) as a substance which has mass explosion hazard but is so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions in transport.

BLASTING CAP See DETONATOR.

BLASTING CREW A group of persons who assist the blaster in loading, tying in, and firing a blast.

BLASTING GALVANOMETER An electrical resistance instrument designed specifically for testing electric detonators and circuits containing them. It is used to check electrical continuity. Other acceptable instruments for this purpose are Blasting Ohmmeters and Blasters' Multi-meters.

BLASTING LOG A written record of information about a specific blast as may be required by law or regulation.

BLASTING MACHINE An electrical or electromechanical device which provides electrical energy for the purpose of energizing detonators in an electric blasting circuit. Also used in reference to certain non-electric systems (Sometimes called exploder or battery).

BLASTING MAT A mat of woven steel wire, rope, scrap tires, or other suitable material or construction to cover blastholes for the purpose of preventing flying rock missiles.

BLASTING VIBRATIONS The energy from a blast that manifests itself in vibrations which are transmitted through the earth away from the immediate blast area.

BOOSTER An explosive charge, usually of high detonation velocity and detonation pressure, designed to be used in the explosive initiation sequence between an initiator or primer and the main charge.

BOREHOLE A hole drilled in the material to be blasted, for the purpose of containing an explosive charge, also called **BLASTHOLE** or **DRILL HOLE**.

BREAKAGE A term used to describe the site distribution of the rock fragments created by a blast.

BRIDGEWIRE A resistance wire connecting the ends of the leg wires inside an electric detonator and which is embedded in the ignition charge of the detonator.

BULK STRENGTH The strength per unit volume of an explosive calculated from its weight strength and density.

BURDEN The distance from the borehole and the nearest free face or the distance between boreholes measured perpendicular to the spacing. Also the total amount of material to be blasted by a given hole, usually measured in cubic yards or tons.

BUREAU OF ALCOHOL, TOBACCO, AND FIREARMS A bureau of the Department of Treasury having responsibility for the promulgation and enforcement of regulations related to the unlawful use of explosive materials under 18 U.S.C. Chapter 40, (BATF)Section 847.

BUREAU OF MINES See U.S. BUREAU OFMINES.

CAP-SENSITIVE EXPLOSIVE MATERIAL An explosive material which will detonate with an IME No. 8 TEST DETONATOR when the material is unconfined.

CAPACITOR DISCHARGE BLASTING MACHINE A blasting machine in which electrical energy, stored on a capacitor, is discharged into a blasting circuit containing electric detonators

CARTRIDGE An individual closed shell, bag, or tube of circular cross section containing explosive material.

CARTRIDGE COUNT (STICK COUNT) The number of cartridges in a case. A standard case typically contains about 50 pounds of explosive material. Unless otherwise specified it refers to the number of 1 1/4 x 8inchcartridges in a 50 lb. case.

CARTRIDGE STRENGTH Synonymous with **BULK STRENGTH**.

CFR See **CODE OF FEDERAL REGULATIONS**.

CIRCUIT A completed path for conveying electrical current. See **SERIES BLASTING**

CIRCUIT, PARALLEL BLASTING CIRCUIT, and SERIES-IN-PARALLEL BLASTING CIRCUIT (Some non-electric systems also use the word circuit.)

CLASS A EXPLOSIVES A term formerly used by the U.S. Department of Transportation to describe explosives which possess detonating or otherwise maximum hazard (Currently classified as Division 1.1 or 1.2 materials).

CLASS B EXPLOSIVES A term formerly used by the U.S. Department of Transportation to describe explosives which possess flammable hazard. (Currently classified as Division 1.3 materials.)

CLASS C EXPLOSIVES A term formerly used by the U.S. Department of Transportation to describe explosives which contain Class A or Class B explosives, or both as components but in restricted quantities. (Currently classified Division 1.4 materials.)

CODE OF FEDERAL REGULATIONS A codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the Federal Government. The Code is divided into 50 titles which represent broad areas subject to Federal regulation.

COLLAR The mouth or opening of a borehole or shaft.

COLUMN CHARGE A charge of explosives in a blasthole in the form of a long continuous unbroken column.

COLUMN DEPTH/COLUMN HEIGHT The length of each portion of a blasthole filled with explosive materials.

COMPETENT AUTHORITY A national agency responsible under its national law for the control or regulation of a particular aspect of the transportation of hazardous materials. Also referred to as **APPROPRIATE AUTHORITY** (Ref. 49 CFR).

CONFINED DETONATION VELOCITY The detonation velocity of an explosive material in a substantial container or a borehole.

CONNECTING WIRE Wire used to extend the firing line or leg wires in an electric blasting circuit.

CONTINUITY CHECK (CIRCUIT CONTINUITY CHECK) A determination made by instrumentation where possible, and visually in all cases, to show that an initiation system is continuous and contains no breaks or improper connections that could cause stoppage or failure of the initiation process.

COUPLING T he degree to which an explosive fills the cross-section of a borehole: bulk loaded explosives are completely coupled: untamped cartridges are decoupled.

CRITICAL DIAMETER The minimum diameter for propagation of a detonation wave at a stable velocity. Critical diameter is affected by conditions of confinement, temperature and pressure on the explosive.

CURRENT LEAKAGE Portion of the firing current bypassing part of the blasting circuit through unintended paths.

CURRENT LIMITING DEVICE An electric or electromechanical device that limits (1) current amplitude; (2) duration of current flow; or (3) total energy of the current delivered to an electric blasting circuit.

CUSHION BLASTING A blasting technique used to produce competent slopes or smooth walls. The cushion holes, fired after the main charge, have a reduced spacing and employ decoupled charges.

CUTOFF A break in a path of detonation or initiation caused by extraneous interference, such as flyrock or shifting ground.

DATE-SHOT CODE A code, required by Federal regulation (BATF), applied by manufacturers to the outside shipping containers, and, in many instances, to the immediate containers of explosive materials to aid in their identification and tracing.

DAUTRICHE METHOD-DETONATION VEILOCITY A method of determining the detonation velocity of an explosive material by employing detonating cord and a witness plate.

DC Direct current.

DECIBEL A unit of air overpressure commonly used to measure airblast.

DECK LOADING (DECKING) A method of loading blastholes in which the explosive charges called decks or deck charges, in the same hole are separated by stemming or an air cushion.

DECK A n explosive charge that is separated from other charges in the blasthole by stemming or an air cushion.

DECOUPUNG The use of cartridged explosive products significantly smaller in diameter than the diameter of the blasthole. Decoupling or the use of decoupling charges is designed to reduce the charge concentration in the blasthole and minimize stresses exerted on the walls of the blasthole.

DEFLAGRATION An explosive reaction such as a rapid combustion that moves through an explosive material at a velocity less than the speed of sound in the material.

DELAY A distinct pause of predetermined time between detonation or initiation impulses, to permit the firing of explosive charges separately.

DELAY BLASTING The practice of initiating individual explosive decks, boreholes or rows of boreholes at predetermined time intervals using delay detonators, or other delaying means, as compared to instantaneous blasting where all holes are fired essentially at the same time.

DELAY DETONATOR An electric or non-electric detonator used to introduce a predetermined lapse of time between the application of a firing signal and the detonation of the base charge.

DELAY ELEMENT The device in a delay detonator that produces the predetermined time lapse between the application of a firing signal and detonation.

DELAY INTERVAL The nominal time between the detonation of delay detonators of adjacent periods in a delay series; the nominal time between successive detonations in a blast.

DELAY PERIOD A designation given to a delay detonator to show its relative or absolute delay time in a given series.

DELAY SERIES A series of delay detonators designed to satisfy specific blasting requirements. There are basically two types of delay series: millisecond (MS) or short period (SP) with delay intervals on the order of milliseconds and long period (LP) with delay time on the order of seconds.

DELAY TAG A tag, band, or marker on a delay detonator that denotes the delay series, delay period and/or delay time of the detonator.

DELAY TIME The lapse of time between the application of a firing signal and the detonation of the base charge of a delay detonator.

DENSITY The mass of an explosive per unit of volume, usually expressed in grams per cubic centimeter or pounds per cubic foot (also see **SPECIFIC GRAVITY**).

DEPARTMENT OF TRANSPORTATION (DOT) A cabinet level agency of the Federal Government. It has the responsibility for the comprehensive regulation of transportation safety and issues regulations governing interstate shipments of explosives and other hazardous materials.

DETONATING CORD A flexible cord containing a center core of high explosive which may be used to initiate other high explosives.

DETONATING CORD DOWNLINE The section of detonating cord that extends within the blast hole from the ground surface down to the explosive charge.

DETONATING CORD MS CONNECTORS Nonelectric short-interval (millisecond) delay devices for use in delaying blasts which are initiated by detonating cord.

DETONATING CORD TRUNKLINE The line of detonating cord that is used to connect and initiate other lines of detonating cord.

DETONATION An explosive reaction that moves through an explosive material at a velocity greater than the speed of sound in the material.

DETONATION PRESSURE The pressure produced in the reaction zone of a detonating explosive.

DETONATION VELOCITY The velocity at which a detonation progresses through an explosive.

DETONATOR Any device containing an initiating or primary explosive that is used for initiating detonation in another explosive material. A detonator may not contain more than 10 grams of total explosives by weight, excluding ignition or delay charges. The term includes, but is not limited to, electric blasting caps of instantaneous and delay types, blasting caps for use with safety fuse, detonating cord delay connectors, and nonelectric instantaneous and delay blasting caps which use detonating cord, shock tube, or any other replacement for electric leg wires. Unless specifically classified otherwise, detonators are classified 1. I (Class A explosives). Also see **DETONATORS 1.4 (CLASS C EXPLOSIVES)**.

DETONATORS 1.4 (CLASS C EXPLOSIVES) Initiating devices which will not mass explode when packaged for shipment (See **MASS EXPLODE**).

DIAMETER The cross-sectional width of a borehole or an explosive cartridge.

DITCH BLASTING The formation of a ditch by the detonation of a series of explosive charges.

DITCHING DYNAMITE A nitroglycerin type explosive especially designed to propagate sympathetically from hole to hole in ditch blasting.

DO'S AND DON'T'S Former name of a list of precautions (IME Safety Library Publication No. 4) printed by the Institute of Makers of Explosives pertaining to the transportation, storage, handling, and use of explosive materials and included in cases of explosive materials. Recently renamed, 'ALWAYS AND NEVER'.

DOT See DEPARTMENT OF TRANSPORTATION.

DOWNLINE A line of detonating cord or plastic tubing in a blasthole which transmits the detonation from the trunkline or surface delay system down the hole to the primer.

DRILL HOLE A hole drilled in the material to be blasted for the purpose of containing an explosive charge, also called **BLASTHOLE** or **BOREHOLE**.

DRILLING PATTERN The location of blastholes in relationship to each other and the free face.

DYNAMITE A high explosive used for blasting, consisting essentially of a mixture of, but not limited to nitroglycerin, nitrocellulose, ammonium nitrate, sodium nitrate, and carbonaceous materials.

ELECTRIC BLASTING CIRCUIT An electric circuit containing electric detonators and associated wiring. Also see **PARALLEL, SERIES, AND SERIESINPARALLEL BIASNNGCIRCUITS**.

ELECTRIC DETONATOR A detonator designed for, and capable of, initiation by means of an electric current.

ELECTRICAL STORM An atmospheric disturbance characterized by intense electrical activity producing lightning strokes and strong electric and magnetic fields. Synonymous with **THUNDERSTORM** and **LIGHTNING STORM**.

EMERGENCY PROCEDURE CARD Instructions carried on a vehicle transporting explosive materials and giving specific procedures in case of emergency.

EMULSION An explosive material containing substantial amounts of oxidizer dissolved in water droplets, surrounded by an immiscible fuel, or droplets of an immiscible fuel surrounded by water containing substantial amounts of oxidizer.

ENERGY A measure of the potential for an explosive to do work.

EXPLODE To react chemically in a rapid manner to produce heat and pressure. The term encompasses both deflagration and detonation.

EXPLOSION A chemical reaction involving an extremely rapid expansion of gases usually associated with the liberation of heat.

EXPLOSIVE Any chemical compound, mixture or device, the primary or common purpose of which is to function by explosion, i.e., with substantially instantaneous release of gas and heat. In 527 CMR 13.00, explosives shall be a Class I Explosives Materials. Class I Explosives Materials shall be divided into six divisions, the divisions being characteristic of the properties and hazards of the particular explosives materials. The Divisions of Class I Explosives Materials shall be:

Division 1.1: explosives that have a mass explosion hazard. (formerly Class A explosives).

Division 1.2: explosives that have a projection hazard but not a mass explosion hazard. A high explosive. (formerly class A or class B explosives).

Division 1.3: explosives that have a fire hazard and either a minor blast hazard or a minor projection hazard, or both, but not a mass explosion hazard. A low explosive. (formerly class B explosives).

Division 1.4: explosives that present a minor explosion hazard. An external fire must not cause virtual instantaneous explosion of almost the entire contents of the package. No device may contain more than 25 g (0.9 oz) of a detonating material. A low explosive. (formerly a class C explosive).

Division 1.5: very insensitive explosive materials that have a mass explosion hazard but are so insensitive that there is little or no probability of initiation or of transition from burning to detonation under normal conditions of transport. (formerly a blasting agent).

Division 1.6: extremely insensitive articles that do not have a mass explosion hazard, and articles that demonstrate a negligible probability of accidental initiation or propagation. (no applicable hazard class). (**)

EXPLOSIVE-ACTUATED DEVICE Any tool or special mechanized device which is actuated by explosives. The term does not include propellant-actuated devices. (Also see PROPELLANT-ACTUATED POWER DEVICE.) Examples of explosive-actuated devices are jet tappers and jet perforators.

EXPLOSIVE CHARGE The quantity of explosive material used in a blasthole, coyote tunnel, or explosive device.

EXPLOSIVE LOADING FACTOR The amount of explosive used per unit of rock. Also called POWDER FACTOR.

EXPLOSIVE MATERIALS Any explosive, blasting agent or detonator. The term includes, but is not limited to, dynamite, and other explosives, slurries, emulsions, and water gels, black powder, pellet powder, initiating explosives, detonators (blasting caps), safety fuse, squibs, detonating cord, smokeless propellants, small arms ammunition, small arms percussion caps, smokeless primers, igniter cord and igniters. (**)

A list of explosive materials determined to be within the coverage of 18 U.S.C. Chapter 40, Importation, Manufacture, Distribution and Storage of Explosive Materials, is issued at least annually by the Director of the Bureau of Alcohol, Tobacco, and Firearms of the Department of the Treasury.

The U.S. Department of Transportation classification of explosive materials used in commercial blasting operations are not identical with the statutory definitions of the Organized Crime Control Act of 1970, Title 18 U.S.C. Section 841. To achieve uniformity in transportation the definitions of the U.S. Department of Transportation in Title 49 Code of Federal Regulations parts 1999 subdivides these materials into:

DIVISION 1.1 Mass exploding (Class A explosives)

DIVISION 1.2 Projection hazard (Class A or Class B explosives)

DIVISION 1.3 Fire hazard, minor blast (Class B explosives) or projection hazard

DIVISION 1.4 Minor explosion (Class C explosives) hazard not mass exploding

DIVISION 1.5 Insensitive explosives,(Blasting Agents) Very little probability of initiation or transition from burning to detonation during transport.

EXPLOSIVE STRENGTH The amount of energy released by an explosive upon detonation which is an indication of the capacity of the explosive to do work. (see also ENERGY)

EXTRA (AMMONIA) DYNAMITE A dynamite in which part of the nitroglycerin is replaced by ammonium nitrate in sufficient quantity to result in the same weight strength.

