# Property risk control management

A guide for managing a property risk control program

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Managing the risk of fire

Note: The material found in this guide is intended to provide general guidance only. There are many factors unique to an organization, or even to separate facilities within the same organization. A successful program must be custom designed to fit those needs.

The basis of an effective property risk control program is a formal process designed to minimize the possibility of a damaging financial loss due to fire or explosion.

Fire safety objectives

The two key elements associated with a fire safety objective are: 1) to minimize the probability or likelihood of a fire; and 2) to minimize the severity of a fire once started.

Minimizing the likelihood of a fire

Elements of an effective program to help prevent a fire may include the following:

1. Employee training to help ensure safe operation of equipment and processes.
2. Adequate preventive maintenance of equipment, especially electrical equipment, which could become an ignition source.
3. Safe workplace practices, such as smoking controls, hotwork programs and good housekeeping.

Minimizing the severity of a fire

Although the primary goal is to keep a fire from starting, absolute prevention is impossible. All too often, a combination of circumstances results in devastating fire loss.

Assuming that a fire will occur, proper fire exposure management can help minimize the overall fire impact. This requires defined fire safety objectives. These objectives need to relate to the potential extent of fire damage from heat, smoke, and other products of combustion, and may be expressed as follows:

1. Ensure that fire suppression equipment is in a state of readiness (properly maintained and tested). This equipment is generally the first line of defense in a fire. Proper operation is essential to maintain control of the fire size.
2. Physically contain the effects of a fire to its room, or area, of origin. This not only helps limit direct fire damage, but also reduces the overall impact on the resumption of operations. This may be the last line of defense against fire damage.
3. Limit the fire size. Again, this will limit overall damage and help speed recovery.

These objectives require that management considers such things as the nature and criticality of their operations, and the sensitivity of their products and equipment. The effects of a fire for an electronics component manufacturer may be far different than those of a steel fabricator.

Minimizing the likelihood of a fire

The combustion process is also known as The Fire Triangle, with its three sides representing oxygen, heat and fuel. Unless all three of these elements are present, combustion cannot take place. As oxygen is almost always present, to prevent ignition we generally must control heat and fuel, or the interaction between the two.

Controlling heat involves minimizing the ignition sources present. Hotwork programs to control welding and cutting, smoking controls, and plant preventive maintenance programs are mainstays of a good fire prevention program. Other items unique to an operation, such as high-limit temperature controls on heat-producing appliances, need also be considered.

Control of the fuel may involve such things as replacing a highly combustible process liquid with a less flammable, or noncombustible, substitute, or limiting the supply of highly combustible materials within the main plant areas.
The interaction between heat and fuel can be controlled by physical separation, such as providing noncombustible curtains around welding areas, or confining flammable liquids to fire rated flammable liquids storage cabinets.

Minimizing the severity of a fire

Although all ignition sources cannot be eliminated, it is possible to help manage the impact of a fire. This can involve managing the things exposed to the fire, managing the fire itself, or both.

Managing the things exposed

The things exposed to a fire can include structures, machinery and equipment, raw materials, work in progress, and/or finished products. Exposure management involves limiting the amount exposed and/or safeguarding that which is exposed.

Construction that utilizes fire-rated partitioning to create separate fire divisions will help limit the amount exposed. Limiting the concentration of essential, or high-valued, machinery, equipment, or stock can also help limit the amount exposed.

Safeguarding may involve the placement of product on pallets, or in racks, to limit damage from fire fighting water collecting at floor level. Or, this could involve locating high valued electronic equipment above grade (not in the basement), also to help avoid loss from fire fighting water damage. Providing as much physical separation as possible between essential or high valued items, and hazardous operations with increased likelihood of loss, is also a form of safeguarding.

Managing the fire

Fire impact can also be controlled by managing the fire itself. Basically, this means controlling the fire size. This can be accomplished by impeding the combustion process, providing fire rated construction, and/or suppression.

Fire size is dependent upon fuel load. The quantity, distribution, and combustibility of the fuel play a critical role in the combustion process. Avoiding large concentrations of fuel, and substituting less flammable/combustible materials whenever possible, will help limit fuel loading. Combustible dust and/or flammable vapor flash fires and explosions can be minimized with proper control of housekeeping and ventilation.

Construction firewalls, fire rated partitions, and/or explosion relief venting can help manage the damage and impact of a fire. Proper maintenance of fire doors and wall penetrations, and proper design of relief venting, is key to the effectiveness of these items.

In addition, fire size can be managed by suppression. Proper design, installation, and maintenance are again critical to effective control. Suppression can be accomplished manually or automatically, with automatic suppression considered more reliable. Both, however, first require fire detection, then the application of sufficient extinguishing agent to control the fire.

