

- (12) NFPA 407, *Standard for Aircraft Fuel Servicing*
- (13) NFPA 408, *Standard for Aircraft Hand Portable Fire Extinguishers*
- (14) NFPA 410, *Standard on Aircraft Maintenance*
- (15) NFPA 418, *Standard for Heliports*
- (16) NFPA 430, *Code for the Storage of Liquid and Solid Oxidizers*
- (17) NFPA 498, *Standard for Safe Havens and Interchange Lots for Vehicles Transporting Explosives*
- (18) NFPA 1192, *Standard on Recreational Vehicles*
- (19) NFPA 1194, *Standard for Recreational Vehicle Parks and Campgrounds*

Chapter 5 Distribution of Fire Extinguishers

5.1 General Requirements.

5.1.1* The minimum number of fire extinguishers needed to protect a property shall be determined as outlined in this chapter. Frequently, additional extinguishers can be installed to provide more suitable protection. Fire extinguishers having ratings less than specified in Table 5.2.1 and Table 5.3.1 can be installed, provided they are not used in fulfilling the minimum protective requirements of this chapter.

5.1.2* Fire extinguishers shall be provided for the protection of both the building structure and the occupancy hazards contained therein.

5.1.2.1 Required building protection shall be provided by fire extinguishers suitable for Class A fires.

5.1.2.2* Occupancy hazard protection shall be provided by fire extinguishers suitable for such Class A, B, C, D, or K fire potentials as might be present.

5.1.2.3 Fire extinguishers provided for building protection can be considered also for the protection of occupancies having a Class A fire potential.

5.1.2.4 Buildings having an occupancy hazard subject to Class B or Class C fires, or both, shall have a standard complement of Class A fire extinguishers for building protection, plus additional Class B or Class C fire extinguishers, or both. Where fire extinguishers have more than one letter classifica-

tion (such as 2-A:20-B:C), they can be considered to satisfy the requirements of each letter class.

5.1.3 Rooms or areas shall be classified generally as light (low) hazard, ordinary (moderate) hazard, or extra (high) hazard. Limited areas of greater or lesser hazard shall be protected as required.

5.1.4 On each floor level, the area protected and the travel distances shall be based on fire extinguishers installed in accordance with Table 5.2.1 and Table 5.3.1.

5.2 Fire Extinguisher Size and Placement for Class A Hazards.

5.2.1 Minimal sizes of fire extinguishers for the listed grades of hazards shall be provided on the basis of Table 5.2.1, except as modified by 5.2.2. Fire extinguishers shall be located so that the maximum travel distances shall not exceed those specified in Table 5.2.1, except as modified by 5.2.2. (See Annex E.)

5.2.1.1 Certain smaller fire extinguishers that are charged with a multipurpose dry chemical or a halogenated agent are rated on Class B and Class C fires, but have insufficient effectiveness to earn the minimum 1-A rating even though they have value in extinguishing smaller Class A fires. They shall not be used to meet the requirements of 5.2.1.

5.2.2 Up to one-half of the complement of fire extinguishers as specified in Table 5.2.1 shall be permitted to be replaced by uniformly spaced 1½ in. (3.81 cm) hose stations for use by the occupants of the building. Where hose stations are so provided, they shall conform to NFPA 14, *Standard for the Installation of Standpipe, Private Hydrant, and Hose Systems*. The location of hose stations and the placement of fire extinguishers shall be such that the hose stations do not replace more than every other fire extinguisher.

5.2.3 Where the area of the floor of a building is less than that specified in Table 5.2.1, at least one fire extinguisher of the minimum size recommended shall be provided.

5.2.4 The protection requirements shall be permitted to be fulfilled with fire extinguishers of higher rating, provided the travel distance to such larger fire extinguishers does not exceed 75 ft (22.7 m).

Table 5.2.1 Fire Extinguisher Size and Placement for Class A Hazards

Criteria	Light (Low) Hazard Occupancy	Ordinary (Moderate) Hazard Occupancy	Extra (High) Hazard Occupancy
Minimum rated single extinguisher	2-A*	2-A*	4-A†
Maximum floor area per unit of A	3000 ft ²	1500 ft ²	1000 ft ²
Maximum floor area for extinguisher	11,250 ft ² ‡	11,250 ft ² ‡	11,250 ft ² ‡
Maximum travel distance to extinguisher	75 ft	75 ft	75 ft

For SI units: 1 ft = 0.305 m; 1 ft² = 0.0929 m².

*Up to two water-type extinguishers, each with 1-A rating, can be used to fulfill the requirements of one 2-A rated extinguisher.

†Two 2½ gal (9.46 L) water-type extinguishers can be used to fulfill the requirements of one 4-A rated extinguisher.

‡See E.3.3.

5.3* Fire Extinguisher Size and Placement for Class B Fires Other Than for Fires in Flammable Liquids of Appreciable Depth.

5.3.1 Minimal sizes of fire extinguishers for the listed grades of hazard shall be provided on the basis of Table 5.3.1. Fire extinguishers shall be located so that the maximum travel distances do not exceed those specified in the table used. (See Annex E.)

