

**FEMA** | the life safety group

*Saving Lives, Protecting Property*

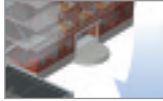
A Life Safety Guide:

# 7 SIMPLE STEPS

to Saving Lives and Protecting Property



*How Does Your Building's Life Safety Plan Measure Up?*



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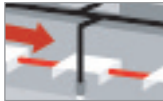
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**The tragedy at a Rhode Island nightclub sent a powerful message to building and business managers around the country about property devastation and fatality figures that fires are capable of in commercial facilities.**

The Station Nightclub fire in West Warwick, RI, took 99 lives and resulted in more than 150 injuries, and is just one example of the roughly 500,000 structure fires that take place each year, according to the National Fire Protection Association (NFPA). The Nightclub fire was set off by pyrotechnics inside a space that was covered by a dangerous combination of highly flammable, exposed foam insulation. Portable fire extinguishers were not used on the fire, nor were sprinklers installed into the building, which was built prior to 1976.

## 7 SIMPLE STEPS TO LIFE SAFETY

Every day, a fire can break out at an office when electrical wires spark a flame or at a laundry facility when lint ignites in a duct or in a school cafeteria when grease ignites over a commercial cooking appliance. The true test of your building's Life Safety Plan is based on how well you've equipped your building or campus with equipment and devices and the way individuals respond to these emergencies. FEMA has put together these **Seven Simple Steps to Life Safety** – a Life Safety Plan that is sure to increase your chances of saving lives and protecting property in your building or facility.

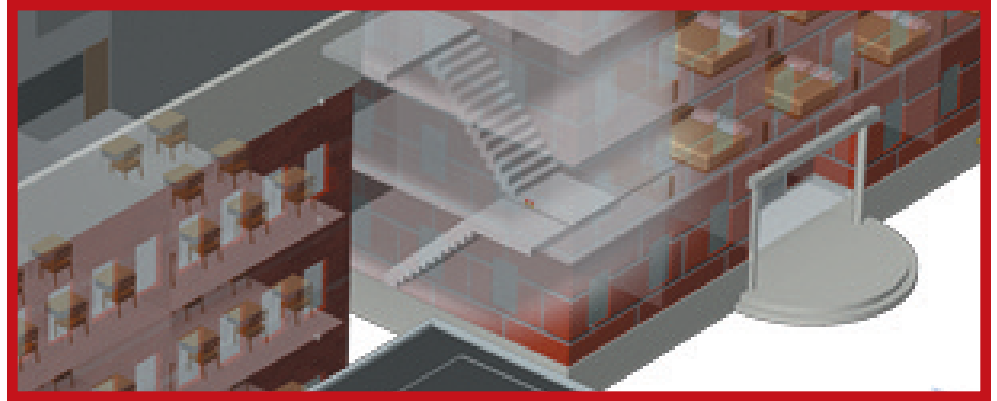
## NFPA 101, 2003 EDITION

\*NFPA 101 Life Safety Code states:  
1.3.1 The purpose of the code is to provide minimum requirements, with due regards to function, for the design, operation, and maintenance of buildings and structures for safety to life from fire. Its provisions will also aid life safety in similar emergencies.

NFPA 101, 2003 edition

\*International Fire Code states:  
101.3 The purpose of the code is to establish the minimum requirements consistent with nationally recognized good practice for providing a reasonable level of life safety and property protection from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures and premises and to provide safety to fire fighters and emergency responders during emergency operations

# 1. Know the Codes



“Codes and standards are bare minimum requirements\* for buildings,” says Michael Laderoute, FEMA’s Code Consultant. “Meeting the codes does not mean that building owners are doing enough. Good life safety planning relies upon creating a program where building owners are doing more than what is asked of them—especially when people’s lives are at stake.”

Fire protection equipment is legislated by city, state, and federal laws, many of them directly adopted or adapted from model code-making organizations, such as the International Code Council (ICC) and the National Fire Protection Association (NFPA). Building owners and facilities managers must comply with the fire codes of their area, however, considering the history of fires and the potential severity of future ones, they may want to evaluate their fire protection plan and exceed the requirements of local codes for added protection. Management personnel should become advocates for everyone’s safety by going above and beyond local requirements for extra precautionary measures.

