



HM Government

fire safety risk assessment

healthcare premises

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How to use this guide

This guide is divided into two parts:

- **Part 1** Explains what fire risk assessment is and how you might go about it. Fire risk assessment should be the foundation for all the fire precautions in your premises.
- **Part 2** Provides further guidance on fire precautions. The information is provided for you and others to dip into during your fire risk assessment or when you are reviewing your precautions.

The appendices provide example checklists, some detailed technical information on fire-resisting elements and advice on historic buildings.

This guide is one from a series of guides listed on the back cover.

The rest of this introduction explains how the law applies.

Technical terms are explained in the glossary and references to other publications listed at the end of the publication are identified by a superscript number in the text.

In this guide reference is made to British Standards, Department of Health Firecode and standards provided by other bodies. The standards referred to are intended for guidance only and other standards could be used. Reference to any particular standard is not intended to confer a presumption of conformity with the requirements of the Regulatory Reform (Fire Safety) Order 2005 (the Order).¹

The level of necessary safety (or service) must be dictated by the findings of your risk assessment so you may need to do more or less than that specified in any particular standard referred to. You must be prepared to show that what you have done complies with any requirements or prohibitions of the Order¹ irrespective of whether you have relied on a particular standard.

Preface

This guidance gives advice on how to avoid fires and how to ensure people's safety if a fire does start. Why should you read it? Because:

- Fire kills. In 2004 England and Wales fire and rescue services attended over 33,400 fires in non-domestic buildings. These fires killed 38 people and injured over 1,300.
- Fire costs money. The costs of a serious fire can be high and afterwards many businesses do not reopen. In 2004, the costs as a consequence of fire, including property damage, human casualties and lost business were estimated at £2.5 billion.

This guide applies to England and Wales only. It does not set prescriptive standards, but provides recommendations and guidance for use when assessing the adequacy of fire precautions in premises providing healthcare. Other fire risk assessment methods may be equally valid to comply with fire safety law. The guide also provides recommendations for the fire safety management of the premises.

Your existing fire safety arrangements may not be the same as the recommendations used in this guide but, as long as you can demonstrate that they meet an equivalent standard of fire safety, they are likely to be acceptable. If you decide that your existing arrangements are not satisfactory there may be other ways to comply with fire safety law. This means there is no obligation to adopt any particular solution in this guide if you prefer to meet the relevant requirement in some other way.

Where the building has been recently constructed or significantly altered, the fire-detection and warning arrangements, escape routes and facilities for the fire and rescue service should have been designed, constructed and installed in line with current building regulations by following HTM 81⁷⁶ or its successor HTM 05-02: Part A.⁷⁶ In such cases, it is likely that these measures will be satisfactory as long as they are being properly maintained and no significant increase in risk has been introduced.

This guide should not be used to design fire safety in new buildings. Where alterations are proposed to existing premises, they may be subject to the building regulations or HTM 05-02: Part A.⁷⁶ However, it can be used to develop the fire safety strategy for the building.

Introduction

WHO SHOULD USE THIS GUIDE?

This guide is for all employers, managers, occupiers and owners of premises providing healthcare (including private healthcare premises). Details of other guides in the series are given on the back cover. It tells you what you have to do to comply with fire safety law, helps you to carry out a fire risk assessment and identify the general fire precautions you need to have in place.

It applies to premises where the main use of the building or part of the building is to provide healthcare and includes:

- hospitals; and
- other healthcare premises.

It may also be suitable for individual healthcare premises that are within other multi-use complexes, although consultation with other responsible people will be necessary as part of an integrated risk assessment for the complex.

Also, where you handle and store flammable material and substances, it will help you take account of these in your risk assessment and help you determine the necessary precautions to take to minimise the likelihood of them being involved in fire.

This guide is not intended for use in:

- care and nursing homes (other than those where the primary purpose is the provision of healthcare);
- rehabilitation premises providing residential treatment and care for various forms of addiction;
- day-care centres with no residential clients or service users;
- sheltered accommodation;
- out-posted nursing care in single private dwellings;
- staff accommodation; and
- administration blocks.

It has been written to provide guidance for a responsible person, to help them carry out a fire risk assessment in less complex premises. If you read the guide and decide that you are unable to apply the guidance, then you should seek the expert advice of a competent person. More complex premises will probably need to be assessed by a person who has comprehensive training or experience in fire risk assessment. However, this guide can be used to address fire safety issues within the individual occupancies of multi-occupied buildings.