EXTRANEOUS ELECTRICITY Electrical energy, other than actual firing current or the test current from a blasting galvanometer, that is present at a blast site and that could enter an electric blasting circuit. It includes stray current, static electricity, RF (electromagnetic) waves, and time varying electric and magnetic fields.

FERTIIIZER GRADE AMMONIUM NITRATE A grade of ammonium nitrate as defined by The Fertilizer Institute.

FIRE EXTINGUISHER RATING A rating set forth in the National Fire Code which may be identified on an extinguisher by a number (5,20,70, etc.) indicating the extinguisher's relative effectiveness followed by a letter (A,B, C, etc.) indicating the class or classes of fires for which the extinguisher has been found to be effective.

FIRE-RESISTANT Construction designed to provide reasonable protection against fire.(For exterior walls or magazines constructed of wood, this shall mean fire resistance equivalency provided by sheet metal of not less than 26 gauge.)

FIRING CURRENT An electric current of recommended magnitude and duration to sufficiently energize an electric detonator or a circuit of electric detonators.

FIRING LINE The wire(s) connecting the electrical power source with the electric blasting circuit.

FLAGS-DANGER Flags, usually red, which may or may not be imprinted with a warning and used to caution personnel around explosives operations, or displayed on trucks transporting explosives.

FLAMMABILITY The ease with which an explosive material may be ignited by flame and heat.

FLASHOVER The sympathetic detonation between explosive charges or between charged blastholes.

FLASH POINT The lowest temperature at which vapors from a volatile combustible substance ignite in air when exposed to flame, as determined in an apparatus specifically designed for such testing.

FLYROCK Rocks propelled from the blast area by the force of an explosion.

FRAGMENTATION The breaking of a solid mass into pieces by blasting.

FREE FACE A rock surface exposed to air or water which provides room for expansion upon fragmentation; sometimes called open face.

FUMES The gaseous products of an explosion. For the purpose of determining the fume classification of explosive materials, only poisonous or toxic gases are considered.

FUSE See SAFETY FUSE.

FUSE CAP A detonator which is initiated by a safety fuse; also referred to as an ordinary blasting cap. Synonymous with BLASNNGCAP, also see DETONATOR.

FUSE CUTTER A mechanical device for cutting safety fuse clean and at right angles to its long axis.

GAP SENSITIVITY The maximum length of gap across which a detonation wave will travel and initiate a second or receptor cartridge. Both primer and receptor cartridge should be of the same composition, diameter, and weight. Usually refers to gap in air but other media may be used.

GELATIN DYNAMITE A type of highly water resistant dynamite characterized by its gelatinous or plastic consistency.

GEOLOGY A description of the types and arrangement of rock in an area; the description usually includes the dip and strike, the type and extent of preexisting breaks in the rock, and the hardness and massiveness of the rock, as these affect blast design.

GRAINS In the avoirdupois system of weight measurement 7000 grains are equivalent to one standard 16 ounce pound (0.45 kg.). A grain is 0.0648 grams in both the avoirdupois and the troy system.

GROUND FAULT An electrical path between parts of the blasting circuit and earth.

GROUND VIBRATION Shaking the ground by elastic waves emanating from a blast; usually measured in inches per second of particle velocity.

HANGFIRE The detonation of an explosive charge at some non-predictable time after its normally designed firing time.

HARDWOOD Red oak, white oak, hard maple, ash or hickory, free from loose knots, wind shakes, or similar defects.

HAZARDOUS MATERIALS ADVISORY COUNCIL (HMAC) An international organization representing shippers and carriers, container manufacturers and reconditioners, and emergency response companies for hazardous materials.

HERTZ (Hz) Synonymous with "cycles per second."

HIGH EXPLOSIVES Explosives which are characterized by a very high rate of reaction, high pressure development, and the presence of a detonation wave in the explosive.

HIGHWALL A nearly vertical face at the edge of a bench, bluff, or ledge on a surface excavation.

HOLE DIAMETER The cross-sectional width of the borehole.

IGNITER CORD A small diameter pyrotechnic cord that burns at a uniform rate with an external flame and used to ignite a series of safety fuses.

IME See INSTITUTE OF MAKERS OF EXPLOSIVES.

IME-22 CONTAINER (COMPARTMENT) A container (portable), or a compartment (permanently affixed to a vehicle), which is constructed in accordance with IME SLP-22 specifications and is authorized by the Department of Transportation for the transport of certain types of detonators on the same vehicle with other explosives

IME FUME CLASSIFICATION A classification indicating the amount of carbon monoxide and hydrogen sulfide produced by an explosive or blasting agent. Explosives with positive oxygen balances are not considered as being acceptable in these classifications. See Appendix F

INCENDIVITY The property of an igniting agent (e.g. spark, flame or hot solid) which indicates it is of sufficient intensity to ignite flammable material or explosive gases.

INHABITED BUILDING A building regularly occupied in whole or part as a habitation for human beings, or any church, schoolhouse, railroad station, store, or other structure where people are accustomed to assemble, except any building or structure occupied in connection with the manufacture, transportation, storage or use of explosive materials.

INITIATION The start of deflagration or detonation in an explosive material.

INITIATOR A detonator, detonating cord or similar device used to start detonation or deflagration in an explosive material.

INSTANTANEOUS DETONATOR A detonator that has a firing time of essentially zero seconds as compared to delay detonators with firing times of from several milliseconds to several seconds.

INSTITUTE OF MAKERS OF EXPLOSIVES A nonprofit, safety oriented trade association representing producers of commercial explosive materials in the U.S. and Canada and dedicated to safety in the manufacture, transportation, (IME) storage, handling and use of explosive materials.

INSITUTE OF MAKERS OF EXPLOSIVES NO.8 TEST DETONATOR IME No. 8 test detonator has 0.40 to 0.45 grams PETN base charge pressed to a specific gravity of 1.4g/cc and primed with standard weights of primer, depending on manufacturer.

INVENTORY A listing of all explosive materials stored in a magazine.

ISSUING AUTHORITY The governmental agency, office, or official vested with the authority to issue permits or licenses.

LEADING (LEAD) LINES OR WIRES The wires connecting the electrical power source with the circuit containing electric detonators. See **FIRING LINE**.

LEAKAGE RESISTANCE The resistance between the blasting circuit (including lead wires) and the ground.

LEG WIRES The two single wires or one duplex wire extending out from an electric detonator.

LOADING Placing explosive material in a blasthole or against the material to be blasted.

LOADING DENSITY The weight of explosive loaded per unit length of borehole occupied by the explosive, expressed as pounds/foot or kilograms/meter of borehole.

LOADING POLE A nonmetallic pole used to assist in the placing and compacting explosive charges in boreholes.

LOW EXPLOSIVES Explosive which are characterized by deflagration or low rate of reaction and the development of low pressure. See **DEFFAGRATION**.

MAGAZINE Any building, structure, or container, other than an explosives manufacturing building, approved for the storage of explosive materials.

MAGAZINE KEEPER A person responsible for the inventory and safe storage of explosive materials, including the proper maintenance of explosive materials, storage magazines and areas.

MAGAZINE, SURFACE A specially designed and constructed structure for the storage of explosive materials on the surface of the ground.

MAGAZINE UNDERGROUND A specially designed and constructed structure for the storage of explosive materials underground.

MAIN EXPLOSIVE CHARGE The explosive material that performs the major work of blasting.

MANUFACTURING CODES Code markings stamped on explosives materials packages, indicating among other information, the date of manufacture.

MASS EXPLODE (MASS EXPLOSION) An explosion which affects almost the entire load or quantity of explosives virtually instantaneously.

MAXIMUM RECOMMENDED FIRING CURRENT The highest electric current which will result in the safe and effective performance of an electric detonator.

MILLISECOND One thousandth part of a second (.001 or 1/1000 sec.)

MINE SAFETY AND HEALTH ADMINISTRATION (MSHA) An agency of the Department of Labor concerned with promulgation and enforcement of health and safety regulations in the mining field.

MISFIRE A blast or specific borehole that failed to detonate as planned. Also, the explosive materials that failed to detonate as planned.

MS CONNECTORS Nonelectric, short interval (millisecond) delay devices for use in delaying blasts which are initiated by detonating cord. Same as **DETONATING CORD MS CONNECTORS**.

MSHA APPROVAL A document issued by MSHA which states that an explosive or explosive unit has met MSHA requirements and which authorizes an approval marking identifying the explosive or explosive unit as approved as permissible.

MUCKPILE The pile of broken material resulting from a blast.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) An independent, non-profit association organized to promote the science and improve the methods of fire protection and prevention, electrical safety and other related safety goals.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) STANDARDS Standards for explosive materials and ammonium nitrate issued by the National Fire Protection Association.

NATIONAL SAFETY COUNCIL (NSC) A non-profit organization charged by Congress to provide a regular information service on the causes of accidents and ways to prevent them.

NATURAL BARRICADE Natural features of the ground such as hills, or timber of sufficient density that the surrounding exposures which require protection cannot be seen from the magazine when the trees are bare.

NITROGLYCERIN An explosive chemical compound used as a sensitizer in dynamite and represented by the formula $(C_3H_5(ON_2)_3$

NONELECTRIC DETONATOR A detonator that does not require the use of electric energy to function.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) An agency of the Department of labor active in eliminating occupational hazards and promoting employee health and safety.

OFFICE OF SURFACE MINING (OSM) An agency of the Department of the Interior regulating surface coal mining and the surface effects of underground coal mining.

OVERBURDEN Material of any nature laying on top of a deposit of material which is to be mined.

PARALLEL BLASTING CIRCUIT An electric blasting circuit in which one leg wire of each detonator is connected to one of the wires from the source of firing current and the other wire from the firing current source.(Can also be used to refer to certain nonelectric systems.)

PARTICLE VELOCITY See Velocity

PARTING A rock mass located between two seams of coal; a joint or crack in rock.

PERMISSIBLE DIAMETER The smallest allowable diameter of particular permissible explosive, as approved by the Mine Safety and Health (SMALLEST) Administration (MSHA).

PERMISSIBLE (MSHA) APPROVED EXPLOSIVES Explosives that are approved by the Mine Safety and Health Explosives Administration for use in gassy and dusty atmospheres. Permissible explosives must be used and stored in accordance with certain conditions specified by the Mine Safety and Health Administration (MSHA).

PLACARDS Signs placed on vehicles transporting hazardous materials (including explosive materials) indicating the nature of the cargo.

PLOSOPHORIC MATERIALS [Binary Explosives], two of more unmixed, commercial manufactured, prepackaged chemical ingredients including oxidizers, flammable liquids or solids, or similar substances that are not independently classified as explosives but which when mixed or combined form a mixture that is classified as an explosive and that is intended for blasting. It may be classified by the Hazardous Materials Regulations of the U.S. Department of Transportation as an explosive depending on its susceptibility to detonation. (**)

POWDER A common synonym for explosive materials.

POWDER FACTOR The amount of explosive used per unit of rock. Also called **EXPLOSIVE LOADING FACTOR**.

POWER SOURCE The source of power for energizing electric blasting circuits, e.g., a blasting machine or power line.

PREBLAST SURVEY A documentation of the existing condition of structures near an area where blasting is to be conducted.

PREMATURE FIRING The detonation of an explosive charge before the intended time.

PRESPLIMNG (PRESHEARING) A smooth blasting method in which cracks for the final contour are created by firing a single row of holes prior to the initiation of the rest of the holes in the blast pattern.

PRILLED AMMONIUM NITRATE Ammonium nitrate in a pelleted or prilled form.

PRIMARY BLAST A blast used to fragment and displace material from its original position to facilitate subsequent handling and crushing.

PRIMARY EXPLOSIVE A sensitive explosive which nearly always detonates by simple ignition from such means as spark, flame, impact, friction, or other primary heat sources of appropriate magnitude.

PRIMER A unit, package or cartridge or explosives used to initiate other explosives or blasting agents, and which contains: (1) a detonator: or (2) detonating cord to which is attached a detonator designed to initiate the detonating cord.

PROPAGATION The detonation of an explosive charge by an impulse received from an adjacent or nearby explosive charge.

QUANTITY-DISTANCE TABLE A table listing minimum recommended distance from explosives materials stores of various weights to a specific location.

RADIO FREQUENCY ENERGY (RF) The energy radiated as electromagnetic waves in the radio frequency spectrum.

RADIO FREQUENCY TRANSMITTER An electronic transmitting device which radiates radio frequency waves. The transmitting device may be fixed (stationary) or mobile, and includes car telephones, citizens band radios, AM and FM radio transmitters, television transmitters and radar transmitters.

REGULATIONS FEDERAL, STATE, LOCAL Regulations promulgated by Federal, State or local regulatory agencies governing the manufacturer, transportation, storage, sale, possession, handling and use of explosive materials.

RELIEF The effective distance from a blasthole to the nearest free face (Synonymous with burden.)

RESISTANCE The measure of opposition to the flow of electrical current, expressed in ohms.

ROTATIONAL FIRING Delay blasting system used so that the detonating explosives will successively displace the burden into the void created by previously detonated explosives in holes which fired at an earlier delay period.

ROUND A group of boreholes fired or intended to be fired in a continuous sequence with the application of initiating energy.

SAFETY FUSE A flexible cord containing solid flammable materials by which fire or flame is conveyed at a continuous and uniform rate from the point of ignition to a cut end. A fuse detonator is usually attached to that end, although safety fuse may be used without a detonator to ignite material such as deflagrating explosives.

SAFETY STANDARD Suggested precautions relative to the safety practices to be employed in the manufacture, transportation, storage, handling and use of explosive materials.

SCALED DISTANCE A factor relating similar blast effects from various weight charges of explosive material at various distances. Scaled distances referring to blasting effects is obtained by dividing the distance of concern by a fractional power of the weight of the explosive materials.

SEAM A stratum or bed of coal or other material. May also refer to a crack or joint in a blast area which may be filled with mud or other material. A seam may be in any orientation.

SECONDARY BLASTING Blasting to reduce the size of boulders resulting from a primary blast.

SEISMOGRAPH An instrument, useful in monitoring blasting operations, which records ground vibration. Particle velocity, displacement, or acceleration is generally measured and recorded in three mutually perpendicular directions.

SENSITIVENESS A measure of an explosive's cartridge-to-cartridge propagating ability under certain test conditions. It is expressed as the distance through air at which a primed half cartridge (donor) will detonate an unprimed half cartridge (receptor). Also see GAP SENSITIVITY.

SENSITIVITY A physical characteristic of an explosive material classifying its ability to be initiated upon receiving an external impulse such as impact, shock, flame, friction or other influence which can cause explosive decomposition.

Cap-Sensitive Explosive Material Any explosive material that can be detonated by means of a No. 8 blasting cap or its equivalent. Cap-sensitive material SHALL be classified as an explosive.

Non Cap-Sensitive Explosive Material Any explosive material that can NOT be detonated by means of a No. 8 blasting cap or its equivalent. Non cap-sensitive material SHALL NOT be classified as an explosive. (**)

SEPARATION DISTANCES Minimum recommended distances from explosive materials accumulations to other specified locations.

SEQUENTIAL BLASTING MACHINE A blasting machine designed to actuate separate series of detonators at accurately timed intervals. Also called SEQUENTIAL TIMER

SEQUENTIAL TIMER See SEQUENTIAL BLASTING MACHINE

SERIES BLASTING CIRCUIT An electric blasting circuit that provides one continuous path for the current through all caps in the circuit.

