



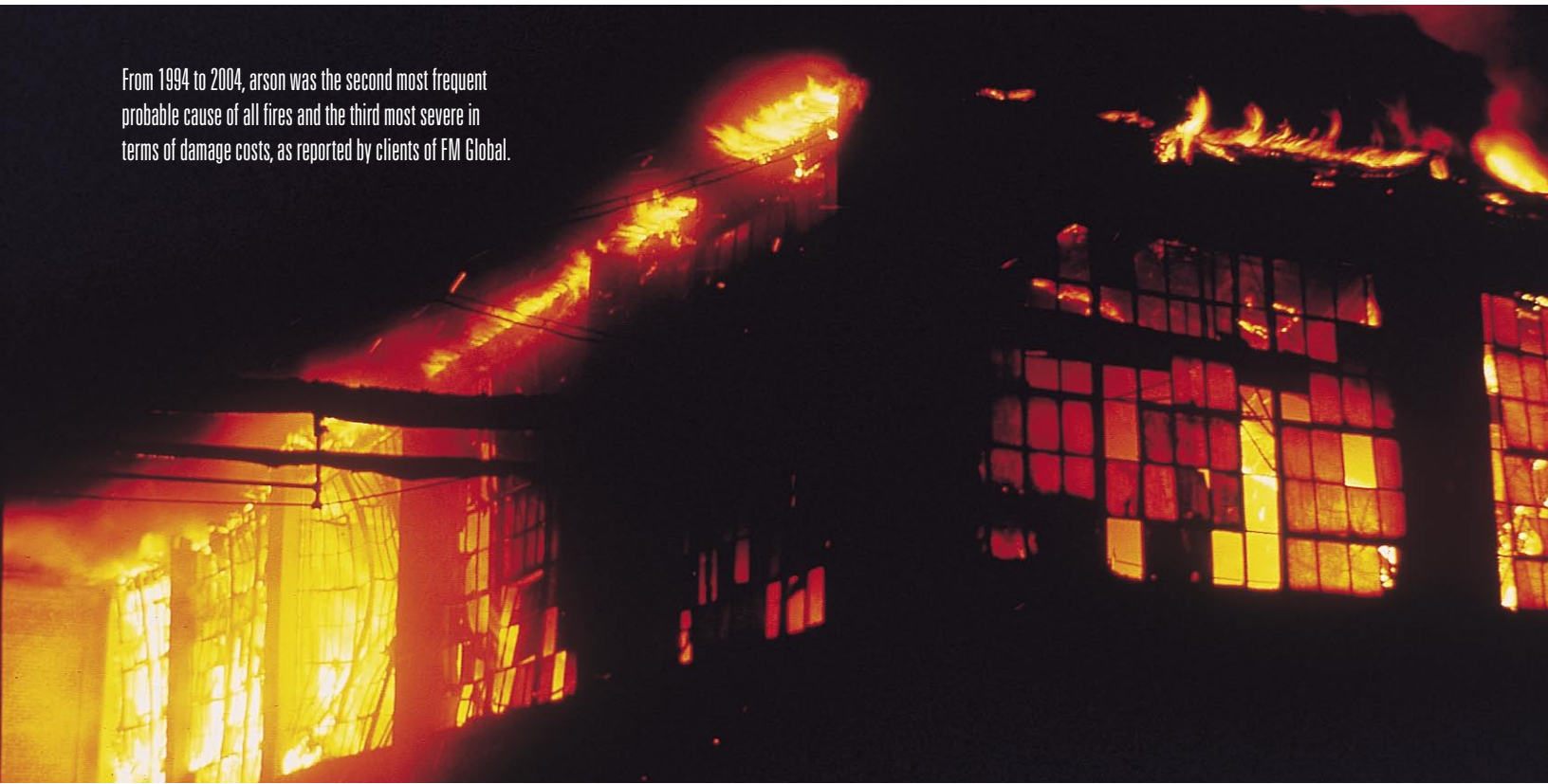
# Reducing the Arson Threat

FM Global



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From 1994 to 2004, arson was the second most frequent probable cause of all fires and the third most severe in terms of damage costs, as reported by clients of FM Global.