It may also be useful for:

- employees;
- employee-elected representatives;
- trade union-appointed health and safety representatives;
- enforcing authorities; and
- all other people who have a role in ensuring fire safety in premises providing healthcare.

If your premises are listed as of historic interest, also see Appendix C.

Fire safety is only one of many safety issues with which management must concern themselves to minimise the risk of injury or death to staff, patients or visitors. Unlike most of the other safety concerns, fire has the potential to injure or kill large numbers of people very quickly. This guidance is concerned only with fire safety but many of the measures discussed here will impact upon other safety issues. It is recognised that these differing safety demands can sometimes affect one another and management should consult other interested agencies such as the Health and Safety Executive (HSE), where necessary, to confirm that they are not contravening other legislation/guidance.

You can get advice about minimising fire losses from your insurer or your competent fire adviser.

THE FIRE SAFETY ORDER

Previous general fire safety legislation

The Order¹ replaces previous fire safety legislation. Any fire certificate issued under the Fire Precautions Act 1971² will cease to have any effect. If a fire certificate has been issued in respect of any part of your premises or the premises were built in accordance with building regulations or HTM 81⁷⁶ or HTM 05-02: Part A,⁷⁶ as long as you have made no material alterations and all the physical fire precautions have been properly maintained, then it is unlikely you will need to make any significant improvements to your existing physical fire protection arrangements to comply with the Order.¹ However, you must still carry out a fire risk assessment and keep it up to date to ensure that all the fire precautions in your premises remain current and adequate.

If you have previously carried out a fire risk assessment under the Fire Precautions (Workplace) Regulations 1997,³ as amended 1999,⁴ and this assessment has been regularly reviewed, then all you will need to do now is revise that assessment taking account of the wider scope of the Order¹ as described in this guide.

Introduction and the responsibilities of the responsible person

The Order¹ applies in England and Wales. It covers 'general fire precautions' and other fire safety duties which are needed to protect 'relevant persons' in case of fire in and around most 'premises'. The Order¹ requires fire precautions to be put in place 'where necessary' and to the extent that it is reasonable and practicable in the circumstances of the case.

Responsibility for complying with the Order¹ rests with the 'responsible person'. In a workplace, this is the employer and any other person who may have control of any part of the premises, e.g. the occupier or owner. In all other premises the person or people in control of the premises will be responsible. If there is more than one responsible person in any type of premises (e.g. a multi-occupied complex), all must take all reasonable steps to co-operate and co-ordinate with each other.

If you are the responsible person you must carry out a fire risk assessment which must focus on the safety in case of fire of all 'relevant persons'. It should pay particular attention to those at special risk, such as disabled people, those who you know have special needs and children, and must include consideration of any dangerous substance liable to be on the premises. Your fire risk assessment will help you identify risks that can be removed or reduced and to decide the nature and extent of the general fire precautions you need to take.

If your organisation employs five or more people, your premises are licensed or an alterations notice is in force, you must record the significant findings of the assessment. It is good practice to record your significant findings in any case.

There are some other fire safety duties you need to comply with:

- **You must** appoint one or more 'competent persons', depending on the size and use of your premises, to carry out any of the preventive and protective measures required by the Order¹ (you can nominate yourself for this purpose). A competent person is someone with enough training and experience or knowledge and other qualities to be able to implement these measures properly.
- **You must** provide your employees with clear and relevant information on the risks to them identified by the fire risk assessment, about the measures you have taken to prevent fires, and how these measures will protect them if a fire breaks out.
- **You must** consult your employees (or their elected representatives) about nominating people to carry out particular roles in connection with fire safety and about proposals for improving the fire precautions.
- **You must**, before you employ a child, provide a parent with clear and relevant information on the risks to that child identified by the risk assessment, the measures you have put in place to prevent/protect them from fire and inform any other responsible person of any risks to that child arising from their undertaking.
- **You must** inform non-employees, such as temporary or contract workers, of the relevant risks to them, and provide them with information about who are the nominated competent persons, and about the fire safety procedures for the premises.

