



Portable Fire Extinguishers Written
Program

Review 3/8/2022

Fire Extinguisher Program

Fire Extinguisher Placement

GENERAL INFORMATION

The number and placement of Fire Extinguishers are dictated by Chapter 10 of the National Fire Protection Association, Sub-Chapter 3 Distribution of Fire Extinguishers

3-1 General Requirements.

3-1.1*

The minimum number of fire extinguishers needed to protect a property shall be determined as outlined in this chapter. Frequently, additional extinguishers may be installed to provide more suitable protection. Fire extinguishers having ratings less than specified in Tables 3-2.1 and 3-3.1 may be installed provided they are not used in fulfilling the minimum protective requirements of this chapter.

3-1.2*

Fire extinguishers shall be provided for the protection of both the building structure, if combustible, and the occupancy hazards contained therein.

3-1.2.1

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

3-1.2.2*

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

3-1.2.3

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

3-1.2.4

Combustible buildings having an occupancy hazard subject to Class B and/or Class C fires shall have a standard complement of Class A fire extinguishers for building protection, plus additional Class B and/or Class C fire extinguishers. Where fire extinguishers have more than one letter classification (such as 2-A:20-B:C), they may be considered to satisfy the requirements of each letter class.

3-1.3

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.

3-1.4

On each floor level, the area protected and the travel distances shall be based on fire extinguishers installed in accordance with Tables 3-2.1 and 3-3.1.

3-2 Fire Extinguisher Size and Placement for Class A Hazards.

3-2.1

Minimal sizes of fire extinguishers for the listed grades of hazards shall be provided on the basis of Table 3-2.1 except as modified by 3-2.2. Fire extinguishers shall be located so that the maximum travel distances shall not exceed those specified in Table 3-2.1, except as modified by 3-2.2. (See Appendix E.) Table 3-2.1

	Light Ordinary (Low) Hazard Occupancy	(Moderate) Hazard Occupancy	Extra (High) Hazard
Minimum rated single extinguisher	2-A***	2-A***	4-A*
Maximum floor area per unit of A	3,000 sq ft	1,500 sq ft	1,500 sq ft
Maximum floor area for extinguisher	11,250 sq ft **	11,250 sq ft **	11,250 sq ft **
Maximum travel distance to extinguisher	75 ft	75 ft	75 ft

*Two 2.5-gal (9.46-L) water-type extinguishers can be used to fulfill the requirements of one 4-A rated extinguisher.

**See Appendix E-3-3.

***Up to two water type extinguishers each with 1-A rating can be used to fulfill the requirements of one 2-A rated extinguisher for Light (Low) Hazard Occupancies. For SI Units: 1 ft = 0.305 m; 1 sq ft = 0.0929 m²

3-2.1.1

Certain smaller fire extinguishers that are charged with multipurpose dry chemical, Halon 1211, or Halon 1211/1301 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 3-2.1.

3-2.2

Up to one-half of the complement of fire extinguishers as specified in Table 3-2.1 may be replaced by uniformly spaced 1 1/2-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 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.

3-2.3

Where the area of the floor of a building is less than that specified in Table 3-2.1, at least one fire extinguisher of the minimum size recommended shall be provided.

3-2.4

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

3-3 Fire Extinguisher Size and Placement for Class B Fires Other than for Fires in Flammable Liquids of Appreciable Depth.

NOTE: Flammable liquids of appreciable depth are those with a depth greater than 1/4 in. (0.64 cm).

3-3.1

Minimal sizes of fire extinguishers for the listed grades of hazard shall be provided on the basis of Table 3-3.1. Fire extinguishers shall be located so that the maximum travel distances shall not exceed those specified in the table used. (See Appendix E.) Exception: Fire extinguishers of lesser rating, desired for small specific hazards within the general hazard area, may be used, but shall not be considered as fulfilling any part of the requirements of Table 3-3.1.

