

BUILDING OPERATIONS
DISTRIBUTION OF PORTABLE FIRE PROTECTION APPARATUS

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1. GENERAL

1.01 Portable extinguishers are intended to serve as the first line of defense to cope with fires of limited size. This section outlines the general criteria to be followed in distributing portable fire extinguishers throughout all spaces. The building operations force and members of the Firesafety Organization at each location should be familiar with these guidelines as well as the proper inspection, maintenance, and use of portable extinguishers.

1.02 Whenever this section is reissued, the reason(s) for reissue will be given in this paragraph.

1.03 Where local, state, or Occupational Safety and Health Act (OSHA) regulations require higher degrees of protection, the legislated criteria should be followed.

1.04 For the purposes of this section, telephone equipment areas shall be defined as spaces containing all types of toll and subscriber switching equipment and distributing frames, telephone power equipment and batteries, maintenance and test equipment, cable entrance facilities, carrier and radio equipment, and other similar miscellaneous equipment. Operating rooms shall be defined as spaces containing toll and subscriber boards, TSPS, directory assistance positions, test rooms service observing, and other similar equipment.

1.05 Maximum Travel Distance is defined as the maximum distance a person will have to travel from any given point in a space to reach an extinguisher. This distance is measured along aisles and other normal paths of travel. Mezzanine platforms, or other such elevated or depressed areas including access stairs, must be considered in computing this distance.

1.06 In the case of existing Buildings which do not come up to the current recommendations, the question of whether to replace existing protective apparatus immediately or at a later date will have to be considered for each specific case.

2. GENERAL REQUIREMENTS OF DISTRIBUTION

2.01 Extinguishers should be conspicuously located, preferably, along normal paths of travel including exits from an area. Wall locations are preferable to column mountings. In telephone equipment areas, locations along exterior walls, at cross aisles, and near maintenance centers should be considered first in spacing layouts.

2.02 Extinguishers should not be obstructed from view and should not be painted to blend with wall decor. A means of marking locations (such as a distinctive 3 inch wide red band around columns or white arrows on a red background above extinguishers) should be provided where any doubt exists as to possible visual obstruction. Care should be exercised to locate such markings high enough to be visible over furniture, equipment, or vehicles.

2.03 Extinguishers should be installed on hangers, brackets, or mounted in cabinets. Cabinets for extinguishers are not recommended due to the extra cost; however, where cabinets are provided, the extinguisher label giving operating instructions should face outward.

2.04 Extinguishers installed under conditions where they are subject to dislodgement shall be installed in brackets.

2.05 Extinguishers installed under conditions where they are subject to environmental and physical damage shall be protected. Care should be taken to protect the record label (E-5962) from environmental and physical damage.

2.06 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 shall be installed so that the top of the extinguisher is not more than 3-1/2 feet above the floor. The clearance between the bottom of the extinguisher and the floor should not be less than 15 inches.

3. CLASSIFICATION OF FIRES

3.01 Class A fires are fires involving ordinary combustible materials such as wood, paper, cloth, rubber, and many plastics. Class B fires are fires involving flammable liquids, oils, greases, tars, oil base paints, and laquers. Class C fires are fires involving 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 are fires involving combustible metals, such as magnesium, titanium, zirconium, sodium, lithium, and potassium.

4. CLASSIFICATION AND RATINGS OF FIRE EXTINGUISHERS

4.01 Portable fire extinguishers are classified for use on certain classes of fires and rated for relative extinguishing effectiveness. This is based upon the preceding classification of fires and the fire extinguishment potentials.

4.02 The classification of extinguishers consists of a LETTER indicating the class of fire on which an extinguisher has been found to be effective, preceded by a rating NUMERAL (class A and B only) which indicates the relative extinguishing effectiveness. Ratings commonly used for Bell System extinguishers are: 1A and 2A for use on class A fires and 5B and 10B for use on class B fires.