**A**rson, also called incendiarism, can strike at any time, day or night. And, the target isn't always an abandoned building. Arsonists have been known to target new, occupied and well-protected facilities as well, and no property owner or manager can afford to be unprepared.

### Arson Strikes Every Day

The cost of property loss caused by arsonists—people who maliciously set fires—is monumental worldwide. Billions of dollars are spent in the United States alone every year on arson-caused damage. Studies show that, from 1994 to 2004, arson was the second most frequent probable cause of all fires and the third most severe in terms of damage costs, as reported by clients of FM Global.

## What Motivates Arsonists?

Arsonists strike for a variety of reasons: to conceal crimes; because they are acting out of jealousy, political activism, revenge or spite; or simply for thrills and vandalism.

Unhappy or disgruntled former employees are particularly dangerous. They likely know the easiest ways to access your buildings. In too many facilities, they can enter and move about freely. Because other employees know them, they may be above suspicion.

Some types of facilities are more vulnerable than others. FM Global analysis shows the following five classifications reported the most arson fire losses in North America from 1994 to date:

1. Manufacturing plants
2. Department stores, malls and offices
3. Residential buildings, including hotels, motels and apartment complexes
4. Storage facilities
5. Public facilities

Facilities experiencing labor problems, such as layoffs and strikes, are highly vulnerable, and could be even more vulnerable if the property:

- is located in an economically depressed area or urban setting known for vandalism
- is vacant, especially if it contains readily burnable materials
- has social or political ties

## Don't Make It Easy

Any area that can be entered and ignited easily is a likely target. Outside yard storage containing easy-to-burn stock is attractive to intruders. Most arson fires start in storage areas. If those areas are unsprinklered, they are likely unprotected. FM Global investigations show that, during the past 10 years, unsprinklered buildings and those with non-operating fire protection contributed most to the cost of arson fire losses.

