



# Houston Fire Department Life Safety Bureau (LSB)



## LSB Standard No. 01, Rev. 07

***Installation and Maintenance of Portable Fire Extinguishers***

*Supersedes: LSB Standard No. 01, Rev. 06, 11/02/2021*

**Effective Date: xx/xx/xx**

**NOT FINAL – 8/18/2023 – PENDING CITY COUNCIL ADOPTION**



---

LSB Standards are established in accordance with provisions of the City of Houston *Fire Code*. They are subject to the administrative sections covering alternative materials and methods, modifications, and the Board of Appeals.

DRAFT

**Table of Contents**

Section 1.1 – General..... 5

    1.1.1 Scope. .... 5

    1.1.2 Purpose. .... 5

Section 1.2 – Definitions..... 5

    1.2.1 Class A Rated Fire Extinguisher..... 5

    1.2.2 Class B Rated Fire Extinguisher..... 5

    1.2.3 Class C Rated Fire Extinguisher..... 5

    1.2.4 Class D Rated Fire Extinguisher..... 5

    1.2.6 Type “K” Fire Extinguisher. .... 5

    1.2.7 Listed Portable Fire Extinguishing Equipment. .... 5

    1.2.8 Occupancy..... 6

Section 1.3 – General Requirements ..... 6

    1.3.1 Annual Maintenance..... 6

    1.3.2 Operable Condition..... 6

    1.3.3 Conspicuously Located..... 6

    1.3.4 Locked Cabinets..... 6

    1.3.5 Obstructions..... 6

    1.3.6 Installation..... 6

    1.3.7 Physical Damage..... 7

    1.3.8 Mounting..... 7

    1.3.9 Marking..... 7

Section 1.4 – Size and Placement of Portable Fire Extinguishers..... 7

    1.4.1 Minimum Rating and Placement..... 7

    1.4.2 Substituting Portable Fire Extinguishers ..... 7

    1.4.3 Occupancy Group Requirements..... 8

        1.4.3.1 Assemblies – Group A Occupancies..... 8

        1.4.3.2 Businesses – Group B Occupancies..... 8

        1.4.3.3 Educational – Group E Occupancies. .... 9

        1.4.3.4 Factory and Industrial – Group F Occupancies. .... 9

        1.4.3.5 Hazardous – Group H Occupancies..... 10

        1.4.3.6 Institutional – Group I Occupancies. .... 10

        1.4.3.7 Mercantile – Group M Occupancies..... 10

        1.4.3.8 Residential – Group R Occupancies. .... 11

1.4.3.9 Storage – Group S Occupancies.....	12
Section 1.5 – General Area Requirements.....	13
1.5.1 Deep Fat Frying Operations.....	13
1.5.2 Parade Floats. ....	13
1.5.3 Asphalt Kettles.....	13
1.5.4 Powered Industrial Trucks. ....	13
1.5.5 Battery Charging.....	13
1.5.6 Airport-Towing Vehicles.....	13
1.5.7 Airport-Welding Apparatuses.....	13
1.5.8 Airport-Aircraft Fuel-Servicing Vehicles (Aircraft Refuelers). ....	13
1.5.9 Hydrant Fuel-Servicing Vehicles.....	13
1.5.10 Aircraft Motor Vehicle Fuel Dispensing Stations.....	13
1.5.11 Heliports.....	14
1.5.12 Tents.....	14
1.5.13 Automobile Wrecking Yards.....	14
1.5.14 Magnesium. ....	14
1.5.15 Cutting and Welding-Torch and Flame Producing Devices. ....	14
1.5.16 LP-Gas and Open Flame Cooking.....	14
Appendix A – Classification of Hazards.....	15
Appendix B – Class A Rated Fire Hazards.....	16
Appendix C – Class B Rated (Flammable and Combustible Liquids) Fire Hazards .....	17
Table 8-1 – Fire Extinguisher Inspection, Test, and Maintenance Summary.....	17
References.....	18

# Installation and Maintenance of Portable Fire Extinguishers

## Section 1.1 – General

### 1.1.1 Scope.

This standard applies to listed portable fire extinguishers, which shall be installed in occupancies and locations as set forth in the City of Houston *Fire Code* and this standard.

