

# Fire Extinguisher Spacing & Installation Guidelines

## Scope

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The Fire Code of New York specifies the type, size and number of fire extinguishers that facilities are required to have. This guideline describes the basic requirements contained in the Fire Code of New York and the National Fire Protection Association Chapter 10 - 2018 Edition.

## Where Required

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Portable fire extinguishers shall be installed in the following locations:

1. In new and existing Group, A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies.

Exception:

1. In Group R-2 occupancies, portable fire extinguishers shall be required only in locations specified in Items 2 through 6 where each dwelling unit is provided with a portable fire extinguisher having a minimum rating of 1-A:10-B:C.
  2. In Group E occupancies, portable fire extinguishers shall be required only in locations specified in Items 2 through 6 where each classroom is provided with a portable fire extinguisher having a minimum rating of 2-A:20-B:C
2. Within 30 feet (9144 mm) distance of travel from commercial cooking equipment and from domestic cooking equipment in Group I-1; I-2, Condition 1; and R-2 college dormitory.
  3. In areas where flammable or combustible liquids are stored, used or dispensed.
  4. On each floor of structures under construction, except Group R-3 occupancies, in accordance with Section 3315.1..
  5. Where required by the sections indicated in Table 906.1.
  6. Special-hazard areas, including but not limited to laboratories, computer rooms and generator rooms, where required by the fire code official.

## Decoding UL Rating

You will find a UL Rating in the title of the fire extinguishers.

For example, an **ABC Fire Extinguisher** might have a UL Rating of 4-A:80-B:C.

Fire extinguishers are rated as to which class of fires for which they are appropriate. Fire extinguishers are also rated with respect to the fires they will control. The larger the number given, the larger fire they will control.

For example, a 4A-rated extinguisher will control a larger fire than will a 2A-rated extinguisher.





*Size ratings are not provided for class C fires since this rating simply refers to the fact that the extinguishing chemical will not conduct electricity.*

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## What do the letters mean in the alpha numeric classification?

The letter represents the type of fire that can be put out with a particular extinguisher.

Fires are divided into five categories in order to determine what type of chemical (dry chemical, carbon dioxide, etc.) will safely extinguish the fire.

CLASS A FIRES	CLASS B FIRES	CLASS C FIRES	CLASS K FIRES
			
Fires fueled by organic, combustible materials such as wood, cloth, paper, rubber, and many plastics. These fires pose a risk to restaurants with wood-burning stoves, campgrounds, and other outdoor venues.	Fires fueled by flammable liquids, combustible liquids, petroleum greases, tars, oil-based paints, solvents, lacquers, alcohol, and flammable gases. These fires can be prominent in gas stations, bars, and chemistry labs.	Electrical fires involving energized electrical equipment, such as short-circuiting machinery and overloaded electrical cables. These are a danger in breaker rooms, server rooms, or any area with a high volume of electrical equipment.	A major danger in restaurant kitchens, Class K fires occur in cooking appliances that utilize a flammable cooking media such as vegetable or animal oils and fats.

## What do the numbers in the alpha numeric classification mean (ie. 1A:10B:C)?

There is a number rating. For Type A fires, a 1 would have the equivalent of 1¼ gallons of water, a 2 would be equivalent to 2½ gallons, 3 would be 3¾ gallons of water, and so forth.

For Type B and Type C fires, the number represents the square footage that the extinguishing agent would cover. For example, a number 2 would cover two square feet and a 5 would extinguish an area five square feet and so forth

Now that you know exactly what the numbers mean, let's observe how extinguishers compare qualitatively to one another.

Let's compare an extinguisher with a **4-A:80-B:C** rating to one with a **1-A:10-B:C** rating.



Based on what you've learned above, you know that:

4-A:80-B:C is 4x more potent against Class A fires than 1-A:10-B:C.

4-A:80-B:C is 8x more potent against Class B fires than 1-A:10-B:C.

Both extinguishers can combat class C fires.