Who is responsible for a building’s life safety plan and following the codes? Good life safety planning typically is the role of a building owner, business manager, or security/facilities manager. These individuals should be providing their occupants with the highest level of safety and security possible. And, the responsibility is on building occupants to be aware of their surroundings and to know what life safety equipment is available so that they, too, can become advocates for life safety if their building does not follow this Life Safety Guide.

Know and understand the functions of your building. When designing an effective Life Safety Plan for your building or facility, you need to consider what type of building it is, what it is used for, and how it was built.

**Here are some important questions to ask:**

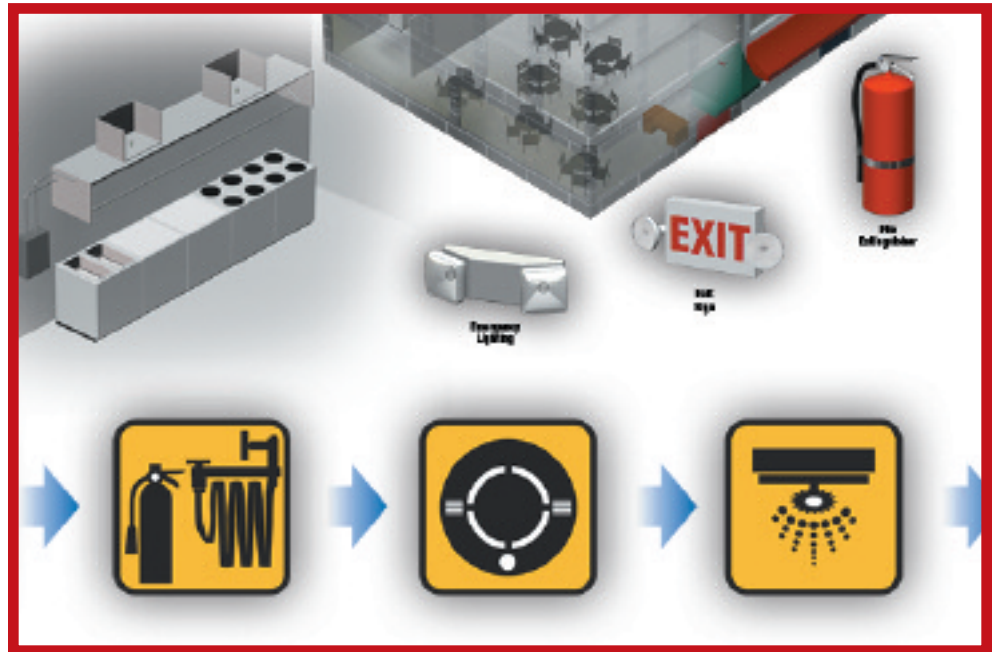
- What types of people come into this building? Are patients with respiratory concerns housed here? Are there elderly, handicapped, or children on the premises?
- Does it include an operating room or other care unit that has an oxygen enriched environment?
- Does the building contain flammable or combustible materials?
- Does the building contain telecommunications, data centers, or other storage rooms?
- Does it have commercial cooking appliances in a kitchen or eating area?
- Is the building constructed with a steel or wood frame?
- How many floors does it have? Does it have a basement with laundry or other large pieces of equipment?

## 2. Assess Your Building

All these questions are critical in determining the necessary components of your building's Life Safety Plan. For example, a commercial kitchen will require a pre-engineered suppression system over the cooking appliance whereas a health care facility will require a specific type of portable fire extinguisher.

"There are many different hazards associated with different types of buildings or occupancies," says Laderoute. "Every work area, every piece of equipment involved, and every individual – whether it be elderly occupants or children – needs to be considered when planning for life safety."

A Life Safety Plan should address the various fire scenarios that could occur in a facility. For example, the commercial kitchen of a hotel will have a specific Life Safety Plan to address a cooking fire versus a waste basket fire that may occur in a guest room. More information on the fire protection equipment involved in these scenarios will follow.



\*1.1\* Scope. The provisions of this standard apply to the selection, installation, inspection, maintenance, and testing of portable extinguishing equipment. The requirements given herein are minimum. Portable fire extinguishers are intended as a first line of defense to cope with fires of limited size. They are needed even if the property is equipped with automatic sprinklers, standpipe and hose, or other fixed protection equipment (see 4.3.2, 5.1.1, 5.2.1, and 5.2.3). They do not apply to permanently installed systems for fire extinguishment, even where portions of such systems are portable (such as hose and nozzles attached to a fixed supply of extinguishing agent).

