

Fire Safety & Security in High Rises

CHAPTER THREE



THE ROLE OF THE SECURITY FORCE

One of the lessons learned from the bombing of the World Trade Center is something that many of us in the “industry” have known for many years. It is that the security force plays a vital role in the overall protection of a high-rise structure or a large facility of public assembly. The World Trade Center and subsequent events with terrorist overtones have brought home the concept that a good security force is an integral part of the fire protection and life safety plan. Also, that it is impossible to have an effective security program without having the proper fire protection. For the first time, practitioners of both fire protection and security are seeing the need to work more closely together in order to bring about a “complete” program to protect life and property. Why is this integration somewhat new? Why has it not always been this way in the past? There are many answers to those questions, and we need to do a bit of investigation to uncover them.

Almost since the beginning of this country, we have had professionals in the field of law enforcement. In the early days, most fire fighting activities were on a volunteer basis and everyone took part. However, it was not very long before we began to have paid fire service personnel as well as paid law enforcement personnel in our larger communities. These are the forces that developed into our present police forces and fire departments in the municipal sector and our security departments and safety departments in the private and industrial sectors. These two fields are very much alike, yet very much different. Both professions protect life and property, so they are interested in the same goals. How each goes about achieving these goals is different.

When I deal with an overall program for a client that encompasses the security, fire protection, and life safety functions I like to refer to it as asset protection because it is designed to protect all the assets of an organization - physical plant, proprietary information, financial, and human. Yes, human assets are the most important of all assets in most organizations. When I develop such programs I try to incorporate both professions into the plan because it is impossible to have a totally effective program without including both. This becomes more evident in the case of high-rise protection than in almost any other case. As I stated earlier I will answer some questions, and that we will need to do some investigation in order to -do so. Let’s begin that process now.

“Turf Wars” between police and fire departments have been a part of the municipal scene for decades. Who works the most, who is the bravest, who has the most difficult task, who gets the bigger chunk of the budget, who takes control of a scene, who has jurisdiction over the crime of arson, who investigates, who makes the arrest, who is the expert witness, and who has the greatest value to the community? These are some of the questions that have been asked for years in communities all over the country. Police are interested in fighting crime. They are interested in criminals. To the police function fire is something that they probably are the first responder to and it is cause for some traffic duty. Police personnel want to protect life by “putting criminals away” and making “safer streets”.

Fire service personnel want to protect life by saving people from fires by teaching people how to prevent fires and by performing other rescue and life safety functions. When these professionals transfer their respective skills to the private sector, the training and mind set that they have worked with for many years transfers with them. In the private sector, the security force wants to protect the assets of the organization. However, they sometimes look more towards protecting the physical assets from being taken by employees. They see protecting the lives of the occupants as securing the facility from outside threats such as thieves, muggers, rapists, and even killers. They see security as locking every means of access and also egress. A fortress is a secure facility. They see people as a threat not fire. The life safety personnel and the fire protection personnel want to protect the human and physical

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assets but they do not see people as such a threat. Rather, they concentrate on fire as a villain. Their idea of a safe environment is to have all means of access and egress open at all times to allow for the free flow of people. Of course, I have given extreme examples. However, the premise is true. I have been fortunate with being involved in both professions for over thirty years. I am a Certified Protection Professional by ASIS, the American Society for Industrial Security with a specialty in fire protection. I am also a Certified Fire Safety Director by the New York Fire Department. I have provided security and fire safety programs, systems, and equipment to some of the largest organizations in the nation. I have been a part of both sides and I have seen the extremes on both sides. Even on the most elementary level, security officers are more likely to think of a trouble signal on a fire alarm panel or even an alarm as “just another false alarm”. Fire is not high on their agenda. Conversely, safety professionals will do what is necessary to make an environment more fire-safe with little regard for the security considerations. It has taken a long time, but things are starting to change!

Most security professionals, myself included, have had this image of the terrorist who will attack our organization as riding through the front door on the back of a camel, wearing a turban, carrying an AK-47, and shouting “Death to the Americans”. In many cases, we have built our security programs around such images. What we are coming to realize is that bombs and fire are the weapons of choice for most terrorists, whether foreign or domestic, and that it will probably be delivered by a clean-cut businessman or businesswoman type that could easily pass for one of our own.

