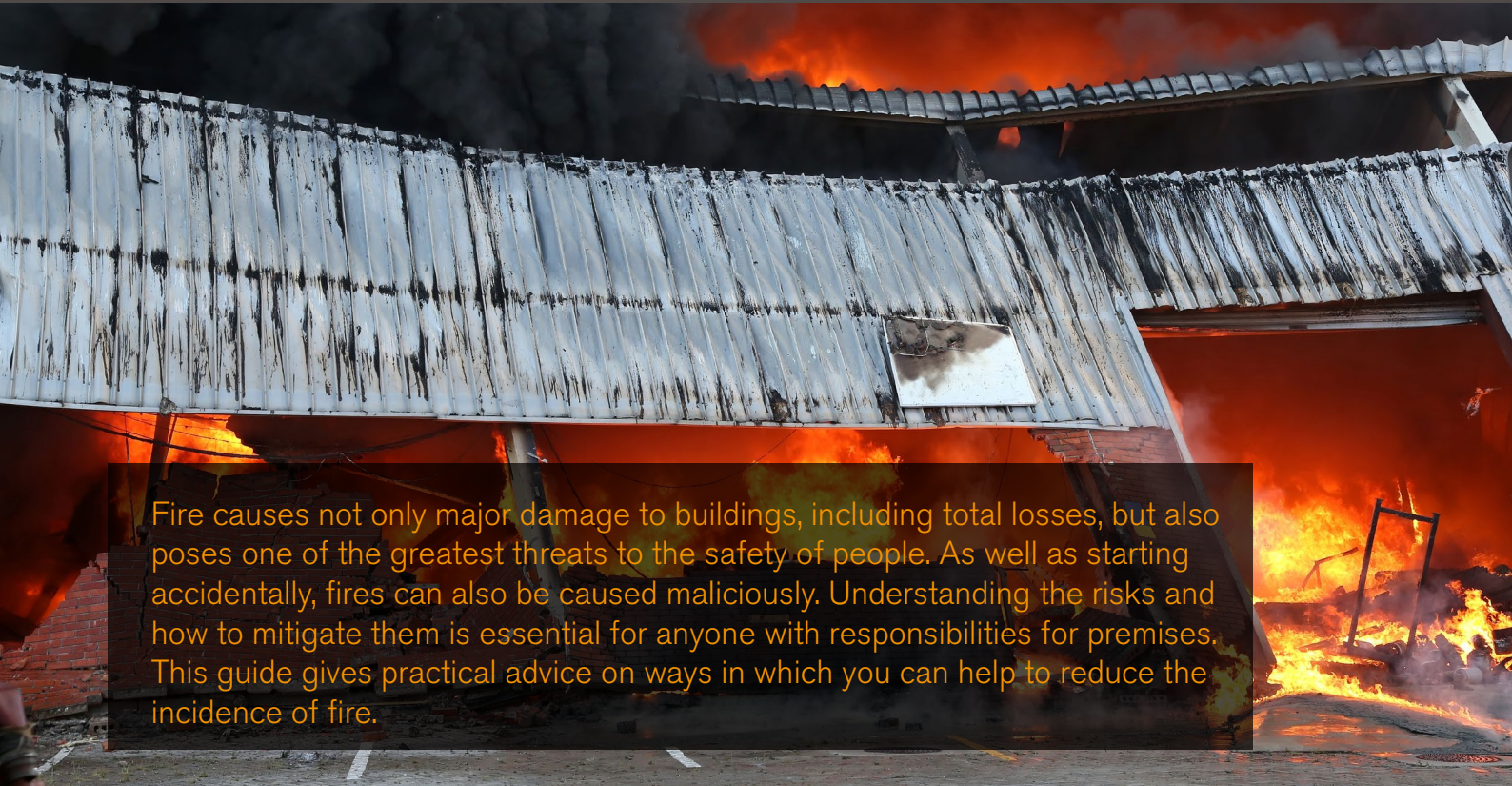


# Fire safety and fire risk assessment



Fire causes not only major damage to buildings, including total losses, but also poses one of the greatest threats to the safety of people. As well as starting accidentally, fires can also be caused maliciously. Understanding the risks and how to mitigate them is essential for anyone with responsibilities for premises. This guide gives practical advice on ways in which you can help to reduce the incidence of fire.