Management responsibility and control

Before embarking on any new programs of property loss prevention, or enhancing present programs or facilities, needs must be prioritized. Management should evaluate the following.

1. Protection needed
2. Hazards involved
3. Likelihood of a loss
4. Consequences of a loss

A survey should be conducted to determine the present level of protection. Priorities for additional protection should be established. If stock is readily available but replacement machinery is not, the manufacturing area should receive priority. Conversely, if replacement machinery is readily available but stock is not, the stock warehouse should receive priority.
The facilities should also be evaluated to determine susceptibility to non-fire loss, such as from water damage, vandalism, natural disaster, and/or theft.

Once the preliminary study is made, this document can be used as a guide to determine the additional protection needed and the steps necessary to achieve it.

Any successful program must have the support of corporate management. Management must initiate and continuously encourage all risk control activities. All employees must be fully indoctrinated in the program and the ways in which they will participate.

The program should be tailored to meet specific needs and goals. The organization may not be large enough to warrant all the levels of formal control as suggested by this document. In some cases this can be overcome by merging levels of responsibility. Regardless of the extent of the program, all facets must be accomplished for it to be successful. Duties and responsibilities must be established, and activities documented, to facilitate monitoring.

Procedures must be implemented to lessen the possibility of a loss. These procedures will not only help educate the individuals involved, but will also demonstrate management's continued commitment to the program. Formalized permit systems and reports will help management ensure that procedures and precautions are consistently followed.

Property protection items may merely be added to formalized loss prevention programs that may already exist for workers' compensation, public liability, fleet, and/or products liability, eliminating the need to establish new guidelines. Adding property protection to an existing program is another step toward total risk control. The following is a suggested echelon of control and responsibilities.

**Property risk control director**

**Responsibility**

1. Coordinates the company's property risk control program at all levels.
2. Develops the policies and procedures necessary to protect property and help ensure the continuation of operations following an emergency.
3. Develops and distributes property risk control standards, and monitors compliance.
4. Appoints a plant risk control coordinator to coordinate all property risk control activities within the plant.
5. Consults with and advises appropriate management of the loss potential of existing and contemplated processes, structures and equipment.
6. Establishes fire brigades and training programs.
7. Maintains a library of pertinent reference material, demonstration aids, and films for use in training and risk control activities.
8. Maintains oversight of property risk control recommendations developed as a result of self-inspections or insurance surveys.
9. Develops an effective fire protection impairment program to control hazards when fixed fire suppression and detection equipment is removed from service for repair, maintenance, or testing.
10. Develops a permit system for occasional welding, cutting or other "hot work." The permit should be countersigned by the plant manager, plant loss control coordinator, and/or the department supervisor. Provisions should be made for work isolation, process shutdown if necessary, fire fighting equipment, and a fire watch.
11. Develops a permit system for control of outside contractors. Communication is essential between the plant risk control coordinator and the contractor to review the work to be done, determine the hazards in relation to surrounding exposures, and provide for suitable protection. The contractor should be made aware of the plant rules and regulations in regard to property protection.
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12. Develops fire inspection report forms for use by supervisors, plant fire risk control committee, and maintenance department.

13. Regularly analyzes and reports to management the status of property risk control activities in all company operations. This is an opportunity to evaluate and alter long and short-range goals.

**Plant manager**

**Responsibility**

1. Directs the administration of all property risk control activities within the plant, interprets company policies, and evaluates recommendations.

2. Maintains responsibility for plant equipment preventive maintenance program in an effort to keep electrical, heating, and other equipment from becoming a potential ignition source.

3. Maintains responsibility for the implementation of the inspection, maintenance and testing program for plant fire detection and suppression equipment.

4. Provides necessary materials and equipment for property protection and risk control.

5. Attends meetings of the plant property risk control committee.

6. Monitors reports submitted by supervisors, plant property risk control committee, and coordinator to ensure that all aspects of the program are implemented.

7. Ensures that risk control recommendations made as a result of self-inspections and insurance surveys are addressed.

**Plant risk control coordinator**

**Responsibility**

1. Coordinates the company’s property risk control program at the plant level.

2. Appoints the members of, and presides over, the plant property risk control committee.

3. Appoints a fire brigade chief and administers the activities of the fire brigade.

4. Assists the corporate property risk control director in evaluating loss potential of existing and contemplated processes, structures, and equipment.

5. Oversees the fire protection impairment program.

6. Oversees the hotwork program.

7. Submits periodic reports to the plant manager and corporate property risk control director on the status of property risk control activities.