SERIES-IN-PARALLEL BLASTING CIRCUIT A circuit in which electric detonators are divided into two or more balanced groups being connected together in series and the groups being connected together in parallel.

SHOCK TUBE A small diameter plastic tube used for initiating detonators. It contains only a limited amount of reactive material so that the energy that is transmitted through the tube by means of a detonation wave is guided through and confined within the walls of the tube.

SHOCK WAVE A transient pressure pulse that propagates at supersonic velocity.

SHORT DELAY BLASTING The practice of detonating blastholes in successive intervals where the time difference between any two successive detonations is measured in milliseconds.

SHOT ANCHOR A device that anchors explosive material charges in the borehole so that the charges will not be blown out by the detonation of other charges or, in seismic work, cannot be pulled out of the borehole by the leg wires.

SHOT BREAK A space consisting of an undrilled or drilled area which may include loaded or unloaded blast holes to separate two individual blasts located on the same bench.

SHOT FIRER See **BLASTER**. (shot firer usually refers to an underground coal mine blaster).

SHUNT (SHUNTING) The shorting together of the free ends of (1) electric detonator leg wires, or (2) the wire ends of an electric blasting circuit or part thereof. The term also applies to an electrical shorting device applied to the free ends of electric detonators by the manufacturer.

SIGNS - EXPLOSIVE (PLACARDS) Signs, called placards, placed on vehicles transporting explosives denoting the character of the cargo, or signs placed near storage areas as a warning to unauthorized personnel.

SLURRY see Water Gel or Slurry

SPACING The distance between boreholes. In bench blasting, the distance is measured parallel to the free face and perpendicular to the burden.

SPECIFIC GRAVITY The ratio of the weight of any volume of substance to the weight of an equal volume of pure water.

STABILITY The ability of an explosive material to retain chemical and physical properties specified by the manufacturer when exposed to specific environmental conditions over a particular period of time.

STATIC ELECTRICITY Electric charge at rest on a person or object. It is most often produced by the contact and separation of dissimilar insulating materials.

STEMMING Inert material placed in a borehole on top of or between separate charges of explosive material. Used for the purpose of confining explosive materials or to separate charges of explosive material in the same borehole.

STORAGE The safekeeping of explosive materials usually in specially designed structures called magazines.

STRAY CURRENT A flow of electricity outside an insulated conductor system.

SUBDRELLING The practice of drilling boreholes below floor level or working elevation to insure breakage of rock to working elevation.

SYMPATHETIC DETONATION The detonation of an explosive material as the result of receiving an impulse from another detonation through air, earth or water. Synonymous with **SYMPATHETIC PROPAGATION**. (See also **FLASHOVER**.)

TABLE OF RECOMMENDED SEPARATION DISTANCES OF AMMONIUM NITRATE AND BLASTING AGENTS FROM EXPLOSIVES OR BLASTING AGENTS A quantity distance table designed to prevent explosion of ammonium nitrate and ammonium nitrate-based blasting agents by propagation from nearby stores of high explosives or blasting agents. It is based on a “donor-receptor” relationship developed by the U.S. Bureau of Mines.

TAMPING The action of compacting the explosive charge or the stemming in a blasthole. Sometimes refers to the stemming material itself.

TAMPING POLE A wooden or plastic pole used to compact explosive charges or stemming. (See also **LOADING POLE**.)

TEMPORARY STORAGE Storage of explosives for less than 24 hours.

TEST BLASTING CAP NO. 8 See **INSTITUTE OF MAKERS OF EXPLOSIVES NO. 8 TEST DETONATOR**

TOE In bench blasting, excessive burden measured at the floor level of the bench.

UNBARRICADED The absence of a natural or artificial barricade around explosive storage areas of facilities.

UNCONFINED DETONATION VELOCITY The detonation velocity of an explosive material fired without confinement; for example, a charge fired in the open. (Paper tubes are generally not considered as confinement.)

UNDERWRITERS LABORATORY INC. (UL) A nationally recognized incorporated testing laboratory qualified and equipped to conduct the necessary tests to determine compliance with appropriate standards and the satisfactory performance of materials or equipment in actual usage.

U.S. BUREAU OF MINES (USBM) A former bureau of the Department of Interior active in promoting safety in coal mines and in carrying out board programs in mining and related fields.

VOLT The unit of electromotive force. It is the difference in potential required to make a current of one ampere flow through a resistance of one ohm.

VELOCITY The measurement of speed. (**)

VELOCITY, PARTICLE The velocity at which the earth vibrates, measured in inches/sec, or cm/sec. (**)

VELOCITY, PEAK PARTICLE The highest recorded particle velocity. (**)

VELOCITY, SEISMIC The velocity at which a vibration or seismic wave travels in the earth outward from the source. It is measured in thousands of feet per second. (**)

VOLUME STRENGTH Synonymous with **CARTRIDGE STRENGTH**. See **BULK STRENGTH**.

WARNING SIGNAL A visual or audible signal which is used for warning personnel in the vicinity of the blast area of the impending explosion.

WATER GEL or SLURRY A wide variety of materials used for blasting manufactured with varying degrees of sensitivity to initiation and may be classified as explosives or non explosive blasting agents. Water gels may be premixed at an explosive manufacturing building or mixed at the site immediately before delivery into the borehole. (**)

WATER RESISTANCE The ability of an explosive to withstand the desensitizing effect of water penetration.

WATT A unit of electrical power equal to one joule per second.

WEIGHT STRENGTH The energy of an explosive material per unit of weight. Often expressed as a percentage of the energy per unit of weight of a specified explosive standard.

(**) Commonwealth of MA Board of Fire Prevention Regulations, 527 CMR 13.03 Definitions

Section 32.03 GENERAL REQUIREMENTS

These requirements apply equally to Section 32A Construction Blasting and Section 32B Quarry Blasting.

(A) Use And Handling Permit (Permit To Blast) Provisions

- (1) Use and Handling Permit shall be issued by the Head of the Boston Fire Department for all blasting conducted within Boston City limits.
- (2) Prior to a Use and Handling Permit being issued, the Blaster shall provide the following:
- (3) A valid Explosive Users Certificate (Own and Possess Certificate) issued by the State Fire Marshal.
- (4) A certificate of insurance providing General Liability insurance with limits of not less than \$1,000,000/\$1,000,000 (Note: a Use and Handling Permit shall be issued only for the explicit time period covered by the effective dates of the GL policy).
- (5) A Blasting Bond with the City of Boston or the Commonwealth of Massachusetts named as the certificate holder. (Note: a Use and Handling Permit shall be issued only for the period of time covered by the effective dates of the Bond).
- (6) A Certificate of Competency (Blaster's License) for each person(s) who could be responsible for blasting operations including shot design, charge loading, wiring, and detonation.
- (7) Written proof, in a form approved by the Head of the Fire Department that Dig Safe has been notified of the proposed blasting operations and a dig safe number was issued in accordance with M.G.L c. 82 §40.
- (8) Proof that the required Preblast Inspection Surveys have been completed.
- (9) The route that the explosives are going to be transported to the site must be pre-approved by the Special Hazards Section of the Fire Prevention Division. The time of arrival at the site and the time leaving the site should be included.

32.04 PREBLAST INFORMATION REQUIREMENTS

- (A) A blast analysis and a blast design plan as specified in 527 CMR 13.09 (1), (k) & (l), shall be provided and explained to the Head of the Fire Department.
- (B) The blast analysis shall consider adjacent area structure(s), building(s), building foundations, utilities, including gas and water supply lines, septic systems and swimming

pools, and area geology within the distances defined in Table 1 in 32.08. The blast analysis shall identify commercial equipment such as computers, electron microscopes, laser equipment, relays etc., which are sensitive to vibrations, and other underground objects that might be damaged by the effects of a blast.

- (C) In preparing the blast design plan and blast analysis, the following shot variables, as a minimum, shall be considered to minimize the adverse effects of ground vibrations and flyrock:
- Maximum charge weight detonating at one time (i.e. within 8 milliseconds).
 - True Distance (distance the waves must travel).
 - Geological conditions.
 - Degree of confinement.
 - Physical properties of the rock.
 - Coupling.
 - Spatial distribution.
 - Detonator timing scatter.
 - Time duration of energy release.
 - Type of explosive or blasting agent.
- (D) The following shot variables, as a minimum, shall be considered to minimize the adverse effects of air blast:
- Maximum charge weight detonating at one time (i.e. within 8 milliseconds).
 - Depth of burial of the charges.
 - Exposed detonating material on the ground surface.
 - Atmospheric conditions.
 - Temperature and temperature gradients.
 - Wind velocity, direction, and gradients.
 - Atmosphere and time of day.
 - Topography.
 - Volume of displaced rock.
 - Delay interval and orientation.
 - Type of explosive.
- (E) The Blaster shall familiarize the Fire Department with the site and proposed Blasting Operations. The blaster shall provide a vicinity map drawn to scale to illustrate the blasting zone(s) and all structures and other infrastructure. The vicinity map should include all structures to a radial distance determined from Table 1 in 32.08. A visit to the site to familiarize the Fire Department's designated personnel with conditions may be required per order of the Head of the Fire Department.

Exception: For quarries complying with all of the requirements of 32B of this ordinance, the radial distance of the vicinity map shall be the distance of the Blast Analysis as determined in 32B.03.

- (F) A preblast conference may required by the Head of the Fire Department, at which the Head of the Fire Department shall review its concerns and comments with the blaster. Any conditions resulting from this conference shall be made in writing and shall become part of the Permit by reference.
- (G) The Head of the Fire Department, in a written statement, shall, if it deems it necessary and in the public interest, require an independent blasting consultant, specialist, engineer or geologist, at the cost of the applicant, acceptable to the Head of the Fire Department be retained as a consultant. Said consultant, specialist, engineer or geologist shall produce a preblast analysis and assist the blaster in the preparation of a blast design plan as defined in 527 CMR 13.09 (1), (k) & (l), and by this ordinance. The analysis will include an assessment of the impacts of blasting on the stability of existing steep soil or rock slopes in the vicinity, sufficient to meet approval of the Head of the Fire Department.

32.05 STORAGE OF EXPLOSIVE MATERIALS

- (A) On site storage of explosive materials shall be in approved day boxes or in DOT approved truck mounted magazines as detailed in 527 CMR 13.05 Storage.
- (B) Adequate security must be provided to prevent unauthorized access to the explosive material while it is on-site.
- (C) A system must be in place to warn responding emergency personnel about location of explosives. The system utilized should be documented and submitted at time of permit application.
- (D) An effort shall be made to locate the day box, or truck mounted magazine, at safe distances from homes and roads.
- (E) Overnight storage of explosives on site shall not be allowed unless written permit is obtained from the Fire Chief or his designee. If a storage permit is granted then location of the magazine shall comply with Table 1 of 527 CMR 13.05. In addition, a fire watch as determined by the Head of the Fire Department of not more than two (2) uniformed firefighters shall be posted on site, at the blaster's expense with sufficient fire fighting equipment to extinguish or control any fire exposure to the stored explosives.

32.06 TRANSPORTATION OF EXPLOSIVES

- (A) All vehicles transporting Explosives in or through the City of Boston shall be under the jurisdiction of the Fire Department. All vehicles transporting Explosives in or through the City of Boston shall also be under the jurisdiction of any other authority given legal jurisdiction by applicable state or federal regulation or law.

- (B) The route that the explosives are going to be transported to the site must be pre-approved by the Special Hazards Section of the Fire Prevention Division. The time of arrival at the site and the time leaving the site should be included.
- (C) All traffic violations involving vehicles transporting explosives shall be reported to the Head of the Fire Department for investigation.
- (D) The Fire Chief, or his designee, or the State Fire Marshal, or his designee, shall investigate all traffic accidents involving vehicles that are transporting explosives.
- (E) None of the vehicles involved in the accident, or the explosives, shall be moved without the approval of the Fire Chief, or his designee, or the State Fire Marshal, or his designee.

32.07 RECORD KEEPING

- (A) All blasting operations must be fully documented, as required in 527 CMR 13.09 (8) Blasting Log and herein. The following are minimum standards for what are regarded as the essentials of adequate blasting logs and vibration records. These logs and vibration records must be provided to the Head of the Fire Department the same day as the blast. Records of each event must be kept, by the licensed blaster, for a minimum of three years. Quarries, and other locations where long-term blasting occurs, should also keep records on-site. Records of each event shall:
 - Include the name and blaster's license, of the operator conducting the blast.
 - Include the location, date and time of the blast and reference to the blasting permit granted for the blast.
 - Identify the nearest dwelling, public building, school, church, institutional building or underground structure outside the permit area and establish the direction and distance from the nearest blasthole to the nearest structure. All distances shall be made accurately by direct measurement in the field or by measurement from a scale drawing of the blast vicinity.
 - Include weather conditions, including those which may cause possible adverse blasting effects.
 - Record the type of material blasted.
 - Incorporate sketches of the blast pattern, including number of holes, burden, spacing, decks, and delay pattern.
 - Specify the diameter and depth of the holes, and type and length of stemming at the top of borehole and between explosive decks in multi-deck shots.
 - Record the type of explosive used, the total weight of explosive used, the weight per hole and the maximum weight of explosives detonated in any one-delay period.
 - Specify the initiation system and the nominal firing time of each distinct detonation.
 - Provide detailed descriptions of mats or other protection used
 - Document the type of seismographic instruments, their sensitivity (or range setting) and their calibration signals and certificates of annual calibration.
 - Document the exact location of seismographic instrument, date, time and accurate distance from the blast.
 - Show that name and firm (can be the operator) analyzing the seismographic record.

- (B) Vibration levels and airblast recorded. The levels that were actually recorded should be compared to the predicted levels in the blast plan and blast analysis. If the actual observations are consistently higher than those predicted, then modifications should be made to the scaled distance relationship being used and the new scaled distance predictive relationship, including all data and statistical analyses, should be forwarded to the Head of the Fire Department.

32.08 PREBLAST INSPECTION SURVEYS

- (A) Preblast inspection surveys shall be conducted as outlined in 527 CMR 13.09 (10) Preblast Inspection Surveys, and by this ordinance.
- (B) For blasting operation for which no historical data exists to assist in predicting probable vibration levels, the Head of the Fire Department may, order preblast inspection surveys to be conducted to distances that differ from the 250 feet distance required by 527 CMR 13.09. The required distance for preblast inspection surveys is dependent on the size of the blast, as measured in terms of the maximum pounds of explosives detonated per delay. Table 1 provides distances to which preblast inspection surveys shall be required.
 Exception: Quarries complying with all of the requirements of 32B of this ordinance shall not be required to conduct pre-last surveys unless required by 527CMR.
- (C) A map drawn to scale shall be submitted to identify all structures for which preblast surveys were made. This site map shall include all structures located at distances determined from Table 1.

TABLE 1
 Required Radial Distances for Preblast Inspection Surveys

Explosives, W <i>pounds over</i>	Explosives, W <i>pounds not over</i>	Distance to nearest blasthole, <i>feet</i>
0	10	250
11	20	325
21	30	400
31	40	475
41	50	550
51	60	625
61	70	700
71	80	775
81	90	850
91	100	925
101 or more		$100 * W^{1/2}$

W = maximum pounds of explosives per delay (i.e. detonated within 8 milliseconds)

Note: The distances in Table 1 are derived from 527CMR Section 13.09 Table 2. The distances in Table 1, The Preblast Survey Table, are increased by approximately 50% over the distances in 527CMR Section 13.09 Table 2. This increase is needed to take into account that particle velocities may be much higher than anticipated using the scaled distances assumed in 527CMR Section 13.09 Table 2. Under some geological conditions particle velocities may be higher by a factor of two or more. Under conditions of high confinement, such as the opening holes in a heading or pre-splitting they may be higher by a factor of five or more. These numbers can also be derived approximately by utilizing the statistics published in RI-8507 and developing a model for the 95th percentile.