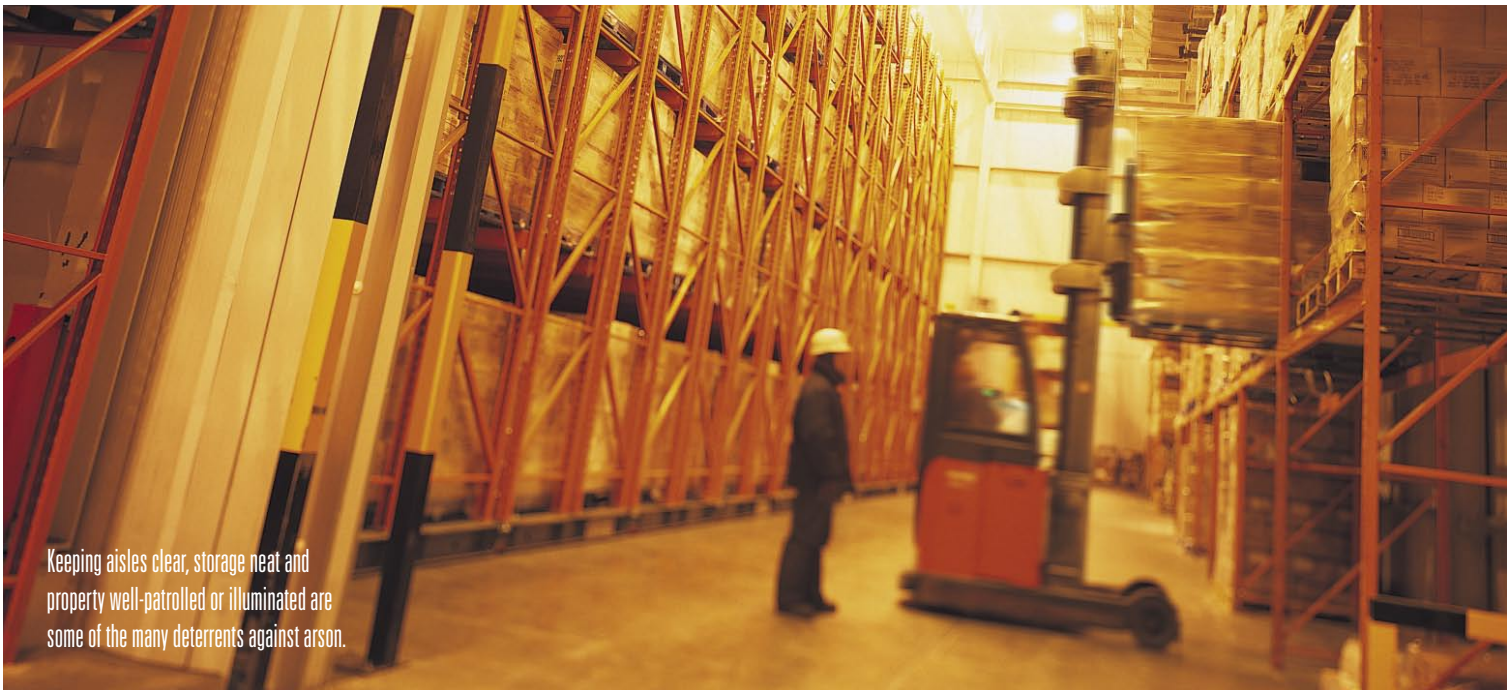
## Plan Your Strategy

Even if your business has tight security and is an unlikely target for arson, you should take measurable precautions:

- Maintain fixed protection systems. Sprinkler protection operating properly at all times is an essential safeguard against arson fires.
- Control access at all times—not solely when you're open for business or when production is most active. Although many arson fires start during normal working hours, most do not. The most vulnerable times are weekdays from 6 p.m. to 6 a.m. and weekends.



Lock all sprinkler valves open. A shut valve is the perfect catalyst for a successful arson strike. Sometimes arsonists shut valves, and then set the fire.