- **You must** co-operate and co-ordinate with other responsible persons who also have premises in the building, inform them of any significant risks you find and how you will seek to reduce/control those risks which might affect the safety of their employees.
- **You must** provide the employer of any person from an outside organisation who is working in your premises (e.g. an agency providing temporary staff) with clear and relevant information on the risks to those employees and the preventive and protective measures taken. You must also provide those employees with appropriate instructions and relevant information about the risks to them.
- If you are not the employer but have any control of premises which contain more than one workplace, **you are also responsible** for ensuring that the requirements of the Order¹ are complied with in those parts over which you have control.
- **You must** consider the presence of any dangerous substances and the risk this presents to relevant persons from fire.
- **You must** establish a suitable means of contacting the emergency services and provide them with any relevant information about dangerous substances.
- **You must** provide appropriate information, instruction and training to your employees, during their normal working hours, about the fire precautions in your workplace, when they start working for you, and from time to time throughout the period they work for you.
- **You must** ensure that the premises and any equipment provided in connection with firefighting, fire detection and warning, or emergency routes and exits are covered by a suitable system of maintenance and are maintained by a competent person in an efficient state, in efficient working order and in good repair.
- **Your employees must** co-operate with you to ensure the workplace is safe from fire and its effects, and must not do anything that will place themselves or other people at risk.

The above examples outline some of the main requirements of the Order.¹ The rest of this guide will explain how you might meet these requirements.

Who enforces the Fire Safety Order?

The local fire and rescue authority (the fire and rescue service) will enforce the Order¹ in most premises. The exceptions are:

- Crown-occupied/owned premises where Crown fire inspectors will enforce;
- premises within armed forces establishments, where the defence fire and rescue service will enforce; and
- certain specialist premises including construction sites, ships (under repair or construction) and nuclear installations, where the HSE will enforce; and
- sports grounds and stands designated as needing a safety certificate by the local authority, where the local authority will enforce.

The enforcing authority will have the power to inspect your premises to check that you are complying with your duties under the Order.¹ They will look for evidence that you have carried out a suitable fire risk assessment and acted upon the significant findings of that assessment. If, as is likely, you are required to record the outcome of the assessment they will expect to see a copy.

If the enforcing authority is dissatisfied with the outcome of your fire risk assessment or the action you have taken, they may issue an enforcement notice that requires you to make certain improvements or, in extreme cases, a prohibition notice that restricts the use of all or part of your premises until improvements are made.

If your premises are considered by the enforcing authority to be or have the potential to be high risk, they may issue an alterations notice that requires you to inform them before you make any changes to your premises or the way they are used.

Failure to comply with any duty imposed by the Order¹ or any notice issued by the enforcing authority is an offence. You have a right of appeal to a magistrates court against any notice issued. Where you agree that there is a need for improvements to your fire precautions but disagree with the enforcing authority on the technical solution to be used (e.g. what type of fire alarm system is needed) you may agree to refer this for an independent determination.

If having read this guide you are in any doubt about how fire safety law applies to you, contact the fire safety office at your local fire and rescue service.

If your premises were in use before 2006, then they may have been subject to the Fire Precautions Act² and the Fire Precautions (Workplace) Regulations.^{3,4} Where the layout (means of escape) and other fire precautions have been assessed by the fire and rescue service to satisfy the guidance that was then current, it is likely that your premises already conform to many of the recommendations here, providing you have undertaken a fire risk assessment as required by the Fire Precautions (Workplace) Regulations.^{3,4}

New buildings or significant building alterations should be designed to satisfy current building regulations²⁴ (which address fire precautions).

However, you will still need to carry out a fire risk assessment, or review your existing assessment, e.g. HTM 86³⁰ (and act on your findings), to comply with the Order.¹

Part 1 Fire risk assessment

MANAGING FIRE SAFETY

Good management of fire safety is essential to ensure that fires are unlikely to occur; that if they do occur they are likely to be controlled or contained quickly, effectively and safely; or that, if a fire does occur and grow, everyone in your premises is able to escape to a place of total safety easily and quickly.

The risk assessment that you must carry out will help you ensure that your fire safety procedures, fire prevention measures, and fire precautions (plans, systems and equipment) are all in place and working properly, and the risk assessment should identify any issues that need attention. Further information on managing fire safety is available in Part 2 on page 45.

WHAT IS A FIRE RISK ASSESSMENT?

A fire risk assessment is an organised and methodical look at your premises, the activities carried on there and the likelihood that a fire could start and cause harm to those in and around the premises.

The aims of the fire risk assessment are:

- To identify the fire hazards.
- To reduce the risk of those hazards causing harm to as low as reasonably practicable.
- To decide what physical fire precautions and management arrangements are necessary to ensure the safety of people in your premises if a fire does start.

The term 'where necessary' (see Glossary) is used in the Order,¹ therefore when deciding what fire precautions and management arrangements are necessary, you will need to take account of this definition.