8. Periodically inspects the plant with the plant property risk control committee representatives.

9. Investigates and reports to the corporate property risk control director and plant manager all losses from fire and allied perils. The report should evaluate primary and secondary causes and recommend corrective action.

**Supervisors**

1. Train all employees in company procedures, process hazards, and safe process equipment operation, and instruct them to report any unsafe conditions or acts they detect.

2. Corrects all potential loss producing conditions within their area.

3. Investigate and report to the plant risk control coordinator all incidents within their area that caused, or could have caused, a property loss.
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4. Accompany the plant risk control coordinator and representatives of the plant property risk control committee on inspections.

**Plant property risk control committee**

The Committee should consist of:

- Plant risk control coordinator, chairperson
- Head of maintenance department
- Fire brigade chief
- At least one supervisor

The Committee meets regularly to:

1. Review supervisors' incident reports.
2. Review plant inspection reports and recommendations.
3. Submit reports to the plant manager, including recommendations that require management action.
4. Follow up on recommendations previously submitted.
5. Review plans for new or modified operations.
6. Investigate and review potential loss situations or conditions, and initiate necessary safeguards.
7. Accompany the plant risk control coordinator and the supervisors on plant inspections.

Many of these duties and responsibilities can be incorporated into existing activities related to workers' safety. It is imperative that reporting procedures be implemented and monitored to maintain the integrity of the program.

**Hotwork**

Cutting, welding, and grinding operations are common causes of fire loss. Such hotwork operations should be permitted only in areas that are made firesafe. Areas or conditions that are not considered firesafe include:

- Sprinklered buildings where the protection is out of service.
- Areas within 35 feet of large quantities of ordinary combustible materials (paper, wood, or plastics).
- Areas where explosive atmospheres may be present due to flammable liquids, gases or combustible dusts. This may include tanks and low points at facilities where flammable liquids are handled.

There are compensatory measures that can be taken if welding is unavoidable in the first two cases noted above. When welding must be conducted in a building with out-of-service fire sprinkler protection, charged fire hose lines should be brought into the work area and be constantly manned. When combustible materials cannot be removed from the 35 foot radius of welding operations, these materials should be completely covered with a fire-retardant tarp.

A **Hotwork Permit** system is the most effective method for controlling the hotwork exposure. This is intended for the control of welding and cutting activities that are not a part of the normal operations for the area. A permit system is not intended for production welding operations or similarly designated areas, such as in metal shops where grinding and cutting are a normal part of the operation.

Travelers has hotwork permits available for use by our clients. To be most effective, all of the precautions noted on the card should be enforced. A companion card is designed to be hung on the heat-producing equipment.

Precautions listed on the Hotwork Permit and Hotwork Equipment Tag include the following:

1. Fire sprinkler system is in service.
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2. Area where hotwork is to be conducted was personally examined by the person responsible for authorizing cutting and welding.

3. There are no flammable liquids or unpurged tanks, and no highly combustible lint or dust, in the area.

4. Floors are clean.

5. All combustibles have been located 35 feet from the job area and/or protected.

6. All floor and wall openings within 35 feet have been covered tightly.

7. Fire watchers have been assigned to the area and know how to give an alarm.

8. Portable fire extinguishers and/or small diameter fire hose lines are available for immediate use.

9. All cutting and welding equipment was found to be in good repair, free of leaks, loose connections or faulty regulators.

10. Gas cylinders used for the welding and cutting operation are secured to prevent falling.

11. The job will be confined to the area described on the permit.

12. The work area will be observed for at least 30 minutes after work is completed to verify fire safety.

The hotwork program also should be enforced when outside contractors are conducting hotwork operations at the insured facility.

Fire protection impairments

The cost of fire protection equipment for a facility can range from a minor expense of providing a few portable fire extinguishers, to a major expenditure for a complete automatic sprinkler system, perhaps requiring a dedicated private fire protection water supply. Unfortunately, in many instances, the initial installation of the equipment or system is the last time any full attention is paid to the fire protection. Historically, our consultants find improperly closed valves, rendering fire sprinkler systems out of service, during 6 of every 100 surveys.

Fire protection systems can be taken out of service for planned repairs or renovations, or as the result of the accidental or malicious closure of a control valve. Whatever the reason, if a fire occurs while the fire protection system is impaired, a disastrous loss can occur.

To be effective, fire protection systems must remain in service at all times. However, building renovations, and system repairs, occasionally take place. Should systems be taken out of service, the following measures should be implemented.

- Impairments should receive serious management attention. Management should review the necessity of the impairment as well as the extent.

- Regardless of whether the impairment is planned or unplanned, exposures to loss should be minimized and protection measures increased during the impairment.