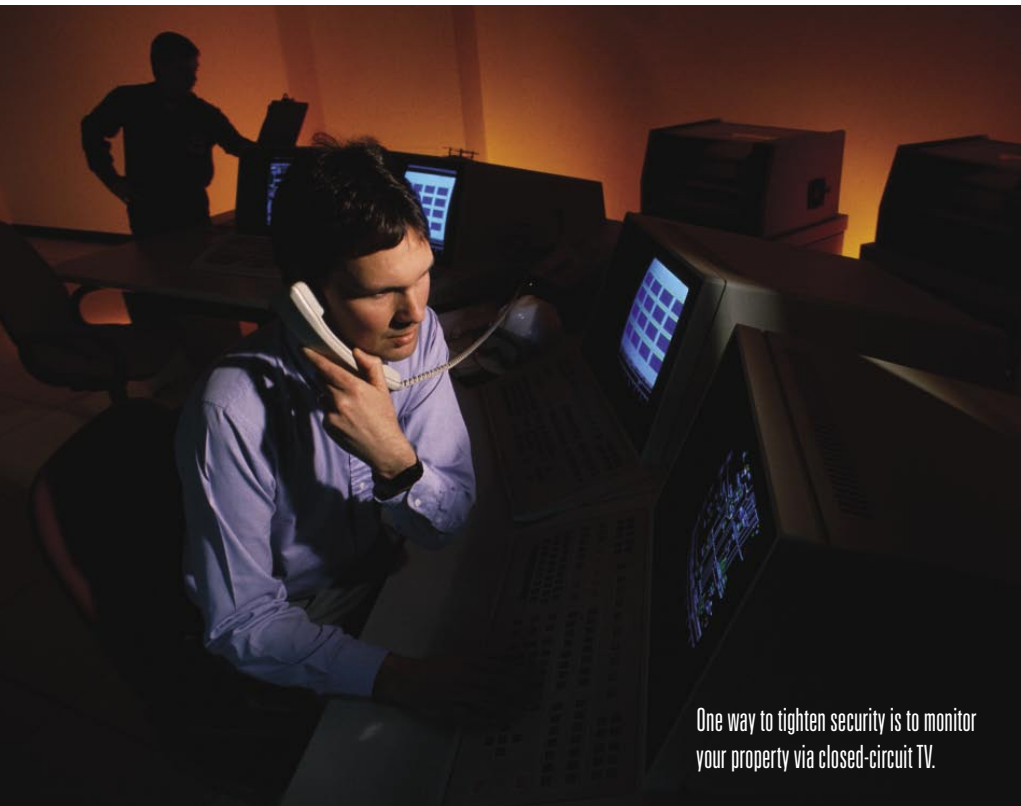


Keeping aisles clear, storage neat and property well-patrolled or illuminated are some of the many deterrents against arson.

## The 12-Step Approach

Whether or not you're a potential arson target, you should follow the 12 precautions listed below. While this list is by no means complete, taking these steps will get you started:

1. Lock all sprinkler control valves open using sturdy locks, chains or other securing devices that can't be easily broken.
2. Control access to all non-public building areas. Require non-employees to sign in and out, wear a distinctive badge and be accompanied by facility personnel whenever possible. At non-manufacturing facilities such as hotels, schools and apartment buildings, restrict non-employee access to public places.
3. Control high-value storage. Isolate it from general storage areas where fires could potentially be set to hide theft. Controls consist of security fences, locks and alarm systems. Restrict access only to employees who must be in the area.
4. Keep yard areas and remote entrances well lit.
5. Provide a high degree of security as decided by a well-informed management, and closely supervise security personnel. Audit records periodically to reduce the risk of arson from someone who is free to move about in any area of the business.
6. Screen potential employees. Carefully choose guards, maintenance personnel and others who have unsupervised access to the location, especially after normal working hours.
7. Check all employee identification cards as employees enter the building.
8. Provide emergency response planning authorized by a committed management team and carried out by a well-trained emergency response team (ERT) on all shifts.
9. Prevent trash, soiled work rags and other combustible debris from accumulating. Use FM Approved waste cans, and empty them at the end of each shift.
10. Check exterior doors weekly to make sure they are in good condition and door locks are operating properly. Close and lock all exterior doors subject to unauthorized entry. Provide deadbolt locks (with a throw of at least 1-in. [25-mm]) for all exterior doors. Arrange fire exits to prevent outside entry. Check all building openings at the end of each day.



One way to tighten security is to monitor your property via closed-circuit TV.

11. Keep valuable drawings, records and similar materials in fire-rated watertight vaults or safes. Whenever possible, make duplicates and store them in a separate area.
12. Keep a record of all false burglar and fire alarms. Audit these periodically after each false alarm to see if a pattern is apparent. Arsonists sometimes test the response of the facility and local authorities before striking.

#### **Additional Precautions**

If your business has certain traits, you may need a higher level of protection. For example, you may be located in an urban or high-crime-rate area, or your property already has been the target of vandals. If you're in a mercantile area, you're vulnerable because the public can enter and leave your property freely. If any of these conditions apply, you should consider adding the following eight precautions to your 12-step strategy:

- Require employees to remain in their own work areas. Permit travel to other areas only for work-related reasons.

- Increase security by fencing and monitoring the property via closed-circuit TV.
- Consider deterrents such as interior lighting, strategic location of trap-type burglar alarms, and substantial grillwork over windows. You might even consider hiring a contract guard service for exterior mobile patrol duty. But, do not use contract guards as an alternative to watch services staffed by your own personnel if you need a continuous, high-level security service.
- If automatic sprinkler protection is not provided for combustible storage, relocate such storage to a protected area until automatic sprinklers can be installed.
- Control access to areas containing flammable liquid and, if practical, keep access doors locked.
- Maintain lighting for a 10-ft. (3-m) radius around exterior entrances and fences in all areas containing large quantities of combustible storage.
- Use the local police and public fire service as resources by coordinating interim and permanent protection programs with them.
- Regularly spot-check normally unattended areas containing combustible storage or flammable liquid during working hours. Don't set a predictable pattern by conducting security checks at the same time each day; do them as openly as possible and record them. Install a burglar alarm as an alternative.