As much as safety professionals feel that security personnel are not well trained in fire safety, they have come to realize that it is the security force which will be the determining factor in how well the fire protection and safety programs work in a high-rise setting. At the end of 1993, there were almost 1,200 Fire Safety Directors certified by the New York City Fire Department. Of those, about 90% are former law enforcement professionals. Why is this? Almost all high-rise buildings and large facilities of public assembly have a security force and usually a security director. When life safety and fire protection are considered the responsibility most often goes to the department that is already dealing with some form of “asset protection”.

Several dynamics have come into play over the past few years that have brought more fire protection and safety responsibilities to security professionals. It is important here to take a look at some of those dynamics in order to better understand why security forces are more and more facing these new duties.

NUMBER ONE

The recent recession, and the resulting economic turmoil that has been with us since, has taken its toll on Corporate America. As much as I disagree, security departments and the directors of those departments are seen as “non-income producing” expenses. Part of the reason for this is that it has always been difficult to quantify the contribution that a security program makes to the overall operation of an organization. In addition, by the nature of what security does, the better the program that exists, the more difficult it is to see the need. If we have a very secure environment we will have few or no incidents. When management sees few or no incidents it tends to downplay the need for the security function. What we are witnessing in many organizations is “downsizing” or “rightsizing” or whichever is the most current buzzword for reducing manpower. When this happens the security department frequently becomes the victim of manpower reduction since it is the most obvious way to save departmental dollars. Also, we are seeing the entire function of security being incorporated into other departments such as human resources, engineering, facilities management, or risk management. Many times

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when this happens the professionals who have been managing the security department leave the organization and the control of that function is taken over by someone with little or no experience in the security field.

In other cases the security department is being asked to take over other functions such as safety, fire protection, and facility management. In these cases the reverse is true; we find security professionals being asked to take on duties in areas in which they have little or no experience. We are seeing security departments performing the duties related to fire protection, safety, hazardous materials, and environmental protection. Each of these is a highly-specialized field that requires considerable experience and education. Often, the resources are not being provided for those with new duties to receive the training needed or to bring on people with the needed levels of experience.

Security is a function that involves protection. Therefore, it is often seen as the place to put the duties of anything that involves the protection of assets no matter what the nature of the protection needed is. When these manpower reductions take place it usually makes for a remaining workforce that is somewhat cautious for fear of losing their jobs as well. Therefore, some people might not speak up as freely to let management know that they need help in administering the newly-found responsibilities.

NUMBER TWO

Arson is the fastest growing crime in America in terms of dollar loss. Arson is the most costly crime in America. We have all read about the disgruntled employee who shoots five co-workers, or the sick individual who shoots several people on a busy train. These things make for big headlines because they are tragic and they happen without reason. But they also make big headlines because of the liberal press which jumps on anything that promotes their gun control agenda.

How much press is received when a sick individual uses a couple of gallons of gasoline and a match to kill 86 people in a Bronx social club? How many remember the disgruntled employees who killed scores of people by setting fires in hotels in Nevada and Puerto Rico? It is true that anyone firing a semi-automatic rifle with a couple of taped clips can kill several innocent people very quickly. It is also true that a can of lighter fluid and a cheap lighter can cause even more death and destruction.

Whether it is a terrorist, a disgruntled employee, or a mentally-disturbed individual with some self proclaimed “rage” fire and incendiary devices are responsible for more multi-death acts of violence than all of the gun-related crimes combined. There have been almost twice as many homicides committed by fire and incendiary devices than by firearms. Part of the reason that this is not so evident is the way in which fires are reported. If there is not sufficient evidence to bring charges of arson a fire might be classified as “suspicious” or even assigned another reason. Therefore, those deaths are not always classified as homicides. Those “in the business” of dealing with homicides who have seen this type of thing refer to a can of lighter fluid and a lighter as the “poor man’s Saturday Night Special”.

