

THE PREVENTION OF ARSON IN COMMERCIAL PREMISES



The prevention of arson in commercial premises

The occurrence of arson can be reduced and its effects controlled if consideration is given in advance to identify potential threats and effective protection measures. An arson risk assessment should be carried out as part of the fire safety risk assessment procedure required by the Regulatory Reform (Fire Safety) Order 2005.

The plan against arson should be part of a fully integrated management programme covering all aspects of risk. The objective is that business continuity is maintained whatever the threat that is presented.

A management plan to combat arson includes the following elements:

- The arson risk assessment
- Security measures
- Passive and active fire protection measures
- Fire safety management procedures

The Arson Risk Assessment

There are many ways in which an arson risk assessment may be carried out. The main consideration is that features relating to the occurrence of arson are considered in a logical and structured way.

In every company a named person of senior grade should be made responsible for fire safety, including protection from arson attack. This person should be appropriately trained and competent to conduct a risk assessment.

The risk assessment should be recorded and regularly reviewed.

An Arson Risk Assessment Model

Step One

Study the vulnerability of the building:

- Externally
- Internally

Look at the building and what goes on within it. Note the possible ways in which fires could be started deliberately. Identify the vulnerable points both inside and outside the buildings and in the external areas within the building perimeter. In addition, consider the area in which the business is located in order to assess the likelihood of an arson attack in the neighbourhood.

Step Two

Identify the fire hazards:

- All possible sources of ignition
- Flammable liquids and gases, combustible materials (including waste), furniture or furnishings and combustible elements of the structure
- Structural features that could lead to the spread of fire

A key element of the arson risk assessment is to identify, and reduce as far as is practical, the sources of ignition and combustible materials that are available to the opportunist arsonist. Although it is recognised that these cannot be eliminated completely, steps can be taken to eliminate or reduce the threat (see Step Four). Steps should be taken to identify voids, unprotected ducts, unstopped gaps around services and similar features.

Step Three

Identify the people who could start fires deliberately: intruders, visitors and members of staff. Also consider the people that will be affected, especially anyone with a disability.

All staff should receive appropriate training so as to be aware of the danger of arson, and the threat that it presents to life and jobs. Everyone should take part in regular fire drills and be aware of the need to assist people with any form of disability.

Step Four

Eliminate, control or avoid the threat.

Where possible, action should be taken to remove potential sources of ignition, flammable liquids and combustible materials from the workplace. It may be possible, for example, to replace a flammable solvent with a non-flammable one with similar properties. Checks of the premises should be made last thing at night, especially when contractors have been present. A fire risk assessment should be undertaken and appropriate action taken as necessary.

Step Five

Consider whether the existing security provisions are adequate or need improvement .

Ensure that the best use is made of existing security measures before considering new complex or expensive installations or procedures. For example, many intruders enter buildings through windows or doors that are left insecure so ensure that a check is made at the end of each day.

Step Six

Consider whether the existing fire safety provisions are adequate or need improvement .

Much can be done, often at little cost, to reduce the threat of arson and limit the horizontal and vertical spread of fire; effective compartmentation is a key element in reducing the damage caused by fire. The installation of a sprinkler system that will not only sound the alarm but will automatically fight the fire is a further advance in protection.

Step Seven

Allocate the risk category and record the findings.

Allocating the risk category need not involve complex mathematical formulations. A simple low, medium or high categorisation for each part of the premises may be sufficient.

Step Eight

Prepare a business continuity plan.

The business continuity plan should have a clearly defined purpose. Key members of staff should be identified and their roles defined. Key contractors should be listed with their contact details. Provision should be made for staff welfare as well as practical steps to ensure that the effect on business operations is minimised. A copy of the plan should be kept off the site.

Step Nine

Carry out a periodic review of the assessment.

The assessment should be reviewed if the nature of the business, the number of staff, the materials used and or the character of the neighbourhood changes significantly.

Security Measures

Effective security measures make a positive contribution to reducing the threat of an arson attack.

The security measures that should be assessed in Step Five of The Arson Risk Assessment may include:

- Perimeter protection.
- The strength of the building envelope.
- Access control.
- The detection of intruders.
- Security lighting.
- CCTV systems.
- Staff relations.
- Awareness of activities of pressure groups who could target the premises.

Priority should be given to keeping intruders out, especially when the premises are not occupied. Attention must be paid to primary measures like the sighting and securing of windows and doors, locks and bolts, fences and gates. Weak points in perimeter protection that have to be considered may include letter slots, air vents and louvered windows.

The security programme must include accountability for keys and proper authorisation for their issue. A register should be maintained and all keys accounted for at the end of each period of work.