## Arson

The risk of arson can be related to a number of factors, such as:

- Availability of combustible materials/insecure waste storage arrangements
- Incidents involving burglary and vandalism
- Location in isolated or troublesome areas
- History of arson in the neighbourhood
- The height and quality of perimeter security fences, gates, etc.
- Inadequate lighting
- Poor levels of physical security
- Inadequate intruder alarm systems
- Political unrest, riot and civil commotion
- Your trade or occupation making you a target.

If you carry out an arson risk assessment as part of your fire risk assessment then the possibility of a successful attack against your premises by an arsonist can be reduced.

The psychology of arson can be considered as a topic in its own right but it is worth noting that, following research carried out by the UK's Arson Prevention Bureau, the main motives behind an arson attack are revenge, alcohol/drug addiction and mental health problems. Arson can also be used to conceal another crime eg fraud or theft.

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## Smoking

The Health Act 2006 banned smoking in all enclosed public places and workplaces in England with effect from 1 July 2007. Similar legislation was brought in earlier in 2007 for Wales, and in 2006 for Scotland.

The ban applies to all public buildings and workplaces including work vehicles and company cars. There are some exemptions, the legislation does not apply to private dwellings unless used as a workplace, and there are exemptions for the provision of designated smoking rooms in premises such as hotels, guest houses, hostels, members clubs, care homes, hospices and prisons.



Many organisations and employers now adopt smoking bans not only in their buildings but also throughout the grounds of their premises. The fact that smoking is now effectively banned in all buildings makes it even more important to ensure that illicit smoking is not taking place in areas such as toilets, maintenance workshop stores, boiler rooms etc. where the absence of ashtrays and other means of safe disposal increases the risk of fire.

You should consider developing a smoke-free policy based on an assessment of the workplace environment and the health and welfare needs of employees. The policy should also consider e-cigarettes and vaping, and should incorporate advice on giving up smoking.

Where you have determined that smoking can be permitted under controlled conditions, provision of a designated smoking area will be necessary. Smoking shelters are now a common feature of workplaces. These should be:

- Ideally located at least 10 metres from any other building
- Be open on at least three sides to provide adequate ventilation
- Provided with lidded metal bins or sand buckets for the disposal of smoking materials
- Kept free from combustible materials, storage and waste.

If the grounds of your premises are open to visitors, you may wish to consider providing similar designated smoking areas/shelters for the public to use. This will enable you to control smoking on your site.

## Fire protection

Fire protection equipment can consist of any of the following:

- **Fire extinguishers** – portable fire extinguishers can be used to put out a fire at an early stage, reducing damage. Staff should be trained in their use.
- **Hose reels** – hose reels, if installed, should only be used by Fire and Rescue Service personnel. They should not be used by staff. A number of Fire and Rescue Service authorities now suggest their removal in order to prevent their possible use by staff who could put themselves at risk. Hose reels may also be a source of legionella which could cause exposure during routine maintenance and testing. If you have hose reels fitted, ensure they are checked as part of your legionella management control procedures.
- **Automatic fire detection system** – heat/smoke detectors or air sampling systems will activate in the event of a fire and alert the building occupants via local bells or preferably sirens. Ideally the system should signal to an Alarm Receiving Centre (ARC) accredited to BS5979 Cat II or BS8591 Cat I, to generate a Fire and Rescue Service response. Buildings should be protected with a system installed to BS 5839 Part1: P1/L1 Category.
- **Sprinklers** – these are automatic installations designed to discharge water or watermist at the point of origin of a fire and will either extinguish or contain the fire pending the arrival of the Fire and Rescue Service. This has become a less expensive option with the recent introduction of plastic pipework. Such systems should be installed in accordance with the Loss Prevention Council (LPC) Rules for Automatic Sprinkler Installations, incorporating BS EN 12845. Watermist systems should be installed to either BS8489 : Fixed Fire Protection Systems Industrial and Commercial Watermist Systems or BS8458 : Fixed Fire Protection Systems Residential and Domestic Watermist Systems. The installing company should also be LPC approved. Ecclesiastical should be contacted for advice before proceeding with the installation of any type of fire suppression system.

All of the above equipment should be maintained in correct working order under a service and inspection contract.