For areas not covered in this standard, listed portable fire extinguishers shall be in accordance with NFPA 10.

### 1.1.2 Purpose.

This standard is for the use and guidance of persons charged with selecting, purchasing, installing, approving, and maintaining listed portable fire extinguishing equipment.

## Section 1.2 – Definitions

### 1.2.1 Class A Rated Fire Extinguisher.

Used for fires in ordinary combustible materials, such as wood, cloth, paper, rubber, and many plastics.

### 1.2.2 Class B Rated Fire Extinguisher.

Used for fire in flammable liquids, oils, greases, tars, oil-based paints, lacquers, and flammable gases.

### 1.2.3 Class C Rated Fire Extinguisher.

Used for fires that involve energized electrical equipment where the electrical non-conductivity of the extinguishing media is of importance.

### 1.2.4 Class D Rated Fire Extinguisher.

Used for fires in combustible metals, such as magnesium, titanium, zirconium, sodium, lithium, and potassium.

### 1.2.5 Garden-Style Apartment.

Apartments three stories or less in height where egress doors from the dwelling units open directly to the exterior of the building.

### 1.2.6 Type “K” Fire Extinguisher.

Used for fires involving cooking media (grease, fats, and oils) in commercial cooking appliances.

### 1.2.7 Listed Portable Fire Extinguishing Equipment.

Fire extinguishing equipment that is listed by a recognized listing agency (i.e., UL, FM Global).

### **1.2.8 Occupancy.**

The purpose for which a building, or part thereof, is used or intended to be used. See current City of Houston *Fire Code*.

## **Section 1.3 – General Requirements**

### **1.3.1 Annual Maintenance.**

All fire extinguishers shall have a current annual inspection tag affixed by an approved licensed fire protection equipment company. All servicing, testing, maintenance, and tagging of listed portable fire extinguishers shall be conducted annually by qualified personnel in accordance with LSB Standard No. 02, "Inspection and Testing of Fire Protection and Life-Safety Equipment" and as required by NFPA 10.

**Exception:** Listed portable fire extinguishers that cannot be serviced (disposable) or listed fire extinguishers that may be serviced only at the manufacturer.

### **1.3.2 Operable Condition.**

Portable fire extinguishers shall be maintained in a fully charged and operable condition and kept in their designated places at all times when not in use ~~they are not being used~~.

### **1.3.3 Conspicuously Located.**

Portable fire 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 unobstructed paths of travel, including exits from areas.

### **1.3.4 Locked Cabinets.**

Cabinets housing portable fire extinguishers shall not be locked.

**Exceptions:**

1. Where extinguishers are subject to malicious use, locked cabinets may be used provided they include means of emergency access.
2. In Group I-3 occupancies and in mental health areas in Group I-2 occupancies, access to portable fire extinguishers shall be permitted to be locked or to be located in staff locations provided the staff has keys.

### **1.3.5 Obstructions.**

Portable fire extinguishers shall not be obstructed or obscured from view.

**Exception:** In rooms and locations where visual obstructions cannot be avoided, signs or other means shall be provided to indicate the extinguisher location. Signs or other means used to indicate fire extinguisher location shall be located in close proximity to the extinguisher and shall be visible from the normal path of travel.

### **1.3.6 Installation.**

Portable fire extinguishers shall be installed on the hangers or in the brackets supplied, mounted in cabinets, or set on shelves, unless the extinguisher is of the wheeled type. Brackets shall not be fabricated in the field.

*2023 LSB Standard 01-Installation and Maintenance of Portable Fire Extinguishers (1).docx Page 6 of 18*

### **1.3.7 Physical Damage.**

Portable fire extinguishers installed under conditions where they are subject to physical damage shall be protected from impact.