When it comes to protecting assets professionals must consider the devastation caused by fire and incendiary devices. A thief or vandal can cause damage to an organization but a fire can actually put an organization out of business. Security professionals must be aware of the threat of fire and bombs and become as prepared as possible for such dangers. When designing security systems we typically view security, access control, and closed

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circuit television as our weapons against the loss of assets. I feel that we cannot have a complete electronic security system without including good fire alarm systems as well. The security, access control, and closed circuit television afford great protection against intruders or those leaving with organizational assets. However, if destruction is the goal then these systems might not protect against those who do not actually “break in” but simply applied flammable liquids under a secured door and ignited it. Likewise, I am a proponent of utilizing closed circuit television with fire alarm systems in order to allow visual detennina1 ions of incoming alarms.

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Most fire alarm systems in buildings that have security consoles will report to security consoles. Those overseeing incoming security alarms will also be responsible for the incoming fire alarms. These professionals usually have been well trained in security concepts and in dealing with those kinds of alarms. However, many times the training provided in fire protection and in dealing with those alarms is somewhat lacking. As more programs for fire protection and security are becoming available in personal computer format, more organizations are able to afford sophisticated systems that combine several protection functions. As this happens it increases the responsibility of those monitoring those-systems.

NUMBER FOUR

In many organizations the security director has the responsibility for executive protection. In these cases the individual charged with that responsibility is usually a person well suited for providing that kind of protection from physical threats to those executives. However, there is an area where executives are becoming more vulnerable and require a great deal of protection. That is an area of litigation brought on by negligence. In the past few years courts have been piercing corporate veils and bringing charges of negligence against corporate executives at an alarming rate in cases where death or serious injury has been caused by lack of proper protection provisions for both security and fire concerns. I see this as an area of executive protection.

The way to administer this function is to be sure that the necessary level of expertise is available and to know that the levels of security and fire protection being provided are adequate. That does not mean just “meeting codes”. It has come to be defined as “providing what is reasonable in providing the needed level of protection”.

This is part of the atmosphere in which security professionals are working today. This is why a thorough understanding and appreciation office protection on the part of those security professionals is needed. Often times this new responsibility leaves the security force and security director seeking some source of a rapid learning process in the field of fire protection and life safety.

Most buildings that I have described here do not have personnel specifically designated as fire protection officers or life safety officers, but they do have security officers. Let us review some of the functions that these security officers perform as a part of their duties.

- Security officers will staff the control or command center, which will usually contain the fire alarm and communications systems as well as security, access control, and closed circuit television systems. They will acknowledge alarms and trouble signals.
- Security officers will respond to all alarm conditions, including fire alarms. They will inspect fire protection devices as part of their “rounds”. Also on their rounds, they will check for hazards that could lead to a fire. They will normally check doors to see if they are locked but also to see if the means of egress is clear of obstructions.

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- Security officers will be the people who will “escort” fire officials, vendors, and contractors as they perform their respective duties in relation to fire safety issues.
- Finally, the security force is usually the only practical source of manpower when a building has to be evacuated, and that is what this is all about, E-V-A-C-U-A-T-I-O-N.

I recently completed an evacuation, fire protection, and security program for a facility that has over 2,000,000 square feet of occupied space under one roof. Contained in that space are several different kinds of occupancy and an average daily occupant load of over 25,000 people. The facility has state-of-the-art systems for fire protection and security and also has exceeded all requirements for exits. The location of this facility has fire service by a mutual aid agreement of four volunteer fire companies. At any given time it would be difficult to muster more than about fifty persons from these volunteer organizations. What I did there was that I designed an “Emergency Response Team” based on the New York City High Rise Program. There is a 400-man security force in place, and security services are provided 24 hours per day, 365 days per year. The only logical way to meet the needs for evacuation of this facility as well as staffing the command center, patrolling for hazards, and inspecting the equipment is to utilize the security force. This is a very common practice. The security force becomes the force for fire protection, evacuation, and many times the responders to medical emergencies. The facility I have described above has an outstanding proprietary security force. The organization pays well and offers outstanding benefits. They have attracted a high caliber of applicant for security officer and security supervisor positions.

However, that is not always the case. Unfortunately, the very people that some organizations hire to protect their assets are among the lowest-paid of all employees. When security officers are employees of the organization (proprietary), they are often paid at a lower rate than the cleaning personnel. When they are from a hired service (contract), the contract is often awarded to the lowest bidder, meaning that the bidding company must pay applicants as low a wage as possible in order to profit from the contract. When such low wages are offered the applicant pool presents employees who might have literacy or language problems. Also they might not have the interest in the job that they should because it is a part-time position. With the low wages comes an employee who probably needs to work two jobs or a lot of overtime in order to survive meaning that the level of performance from that individual will suffer because of work load.

