



# FLIGHT SAFETY FOUNDATION Airport Operations

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*For Everyone Concerned with the Safety of Flight*

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## **Incendiarism: Is Your Facility A Target?**

*The answer may be surprising. Even well-protected organizations often do not realize they are incendiary targets until after the firesetter strikes.*

*The following article was originally intended to increase awareness of the threat from arson in the factory building environment. Because it highlights a number of concerns that also apply to airport operators, FSF offers this viewpoint from the perspective of a facility insurer.*

During the five-year period of 1982 through 1986, documented incendiary losses accounted for nearly 10 percent of the total number of fires investigated by Factory Mutual (Factory Mutual Engineering Corp.), and this percentage may be even greater if those fires that cannot be definitively identified as incendiary in nature are included. The documented incendiary losses equaled more than 11.5 percent of the dollar amount of all losses during that period.

Thirty-five of the incendiary fires caused damage that totaled more than \$1 million each. These statistics could have been dramatically reduced if the companies involved recognized themselves as target properties. No location, facility or building is immune from incendiarism, but statistics prove that some are more likely targets than others.

### **Facilities Experiencing Labor Disputes**

Companies that are experiencing labor problems such as layoffs or strikes are vulnerable incendiary target properties. Employees or former employees, reacting to frustration, may want to fight back, and their motive is a strong one: revenge.

Disgruntled employees and ex-employees present a particular problem because of their knowledge of the target facility. Firesetters in this category are also familiar with the company's protection systems and general security procedures. And, in most cases, they can move around a facility much more freely than outsiders.

In addition, companies that are experiencing labor problems can suffer from insufficient fire protection. If a strike or layoff has occurred, most of the personnel remaining at the plant are at the management level and are unfamiliar with the operation of the sprinkler system and other duties normally assigned to the facility's Emergency Organization (EO). Likewise, members of the EO may no longer be employed and may have not been replaced.

To protect a facility from the employee/incendiary, sprinkler control valves should be checked daily. If the inspection will draw unwanted attention by strikers, make the check visually at a reasonable distance. Otherwise, examine the valves closely every day and physically try them once a week.

Check all entrances daily as well to ensure that locks, hinges, frames, doors and windows are in good working order. Skylights, roof hatches, fences and gates should also be checked. If strikers or laid-off employees have keys to the facility, all locks should be replaced.

Implementing a dependable temporary watch service is also important. Storage areas and areas containing flammable liquids should be checked approximately every 30

minutes. Rounds throughout other areas should be done hourly. However, timing and order of the rounds should be varied to avoid setting a predictable routine.

An effective EO is also crucial at this time. Available personnel should be assigned to it and trained to perform the major duties. Strikebound plants may consider involving union leaders in the interim protection program. They will sometimes allow union personnel to perform vital non-production duties, which may help discourage incendiary attempts.

These recommendations are temporary. If there are no incendiary incidents within 30 days after a layoff, operations may be gradually returned to normal over the next 30 days. However, facilities involved in a strike should maintain this extra protection throughout the strike period.

## **Vacant Buildings Are A Temptation**

It is not only during stormy labor relations that a company becomes a target property. Vacant and idle facilities, particularly those located in urban areas, are easy and tempting targets for malicious acts. These unsupervised locations often become hangouts for vagrants or juveniles who become firesetters. The chances of getting caught and the consequences of setting fire to a building that "no one uses anyway" don't seem that severe. But an idle building that still contains combustibles can become a fire fighter's nightmare.

Fire losses at a vacant building may not impact a company as significantly as losses at the main operating facility. However, facilities that are located near the idle building could be in danger if the fire is not quickly controlled. To protect idle facilities from the fire setter, one important action is to maintain operable automatic sprinkler protection. If it is not practical to heat the building to avoid freezing, arrange the automatic sprinkler system for cold weather operation.

Another important precaution is to provide alarm or watch service for valuable idle properties. Prompt, reliable communication should also be available for the guard's use. Periodic surveillance should take place at facilities of lesser value, and reliable supervision of waterflow alarms should be maintained.

Maintaining the exterior of the building and adjacent grounds may also discourage the incendiary. Statistics show that if an area is allowed to deteriorate, the probability of an incendiary attempt increases.

## **Storage Areas and Warehouses**

Like idle facilities, storage areas and warehouses are

easy targets for the incendiary. Losses resulting from fire in these areas can be costly.

Access for quick entry and exit is almost guaranteed in a storage facility. High storage piles hide the firesetter. And the chances of being discovered are reduced because, even during daylight working hours, few employees can be found in most warehouses. A high concentration of stored combustibles makes the incendiary's job even easier.

Physical protection for warehouses is essential. Maintenance of sprinkler systems, along with fencing, locked perimeter doors and sufficient lighting and alarm systems will help deter the firesetter.

Yard storage areas located near property lines are also popular targets because the incendiary can start a fire without entering the target property. Flammable liquid tanks and natural gas equipment are often found in yard storage areas. This combustible material, coupled with a lack of fixed protection systems, can result in a rapidly spreading fire.

Protecting yard storage areas is essential. Fence the entire yard, and locate storage at least 50 feet from the perimeter. If this is not practical, then fence in storage and maintain a clear space of at least four feet between the fence and the storage. Preferably, this space should be wider than four feet to allow passage of patrol cars. Use fences that are seven feet high, with strands of barbed wire at the top slightly tilted toward the outside.

Lock gates whenever the area is unattended. Preferably, locate these gates where they can be seen from occupied areas within the building. Lighting the fence, gates and grounds within 10 feet of the fence will also help protect the area from intruders.