### **1.3.8 Mounting.**

Portable fire extinguishers having a gross weight not exceeding 40 pounds shall be installed so that the top of the extinguisher is not more than 5 feet above the floor. Extinguishers having a gross weight greater than 40 pounds (except wheeled types) shall be installed so that the top of the extinguisher is not more than 3½ feet above the floor. In no case shall the clearance between the bottom of the extinguisher and the floor be less than 4 inches.

### **1.3.9 Marking.**

Portable fire extinguishers mounted in cabinets or wall recesses or set on shelves shall be placed in a manner such that the extinguisher operating instruction face outward. The location of such extinguishers shall be marked conspicuously.

## **Section 1.4 – Size and Placement of Portable Fire Extinguishers**

### **1.4.1 Minimum Rating and Placement.**

The minimum rating for a listed portable fire extinguisher for any type occupancy, area, or location shall be one 2-A, 10-B:C portable fire extinguisher for every 6,000 square feet or fraction thereof. (Example: 6,500 square feet – two portable fire extinguishers will be required.)

The maximum travel distance from any point in a building to a Class A rated portable fire extinguisher shall be 75 feet by an unobstructed path of travel. For class B hazards, the maximum travel distance from any point in a building to a Class B rated portable fire extinguisher shall be maximum of 50 feet or 30 feet depending on the size of the extinguisher installed.

### **1.4.2 Substituting Portable Fire Extinguishers**

One existing 2½-gallon water listed portable fire extinguisher may replace the requirement of one Class 2-A rated listed portable fire extinguisher. When an existing 2½-gallon water portable fire extinguisher is in need of replacement, it shall be replaced with one 2-A, 10-B:C portable fire extinguisher only.

**Exception:** In areas where water is needed for deep penetration, such as woodworking and sawdust areas.

Two 2-½ gallon rated portable fire extinguishers may replace the requirement of one 4-A rated portable fire extinguisher provided the maximum required travel distance is maintained and the minimum required floor area is covered as per Appendix B and C.

One 4-A rated portable fire extinguisher may replace the requirement of two 2-A rated portable fire extinguishers provided the maximum required travel distance to a fire extinguisher is maintained and the minimum required floor area is covered as per Appendix B and C.

One 40-B rated portable fire extinguisher may replace the requirement of two 20-B rated portable fire extinguishers provided the maximum required travel distance to a fire extinguisher is maintained and the minimum required floor area is covered as per Appendix B and C.

**Exceptions:**

1. Two 1-A rated portable fire extinguishers shall not be substituted for one 2-A rated portable fire extinguisher.
2. Two portable fire extinguishers of lower B ratings shall not be used to fulfill the protection requirements when a higher B rated portable fire extinguisher is required. (Example: two 20-B rated portable fire extinguishers shall not replace the requirement of a 40-B rated portable fire extinguisher.)
3. In sensitive areas such as telephone rooms, electrical rooms, and computer rooms, fire extinguishers such as Clean Agents and CO<sub>2</sub> of the same required rating may be substituted for a dry chemical fire extinguisher.

**1.4.3 Occupancy Group Requirements.**

Portable fire extinguishers shall be installed in all occupancies. See the current City of Houston *Fire Code* for occupancy group classifications.

**1.4.3.1 Assemblies – Group A Occupancies.**

Assembly occupancies (with an occupant load of 50 or more) shall be classified as **ordinary hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 10-B:C shall be provided for each 63000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 75 feet, by an unobstructed path of travel, from a portable fire extinguisher.

Assembly occupancies with stages shall have a minimum rated 2-A, 10-B:C fire extinguisher mounted on each side of the stage.

**1.4.3.2 Businesses – Group B Occupancies.**

Business offices and professional services shall be classified as **light hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 10-B:C shall be provided for each 6000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 75 feet, by an unobstructed path of travel, from a portable fire extinguisher.

Business with eating and dining (occupant load less than 50), small businesses not classified as H occupancies, shall be classified as **ordinary hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 10-B:C shall be provided for each 3000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 75 feet, by an unobstructed path of travel, from a portable fire extinguisher.

Business labs or print shops using flammable and combustible liquids (not classified as Group H occupancies as per the current *Fire Code*) shall be classified as **ordinary hazard**. At least one portable fire extinguisher with a minimum rating

of 2-A, 20-B:C shall be provided for each 3000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 50 feet, by an unobstructed path of travel, from a portable fire extinguisher.

