

Fire Extinguisher Standards for Health Care Facilities

NFPA 99 Provides Standards for Selecting the Right Type of Fire Extinguishers for Healthcare Facilities



Until 2018, architects, specifiers and contractors relied on fairly vague direction for the selection of fire extinguishers in MRI rooms, operating rooms, cooking areas and telecommunications in healthcare facilities.

The International Code Council Committee on Healthcare which includes fire officials, architects, hospital leaders and engineers has adopted the NFPA 99 Healthcare Facilities Code that specifically addresses the electrical, fire and explosion hazards that exist within hospitals and ambulatory surgery facilities. For those using the current version of International Fire Code or International Building Code, both reference NFPA 10 to determine selection, installation and maintenance of portable fire extinguishers. In turn, NFPA 10, section 5.6 “Selection for Specific Locations” references NFPA 99 which is the Healthcare Facilities Code.

What does the NFPA 99 Healthcare Facilities Code Have to Say About Fire Extinguishers?

NFPA 99 Chapter 16 Features of Fire Protection describes requirements for fire extinguishers in specialty spaces

- Applies to both new and existing health care facilities.
- Provides for existing systems that are not in strict compliance, to continue to be used unless the authority having jurisdiction (AHJ) has determined that there is a hazard to life.
- Specifies fire extinguisher types for MRI rooms, operating rooms, cooking areas and telecommunications rooms.
- Defines “clean agent” fire extinguishers as electrically non-conducting, volatile or gaseous which do not leave a residue upon evaporation.

This information is provided for reference only, as Activar Construction Products Group, Inc. does not provide recommendations for a specific application. Please consult the actual code publications and the Authority Having Jurisdiction (AHJ) regarding building code compliance.

Fire Extinguisher Standards for Health Care Facilities Cont.

MRI Rooms:

Due to the strong magnetic fields in this type of diagnostic equipment, fire extinguishers are required to be constructed of non-ferrous materials, tested and labelled for resistance to those magnets. Medical scanners typically have a magnetic field strength of between 1.5 to 7 Tesla which is the unit of measurement. An example of a rating on an extinguisher is “tested up to 3 Tesla”. In addition, extinguishing chemicals such as ABC dry chemical that could damage or destroy the costly equipment should not be used.

Two types of non-magnetic extinguishers that have been developed are carbon dioxide or water mist. These extinguishers will not leave a residue, are non-conductive, and are effective for use on sensitive electronic equipment.

- **Water mist extinguishers** for type A and C fires isolate the user from electrical shock because the water is expelled in microdroplets, making it ideal for use on energized electrical equipment.
- **Carbon dioxide extinguishers** for type B and C fires expel a cloud of gas which displaces the oxygen, and removes heat.

Cooking Areas:

NFPA 99 provides the same information as NFPA 10; Class K fire extinguishers are for hazards where there is a potential for fires involving combustible cooking media such as vegetable or animal fats. A low “pH” potassium acetate solution is discharged in a fine mist that provides excellent range while preventing splashing and creating an effective saponification foam-type blanket necessary for suppressing liquid cooking media fires.



Non-Magnetic Sentinel 5 Carbon Dioxide Extinguisher



Saturn 10 Class K Wet Chemical Extinguisher

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Telecommunication Rooms and Areas:

Clean agent-type fire extinguishers are required in telecommunication entrance facilities and telecommunication equipment rooms. These areas serve as a central point for computer, and data communications within the building, which could be damaged or destroyed by the chemicals used in a standard dry chemical fire extinguisher. A hand-held extinguisher may be installed, in addition to a permanently installed fire suppression system in these rooms.

Operating Rooms:

Fires occasionally occur in operating rooms, but patient safety is an overriding concern when selecting fire extinguishers. Clean agent extinguishers are specified because they will not contaminate the equipment or patient by leaving a residue.

Three types of extinguishers are considered clean agents, and can be used in operating rooms and telecommunications rooms

- **Chemical clean agents** extinguish fires by interrupting the chemical reaction of the fire triangle with the use of a halogenated chemical. There are several types of halogenated chemical extinguishers which leave no residue, are non-corrosive, and electrically non-conductive. Models for Class BC or ABC fires are available.
- **Carbon dioxide extinguishers** for type B and C fires expel a cloud of gas which removes the heat and displaces the oxygen that the fire needs to burn.
- **Water mist extinguishers** for class A and C fires extinguish by spraying a non-toxic water mist that removes the heat element of the fire and is non-conductive.



*Mercury 5
Halotron® Clean Agent
Extinguisher*



*Nebula 272
Water Mist Extinguisher*

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What do IFC and NFPA 10 Say About Fire Extinguishers in Other Areas of Healthcare Facilities?

IFC (Chapter 9) and NFPA 10 provide general criteria for fire extinguishers in building areas not addressed in NFPA 99 above. The selection of extinguishers is to be based on the type of fire most likely to occur, size of fire, hazards in the area, energized equipment in the vicinity and ambient temperature. Those standards provide information for the selection and location of fire extinguishers including:

- The type of fire extinguisher needed for different hazard types.
- The location of fire extinguishers in the building.
- The mounting and protection of Extinguishers

Locked Cabinets in I-2 and I-3 Institutional Occupancies:

IFC provides more specific code than NFPA 10, when it comes to medical, surgical, psychiatric, nursing or custodial facilities which care for, or are occupied by persons who are not capable of self-preservation. NFPA stipulates that cabinets shall not be locked except where fire extinguishers are subject to malicious use, but cabinets still have to include a means of emergency access. IFC allows exceptions in Group I-3 occupancies and in mental health areas in Group I-2 occupancies, for access to portable fire extinguishers to be locked or to be located in staff locations, provided that the staff has keys.

The NFPA 99 Healthcare Facilities Code 2018 version has clarified and coordinated conflicting codes in a single document that can now be used to more easily select the correct and most appropriate fire extinguishers for the special fire hazards in those facilities.

[Click here for more information on NFPA 99](#)

[Click here for information on Activar Construction Products Group fire extinguishers.](#)