4.03 Ratings for use on more than one class of fire may be given to a single extinguisher. For example, a 4A:20B:C rating indicates that the unit is acceptable for use on class A, B and C fires. For class A fires, it is twice as effective as a 2A rated extinguisher. For class B fires, it is four times as effective as a 5B rated extinguisher.

5. CLASSIFICATION OF HAZARDS

5.01 Buildings, rooms or areas are first classified as light hazard, ordinary hazard, or extra hazard depending on the amount and relative danger from combustibles or flammable liquids present.

5.02 Light (Low) Hazards: Where the amount of combustibles or flammable liquids present is such that fires of small size may be expected. Typical areas of this type are offices, operating rooms, assembly halls, telephone equipment spaces, telephone power and battery spaces, cafeteria and lounge spaces, computer rooms, etc.

5.03 Ordinary (Moderate) Hazards: Where the amount of combustibles or flammable liquids present is such that fires of moderate size may be expected. Typical areas of this type are parking garages, storage (including paper, telephones or equipment stock, etc), boiler rooms, kitchens, standby power rooms, mechanical equipment rooms, cable entrance facilities, etc.

5.04 Extra (High) Hazards: Where the amount of combustibles or flammable liquids present is such that fires of severe magnitude may be expected. Typical areas of this type are vehicle maintenance or fueling, paint or carpentry shops, heavy storage (over 15 feet in solid piles, over 12 feet in piles that contain horizontal channels), etc.

5.05 In determining the classification of hazard, both the building structure and contents must be considered. If the building structure is combustible, fire extinguisher protection must include the building as well as its contents.

5.06 More than one hazard may exist in some buildings. For example, a kitchen which is normally an "ordinary hazard" and has class B flammable liquids could be located in an office building which is normally a "light hazard" with class A combustibles. This would require a class B fire extinguisher to be provided in the kitchen and 2A rated water extinguishers are adequate in the rest of the office building. Special hazards within a building must be identified and extinguishers provided to protect against the greatest hazard in a particular area.

6. BELL SYSTEM EXTINGUISHERS

6.01 The 2-1/2 gallon water extinguisher, E-10, is 2A rated. The E-7 (inverting type) and the E-11 (spray head) are manufacture discontinued. Replacement of these units should be made with either the E-10 or the E-16. Water type extinguishers should not be installed in areas where temperatures are outside the range of 40° to 120°F.

6.02 The 10-pound carbon dioxide extinguisher, E6, is rated at 5 B:C. Due to limited demand, the E-8 (15 pound) and E-9 (5 pound) are no longer available. Carbon dioxide extinguishers may be used in both heated and unheated spaces. They should not be installed in areas where temperatures are outside the range of -40° to 120°F.

6.03 The 5-pound multipurpose dry chemical extinguisher, E-12, is rated 2A:10B:C. The 10-pound dry chemical extinguisher, E-13, is rated 4A:40B:C (There are some E13's in the field with higher rating, e.g. 4A:60B:C). Where multipurpose dry chemical extinguishers are used, a 2A:10B C should be considered the minimum rating for use in buildings. Dry chemical fire extinguishers are not subject to freezing so they may be used in unheated areas.

NOTE: MULTIPURPOSE A:B:C DRY CHEMICAL EXTINGUISHERS SHALL NOT BE USED IN TELEPHONE EQUIPMENT BUILDINGS OR DATA PROCESSING EQUIPMENT BUILDINGS OR AREAS.

6.04 The 5.5-pound Halon 1211 extinguisher, E-15, is rated 10B:C. The 9-pound Halon 1211 extinguisher, E-16, is rated 1A:10B:C. Based on reduced spacing, the E-16 may be substituted for water and carbon dioxide

units in light hazard areas. However, it is primarily recommended for telephone equipment areas due to economic considerations. Halon 1211 units are not to be considered for cable entrance facilities (CEF) areas or areas without mechanical ventilation. Halon 1211 extinguishers can be used in both heated and unheated spaces with temperatures ranging from -40° to 120°F.