The terms 'hazard' and 'risk' are used throughout this guide and it is important that you have a clear understanding of how these should be used.

- **Hazard:** anything that has the potential to cause harm.
- **Risk:** the chance of that harm occurring.

If your organisation employs five or more people, or your premises are licensed or an alterations notice requiring it is in force, then the significant findings of the fire risk assessment, the actions to be taken as a result of the assessment and details of anyone especially at risk must be recorded. You will probably find it helpful to keep a record of the significant findings of your fire risk assessment even if you are not required to do so.

HOW DO YOU CARRY OUT A FIRE RISK ASSESSMENT?

A fire risk assessment will help you determine the chances of a fire starting and the dangers from fire that your premises present for the people who use them and any

person in the immediate vicinity. The assessment method suggested in this guide shares the same approach as that used in general health and safety legislation and can be carried out either as part of a more general risk assessment or as a separate exercise. As you move through the steps there are checklists to help you.

Before you start your fire risk assessment, take time to prepare, and read through the rest of Part 1 of this guide.

Much of the information for your fire risk assessment will come from the knowledge your employees, colleagues and representatives have of the premises, as well as information given to you by people who have responsibility for other parts of the building. A tour of your premises will probably be needed to confirm, amend or add detail to your initial views.

It is important that you carry out your fire risk assessment in a practical and systematic way and that you allocate enough time to do a proper job. It must take the whole of your premises into account, including outdoor locations and any rooms and areas that are rarely used. If your premises are small (e.g. a stand-alone GP surgery) you may be able to assess them as a whole. In larger premises, such as a diagnostic and treatment centre, you may find it helpful to divide them into compartments or sub-compartments managed as a single unit using natural boundaries, e.g. process areas (such as patient treatment, kitchens or laundries), offices, stores, as well as corridors, stairways and external routes.

If your premises are in a multi-use complex then the information on hazard and risk reduction will still be applicable to you. However, any alterations to the use or structure of your individual unit will need to take account of the overall fire safety arrangements in the building.

Your premises may be simple, with few people present or with a limited degree of business activity, but if it forms part of a building with different occupancies, then the measures provided by other occupiers may have a direct effect on the adequacy of the fire safety measures in your premises.

Under health and safety law (enforced by the HSE or the local authority) you are required to carry out a risk assessment in respect of any work processes in your workplace and to take or observe appropriate special, technical or organisational measures. If your health and safety risk assessment identifies that these processes are likely to involve the risk of fire or the spread of fire (for example in the kitchen or in a workshop) then you will need to take this into account during your fire risk assessment under the Order,¹ and prioritise actions based on the level of risk.

You need to appoint one or more competent persons to carry out any of the preventive and protective measures needed to comply with the Order.¹ This person could be you, or an appropriately trained full-time employee or, where appropriate, a third party.

Your fire risk assessment should demonstrate that, as far as is reasonable, you have considered the needs of all relevant persons, including disabled people.

Figure 1 shows the five steps you need to take to carry out a fire risk assessment.

FIRE SAFETY RISK ASSESSMENT

1 Identify fire hazards

Identify:

Sources of ignition
Sources of fuel
Sources of oxygen

2 Identify people at risk

Identify:

People in and around the premises
People especially at risk

3 Evaluate, remove, reduce and protect from risk

Evaluate the risk of a fire occurring
Evaluate the risk to people from fire
Remove or reduce fire hazards
Remove or reduce the risks to people

- Detection and warning
- Fire-fighting
- Escape routes
- Lighting
- Signs and notices
- Maintenance

4 Record, plan, inform, instruct and train

Record significant finding and action taken
Prepare an emergency plan
Inform and instruct relevant people; co-operate and co-ordinate with others
Provide training

5 Review

Keep assessment under review
Revise where necessary

Remember to keep to your fire risk assessment under review.

Figure 1: The five steps of a fire risk assessment

STEP 1 IDENTIFYING FIRE HAZARDS

For a fire to start, three things are needed:

- a source of ignition;
- fuel; and
- oxygen.

If any one of these is missing, a fire cannot start. Taking measures to avoid the three coming together will therefore reduce the chances of a fire occurring.

The remainder of this step will advise on how to identify potential ignition sources, the materials that might fuel a fire and the oxygen supplies that will help it burn.