32.09 BLASTING OPERATIONS

- (A) No loaded drillholes shall be left unattended. Loaded drillholes that are present after normal working hours shall not be detonated unless and until approval is received from the Head of the Fire Department or his designee, or the Fire Marshal or his designee.
- (B) The Fire Department shall be notified by the blaster in charge each day that blasting is done at least two hours before any blasting on site. It is required that the blaster shall also call the Fire Alarm Office immediately before each blast.
- (C) Blasting mats shall be used for all blasts except were the Head of the Fire Department deems it impractical.

Exception: Quarries complying with all of the requirements of 32B of this ordinance shall not be required to use blasting mats unless required by 527CMR.

- (D) The blast site shall be tested for extraneous, static and electromagnetic currents, especially when electric blasting caps are used near overhead power transmission lines, and within the recommended Tables of Distance from radio transmitters as listed and graphed in Institute of Makers of Explosives, Safety Library Publication No. 20, Safety Guide for the Prevention of Radio Frequency Radiation Hazards in the use of Commercial Electric Blasting Detonators (Blasting Caps)”, December 1988.

32.10 SEISMOGRAPH MONITORING OF BLASTS

- (A) All seismographs shall be placed and utilized in accordance with 527 CMR Section 13 and the Seismograph Field Practice Guidelines as listed in Appendix K of ISEE Blasters Handbook 17th Edition.
- (B) In all cases, the operator should describe the field conditions and set-up procedures in the permanent record of each blast.
- (C) One seismograph shall be placed at the location of the closest residence or above ground structure, not controlled by the project, to the blast. A second seismograph shall be placed at the location that is at the closest house or structure, not controlled by the project, approximately 180° away from the first seismograph, or at another location mutually

agreed upon by the Blaster and the Head of the Fire Department. Where it is deemed necessary by the Head of the Fire Department, a third seismograph shall be located at a residence or other structure mutually agreed upon by the Blaster and the Head of the Fire Department.

32.11 VIBRATION AND AIRBLAST

Blasts that exceed the maximum allowable limit for peak particle velocity vs. frequency, or decibel levels as established by this ordinance or are known to the blaster to have produced flyrock shall immediately be reported to the Head of the Fire Department. In case of exceedance of vibration or airblast limits, the blaster shall, prior to the next blast, forward to the Head of the Fire Department a written statement, signed by the responsible Blaster, as to why the exceedance occurred and what steps will be taken to prevent further exceedance. In the case of flyrock, the Blasting Permit must be re-applied for and will not be issued without an independent analysis of the blast, which shall include an explanation of the reasons why the flyrock occurred and recommended steps to be taken to prevent further flyrock incidents.

32A CONSTRUCTION BLASTING

32A.01 VIBRATION AND AIRBLAST

- (A) The blaster shall be required to record the effects of all blasts on a seismograph of the type specified in 527 CMR 13.09 (9) (C) 1 and 2.
- (B) Blasting logs containing the information listed in 527 CMR 13.09 (8) Blasting Log shall be kept for each blast.
- (C) The ground vibration limits shall be the limits shown in 527 CMR 13.09 (9) Allowable Limits of Effects of Blasting Option 2, Figure (b), Particle Velocity v. Frequency, USBM Recommendation (RI8507, 1980).
- (D) The air blast limit shall be 133 dB peak.

32B QUARRY BLASTING

32B.01 SIGNAGE, NOTIFICATION, AND ACCESS

- (A) Blasting Signs, Warnings and Access Control. The operator shall:
 - (1) Conspicuously place a series of durable signs reading “WARNING! -BLASTING AREA-DANGER” along the edge of any blasting area that comes within 100 feet of any public right of way and at the point where any other road provides access to the blasting area.
 - (2) At all entrances to the permit area from public roads or highways, place conspicuous signs that state “WARNING! EXPLOSIVES IN USE” which clearly list and describe

the meaning of the audible blast warning and the all-clear signals that are in place, and which the marking of blasting areas and charge holes waiting for firing within the permit area.

- (3) Warning and all clear signals of different character or pattern shall be sounded prior to and following each blast. Warning sirens or horns shall be deployed at the perimeter of the quarry and directed toward abutting inhabited structures. These devices shall produce a sound level in the range of 115 to 125 dB at the source. Prior to the start of each blasting season, all residences and businesses, identified in the blast analysis, shall be notified by means of legal notice in local newspapers or other equivalent means of public notice. Notification shall report the approximate date that blasting will commence for the upcoming season, the expected number of blasts per day and per week during the season, and clear explanations of the meaning of all warning and all clear signals.
- (4) Access within the blasting area shall be controlled to prevent the presence of unauthorized persons during blasting. No person shall enter the blasting area until an authorized representative has reasonably determined that no unusual hazards, such as imminent slides or undetonated charges exist, and access to and travel within the blasting area can be safely resumed.

32B.02 SAFE VIBRATION LIMITS

- (A) The ground vibration limits shall be the limits shown in 527 CMR 13.09 (9) Allowable Limits of Effects of Blasting Option 2, Figure (b), Particle Velocity v. Frequency, USBM Recommendation (RI8507, 1980), except that the maximum peak particle velocity for all frequencies greater than 20 Hz shall be 1.0 in./sec.

A1
TABLE :

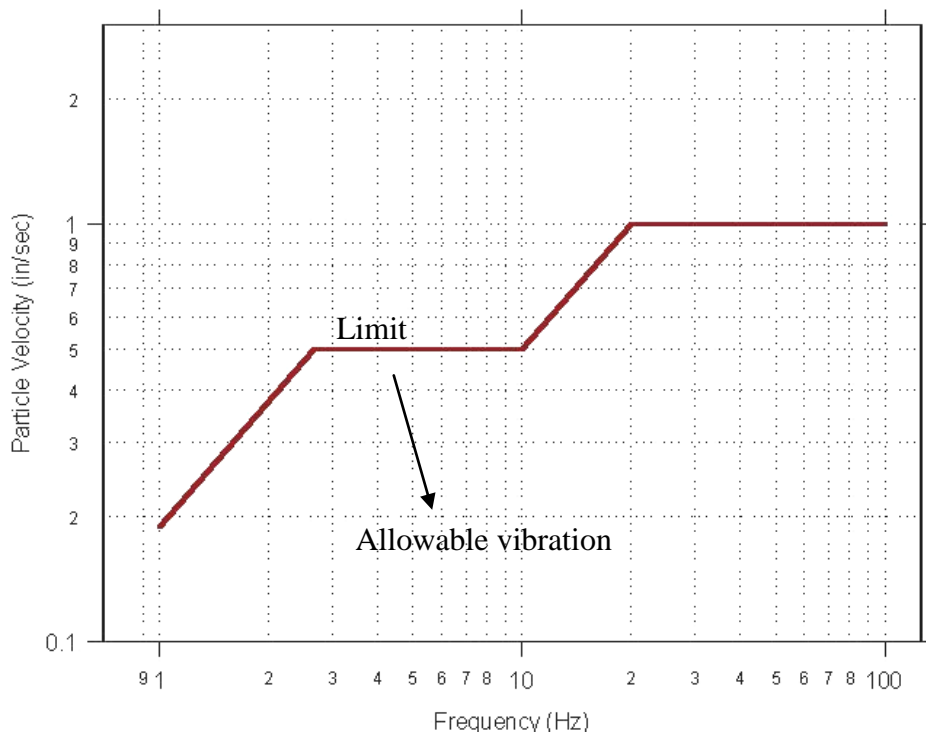


TABLE 2
Vibration Limits for Quarries

	VIBRATION LIMIT Particle Velocity (in/sec)
1.0	0.19
2.0	0.38
2.65 to 9.95	0.50
10	0.50
12	0.60
14	0.70
16	0.80
18	0.90
19.9	1.0
20 to 100	1.0

- (B) Where sufficient blast data is available to prepare square root scaled distance plots, compliance with vibration limits shall be achieved by submittal of blast designs that predict 90% of the permitted vibration level with a 95% degree of confidence. For the case that 95% of the vibrations have frequencies greater than or equal to 20 Hz, the target vibration for blast design shall be 0.90×1.0 in/sec, or 0.90 in/sec. For the case that 95% of the vibrations are greater than or equal to 10 Hz, the target vibration with a 95% degree of confidence shall be 0.90×0.75 in/sec, or approximately 0.70 in/sec. For the case that 5% or more of the vibrations are less than 10 Hz, the target vibration for blast design shall be 0.90×0.5 in/sec, or 0.45 in/sec.
- (C) Existing quarries shall analyze vibration data acquired during the previous blasting year for the purpose of designing blasts to comply with these vibration limits.
- (D) New quarries, or quarries for which historical data is lacking, shall conduct a series of test blasts to establish vibration and noise propagation trends sufficient to predict vibrations at the 95% confidence level for proposed production blasts. Details of the test blasting procedures shall be submitted to the Head of the Fire Department for review and approval.

32B.03 BLAST ANALYSIS

The area for the blast analysis for quarries will include the area completely included within the line at which peak particle velocity exceeded 0.25 ips, during the previous 3 years. These distances shall be determined in the blast analysis using published or site-specific predictive equations. For the case that peak vibration and airblast observations significantly differ from predictions of published models, the blast analysis shall be performed using site-specific data and predictive models. Development and planned usage of site-specific predictive models for ground vibration and airblast propagation shall be documented in reports submitted to the Head of the Fire Department.

32B.04 SEISMOGRAPH MONITORING

One seismograph shall be placed at the location of the closest inhabited building or structure, not controlled by the quarry, to the blast. A second seismograph shall be placed at the closest residence behind the open face of the blast. The third seismograph shall be placed at a location mutually agreed upon by the quarry and the Head of the Fire Department.

32B.05 INDEPENDENT CONSULTATION

Quarries shall retain the services of a consultant who shall, on an annual basis, review the seismographic reports from the proceeding year and make recommendations designed to minimize the impact from vibrations on the surrounding neighborhood, for the upcoming year based on the location in which the quarry intends to blast. Prior to each blasting season, representatives from the quarry together with representatives from the licensed blaster hired by the quarry and the consultant shall meet with the Head of the Fire Department or his designee to review the quarry's plans for blasting for the upcoming season.

The consultant's annual reports should include analyses of all items that mitigate the effects of noise and vibration (N/V) transmitted into the neighborhoods surrounding the quarry. These reports need to be comprehensive and cumulative so that any new blasting contractor will have readily accessible the entire year-by-year history (i.e. past 5 years) of implementations of blast designs and the success or failure of such designs to maintain N/V amplitudes at levels acceptable to the Head of the Fire Department.

At a minimum the shot variables to be considered are:

- Maximum charge weight detonating at one time.
- True distance (distance the waves must travel).
- Geological conditions.
- Confinement.
- Physical properties of the rock.
- Coupling.
- Spacial distribution.
- Detonator timing scatter.
- Time of energy release.
- Type of explosive.

32C SEVERABILITY

32C.01 Partial Validity

In the event any part or provision of this article is held to be illegal or void, this shall not have the effect of making void or illegal any of the other parts or provisions thereof, which are determined to be legal; and it shall be presumed that this article would have been passed without such illegal or invalid parts or provisions.

32C.02 Segregation of Invalid Provisions

Any invalid part of this article shall be segregated from the remainder of this article by the court holding such part invalid, and the remainder shall remain in effect.

ARTICLE XXXIII

Outdoor Cooking Appliances, Outdoor Patio and Space Heaters, Outdoor Decorative Heating Appliances and Outdoor Fireplaces

Section 33.01 Purpose: To protect the citizens of Boston from the effects of accidental fire due to improperly placed, misused, malfunctioning, or unattended outdoor cooking and heating appliances that may lead to accidental injury, death or property damage.

Section 33.02

For brevity, wherever “527 CMR” is noted, it shall be interpreted “527 CMR and all currently adopted reference standards.”

In situations where this article conflicts with 527 CMR and adopted reference standards, the more stringent application shall apply as determined by the City of Boston Fire Marshal.

Section 33.03

Definitions:

Authority Having Jurisdiction (AHJ):

For the purposes of this article, the AHJ is the City of Boston Fire Marshal under the supervision and control of the Head of The Fire Department; authorized by the Boston Fire Prevention Code (BFPC) 1.06(a) (b)

Permanent shall mean a fixed gas installation that is hard piped and connected to an approved and permanently fixed fuel supply, *permitted* through the Boston Inspectional Services Department (ISD) and installed by a licensed installer in accordance with all applicable codes and reference standards.

Refillable shall mean an approved, movable or permanent container that is legibly marked as referenced in 527 CMR and used and maintained in compliance with 527 CMR and

manufacturer's recommendations. Such container is capable of being refueled by delivery onsite by a qualified LPG fuel supplier or by transporting to a refueling station.

Licensed Person shall mean a licensed: journeyman or master plumber, journeyman or master gas fitter, Liquefied Petroleum Gas installer (LPG) and Limited LPG-Gas Installers including those apprentices working under such license.

Liquefied Petroleum Gas (LP-Gas): Any material which is composed predominantly of any of the following hydrocarbons or mixtures of the same: propane, propylene, butanes (normal or isobutane), and butylenes. LP-Gas is commonly known as "propane"

Cooking Appliance: An appliance designed specifically for the purpose of heating and cooking food and constructed in compliance with approved safety standards and tested by a recognized product testing or listing agency.

Solid Fuel: shall include, wood, charcoal, fuel pellets or any similar non-gaseous fuel. Whether any newly developed or identified fuel, not specifically mentioned in this article at the date of adoption is later classified as a solid fuel shall be determined by the AHJ.

Section 33.04

Sale of solid fuel outdoor patio and space heaters, outdoor decorative heating appliances, and outdoor fireplaces within the City of Boston

It is prohibited for any mercantile establishment located within Boston to sell, or offer for sale, any outdoor patio or space heater or decorative heating appliance such as chiminea, fire pit, or outdoor fireplace that is fueled by a solid fuel such as wood, charcoal, fuel pellets or similar non-gaseous fuels unless an informational label is clearly affixed and visible on the product display informing the purchaser of the prohibited use of these devices within the City of Boston.

The signage shall be placed on the display or shelving where any regulated device is for sale. The sign shall be affixed in plain view at eye level and clearly visible to purchaser. The sign shall be of durable construction and shall be no less than 10 x 12 or 120 square inches using red lettering on a white background with a font of sufficient size to be clearly visible to the purchaser from a distance of 6 feet.

The label and signage shall state the following:

IMPORTANT NOTICE BEFORE PURCHASE OR USE

IT IS PROHIBITED WITHIN THE CITY OF BOSTON TO USE any outdoor patio or space heater, outdoor decorative heating appliance such as a chiminea, fire pit or outdoor fireplace using solid fuel including charcoal, wood, fuel pellets or any non-gaseous fuel.

Per Order of:

**The Boston Regulations for the Control of Atmospheric Pollution.
Boston Fire Prevention Code 1.05(b), 1.06, 33.05.**

Section 33.05

Use of solid fuel outdoor patio and space heaters, outdoor decorative heating appliances and outdoor fireplaces within the City of Boston

It is prohibited within the City of Boston to use any outdoor patio or space heater, decorative heating appliance such as a chiminea, fire pit or outdoor fireplace using solid fuel including charcoal, wood, fuel pellets or any non-gaseous fuel.

