

Fire Safety

Each and every day in the United States alone, 600 Children under the age 14 are killed by fires (Fire Safety and Burns). In addition to that, another 40,000 are injured by fires (Fire Safety and Burns). Obviously, something needs to be done to bring these shocking statistics down. The introduction of the fire alarm system has helped tremendously. The importance of providing early warnings of fires in the attempt to save lives and property can be accomplished through serious attention and maintenance of fire alarm systems.

It was during the mid-1980's when the fire alarm strobe was introduced to the horn. However, the strobes were not very bright and horns had only one sound and one volume level. However, the Americans with Disabilities Act (ADA) was passed in 1990 and it stated that no person shall be denied access to a building regardless of disabilities so that presented some changes that had to be made. The Americans with Disabilities Act Accessibilities Guidelines (ADAAG) was passed in 1991 and stated that building owners had to remodel buildings to meet ADAAG standards. In addition to renovating buildings, owners had to remodel fire alarm systems to make them accessible. For example, manual pull stations had to be made accessible to people in wheelchairs. Also, their activation mechanism of these pull stations must be simple and graspable (Valente 1).

Audibles, which are horns and speakers, should sound 15 decibels (dba) above the prevailing sound level. If the alarm is 105 dba or higher, the alarm should sound for only 60 seconds, however, the alarm will not be higher than 120 dba. Speakers should be set to the right sound level. Audibles in general should be placed 50-100 ft. apart (Valente 2).

Changes in visuals also had to be made. Visual alarms, or strobe lights, should also be placed 50-100 ft. apart. They should be placed in general use areas such as restrooms, dining areas, hallways, lobbies, etc. They are able to be placed on the ceiling, but either ceiling or wall; they are to maintain a flash rate of only 1-3 flashes per second. To make this possible, minimum voltage must be obtained. Wherever they are located, they must attract attention to people. Strobes have the largest impact on the alarm system. The ADAAG states that all buildings have to have strobe lights. In high-rise buildings, strobes are to flash on all floors. Strobes can outnumber audibles. When installed, they are to be 80 inches above the floor, or 6 inches below the ceiling. Remote panels are to be installed on every three floors as well. If a new panel is installed, it is to have the same function as the old panel. Strobe requirements used to be strict but became less strict due to testing. The ADA will have changes made because of new technologies, for example, strobes went from vertical to horizontal (Valente 2).

As stated in the introduction, injury and death rates by fires is shocking. Contrary to what most people think, the majority of fire related deaths, or 70% of them are due to smoke inhalation and toxic gasses. Only 30% are due to burns. The majority of fires are residential ones (Fire Safety and Burns 1).

The leading cause of home fires is cooking equipment. Believe it or not, the leading cause of deaths to children nine years of age and under is carelessness. Half of children ages five and under are asleep at the time of the fire. One-third of those children are too young to react. Fires are most likely to start in a living or sleeping area. Most fires occur during cold weather months, as most people would guess. There are usually in December through February, usually caused by heating appliances. Fires that are started by children

usually start in a living or sleeping area. Most of the time they are caused by matches or lighters (Fire Safety and Burns 2).

Homes without working smoke alarms are two and a half times as likely to have a fire. Children whose house does not have a smoke alarm are at greater risk to die. Children five and under are twice as likely to die; boys are at greater risk than girls. One-third of children ages 6-14 have played with fire at least once. Boys are twice as likely as girls. Families who have a low income are at greater risk because they usually tend to lack smoke alarms, they have substandard housing, they use alternative heat sources and they lack adult supervision. Children who live in rural areas are two and a half times as likely to die in a fire. Forty percent of children nine and under die when they are trying to escape or are acting irrationally (Fire Safety and Burns 2).

It is the law to have at least one smoke alarm in a home. In 1997, 94% of homes had one smoke alarm; three quarters of that number had one working smoke alarm. Sprinkler systems can reduce the chance of dying by 73%. Smoke alarms and sprinkler systems combined can reduce chances of dying by 84% and injuries by 46% (Fire Safety and Burns 3).

In order for people to protect themselves against fires, some defense facts must be known. There are three main elements against fire: detection, suppression, and accessibility. In a building that is protected by sprinklers, there do not have to be fire walls or finishes. In order for a sprinkler system to be effective, it must meet a building's code. Sprinkler systems are the best way to extinguish a fire. These may also allow for: a reduction in fire resistance ratings, a decrease in separation between exits, an increase in travel distance between exits, and a reduction in fire ratings in corridors. Once activated,

a sprinkler system can activate a fire alarm system. If an alarm is activated, you should NEVER use an elevator to evacuate. Here are some testing facts to consider: control valves are to be inspected weekly or monthly, alarm devices are to be inspected quarterly, sprinklers to be inspected annually, Fire dept. connections to a building to be inspected every year, fire alarms to be tested quarterly, sprinklers with an extra high temperature are to be tested every 5 years, fast response sprinklers to be tested at 20 years and every 10 years after, sprinklers to be tested at 50 years and every 10 years after (Watkins-Miller 1-5).

There are many sprinkler facts to consider: sprinklers can extinguish a fire without having to evacuate. They were originally designed to protect property, but can now also protect building occupants. It can save massive evacuations in a high-rise building. They come in all different types of systems. Unlike what you see on TV and movies, sprinklers operate individually or only the one that is above the fire. When the room reaches a certain temp., the colored bulb breaks away which allows water to flow through. They can be installed in walls instead of ceilings. Here are some places to consider putting sprinklers: food services, sleeping areas, elevator shafts, computer rooms with a pre-action system, and stairways. A pre-action system means that it takes two steps to make it activate. First a valve in the pipe holds the water back. When a smoke detector or pull station is activated, water fills the pipe. When the temperature gets too high, the bulb then breaks away allowing water to flow through. There are different types of sprinklers with different temperature activations. The way to tell is that they have a different colored bulb. For example, regular sprinkler would have a red bulb while a high temperature one

would have a green bulb or some other color. In addition to the water supply, the fire dept. can pump water through the system (Kampmire 1-4).

It is tragic that so many lives are lost due to fires. It is even more tragic that so many of these injuries and deaths could be prevented. It will take effort; it will take money. However, measures need to be taken. Fire alarms systems must be properly installed and maintained. Penalties need to be enforced against those building owners who do not properly install and maintain them because the value of human life is too important to lose.

Works Cited

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