Type of Hazard Basic Minimum	Extinguisher Rating	Maximum Travel Distance(ft) / Coverage Area to Extinguishers (sq. ft)	
Light hazard	2A 10B:C	75 feet	Maximum coverage of 3,000 square feet per unit of A (thus a 2A extinguisher can cover 6000 sq. ft)
Ordinary Hazard with moderate amounts of Class A combustibles and only minimal amounts of flammable/combustible liquids and gases.	2A 10B:C	75 feet	Maximum coverage of 1,500 square feet per unit of A (thus a 2A extinguisher can cover 3,000 sq. ft.)
Ordinary hazard with moderate amounts of flammable/combustible liquids and gases. Examples: Parking garages, small laboratories, and hardware stores	<b>Option 1</b> 2A 10B:C	30 feet	Maximum coverage of 1,500 square feet per unit of A (thus a 2A extinguisher can cover 3,000 sq. ft.)
	<b>Option 2</b> 2A 20B:C	50 feet	Maximum coverage of 1,500 square feet per unit of A (thus a 2A extinguisher can cover 3,000 sq. ft.)
Extra hazard - all types	<b>Option 1*</b> 4A 40B:C	30 feet	Maximum coverage of 1,000 square feet per unit of A (thus a 4A extinguisher can cover 4,000 sq. ft.)
	<b>Option 2</b> 4A 80B:C *4A 40B:C	50 feet	Maximum coverage of 1,000 square feet per unit of A (thus a 4A extinguisher can cover 4,000 sq. ft.) <i>may be hard to locate new – larger size ok</i>
Commercial kitchens	2A 1B: C; Recommend using through-out the restaurant  Class K	30 feet	Maximum coverage of 1,000 square feet per unit of A (thus a 4A extinguisher can cover 4,000 sq. ft.)

## Basic Fire Extinguisher Selection, Numbers and Location

1. For each area, determine the hazard classification using the definitions below.

**Light (low) 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 may include some buildings or rooms occupied as offices, classrooms, churches, assembly halls, guestroom areas of hotels/motels, etc.

This classification anticipates that the majorities of 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 in this classification provided that they are kept in closed containers and safely stored.

**Ordinary (light) Hazard:** Ordinary hazard occupancies are locations where the total amount of Class A combustibles and Class B flammables are present in greater amounts than expected under light (low) hazard occupancies.

These occupancies could consist of dining area, mercantile shops and allied storage, light manufacturing, research operations, auto showrooms, parking garages, workshop or support service area of light (low) hazard occupancies, and warehouses containing Class I or Class II commodities as defined in NFPA 231, Standard for General Storage (Class I and Class II commodities include noncombustible products on wooden or certain plastic pallets, in ordinary cardboard cartons or in paper wrappings, or in slatted wooden crates, solid wooden boxes, multiple-thickness paperboard cartons with or without pallets. The products are allowed to contain a limited amount of plastics.)

**Extra (High) Hazard:** Extra 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 (light) hazards.

These occupancies could consist of woodworking, vehicle repair, aircraft and boat servicing, cooking area, individual product display showrooms, product convention center displays, and storage and manufacturing processes such as painting, dipping, coating, including flammable liquid handling. Also included is warehousing or in-process storage of other than Class I and Class II commodities (i.e. plastics as a part of product or package)

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- Using the table below determine what size and type of fire extinguisher you need; how many you need and the maximum allowed travel distance to a fire extinguisher.

*Note: a small, higher hazard operation (such as a spray booth) located in a larger area can be provided with an extinguisher specifically for that operation while the rest of the fire extinguishers in the area are rated for the overall hazard of the area. An example is provided on the last page of this document. Please also note that this chart addresses general situations, not special hazards. Special situations are addressed in 4) below.*

- Locate the fire extinguishers throughout the facility to satisfy the number of extinguishers needed based on square footage and the maximum travel distance. In general, fire extinguishers should be located near exit doors and in exit paths so that employees do not have to go deeper into a building to get a fire extinguisher, thus compromising their ability to exit should that be necessary. Fire extinguisher must be mounted on the wall or a post or placed on shelves. The bottom of the extinguisher must be between 4 and 48 inches off the ground.
- The above information and the following are general guidelines. Special situations exist for which additional guidance is needed. For example, open tanks of flammable liquids, high piled storage of combustible materials, large scale spraying of flammable liquids, etc. For situations such as these, contact the Office of Code Enforcement at 845-297-5277 for assistance.

