Fire Prevention – Stats and Facts

DID YOU KNOW?

The National Fire Protection Association (NFPA) reports that there were 499,000 structure fires in the United States in 2018, unchanged from 2017. Of note, structure fires in 2016 was the lowest number of fires since the NFPA began collecting data in 1977. Structure fires peaked at 1,098,000 in 1977 and have been trending downward over the past 40 years.

Fires in structures not related to wildfires caused $11.1 billion in property damage in 2018, up 3.7 percent from the 2017 loss of $10.7 billion. The average loss for these structure fires was $22,244, up 3.7 percent from a year ago. Wildfires resulted in $10 billion in direct property loss in 2017.

Public assembly fires include fires in eating and drinking places and other entertainment venues, houses of worship and other places where people congregate. There are approximately 7,410 structure fires in eating and drinking establishments each year, according to a NFPA report based on data between 2010 and 2014.

According to the NFPA, fires in nightclubs are among the most deadly public occupancy fires, because they contain a large number of people in one main space. The deadliest nightclub fire in world history was the 1942 Cocoanut Grove fire in Boston, Massachusetts which claimed 492 lives followed by a fire at a disco/dance hall in Luoyang, China in December, 2000 that claimed 309 lives. A January, 2013 fire at the KISS night club in Brazil ranked third, claiming 242 lives. The 2003 Station Fire in Rhode Island claimed 100 lives, and ranks as number ten.

According to the most recent NFPA (National Fire Protection Association) data, in 2010 U.S. fire departments responded to an estimated 1,331,500 fires. These fires resulted in 3,120 civilian

fire fatalities, 17,720 civilian fire injuries and an estimated $15,478,000,000 in direct property loss.

Of these fires 98,000 were responded to in commercial or municipal buildings. Of the over $11.6 billion in property damage, more than $2.6 billion took place in these non-residential structures. This represents an average loss per reported incident in non-residential / commercial structures of over $34,000.

Fire Extinguishers Effectively Put Out 80% of All Fires

To highlight the effectiveness of extinguishers in the early stage fire fighting, a 2002 UK study performed by FETA (Fire Extinguishing Trades Association) and IFEDA (Independent Fire Engineering and Distributors Association)5 reviewed over 2100 fire incidents and found that in 80% of the cases a portable fire extinguisher successfully extinguished the fire and in 75% of those cases, the fire department was not required to attend.

A similar survey was conducted in 2002 by EUROFEU (European Committee of the Manufacturers of Fire Protection Equipment and Fire Fighting Vehicles)in 6 European countries and it found strikingly consistent results. In over 2600 incidents recorded it concluded that in 81.5% of cases the portable extinguisher successfully extinguished the fire and in 74.6% of the cases the fire department was not required to attend.

Extrapolating the results of these surveys to the U.S. market provides solid statistical evidence that in approximately 80% of all fire incidents a portable fire extinguisher is the only fire fighting tool needed to extinguish the fire. Further, they indicate that in 60% of all fire incidents the fire department is not notified (and thus the event would not appear in NFPA statistics).

Fire Extinguisher Success Rates

(Estimated)

- Fires Handled entirely by extinguishers with Fire Department not being notified = 1,997,250
- Commercial Structure fires handled entirely by extinguishers with Fire Department not being notified = 147,000
- Estimated savings in avoided property loss in commercial buildings = 147,000 X $34,000 equals $4.998 Billion
- Fires in which fire extinguishers were the only needed form of fire suppression = 5,326,000
- Fires in commercial structures in which extinguishers were the only needed form of fire suppression = 392,000

Although these are only estimates, these numbers make clear that the positive impact of fire extinguishers on society is tremendous. When fire extinguishers are not available to do their job because they are blocked, missing or depressurized, the results can be deadly, catastrophic and costly. en-Gauge's electronic fire extinguisher monitoring solution makes sure these vital life safety devices are available, accessible and working properly.

The U.S. Fire Administration (USFA) collects data from a variety of sources to provide information and analyses on the status and scope of the fire problem in the United States. Armed with this data, the fire service can use it to:

- Create a baseline for evaluating programs.
- Increase awareness.
- Motivate corrective actions.
- Set priorities.
- Target public education programs.

Fireworks

- Fireworks start an average of 18,500 fires per year, including 1,300 structure fires, 300 vehicle fires, and 16,900 outside and other fires. These fires caused an average of three deaths, 40 civilian injuries, and an average of $43 million in direct property damage, according

to the NFPA.