These are the reasons that security officers have received a negative image. And this is why fire service people are reluctant to have security forces administering fire safety and evacuation programs. In all fairness to the profession, the quality and fitness of the personnel is determined by the willingness of the organization to pay. If you are offering a person minimum wages then you might expect to receive minimum performance in return.

I have had many corporate clients, some with proprietary others with contract security forces who have established a standard for the education, background, and training of their security personnel and they have offered wages and benefits to match these requirements. It is unfair to give an entire industry a negative image based on a segment of that industry. I have worked with security forces that would rival any municipal police force in ability and quality of Personnel. However, even in this exceptional scenario it is unlikely that these people are well trained in fire protection or evacuation. That is the key - TRAINING - TRAINING - AND MORE TRAINING.

The way you effectively utilize the security force in the administration of the fire safety and evacuation program is by giving extensive, ongoing training, and drilling. Training is expensive and the costs are ongoing along with the training. The personnel, equipment, systems, training, and supervision needed for an effective life safety, fire

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protection, evacuation, and security program require a commitment from top management. Each organization must decide how serious they are about providing the proper resources to protect their assets. I have found it to be refreshing to work with industrial clients because the industrial sector has come to realize that money spent on safety and security helps the “bottom line”. I would like to see more of this attitude in other sectors as well.

The use of the security force for fire and safety concerns is very common and with the projections for increases in the number of private security jobs over the next ten years it appears that this trend will continue. What we must do is to be sure that the security profession has an appreciation of the role of fire safety in the overall program of asset protection and that we provide the proper training so that the program can be properly applied. I would also like to see organizations like the American Society of Industrial Security promote more education and training for their members in the areas of fire protection and safety. Also, I would like to see the hundreds of colleges across the country that offer criminal justice and security management programs include more courses that deal with fire protection and life safety. Perhaps NFPA can help by providing training courses and material designed for the security professional who also is responsible for fire protection and life safety.

Let us take a look at some of the systems we discussed earlier that are available to the security professional; the type of systems normally found in a major high-rise building, those being computer based security, access control, and closed circuit television. The advances in technology over the past ten years have made available a vast selection of quality systems for use in security applications that provide outstanding features at very reasonable prices.

The advances in microprocessor-based technology and the competition in that market has allowed the processing of large amounts of information with relatively low-priced equipment. Most major manufacturers of security systems are now utilizing personal computers instead of the main frames which were used only a few years ago. This makes the “head-end” equipment needed to process the information very affordable.

Security systems are those that detect intrusion. Thus, they are often referred to as intrusion detection systems. These systems utilize various means of detecting penetration into the protected areas. Among these means are electronic devices that detect a door opening, a window breaking, or the presence of movement through heat waves or sound waves. These systems allow for the monitoring of a large number of zones or protected areas and processing the information in a data-base format for use in historical review of incidents and planning security coverage for problem areas. The primary consideration with this type of system is the device used in the protected area. Choosing the proper device will allow you to spot the movement you need to detect without having false alarm problems.

Access control systems are designed to limit access to property, a building, or a portion of a building by individuals or a group. This limitation can be by any combination of area and time. The systems utilize readers that are activated by punching in number codes, by using cards, or by biometric means such as finger/hand prints or retina scanning. Not only will these systems “lock-out” unauthorized attempts to gain access to protected areas, but a historical record will be kept of the times and locations of access by each individual. Most of these systems allow those in control to change authorization by a few simple keystrokes on a computer keyboard. In most cases the access control system will include security devices to alert security personnel of breaches in security as is done with the security systems. In effect you have both an access control system and a security system.

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All of this is done by the use of electronics which will produce the desired notification on a computer screen or on an alarm panel. However, in order to view what is taking place you need to incorporate closed circuit television into the security package. This is another area where technology advances over the past few years have dramatically increased the quality of picture available, reduced the size of the cameras and related equipment used, and made most of the equipment very affordable.

