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SUPERSEDING
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DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
STANDARD

CRITERIA FOR SELECTION AND

INSTALLATION OF

FIRE EXTINGUISHERS

FOREWORD

Safety in all facets of air traffic control and navigation is a continuing effort of the highest priority in the Federal Aviation Administration.

To this end, this standard establishes uniform fire protection criteria consistent with current National Fire Protection Association standards, as they specifically relate to FAA facilities.

CHAPTER 1. SCOPE

1.1 Scope.- This standard covers the requirements for fire extinguishers in FAA air traffic control, communications, navigational aid, mobile facilities, and boats.

CHAPTER 2. PURPOSE

2.1 Purpose.- This standard establishes uniform criteria to be applied in determining the types and number of fire extinguishers required in FAA air traffic control, communications, navigational aid, mobile facilities, and boats.

CHAPTER 3. CLASSIFICATION OF FIRES AND FIRE EXTINGUISHERS

3.1 Classifications of fires.- The following classifications of fires provide the basis for expressing the relative potential of fire extinguishers.

Class A Fires.- Class A fires are fires in ordinary combustible materials, such as wood, cloth, paper, rubber, and many plastics.

Class B Fires.- Class B fires are fires in flammable liquids gases, and greases.

Class C Fires.- Class C fires are fires which involve energized electrical equipment where the electrical nonconductivity of the extinguishing media is of importance. (When electrical equipment is de-energized, extinguishers for Class A or B fires may be used safely.)

Class D Fires.- Class D fires are fires in combustible metals such as magnesium, titanium, zirconium, sodium, and potassium.

3.2 Classifications of fire extinguishers.- Following are classifications of fire extinguishers based upon their capabilities for extinguishing the types of fires listed in the preceding classifications.

Class A Fire Extinguishers.- Water type fire extinguishers of the soda acid, gas, or compressed air type are used for combating Class A fires. The "quenching-cooling" effect of quantities of water, or solutions containing large percentages of water, is the most effective in reducing the temperature of the burning material below its ignition point. Dry chemical extinguishers may also be used when they are filled with the multi-purpose powder classified therefor.

Class B Fire Extinguishers.- Dry chemical and carbon dioxide (CO_2) fire extinguishers are used in combating Class B fires. The "blanket-smothering" effect of any oxygen-excluding extinguishing agent such as dry chemicals or carbon dioxide is most effective against such fires.

Class C Fire Extinguishers.- CO_2 fire extinguishers are used in combating Class C fires. The electrical nonconductivity of carbon dioxide as the extinguishing agent is of prime importance in combating such fires. While dry chemicals would be effective, their use on complex electrical and electronic equipment is not authorized due to their residual characteristics.

Class D Fire Extinguishers.- Dry powder extinguishers and dry powder extinguishing agents for metal fires are available in extinguishers of either hand or wheeled types and pails or drums. The extinguishing agent may be applied from an extinguisher and/or by scoop or shovel.

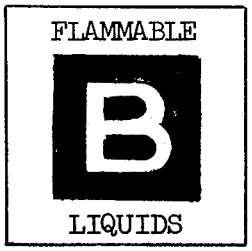
3.3 Ratings of fire extinguishers.- Fire extinguishers have been designated with symbols such as 2-A, 4-B, 12 B:C, etc. The letter indicates the class of fire on which an extinguisher is found to be effective, preceded by a rating numeral (Class A&B only) which indicates the relative extinguishing effectiveness.

In the case of Class C extinguishers, no numeral is used as Class C fires are essentially either Class A or B fires involving energized electronic and electrical wiring and equipment. The number of Class C extinguishers installed should be commensurate with the size and extent of the Class A or Class B components of the electrical hazard or containing equipment being protected.

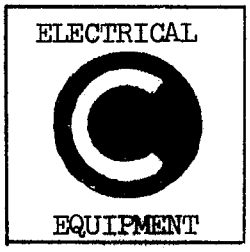
Extinguishers classified for use on Class "D" fires do not carry a numeral rating. The relative effectiveness of these extinguishers or extinguishing agent for use on specific combustible metal fires is detailed on the extinguisher nameplate or container.

3.4 Marking of extinguishers.- Each class of extinguisher shall be suitably marked of a size and form to give easy legibility at a distance of 3 feet. The locator markings shall be applied to wall panels, etc., in the vicinity of the extinguisher of a size and form to give easy legibility at a distance of 25 feet. The markings should be applied by decalcomanias, painting, or similar methods having at least equivalent legibility and durability. The following symbols shall be used to identify the classification of fire for which it is applicable:

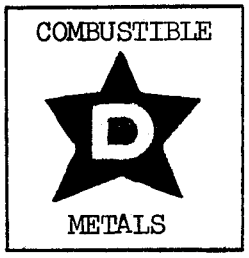
1. Extinguishers suitable for "Class A" fires should be identified by a triangle containing the letter "A". If colored, the triangle shall be colored green, number 14260, FED-STD-595.



2. Extinguishers suitable for "Class B" fires should be identified by a square containing the letter "B". If colored, the square shall be colored red, number 11105, FED-STD-595.



3. Extinguishers suitable for "Class C" fires should be identified by a circle containing the letter "C". If colored, the circle shall be colored blue, number 15102, FED-STD-595.



4. Extinguishers suitable for fires involving metals should be identified by a five-pointed star containing the letter "D". If colored, the star shall be colored yellow, number 13655, FED-STD-595.

CHAPTER 4. SELECTION CRITERIA

4.1 Descriptive data.- The type and number of fire extinguishers for any FAA operating facility will be determined from the data set forth in Table I. Those extinguisher types, sizes and classifications which are listed in the Federal Supply System shall be obtained through the General Services Administration supply sources.