Properties that have experienced an arson fire need the highest protection possible. Loss trends show that, once a business has experienced an arson fire, the likelihood of a second attack increases. It's more likely to happen in the first few weeks after the incident and likely will ignite a more severe fire, which is why the highest level of protection and security is essential.

## Arson-Prone Facilities

If your facility has experienced an arson fire, we recommend adding the following precautions to your 12-step approach:

- Check sprinkler control valves daily at random times.
- Check all entrance points daily to ensure locks, hinges, frames, doors and windows are in good condition. This includes skylights, roof hatches, fences and gates.
- Watch for openings leading to areas containing large quantities of combustible materials.
- Change (or re-key) the locks. This is especially important if the first fire started in a locked area and there was no sign of forced entry.
- Hire a temporary watch service if the business is in an especially vulnerable area. (The area may have a high crime rate, be remotely located or have a history of arson attacks.)
- If sprinklers are provided appropriately and Class VI alarm supervision is installed, an FM Approved burglar alarm system may be a sufficient alternative to a watch service, but make sure the alarm system covers all entrance points or all floor areas. The system should be supervised at either an FM Approved central station or a constantly attended location, or someone should be present to respond at all times.
- Check exterior and interior areas at least once an hour.
- Check areas containing flammable liquid or combustible storage every hour or on an unscheduled basis, averaging at least once an hour.
- Restrict movement to immediate work areas if the arsonist is suspected to be an employee. Provide more supervision as needed.

## Strikes and Layoffs

The arson potential increases when a business is going through extended strikes, work stoppages, slowdowns, layoffs and other labor problems. Arson can be hard to prove, especially if the intruder knows the building and security arrangement well.

Someone who knows where to strike the match or how to carry accelerants could ignite a fire in seconds. It's surprising how many arsonists are aware of fire protection systems and how to shut them down. They may know in advance where to get keys to locked areas or where entrances are poorly secured. When a company is on strike, temporary personnel are often on duty; and, during layoffs, cutbacks can affect emergency-response capability.



Watch services and patrolling of property are highly effective in preventing arson.

At right:  
Without outdoor lighting or security patrols, an abandoned warehouse is an ideal target for an arson strike.

Far right:  
Pallet storage can be a perfect vehicle for fire spread, especially if it is adjacent to a building.



Be aware of two typical conditions:

- During a strike, temporary personnel are likely unfamiliar with the sprinkler system operation and other duties normally assigned to the ERT.
- During a layoff, members of the ERT may not be available. It's essential to review assignments before layoffs to make sure replacements are appointed and trained.

Follow the 12-step approach outlined on page 3, plus the recommendations for properties having experienced an arson fire, outlined on page 5. Then, add three more:

- Assign and train available personnel to perform major duties of the ERT. Businesses experiencing layoffs should review the ERT and change assignments as needed.

- Make an effort (during a strike) to involve union leaders in the protection program.
- Keep protection active for 30 days after a layoff or strike, and then gradually return to normal.

## Vacant Buildings

Vandals, vagrants and firestarters frequently target vacant buildings. If the outside of the building and adjacent grounds deteriorate, arson potential increases.

- Provide an automatic sprinkler system designed to operate in cold weather (without potential for piping freeze-up) if it is impractical to keep the building heated. The type of system and design should meet existing FM Global standards. Do not drain the wet-pipe sprinkler system and leave the facility unprotected.



- If the property is valuable, provide alarm or watch service, and a prompt, reliable means of communication for the service. Buildings of lesser value still should have periodic human surveillance, usually with supervision of waterflow alarms.
- Maintain exteriors of buildings and adjacent grounds. Cover broken windows with wood. Secure all doors.

## Social or Political Targets

The need for increased protection will change as political, social or economic factors change. An arson attack may include a bombing. Therefore, while sprinkler protection is essential, strict control of unauthorized access is even more so.

Many vulnerable facilities are highly automated and operated by few employees in proportion to property size. Because the construction often is sprawling, the buildings are windowless and the noise level is high, the best access control is a combination of fencing, lighting and guard patrol.