Surveillance is also important. Check the yard storage area on an unscheduled basis about once an hour. Hydrants and fixed protection for tanks and transformers should be provided. Keep these hydrants clear of vegetation and other unnecessary combustibles.

Trucks and railroad cars are also likely incendiary targets. Fires started here may burn undetected. Unload these vehicles as soon as they arrive. Vehicle loading should take place the same day a vehicle is scheduled to leave. If this is not possible, store loaded vehicles indoors or provide adequate protection in the area where they are parked. Lock all vehicles when left unattended.

## **Social and Political Targets**

One of the most volatile categories of incendiary targets is the social or political target. The types of facilities

within this category change often depending upon political, social and economic factors. Examples of groups that have been in this category in the past are defense and energy-related industries.

Facilities that are targeted for social or political reasons are often highly automated and function with a staff that is small in relation to the property size, making it difficult to detect intruders. Attacks on these facilities may also include bombings. Therefore, strict control of unauthorized access is critical. Intrusion security can best be handled by a combination of fencing, lighting and guard service.

A company within this target category should completely enclose its facilities with a fence that is seven feet high with several strands of barbed wire at the top slightly tilted toward the outside.

Lock all gates unless there is an entrance guard on duty, and light the area within 10 feet of the fence. Lights should be arranged so that they will not restrict the vision of guards within the protected facility. If practical, the fenced perimeter should be patrolled. A complete tour should be made each hour, but the time and route of each round should be varied and unpredictable.

If the perimeter is too large for foot patrol, motorized transportation should be used. As an alternative, perimeter fence alarms and contact alarms on exterior building doors can be installed. These alarms should be monitored constantly at an attended location.

Patrol inside the building as well, particularly areas containing flammable liquids or other combustibles. Again, these patrols should be done on an unscheduled basis, averaging at least once an hour.

## **Locations That Have Experienced Arson**

Firesetters usually have a motive. If their first attempt fails, they will very often return to try again. Statistics show that locations that have incurred one incendiary fire are much more likely to have others.

The likelihood of a second attempt is highest within the first few weeks following the initial fire, and subsequent attempts are more successful because the firesetter has learned from the first attempt. After any suspicious incident, a company should temporarily increase its level of protection and security. These recommendations include checking sprinkler control valves daily at random times. Entrance points should also be checked daily to ensure that locks, hinges, frames, skylights, roof hatches, fences, gates, doors and windows are in good repair.

Particular attention should be paid to openings leading to areas where combustibles are stored.

## **Nontarget Properties**

Precautions against incendiary attacks are worthwhile even at nontarget properties. Many of these precautions will help protect a facility from accidental fires as well. Good housekeeping practices, effective emergency planning and tight security will limit opportunities for the incendiary. Primary emphasis should also be placed on maintaining adequate automatic sprinkler protection. Of the 35 major incendiary fires (losses more than \$1 million) investigated by Factory Mutual from 1982 through 1986, 30 of the locations were lacking adequate sprinkler protection or existing sprinkler protection was obstructed.

Removing conditions that the incendiary can use to his or her advantage will also reduce the threat of intentional fire. For example, an accumulation of trash is a common ignition point because fires starting here will often seem accidental. The buildup of trash, soiled rags and other debris should be controlled. Approved waste cans should be used and emptied at the end of each operating shift.

Idle pallets are also a source of fuel and an ideal location to start a fire without being caught. Cluttered storage areas provide concealed locations where fires can grow unnoticed. Good housekeeping cannot prevent deliberate fires, but it can reduce conditions that could aid the incendiary.

Maintaining protection equipment is equally important. Emergency planning should include a well-trained emergency organization and regular inspections of sprinkler control valves. These valves should be locked in the wide-open position with sturdy locks, chains or other devices that are resistant to breakage except by bolt cutters.

Exterior doors should be checked weekly to ensure that they are in good repair and that the locks are operating properly. Keep doors that could be used by unauthorized entrants locked, and install dead bolt locks having a throw of at least one inch. Fire exits should be arranged to prevent outside entry.

In addition, security should include close supervision of non-employees. Require visitors to sign in and out, wear visible visitors' badges and be accompanied by company personnel whenever possible. When employees enter the building, their identification cards should be checked as well. When practical, ask employees to remain in their own work areas, except for work-related reasons.

Choosing employees carefully may also reduce the po-

tential for incendiarism. Within legal restrictions, check the backgrounds of potential employees. Guards, maintenance personnel and others who will have unsupervised run of the plant should be chosen carefully. For example, try to find out from previous employers if the applicant is prone to arguments or violent disagreements.

Existing security personnel should also be supervised to reduce the risk of incendiarism by employees with freedom throughout the plant. Keep records of all false burglar and fire alarms, and review them periodically for apparent patterns.

## If The Incendiary Strikes

As in any emergency situation, train employees to respond properly to an intentional fire. The fire department should be contacted and the company's emergency organization should be alerted. Then, the employee who discovers the fire may be able to control it with an extinguisher or fire hose.

During and after the fire, it is important for employees to be observant. Employees should try to note the time and exact location of the fire. Is the location somewhere — such as a store room or closet — where a fire wouldn't normally start? The color of the flame and smoke can be important clues, along with the spread pattern of the flames. Variations in these areas may indicate how and with what accelerant the fire was started.

Management faced with such an emergency must encourage input from employees. Because employees are familiar with their work areas and the habits of their co-workers, they are in a unique position to observe and provide valuable information to the fire investigator. ♦

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### AIRPORT OPERATIONS

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