- In 2017 S. hospital emergency rooms treated an estimated 12,900 people for fireworks related injuries; 31 percent of those injuries involved injuries to hands and fingers, 22 percent involved the head, face and ears, 17 percent involved legs, 14 percent involved eyes, and 6 percent involved arms according to the Consumer Product Safety Commission.
- In 2011, fire departments responded to 370,000 home structure fires in the United States. These fires caused 13,910 civilian injuries, 2,520 civilian deaths and $6.9 billion in direct damage. (NFPA, 2013)

The Hard Facts

Every day, at least one child dies from a home fire and another 293 children are injured from fires or burns. Ninety percent of all fire-related deaths are due to home fires. Home fires can spread rapidly and leave families as little as two minutes to escape after an alarm sounds. (Safe Kids, 2013)

Children under 5 years of age are at the greatest risk from home fire death and injury; their death rate is nearly twice the national average. Each year, nearly 488 children ages 14 and under die in home fires, and another 116,600 children are injured from a fire/burn related incident. (Karter, 2010)

Often, children do not learn proper fire safety behavior such as dropping and rolling on the ground if clothing catches fire, crawling instead of running out of a house, or covering their mouths if it is smoky. Fire safety education is important and is powerful in preparing families and children for a fire emergency, especially when practiced.

Two of every five home fires start in the kitchen. Residential fire incidents peak from 5:00pm to 7:00pm during dinner preparation. Although fire incidents drop when people sleep, deaths are at their highest late at night and in the early morning hours. More than half of residential fire deaths occur in fires

that start between 11:00pm and 7:00am. The peak night hours are from 2:00am to 5:00am, when most people are in a deep sleep. Sixty-two percent of reported home fire deaths resulted from fires in home with no smoke alarms or no working smoke alarms. (NFPA)

Top Fire Safety Tips

- Working smoke alarms reduce the chances of dying in a fire by nearly 50 percent.
- For the best protection, install smoke alarms on every level of your home and in every sleeping area.
- Teach kids never to play with matches, lighters or fireworks.
- Keep a fire extinguisher and a phone close by in case of an emergency.
- Create and practice a home fire escape plan with two ways out of your house in case of a fire.
- Teach children to get low and get out when they hear the smoke alarm.
- Use safety in the kitchen. Limit distractions when cooking and don’t leave a hot oven or stove unattended.

KEEP IN MIND

Besides the obvious risks associated with 1.32 million fires reported in the United States that resulted in 3,400 deaths, 14,670 injuries, and more than $23 billion in property loss, the number of reported fires is on the downward trend. (In 2008, the number of fires reported was approximately 1.45 million.) While this is a noteworthy downward trend, fire-related deaths are on the rise. (USFA, 2017)

The majority of fires (77 percent) occur in the home, while the remaining 23 percent occur at work. (NFPA, 2017) This article will focus on what you, as an employee, can do to protect yourself and co-workers in the office. In addition, it will focus on specific steps that can be taken to prevent fires, as well as how to respond to fire emergencies.

Emergency Action Plans

One of the most important tasks that an employee can do regarding fire safety is to have a good working knowledge of the organization’s emergency action plan (EAP). Every employee should be trained on the EAP at the beginning of their employment and as frequently as necessary to maintain familiarity with the procedures. At a minimum, the training should occur at least annually.

An EAP should consist of methods for notifying employees in the event of an emergency and reporting an emergency, designated emergency evacuation routes and exits, procedures for assisting workers and visitors with disabilities, procedures to account for employees, and rescue and medical procedures. It is the employer’s responsibility to establish this plan; however, the employee has a responsibility to understand and participate in the plan and to make suggestions for improvement. After all, an employee’s life may depend on this plan.

Not every installation has an alarm system, or there may be areas where the alarm system is not effective, such as outside areas or in outbuildings. In these cases, it is necessary for the plan to address notification to those employees. In addition, the alarm system may have various sounds for different emergencies. Employees should be aware of these differences.

The first priority of employees in the event of a fire is to immediately evacuate the facility and go to their designated assembly point. The plan must address designated emergency evacuation routes. It is part of an employee’s responsibilities to become familiar with these routes. Furthermore, the employee should assist in making sure that the exits and routes are maintained in a manner free from obstruction. Employees also must familiarize themselves with a secondary route of escape in the event the first is blocked by fire.

