Department of Licensing and Regulatory Affairs
Bureau of Fire Services

Fire Marshal Bulletin – 5

Inspection, Maintenance and Recharging Fire Extinguishers

The provisions of this bulletin apply to the selection, installation, inspection, maintenance and testing of portable extinguishing equipment. This guide is prepared for the use of persons charged with selecting, purchasing, installing, and maintaining portable fire extinguishers. The following requirements are excerpts from the National Fire Protection Association "Standard for Portable Fire Extinguishers," NFPA 10-1994.

I. Definitions:

a) Class A Fires: These are fires in ordinary combustible materials such as wood, cloth, paper, rubber, and many plastics.
b) Class B Fires: These are fires in flammable liquids, oils, greases, tars, oil base paints, lacquers, and flammable gases.
c) Class C Fires: These are fires which involve energized electrical equipment where the electrical nonconductivity of the extinguishing media is of importance. Note: When electrical equipment is de-energized, extinguishers for Class A or B fires may be used safely.
d) Class D Fires. These are fires in combustible metals, such as magnesium, titanium, zirconium, sodium, lithium, and potassium.

II. General Requirements:

a) The classification of extinguishers consists of a letter which indicates the class of fire on which an extinguisher has been found to be effective, preceded by a rated numeral (Class A and B only) which indicates the relative extinguishing effectiveness. Exception: Extinguishers classified for use on Class C or D hazards shall not be required to have a numeral preceding the classification letter.
b) Portable extinguishers shall be maintained in a fully charged and operable condition and kept in their designated places at all times when they are not being used.
c) Extinguishers shall be conspicuously located where they will be readily accessible and immediately available in the event of fire. Preferably they shall be located along normal paths of travel, including exits from an area.
d) Cabinets housing extinguishers shall not be locked. Exception: Where extinguishers are subject to malicious use, locked cabinets may be used provided they include means of emergency access.
e) Extinguishers shall not be obstructed or obscured from view.

f) Extinguishers having a gross weight not exceeding 40 lbs. shall be installed so that the top of the extinguisher is not more than five feet from the floor. Extinguishers having a gross weight greater than 40 lbs. (except wheeled types) shall be so installed that the top of the extinguisher is not more than 3 ½ feet above the floor. In no case shall the clearance between the bottom of the extinguisher and the floor be less than four inches.

g) Operating instructions shall be located on the front of the extinguisher. Other labels and markings shall not be placed on the front. Exception: In addition to the manufacturer's label, other labels that specifically relate to the operation, classification or warning information shall be permitted on the front.

III. Selection of Extinguishers:

a) General Requirements: The selection of extinguishers for a given situation shall be determined by the character of the fires anticipated, the construction and occupancy of the individual property, the vehicle or hazard to be protected, ambient-temperature conditions, and other factors.

b) Selection of Hazard: Extinguishers shall be selected for the specific class or classes or hazards to be protected in accordance with the following subdivisions.

1. Extinguishers for protecting Class A hazards shall be selected from the following: water-type and multi-purpose dry chemical.
2. Extinguishers for protection of Class B hazards shall be selected from the following: carbon dioxide, dry chemical types, foam, aqueous film forming foam (AFFF), film forming fluoroprotein foam (FFFP), and halogenated agent types.
3. Extinguishers for protection of Class C hazards shall be selected from the following: carbon dioxide and dry chemical types.
4. Extinguishers and extinguishing agents for the protection of Class D hazards shall be of types approved for use on the specific combustible-metal hazard.

IV. Inspection: A "quick check" that an extinguisher is available and will operate. It is intended to give reasonable assurance that the extinguisher is fully charged and operable. This is done by seeing that it is in its designated place, that it has not been actuated or tampered with, and that there is no obvious physical damage or condition to prevent operation. Extinguishers shall be inspected when initially placed in service and thereafter at approximately 30-day intervals. Extinguishers shall be inspected at more frequent intervals when circumstances require and at least monthly, the date the inspection was performed and the initials of the person performing the inspection shall be recorded.