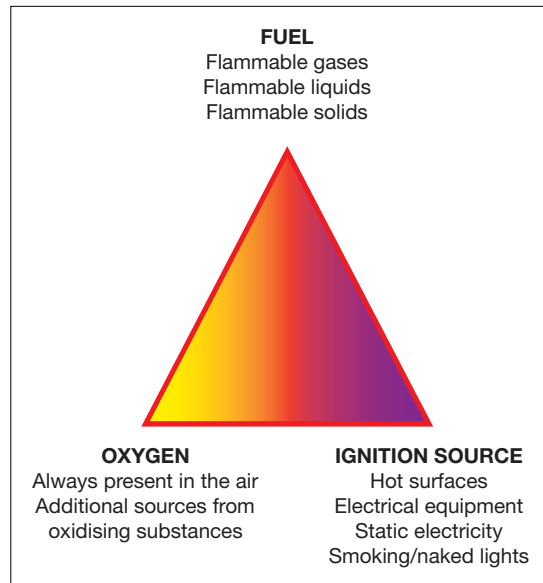


Figure 2: The fire triangle

1.1 Identify sources of ignition

You can identify the potential ignition sources in your premises by looking for possible sources of heat which could get hot enough to ignite material found in your premises. These sources could include:

- smoking materials, e.g. cigarettes, matches and lighters;
- naked flames, e.g. matches, candles or gas or liquid-fuelled open-flame equipment;
- electrical, gas or oil-fired heaters (fixed or portable);
- cooking equipment;
- faulty or misused electrical equipment;
- lighting equipment;
- hot surfaces and obstruction of equipment ventilation;
- hot processes, e.g. welding by contractors; and
- arson, e.g. by patients who suffer from mental illness.

Physiotherapy departments and X-ray departments can present a significant source of ignition.

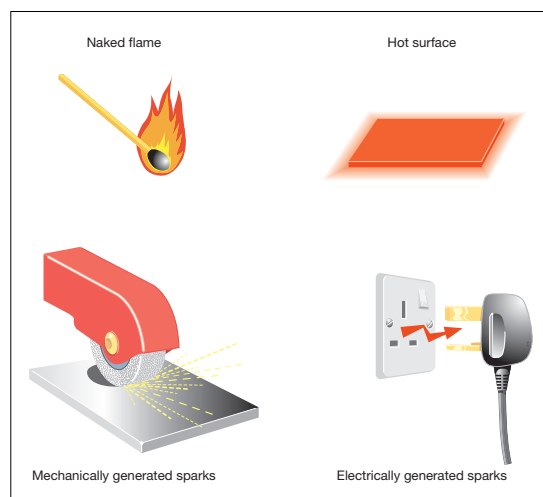


Figure 3: Sources of ignition

Fires may be started by patients, either accidentally or deliberately, particularly by those who:

- are elderly;
- have learning difficulties; or
- are young people with disabilities.

Those who suffer from mental illness may be particularly prone to starting fires.

Indications of 'near-misses', such as scorch marks on furniture or fittings, discoloured or charred electrical plugs and sockets, cigarette burns, etc, can help you identify hazards which you may not otherwise notice.

1.2 Identify sources of fuel

Anything that burns is fuel for a fire. You need to look for the things that will burn reasonably easily and are in enough quantity to provide fuel for a fire or cause it to spread to another fuel source. Some of the most common 'fuels' found in premises providing healthcare are:

- laundry supplies, such as bedding and towels, and medical supplies, such as disposable aprons;
- toiletries, aerosols, wall and ceiling hangings and linings;
- plastics and rubber (e.g. soft play or restraint areas), video tapes, polyurethane foam-filled furniture, foam-filled mats and polystyrene-based display materials;
- wood or wood-based furniture, textiles and soft furnishings, such as spare clothes and hanging curtains;
- clothing and private belongings (such as toys), seasonal and religious occasion decorations, such as Christmas decorations;
- flammable products, such as cleaning and decorating products, petrol, white spirit, methylated spirit, cooking oils, disposable cigarette lighters and photocopier chemicals;
- flammable gases such as liquefied petroleum gas (LPG), including aerosol canisters; and
- waste products, particularly finely divided items such as shredded paper and wood shavings, off cuts, and dust.

You should also consider the materials used to line walls and ceilings, e.g. polystyrene or carpet tiles, the fixtures and fittings and bought-in materials, and how they might contribute to the spread of fire. Further information is available in Part 2, Section 1.

1.3 Identify sources of oxygen

The main source of oxygen for a fire is in the air around us. In an enclosed building this is provided by the ventilation system in use. This generally falls into one of two categories: natural airflow through doors, windows and other openings; or mechanical air conditioning systems and air handling systems. In many buildings there will be a combination of systems, which will be capable of introducing/extracting air to and from the building.