- Emergency measures that should be considered include: a) a constant fire watch in the impaired area, b) hose lines and additional portable fire extinguishers in the area, and c) "back-feeding" of sprinkler systems through a siamese/fire department connection or drain line.

- Hazard reduction should include prohibiting open flames and other "hot-work", and shutting down hazardous operations during the impairment.

- Management should notify the fire department and Plant Emergency Organization that the fixed fire protection system is not available so that the necessary steps will be taken in the event of a fire.

- Management should station someone at the water supply valve with a communications link to the fire watch. This ensures that the valve will be opened promptly in the event of a fire emergency.

- Repairs should be expedited with repair work uninterrupted until the protection is restored.
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- Management should invite the local fire department to visit the facility and pre-plan for emergencies. The necessity of allowing automatic sprinklers to operate until any fire is completely under control should be stressed.

- Management should ensure that full protection is back in service prior to relaxing the controls that are in place. This includes: a) inspecting all fire protection control valves and water supplies, including pumps and tanks; b) conducting alarm and 2” drain tests; and c) notifying all involved parties that the impairment is over.

As an assist toward proper fire protection impairment handling, an Impairment Kit is available from Travelers that includes additional detail, and impairment tags for use on equipment that is temporarily removed from service.

**Inspecting your premises**

Self-inspection is a vital part of the overall property loss prevention program of any company that has assets to protect.

An effective self-inspection program helps management evaluate the effectiveness of other parts of their property risk control program. Most companies have set up various defenses against loss, as discussed in previous sections of this document. However, without regular feedback, there is no assurance that these policies have been properly implemented, or are being regularly maintained. It is critical that there be regular and continuing monitoring of these defenses to prevent failure and subsequent loss.

The individuals selected to perform the inspections should have the basic characteristics described below:

1. **Interest** – The more interested the person, the more complete and accurate the report.
2. **Familiarity with the facility** – A person who is familiar with an area will be able to perform a more thorough inspection.
3. **Ability to communicate** – Not only necessary for writing up the report, this may be useful for eliciting cooperation from first line supervisors.
4. **Physical ability** – A certain amount of climbing, walking, and other physical activity may be necessary to do a thorough inspection.

**Follow-up activities**

Once the inspection has been made and the report written up, action should be taken to correct any deficiencies noted. This follow-up is the key to the effectiveness of any property loss prevention program. If deficiencies are not addressed the self-inspection program will become a sham as management will be perceived as not interested in safety and loss prevention. A procedure should be established for management report review and follow-up on all items needing corrective action. The follow-up procedure should include:

1. Making a list of required corrective actions
2. Assigning someone to be responsible for each item requiring correction
3. Establishing target dates for completion
4. Noting the actual date completed

Follow-up activity must be continued until all corrections are completed and signed-off. A record should be kept of this information and made a part of the inspection and maintenance file.

**Employee training**

Too often the only purpose of employee training is to teach individuals how to do their job. Employees should also be taught to make safety an integral part of everything they do. This section explains "why" and "how."

**Why**

Integrating safety into a new employee’s training will accomplish two things. First, the employee will know immediately that management places great importance on safety. Second, a solid base will be formed on which to build correct work attitudes in the future.
In addition, making safety an integral part of an employee’s training is an obligation. The Occupational Safety and Health Act requires it. An insurance carrier may insist that safety training be part of an overall property risk control program.

Another important reason for integrating safety is that losses can be costly both in property damage and in human suffering. A new employee may be trained to perform the job well, but if safety isn't stressed, situations may arise where damage to property or equipment, or injury to others, can result.

Management must decide on the level of safety to be incorporated. This decision will be influenced by the obligations mentioned, and the type of business operations conducted.

**How**

New employee safety training usually is associated with the protection of workers. Relating such training to property risk control requires additional considerations.

As a minimum, all employees should receive training in the following areas.

1. **Actions to take in the event of fire** – When to evacuate, when to attempt to put out a fire, whom to notify, what equipment to shut down.

2. **Portable fire extinguishers** – Which extinguisher is suitable for each particular type of fire (flammables, electrical, chemicals, wood, and paper). The training should be "hands-on" to give employees experience in extinguishment techniques.

3. **Familiarity with plant** – A tour of the entire facility with emphasis on the location of fire fighting equipment, exits, hazardous operations, and restricted areas.

4. **Care and maintenance of equipment or machinery they will be operating** – To reduce fire loss potential by helping to keep equipment operating properly, and as designed.

5. **Alarms** – The meaning of various alarms and the actions to take when they are sounded.

In addition, certain functions, such as the following, will require additional specific training for the employees involved.