#### **1.4.3.3 Educational – Group E Occupancies.**

Educational offices and classrooms shall be classified as **light hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 10-B:C shall be provided for each 6000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 75 feet, by an unobstructed path of travel, from a portable fire extinguisher.

Educational labs and shops shall be classified as **high hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 40-B:C shall be provided for each 3000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 30 feet, by an unobstructed path of travel, from a portable fire extinguisher.

Day care facilities shall be classified as **ordinary hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 10-B:C shall be provided for each 3000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 75 feet, by an unobstructed path of travel, from a portable fire extinguisher.

#### **1.4.3.4 Factory and Industrial – Group F Occupancies.**

Factory and industrial occupancies with the use and manufacturing of *combustible* commodities shall be classified as **ordinary hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 10-B:C shall be provided for each 3000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 75 feet, by an unobstructed path of travel, from a portable fire extinguisher.

Factory and industrial occupancies with the use and manufacturing of *noncombustible* commodities shall be classified as **light hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 10-B:C shall be provided for each 6000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 75 feet, by an unobstructed path of travel, from a portable fire extinguisher.

Factory and industrial occupancies with the use of flammable and combustible liquids (not classified as Group H occupancies as per the current *Fire Code*) shall be classified as **ordinary hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 20-B:C shall be provided for each 3000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 50 feet, by an unobstructed path of travel, from a portable fire extinguisher.

#### **1.4.3.5 Hazardous – Group H Occupancies.**

Group H occupancies shall be classified as **high hazard**. At least one portable fire extinguisher with a minimum rating of 4-A, 40-B:C shall be provided for each 4000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 30 feet, by an unobstructed path of travel, from a portable fire extinguisher.

Repair garages classified as Group H occupancies shall have at least one portable fire extinguisher with a minimum rating of 2-A, 40-B:C provided for each 3000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 30 feet, by an unobstructed path of travel, from a portable fire extinguisher.

Woodworking uses classified as Group H occupancies shall have at least one portable fire extinguisher with a minimum rating of 4-A provided for each 1000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 50 feet, by an unobstructed path of travel, from a portable fire extinguisher.

Woodworking uses classified as hazardous occupancies involving flammable and combustible liquids shall have at least one portable fire extinguisher with a minimum rating of 4-A, 40-B:C provided for each 3000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 30 feet, by an unobstructed path of travel, from a portable fire extinguisher.

#### **1.4.3.6 Institutional – Group I Occupancies.**

Institutional occupancies shall be classified as **ordinary hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 10-B:C shall be provided for each 3000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 75 feet, by an unobstructed path of travel, from a portable fire extinguisher.

Institutional maintenance shops and labs using flammable and combustible liquids (not classified as Group H occupancies as per the current *Fire Code*) shall be classified as **ordinary hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 20-B:C shall be provided for each 3000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 50 feet, by an unobstructed path of travel, from a portable fire extinguisher.

#### **1.4.3.7 Mercantile – Group M Occupancies.**

Mercantile occupancies shall be classified as **ordinary hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 10-B:C shall be provided for each 3000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 75 feet, by an unobstructed path of travel, from a portable fire extinguisher.

Group M motor vehicle service stations dispensing fuel shall be classified as **ordinary hazard**. At least two portable fire extinguishers with a minimum rating of 2-A, 10-B:C shall be provided for each 3000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 50 feet, by an unobstructed path of travel, from a portable fire extinguisher.

#### **1.4.3.8 Residential – Group R Occupancies.**

Group R residential occupancies shall be classified as **ordinary hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 10-B:C shall be provided for each 3000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 75 feet, by an unobstructed path of travel, from a portable fire extinguisher.

Group R-2 residential occupancy offices, game rooms, physical fitness areas, storage rooms, maintenance shops, boiler rooms, laundry facilities, mail rooms, club houses, commons, and public assembly areas shall be classified as **ordinary hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 10-B:C shall be provided for each 3000 square feet of floor space, or fraction thereof.