## The law relating to fire safety

### The Regulatory Reform (Fire Safety) Order 2005

The primary legislation covering fire safety is the Regulatory Reform (Fire Safety) Order 2005. The Order repealed and replaced existing fire safety legislation, and places a requirement for fire risk assessment to be carried out for nearly all premises.

A Responsible Person must take general fire precautions and make sure that fire risk assessments are carried out.

For a workplace, the fire risk assessment is primarily the responsibility of the employer. However, the regulations apply even where no one is employed.

The Responsible Person will be one of the following:

- Employers with control of the workplace
- Person with overall management control of a building
- Occupier of the premises
- Owner of premises if it is empty or unoccupied
- Landlord where the building is in multi-occupancy.

The Responsible Person must appoint one or more Competent Persons (someone with the appropriate qualification, knowledge and experience in fire safety) to assist in undertaking the preventative and protective measures.

To comply with the regulations a Responsible Person must conduct a comprehensive risk assessment that considers amongst other things:

- Ignition sources
- Suitable means of detecting and raising the alarm in the event of a fire
- Adequate emergency escape routes and exits
- Appropriate type and numbers of fire extinguishers
- Correct type and sufficient numbers of fire signs and notices
- Provision for the correct maintenance of fire equipment
- Suitable provision for the protection of Fire Service personnel
- Ensure the occupants receive the appropriate instruction/training in actions to be taken in the event of a fire using evacuation drills
- The effect a fire could have on neighbours.

Where five or more persons are employed a formal record of any significant findings and remedial measures, which have or may need to be taken, must be made.

## How to carry out a fire risk assessment

The following summary outlines the main stages in carrying out a fire risk assessment.

### Part one

#### Undertaking a fire risk assessment

Fire risks in your workplace must be assessed either as a separate exercise or as part of a general review of health and safety. Any fire hazards within the premises will need to be identified, including possible ignition sources (eg electrical wiring or processes using the application of heat). The use and storage of combustible materials, together with the presence of flammable liquids and gases needs to be noted. Another hazard to document is the susceptibility of the premises to arson attack. Although it is now illegal to smoke in most premises the control of smoking and the disposal of smoking materials also need to be noted.

Reasonable fire fighting equipment must be provided. As part of the initial risk assessment, a record must be made of all fire-fighting equipment. This includes portable fire extinguishing appliances, hose reels, dry and wet risers, sprinkler systems, smoke venting systems and any other apparatus or equipment provided to deal with a fire.

The location of fire hydrants and the accessibility of the premises for fire brigade appliances should also be noted.



#### Checks that need to be made:

- Whether or not a fire can be detected and people warned within a reasonable time. Details of any existing fire detection system and other methods for raising the alarm need to be recorded.
- Anyone who may be in the building should be able to get out safely in the event of a fire. This means looking at fire exit routes, signage and emergency lighting, and recording the existing arrangements.
- Everybody who is in the building needs to know what to do in the event of a fire. This means examining existing arrangements for evacuation, written fire procedures, staff handbooks and manuals, and induction and refresher training courses for staff.
- Fire safety equipment should be properly maintained. This includes looking at existing service and maintenance contracts and procedures for routine inspections.
- A check also needs to be made of the effect a fire in your premises would have on neighbouring premises so that they can take the appropriate action.

If five or more persons are employed the significant findings of the fire risk assessment must be recorded.

Even where you are not required to record the significant findings, it is good practice to do so. A written record is invaluable evidence that a fire risk assessment has been carried out.

## Part two

### Are any changes required?

Having noted the existing situation, the next stage of the assessment is to decide whether any changes to your existing arrangements are required, including the introduction of additional safety measures.

The following will need to be considered:

- The first stage is to examine the various hazards that have been identified and what control measures are required in accordance with established principles of risk management hierarchy, eliminating or minimising the risk where possible or mitigating the consequences if a fire does occur. The best possible control measure is to eliminate the fire hazard altogether. This may be achieved, for example, by the removal of rubbish and combustible materials that are no longer required, or the prohibition of smoking from the entire site.

The substitution of hazardous materials with less hazardous alternatives can reduce the fire risk. For example, replace solvent-based paints, thinners and cleaners with water-based counterparts.

If hazards cannot be eliminated or substituted, the risk can be reduced by the introduction of controls such as the use of metal cabinets for storing flammables. Ideally, large quantities of flammables should be stored in a purpose-built, detached building, away from the main premises.