1. **Fire Brigade** – If the facility has a fire brigade, members should be required to complete a specified training program as a condition of membership. The section entitled "Fire Brigades" provides details on the operation of fire brigades.

2. **Specialized Equipment** – Some processes or machinery operations present fire loss exposures by their very nature, such as titanium metal working, or chemical handling or mixing. Employees involved must be thoroughly trained in the fire exposures and safety control measures to be followed.

3. **Job Change** – Training employees when they change jobs is important as new jobs present new exposures.

4. **Traffic Control** – During an emergency, persons with essential duties must be able to move to locations where they are needed. It is also usually necessary to evacuate occupants quickly.

**External traffic**

Directing traffic on public streets and highways is usually the responsibility of the local law enforcement agency. Occasionally, this function may be assumed by private security personnel or guards hired to help ensure the safety of employees and property outside of the workplace. This should be done only after consultation with, and authorization by, the appropriate law enforcement agency. External traffic planning should include primary and alternate approach routes for fire equipment and other emergency vehicles.

Regardless of who controls the outside traffic, key employees in the property risk control program must be able to move to their assigned locations. It is advisable to have a pre-determined identification system to allow these individuals unobstructed movement during emergencies. Many large companies provide these individuals with identification approved by both the local law enforcement agency and Civil Defense, which allows passage through roadblocks into emergency or disaster areas. This identification may also be used to gain emergency admittance to restricted areas inside the facility.
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Internal traffic
Most police departments will not enter private property to control traffic unless prior arrangements have been made. If there is a private security force, they may be assigned traffic control for both general and emergency movement. If there is no private security force, company personnel should be assigned and trained to control both pedestrian and vehicular traffic in an emergency.

One person should be assigned to an appropriate, designated entrance to direct the fire department, medical transportation, and key individuals in the property risk control program to the fire scene. In a large facility, it may be necessary to have an employee accompany incoming emergency personnel to the specific area, or building, involved. If the facility has underpasses, overpasses, tunnels, or overhead piping across access drives, the fire department should be invited to bring in its largest piece of fire apparatus for a trial run. This will ensure adequate clearance for all fire equipment during an emergency. Personnel should also be assigned and trained to control access to the emergency scene, and to admit only identified emergency personnel. This will prevent unnecessary exposures to injury, and help minimize confusion.

Exit drills
Removing occupants from the fire scene as quickly as possible is necessary to allow emergency personnel to fight the fire. Merely providing well-marked exits does not ensure that this will take place. Exit drills are needed so that occupants will know how to make an efficient and orderly evacuation.

Responsibility for planning exit drills belongs to the risk control coordinator. Plans should be discussed with both middle and line management to assure their understanding and cooperation. If there is no plant risk control coordinator, the plant manager may assume this responsibility or assign it to a staff member.

The timing of drills will depend upon the nature of the operation. Generally, drills conducted a few minutes before the lunch break have been found to minimize loss of time and production. The frequency of drills should be determined by the degree of hazard present, and by the complexity of shutdown or evacuation procedures.

 Probably the most important decision is determining when to evacuate. Any area affected by heat, flame, or smoke should be evacuated. In case of doubt, the entire building should be evacuated. It should be absolutely clear to all concerned who will make the decision to evacuate. There should be alternates designated to make this decision in the event the primary individual is absent during the emergency.

Personnel should be assigned to check exits to see that they are accessible, search for stragglers, count occupants once they are outside the emergency area, and control re-entry into the building until it is safe.

Employee responsibilities
All employees should recognize the evacuation signal and know the exit route they are to follow. Upon hearing the signal, they should shut off equipment and report to a predetermined assembly point. This point generally will be located outside the building, but in certain occupancies, such as hospitals, the assembly point may be inside a building. Primary and alternate routes should be established, and all employees should be trained to use either route.

When employees are assembled, the line manager of each area should account for all personnel under their supervision. If any employees are missing, this should immediately be reported to the plant risk control coordinator so that search and rescue efforts can be initiated. Only trained search and rescue personnel with adequate protective equipment should be permitted to re-enter an evacuated area.

After each drill, a meeting of the responsible managers should be held to evaluate its success and to solve any problems that may have arisen.

Training is a critical area in every business and should be given careful thought and consideration. It is important that all new employee training incorporate fire safety.
Fire brigades

Every business should have an established set of procedures to deal with fires and related emergencies, no matter how simple or complex their property. Every company must decide on the extent of its employees' involvement in responding to an emergency such as a fire, and they must also decide whether or not the company should have a fire brigade. Formal Fire Brigades may not be mandatory for all businesses, but where they are provided, they must comply with U.S. Occupational Safety and Health Administration (OSHA).