#### **Exceptions:**

1. Where exempted by Section 906.1 of the Houston *Fire Code*, individual units shall be provided with at least one portable fire extinguisher. Such extinguishers shall have a gauge showing the charge and a minimum rating of 1-A, 10-B:C. A fire extinguisher shall be provided for and properly placed within each occupied apartment unit. Location and placement of the fire extinguisher shall be determined in accordance with the manufacturer's guidelines or Section 1.3.8, near the kitchen entryway, accessible and no closer than 5 feet from the cooking appliance. The extinguisher shall be placed so that the top of the extinguisher is not more than 5 feet above the floor and the clearance between the bottom of the extinguisher and the floor is not less than 4 inches. The fire extinguisher may be placed within an unlocked pantry or cabinet. Serviceable fire extinguishers shall be maintained and tagged annually in accordance with Section 1.3.1. Fire extinguishers that are not serviceable, such as an extinguisher with a 1-A, 10-B:C rating, should be visually inspected at least monthly for loss of pressure (as indicated on the extinguisher's gauge) or for other damage that might impair function.
2. Group R-2 apartment (garden-type) properties equipped with automatic fire protection sprinkler systems may exclude the portable extinguishers with a minimum rating of 2-A, 10-B:C, required above, and the extinguisher with a minimum rating of 1-A, 10-B:C, referenced in Exception 1 above.

#### 1.4.3.9 Storage – Group S Occupancies.

High-hazard storage, Group S-1 occupancies considered **extra hazard** occupancies shall have at least one portable fire extinguisher with a minimum rating of 4-A, 40-B:C provided for each 4000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 30 feet, by an unobstructed path of travel, from a portable fire extinguisher. (Includes warehousing of, or in-process storage of, Class III, Class IV and high-hazard commodities.)

Moderate-hazard storage, Group S-1 occupancies with combustible storage not classified as H occupancies, shall be classified as **ordinary hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 10-B:C shall be provided for each 3000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 75 feet, by an unobstructed path of travel, from a portable fire extinguisher. (Includes warehousing of, or in-process storage of, Class I and II commodities.)

Low-hazard storage, Group S-2 occupancies with noncombustible storage shall be classified as **light hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 10-B:C shall be provided for each 6000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 75 feet, by an unobstructed path of travel, from a portable fire extinguisher. (Includes warehousing of, or in-process storage of, Class I commodities only when located in Group S-2.)

Group S-1 repair garages (limited to the exchange of parts) shall be classified as **ordinary hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 10-B:C shall be provided for each 3000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 75 feet, by an unobstructed path of travel, from a portable fire extinguisher.

Group S-2 open parking garages shall be classified as **ordinary hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 10-B:C shall be provided for each 3000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is more than 75 feet, by an unobstructed path of travel, from a portable fire extinguisher.

Group S-1 aircraft hangars (limited to the exchange of parts) shall be classified as **ordinary hazard**. At least one portable fire extinguisher with a minimum rating of 2-A, 20-B:C shall be provided for each 3000 square feet of floor space, or fraction thereof. Portable fire extinguishers shall be located so that no point in the building is located more than 50 feet, by an unobstructed path of travel, from a portable fire extinguisher.

## **Section 1.5 – General Area Requirements**

### **1.5.1 Deep Fat Frying Operations.**

A listed Type “K” portable fire extinguisher shall be provided where cooking equipment involves the use of vegetable or animal oils and fats for deep frying. The fire extinguisher shall be installed within 30 feet of frying equipment, as measured along an unobstructed path of travel.

### **1.5.2 Parade Floats.**

Motorized parade floats and towing apparatuses shall be provided with a minimum 2-A, 10-B:C portable fire extinguisher readily accessible to the operator.

### **1.5.3 Asphalt Kettles.**

A minimum 40-B:C rated portable fire extinguisher shall be located within 25 feet of each asphalt kettle when the heat source is operating. A minimum 40-B:C rated portable fire extinguisher shall also be located on roofs during asphalt coating operations. Also see LSB Standard No. 11, “Roofing Operations.”