- A decision will need to be made whether there is a need to upgrade existing fire detection and warning methods. If the premises are such that a fire could go undetected for some considerable time, or people could be working in a part of a building and be unaware of the need to evacuate, an automatic fire detection and warning system is recommended.
- Improvements may also be required to escape routes. This may require the provision of additional fire exit doors. As a minimum, steps will need to be taken to ensure that all exit routes are kept clear of obstructions and that fire exit doors can be opened easily from the inside without the use of keys, cards or digital locks. Additional fire exit signs and emergency lighting may also be required.
- Is additional fire fighting equipment required? As a general guide, 1 x 9 litre water fire extinguisher is required for each 200m<sup>2</sup> of floor area. In addition, other extinguishers such as carbon dioxide for electrical hazards and dry powder for oils and fats may be required.
- The final part of the assessment will be to form an emergency plan. It will need to include the actions to be taken by staff in the event of a fire, evacuation procedures and the arrangements for calling the fire and rescue service. Necessary training will need to be undertaken to ensure that all staff know what to do.

You should constantly monitor what you are doing to implement the fire risk assessment, to assess how effectively the risk is being controlled.

If you have any reason to suspect that your fire risk assessment is no longer valid or there has been a significant change in your premises that may have affected your fire precautions, you will need to review your assessment and if necessary revise it. For example, procedures may need to be amended to take account of new processes, change in the number and location of employees and alterations to the buildings. The regulations are enforced by the Fire Authority who may inspect the premises to check that the regulations are being followed.

Following an inspection of the premises, the Fire Authority may issue an enforcement notice requiring safety work to be carried out. If they consider that there is a serious risk to people from fire, a prohibition notice could be issued restricting the use of the premises until remedial action is taken.

## Government Guidance Documents

The Government has issued a range of guidance notes including an entry level guide 'A short guide to making your premises safe from fire'.

Detailed guidance notes are available for:

- Offices and shops
- Premises with sleeping accommodation
- Residential care homes
- Educational premises
- Places of assembly
- Theatres and cinemas
- Outdoor events
- Healthcare premises
- Animal premises and stables
- Means of escape for disabled people (supplementary guidance).

Each of these guides can be downloaded from [Fire Risk Assessment Guides](#). If you have already taken sensible and appropriate fire safety measures, little or no further action may be necessary.

A fire risk assessment template for simple premises is available from The Fire Protection Association, this can be accessed via the following link: [Fire Risk Assessment Template](#)

## Heating

Your heating installations should be installed to the relevant British Standard, Building Regulations and Codes of Practice, and should be operated, maintained and serviced in accordance with the manufacturers' instructions.

- All gas appliances must be inspected and serviced annually by a [GAS SAFE REGISTER™](#) registered installer.
- Oil fired boilers must be inspected and serviced annually by an [OFTEC](#) registered engineer. Further guidance on the safe storage of oil in tanks is available on our [website](#).
- Chimneys to fireplaces for solid fuel and log fires or wood burning stoves should be swept at least annually by a competent chimney sweep, preferably a member of The Guild of Master Chimney Sweeps or a HETAS approved chimney sweep. For further details visit their websites  
[www.findachimneysweep.co.uk](http://www.findachimneysweep.co.uk)  
[www.hetas.co.uk/professionals/chimneysweeps/](http://www.hetas.co.uk/professionals/chimneysweeps/)
- For log fires and wood burners you should only use seasoned hardwood as the main fuel.
- Where your heating uses green technology such as biomass boilers, solar panels, ground or air source heat pumps it should also be operated, maintained and serviced in accordance with the manufacturers' instructions.
- Boiler houses for heating systems should be of fire resisting construction and should never be used to store combustible materials.
- We recommend that portable heating appliances be avoided where possible. If you do use them, they should be thermostatically controlled electric heaters sited well clear of combustible materials.

## Fire procedures

Evacuation procedures should be agreed with the fire prevention authorities and regularly practiced, including a night-time drill where there is overnight sleeping accommodation.

## Electricity

Faulty electrical installations are one of the main causes of fire in buildings. Only electrical contractors with full scope registration or membership to work on commercial installations with the National Inspection Council for Electrical Installation Contracting (NICEIC), The Electrical Contractors Association (ECA) or The National Association of Professional Inspectors and Testers (NAPIT) should be employed.