Suitable precautions must be taken to identify legitimate visitors or, where appropriate, restrict the areas to which members of the public have access.

Where buildings are unoccupied at night or at weekends, serious consideration should be given to the installation of intruder detection equipment as well as an automatic fire detection system. The former will, of course, detect fire raisers as well as other intruders; the sounding of a local alarm may result in the trespasser leaving the premises rather than starting a fire. Alarm installations should be monitored by an approved central monitoring station to ensure that the police and / or fire brigade are summoned without delay. Fire and intruder alarm installations should be carefully sited to protect against sabotage.

The installation of Closed Circuit Television (CCTV) has a high deterrent effect. CCTV systems which are not monitored have limited value. The equipment must be installed to suit the prevailing conditions. These systems should incorporate suitable recording equipment. Specialist advice should always be sought before installation.

If there is no 24 hour security presence on the site, frequent, but irregular visits by mobile security patrols outside normal working hours can be a deterrent against arson and other crimes.

Perhaps the most cost effective measure against the arsonist is an alert and motivated workforce. All staff should be trained to challenge strangers. A simple 'Can I help you?' may be sufficient to deter a potential arsonist and enhances the organisation in the eyes of legitimate visitors. Not all arsonists come from the outside and so management have a duty to ensure that only trustworthy staff are recruited. This means that references for new staff should be sought and checked. This is particularly important when considering staff that may have to work alone or outside normal working hours. Temporary members of staff and contractors should not be left to work unsupervised.

Entry to isolated or less used parts of the premises, such as storerooms and warehouses should be restricted and monitored.

As arson attacks often follow acts of petty theft and vandalism, security staff should be vigilant and take note of such crimes in the neighbourhood. Keeping a log of such incidents may help in assessing the likelihood of a deliberate fire occurring?

Advice on security measures, the utilisation of security companies and the training of staff can be obtained from the British Security Industry Association and the National Approval Council for Security Systems. Advice regarding the design of new buildings may also be sought from police architectural liaison officers.

Passive and Active Fire Protection Measures

All measures that are taken to protect a building from accidental fires have a part to play in reducing the effects of a deliberately started fire. These measures include:

- The division of a building into individual fire compartments and the construction and lining of these using materials of suitable fire resisting properties. This is known as passive fire protection.
- The provision of appropriate and cost-effective equipment to detect and fight fires. This is referred to as active fire protection.

Passive fire protection

Passive fire protection is based on the principle of containment; the compartments of the building are constructed so that if a fire should occur, it will be restricted to one area. For example, fire doors should prevent the spread of smoke and flames from lobbies, stairwells and lift shafts.

Another example of passive fire protection is the design of escape routes, which should not incorporate combustible wall, ceiling or floor linings. Fire dampers should be installed in ducts where they pass through compartment walls and holes in such walls around cables and other services should be fire stopped.

Doors and shutters in compartment walls should be able to withstand the effects of fire for the same period of time as the walls themselves. One of the most common ways in which fires are started in buildings is by introducing burning materials or flammable liquids through the letter slots. Several proprietary products are available which can help to reduce the effects of attempts to light fires in this way. These devices take the form of sheet metal containers that catch the materials. Some of the containers incorporate a fire extinguisher that operates automatically in the event of a fire.

Active fire protection

Active fire protection systems may detect or extinguish a fire, with a water sprinkler or inert gas flooding installation performing both functions. An automatic fire detection installation will detect heat or combustion products of a fire in its early stages and raise the alarm. Such systems should be monitored remotely when the building is not occupied to allow the fire brigade to be summoned without delay, thus reducing the damage. A sprinkler installation will release water from the heads nearest the flames with flow switches raising the alarm in a similar way to a conventional detection system.

Automatic fire detection and alarm panels should be installed near the door or entrance that the fire brigade would be expected to use when they arrive in an emergency. This is because they will be able to provide the fire fighters with important information as to where the fire was initiated and how it developed. Fire alarm panels may be interrogated following an arson fire to provide the police and fire investigators with similar background information. In the same way the security alarm panel may also be analysed to establish where, how and when intruders gained access to the premises.

On occasions attempts have been made to sabotage security and fire protection measures. Passive fire protection measures have also been compromised by wedging fire doors or shutters open and moving combustible materials to intensify the fire. Although it has occurred comparatively rarely, valves and fire alarm panels of active systems have also been tampered with and this possibility should not be overlooked when security measures are being reviewed. In particular, meeting rooms, valve sets and pumps of sprinkler installations should be suitably protected.