### **1.5.4 Powered Industrial Trucks.**

Vehicle fire extinguishers with a minimum rating of 10-B:C shall be provided for each liquid-fuel or LP-gas powered industrial truck.

### **1.5.5 Battery Charging.**

Battery-charging areas shall be provided with a fire extinguisher having a minimum rating of 4-A, 20-B:C within 20 feet of the battery charger.

### **1.5.6 Airport-Towing Vehicles.**

Vehicles used for towing aircraft shall be equipped with at least one listed fire extinguisher having a minimum rating of 20-B:C.

### **1.5.7 Airport-Welding Apparatuses.**

Welding apparatuses shall be equipped with at least one listed fire extinguisher having a minimum rating of 2-A, 20-B:C.

### **1.5.8 Airport-Aircraft Fuel-Servicing Vehicles (Aircraft Refuelers).**

Aircraft fuel-servicing vehicles shall be equipped with at least two listed fire extinguishers, each having a minimum rating of 20-B:C. A fire extinguisher shall be readily accessible from either side of the vehicle.

### **1.5.9 Hydrant Fuel-Servicing Vehicles.**

Hydrant fuel-servicing vehicles shall be equipped with a minimum of one listed portable fire extinguisher having a minimum rating of 20-B:C and complying with Section 906 of the *Fire Code*.

### **1.5.10 Aircraft Motor Vehicle Fuel Dispensing Stations.**

Portable fire extinguishers at fuel-dispensing stations shall be located so that pump dispensers are not more than 75 feet from one such extinguisher.

When the open-hose discharge capacity of the fueling system is no more than 200 gallons per minute, there shall be at least two listed portable fire extinguishers having a minimum rating of 20-B:C.

When the open-hose discharge capacity of the fueling system is more than 200 gallons per minute but not more than 350 gallons per minute, there shall be at least one listed wheeled extinguisher having a minimum rating of 80-B:C and having a capacity of 125 pounds of agent.

When the open-hose discharge capacity of the fueling system is more than 350 gallons per minute, there shall be at least two listed wheeled extinguishers, having a minimum rating of 80-B:C each and a capacity of 125 pounds of agent each.

#### **1.5.11 Heliports.**

There shall be at least one fire extinguisher having a minimum 80-B:C rating for each permanent take-off and landing area and for each aircraft parking area.

#### **1.5.12 Tents.**

Portable fire extinguishers and other fire-protection appliances in tents, canopies, and temporary membrane structures shall be installed in accordance with Life Safety Bureau Standard No. 22, "Tents and Other Membrane Structures".

#### **1.5.13 Automobile Wrecking Yards.**

Offices, storage buildings, and vehicles used for site operations shall each have at least one portable fire extinguisher with a rating of not less than 4-A, 40-B:C. When required by the code official, additional portable fire extinguishers shall be required in specific use areas.

#### **1.5.14 Magnesium.**

A supply of approved extinguishing materials in a substantial container with a hand scoop or shovel for applying material on magnesium fires or an approved portable fire extinguisher designed for use with such material shall be kept within easy reach of every operator performing a machining, grinding, or other processing operation on magnesium.

#### **1.5.15 Cutting and Welding-Torch and Flame Producing Devices.**

A minimum 2-A, 20-B:C rated fire extinguisher or a charged water hose equipped with a nozzle, accessible without climbing stairs or ladders, shall be located within 30 feet of the location where hot work is in progress and shall be.

#### **1.5.16 LP-Gas and Open Flame Cooking.**

For compliance see LSB Standard No. 10, "LP-Gas Storage and Use".

## **Appendix A – Classification of Hazards**

### **Light Hazard.**

Light hazard occupancies are locations where the total amount of Class A combustible materials, including furnishings, decorations, and contents is of minor quantity. This classification anticipates that the majority of the content items are either noncombustible or so arranged that a fire is not likely to spread rapidly. Small amounts of Class B flammables used for duplicating machines, art departments, etc., are included, provided they are kept in closed containers and safely stored.