1.2\* Purpose. This standard is prepared for the use and guidance of persons charged with selecting, purchasing, installing, approving, listing, designing, and maintaining portable fire-extinguishing equipment. The fire protection requirements of this standard are general in nature and are not intended to abrogate the specific requirements of other NFPA standards for specific occupancies

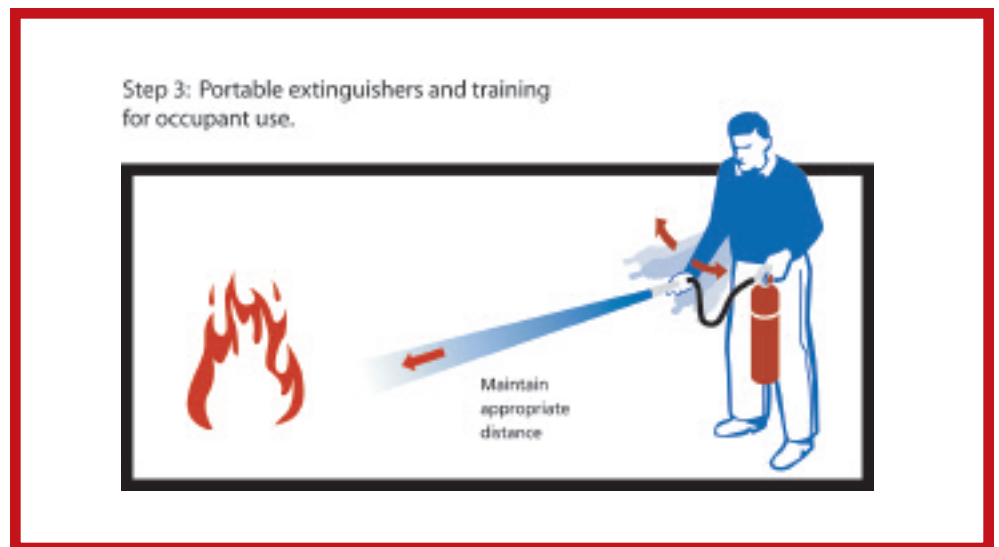
## 3. Portable Fire Extinguishers

The first step is to check “NFPA 10,” which is the Standard for Portable Fire Extinguishers\*. NFPA 10 mandates the type, size, placement, and number of extinguishers required for your building. Keep in mind once again that the code requires the minimum number of extinguishers. Take a good assessment of your building and the hazards involved and consider exceeding these requirements to create a good, solid Life Safety Plan.

Statistics show that 94 percent of the time a portable fire extinguisher is used, it puts out the fire – typically within the initial two minutes. When a fire is extinguished at the early stage, deaths, injuries, and property damage are significantly minimized. However, a fire extinguisher only should be used once the fire department is called and everyone is safe.

In addition, extinguishers are cost effective. In commercial occupancies, the current cost for portable fire extinguishers is less than one cent per square foot.

When it comes to fire extinguishers, maintenance is critical. The pressure gauge should be monitored to ensure that the extinguisher is pressurized and the extinguisher should be checked regularly for cracks, leaks, or vandalism. “NFPA 10” provides guidelines for regular inspection and maintenance of portable fire extinguishers and manufacturers can offer additional product information, if needed.



## NFPA 14, 2003 edition

\*3.3.27.1 Class I System. A Class I standpipe system provides 65-mm (2½-in.) hose connections to supply water for use by fire departments and those trained in handling heavy fire streams.

