

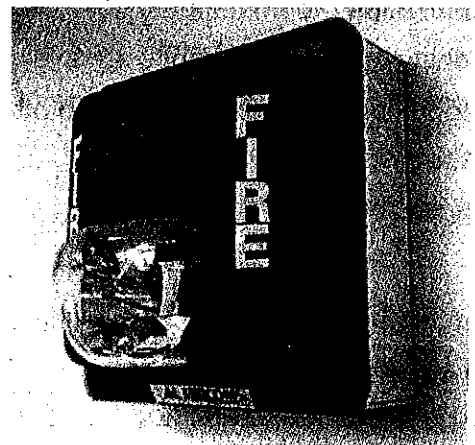
Keven Moore: There are risks related to fire alarms with strobe lights — those with epilepsy beware

7-9 minutes

When it comes to warning occupants of a building of a fire, we as a nation have come a long way since the turn of the 20th Century. With nearly 1,000,000 Americans being functionally deaf, and another 15% of American adults (37.5 million) aged 18 and over report some trouble hearing, it is essential to have both audible and visual alarms to ensure the safety of the public. Audible alarms include sirens, horns, and bells, while visible alarms consist of flashing strobe lights and text banners.

The Americans with Disabilities Act of 1990 led to the development of building, fire, and life safety codes that dictate whether you need to install strobe lights for the deaf. Then the National Fire Protection Association (NFPA) developed codes for mounting height, brightness, location, and synchronization for these strobing fire alarms.

NFPA 72 goes as far as to require strobe lights with a luminous intensity of 110 candelas (cd) to be installed on the wall of sleeping areas such as hotels, at least 24 inches from the ceiling. For 177 cd strobes, the lights must be installed no more than 24 inches from the ceiling. The light must also be within 16 feet of the head of the bed.



Only a small portion of sleeping areas in a place of lodging are

required to have strobe lights, and the number increases with the number of rooms. For those nonsleeping areas, strobes must be installed 80 to 96 inches above the finished floor and six inches from the ceiling. Ceiling-mounted strobes are permitted on ceilings that are no higher than 30 feet. The size of the non-sleeping area dictates the number of strobes required.

As building occupants leave rooms and enter corridors during an evacuation, they should be greeted by more strobe lights in the hallways and corridors. NFPA 72 requires strobes installed in hallways and corridors to be visible from anywhere.

With such ingenuity, oftentimes you create new problems, and sometimes they can be just as life-threatening conditions. As a risk management professional, I have learned that when you neutralize a threat or minimize an exposure, you sometimes create another or sometimes several.

The problem when these strobing fire alarms when they were first installed in the early 1990s is that manufacturers quickly discover that some people with flicker vertigo and epilepsy were negatively affected by the strobing lights and caused many to have seizures.

Safety experts and manufacturers quickly learned that people that were either incapacitated or unconscious, are incapable of evacuating a burning building, and something needed to be done.

Flicker vertigo is an imbalance in brain cell activity caused by exposure to the low frequency flickering (or flashing) of a relatively bright light (such as a rotating beacon; a strobe light; or sunlight seen through a windmilling propeller). The symptoms of Flicker Vertigo are described as nausea, dizziness, headache, panic, confusion, and – in rare cases – seizures and loss of consciousness.

According to the World Health Organization, approximately 50 million people have epilepsy, a chronic condition that ranks as one of the most common neurological conditions. A small percentage of those people — between 3 to 5 percent — have photosensitive epilepsy, which means light can trigger seizures and other symptoms of the condition.

Three percent may not sound like a lot, but there are over 3 million people who suffer from epilepsy in America alone. This three percent equates to around 90,000 people who are affected.

Consequently, studies were taken and research helped guide

manufacturers to reduce this exposure to better protect the general public from this disorder. They learned that flickering or "high frequency" light sources are often triggering for those with photosensitive epilepsy. Frequencies of about 5-30 flashes per second are more likely to induce a light-triggered seizure.



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They learned that slower flash rates and randomly flashing lights are not known to be a cause of photosensitive epilepsy.

Manufacturers started to make changes as they reduce the flashing strobe (or a close combination of multiple strobes sequenced together), and alarms were programmed to not flash in the 5 Hz to 70 Hz frequency range.

They discovered that point sources of light are much less likely to induce seizures than a diffuse source of light which covers a large part of a person's field of vision. They also learned that to induce a seizure the light must be present in the center of the field of vision as opposed to the periphery. By reducing brightness or increasing distance between a photosensitive viewer and the light source is effective for preventing photosensitive epileptic seizures.

Lights flashing in the distance, even in the frequency range of concern, are not known to cause seizures when in the presence of other lights of a more natural or chaotic nature.

In 1996 and then again in 2016 the NFPA changed its maximum acceptable strobe flash rate. Without getting too technical, in layman's terms today the fire alarm strobes rate is 1 HZ (Hertz) which translates to one flash per second, but if a room or hallway has, let's say, two or three strobe lights within line of sight, they now have the potential of appearing to flash two to three times per second.

To reduce this risk, more than two visible appliances are not permitted in any field of view unless their flashes are synchronized. This does not preclude the synchronization of appliances that are not within the same field of view. Therefore, the strobing lights must be synchronized to reduce the impact it could have on somebody with either of these disorders.

If your business is renovating its office or building, it's important that you should check with your fire alarm company or your local fire marshal to ensure your upgraded fire alarm strobes meet these minimum requirements.

If you are planning on staying in a motel or hotel, be sure to request a room without a strobing light and request a room close to an exit that directs you in a path with the least number of strobing lights.

If you effected by strobing lights, you should know your triggers and take steps to avoid them as much as possible. Try to recall unusual symptoms that may have preceded the seizure, such as dizziness blurred vision, muscle twitching. **If you notice these warning signs, cover one eye and turn your head from the stimuli immediately.** If you are with a companion, let them lead you out of the building with your eyes facing downward or closed.

Be Safe My Friends