The downside of all of the great electronics equipment that is now available at very affordable prices is a by-product of the reduction of manpower we discussed earlier in this chapter. When a security director is faced with reducing the budget often times staffed posts are replaced with access control readers and cameras. In this way, one security officer can monitor many posts from a central location. The electronic equipment does not represent an ongoing expense as do the staffed posts and they demand no raises, benefits, or retirement packages.

In spite of this, the outlook for the private security industry for the next decade promises to make that industry one of the top growth industries in the country. There are many other economic and social reasons for this anticipated growth which we cannot go into here.

It is sufficient to say that, even with the downsizing taken into consideration, the outlook for private security is very positive and the utilization of more technologically-advanced systems by the private security sector will require a very highly-trained and computer literate force. The understanding of the principles of fire protection and the utilization of fire protection and detection systems will become an ever increasing responsibility of the private security force. So too is the responsibility for the evacuation of a high-rise building or any building of large public assembly.

The security force remains the only logical force to deal effectively with the need for emergency response and evacuation. The use that can be derived from the various electronic systems in a high-rise application especially for protection against the need for emergency evacuations is very site-specific. In dealing with emergency situations resulting from an accidental fire or some other unintentional event such as a natural disaster or a gas leak, those systems designed for security and access control are not going to come into play. However, the closed circuit television systems can be used to assist in searching for injured persons and for identifying the locations of people in the process of evacuation to assist in directing them.

The degree to which we can use the security and access control systems depends upon the occupancy and usage of the building. If we have a small to moderate sized high-rise building, the number of people working and visiting there will be smaller and more controllable than if we are dealing with a mega high-rise. The World Trade Center with 50,000 visitors each day presented a very complex challenge to keeping doors secure and using access control. Also, if we have a building that has a small number of tenants and fewer visitors we can more readily use access control than we can in a building that has hundreds of tenants and thousands of visitors. It is not the capability of the systems that limits us; it is just the logistics and time required for dealing with these situations in a mega high-rise environment. Of course, we can make very good use of these systems after normal working hours when occupancy should be low and more easily controlled. However, if it is terrorist activity we are concerned with, that is more likely to happen during a busy working day.

Portions of the following have been taken from the "OVERVIEW" program published by IRI, Industrial-Risk Insurers.*

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FIRE PROTECTION AND SECURITY SURVEILLANCE

Prompt detection of adverse conditions is crucial to effective loss prevention and control. A review of most catastrophic losses reveal an initiating event which would have been a routine situation had prompt detection, correct diagnosis, and an appropriate response occurred. For example, containment of fire to its area of origin is made possible by several factors. One of the most important of these factors is how early a fire is detected. During normal business hours most areas of a facility are occupied. By their presence the occupants provide protective surveillance because they are able to detect and respond to problems such as fires. For example, a carelessly discarded cigarette may ignite the contents of a wastebasket and that fire may spread until the entire building is involved. However, someone who discovers the fire while it is still in its incipient stage may be able to extinguish it with a portable fire extinguisher. In some cases the occupants can also detect conditions that might lead to a fire.

Many organizations have come to realize that increased security surveillance is vital in guarding against losses from theft and fire. In conjunction with fire and explosion protective systems and various other management programs for loss prevention and control; fire protection and security surveillance provide a means of continuously monitoring the facility for conditions which might lead to a fire, explosion, or other incident promptly notifying the proper parties (fire department, fire safety director, fire brigade) and controlling access to the facility. The ideal type of surveillance is continuous occupancy throughout all portions of a facility by people who are trained to react properly to emergencies. However, this is rarely achieved. Even facilities that operate 24 hours a day often have holiday and vacation shut down periods. All facilities have offices, storage areas, and other areas that are only visited occasionally.

Surveillance can be “active” where guards control access and patrol all areas or “passive” where we use electronics to alert us that someone is in a controlled area. In most cases we combine both active and passive methods for a complete surveillance approach. When we utilize security officers in an active capacity they can detect unsafe conditions and correct them before a

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loss occurs. In addition, they can use their senses to detect fire in the incipient stage, sound an alarm and if appropriate extinguish it with a hand portable extinguisher. The importance of notifying the fire department before attempting to fight the fire should be stressed in training sessions.