### **Ordinary Hazard.**

Ordinary hazard occupancies are locations where the total amount of Class A combustibles and Class B flammables present is greater than expected under light hazard occupancies. These occupancies could consist of dining areas, mercantile shops and allied storage, light manufacturing, research operations, auto showrooms, parking garages, workshop or support service areas of light hazard occupancies, and warehouses containing Class I or Class II commodities as defined by NFPA 231, "Standard for General Storage."

### **High Hazard.**

High hazard occupancies are locations where the total amount of Class A combustibles and Class B flammables present, in storage, production use, and/or finished product is over and above those expected and classed as ordinary hazards. These occupancies could consist of woodworking, vehicle repair, aircraft repair and boat servicing, cooking areas, individual product display showrooms, product convention center displays, and storage and manufacturing processes such as painting, dipping, coating, and flammable liquid handling. Also included is warehousing of, or in-process storage of, other Class I and Class II commodities.

## Appendix B – Class A Rated Fire Hazards

	Light Hazard Occupancy	Ordinary Hazard Occupancy	High Hazard Occupancy
Minimum rated single extinguisher	2-A <sup>c</sup>	2-A	4-A <sup>a</sup>
Maximum floor area per unit of A	3000 sq. ft.	1500 sq. ft.	1000 sq. ft.
Maximum floor area of extinguisher <sup>b</sup>	11,250 sq. ft.	11,250 sq. ft.	11,250 sq. ft.
Maximum travel distance to extinguisher	75 ft.	75 ft.	75 ft.

- a. Two 2½-gallon (9.46 L) water-type extinguishers can be used to fulfill the requirements of one 4-A rated extinguisher.
- b. Refer to NFPA 10, Appendix E-3-3 for more details concerning maximum floor area criteria.
- c. Two water-type extinguishers each with a 1-A rating shall be deemed the equivalent of one 2-A extinguisher for Light (Low) Hazard Occupancies only in locations where there are ordinary combustible materials and no electrical hazards.

## Appendix C – Class B Rated (Flammable and Combustible Liquids) Fire Hazards

Type of Hazard	Basic Minimum Extinguisher Rating	Maximum Travel Distance to Extinguishers (feet)
Light (low)	5-B	30
	10-B	50
Ordinary (moderate)	10-B	30
	20-B	50
Extra (high)	40-B	30
	80-B	50

**Note 1:** The specified ratings do not imply that fires of magnitudes indicated by these ratings will occur, but rather to give the operators more time and agent to handle difficult spill fires that occur.

**Note 2:** For requirements on water-soluble flammable liquid and alternative sizing criteria, refer to NFPA 10, Sections 3-3 and 3-4.

**Table 8-1 – Fire Extinguisher Inspection, Test, and Maintenance Summary**

Extinguisher Type	Visual Inspection	Hydrostatic Test Interval – Years	Maintenance
Stored Pressure	Monthly	5	Annual
Wetting Agent	Monthly	5	Annual
Foam	Monthly	5	Annual
AFFF (aqueous film-forming foam)	Monthly	5	Annual
Dry Chemical	Monthly	5	Annual*
Carbon Dioxide	Monthly	5	Annual
Dry Chemical (stored pressure)	Monthly	12	Annual*
Dry Chemical (cartridge operated)	Monthly	12	Annual
Clean Agent	Monthly	12	Annual
Halon 1211	Monthly	12	Annual

\* – Internal examinations not required for stored pressure dry chemical fire extinguishers.

## References

1. City of Houston *Fire Code*.
2. City of Houston *Building Code*.
3. National Fire Protection Association (NFPA) Standard No. 10, “Portable Fire Extinguishers”.
4. Life Safety Bureau (LSB) Standard No. 02, “Inspection and Testing of Fire Protection and Life-Safety Equipment”.
5. Life Safety Bureau (LSB) Standard No. 10, “LP-Gas Storage and Use”.
6. Life Safety Bureau (LSB) Standard No. 11, “Roofing Operations”.

All reference materials used under this Life Safety Bureau standard shall be in accordance with the most current adopted City of Houston *Construction Code*.