7. DISTRIBUTION OF FIRE EXTINGUISHERS

7.01 After an area has been classified by type and degree of hazard, the following guidelines should be used to distribute extinguishers within those areas.

7.02 Fire extinguisher ratings and placement for class A hazards are given in Table A.

TABLE A

BASIC MINIMUM EXTINGUISHER RATING FOR AREA SPECIFIED	MAXIMUM TRAVEL DISTANCES TO EXTINGUISHERS (FEET)	AREAS TO BE PROTECTED PER EXTINGUISHER		
		LIGHT (LOW) HAZARD (SQUARE FEET)	ORDINARY (MODERATE) HAZARD (SQUARE FEET)	EXTRA (HIGH) HAZARD (SQUARE FEET)
1A	75	3000	—	—
2A	75	6000	3000	—
3A	75	9000	4500	3000
4A	75	11250	6000	4000
6A	75	11250	9000	6000
10A	75	11250	11250	9000
20A	75	11250	11250	11250
40A	75	11250	11250	11250

(a) Up to one-half of the complement of extinguishers as specified in Table A may be replaced by uniformly spaced 1-1/2 inch hose stations. The location of hose stations and fire extinguishers should be such that hose stations do not replace more than every other extinguisher.

(b) Where the floor area of a building is less than that specified in Table A, one extinguisher of the minimum size recommended should be provided.

(c) The protection requirements may be fulfilled with extinguishers of higher rating provided the travel distance to such larger extinguishers does not exceed 75 feet.

7.03 Fire extinguisher ratings and placement for class B hazards are shown in Table B.

Note: Two or more extinguishers of lower rating shall not be used to fulfill the protection requirements of Table B.

7.04 Fire extinguisher ratings and placement for class C hazards are as follows. Extinguishers with class C ratings shall be required where energized electrical equipment, such as telephone equipment, computers, or reproduction machines, may be encountered. This will include a fire either directly involving or surrounding electrical equipment. Since the fire itself is class A or class B, the extinguishers are sized and located on this basis. If class A combustibles form the hazard, as in telephone equipment, the spacing shall be based on Table A. Paragraph 7.02 is applicable even though the extinguisher used may be rated B:C (as in the case of Halon 1211 extinguishers). See Table C for typical illustrations.

7.05 Table C contains examples of portable extinguisher distribution in typical spaces. (See Notes 1 through 6.)

TABLE B

BASIC MINIMUM EXTINGUISHER RATING FOR AREA SPECIFIED	MAXIMUM TRAVEL DISTANCES TO EXTINGUISHERS		
	LIGHT (LOW) HAZARD (FEET)	ORDINARY (MODERATE) HAZARD (FEET)	EXTRA (HIGH) HAZARD (FEET)
5B	30	—	—
10B	50	30	—
20B	50	50	—
40B	50	50	30
80B	50	50	50

TABLE C

(Note 2)