Section 33.06

Regulations for the use of Natural Gas or LP-GAS outdoor patio and space heaters, and decorative heating appliances

(1) Non-Commercial Use

Outdoor patio or space heaters and decorative heating appliances such as chiminea, fire pits and outdoor fireplaces that are fueled by Natural Gas or LP-GAS using a refillable tank or permanently installed are allowed for use within the City of Boston provided the appliance is listed or labeled by a recognized product testing organization. Where permanent, such installation shall be installed and permitted through the Inspectional Services Department (ISD) of the City of Boston and installed by a licensed installer in accordance with all applicable codes and reference standards.

LP-Gas appliances whether permanent piped or refillable, all installations, clearances, storage and use shall be according to manufacturer's specifications and 527 CMR.

Under the authority of Boston Fire Prevention Code Article 1, section 1.05(b), the Boston Fire Department prohibits the use or storage of LP-Gas containers inside or on balconies above the first floor of any building or structure used for habitation; or the use or storage of liquefied petroleum gas appliances used for barbecue cooking on first floor porches, decks, or balconies that are enclosed by a roof or other confining material of a building or structure used for habitation.

LP-Gas containers used or stored on permitted first floor porches or decks, shall be conveyed there via an unenclosed exterior staircase only and shall not be passed through any building used for habitation nor shall such appliance obstruct egress.

In accordance with 527 CMR a permit is required from the Boston Fire Department for all permanent container installations and for the storage or use of LP-Gas cylinders of 42 lbs. or greater in the aggregate. Up to 2 -20 lb. cylinders are allowed without a permit provided they are used and stored according to 527 CMR.

(2) Commercial Use

LP-Gas fueled space heaters, fireplaces and decorative heating appliance used or stored on the exterior of any place of assembly, restaurant, bar, or public establishment shall require a BFD fuel storage permit regardless of the amount of fuel on the premises. Fueled appliances and fuel cylinders awaiting replacement or use shall only be used and stored as prescribed by the City of Boston Fire Marshal.

LP Gas or solid fueled cooking appliances used for commercial purposes and special events shall be allowed provided the required permits for fuel storage and use have been obtained and the equipment is used and stored as prescribed by the City of Boston Fire Marshal.

Section 33.07

Regulations for the use of outdoor barbecue & cooking grills using solid fuel, charcoal, and LP-Gas

The following regulations apply to the use of portable, solid fueled, charcoal and LP-Gas operated cooking grills on or within a building or structure and includes balconies, fire escapes, porches, roofs as a part thereof. This section does not apply to natural gas grills permitted through the Boston Inspectional Services Department and installed by a licensed installer in accordance with all applicable codes and reference standards.

(1) LP-Gas Operated Grills

The Boston Fire Department prohibits the use or storage of liquefied petroleum gas containers, including 1-lb LP-Gas containers attached to portable cooking grills, inside or on roof tops, decks, balconies or porches above the first floor of any building or structure used for habitation.

Under the authority of the Boston Fire Prevention Code Article 1, section 1.05(b), the Boston Fire Department prohibits the use or storage of liquified petroleum gas appliances used for barbecue cooking on first floor porches, decks, or balconies that are enclosed by a roof or other confining material of a building or structure used for habitation.

LP-Gas containers, including 1-lb LP-Gas containers attached to portable cooking grills, used or stored on permitted first floor porches or decks, shall be conveyed there via an unenclosed

exterior staircase only and shall not be passed through any building used for habitation nor shall such appliance obstruct egress.

LP-Gas containers, including 1-lb LP-Gas containers attached to portable cooking grills, shall be located in areas where there is free air circulation, at least 3 feet from building openings (such as windows and doors), and at least 5 feet from air intakes of air conditioning and ventilating systems.

527 CMR states that no permit is required for the storage and use of LP-Gas containers of an amount less than 42 lbs. in approved locations. This allows the use and storage of 2 20-lb. propane cylinders without a permit.

(2) Solid Fueled & Charcoal Grills

Under the authority of the Boston Fire Prevention Code Article 1, section 1.05(b), the Boston Fire Department prohibits the use of portable charcoal or any solid or non-gaseous fueled cooking grills, hibachi or similar cooking appliances on or within a building or structure, and further prohibits their use on balconies, decks, porches or within 10 feet of a structure.

The storage of charcoal or any solid or non-gaseous fueled cooking grill, hibachi or similar appliance used for cooking shall be prohibited on all balconies, decks, porches except for single family dwellings. When stored on a porch or deck of a single family dwelling, the appliance shall be empty of all charcoal or solid or non-gaseous fuel

Gas, Solid fueled & Charcoal grill use or storage is prohibited on fire escapes or fire escape balconies.

Section 33.08

Penalties

This ordinance shall be enforced by the Boston Fire Department. Violations of this ordinance, unless otherwise provided for in MGL Chapter 148, MGL Chapter 148A, or 527 CMR, shall result in a fine of fifty (\$50) dollars for the first violation and fifty (\$50) dollars per day that the violation persists.

APPENDIX

1979 APPROVED REFERENCE STANDARDS

The provisions of the documents listed herewith are made a part of the Boston Fire Prevention Code and may be cited as reference standards to define details of performance supplementary to provisions of said Code on matters not otherwise defined by law, regulations, or ordinances. The Fire Commissioner has determined that said documents are so prepared that they represent the best informed judgment on measures necessary for the public safety and have been prepared under procedures which have provided notice and opportunity for review by persons affected by their provisions. The Fire Commissioner has further determined that each document is in such published form as to be readily available and he undertakes to maintain, in the Fire Prevention Division of the Boston Fire Department, a file of the documents listed, available for public reference.

Where the requirements of law, regulations, ordinances, or approved reference standards present practical difficulties, inconsistent requirements or different requirements, and where approved reference standards contain advisory provisions, the Fire Commissioner is hereby authorized to determine which such requirements are applicable.

API — American Petroleum Institute, 1801 K Street, N. W., Washington, D.C. 20006.
Specification for Pipeline Valves (Steel gate, plug, ball and check valves), API No. 60, March, 1974.

Specification for Oil Storage Tanks with Riveted Shells, API No. 12A, December, 1951.
Specification for Bolted Production Tanks, API No. 12B, May, 1958, and Supplement 1, January, 1977.

Specification for Large Welded Production Tanks, API No. 12D, January, 1977.

Specification for Small Welded Production Tanks, API No. 12F, January, 1977.

Recommended Rules for the Design and Construction of Large, Welded, Low-Pressure Storage Tanks, API No. 620, 1977.

Standard for Design and Construction of Liquefied Petroleum Gas Installations at Marine and Pipeline Terminals, Natural Gas Processing Plants, Refineries and Tank Farms, API No. 2510, May, 1970.

Recommended Practice for Venting Atmospheric and Low-Pressure Storage Tanks, API No. RP-2, 1973.

Recommended Practice for Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents, API No. RP-2003, 1974.

Recommended Practice for Cleaning Tank Vehicles Used for Transportation of Flammable Liquids, API No. RP-2013, 1975.

Recommended Practice for Cleaning Petroleum Storage Tanks, API No. RP-2015, 1976.

ACGIH — American Conference of Governmental Industrial Hygienists, Post Office Box 1937, Cincinnati, Ohio 45201

Threshold Limit Values for Toxic Dusts, Fumes and Mists, ACGIH, 1976 Annual Publication.

AMCA — Air Moving and Conditioning Association, 30 West University Drive, Arlington Heights, Illinois 60006.

Standard Test Code for Air Moving Devices, AMCA Bulletin 210 (1974).

ASME — American Society of Mechanical Engineers, 345 East 47th Street, New York, New York 10017.

Boiler and Pressure Vessel Code, 1977

Section I, Power Boilers.

Section IV, Low-Pressure Heating Boilers.

Section VIII, Division 1, Unfired Pressure Vessels.

Section IX, Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Brazing Operators.

Code for Power Piping, ASME No. A00058, 1969.

Code for Fuel Gas Piping, ASME No. A00036; ANSI No. B31.2, 1968.

Code for Petroleum Refinery Piping, ASME No. A00037 1966. ANSI No. B31.3, 1976.

Code for Liquid Petroleum Transportation Piping Systems, ASME No. A38, 1971, ANSI No. B31.4, 1974.

Code for Refrigeration Piping, ASME No. A00040 including addenda through 1968; ANSI No. B31 .5, 1966 with addenda B31.5a, 1968.

Gas Transmission and Distribution Piping Systems, ASME No. A00045, 1969, ANSI No. B31.8, 1968 and supplement B31.8b, 1969.

Scheme for the Identification of Piping Systems, ASME No. L00033, 1956; ANSI No. A13.I, 1975.

Standard for Wrought-Steel and Wrought-Iron Pipe, ASME No. M00031, 1970, ANSI No. B36.10, 1975.

Standard for Pipe Threads (except Dryseal), ASME No. L00018, 1968; ANSI No. B2.1, 1968.

ASHRAE — American Society of Heating, Refrigerating and Air-Conditioning Engineers, 345 East 47th Street, New York, New York 10017.

Safety Code for Mechanical Refrigeration, ASHRAE No. 15, 1970.

Test Standard for Air Cleaning Devices, ASHRAE No. 52, 1976.

ASTM — American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

Test for Penetration for Bituminous Materials, ASTM No. D-5, 1973.

Standard Method of Test for Flash Point by the Tag Closed Tester, ASTM No. D-56, 1977.

Standard Method of Test for Distillation of Petroleum Products, ASTM No. D-86, 1977.

Standard Method of Test for Flash Point by the Pensky-Martens Closed Tester, ASTM No. D-93 1977.

Standard Method of Test for Vapor Pressure of Petroleum Products (Reid Method), ASTM No. D-323, 1977.

Standard Method of Test for Noncombustibility of Elementary Materials, ASTM No. D-136, 1973.

Standard Method of Test for Surface Flammability of Materials Using a Radiant Heat Energy Source, ASTM No. E-162. 1976.

AWS — American Welding Society, 2501 N. W. 7th Street Street, Miami, Florida 33125.
Safety Practices for Welding and Cutting Containers That Have Held Combustibles, AWS No. A6.0, 1965.

Safety in Welding and Cutting, AWS No. Z49.1 (1973).

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PAID FIRE DETAIL

Section 71-2-01

AUTHORITY FOR ORDER

These orders are issued under the authority of the Boston Fire Prevention Code as given in Section 1.05 (b) to determine action necessary to eliminate a dangerous or unsafe condition or conditions not provided for in the Code, and as given in Section 1.06(e) to formulate an order to remedy unsafe conditions found as the result of an inspection.

Section 71-2-02

PAID FIRE DETAIL DEFINED

Paid Fire Detail, "Off-duty authorized members of the Boston Fire Department, contracted to act as a paid fire detail, to take immediate and proper steps to prevent injury or loss of life and property." The number, equipment and duties of the paid fire detail to be as specified necessary by the Head of the Boston Fire Department to handle the hazardous condition or conditions. Compensation to be at the rate established in the rules of the Boston Fire Department, and to be paid by the outside employer.

F.P.O. 71-2-03
Reissue of Page Number Two
(Addition of Note)

December 10, 1971

Paid Fire Detail Form

Chief of Department

Boston Fire Department
115 Southamton Street
Boston, Massachusetts 02118

Sir:

In compliance with the order issued by the Boston Fire Department requiring a paid fire detail.

I _____
Name and title

Representing _____
Person, Company or Corporation

On _____ authorized a paid fire detail of _____
Date Number

Firefighters with _____
Specialized equipment*

At _____
Location

On _____ at _____ for _____
Date Hour Period

(Minimum detail four (4) hour period) Rate per hour: _____

Signature

* PLEASE NOTE:

If fire fighting equipment is borrowed from the Boston Fire Department in order to provide adequate fire protection during the detail, the City of Boston shall be reimbursed in the event that any or all of the equipment is damaged or lost.

SELF-SERVICE AUTOMATED SERVICE STATIONS

Section 71-4-01

AUTHORITY FOR ORDER

This order is issued under authority of the Boston Fire Marshal to pass upon any question arising as to conditions, modifications and limitations of the Boston Fire Prevention Code as given in Section 1.06 (a) of said Code and to determine action necessary to eliminate a dangerous or unsafe condition or conditions not specifically provided for in the Code as given in Section 1.05 (b) of said Code.

Section 71-4-02

AUTHORIZED USE OR ORDER

This order is authorized for use in supplementing provisions of the following and other applicable sections of the Code:

- (a) Section 1.06 (e) in the formulation of an order to remedy unsafe conditions found as a result of an inspection.
- (b) Section 1.09 as conditions and restrictions recommended for use by the Committee on Licenses.
- (c) Section 1.14 as the basis for safeguards and other conditions to be provided for the issuance of permits.
- (d) Section 1.22 in the formulation of a Fire Department Abasement Order

Section 71-4-03

RULE 43 F.P.R. 4 (AMENDED September, 1978) 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 to the Marshall and obtained approval as required and further provided that there is compliance with the following:

- (1) Full self-service 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) In addition to Rules 33 and 35, approved signs bearing the wording "Extinguish All Smoking Materials" and "Stop Motor While Refueling" shall be conspicuously posted at both ends of the pump dispensing island visible to approaching vehicles. All approved signs required by these regulations shall consist of block letters not less than two (2) 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.
- (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 shut off all pumping power to all motor fuel pumps at the service station.
- (h) The controlling mechanism console, switches and related equipment are of an approved type.
- (i) Any person, firm or corporation constructing a self-service facility or making changes in the method of dispensing motor fuel shall notify the Head of the Fire Department, in writing, prior to submitting plans to the Marshal.
- (j) Self-service automated motor fuel dispensing systems for which plans have been submitted to June 20, 1975, shall be equipped with a fire extinguishing system of a type approved by the Marshal, details of which shall be included with plans submitted to the Marshal for approval.
- (k) Motor fuel shall be dispensed only by means of an approved automatic shut-off nozzle, which shall be held open manually. Hold-open clips shall be held open manually. Hold-open clips shall not be allowed on self-service nozzles.

Section 71-4-04

In addition to Section 71-4-03, the following conditions and restrictions shall apply for approval of plans and specifications, in order to secure necessary permits and licenses, by the Head of the Fire Department.

- (1) That such station is fully (not partially) operated as a self-service station.
- (2) That adequate illumination and sufficient means of observation shall be provided so that the filling operation at each vehicle is visible at all times to the controlling mechanism operator.
- (3) That automatic and/or manual extinguishment systems approved by the Head of the Fire Department, shall be provided at each dispensing island.
- (4) That motor fuel shall be dispensed only into the tanks of vehicles.
- (5) That at least one (1) 4-B rated hand fire extinguisher shall be located at each dispensing island.
- (6) That the operator of the controlling mechanism be a competent mature person capable of performing the functions required under emergency conditions, i.e.:
 - (a) To shut down the dispensing units and power supply.
 - (b) To activate the extinguishing system.

- (c) To summon the Fire Department
- (d) To operate portable fire extinguishing equipment.

Section 71-4-05

Split Island Facilities may be allowed provided that:

- (1) In addition to the master console, with disconnect switch, that there shall be installed on the full service islands, additional switches which will activate the overhead suppression systems on, and deactivate power to, the self-service islands.
- (2) The master console for the self-service island shall be located as directed by the Head of the Fire Department.
- (3) The station operator shall be within twenty-five (25) feet of one of the switches as defined in paragraph one (1) of this section, whenever the self-service island dispensing mechanism is in operation.
- (4) Whenever the self-service dispensing mechanism is in operation, the service station operator shall be within the visual range of the filling operation, but in no case further distant than allowed in paragraph three (3) of this section.
- (5) Subsections (1a), (1b), (1c), (1g), (1h), (1i), (1j), (1k) of Section 71-4-03 are complied with and Subsections 3,4,5, and 6 of Section 71-4-04 are complied with.