Table 5.3.1 Fire Extinguisher Size and Placement for Class B Hazards

Type of Hazard	Basic Minimum Extinguisher Rating	Maximum Travel Distance to Extinguishers	
		ft	m
Light (low)	5-B	30	9.15
	10-B	50	15.25
Ordinary (moderate)	10-B	30	9.15
	20-B	50	15.25
Extra (high)	40-B	30	9.15
	80-B	50	15.25

Notes:

(1) The specified ratings do not imply that fires of the magnitudes indicated by these ratings will occur, but rather they are provided to give the operators more time and agent to handle difficult spill fires that could occur.

(2) For fires involving water-soluble flammable liquids, see 4.3.4.

(3) For specific hazard applications, see Section 4.3.

5.3.1.1 Fire extinguishers of lesser rating, desired for small specific hazards within the general hazard area, shall be permitted to be installed but shall not be considered as fulfilling any part of the requirements of Table 5.3.1.

5.3.2 Up to three AFFF or FFFP fire extinguishers of at least 2½ gal (9.46 L) capacity shall be permitted to be used to fulfill extra (high) hazard requirements.

5.3.3 Two AFFF or FFFP fire extinguishers of at least 1½ gal (6 L) capacity shall be permitted to be used to fulfill ordinary (moderate) hazard requirements.

5.3.4 Two or more fire extinguishers of lower rating shall not be used to fulfill the protection requirements of Table 5.3.1 except as permitted by 5.3.2 and 5.3.3.

5.3.5 The protection requirements shall be permitted to be fulfilled with fire extinguishers of higher ratings, provided the travel distance to such larger fire extinguishers does not exceed 50 ft (15.25 m).

5.4* Fire Extinguisher Size and Placement for Class B Fires in Flammable Liquids of Appreciable Depth.

5.4.1* Portable fire extinguishers shall not be installed as the sole protection for flammable liquid hazards of appreciable depth where the surface area exceeds 10 ft² (0.93 m²). Where personnel who are trained in extinguishing fires in the protected hazards are available on the premises, the maximum surface area shall not exceed 20 ft² (1.86 m²).

5.4.2 For flammable liquid hazards of appreciable depth, a Class B fire extinguisher shall be provided on the basis of at

least two numerical units of Class B extinguishing potential per ft² (0.0929 m²) of flammable liquid surface of the largest hazard area. AFFF- or FFFP-type fire extinguishers shall be permitted to be provided on the basis of 1-B of protection per ft² (0.09 m²) of hazard. (For fires involving cooking grease or water-soluble flammable liquids, see 4.3.2 and 4.3.4.)

5.4.3 Two or more fire extinguishers of lower ratings, other than AFFF- or FFFP-type fire extinguishers, shall not be used in lieu of the fire extinguisher required for the largest hazard area. Up to three AFFF- or FFFP-type fire extinguishers shall be permitted to fulfill the requirements, provided the sum of the Class B ratings meets or exceeds the value required for the largest hazard area.

5.4.4 Travel distances for portable fire extinguishers shall not exceed 50 ft (15.25 m). (See Annex E.)

5.4.4.1 Scattered or widely separated hazards shall be individually protected. A fire extinguisher in the proximity of a hazard shall be carefully located to be accessible in the presence of a fire without undue danger to the operator.

5.5* Fire Extinguisher Size and Placement for Class C Hazards. Fire extinguishers with Class C ratings shall be required where energized electrical equipment can be encountered. This requirement includes situations where fire either directly involves or surrounds electrical equipment. Since the fire itself is a Class A or Class B hazard, the fire extinguishers shall be sized and located on the basis of the anticipated Class A or Class B hazard.

5.6 Fire Extinguisher Size and Placement for Class D Hazards.

5.6.1 Fire extinguishers or extinguishing agents with Class D ratings shall be provided for fires involving combustible metals.

5.6.2 Fire extinguishers or extinguishing agents (media) shall be located not more than 75 ft (23 m) of travel distance from the Class D hazard. (See Section E.6.)

5.6.3 Portable fire extinguishers or extinguishing agents (media) for Class D hazards shall be provided in those work areas where combustible metal powders, flakes, shavings, chips, or similarly sized products are generated.

5.6.4 Size determination shall be on the basis of the specific combustible metal, its physical particle size, area to be covered, and recommendations by the fire extinguisher manufacturer on data from control tests conducted.

5.7 Fire Extinguisher Size and Placement for Class K Fires.

5.7.1 Class K fire extinguishers shall be provided for hazards where there is a potential for fires involving combustible cooking media (vegetable or animal oils and fats).

5.7.2 Maximum travel distance shall not exceed 30 ft (9.15 m) from the hazard to the extinguishers.

Chapter 6 Inspection, Maintenance, and Recharging

6.1 General.

6.1.1 This chapter is concerned with the rules governing inspection, maintenance, and recharging of fire extinguishers. These factors are of prime importance in ensuring operation at the time of a fire.