In deciding whether or not to form a fire brigade, companies should consider a number of factors including the size of the property, the types and amounts of hazardous operations on the premises, the number of employees available for a fire brigade organization, and the type and extent of fire protection equipment in place. Below is a guide to help companies in making this decision:

1. Full evacuation of the premises, leaving all fire fighting to a municipal fire department

This option has a serious disadvantage. The time lost in waiting for the fire department to arrive can allow the fire to become much larger, causing more damage and requiring more time, effort, and equipment to extinguish. If this option is selected, an emergency action plan and a fire prevention plan must be provided.

2. All employees called upon to fight a fire

This option may not be a good choice unless the number of employees is relatively small. However, if this option is elected, each employee must be trained in fire-fighting techniques. Initial training should be done when the employee is hired, and refresher training given every year.

3. Designate certain employees to fight a fire in their general areas

This requires an emergency action plan, with all designated employees provided with hands-on training at least annually.

If none of the above options are practical, the company may choose to organize a fire brigade. This will require selecting one of the following two options:

4. Organized fire brigade to fight incipient stage fires only

This choice requires a fire brigade organizational statement to be drawn up, and training must be provided for the duties the statement describes. Training and education in special hazards must be provided, along with training in standard operating procedures and use of extinguishers. A higher level of training should be provided for the brigade leaders and instructors.

5. Organized fire brigade to fight both incipient stage and interior structural fires

If the fire brigade will be responsible to fight both incipient stage and interior structural fires, the company must satisfy all the items in No. 4. In addition, brigade members must pass a physical examination, attend educational sessions at least quarterly, with hands-on training at least annually, and be provided with protective clothing and breathing apparatus that meets OSHA standards.

Organization of a fire brigade

If a company elects to form a fire brigade, brigade members should be organized and trained to make best use of and be responsible for the available fire protection equipment, and to operate effectively during an emergency.

The fire brigade should help evacuate all personnel not involved in handling the emergency, and be available to help the fire department control the emergency.

The following factors may influence your decisions regarding the size, complexity, and organization of a fire brigade:

1. Property size
2. Property accessibility
3. Building size
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4. Building construction
5. Building contents
6. Fire protection equipment on hand
7. Fire hazards
8. Personnel safety

An excellent guide for fire brigade organizations may be found in the National Fire Protection Association’s "National Fire Codes." Included in the NFPA codes and guidelines are suggested organization charts, a description of the responsibilities and qualifications of brigade members, and guidelines on training and equipment. Another good reference for fire brigade training is the NFPA publication "Industrial Fire Brigades Training Manual."

Security

The benefits of a security program can be well worth the expense of implementation and maintenance. However, there are many factors to consider in determining what type of security program best meets the needs of a business.

Three basic elements comprise a viable security program:
1. Guard service
2. Monitoring equipment (alarms)
3. Physical protection

Guard service

Guard service is used to protect a property against fire and theft losses and generally serves four purposes: 1) to promptly detect and give early warning of a fire, or other emergency, 2) to facilitate and control the movement of persons within the property, 3) to carry out procedures for the orderly conduct of certain operations on the property, and 4) to protect the property during non-business hours.

Guard service can be composed of company employees or provided by an outside concern. Whichever means is used, a company manager should supervise this function. This person should be given a clear list of expectations and responsibilities to handle and the authority to do so.

Guards require specific procedures and instructions to be effective. General instructions or superficial training are of little value. The intended use of the guard service must be carefully considered. Some of the things which must be considered when establishing guard service are as follows.

Communication Equipment – Guards should be provided with the means for communication both inside and outside of the property. This can be accomplished by cell phones, two-way radios, proprietary protective signaling systems, time clocks, intercom systems, or telephones. Instructions must be provided on when, and how, to use this equipment.

A central command center should be designated to coordinate communications. The center should have a directory of names, telephone numbers (including any information on making emergency calls to outside sources) and other pertinent instructions located in a visible, readily available index. The list of outside sources should include the public fire and police departments, key management personnel, and other outside agencies that may have to be contacted in an emergency.

When guards are used to patrol a property, they must be provided with the equipment and information they need to complete their tasks and to safeguard their own health and safety. The following situations should be considered:
1. Sudden illness or injury of the guard while alone on the property. If this occurs, the availability of cell phones or portable two-way radios will allow the guard to summon aid.
2. A guard being overpowered by an intruder. In this situation, the intruder may prevent the guard from using any equipment. Thus, it is necessary to have a system or procedure whereby the guard's failure to transmit a regular signal or meet a predetermined schedule will be promptly investigated.