V. Maintenance: Thorough examination of the extinguisher. It is intended to give maximum assurance that an extinguisher will operate effectively and safely. It includes a thorough examination and any necessary repair or replacement. It will normally reveal if hydrostatic testing is required. Extinguishers shall be subjected to maintenance not more than one year apart or when specifically indicated by an inspection. Stored pressure types containing a loaded stream type of agent shall be disassembled on an annual basis and subjected to a complete maintenance. Prior to disassembly, the extinguisher shall be fully discharged to check the operation of the discharge valve and pressure gauge. Every six years, stored pressure extinguishers that require a 12-year hydrostatic test shall be emptied and subjected to the applicable maintenance procedures. When the applicable maintenance procedures are performed during periodic recharging or hydrostatic testing, the six-year requirement shall begin from that date. Exception: Extinguishers having non-refillable disposable containers are exempt. Extinguishers out of service for maintenance or recharge shall be replaced by spare extinguishers of the same type and at least equal rating. Maintenance procedures shall include a thorough examination of the three basic elements of an extinguisher. (a) Mechanical parts, (b) Extinguishing agent, and (c) Expelling means. Each extinguisher shall have a tag or label securely attached that indicates the month and year the maintenance was performed and shall identify the person performing the service. The same record tag or label shall indicate if recharging was also performed.

VI. Recharging: The replacement of the extinguishing agent and also includes the expellant for certain types of extinguishers. All rechargeable-type extinguishers shall be recharged after any use or as indicated by an inspection, or when performing maintenance. Every 12 months, soda-acid, foam, pump tank water, and pump tank calcium chloride base antifreeze types of extinguishers shall be recharged with new chemicals or water, as applicable.

VII. Hydrostatic Testing: Shall be performed by persons having a practical knowledge of pressure testing procedures and safeguards and having available suitable testing equipment, facilities, and appropriate servicing manuals(s). When an extinguisher cylinder or shell has one or more conditions listed in this subdivision, it shall not be hydrostatically tested, but shall be destroyed by the owner or at his direction such as:

1. When there exist repairs by soldering, welding, brazing, or use of patching compounds. Note: For welding or brazing on mild steel shells, consult the manufacturer of the extinguisher.
2. When the cylinder or shell threads are damaged.
3. When there exists corrosion that has caused pitting, including under removable nameplate band assemblies.

4. When the extinguisher has been burned in a fire.
5. When a calcium chloride type of extinguishing agent was used in a stainless-steel extinguisher.
6. When the shell is of copper or brass construction joined by soft solder or rivets.
7. All inverting-type extinguishers.

The frequency of hydrostatic testing should follow the timelines specified below:

Extinguisher	**Test Interval (Years)**
Soda-Acid	See below
Cartridge-Operated Water and/or Antifreeze	See below
Stored Pressure Water, Loaded Stream and/or Antifreeze	5
Wetting Agent	5
Foam	See below
AFFF (Aqueous Film Forming Foam)	5
FFFP (Film Forming Fluoroprotein Foam)	5
Dry Chemical with Stainless Steel Shells	5
Carbon Dioxide	5
Dry Chemical, Stored Pressure, With Mild Steel Shells, Brazed Brass Shells, or Aluminum Shells	12
Halogenated Agents	12
Dry Powder, Cartridge, or Cylinder-Operated with Mild Steel Shells	12

Extinguishers with copper or brass shells joined by soft solder were prohibited from further hydrostatic testing effective May 19, 1978. Extinguishers with stainless steel or brazed brass shells that were permitted to remain in service had a five-year hydrostatic test interval. Effective December 22, 1987, when the hydrostatic test date arrives, all types of inverting extinguishers shall not be tested but removed from service.

Note: Stored pressure water extinguishers with fiberglass shells (pre-1976) are prohibited from hydrostatic testing due to manufacturer's recall.

The recording of tests shall include:

1. High Pressure Types: For high pressure gas cylinders and cartridges passing a hydrostatic test, the month, year and the DOT identification number shall be stamped into the cylinder in accordance with the requirements set forth by DOT or the Canadian Transport Commission.
2. Non-compressed Gas Types: Extinguisher shells of the non-compressed gas type that pass a hydrostatic test shall have the test information recorded on a suitable metallic label or equally durable material. The label shall be affixed to the shell by means of a heatless process. These labels shall be self-destructive when removal from an extinguisher shell is attempted. The label shall include the month and year the test was performed (indicated by a perforation such as a hand punch), test pressure used, name or initials of person performing the test, or name of agency performing the test.