To assist in routine inspections and deter attempts to sabotage sprinkler systems:

- Valve sets should be located together in a single room for ease of protection.
- Valves should be clearly labelled, and be strapped and padlocked in the open position with this position being easily verifiable.
- Valves should be fitted with microswitches monitored at a central location to detect tampering.
- Fuel intakes, engine cooling systems and exhaust outlets for pumps should be protected.
- Emergency stop switches must not be accessible to unauthorised persons

Following a fire the sprinkler system should be checked to ensure that it operated properly and that any possible malfunctions are investigated thoroughly.

Neither passive nor active fire protection measures can be installed and then forgotten, they require regular inspection and maintenance. Service contracts should be established with accredited contractors for installed equipment but the fire safety manager should also ensure that regular inspections are made of escape routes, fire doors and housekeeping standards and that suitable record of such inspections are kept.

It is important that specialist advice is sought regarding both passive and active protection for the premises. Whenever possible, products and services that are selected should be those that have been subject to third party certification by an organisation such as the Loss Prevention Certification Board.

Additional information assistance may be obtained from the fire safety department of the local fire service, the insurer, the British Fire Protection Systems Association, the British Automatic Sprinkler Systems Association or the Fire Protection Association.

Fire safety management procedures

Many fires are started deliberately in areas with a known history of vandalism or fire setting. Piles of rubbish are often targeted by opportunist arsonists and careful management of waste and storage materials is therefore critical.

No waste material should be allowed to accumulate anywhere in the premises, at the perimeter fence or on the roofs. Some items of stock or raw materials will be easily ignitable, and special precautions should be taken to store them in an area with maximum surveillance and/or protected by an automatic extinguishing system. Hazardous and dangerous materials and substances will also require particular safety/security measures. Flammable liquids must always be kept in a locked store room or purpose built enclosure. Stored materials of any kind should not be stacked adjacent to the perimeter fence or the walls of the building where they could be ignited from outside. Care should be taken in the parking of vehicles not to provide an easy target. Undergrowth should be removed from fence lines on a regular basis. Due to the seriousness of the problem, The Fire Protection Association has published a Code of Practice governing the handling of waste materials.

Several factors relating to designing a building in order to reduce the possibility of an arson attack and monitoring the vulnerability of the building and its surroundings are included under the section on 'passive fire protection'.

More advice and guidance, particularly in relation to the external security of buildings can be found at www.securedbydesign.com

There are, however, a number of fire safety management factors that have to be considered separately in every company, depending on the premises they occupy the nature of the business and the ethos of the organisation. These tend to be the people-related factors which hinge around staff relations and an effective fire safety training regime.

All staff should be given training relating to the dangers of arson and arson prevention. This should include:

- **Action to take in the event of a fire.** Everyone should be familiar with the sound of the fire alarm, the escape routes and, where appropriate, the use of the fire fighting equipment. Some or all of the staff will also need to be trained to call the fire brigade. Some members of staff may also need to be trained so as to help colleagues or members of the public with disabilities in the event of a fire.

- **Close down procedures.** Staff should be made aware of the procedures required at the end of each period of working to ensure that the premises are secure, there are no unauthorised persons remaining in the buildings and that all processes have been shut down safely.
- **Control of combustible materials.** Staff should be aware of the reasons for waste materials to be removed to a safe storage area regularly and be encouraged to act responsibly in this respect themselves. Similarly, staff should be made aware of the flammability or combustibility of the materials with which they work and any relevant measures that should be observed regarding their storage and handling.
- **Awareness of the threat of arson.** All staff need to be given, as part of their training programme, instruction as to the hazards and consequences of an arson attack. These include the potential threat to life, loss of jobs and disruption to the continuity of the business.

Good staff relations will enhance the degree of co-operation that management may expect from their workforce with regard to protecting the business from an arson attack from an outside source. Effective management will also reduce the likelihood of such an attack from a member of staff.

Close liaison should be maintained with the fire brigade, police and insurers in order that all practicable measures can be taken to reduce the likelihood of arson attack. As it is not unusual for a major arson fire to be preceded by one or more smaller attacks, any fire that does occur should be carefully investigated so that lessons may be learned and appropriate remedial action taken to avoid a recurrence.

Helping your business survive following a fire

In the event of a fire, a business continuity plan will be invaluable. Some 80% of firms without a business continuity plan will be bankrupt within five years of surviving a major disaster. The plan should be formulated in advance and written down. It should contain the procedures, plans, agreements, important phone numbers and other vital information which will enable a firm to resume operations in the most effective and shortest possible time following a disaster. A copy of the plan should be kept off site.