- Enclose the building with a high-security fence. It should be 7-ft. (2.1-m) high with several strands of barbed wire at the top slightly tilted toward the outside. Keep gates in the fence locked closed unless an entrance guard is in attendance.
- Light the area within 10 ft. (3 m) of the fence. Make sure the lights are not “blinding” to the guards inside the protected area.

- Patrol the fence perimeter, completing a tour every hour. Vary the spacing of each round, and take different routes to keep the tour unpredictable. If the perimeter is too long for foot patrol, use motorized transport.
- As an alternative to patrols, install perimeter fence alarms and contact alarms on outside building doors. Monitor alarms at a constantly attended location or with an audible bell for guards.
- Patrol all building areas containing flammable liquid or combustible storage on an unscheduled basis, averaging at least once an hour. As an alternative, use an FM Approved burglar alarm system if it covers all entrance points or all floor areas, and if the area is completely sprinklered with adequate alarm supervision.

## Yard Storage

Yard storage, including flammable liquid tanks and natural gas equipment, may be exposed to arson fires, even if the business is not a target. Such storage may be located in areas that are easy to escape or access. An arsonist can attack without entering the property if storage is near the property line. Also, children playing can cause an accidental fire. Combustible storage, combined with the lack of a fixed protection system, can allow a fire to spread rapidly. Most of the time, the entire storage area will be fully compromised by fire within five to 10 minutes. A quick response by the ERT is essential.

Loaded trucks or railroad cars on the premises also are easy targets. Even if the contents are noncombustible, trucks can be severely damaged if their fuel tanks explode.

To protect yard storage from arson:

- Fence the entire yard and locate storage at least 50 ft. (15 m) from the perimeter. If this is not practical, fence the storage and keep a clear space of at least 4 ft. (1.2 m) between the fence and storage. This will not prevent fire bombing, but it will prevent an arsonist from reaching through the fence to ignite the storage. Keep the clear space wide enough for patrol vehicles.
- Construct fences as outlined for control of areas that might be targeted by arsonists motivated by social or political reasons. If possible, position gates so they are visible from occupied plant areas.
- Light the fence and surrounding ground area within 10 ft. (3 m). It is best to light the entire yard storage area.
- Check the area on an unscheduled basis every hour, or provide intrusion alarms. These may consist of perimeter fence alarms or beam-type detectors designed for outdoor use. The detectors should encircle the area completely and be supervised at a constantly attended location, or connected to an audible bell, if guards are present.
- Provide hydrants and fixed protection for tanks and transformers in accordance with FM Global *Property Loss Prevention Data Sheets*.
- Provide hydrant protection for the yard storage area, and keep the yard clear of vegetation and other unnecessary combustible material.
- Unload trucks or railroad cars as deliveries arrive. It is best to load vehicles on the same day as the delivery. If this is impossible, store delivery vehicles indoors, and keep them locked and secured when left unattended.

## Bombs and Explosives

Security plays the largest role in deterring a bomb threat. Fencing and lighting, increased security rounds and personnel controls are the most effective measures. The potential is greatest when terrorists or politically radical groups are involved.