## Size and Distribution

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For Light (Low) and Ordinary (Moderate) hazard occupancies, the minimum fire extinguisher designation shall be 2-A:10 B:C. (Commonly known as a "5 lb." extinguisher). Maximum travel distance to extinguishers shall not exceed 75 feet.

2½ pound, or "kitchen extinguishers" are not addressed in the fire code.

While these have been accepted to meet requirements in apartments buildings in the past, they are no longer considered acceptable. Extinguisher requirements for apartments can now be met by placing a 1-A:10-B:C extinguisher in each apartment, or by placing a 2-A:10-B:C on the outside of apartment unit within the hallway in such a manner as to meet the 75-foot requirement stated above.

## Commercial Kitchen Fire Extinguishers

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Commercial cooking equipment involving vegetable or animal oils and fats shall be protected by a Class K rated portable extinguisher. The extinguisher shall be located within a 30-foot travel distance of commercial-type cooking equipment.

## Conspicuous Location

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Extinguishers shall be located in conspicuous locations where they will be readily accessible and immediately available for use. These locations shall be along normal paths of travel, unless the Fire Marshal determines that the hazard posed indicates the need for placement away from normal paths of travel.

## Unobstructed and Unobscured

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Fire extinguishers shall not be obstructed or obscured from view. In rooms or areas in which visual obstruction cannot be completely avoided, means shall be provided to indicate the locations of extinguishers.

## Hanger and Brackets

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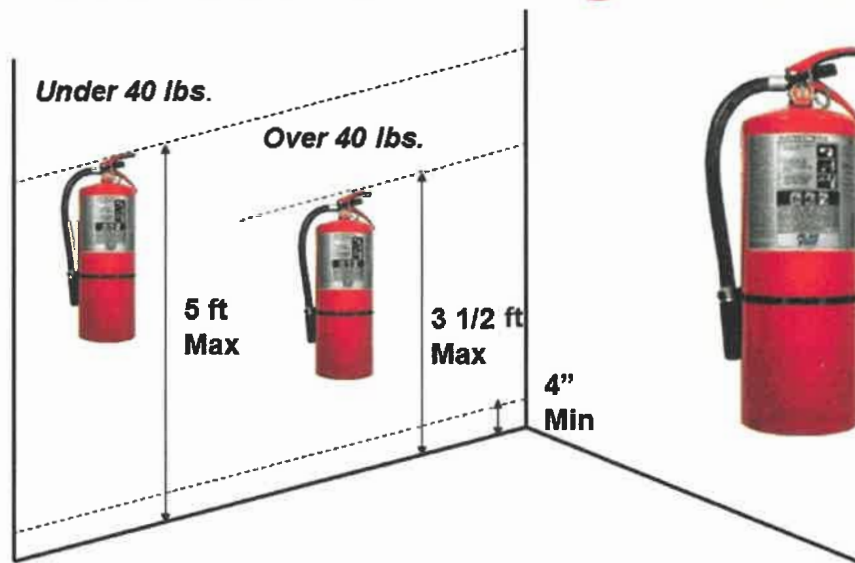
Hand-held portable fire extinguishers, not housed in cabinets, shall be installed on the hangers or brackets supplied. Hangers or brackets shall be securely anchored to the mounting surface in accordance with the manufacturer's installation instructions.

## Height above Floor

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Portable fire extinguishers having a gross weight not exceeding 40 pounds shall be installed so that its top is not more than 5 feet above the floor. Hand-held portable fire extinguishers having a gross weight exceeding 40 pounds shall be installed so that the top is not more than 3.5 feet above the floor. The clearance between the floor and the bottom of the installed hand-held extinguishers shall not be less than 4 inches.

## Location of Extinguishers



## Cabinets

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Cabinets used to house fire extinguishers shall not be locked.

Exceptions:

1. Where fire extinguishers subject to malicious use or damage are provided with a means of ready 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.

## Marking

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

## Maintenance

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Fire extinguishers shall be subjected to maintenance not more than 1 year apart, at the time of hydrostatic test, or when specifically indicated by an inspection. Each fire extinguisher shall have a tag or label securely attached that indicates the month and year the maintenance was performed and that identifies the person performing the service.