Additional sources of oxygen can sometimes be found in materials used or stored at premises such as:

- some chemicals (oxidising materials), which can provide a fire with additional oxygen and so help it burn. These chemicals should be identified on their container (and Control of Substances Hazardous to Health (COSHH) data sheet, see Figure 4) by the manufacturer or supplier who can advise as to their safe use and storage; or
- oxygen supplies from cylinder storage and piped systems, e.g. medical oxygen, oxygen used by contractors (e.g. in welding processes).



Figure 4: Label on oxidising materials

Checklist



- Have you identified all potential ignition sources?
- Have you identified all potential fuel sources?
- Have you identified all potential sources of oxygen?
- Have you made a note of your findings?

STEP 2 IDENTIFYING PEOPLE AT RISK

As part of your fire risk assessment, you need to identify those at risk if there is a fire. To do this you need to identify where you have patients present and staff working (either at permanent workstations or at occasional locations around the premises) and to consider who else may be at risk, such as visitors, visiting contractors, etc, and where these people are likely to be found.

You must consider all the people who use the premises but you should pay particular attention to people who may be especially at risk such as:

- employees who work alone, either regularly or at specific times and/or in isolated areas, e.g. cleaners, security staff, maintenance staff, nursing or care staff (especially at night);

- people who are unfamiliar with the premises, e.g. agency or temporary staff, guests, visitors (including visiting medical or social care staff), contractors;
- patients who are unable to escape unaided (young children, babies, the elderly, physically disabled people (in particular people with mobility impairment), mentally disabled people, people with vision or hearing impairment, those with some other sensory impairment, and those whose ability to escape unassisted is impaired due to their medical condition or medication, or who who may be intoxicated);
- people who are not able to leave the premises quickly (but do not require assistance), e.g. patients or visitors who are elderly or with limited disabilities,* parents with children;
- people with language difficulties; or
- other persons in the immediate vicinity of the premises.

In evaluating the risk to people with disabilities you may need to discuss individual needs with each relevant person. The risk assessment should take into account the patient's medical conditions, sensory awareness and mobility. In large healthcare premises, especially those providing services for very highly dependent patients (such as those in intensive therapy units, special care baby units, and operating theatres) or disabled people, you may also need to consult a professional access consultant or take advice from disability organisations.†

Further guidance on people with special needs is given in Part 2, Section 1.15.

Checklist



- Have you identified who is at risk?
- Have you identified why they are at risk?
- Have you made a note of your findings?

STEP 3 EVALUATE, REMOVE, REDUCE AND PROTECT FROM RISK

The management of the premises and the way people use it will have an effect on your evaluation of risk. Management may be your responsibility alone or there may be others, such as the building owners or managing agents, who also have responsibilities. Some premises may be part of a multi-use complex and all those with some control must co-operate and consider the risk generated by others in the building.

To maintain a pleasant healing environment and non-institutional atmosphere, precautions should be introduced carefully, taking account of any possible adverse effects on the quality of service users' lives and the care they receive.

* Visit the Disability Rights Commission website on www.drc-gb.org for more information.

† Further information can be found at www.drc-gb.org

3.1 Evaluate the risk of a fire occurring

The chances of a fire starting will be low if your premises has few ignition sources and combustible materials are kept away from them.

In general, fires start in one of three ways:

- accidentally, such as when smoking materials are not properly extinguished or when lighting displays are knocked over;
- by act or omission, such as when electrical office equipment is not properly maintained, or when waste packaging is allowed to accumulate near a heat source; or
- deliberately, such as an arson attack involving setting fire to external rubbish bins placed too close to the building.

Look critically at your premises and try to identify any accidents waiting to happen and any acts or omissions which might allow a fire to start. You should also look for any situation that may present an opportunity for an arsonist

Further guidance is given in Part 2, Section 1 on evaluating the risk of a fire starting.

3.2 Evaluate the risk to people

In Step 2 you identified the people likely to be at risk should a fire start anywhere in the premises and earlier in Step 3 you identified the chances of a fire occurring. It is unlikely that you will have concluded that there is no chance of a fire starting anywhere in your premises so you now need to evaluate the actual risk to those people should a fire start and spread from the various locations that you have identified.

While determining the possible incidents, you should also consider the likelihood of any particular incident; but be aware that some very unlikely incidents can put many people at risk.