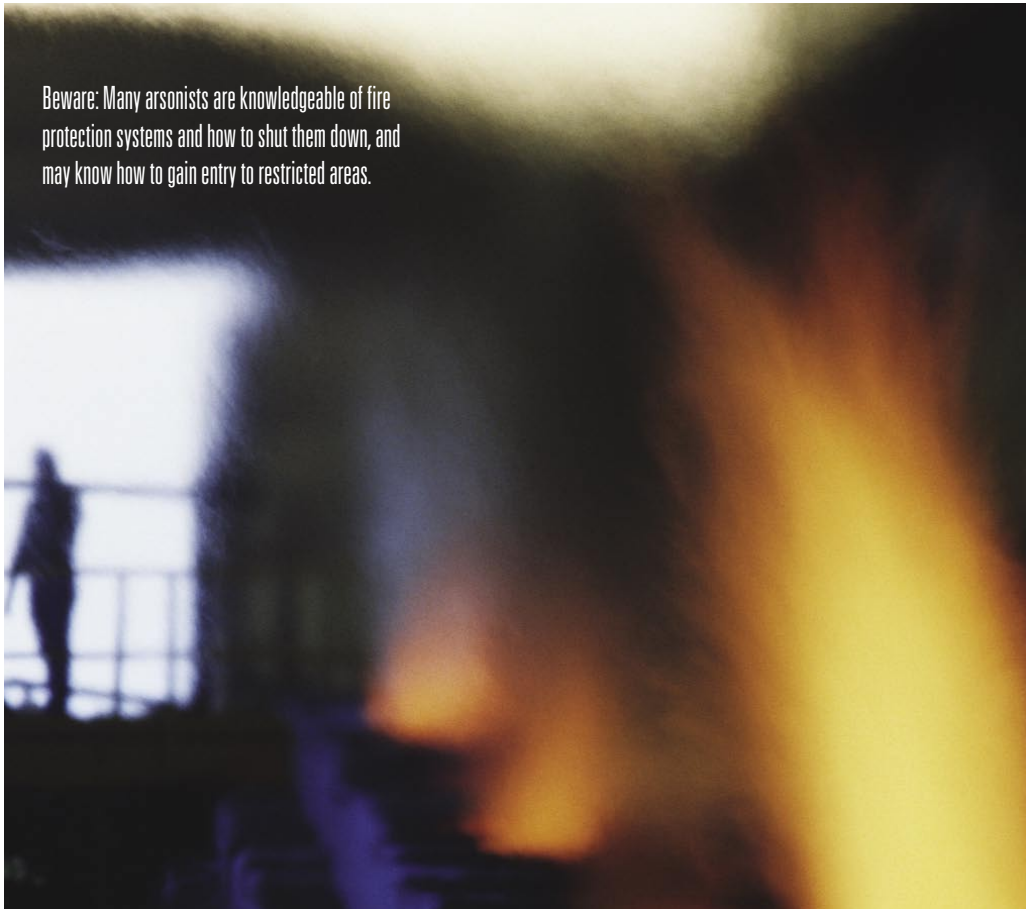
Notify law enforcement and fire service agencies immediately upon receiving any threat. The following facilities are particularly vulnerable:

- Large corporations highly active in a local community, especially if the location is involved in a controversial industry (chemical manufacturing, lumber, etc.)
- Facilities near a scene of disruptive activity
- Facilities actively involved in political or social issues

If your business receives threats by letter or phone, or has experienced a bombing, implement the 12 steps outlined on page 3 and the precautions listed for properties prone to an arson fire, outlined on page 5. Notify local police and fire services immediately.

## Investigating an Arson Fire

With the number of arson fires rising annually, early detection has become increasingly vital. By quickly identifying the cause of fire as arson, investigators and arson task forces can concentrate on identifying and prosecuting the perpetrators. An excellent FM Global resource for fire investigators is the *Pocket Guide to Arson and Fire Investigation* (P7923), which also



Beware: Many arsonists are knowledgeable of fire protection systems and how to shut them down, and may know how to gain entry to restricted areas.

is available in U.K. (P7923UK) and French for Canada (P7923CF) versions. It presents, in condensed form, the various stages of a fire from alarm through extinguishment, evidence collection and investigation. It also identifies what clues to look for and cites the top causes of fire and explosions at FM Global-insured properties.

## Arson is Preventable

These days, with more investigating organizations using better equipment and smarter techniques for tracking down the firestarters, incidents of arson and loss costs should drop. But, they

haven't. It takes more than detection to stop this crime. It takes awareness, plus dedicated management and solid prevention programs.

For more information, contact the arson coordinator in the FM Global office closest to you. For a complete list of FM Global office locations, refer to our Web site at [www.fmglobal.com/contacts](http://www.fmglobal.com/contacts).

A review of FM Global *Property Loss Prevention Data Sheet 9-17, Protection Against Arson and Other Incendiary Fires*, also may be helpful.

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