TABLE - I

Extinguisher Type	Extinguisher Size	Extinguisher Classification
Soda Acid	2 1/2 gallon	2-A
Water (gas pressure or stored compressed air)	2 1/2 gallon (GSA)	2-A
Carbon Dioxide Type I	15 lb. (GSA)	10 B:C
Carbon Dioxide	50 lb.	10 B:C
Dry Chemical (Type I Class 2)	2 1/2, 5, or 10 lbs. (GSA)	5-B:C, 10-B:C, or 30 B:C, respectively
Dry Chemical (Type I Class 1)	10 or 20 lbs.	2A:20-B:C, or 4A:30-B:C, respectively
Dry Powder Extinguishers (for metal fires)	30, 150, or 350 lbs.	Agent and quantity varies with metal type

4.2 Distribution.- Fire extinguishers shall be distributed to provide an extinguisher potential for an incipient fire as follows:

a. One 2 1/2 gallon or 10 lb. multi-purpose dry chemical Class A extinguisher for each 3,000 square feet of area on each floor or portion thereof regardless of hazard. The stored compressed air extinguisher with antifreeze solution shall be installed in those facilities subject to freezing temperatures to -40°F. Below -40°F extinguishers shall be placed in enclosures capable of maintaining the temperature within the specified limits. The types described in succeeding paragraphs are required in addition to the Class A.

b. A minimum of one 15 lb. CO_2 or 5 lb. dry chemical extinguisher shall be provided within 50 feet of any area housing petroleum fired burners or petroleum products.

c. A minimum of one 15 lb. CO_2 and one 2 1/2 gallon plain water type extinguisher in each electronic or electrical equipment room.

d. A minimum of one 15 lb. CO_2 fire extinguisher for each engine generator room and each support building such as ILS, ALS, and garage. Additionally, two 10 pound dry chemical extinguishers will be mounted in suitable enclosures outside of each prime power plant, automotive garage and gasoline dispensing station.

e. In complex electronic equipment rooms such as at the ARTCC, stationary extinguisher units consisting of 2 CO_2 cylinders having a minimum capacity of 50 lb. each shall be installed. Each stationary unit shall be manifolded to a hose reel, holding 100 feet of 1/2 inch CO_2 hose and a horn-shaped nozzle and located so that at least two fire hoses can reach any point in the electronic equipment room. Additional 15 lb. CO_2 extinguishers will be added to be accessible within not more than 50 feet.

f. One 15 lb. CO_2 extinguisher and one 5 lb. dry chemical extinguisher in each ARTCC kitchen and one 5 lb. dry chemical adjacent to the kitchen. In each FAA living quarter kitchen area: one 2 1/2 lb. dry chemical extinguisher.

g. Protection for mobile facilities shall be provided in accordance with their purpose as covered herein.

h. Protection for FAA operated boats shall comply with Coast Guard regulations.

i. Each aircraft repair or maintenance shop where the machining of metals such as magnesium, titanium, aluminum, and similar metals may present serious hazards shall be supplied with special purpose dry chemical powder extinguishers or pails of such powder so that a minimum of 5 lbs. of extinguishing agent will be available for each pound of fuel in the hazard and the dry powder shall be readily accessible near the possible hazard.

NOTE: The fire extinguishers outlined above are the minimum quantity and size and may be increased.

4.3 Health and safety considerations.- All individuals shall be instructed in the operation and use of fire extinguishers and with general safety practices prior to the need for such application. Ignorance and carelessness are the predominant factors involved in most accidents. In the selection of an extinguisher, consideration shall be given to the health and safety hazards involved in its maintenance and use as described in the following:

a. A possible electrical shock hazard is present when water type, loaded stream, foam extinguishers and carbon dioxide extinguishers with metal horn applicators are used on fires occurring in energized electrical equipment. Contact with

alternating current, direct current, or radio frequency potentials can result in severe shock, burns, or possible loss of life.

b. The use of carbon dioxide or dry chemical agents in unventilated spaces such as electrical vaults, small rooms or other confined spaces can dilute the available oxygen supply to such a level as to cause loss of consciousness and even death due to oxygen deficiency. Dry chemicals discharged into an area may clog filters in air-cleaning systems and greatly reduce visibility when used in small unventilated areas.

c. The rapid expansion of carbon-dioxide when discharged from an extinguisher can possibly cause frostbite and frozen hands if care is not exercised in handling the extinguisher.

d. Most fires produce toxic decomposition products of combustion and some materials may produce highly toxic gases. Fires may also consume available oxygen or produce dangerously high exposure to convected or radiated heat. All of these may affect the degree to which a fire can be safely approached with extinguishers.

CHAPTER 5. INSTALLATION

5.1 Location.- Extingishers shall normally be mounted on the latch side of the main entrance to the room. In addition, extinguishers shall be located so that there is an extinguisher within 50 feet of travel to any point in the room. Extinguishers shall be mounted on suitable metal brackets on walls or other appropriate surfaces, mounted in cabinets or set on shelves unless the extinguishers are of the wheeled type. Where such installation is not practicable, they shall be placed on pedestals or within enclosures constructed for the purpose. The top of the portable extinguisher shall not exceed 3 1/2 feet from the floor. Wheeled type extinguishers shall have the control valves located so that they are readily accessible. Extinguishers shall be mounted in such a manner that the operating instructions face outward or toward the operator.

5.2 Identification.- Location indicators with the markings shown in paragraph 3.4 shall be provided on the wall or surface on which the extinguisher is hung and directional arrows shall be provided where the extinguisher location is not readily visible from all angles.

5.3 Special considerations.- An automatic sprinkler or standpipe system in a facility does not eliminate the requirement for fire extinguishers as detailed herein.

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