One of the most overlooked aspects of any emergency action plan is that of employees and visitors with disabilities. In the event of a fire, elevators are programmed to close and go to the bottom

floor to prevent employees from entering and becoming trapped in a fire. This means that one of the escape routes for the second and higher floors is via stairwells. If an employee requires a wheelchair or crutches, they will need assistance in traversing the stairs. The EAP should not leave this to chance, but rather have designated employees responsible to assist.

Accounting for employees in the event of an emergency is vital. The EAP should address how to accurately account for all employees. Employees should always proceed to the assembly location and inform their supervisor or designated representative of their status.

Finally, in any emergency there is the potential for injury to employees. The EAP should also identify first aid and medical responders. Medical response and/or first aid kits should be available inside and outside the building structures that are easily accessible to the designated medical responders. In the event it is necessary to contact 911 services, employees should be designated to direct the responding teams to the location of the emergency.

Fire Extinguishers

The primary purpose of a fire extinguisher is to assist in clearing an evacuation route if necessary. A secondary purpose is to put out small fires. The Occupational Safety and Health Administration (OSHA), under 29 CFR 1910.157, requires that anyone who may be expected to use a fire extinguisher in the workplace be trained in their use. The first thing that one should be familiar with is that there are several classes of fires:

- Class A: Ash producing materials, such as wood or paper
- Class B: Chemical fires, such as gasoline, oils, etc.
- Class C: Energized electrical fires
- Class D: Metal fires
- Class K: Kitchen grease fires

It is important to understand the types of fire in order to determine which extinguisher to use. Most fire extinguishers in

the work area are classified as ABC, but you need to identify this before discharging them on a fire. A simple acronym for using a fire extinguisher is PASS.

- Pull the pin.
- Aim the nozzle at the base of the fire.
- Squeeze the lever.
- Sweep the nozzle from side to side.

The overriding rule when using a fire extinguisher is that if you are not comfortable, then evacuate the building and let the fire department put out the fire.

Fire Prevention Tips

The most effective means of fire safety lies in the prevention of their occurrence in the first place. The following tips are provided to assist in the prevention of office fires.

Housekeeping

Good housekeeping can not only prevent workplace injuries, it is also vital to preventing fires in the office. By maintaining combustible and flammable materials to a bare minimum, the potential for fires is greatly reduced, if not eliminated. Dust also can increase the likelihood of fires or dust explosions. Trash cans should be constructed of non-combustible materials, and dumpsters should be covered with lids. Another important prevention (and an OSHA requirement) is to store oily rags in a self-closing container constructed of non-combustible materials. Finally, flammable materials should be stored in flammable materials cabinets.

Electrical safety

A common occurrence in the office includes overloading of circuits by using multi-plugs, such as surge protectors. In some instances, there are multi-plugs that are plugged into multi-plugs. The typical circuit in an office building is tied to a 20-amp breaker. The amp rating for each device to be plugged into the outlet is

identified on the label. All devices to be plugged into the circuit are to be added together to get the total amps. Do not go over this rating.

Electrical cords are another concern in the office. Extension cords should be rated for commercial use when used in the office. Electrical cords can become frayed from sharp edges, vibration, or pulling them out of electrical outlets by the cord instead of the plug. Always pull the cords out of electrical outlets by the plug. All cords should be inspected at least annually to ensure that the insulation remains intact. Replace broken, frayed, or cracked electrical cords immediately. Many companies have a color-coded tape to identify inspections by the year. For example, green tape on both ends may represent that the cord was inspected in 2019.

Office appliances

Coffee pots, microwaves, toasters, etc., are commonplace in an office kitchen area. To prevent fires from these types of appliances, a person (usually by position) should be designated to turn these off at the end of each workday.

Space heaters

During winter and cold months, employees usually bring space heaters into the office. Prior to bringing them into the office, the employees should ensure that they are in proper working condition and are equipped with a turn-over safety device. Many companies have policies that require these devices to be inspected and permitted by company electricians.

Designated smoking areas

Smoking is a major source for potential fires. It is important that smoking only be allowed in designated areas. These areas should be equipped with “butt cans.” It is always a good idea to have a fire extinguisher located near the designated smoking area.

Summary

Fires are one of the most serious health and safety threats facing an office employee today. Employees should become intimately familiar with the company’s emergency action plan. Specifically, employees should ensure that they are aware of the evacuation procedures, including escape routes and medical response procedures. By becoming knowledgeable in the evacuation routes and procedures, an employee just may save her life or the life of another.