SPACE	CLASS OF HAZARD	CLASS OF FIRE	MINIMUM EXTINGUISHER CLASSIFICATION(S) REQUIRED	WESTERN ELECTRIC CLASSIFICATIONS	TRAVEL DISTANCE (FEET)	SQUARE FOOT COVERAGE	LOCATION
Telephone Equipment Rooms	Light	A + C	2A + 5B:C or 1A:10B:C	E-10 + E-6 or E-16	75 75	6000 3000	On walls, partitions or columns
Operating Rooms TSPS, Service Observing, Directory Assistance	Light	A + C	2A + 5B:C or 1A:10B:C	E-10 + E-6 or E-16	75 75	6000 3000	At entrance doors. For large rooms, distribute evenly throughout
Test Centers	Light	A + C	2A + 5B:C or 1A:10B:C	E-10 + E-6 or E-16	75 75	6000 3000	At entrance doors. For large rooms, distribute evenly throughout
Cable Entrance Facilities	Ordinary	A + C	2A + 5B:C	E-10 + E-6	75	3000	Adjacent all entry locations primary and secondary exits See Note 8
AC Power Rooms	Light	A + C	2A + 5B:C or 1A:10B:C	E-10 + E-6 or E-16	75 75	6000 3000	On walls, partitions or columns
Standby Generator Rooms	Ordinary	B + C	1A:10B:C or 10B:C	E-16 or E-8	30 30	N/A	Near entrance door
Battery Rooms	Light	A + C	1A:10B:C or 2A + 5B:C	E-16 or E-10 + E-6	50 75	3000 6000	On walls, partitions or columns
General Office Space	Light	A	2A or 1A:10B:C	E-10 or E-16	75 75	6000 3000	Locate near door, if more than 1 is needed, distribute evenly throughout
Storage Rooms	Ordinary	A	2A	E-10	75	3000	Near entrance door See Note 1
Computer & Data Processing Area (Note 4) Reproduction Rooms TTY (5 or more units) TV & Radio Equipment Areas	Light	A + C	2A + 5B:C or 1A:10B:C	E-10 + E-6 or E-16	75 75	6000 3000	On walls, partitions or columns See Note 4
Kitchens (Note 6)	Ordinary	B + C	1A:10B:C or 10:BC	E-16 or E-8	30 30	N/A	Near entrance door
Cafeteria, Dining Rooms	Light	A	2A	E-10	75	6000	Where 1 extinguisher is needed, locate near door. Where more than 1 extinguisher is needed, distribute evenly throughout
Boiler Rooms	Ordinary	B + C	1A:10B:C or 10B:C	E-16 or E-8	30 30	N/A	Inside room near entrance door See Note 1 & 5
Garage & Carports	Ordinary	B	10B:C or 4A:40B:C	E-8 or E-13	30 50	N/A	Distribute evenly throughout space See Note 3
Storage Areas	Ordinary	A	2A	E-10	75	3000	Locate near door, if more than 1 is needed, distribute evenly throughout
Motor Vehicle Fueling or Maintenance Areas	Extra	B	4A:40B:C	E-13	30	N/A	See Note 7

NOTE 1: For enclosed spaces such as boiler rooms, storage rooms, etc, extinguisher stations may be located outside the door and can be included in the spacing of extinguishers for the adjoining space, provided the rating of extinguishers is proper for both spaces.

NOTE 2: The data in Table C is provided for example only and applies to typical situations.

NOTE 3: Garage hazards may vary considerably depending on the nature and type of work operations and storage present. Each garage must be reviewed carefully to determine the class of hazard and class of fire which may be present and extinguishers spaced accordingly. A:B:C rated multipurpose dry chemical extinguishers are recommended for new installations. Care should be taken to use dry chemical or other nonfreezing agents for extinguishers in exterior covered storage areas, carports, or other areas subject to freezing temperatures.

NOTE 4: Spacing for Type I computer equipment. Check computer manufacturer for type of equipment to be supplied before spacing extinguishers in new location. NFPA 75 defines computer Types I, II, and III and covers extinguisher type and spacing requirements.

NOTE 5: Extinguishers are not provided for fires from pressurized flammable gas lines. Such fires should be combatted by shutting off the gas supply. Extinguishers are for use in the event of other combustibles burning in the room or subsidiary fires which remain after the gas has been shut off.

NOTE 6: If a dry chemical extinguisher is supplied for a kitchen area, it shall be a B:C rated sodium bicarbonate type. Multipurpose A:B:C rated dry chemical extinguishers shall not be used.

NOTE 7: One E-13 dry chemical extinguisher is required near gasoline pumps or bottled propane pumps or bottled propane storage areas. Extinguisher should not be placed directly on pump. Extinguishers should be placed not closer than 20 feet but not to exceed 30 feet travel to tanks or gasoline pump.

NOTE 8: Spacing for fire extinguishers in a CEF should include at least one fire extinguisher inside the facility in addition to the others located near entrances.