To evaluate the risk to people in your premises, you will need to understand the the way fire can spread. Fire is spread by three methods:

- convection;
- conduction; and
- radiation.

Convection

Fire spread by convection is the most dangerous and causes the largest number of injuries and deaths. When fires start in enclosed spaces such as buildings, the smoke rising from the fire gets trapped by the ceiling and then spreads in all directions to form an ever-deepening layer over the entire room space. The smoke will pass through any holes or gaps in the walls, ceiling and floor into other parts of the building. The heat from the fire gets trapped in the building and the temperature rises.

Conduction

Some materials, such as metal shutters and ducting, can absorb heat and transmit it to the next room, where it can set fire to combustible items that are in contact with the heated material.

Radiation

Radiation heats the air in the same way as an electric bar heater heats a room. Any material close to a fire will absorb the heat until the item starts to smoulder and then burn.

Smoke produced by a fire also contains toxic gases which are harmful to people. A fire in a building with modern fittings and materials generates smoke that is thick and black, obscures vision, causes great difficulty in breathing and can block the escape routes.

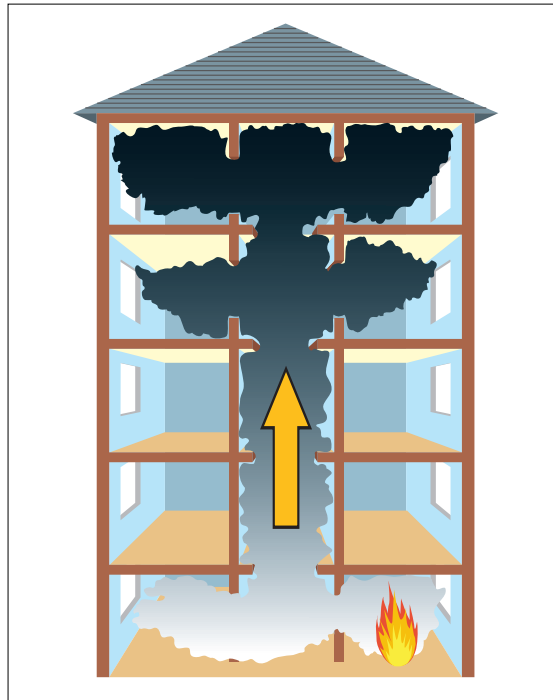


Figure 5: Smoke moving through a building

It is essential that the means of escape and other fire precautions are adequate to ensure that everyone can make their escape to a place of total safety before the fire and its effects can trap them in the building.

In evaluating this risk to people you will need to consider situations such as:

- fire starting on a lower floor affecting the escape routes for people on upper floors or the only escape route for people with disabilities;
- fire developing in an unoccupied space that people have to pass by to escape from the building;
- fire or smoke spreading through a building via routes such as vertical shafts, service ducts, ventilation systems, poorly installed, poorly maintained or damaged walls, partitions and ceilings affecting people in remote areas;
- fire and smoke spreading through a building due to poor installation of fire precautions, e.g. incorrectly installed fire doors (see Appendix B2 for more information on fire doors) or incorrectly installed services penetrating fire walls; and
- fire and smoke spreading through the building due to poorly maintained and damaged fire doors or fire doors being wedged open.

Particular consideration should be given to fires that may start in non-patient access areas and affect adjacent patient access areas.

Where they suffer from limited mobility (or suffer claustrophobia), many patients in healthcare premises may wish (or need) to keep their bedroom doors open, for air or communications or comfort. Similarly, it can be of value to nurses (and patients) to have doors open so that the nurses can check the sleeping patients with a minimum of disturbance. A fire safety system should not impair the quality of treatment of the patients and the equipment provided and management procedures in place must be appropriate. In such cases, the use of 'hold-open' door devices should be considered (see Appendix B2).

Further guidance on fire risks is given in Part 2, Section 1.

3.3 Remove or reduce the hazards

Having identified the fire hazards in Step 1, you now need to remove those hazards if reasonably practicable to do so. If you cannot remove the hazards, you need to take reasonable steps to reduce them if you can. This is an essential part of fire risk assessment and as a priority this must take place before any other actions.

Ensure that any actions you take to remove or reduce fire hazards or risk are not substituted by other hazards or risks. For example, if you replace a flammable substance with a toxic or corrosive one, you must consider whether this might cause harm to people in other ways.

