



CHIEF'S FILE CABINET

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Preventative Maintenance

Let's imagine that you own one of the most expensive automobiles that are on the market. Moreover, you are going to use it to transport your family and sometimes when your closest friends are in town they go along for the ride. When you first bought it, it was in excellent condition. You have now had it for a few months and you are about to go on a lengthy trip. As you get into the vehicle you notice that the brake is a little spongy, but moreover, when you test the horn, it doesn't toot!

Now, you have about a half an hour to do some preventative maintenance. Which item are you going to fix first? Both of these items are provided with the vehicle and if we are going to be fair about priorities, both are very important but for different reasons. While one really makes a difference when you are traveling down the highway with your precious cargo of family and friends, you may have to rely on both of them. Which of the two are the most important?

Some of you with a sense of humor might have observed that in some places in the world the use of the horn is more common than the use of the brakes. This is especially true when negotiating traffic at a high rate of speed. Others might have the experience of driving on the Autobahn of Germany where you can travel at a speed so fast a honking horn is never even heard until a vehicle has swooped past you.

Without a horn, a vehicle cannot warn others of situations where danger may be involved. Hence, a horn is not a trivial technology; it is an important part of the warning system. Conversely, without a set of brakes a vehicle that has gained momentum becomes a force of energy that can do a great deal of harm when it fails to stop short of a physical contact with another object.

One can easily make the case that both are provided to make it safe. This is because both systems are needed, albeit at different times. Once that has been agreed upon, the argument can be made that you might need them to be available to you in sequence, as it were, when you are approaching a dangerous situation. A blaring horn and screeching brakes are commonly heard sounds just prior to the screeching sound of vehicular impact. Or, a blasting horn could accompany a swerve, a close call, a quickening of the heart but no impact. Properly applied brakes can keep physical contact from actually occurring. Another close call, but everyone goes home.

This image was created in my mind when I witnessed a debate about whether or not smoke detectors eliminated the need for automatic sprinklers in residential occupancies. We have all heard this debate. It goes something like this. If you have a smoke detector in a home, that is sufficient to protect the occupants. You never have fires in new homes anyway!



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Let's examine that proposition. In the first place we are taking apples, oranges and bananas for here. Smoke detectors and sprinklers are not designed to do the same thing. Any statement that smoke detectors are more necessary than sprinklers is faulty to begin with because they are provided for two different reasons.

The reasons? Well, let's just discuss the idea that there are two types of systems we need to place in residences to address the specific problem of fire in a dwelling. The first is the concept of a passive system. The second is the concept of an active system. If we look back at our horn and brake, they are good examples of those two types of systems. A blazing horn doesn't alter the mass and momentum of a vehicle. Only a brake stops it. The same definition needs to be used in comparing smoke detectors to fire sprinklers. One is passive. The other is active.

There is a big difference between warning someone that a danger exists and actually controlling the event that is threatening to kill or destroy. The simple fact that escapes most of those people trying to claim that a passive system is "good enough" to stop an event is that it doesn't stop anything. That is the apples and oranges of the debate.

But what about the bananas? I would suggest that the misinformation that is being spread around that fires occur only in older homes is a total misrepresentation of reality. Do only old cars get into accidents? That argument is specious for the simple reason that the probability of fire is not based upon the age of construction but is driven by the demographics and the occupancy use of the building. Acts and Omissions cause fires, not construction. Before the argument starts that I am suggesting that smoke detectors are not required or needed in either new or old homes, I must say that all modern fire protection defense systems have to start with a warning element. The reason smoke detectors are in place is to detect smoke. That is a logical assumption. If smoke is detected when a fire is at a low intensity phase there is a very, very good chance that a positive outcome can be achieved. For example, if a smoke detector alerts an occupant when a fire is at a low intensity or low challenge state there is at least a half a dozen strategies that can be invoked by the occupant. I would suggest they would include the following:

- A. Someone can call the fire department
- B. Someone could use a fire extinguisher
- C. Someone could use a non-technical extinguishing agent, such as a glass of water
- D. Someone could wake up all the residents and request them to evacuate
- E. All of the above
- F. None of the above



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You see the smoke detector doesn't do anything itself. The operative statement in everyone of those strategies was that *someone* has to do *something*. There is a human element that links warning to a response up to and including someone letting the fire service know that an emergency is in progress.

Smoke detectors are great. They have been in service on a wide spread basis since the early 1970's. However, they are now and will remain a passive device.

That passiveness is an Achilles heel when it comes to actually saving lives and property. First and foremost there is the maintenance issue. Smoke detectors, besides being passive need frequent testing and periodic evaluation to insure their performance. The second aspect is the idea that sometimes occupants and dwellings may or may not be able to respond appropriately to a warning system signal provided by a detection system. There have been several studies that have demonstrated that individuals have been known to sleep through an alert. Lastly, there are clearly times when the person being protected by a detection system cannot defend themselves. Young children cannot take care of themselves until a certain age. Elderly people are sometimes limited to their capacity to respond. What about a person that is bedridden? Or, what if they are under the influence of alcohol or drugs? In all cases a passive device only warns, it does not perform.

On the other hand, a fire sprinkler system is designed to perform. The intrinsic design of a fire sprinkler is to react to the increase of the size of a fire and activate to suppress a fire when it gets to a certain level of heat in the immediate area. That particular level is just short of where an actual threat begins to occur to the lives of those parties that are still in the area. That is being active.

If the overall system works the way it is supposed to work, a person having a properly located and well maintained smoke detector will act appropriately if the detector sounds. It may be possible to terminate the event successfully without the activation of a sprinkler head. That's good too. But what if they don't? That is the \$10,000 question.

Again, referring to my vehicular metaphor, honk the horn, but make sure to apply pressure on the brakes when an accident is imminent!

To my way of thinking about the topic, many of the nay-sayers about sprinklers had forgotten the original premise of NFPA 13D. It is to protect an area from achieving flashover for a period of ten minutes. That is important to remember because, just like any other system, it has to be built to fit into another system and that system is the emergency response deployment system which also includes fire department response.

Those that argue against residential sprinklers are, in effect, arguing that if someone cannot get out of the way of a fire quickly enough then that is their problem not the communities.



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Modern practitioners of fire prevention technology are working almost continuously to make the life safety system viable in a host of scenarios throughout this country. Those that advocate the use of detectors and the ultimate in life safety for the dwelling occupancy are not much different than a car manufacturer who provides customers with a high speed automobile that is also protected by devices such as seatbelts and airbags. Smoke detectors may well be characterized as being the seatbelt and sprinkler systems may well be the airbags of this generation.

And, oh by the way, as long as we are mentioning systems, a steering wheel is not a bad idea in a car either. What about educating people to avoid accidents so that both the horn and the brake are not worn out from abuse?