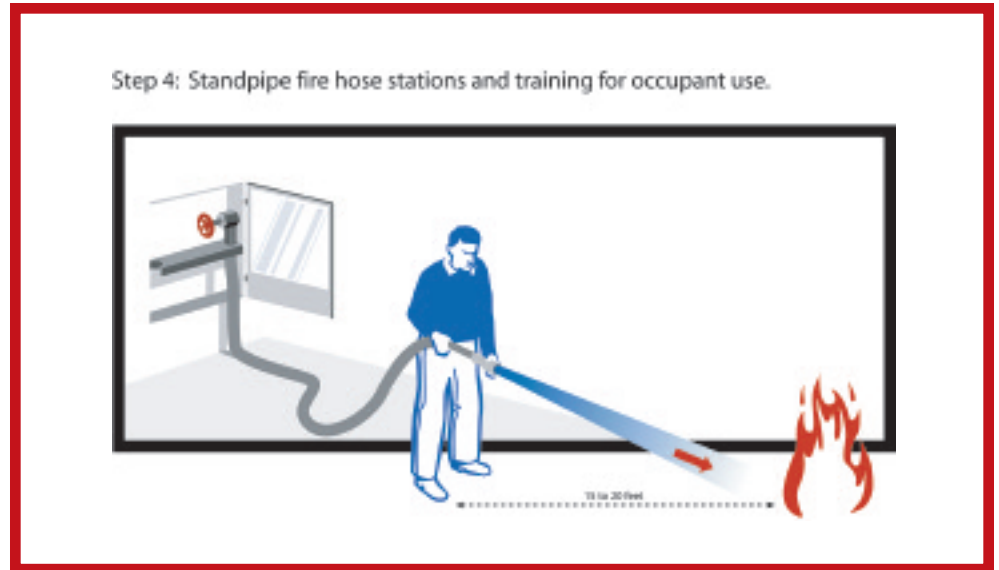
3.3.27.2 Class II System. A Class II standpipe system provides 38-mm (1½-in.) hose stations to supply water for use primarily by the building occupants or by the fire department during initial response.

3.3.27.3 Class III System. A Class III standpipe system provides 38-mm (1½-in.) hose stations to supply water for use by building occupants and 65-mm (2½-in.) hose connections to supply a larger volume of water for use by fire departments and those trained in handling heavy fire streams.

### \*NFPA 14-2003 Ed. (3.3.23)

says the standpipe system is "... for the purpose of extinguishing a fire, thereby protecting a building or structure and its contents, in addition to protecting its occupants."

## 4. Standpipe Fire Hose Stations



A Life Safety Plan should include on-site, defend-in-place fire protection equipment designed to protect individuals against initial developing fires. In addition to portable fire extinguishers, standpipe fire hose stations\* are designed exactly for that purpose and could be a key component in your Life Safety Plan.

Comprised of a fire hose, rack, and nozzle, and typically secured on the wall in hallways and stairwells, the standpipe station works to allow a fast response to fire before the fire has time to spread -- once the fire department has been called and everyone is safe. This equipment is needed in buildings, such as offices, dormitories, schools, airports, hotels, hospitals, and anywhere else where fire department response time may exceed five minutes.

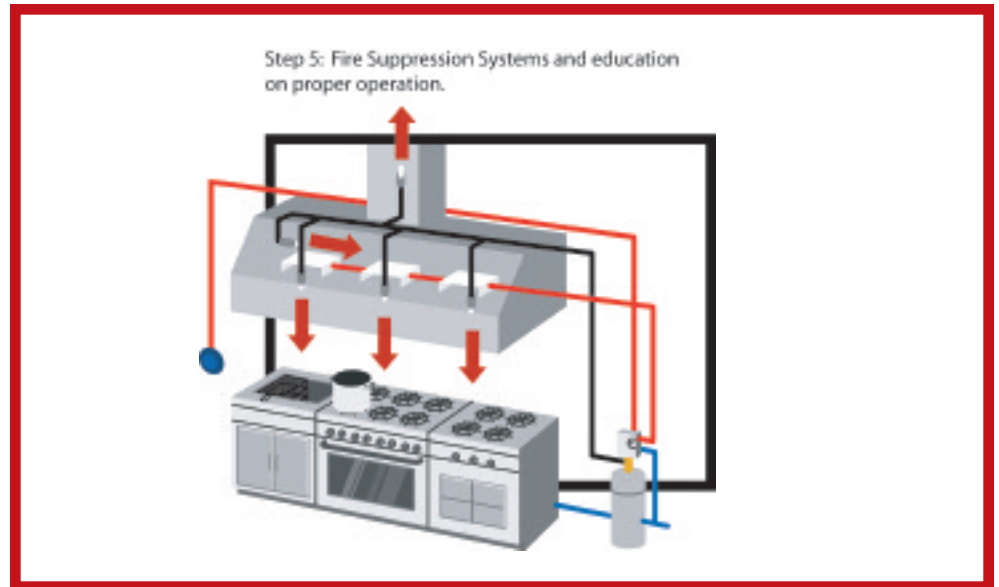
"Know the type of standpipe fire hose station that is right for your building," says Laderoute. "The three classes of standpipe systems\* are all equally important and designed for a specific purpose and trained individual. Classes 2 and 3 are best for occupant use, and Class 1 is necessary for the fire department to provide heavy water streams. "