Table 3-3.1

Type of Hazard	Basic Minimum Extinguisher Rating	Maximum Travel Distance To Extinguisher
Light (low)	5-B	30 ft
	10-B	50 ft
Ordinary (Moderate)	10-B	30 ft.
	20-B	50 ft
Extra (High)	40-B	30 ft
	80-B	50 ft

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

NOTE 2: For fires involving water-soluble flammable liquids, see 2-3.4.

NOTE 3: For specific hazard applications, see Section 2-3.

3-3.2

Two or more fire extinguishers of lower rating shall not be used to fulfill the protection requirements of Table 3-3.1. Exception No. 1: Up to three AFFF or FFFP fire extinguishers of at least 2 1/2-gal (9.46-L) capacity may be used to fulfill extra (high) hazard requirements.

Exception No. 2: Two AFFF or FFFP fire extinguishers of at least 1 1/2-gal (6-L) capacity may be used to fulfill ordinary (moderate) hazard requirements.

3-3.3

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

3-4 Fire Extinguisher Size and Placement for Class B Fires in Flammable Liquids of Appreciable Depth.

NOTE: Flammable liquids of appreciable depth are those with a depth greater than 1/4 in. (0.64 cm).

3-4.1*

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

3-4.2

For flammable liquid hazards of appreciable depth, a Class B fire extinguisher shall be provided on the basis of at least 2 numerical units of Class B extinguishing potential per sq ft (0.0929 m²) of flammable liquid surface of the largest hazard area. (For fires involving cooking grease or water soluble flammable liquids, see 2-3.2 and 2-3.4.) Exception: AFFF- or FFFP-type fire extinguishers may be provided on the basis of 1-B of protection per sq ft of hazard.

3-4.3

Two or more fire extinguishers of lower ratings shall not be used in lieu of the fire extinguisher required for the largest hazard area. Exception: Up to three AFFF or FFFP fire extinguishers may be used to fulfill the requirements provided the sum of the Class B ratings meets or exceeds the value required for the largest hazard area.

3-4.4

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

3-4.4.1

Scattered or widely separated hazards shall be individually protected. An 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.

3-5 Fire Extinguisher Size and Placement for Class C Hazards.

Fire extinguishers with Class C ratings shall be required where energized electrical equipment may be encountered that would require a nonconducting extinguishing medium. This includes fire either directly involving or surrounding 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 B hazard. NOTE: Electrical equipment should be de-energized as soon as possible to prevent reignition.

3-6 Fire Extinguisher Size and Placement for Class D Hazards.

3-6.1

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

3-6.2

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

3-6.3

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.

3-6.4

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.

How to Use a Portable Fire Extinguisher

Employees are **not** expected to fight fires. **Your responsibility in a fire situation is to alert others and to evacuate.**

Small fires can often be put out quickly by a well-trained individual with a portable fire extinguisher. However, to do this safely, you must understand the use and limitation of a portable fire extinguisher and the hazards associated with fighting fires. Do not attempt to extinguish any fire without calling for help and pulling the fire alarm. Always leave an exit at your back in order to escape before using an extinguisher. Make sure the fire is limited to the original material ignited and is contained (such as in a waste basket).

To extinguish a fire with a portable extinguisher, a person must have immediate access to the extinguisher, know how to actuate the unit, and know how to apply the agent effectively. Attempting to extinguish even a small fire carries some risk. Fires can increase in size and intensity in seconds, blocking the exit path and creating a hazardous atmosphere. In addition, portable fire extinguishers contain a limited amount of extinguishing agent and can be discharged in a matter of seconds. Therefore, individuals should attempt to fight only very small or incipient stage fires.

Remember (P.A.S.S.): Pull, Aim, Squeeze, Sweep



Pull

Holding extinguisher upright, twist the pin to break the plastic safety seal. Pull the pin completely out.

Aim

Aim low. Point the extinguisher nozzle (or its horn or hose) at the base of the fire not the flames. This is important - in order to put out the fire, you must extinguish the fuel.