Fire Prevention Order 71-3

December 10, 1971

ATTACK DOGS

Section 71-3-01

AUTHORITY FOR ORDERS

(A) Chapter 148, Section 28B, April 17, 1969

“The Board shall be rule require, and the Head of the Fire Department shall make, such orders or rules not inconsistent therewith, that any persons having control of a mercantile, commercial, or industrial establishment wherein canine guards are maintained shall notify the Head of the Fire Department of the district, city, or town within which such establishment is located, of the name, address, and telephone number of the person who supplies or controls such canines.”

(B) CMR 10.12, in accordance with Chapter 148, Section 10, G.L. “Any person having control of a mercantile, commercial, or industrial establishment wherein canine guards are maintained shall notify the Head of the Fire Department of the district, city, or town within which such establishment is located that such canine guard is maintained therein. The Head of the Fire Department and the person giving such notification shall cooperate in determining the procedure to be taken for the safety of authorized persons entering such mercantile, commercial, or industrial establishment.”

Section 71-3-02

ORDERS OF THE HEAD OF THE FIRE DEPARTMENT

In compliance with G.L. Chapter 148, as quoted in Section (A) and CMR 10.12 as quoted in Section (B), the following additional conditions and restrictions shall apply as order of the Head of the Fire Department:

- (a) Each owner and handler of a canine guard which is placed in or upon any mercantile, commercial, or industrial premises or property location in the City of Boston, shall apply for a permit from the Boston Fire Department to handle such animals.
- (b) The Boston Fire Department shall be notified of every mercantile, commercial, or industrial premises or property upon which it is intended to place canine guards.
- (c) At each entrance to said premises or property upon which canine guards are maintained shall be posted a *durable* sign with the words “ATTACK DOGS” or the letters “A.D.,” and “B.F.D. PERMIT NO. __,” in white block letters not less than (2) inches high on red background, placed approximately eight (8) feet above the ground, securely fastened and readily discernible.
- (d) The requirements of Sections (b) and (c) above need not apply if the canine guard is leashed and under the control of a competent person on duty at all times the do is uncaged.

Section 71-3-03

DOG HANDLERS PERMIT

- (a) The application for a permit shall contain the following:
 - Owner’s Name
 - Address
 - Emergency Telephone Number
 - Handler’s Name
 - Address
 - Emergency Telephone Number
 - Other Means of Communication(The above information will be confidential and filed in the Fire Alarm Office.)
- (a) A permit and assigned number will be issued to each applicant.
- (b) The permit holder’s number shall be posted on the signs required by Section 71-3-02(c) at each location where a canine guard he is handling is placed.
- (c) The permit holder shall notify the Fire Alarm Headquarters (617 _____) of the following information:
 - 1. Each location at which it is intended to place a canine guard.
 - 2. Each location the services of a canine guard are terminated.
 - 3. Any change from that given on his application.
- (d) The permit will expire and be renewable on December 31 of each year.
- (e) There will be no fee unless established by city ordinance.

Section 71-4-05

Split Island Facilities may be allowed provided that:

- (1) In addition to the master console, with disconnect switch, that there shall be installed on the full service islands, additional switches which will activate the overhead suppression systems on, and deactivate power to, the self-service islands.

- (2) The master console for the self-service island shall be located as directed by the Head of the Fire Department.
- (3) The station operator shall be within twenty-five (25) feet of one of the switches as defined in paragraph one (1) of this section, whenever the self-service island dispensing mechanism is in operation.
- (4) Whenever the self-service dispensing mechanism is in operation, the service station operator shall be within the visual range of the filling operation, but in no case further distant than allowed in paragraph three (3) of this section.
- (5) Subsections (1a), (1b), (1c), (1g), (1h), (1i), (1j), (1k), of Section 71-4-03 are complied with and Subsections 3, 4, 5, and 6 of Section 71-4-04 are complied with.

Fire Prevention Order 71-3

December 10, 1971

ATTACK DOGS

Section 71-3-01

AUTHORITY FOR ORDERS

(A) Chapter 148, Section 28B, April 17, 1969

“The Board shall be rule require, and the Head of the Fire Department shall make, such orders or rules not inconsistent therewith, that any persons having control of a mercantile, commercial, or industrial establishment wherein canine guards are maintained shall notify the Head of the Fire Department of the district, city, or town within which such establishment is located, of the name, address, and telephone number of the person who supplies or controls such canines.”

(B) CMR 10.12, in accordance with Chapter 148, Section 10, G.L. “Any person having control of a mercantile, commercial, or industrial establishment wherein canine guards are maintained shall notify the Head of the Fire Department of the district, city, or town within which such establishment is located that such canine guard is maintained therein. The Head of the Fire Department and the person giving such notification shall cooperate in determining the procedure to be taken for the safety of authorized persons entering such mercantile, commercial, or industrial establishment.”

Section 71-3-02

ORDERS OF THE HEAD OF THE FIRE DEPARTMENT

In compliance with G.L. Chapter 148, as quoted in Section (A) and CMR 10.12 as quoted in Section (B), the following additional conditions and restrictions shall apply as orders of the Head of the Fire Department:

- (a) Each owner and handler of a canine guard which is placed in or upon any mercantile, commercial, or industrial premises or property location in the City of Boston, shall apply for a permit from the Boston Fire Department to handle such animals.
- (b) The Boston Fire Department shall be notified of every mercantile, commercial, or industrial premises or property upon which it is intended to place canine guards.
- (c) At each entrance to said premises or property upon which canine guards are maintained shall be posted a *durable* sign with the words “ATTACK DOGS,” or the letters “A.D.,” and “B.F.D.

PERMIT NO. _____,” in white block letters not less than two (2) inches high on red background, placed approximately eight (8) feet above the ground, securely fastened and readily discernible.

- (c) The requirements of Sections (b) and (c) above need not apply if the canine guard is leashed and under the control of a competent person on duty at all times the dog is uncaged.

Section 71-3-03

DOG HANDLERS PERMIT

- (a) The application for a permit shall contain the following:

- Owner’s Name

- Address

- Emergency Telephone Number

- Handle’s Name

- Address

- Emergency Telephone Number

- Other Means of Communication

(The above information will be confidential and filed in the Fire Alarm Office.)

- (b) A permit and assigned number will be issued to each applicant.
- (c) The permit holders’ number shall be posed on the signs required by Section 71-3-02(c) at each location where a canine guard he is handling is placed.
- (d) The permit holder shall notify the Fire Alarm Headquarters (617) of the following information:
 - (1) Each location at which it is intended to place a canine guard.
 - (2) Each location the service of a canine guard are terminated.
 - (3) Any change from that given on his application.
- (e) The permit will expire and be renewable on December 31 of each year.
- (f) There will be no fee unless established by city ordinance.

CANINE GUARD PLACEMENT REPORT (After Notification of Fire Alarm)

Date _____
Phone _____
Name of Person, _____ Number _____
Firm or Corporation _____
Address _____ Zip _____
Street and Number _____
Property or _____
Premises protected _____
Street and Number _____
Area dogs located _____
Yard, building, floor, room, apartment, etc. _____
Number of dogs _____ Entrances to be posted _____
Number of location _____
Person, Firm or _____ Emergency _____
Corp. Representative _____ Phone _____

CANINE HANDLER (s)

Boston Fire Department
#1. Name _____ # _____
Permit – Dog Handler _____
Address _____ Zip _____
Emergency Communication: Phone _____ Other means _____

#2. Name _____,
Permit – Dog Handler _____
Address _____ Zip _____
Emergency Communication: Phone _____ Other means _____

Canine Guard Owner _____ Phone _____
Address _____ Zip _____

Remarks: Boston Fire Alarm Office (617 _____) notified by: _____

_____ On _____
Name Date

Immediate notification of any
Change must be made to Fire
Alarm (617 _____) and confirmed
On this form returned to Fire
Prevention Division, 115 Southhampton
Street, Boston, MA 02118

Signature of person making report

REGULATION AND PROCEDURE FOR BUILDING EVACULATION

Section 72-1-01

AUTHORITY FOR ORDER

This order is authorized by the Head of the Fire Department to establish procedure to be followed in conducting fire exit drills as required in Section 11.10(c) of the Boston Fire Prevention Code.

This order is issued under the authority of the Fire Marshall to pass upon any question arising as to the conditions, modifications, and limitations of the Boston Fire Prevention Code as given in Section 1.06(a) of said Code and to determine actions to eliminate dangerous and unsafe conditions not provided for specifically in the Code as given in Section 1.05(b) of said Code.

Section 72-1-02

This order shall apply to all buildings and occupancies where law, ordinance, regulation or rule requires that the Head of the Fire Department conduct fire evacuation drills, and to all buildings the Head of the Fire Department has determined to be in one of the following categories:

(a) Those buildings where there are occupants located above or below grade of such total numbers that their movement under emergency conditions could expose them to conditions dangerous to life from panic, fire, smoke, and fumes before they could be evacuated.

(b) Those buildings the occupancy of which involves significant amounts of combustible materials which could under fire conditions rapidly produce heat, smoke, flame, or other dangerous products of combustion, making it difficult or impossible to evacuate the occupants without subjecting them to possible injury to person or loss of life.

(c) Those buildings where a particular configuration due to length, width, depth, height, number of stories or levels, type of construction or topography would hinder either the promptness or effectiveness of Fire Department operations.

A building under seventy feet (70') in height, having no floor area over forty-eight hundred square feet (4,900) and having not more than one level below grade, shall not be included in this category.

Section 72-1-03

MEANS OF EGRESS – DEFINITIONS

MEANS OF EGRESS – A means of egress is a continuous and unobstructed way to exit travel from any point in a building to a public way and consists of three separate and distinct parts: (a) the way of exit access; (b) the exit; (c) the way of exit discharge.

EXIT ACCESS – That portion of a means of egress which leads to an entrance to an exit.

EXIT – That portion of a means of egress which is separated from the building by construction providing a protected way of travel to the exit discharge.

EXIT DISCHARGE - That portion of a means of egress between the termination of any exit and a public way.

PUBLIC WAY – Any street, alley, or other parcel of land, open to the outside air for public use.

Section 72-1-4

EXIT DOOR MAINTENANCE

No exit doorway shall, while the building is occupied, to be locked, bolted, fastened, or wedged so far as to prevent free use of the way of exit.

A door designed to be kept normally closed in a means of egress such as a door to a stairwell or a horizontal exit, shall not at any time be secured in an open position.

Ways of exit access and the doors to exits shall be clearly recognized as such.

Section 72-1-5

MARKING MEANS OF EGRESS

A sign reading “EXIT” with an “arrow” indicating direction shall be placed in every location where the exit access is not immediately apparent.

Exit door shall be clearly and distinctly marked with the word “EXIT” and a number or letter designating the stairwell. All numerals and letters shall be plainly and legibly marked not less than six inches (6”) high with strokes not less than 3/4”.

The Owners, Lessee, or Designated Agent of a building which the Head of the Fire Department has determined as in one of the categories enumerated in Section 72-1-02 shall submit to the Head of the Fire Department a Plan of Procedure for Evacuation of the Building for approval.

The Owner, Lessee, or Designated Agent preparing the Plan of Procedure for Evacuation of the Building shall designate:

- (a) a person or persons responsible for maintenance of facilities and personnel required by the plan:
- (b) a responsible person designed in the Plan of Procedure for Evacuation as the Evacuation Director who will be in complete charge of the procedures and the specific responsibilities of those assigned in the plan:
- (c) sufficient Area Evacuation Directors so that an evacuation organization will be in force in all occupied portions of the building and the public areas under the plan, i.e., lobbies, exit access, and exits:
- (d) sufficient alternates names for each Evacuation Director and Assistant Evacuation Director and Area Evacuation Directors so that a principal or alternate is in the building at all times it is occupied to supply leadership under the plan.

A daily check shall be made and records kept for Fire Department examination to ascertain that a fire evacuation team is present at all times the building is occupied.

The Owner, Lessee, or Designated Agent preparing the Plan of Procedure for Evacuation shall submit with the plan, a line sketch of the means of egress from each floor and level, after interior partitions have been erected and furnishings installed.

A means of egress comprises the vertical and horizontal ways of travel and shall include intervening room spaces, doorways, hallways, corridors, passageways, balconies, ramps, stairwells, stairs, enclosures, lobbies, escalators, horizontal exits, courts, yards, and public ways.

The sketch of the stairwell and stairs shall also indicate those doors through which under emergency conditions re-entry may be freely made to the building.

Any of the following may be required by the Head of the Fire Department for his approval of the Plan of Procedure for Evacuation of the Building and, if not, a component of the building should be included in the line sketch: Emergency Power Fire Alarm System, Fire Extinguishing Systems, Smoke Removal Systems, Public Address Systems, Two-way Communications Means, Central Control Room, Heat, Smoke, Flame Detection, and any other emergency control or indicating systems.

Where required by law, ordinance, regulation or the conditions of the Head of the Fire Department for approval of the Plan of Procedure for Evacuation, a central control room in an approved, readily accessible, protected location shall be provided from which the emergency systems of the building can be controlled and containing the following as required:

- (a) means of registering visually and audibly, the location of any signal from fire alarm or fire extinguishing systems and condition-indicating equipment on mechanical systems;
- (b) facilities for two-way communication between the central control room and other points in the building for the control of people within the building and mechanical and fire extinguishing systems and their components;
- (c) a fire alarm master box connected to the Boston Fire Alarm system or a Central Station Signalling system;
- (d) means for selectively operating the Fire Alarm Evacuation Signal on ANY or ALL sections or floors;
- (e) a telephone connected to a public telephone system;
- (f) when provided, television monitors;
- (g) means for selectively operating a public address system on ANY or ALL floors or sections and the means of egress;
- (h) a fire repository for emergency keys, devices, and phones;
- (i) a list of personnel assigned by the Owner, Lessee, or Designated Agent of the building and their specific emergency duties;
- (j) plans and descriptions of the sections and floors of the building showing fire separations, means of egress, fire alarm and fire extinguishing systems, and essential data on the mechanical systems of the building summarized for use.

Where required by law, ordinance, regulation or the conditions of the Head of the Fire Department for approval of the Plan of Procedure for Evacuation, an approved fire alarm system shall be installed conforming to Boston Fire Alarm Regulation FAR1 and approved reference (NFPA 70-71-72 ABCD-73).

It shall be a phased-type local fire alarm system which upon actuation of any fire alarm initiating device shall:

- (a) transmit a fire alarm signal to the Boston Fire Department either through the Boston Fire Alarm system or a Central Station Protective Signalling System.
- (b) Cause fire alarm evacuation signals to sound on the floor from which the alarm originated and the floor directly above.
- (c) Cause audible and visual fire alarm signals at the central control room and the building emergency personnel control room.

The fire alarm system shall be so designed that the fire alarm evacuation signal may be sounded selectively from the central room for ANY and ALL floors and the general fire alarm evacuation signal may be sounded from any manual fire alarm station by use of a special key and lock-trap.

At least one manual fire alarm station shall be provided on each floor in the means of egress and additional stations located and indicated visibly so that no more than 200 feet would have to be traversed horizontally on the same floor to reach a normal manual fire alarm station.

Signals indicating abnormal fire alarm system conditions shall transmit to a constantly attended control room or a central station providing supervisory service and maintenance.

