

Mission Possible!

by Dean K. Wilson, P.E.

***Question:* I am the Vice President of Development for a new chain of family restaurants. Unlike many previous niche ventures involving fast food, we plan to provide a somewhat spacious atmosphere where a family of virtually any size can gather for a real meal, served efficiently in a very pleasant atmosphere, and priced to encourage families to make repeat visits with some frequency.**

In trying to decide some basic ground rules for protecting the investment each of our restaurants will represent, we have struggled with trying to understand the role that a fire alarm system should play in an overall protection scheme. Can you help?

Answer: Do I get paid in a lifetime supply of discount coupons? Seriously, I think I can help. Most practitioners in the fire alarm industry spend the vast majority of their time focusing on the technology that various manufacturers offer. Few take the time to examine the underlying philosophies that influence protection decisions.

However, because the majority of my fire protection engineering career was spent dealing with ways of analyzing the philosophical constructs of the fire protection, finding ways to clearly express them in an understandable manner, and then developing training programs to indoctrinate others in those philosophical constructs, I think I can help you understand where fire alarm systems fit in an overall program of fire protection.

First of all, you must understand that fire protection represents a very goal-oriented, highly systematized investment. Fire protection strives to address five broad goals that each building owner may have: life safety, property protection, mission continuity, heritage preservation, and environmental protection. The first two of these broad goals seem readily apparent. An owner will have an interest in preserving the lives of the occupants of the property he or she owns, and also have an interest in protecting the property itself.

But, each owner also has an interest in making certain that whatever function the property provides continues without interruption by a hostile fire. Similarly, to a greater or lesser extent, an owner will have some component of his or her business that must receive protection in order to preserve the heritage that component represents. This may take the form of business records, or, in an extreme case like a museum, the very contents of the property.

Lastly, as a steward of what God has provided for us on this planet, every reasonable owner will have some interest in making certain that a fire at his or her facility does not negatively impact the environment through air pollution, water pollution, or other means.

Within the context of these broad goals, a fire alarm system becomes one of the subsystems that helps meet one of more objectives that will, in turn, lead to the satisfaction of those broad goals. In other words, fire alarm systems are “missional.” They perform functions that lead to the accomplishment of a mission.

Traditionally, fire alarm systems contribute to three significant “strands” that help guarantee the satisfaction of the owner’s fire protection or fire safety goals. First of all, a fire alarm system can provide a means to warn the occupants of the presence of a hostile fire, so they may safely escape from the premises or, in some cases, move to an area of refuge within the structure. Secondly, a fire alarm system can provide a means to notify emergency responders of the need to

take action with regard to a fire emergency at a property. Thirdly, a fire alarm system can provide a tool to help a building owner manage the other fire protection systems installed at a premises.

To successfully accomplish each of these “missional strands,” a fire alarm system may provide fire alarm initiating devices to detect the presence of a hostile fire in the protected building. These may consist of manual fire alarm stations, heat detectors, smoke detectors, radiant energy sensing detectors (flame or spark-ember detectors), automatic sprinkler system waterflow detectors, and other extinguishing system discharge detectors.

The fire alarm system may also provide supervisory initiating devices to supply information that will monitor the operational readiness of other fire protection systems. These may include automatic sprinkler system valve tamper switches, high/low dry pipe valve air pressure supervisory switches, high/low water tank level or temperature switches, low building temperature switches, industrial process monitoring switches, as well as a means to detect fire pump running and fire pump supervisory conditions.

The fire alarm system may provide notification appliances, such as audible and visible notification appliances, to warn occupants of their need to escape or move to areas of refuge within the building.

The fire alarm system may provide a means to notify emergency responders by connection to a public fire alarm reporting system, a central station, a proprietary supervising station, a remote supervising station.

In more recent times, fire alarm systems have become part of a fourth “missional strand,” namely the notification of a large number of people to take specific action in an emergency, as part of a Mass Notification System.

As you consider how you will design the fire protection scheme that you will apply to each of your new restaurants, please consider these philosophical underpinnings. I would also urge you to set a relatively high standard for the level of protection you intend to provide and consistently implement that level of protection in each of your properties.

Whatever you do, do not follow the somewhat foolhardy position taken by one of the larger national big box stores. This corporation has hired a fire protection consulting firm and given them the instructions to design each specific store with the minimum protection that the code enforcement officials for that jurisdiction will accept. As a result, the stores have a very inconsistent approach to protection. One store may have a very strict code-conforming protection scheme. Another store may have little or no fire protection.

In the end, I sincerely believe the corporation that owns these stores will lose. They will eventually experience a serious fire in one of the lesser protected stores, people will die or become injured, and the corporation will face both fiscal and public relations nightmares.

Every one who participates in the manufacture, design, installation, maintenance, and testing of fire protection systems, including fire alarm systems, should become fully aware of the philosophies that determine fire protection's role in the overall systems of a building. For no one can make proper protection decisions unless he or she understands that fire protection is inherently missional.

Fortunately, with wise choices, fire protection for any facility can become a "Mission Possible!"

IMSA member Dean K. Wilson, P.E., FSFPE, C.F.P.S., now retired on disability, formerly worked as a Senior Engineer in the Erie (PA.) office of the fire protection engineering and code consulting firm, Hughes Associates, Inc. (www.haifire.com). The opinions expressed in this article are strictly his own. You can reach him by e-mail at deanwilson@roadrunner.com or by telephone at 814-897-0827.