All installations should be in accordance with British Standard BS 7671: 'Requirements for Electrical Installations' current Edition of the Institution of Engineering and Technology (IET) Wiring Regulations.

## Kitchens

Cooking appliances, extraction equipment and any ducting should be regularly cleaned. Cooking appliances and extract hoods should be cleaned at least weekly. The frequency with which ductwork should be cleaned will depend on the amount of deep fat frying being undertaken but should be done as a minimum on an annual basis by a specialist contractor. Cooking ranges should, ideally, be protected by fixed extinguishing systems.

Emergency shut-off points for the gas and electricity supplies should be fitted and be easily accessible.

A type of fire extinguisher agent known as 'wet chemical' has been specifically developed to deal with cooking oil fires. The wet chemical solution cools and emulsifies burning cooking oil leaving a hard crust. It is ideal for use in kitchens with deep fat fryers. It can also be used on free burning fires involving solid materials such as wood and papers, although it is not safe to use on electrical fires.





## Maintenance and other workshops

**Woodworking** – machinery should be well maintained and only operated by trained staff. Attention should be given to the collection and disposal of waste materials, with workshops being swept regularly and wood shavings being disposed of in a lidded metal bin. Where you have a number of machines you should consider the fitting of extraction plant with an externally sited collection hopper. The use of flammable paints and varnishes should be controlled with segregated and secure storage arrangements.

**Welding/cutting apparatus** – should only be used by fully trained operators. Fire extinguishers should be kept in close proximity to where such apparatus is in use. Any combustible materials in the area of the work should either be removed or screened off using fire resistant materials.

**Flammable liquids** – quantities should be kept to a minimum with storage containers clearly identified with the appropriate HAZ CHEM information. Proprietary containers should be used for transportation, decanting and application. No ignition source should be present in the area of use. Where highly flammable liquids are in use, flameproof electrical equipment and fume extraction will be required.

It may also be necessary to carry out a risk assessment in compliance with the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) where highly flammable substances are stored or used as part of a work process.

The Health and Safety Executive have published a free downloadable guide to the regulations:

Controlling fire and explosion risks in the workplace – [A brief guide to the Dangerous Substances and Explosive Atmospheres Regulations](#)

Storage areas should be well ventilated and constructed of fire resistant materials with a fire resistance of at least 30 minutes. Use of such liquids must be controlled and training given to those involved.



## Craft activities

**Silk Screen and other Printing** – the main hazards arise in the use of flammable inks, solvents and cleaning fluids (see Flammable liquids).

**Kilns** – Kilns should be maintained in good working order. Thermostatic controls should be fitted, as should fire valves which operate to cut off the supply of gas/electricity in the event of a fire.

**3D Printing** – the risk here is the potential for unattended machinery running for long periods of time when the workshop may be unoccupied. Printing work should be planned so that machinery is not left running outside of normal working hours.

**Laser Cutters** - A laser cutter is simply an instrument that uses a laser to cut material, enabling precise shapes to be formed from sheets or blocks.

Laser cutting works by directing the output of a high-power laser, by computer, at the material to be cut. The material then either melts, burns, vaporises or is blown away by a jet of gas.

Laser cutters carry an inherent fire risk owing to the high temperatures generated by the laser beam as its light is absorbed by the material's surface. Wood and paper materials burn quite easily but the flames are extinguished by a jet of compressed air. However, when the laser is used to cut plastics flammable vapours are released and these can ignite if not removed by the unit's fume extraction system. For this reason the laser cutter should be fitted with metal extract ducting, and should remain under constant supervision whilst in use. It should not be left running whilst unattended.

It is also important to ensure that the tip of the laser is cleaned each day to ensure that no detritus builds up which could then potentially ignite.

Any rooms where laser cutters are present should be fitted with smoke detectors connected to the automatic fire alarm system

## Need to contact us?

For further advice Ecclesiastical customers can call our Risk Management Advice Line on **0345 600 7531** (Monday to Friday 09:00 to 17:00, excluding Bank Holidays) or email us at [risk.advice@ecclesiastical.com](mailto:risk.advice@ecclesiastical.com) and one of our experts will call you back within 24 hours.

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