3. Situations requiring management decisions. Such situations may range from the unscheduled arrival of merchandise or supplies to the receipt of anonymous bomb threats. Guards must have specific instructions and the equipment available to contact management personnel.

Guard Functions – A sufficient number of guards should be provided to accomplish the services desired. If a guard is assigned part-time duties in addition to regular functions, these duties should not interfere with regular guard service.

Ways guards can facilitate and control the movement of persons within a property include:

1. Prevent entry of unauthorized persons.
2. Control the activities of persons authorized to be on the property, but who may not be aware of procedures established for the prevention of fire.
3. Control visitors to the premises.
4. Control pedestrian and vehicular traffic during exit drills, and assist in the evacuation of the property during an emergency.
5. Control gates and vehicular traffic in case of a fire emergency to facilitate access to the property by the public fire department, members of a private fire brigade, and off-duty management personnel.

Procedures can also be developed so guards can facilitate the orderly conduct of the operations on the premises. The procedures listed below include provisions for fire loss prevention.

1. Checking permits for hot work, including cutting and welding. And standing by, when necessary, to operate fire extinguishing equipment.
2. Detecting conditions likely to cause a fire, such as leaks, spills and faulty equipment.
3. Detecting conditions likely to reduce the effectiveness of fire control, such as missing portable fire extinguishers, closed sprinkler valves, and impaired water supplies.
4. Performing operations to assure that fire protection equipment will function correctly. This may include testing and maintenance of fire protection systems, equipment, and alarms.
5. Promptly reporting a fire by calling the public fire department or fire brigade.
6. Operating equipment provided for controlling and extinguishing a fire after giving the alarm and before fire fighting personnel arrive.
7. Monitoring signals from protective signaling systems, such as alarms from manual fire alarm boxes, waterflow and sprinkler systems, fire detection systems, and trouble signals.
8. Patrolling predetermined routes at random intervals to assure surveillance of the entire property.
9. Starting up and shutting down certain equipment during an emergency, or at other times when no other personnel are provided for this purpose.

It is also advisable to provide guards with a tour of the facilities during regular working hours, so that they can become familiar with the normal operations of the work place.

Rounds – Guards should make rounds at intervals appropriate for the particular situation. Rounds should be made hourly at random (1 at the half hour, next at the hour, etc. As long as rounds are roughly hourly, the random rounds are best for security reasons) when operations on the property are normally suspended. Additional rounds should be instituted when there are special circumstances, such as exceptional hazards or impaired fire protection equipment.
The first round of a patrol should begin as soon as possible after the end of each work shift. The guards should be instructed to make a thorough inspection of all buildings and spaces on their routes, with emphasis on the following:

1. Outside doors and gates should be closed and locked. Windows, skylights, fire doors and fire shutters should be closed.

2. All hazardous materials, oily wastes, rags, paint residue, rubbish and similar items should be removed from buildings or placed in Underwriters Laboratories (UL) listed or Factory Mutual (FM) approved containers.

3. All fire extinguishing equipment should be in place and unobstructed.

4. Aisles should be clear.

5. Motors or machines unintentionally left running should be shut off and this condition reported.

6. All offices, conference rooms and smoking areas should be checked for discarded smoking materials.

7. All gas and electric heaters and other heating devices on the premises should be checked for proper operation.

8. The operating temperature of dryers, furnaces and similar equipment that continue to operate during off hours should be noted on all rounds.

9. Confirmation should be made that hazardous materials within the buildings, such as gasoline, adhesives, flammables and highly volatile combustibles, are located in Underwriters Laboratories (UL) listed or Factory Mutual (FM) approved containers.

10. All sprinkler valves should be confirmed to be open with gauges indicating correct pressures. If not open, the impairment should be reported immediately.

11. All rooms should be checked during cold weather to verify adequate heating.

12. All water faucets and air valves found leaking should be closed. If unable to stop the leaks, guards should report the condition to management.

13. Particular attention should be given to any new construction or alterations underway.

Selection of Guards – Employees used for guard services should be screened to assure they are qualified. This screening should determine if the individual is physically able to perform the duties required, and the absence of any criminal convictions. Their reliability, and ability to remain calm during an emergency, should be demonstrated, if possible.

Only outside agencies with a proven record of reliability should be used when contracting for this service.

Individuals employed as guards should be monitored on a regular basis to help ensure continued satisfactory performance.