Where required by law, ordinance, regulation or the conditions of the Head of the Fire Department for approval for the Plan of Procedure for Evacuation an approved public address system shall be provided as follows:

- (a) The public address system shall be installed as required by Boston Fire Alarm Regulations FAR 1 and approved reference standards NFPA 72-A.
- (b) The public address system shall be designed so that it may be operated from the central control room to operate loud speakers selectively wherever they may be located throughout the building. If the loud speaker control unit is not located in the central control room, visual indication shall be provided on the unit to indicate its use from the central control room.
- (c) Speakers of the public address system shall be so located so that all occupied areas of the premises are covered, including means of egress, horizontal and vertical exits, courts, yards, and the path of exit discharge as well as control rooms of emergency equipment.
- (d) At all connected speakers, the amplifier shall be capable of delivering power at a level at least 90 dbm.
- (e) Speakers shall be so located on each floor or in each area so that at all points on the floor or area, the sound of the speaker shall be at least 12 dbm in excess of ambient noise levels at such points.

Section 72-1-06

EMERGENCY LIGHTING

Type 1 emergency lighting as defined in approved NFPA 101 “Life Safety Code”, shall be provided in all means of egress

Section 72-1-07

STAIRWELL DOORS MARKING

The stairwell side of each door shall be clearly and distinctly marked with the floor level numeral and the stairwell designating number of letters.

The stairwell side of each door which has been designated for use as “EMERGENCY RE-ENTRY” shall be so marked clearly and distinctly and the entire face painted red.

All numerals and letters shall be plainly and legibly marked not less than six (6) inches high with not less than ¾ strokes.

Section 72-1-08

TWO WAY COMMUNICATION

When required by law, ordinance, regulation or the condition of the Head of the Fire Department for approval of the Plan of Procedure for Evacuation, a two-way communication system shall be installed to provide communication between floors, sections, elevators, exitways, and the central control room or the mechanical control rooms for power, fire pumps, water supplies, and air handling and other emergency systems.

It may be telephone systems, radio or public address systems all of which should be self-contained and independent of the building power.

Approved fire evacuation drill required.

The conduct of fire exit drills in any building shall be in accordance with the approved Plan of Procedure for Evacuation.

Fire exit evacuation drills shall be held with sufficient frequency to familiarize all occupants with the drill procedure and to have the conduct of the drill a matter of established routine.

Section 72-1-09

ELEVATORS

Elevators shall not be considered as part of a means of egress. All elevators shall be posted with a sign as required in Section 81.06 of the Commonwealth of Massachusetts Department of Public Safety, Board of Elevator Regulations ELV-2.

All equipment shall be designed, constructed, installed, operated, and maintained in compliance with applicable law, ordinance, rule, regulation or approved reference standard.

BOSTON FIRE DEPARTMENT GUIDELINES FOR EVACUATION PLANNING

Fire Prevention Order 72 Establishes requirements for building evacuation. These guidelines are intended to provide the building owner with a maximum degree of flexibility to achieve the necessary fire safety for his building. Each building should have an individually tailored plan for occupants use and this plan should be coordinated with the Fire Department’s plan for emergency operations in the building. These guidelines are intended to cover the basic essentials necessary for the safety of all occupants and to insure an orderly evacuation at time of emergency.

The owner, lessee, or agent in charge of a building shall be responsible for the preparation of a plan of evacuation, and for the maintenance of facilities and the training of the personnel essential to the plan. The plan shall be subject to approval by the Head of the Fire Department and to review and updating when the Head of the Fire Department determines that changes have occurred in the building.

Fire Prevention Order 72, page 2, lists the categories of buildings to which this order applies. Also, when apartment houses and apartment hotels are of such size as to fall into the categories listed, they will also be subject to the requirements of designating that a responsible person shall prepare and submit an evacuation plan for their employees, subject to approval by the Head of the Fire Department.

Required Personnel

Before approving a fire exit drill plan for any building, the Head of the Fire Department may require that the owner, lessee, or agent of the building name a managing agent for the building. Such managing agent shall be responsible for the maintenance of the facilities and personnel required by the approved fire exit drill plan. Said managing agent shall designate an assistant to act for him at all times the managing agent is not actually in the building. The Head of the Fire Department may require that a roster be established for each building so that when the managing agent is not actually in the building, by this roster, which shall be posted at the Command Center, the Fire Department will have notice of who is performing the duty as the managing agent's assistant.

Exit Drill Organization

The Evacuation Director shall:

1. be in complete charge of the established evacuation procedure and the specific responsibilities of the personnel assigned in the plan;
2. coordinate the Assistant and the Area Evacuation Directors in their responsibility for their assigned specific areas in the preplanned evacuation procedure;
3. be responsible for the education and training of all building personnel and occupants of the building in the essentials of a preplanned course of action to be followed under the plan of procedure approved for the building;
4. instruct occupants of the building as to the use of the fire alarm system and the course of action to be followed under the building's approved plan of procedure for evacuation. The use of the fire alarm system shall include an understanding by all occupants of what is accomplished when an alarm station is activated. The occupants should fully understand the difference between a LOCAL system and a DIRECT FIRE DEPARTMENT CONNECTION. He shall maintain close cooperation with the Head of the Fire Department in the development of an effective preplanned course of action to be followed in case of emergency in the building. He shall select areas to which occupants may be moved in case of emergency.

The Assistant Evacuation Directors shall:

1. be selected by the Evacuation Director on the basis of their qualities of leadership and responsibility and will work under the direction of the Evacuation Director to lead and control in their assigned area in time of emergency;
2. supervise a specific area, usually this shall include a number of floors depending on the occupancy of the building; he shall be responsible for all assigned personnel on his floors or in his areas;

3. maintain cooperation with the occupant managers to insure adequate covering of public areas of building; such as lobbies, stairwells, and egress routes;
4. provide himself with an organization for the part of the building to which he is assigned, including area directors, monitors, room searchers, and other individuals, depending on number of occupants, their physical condition, and the number necessary to control their movement in time of emergency; through this organization he shall inform occupants of their duties in connection with the various signals which may be given over the fire alarm system.

In setting up the preplanned evacuation procedure, it is preferable that the buildings be sectionalized according to departmental areas where a single tenant is involved, taking into account public areas such as lobbies, corridors, and stairwells.

Sufficient Assistant Evacuation Directors shall be appointed from among the occupants of the building so that an exit drill organization will be in force in all occupied areas of the building. In single tenant areas, the respective department managers may choose the Assistant Evacuation Directors. In multiple tenant areas, the respective tenant managers shall choose the Assistant Evacuation Directors.

Sufficient alternates shall be named for each Managing Agent, Evacuation Director, Assistant and Area Evacuation Directors, and other positions under the plan so that a principal or alternate is in the building at all times it is occupied. There shall be a daily check by the Evacuation Director of the building and a record of the names of the Assistant and Areas Alternates on duty shall be kept. This will be evidence for the Fire Department that such a fire exit drill organization is actually in effect.

Area Evacuation Directors shall be selected by Evacuation Director and responsible for providing leadership to the occupants in his assigned area. He must be capable of providing coordination with other Area Evacuation directors for prompt and efficient evacuation under the procedures established in the approved plan for his building.

He shall:

1. make sure that alarm is sounded when fire is discovered;
2. be responsible for instructing the occupants in his assigned area of the operation of the fire alarm system and of the procedures to follow in case of emergency;
3. have supervision of all occupants in his area at time of emergency;
4. be familiar with the layout of his floor or assigned area, including all emergency systems;
5. be aware at all times of the number of persons in his assigned area;
6. provide necessary personnel to assist handicapped persons in time of emergency;
7. be familiar with the means of egress and responsible for reporting any conditions that could hinder the free use of same;
8. designate responsible persons as stair monitors and room searchers to assist the orderly exit from all areas of the building;
9. maintain contact with other Area Evacuation Directors and Assistant Evacuation directors during a building emergency;
10. be capable under emergency conditions of making individual decisions for any situation which might arise not covered in the preplanning.

Stairs

Before approving a fire exit drill plan for any building, the Head of the Fire Department will, after a survey of the building, approve the designation of certain doors to be used for emergency re-entry from the stairwell into the building in time of emergency.

In addition, the Head of the fire Department may require that the following facilities be provided in connection with fire exit stairwells;

- (a) Doors leading to exit stairwells from each floor shall be distinctly marked, clearly visible, and unlocked.
- (b) Stairwells shall be identified by a designation, such as a letter, so that confusion can be avoided in referring to particular stairwells during an emergency.
- (c) Stairwells shall be provided with adequate lighting at all times and arrangements for emergency lighting shall be satisfactory to the Head of the Fire Department.
- (d) Stairwells shall be adequately covered by the P.A. (public address) system.
- (e) Floor levels inside of stairwells shall be marked with a letter to indicate the particular stairwell, and a number to indicate the floor level. Size of letter and number shall be at least 6" high, with $\frac{3}{4}$ " stroke.
- (f) All Stairwell doors shall be made as smoke-tight as possible.
- (g) Each floor level of the stairwell should have facilities for two-way voice communication between the Central Control room and other points in the building which can assist in the orderly movement of occupants and provide more efficient operations for the Fire Department in time of emergency.

Elevators

The Commonwealth of Massachusetts Department of Public Safety Board of Elevator Regulations (LV-2) effective December 10, 1971, contains improved regulations for the safe operation of elevators in our more recently constructed buildings.

These guidelines suggest means of providing more adequate safety improvements in existing buildings and a effort to bring the safety features as close as possible to the requirements applicable to the operation of elevators in our newer buildings.

1. All elevators should have an emergency voice communication system.
2. At least one elevator, preferable the freight elevator, shall be designated for Fire Department use in an emergency. This elevator shall have an emergency power supply.
3. Procedure shall be established for elevator use in case of an emergency.

Where manually operated elevators are provided, elevator starters will be alerted from the Central Control Room. All elevators serving the floor of the incident and the floors above shall be brought to the main lobby by the elevators starters and held in readiness for future operation.

In buildings where elevators are automatically controlled, and no starters are regularly assigned, it shall be the responsibility of the building manager to have assigned personnel to accomplish the function of bringing all elevators from the floor of the incident, and the floors above, to the main floor on the sounding of the fire alarm and hold elevators at the main floor until released by the Fire Department.

IT IS IMPORTANT TO EDUCATE BUILDING PERSONNEL NOT TO USE THE ELEVATORS WHEN AN ALARM IS SOUNDED, OR WHEN NOTIFIED THAT A FIRE EMERGENCY EXISTS IN THE BUILDING.

When an emergency exists, the preplanned course of action goes into operation. Elevators shall be avoided as a means of egress, and movement of occupants would come under the supervision of the Area Evacuation Directors.

When a fire emergency exists, the elevators must be under the control of the Fire Department. When elevators have been returned to the man floor, the occupants of the building should be informed that the elevators have been put under Fire Department control.

Fire Alarm System

The function of the building fire alarm system should be thoroughly understood by all. The sounding of an audible alarm should put into action the predetermined plan of the building. Manual fire alarm stations that use a special key and a lock-trap should be carefully supervised. Keys should be assigned only to the personnel designated by the Evacuation Director.

The general fire alarm evacuation signal can be sounded from the Central Control room and also from any manual fire alarm station by use of a special key and a lock-trap. The assignment of the key for the use of these manual fire alarm boxes to actuate the alarm throughout the building should only be to individuals who possess qualities of leadership and the capability of making the right decision. It is most likely that the Assistant and Area Evacuation Directors would be included.

Public Announcement (P. A.) System

The P. A. system should be designed to give information to the occupants of the building. It can be used to direct occupants to designated areas in time of emergency. It is an essential part of the plan to control the movement of the occupants and could, by a combination of live and recorded messages, keep them fully informed in time of emergency.

It can be used when the occupants of a designated floor are moved to another floor, by announcements advising them of the receiving floor of the expected arrival of evacuees. By the combination of an alarm system and a follow-up voice announcement, we have a preplanned system that keeps occupants informed and aware at all times of the course of action to be followed in time of emergency.

Operation in the Event of an Emergency

1. Any person discovering a fire shall notify the Fire Department immediately by whatever means are available.

If a fire alarm box is available, it should be used because it will sound an audible alarm and put in operation the preplanned evacuation procedure. If a fire alarm box is not available, the Fire Department shall be notified by telephone – 536-1500, giving the exact location of the fire – (floor number).

2. Upon the sounding of an audible alarm, the Assistant Evacuation Directors shall supervise the evacuation of their assigned floors. They shall keep abreast of the actions of the Area Evacuation Directors and all personnel assigned to the pre-fire plan.

3. Area Evacuation Directors shall supervise the evacuation of their assigned areas. They shall see that all personnel assigned to the stairwells, washrooms, handicapped persons, and other designated areas fulfill their duties.
4. Occupants should follow instructions of their Area Evacuation Directors and the established procedure for evacuation for their building. They should await instructions from their Area Evacuation Directors before evacuating their department and should keep alert for follow-up instructions via the P. A. system.
5. The Evacuation Director shall report to the Central Control Room and maintain contact with the Assistant and Area Evacuation Directors via the P.A. and two-way communication.
6. The "All Clear" announcement shall be made via the P.A. system.
7. The telephone switchboard operator shall maintain contact with the Central Control Room and give top priority to call pertinent to the emergency. The telephone switchboard operator on notification of a fire emergency in the building shall immediately notify the Fire Department.
8. On arrival of the Fire Department, the chief shall be in charge of the entire building and its occupants.

Fire Prevention Order 72-2

September 1, 1972

PLACE OF ASSEMBLY

Section 72-2-01

AUTHORITY FOR ORDERS

This order is authorized by the Head of the Fire Department to establish terms and conditions required for the issuance of the Place of Assembly Permit required by Section 27.02 of the Boston Fire Prevention Code for all places of assembly.

This order is issued under the authority of the Fire Marshal to pass upon any question arising as to the conditions, modifications, and limitations of the Boston Fire Prevention Code, and to determine actions necessary to eliminate dangerous and unsafe conditions not provided for specifically in the Code as given in Section 1.05 (b) of said code.

Section 72-2-02

PLACE OF ASSEMBLY DEFINED

Place of Assembly," any building designed, constructed, reconstructed, remodeled, altered, used or intended to be used, for fifty or more persons to assemble therein for any of the following: dance halls, cabarets, restaurants, night clubs, all places in which alcoholic beverages are sold or for sale to be consumed on the premises, any room or space used for public or private banquets, feasts, dances, socials, card parties, or weddings or religious services except funerals in private homes, lodge and meeting halls or rooms, skating rinks, gymnasiums, swimming pools, billiard, pool, bowling, and table tennis rooms, halls or rooms used for public or private catering purposes, funeral parlors, recreation rooms, broadcasting studios, school and college auditoriums, and all other places of similar occupancy. Nothing in this paragraph shall apply to a single-family or two family dwelling, or to a place of incarceration or detention, a convent, a

monastery, a church, a synagogue, a theatre, a special hall, or a schoolhouse, or those places which are used mostly as a place of religious worship.

Section 72-2-03

GAMES OF BEANO

Games of Beano (as defined in Chapter 147, Section 52) in any building shall comply with the regulations hereinafter set forth for public assembly as required by law.

Section 72-2-04

PERMIT REQUIREMENTS

- (a) No place of assembly as defined in Section 72-2-02 shall be maintained or operated or used as such without a permit and approval of the Head of the Fire Department.
- (b) Each place of assembly shall post the permit issued in a conspicuous location, readily visible, and stating the maximum number of persons allowed at any one time. The number of persons shall not exceed that number stated on the Certificate of Occupancy issued under applicable law, ordinance, or regulation.