## NFPA 17, 2002 edition

\*5.1.1\* Use. The types of hazards and equipment that can be protected using dry chemical extinguishing systems include the following:

- (1) Flammable or combustible liquids
- (2) Flammable or combustible gases
- (3) Combustible solids including plastics, which melt when involved in fire
- (4) Electrical hazards such as oil-filled transformers or circuit breakers
- (5) Textile operations subject to flash surface fires
- (6) Ordinary combustibles such as wood, paper, or cloth
- (7) Restaurant and commercial hoods, ducts, and associated cooking appliance hazards such as deep-fat fryers

# 5. Fire Suppression Systems



A pre-engineered fire suppression system is mandated by NFPA\* standards in special hazard situations, which can involve restaurants and industrial areas. Fire suppression systems provide fast, on-site protection at the earliest stage of a fire.

Since fire suppression systems activate automatically, their operation is safe for all employees and do not require human intervention. However, they can be manually activated if needed in an emergency.

Designed to NFPA and Underwriters Laboratories Inc. (UL) standards, fire suppression systems are pre-tested to effectively extinguish specific types of fires in special hazard situations. Some examples of places where pre-engineered systems are mandated by NFPA include the following (check NFPA Standards for a complete listing):

- Paint spray operations involving flammable or combustible materials
- Electrical hazards such as oil-filled transformers or circuit breakers
- Textile operations subject to flash surface fires
- Restaurant and commercial hoods, ducts, and associated cooking appliance hazards, such as deep fat fryers
- Data centers and electrical storage rooms

## 6. Evacuation Plan

Exit signage and emergency communications are important components of escape planning. Every building should have well-lit and visibly placed signs to indicate where exits are located, and building occupants should practice escape planning regularly – from knowing where the primary and secondary exits are located to learning how to crawl on the floor to avoid toxic smoke.

According to the NFPA, some important things to remember include: practicing the evacuation and using the stairs, staying low to the ground to avoid smoke, staying by a window to protect yourself from smoke, and signaling to firefighters with a light or colored cloth so they know where you are located. More information on this topic can be found at [www.nfpa.org](http://www.nfpa.org).



## 7. Training and Education

Training is critical, according to industry experts. Key personnel must be properly trained according to their specified responsibilities and all training documentation must be kept on file within the human resources department of each business. While fire protection training is a key component of a Life Safety Plan, other training should also be included such as CPR and first aid, which can often go hand-in-hand with fire protection preparedness.

There are several ways to go about education and training for building occupants and employees. One is to host in-house safety seminars by manufacturers for building engineers to educate your team on exactly what should be done on a daily basis. Another option is to bring in the local fire department for hands-on fire extinguisher training or evacuation plan safety tips.

If your company or facility cannot dedicate the time or resources to holding an event, there are numerous sites online where education and training can be found. For fire extinguisher training, visit [www.fireextinguisher.com](http://www.fireextinguisher.com) and for an overview of standpipe fire hose operation and procedures check out [www.rackhosetraining.com](http://www.rackhosetraining.com).



Suppression system information can be located on the FEMA web site at [www.femalifesafety.org](http://www.femalifesafety.org). And [www.nfpa.org](http://www.nfpa.org) includes an abundance of fire safety materials that could be helpful when you are training employees, or designing a Life Safety Plan perfect for your specific needs. Other useful materials that should be used to educate tenants and occupants about balanced fire protection include evacuation maps, floor monitors, and after-hours contact information.

When it comes to saving lives and protecting property, a sound Life Safety Plan with these seven easy steps is a simple starting point to design a solution for your fire protection needs. One very basic and important premise to remember -- while code requirements may exist for your building, it is important to rethink the equipment and devices that are currently available to provide visitors, employees, guests, and others with more than "just enough" to survive a fire.

Tragedies -- such as fire -- happen by accident, but life safety does not. Life safety depends on advance preparation that is thorough, well-planned, and practiced regularly over time. No one ever has any advance notice before a catastrophic event. It could happen at any given moment and, as they say, a little preparation today can go a long way tomorrow.

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