Squeeze

Squeeze the handle. This releases the extinguishing agent.

Sweep

Using a sweeping motion, move the fire extinguisher back and forth at the base until the fire is completely out. Watch the fire area. Back away if fire breaks out again repeat the process.

Operate the extinguisher from a safe distance, several feet away, and then move towards the fire once it starts to diminish. Be sure to read the instructions on your fire extinguisher - different fire extinguishers recommend operating them from different distances. Remember: Aim at the base of the fire, not at the flames!

Inspection and Maintenance of Fire Extinguishers

Adequate maintenance of fire extinguishers consists of periodically inspecting each extinguisher, recharging each extinguisher following discharge and performing hydrotesting as needed.

An inspection is a quick visual check that visually determines whether the fire extinguisher is properly placed and will operate. Its purpose is to give reasonable assurance that the extinguisher is fully charged and will function effectively if needed. In order to be effective, inspections must be frequent, regular and thorough.

Maintenance, as distinguished from inspection, means a complete and thorough examination of each extinguisher. A maintenance check involves examining all its parts, cleaning and replacing any defective parts and reassembling, recharging and where appropriate, pressurizing the extinguisher. Maintenance should be performed periodically, but at least once every year, after each use, or when an inspection shows that need for maintenance is obvious.

- **Dry Chemical Extinguishers**

Dry chemical extinguishers should be inspected monthly and should undergo normal annual maintenance. The quantity of agent for a cartridge-operated model can be checked by weighing, or by removing the fill cap and checking it visually. The gas cartridge may be checked by weighing. On stored-pressure models, the pressure gauge will indicate if adequate pressure is maintained and the agent quantity can be checked by weighing.

- **Carbon Dioxide Extinguishers**

Weighing is the only way to determine whether carbon dioxide extinguishers are full charged. They should be weighed at least semiannually for loss of weight and inspected for deterioration and/or physical damage.

Although fire extinguishers can hold their charge indefinitely, they can malfunction. Therefore, regulations require they be hydrotested every so often. The purpose of hydrostatic testing of portable fire extinguishers that are subject to internal pressures is to protect against unexpected, in-service failure. This failure may be due to undetected internal corrosion caused by moisture in the extinguisher; external corrosion caused by atmospheric humidity or corrosive vapors; damage caused by rough handling, repeated pressurizations, manufacturing flaws in the construction of the extinguisher; improper assembly of valves or safety relief discs; or exposure of the extinguisher to abnormal heat, as during a fire.

ABC Extinguishers	Hydrotest every 12 years
	Maintenance (internal) every 6 years
CO₂ Extinguishers	Hydrotest every 5 years

UWM Facility Services Buildings and Grounds Department maintains all campus extinguishers to these standards. All extinguishers are to be inspected monthly regardless of type.

Fire Extinguisher Training

The UWM Department of University Safety and Assurances offers fire extinguisher training to UWM faculty, staff, and students upon request. This course utilizes live fire scenarios and actual fire extinguishing equipment. Training includes a lecture followed by a short video and then individual "hands-on training."

Training can be arranged in various locations on campus and will be scheduled for groups of 30 or more. If you are interested in attending the next session of this training, please contact [University Safety and Assurances](#) at x6339.

NOTICE:

This course utilizes live fire scenarios and actual fire extinguishing equipment.

- *Participants may be briefly exposed to fire, smoke and intense heat in a controlled environment.*
- *Participants clothing may pick up smoke or soot during the training exercise.*
- *Participants with respiratory ailments should use their judgment to excuse themselves from any portion of the training that may be potentially harmful to their well-being.*

One of the purposes of this training is to give participants a sensation of extinguishing a fire insofar that a fire can be safely controlled in a training situation. Participants should feel free to excuse themselves from the hands-on use of the fire extinguisher part of the training if they feel they will be harmed in any way.