Section 72-2-05

MEANS OF EGRESS – DEFINITION

MEANS OF EGRESS – A means of egress is a continuous and unobstructed way of exit travel from any point in a building to a public or private way, and consists of three (3) separate and distinct parts: (a) the way of access; (b) the exit; (c) the way of exit discharge; and also comprise the vertical and horizontal ways of travel; and shall include intervening room spaces, doorways, hallways, corridors, passageways, balconies, ramps, stairwells, stairs, enclosures, lobbies, escalators, horizontal exits, courts, yards, and public or private ways leading to a safe location in the open air, and shall all be considered as part of the place of assembly.

Section 72-2-06

EGRESS REQUIREMENTS

- (a) Places of assembly shall have at least two means of approved egress and shall open in the direction of the means of egress.
- (b) Means of egress shall not be locked, bolted, or fastened during occupancy.
- (c) All furnishings (such as chairs, tables, etc.) used in places of assembly shall be so placed as to have ready access by aisles to each means of egress.
- (d) No means of egress in a place of assembly shall be obstructed by persons or furnishings so as to present a hazardous or unsafe condition.
- (e) Standing or waiting in aisles, passageways, landings, or stairways shall not be permitted in places of assembly.
- (f) Approved means of egress shall not pass through kitchens or services pantries used in places of assembly in any building constructed or remodeled after July 17, 1946.

Section 72-02-7

DECORATIONS, FURNISHINGS AND INTERIOR FINISH PERMIT REQUIREMENTS

Decorations, furnishings, and interior finish shall not be used in a place of assembly unless approved by the Head of the Fire Department and a permit issued for use. Permits are issued for a specific period of time subject to the terms and conditions of approval which may include re-examination or certification of the approved materials.

DEFINITIONS

- (a) "Decorations," shall include but are not limited to, materials used for artistic enhancement, seasonal décor, scenery, floral decoration, and displays.
- (b) "Furnishings," shall include but are not limited to, materials used for upholstering, drapes, coating, laminating, surfacing or forming, chairs and related furnishings.
- (c) "Interior Finish," shall include but is not limited to the base and surfacing materials affixed to the building structure or its walls, partitions (movable or fixed), ceilings, floors, and all exposed surfaces.

Section 72-2-08

OPEN FLAME

- (a) No open flame for decorative or display purposes shall be permitted, including any open flame as part of a performance, in any place of assembly.
- (b) If open flame is allowed under a permit for utilitarian purposes in the preparation or serving of food, a permit will be required for the storage of any materials used as a source of heat.

Section 72-2-09

FIRE APPLIANCES

- (a) Fire appliances in numbers, size, and type shall be installed in the manner prescribed by approved applicable reference standards, in every location where required by the Head of Department.
- (b) All fire appliances shall be kept in proper working condition, fully charged, ready for immediate use, properly tagged, visible, and accessible at all times.
- (c) Regular employees shall be properly trained in the use of all such fire appliances.

Section 72-2-10

SMOKING

Where smoking is permitted in areas designated by the Head of the Fire Department there shall be provided approved noncombustible ash trays or match receivers of any type, number, and location as required by the terms and conditions of approval.

Section 72-2-11

KITCHEN AND SERVICE PANTRIES

Where kitchen and service pantries are provided, they shall be separately enclosed in partitions, floors, and ceilings which comply with applicable law, ordinance, regulation, or approved reference standards.

Section 72-2-12

PROJECTION BOOTH

Every place of assembly in which pictures are projected using 35 millimeter (35mm) or larger film shall have a projection booth permanently constructed, installed, and used in compliance with applicable law, ordinance, regulation or approved reference standard, and consistent with construction requirements for the type of building in which the projection booth is located.

Section 72-2-13

EMERGENCY LIGHTING

- (a) Type 1 emergency lighting shall be so arranged as to provide the required illumination automatically in the event of any failure of normal lighting in the circuits serving areas requiring temporary lighting due to any single manual act such as accidental opening of a switch controlling normal lighting facilities, and shall be either continuously in operation or shall be capable of repeated automatic operation without manual intervention.
- (b) Emergency lighting shall be installed in compliance with applicable law, ordinance, regulation, and approved reference standards.

Section 72-2-14

PAID FIRE DETAIL – REQUIRED

- 1. Whenever the maintenance, operation or use of any building or any part thereof, constitutes a potential fire or panic hazard which is dangerous or unsafe, or a menace to the public safety, or may unduly endanger occupants therein, members of the Boston Fire Department shall be detailed to such buildings or places of assembly as a paid fire detail by the Head of the Fire Department to prevent or safeguard against such conditions.

PAID FIRE DETAIL DEFINED

- 2. Off-duty authorized members of the Boston Fire Department, contracted to act as a paid fire detail, to take immediate and proper steps to prevent injury or loss of life and property. The number, equipment and duties of the paid fire detail to be specified necessary by the Head of the Boston Fire Department to handle the hazardous condition or conditions. Compensation to be at the rate established in the rules of the Boston Fire Department, and paid by the outside employer.

MINIMUM REQUIREMENTS FOR ISSUANCE OF PERMIT

Description – Electrostatic Paint Sprayers

Paint from a pressurized container is mechanically atomized and passed through a high potential electrostatic field. The paint particles become charged electrically and are attracted to the grounded work.

ARTICLE 12, DIV. II

Spraying should be done in an approved spray booth where the work and other metal objects are well grounded. However, the use of the No. 2 Process hand gun outside a spray booth in a building may be approved under the following conditions:

1. The district chief is to be notified within whose district the specific building is located.
2. A permit is obtained from the deputy chief in charge of fire prevention.
3. The permit shall state the maximum amount of epoxy, thinner, and liquid sandpaper allowed on the premises of said building at one time.
4. Air intakes to air-conditioning and central ventilating system shall be closed and tightly sealed, with units shut down during spraying operations.
5. Not more than one quart of thinner in an approved container closed at all times when not being used, to clean the spraying head during operation, shall be kept on the premises.
6. Only epoxy-base paints shall be used and approved; flame retardant drop cloths shall be provided.
7. Adequate natural ventilation shall be provided in the vicinity of spraying operations.
8. Cleaning and disassembly of the spray gun and related equipment shall be conducted outside the building or in a suitable inside location designated by the district fire chief.
9. "No Smoking" signs shall be displayed, and no open flames, smoking, or other sources of ignition shall be permitted in the vicinity of the spraying operation.
10. Fire extinguishers, number and size as specified by the district chief, shall be provided in the work area and at entrance to same.
11. All electrical equipment shall be rated for the hazard and comply with F.P.R. 11.
12. At the conclusion of the operation all standing residue, rags, drop cloths, and other debris shall be immediately placed in covered containers and removed from the premises.

These regulations covering Electrostatic Hand Spraying operations have been established by the deputy chief in charge of the Fire Prevention Division under section 1:04 (b) and (e) of the Boston Fire Prevention Code.

These regulations have been written through a joint effort with the Fire Marshal's Office of the Department of Public Safety and the Fire Prevention Division of the Boston Fire Department.

Fire Prevention Order 86-1

REGULATION AND PROCEDURE FOR LABORATORY FIRE SAFETY

Section 86-1-01

AUTHORITY FOR ORDER

This order establishes regulation and procedures for laboratory fire safety and is formulated under the Fire Prevention Code of the City of Boston.

This order is authorized by the Fire marshal as required in Article 1, Section 1.06 (C) to require inspection to determine whether there are solids, liquids, or gases which may be flammable, poisonous, reactive, or explosive alone or in combination or under fire conditions; to ensure that hazardous machinery and appliances are protected with regard to safety from fire; and to take such action as may be necessary to eliminate an unsafe condition.

This order is authorized by the Fire Marshal as required in Article I, Section 1.06 (e) to require an inspection of any laboratory within a reasonable time after receipt of a complaint that an unsafe condition exists.

This order is authorized by the Fire marshal as required in Article XX to require that the use, storage and handling of hazardous chemicals shall be safeguarded with such protective facilities as public safety dictates.

Section 86-1-02

LABORATORY FIRE SAFETY OFFICER

The Fire Marshal hereby designates the Laboratory Fire Safety Officer as the Fire Officer responsible for inspection of laboratories and the enforcement of this order.

FIRE DEPARTMENT CHEMIST

The Laboratory Safety Officer will report all activities to the Fire Department Chemist who will provide general supervision of procedures and policy established.

Section 86-1-03

APPLICABLE OCCUPANCIES

This order shall apply to new and existing laboratories in health-related facilities, research and development enterprises, colleges and universities.

A laboratory is an enclosed space used for experiments or tests. A laboratory may or may not include offices, lavatories, and other contiguous rooms maintained for or used by laboratory personnel and corridors within the units. It may contain one or more separate laboratory work areas. It may be an entire building.

A slightly modified version of the NFPA 704 diamond shall be employed to warn occupants and Fire Department Personnel of the presence and identification of hazardous materials.

1. The sign is to be placed in the designated zone area. Establishing a zone area allows institutions to place the sign on the door or on the wall directly alongside of the door. It also allows for differing needs of various institutions. The width of the zone should be 18 inches on each side of the door knob, and its height would be limited to directly above the door knob.
2. When placed on the wall it must be located so that it is obvious that the sign refers to that door. Large laboratories, which have several entrance doors, require labeling on

each entry door with the same sign. The labels on the doors shall be based on the volumes in the entire lab unit.

3. In laboratories located in a building where it is not evident that a lab may be present (i.e. off secondary corridors rather than a main corridor), the sign shall be placed on the last fire-rated entry partition separating the hazardous area from the low-hazard area.
4. Sign Size – No signs smaller than a 2 inch by 2 inch 704 diamond shall be used; letters must be ½ inch minimum.
5. Keeping Signs Current – Every effort shall be made to keep the information on the 704 diamonds current.
Dated backup inspections shall be made available to the Boston Fire Department Inspector on demand.
6. Flammable and Combustible Liquid Restrictions – All labs, research labs, and labs in health care facilities are to comply with the following:

MAXIMUM QUANTITIES¹ (GALLONS) OF FLAMMABLE & COMBUSTIBLE LIQUIDS FOR CLASS C (LOW HAZARD) LABORATORIES

Square Feet of Laboratory Unit ²	<u>Sprinklered</u>		<u>Un-Sprinklered</u>	
	Flammable or Combustible Liquid Class I	Flammable or Combustible Liquid Class I+II+III ³	Flammable or Combustible Liquid Class I	Flammable or Combustible Liquid Class I+II+III ⁴

EXCLUDING quantities in storage cabinets and safety cans
(amount permitted out in open lab)

100	2	4	1	2
200	4	8	2	4
300	6	12	3	6
400	8	16	4	8
500 & larger	10 = max	20 = max	5 = max	10 = max

INCLUDING quantities in storage cabinets, safety cans and out in the open lab.
(total quantity allowed in laboratory)

100	4	8	2	4
200	8	16	4	8
300	12	24	6	12
400	16	32	8	16
500	20	40	10	20
600	24	48	12	24
700	28	56	14	28
800	32	64	16	32
900	36	72	18	36
1000	40	80	20	40

¹ For the maximum container sizes see NFPA 45-1982, Table 7-2

² The area of the offices, lavatories, and other contiguous areas of a laboratory unit are to be included when determining square footage of the laboratory unit.

³ The maximum quantities of Class I liquids shall not exceed the quantities specified for Class I liquids alone.

⁴ Ibid.

1500 & larger	60 = max	120 = max	30 = max	60 = max
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7. 704 Sign Marking Determinations

a) Flammability

1. The greatest volume of one code determines the marking.

Exception: if a more severe code has at least a volume of 3 gallons or greater, then that code is used instead of a lower code of greater volume.

For example:

Flammability Code Rating	Total Volume of Chemicals with that Rating
4	3 gallons
3	10 gallons
2	none
1	2 gallons
0	none

The flammability code for the room sign is 4.

If the lab total volume is less than one pint for all solvents, the rating of the lab for this area shall be zero.

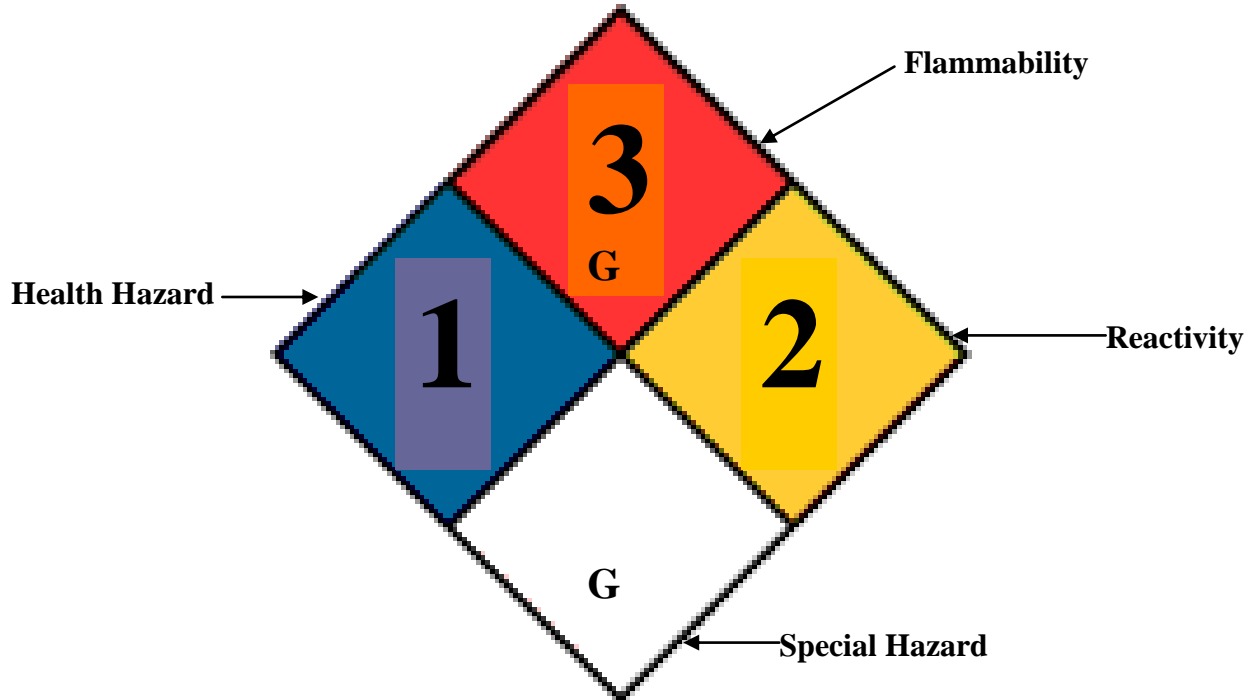
2. Health Hazard – Use the most severe rating code regardless of volume.
3. Reactivity – Use the most severe rating code regardless of volume.
4. Editorial Note – No differentiation is being made between two labs which both have 3-3-3 codes, but one lab has 10 gallons of flammable liquids while the other has 40 gallons.

8. Compressed Gases

- a) The symbol to be used to indicate the presence of a gas is a “G”.
- b) Minimum letter size is to be ¼ inch.

white square	=	Inert gas
blue square	=	Poisonous gas or corrosive gas
red square	=	Flammable gas
yellow square	=	Oxidizing gas

An example of the 704 diamond indicating the presence of a flammable and an inert gas would be:



Water Reactives – If present in the lab, require a BFD lab Inspector to assess the volumes for the 704 diamond determination.