Alarm service
Electronic monitoring may augment or replace guard service for prompt detection of abnormal conditions. Monitoring should include waterflow detection of sprinklers systems, valve tamper on all sprinkler control valves, low building temperature supervision (in climates susceptible to freezing weather), and smoke detection in areas where prompt detection of an incipient fire is necessary. Dry pipe and preaction fire sprinkler systems warrant high and low supervisory air pressure supervision. Electrically driven fire pump installations should be provided with pump running, power on, and phase reversal monitoring. Diesel driven fire pumps should be provided with pump running, fail-to-start, pump controller in the “off” position, and pump trouble (overheat, low oil, overspeed, etc.) alarms. Pump house temperature should be monitored, and where water tanks are provided, tank water level and temperature should also be monitored.

Physical intrusion monitoring consisting of perimeter openings, internal motion detection, and areas containing valuable items (safes, artwork) may be warranted.
Property risk control management

Alarms should transmit to a UL Listed or FM Approved Central Station, where one is available. When not available, it is best to send the sprinkler waterflow, manual and automatic fire detection alarms to the local fire department and other signals to a reliable alarm monitoring service. If the local fire department will not accept the fire alarms they should be sent to the reliable alarm monitoring service as well. A proprietary alarm panel should be provided at a constantly attended location when guard service is present.

To help ensure reliability, all equipment should be listed or approved by a nationally recognized testing laboratory, and the installation and testing should conform to nationally recognized standards (NFPA #25).

Physical protection

Physical protection can consist of locks, bolts, bars, fences, or compartments such as safes or vaults. Again, the type of physical security desired will be determined by the items to be protected. The integrity of the entire facility or area to be protected must be considered.

Metal or metal-covered doors with "pick-proof" hinges and dead-bolt locks afford good protection for rear and side door openings. This is especially true where these openings can not be observed well from main streets, and there is little vehicle or pedestrian traffic.

Window and/or door bars, either permanently installed or secured by locks, can be a good security choice. When considering this type of protection, the ability to exit from the area must also be taken into account. This will not be a viable option if bars will impede the exit of occupants in an emergency.

Fencing all, or only a critical part, of a property is a common security option.

Adequate exterior lighting can also be an important feature of deterring unauthorized access to a property.

Compartments, such as safes, vaults, and rooms, should be closely reviewed to help ensure that desired protection is achieved. Safes are normally provided with Underwriter’s Laboratories labels indicating fire and theft ratings based upon testing conducted by UL.

Pre-planning new construction

The corporate risk control coordinator and the property insurance company should be involved in the initial planning stages of any new construction. Property conservation should be considered in all aspects of new construction/acquisition planning including the site selection, building design, and materials selection.

Although economic and production considerations are normally primary when a new plant is to be built or acquired, fire protection considerations are also important. Including these protection considerations at the early planning stages can pay big dividends down the road. Consider the business impact of highly susceptible materials, operations or processes to destruction by fire or other perils.

Following are some of the items that should be considered:

Site selection
1. Is there an acceptable water supply for fire fighting?
2. Is there a natural hazard exposure, such as severe topography?
3. Is there an exposure from adjacent facilities with hazardous operations?
4. Is there an acceptable response time from emergency support services, such as fire and police?

Planning the facility
1. Consider fire-resistive or non-combustible materials in construction.
2. Limit size of open areas via the use of fire walls.
3. Provide physical protection such as alarms and sprinklers.
Property risk control management

4. Allow for access routes on all sides of the building for fire-fighting vehicles.

Special hazards
1. Plan for isolation and/or special protection for hazardous operations, valuable inventory, delicate machines, or one-of-a-kind items.
2. Design ventilation to lessen the loss from smoke in case of fire.
3. Choose less hazardous materials and equipment, where possible (e.g., water-based paints rather than solvent based).
4. Design drainage to lessen the water damage loss from fire fighting.

Building valuation
Do you know how much it would cost to reconstruct your property if it burned today? Building valuation is a subject overlooked by many busy executives. Yet, if these values are not kept up to date and there is an insurable loss, a company may recover only a fraction of the building value. In addition, there may be coinsurance penalties involved which could further reduce the total recovery.

Besides direct cost, property loss can involve many indirect costs not covered by insurance. These could include loss of customers because of unfilled orders, loss of goodwill with employees, customers, and the community, and the possible loss of key personnel, requiring the expense of training replacements.

Because of the direct and indirect costs of a fire, it is essential that an organization's insurance valuations be kept up to date. Some companies have a formal policy of having professional appraisals done on their property every few years. Others do not have a formal policy, but update their values consistently. It is important that an appraisal is conducted regularly to keep management aware of building valuation.

For more information, log in to the Risk Control Customer Portal at travelers.com/riskcontrol. (Need help? Read our Registration Quick Guide.) You also can contact your Risk Control consultant or email Ask-Risk-Control@travelers.com.

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