Tours must be supervised and should be varied as to times and stations. Records should be kept of all tours. This can be done by using one of the many “tour programs” available from several manufacturers. While making tours security officers must be alert for all emergencies paying special attention to known hazardous areas and the vulnerability of areas. Any unusual condition that the officers find should be reported immediately. This includes the interruption of sprinkler service, the failure of heating equipment, or abnormally strong odors. Criteria for selecting and evaluating security officers are essential. Too often, those people we chose to guard our lives and property are very low-paid workers. ‘This has never made sense to me, but the cost consideration has become a very strong factor in security operations.

See NFFA 601, “Guard Service in Fire Loss Prevention,” and 602, “Guard Operations in Fire Loss Prevention,” for further details.

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CRITERIA FOR GUARD PERFORMANCE

- A. Their physical and emotional stability should be evaluated. Guards hold positions of trust which require individuals who are physically able, mentally alert, and morally responsible. Pre-employment tests and investigations evaluating these qualifications should be mandatory: whether the guards are employees of the company or from a contract service.
- B. Guards must be sufficiently intelligent and of such a temperament as to respond calmly in an emergency. They should be mature enough to have sound judgment, yet have the physical stamina required by the job.
- C. A sufficient number of guards should be provided to maintain proper surveillance. It is not desirable for guards to be assigned part-time duties unrelated to surveillance. If they are so assigned, however, these duties must not interfere with surveillance.
- D. Guards should receive management's full support in the performance of their duties.
 1. When the guards are facility employees management should provide the necessary training and supervision and establish the scope of the service.
 2. If a contract guard service is used, management should not assume that it will be adequate. Rather, management should prepare detailed specifications and investigate the ability of prospective contractors to meet these specifications. When the contract has been met management should make sure that its intent is being carried out.
- E. The initial and continued training of guards should be given as a formal and comprehensive written program covering all applicable protection procedures. Each guard must be:
 1. Acquainted with the general nature of the facility's operations and possess specific knowledge of those operations which are hazardous.
 2. Familiar with all of the facilities manual and automatic fire protection equipment. They should be especially aware of the location of all sprinkler valves, and know which area each controls. It is suggested that guards periodically accompany the person making fire protection equipment inspections, in order to gain a working knowledge of facility protection features and hazards.
 3. Familiar with the location and operation of manual fire alarm stations and other means of transmitting fire alarms. Such means should be provided throughout the facility to permit guards to report a fire rapidly.
 4. Taught to notify the fire department BEFORE attempting to fight a fire.
 5. Taught how to admit public fire apparatus to the property, and how to direct fire department officers to the location of the fire.
 6. Taught to properly notify company officials when an emergency occurs, or when potential trouble is observed.
 7. Taught to maintain a shift log, and to prepare reports to management of observations made and action taken during tours.
- F. Guard service should be integrated into the overall pre-emergency planning program.
- G. General and special instructions and other data required by the guards should be written and kept up-to-date.

In summary, management should expect and is entitled to receive guard service of the highest quality. Guards must be conscientious in the performance of their duties noting and reporting all infractions of company regulations and closely following the orders given to them. The passive part of the program involves using systems that contribute

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to the overall safety and security of the facility. This includes fire alarm systems, lighting, locks, fences, barriers, access control, and closed circuit television systems. These systems should use four basic types of signals:

1. Alarm: a signal indicating a fire including:
 - A. Manual fire alarms.
 - B. Discharge of automatic sprinklers or other fixed extinguishing systems.
 - C. Automatic fire alarms such as heat, smoke, and flame detectors.
2. Supervisory: a signal that indicates a “off-normal” condition in a fire protection system and it’s return to normal, including:
 - A. Control valve tamper for automatic sprinklers or other fixed extinguishing systems.
 - B. High and low air pressure on dry pipe or pre-action sprinkler systems.
 - C. Private water supplies, such as gravity tank level and temperature or electric motor driven fire pump “running” and “power failure.”
 - D. Public water supplies: such as low public water pressure.
 - E. Low building temperature for buildings with wet pipe sprinkler systems for dry pipe, pre-action, or deluge valve closets and for fire pump houses located in areas subject to freezing.
3. Intrusion: a signal indicating unauthorized entry.
4. Trouble: a signal indicating the loss of protective signaling system power supply or circuit integrity.