Remove or reduce sources of ignition

There are various ways that you can reduce the risk caused by potential sources of ignition, for example:

- Wherever possible replace a potential source by a safer alternative.
- Replace naked flame and radiant heaters with fixed convector heaters or a central heating system. Restrict the movement of and guard portable heating appliances.
- Operate a safe smoking policy in designated smoking areas and prohibit smoking elsewhere.
- Where smoking is permitted, provide sufficient and suitably placed ashtrays, bins of an approved type for the disposal of smoking materials.
- In dayrooms and other places where smoking is permitted, inspect every half hour and after they have been vacated at night to ensure that smokers' materials are removed and that they have not ignited other materials.
- Ensure electrical, mechanical and gas equipment is installed, used, maintained and protected in accordance with the manufacturer's instructions.
- Take precautions to avoid arson.
- Check all areas where hot work (e.g. welding) has been carried out to ensure that no ignition has taken place or any smouldering materials remain that may cause a fire.
- Ensure that no-one carrying out work on gas fittings which involves exposing pipes that contain or have contained flammable gas uses any source of ignition such as blow-lamps or hot-air guns.

Remove or reduce sources of fuel

There are various ways that you can reduce the risks caused by materials and substances which burn, for example:

- Reduce stocks of flammable materials, liquids and gases in patients' areas to a minimum. Keep remaining stock in dedicated storerooms or storage areas preferably outside where only the appropriate staff are allowed to go, and keep the minimum required for the operation of the premises.
- Ensure flammable materials, liquids and gases, are kept to a minimum, and are stored properly with adequate separation distances between them.
- Do not keep flammable solids, liquids and gases together.
- Remove, or treat large areas of highly combustible wall and ceiling linings, e.g. polystyrene or carpet tiles, to reduce the rate of flame spread across the surface.
- Develop a formal system for the control of combustible waste (including toxic and contaminated waste) by ensuring that waste materials and rubbish are not allowed to build up and are carefully stored until properly disposed of, particularly at the end of the day.
- Take action to avoid any parts of the premises, and in particular storage areas, being vulnerable to arson or vandalism.

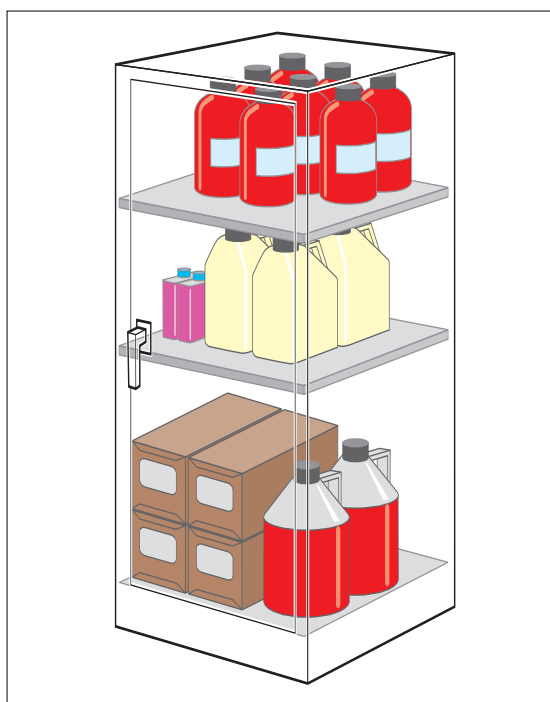


Figure 6: Storage of flammables

Remove or reduce sources of oxygen

You can reduce the potential source of oxygen supplied to a fire by:

- closing all doors, windows and other openings not required for ventilation, particularly when staff levels are low;
- shutting down ventilation systems which are not essential to the function of the premises;
- not storing oxidising materials near or with any heat source or flammable materials;
- controlling the use and storage of oxygen cylinders and/or piped oxygen, ensuring that they are not leaking; and
- maintaining piped oxygen supplies in accordance with the manufacturer's instructions.

Further guidance on removing and reducing hazards is given in Part 2, Section 1.

3.4 Remove or reduce the risks to people

Having evaluated and addressed the the risk of fire occurring and the risk to people (preventive measures) it is unlikely that you will be able to conclude that no risk remains of fire starting and presenting a risk to people in your premises.

You now need to reduce any remaining fire risk to people to as low as reasonably practicable, by ensuring that adequate fire precautions are in place to warn people in the event of a fire and allow them to escape safely.

The rest of this step describes the fire protection measures you may wish to adopt to reduce the remaining fire risk to people (see Steps 3.4.1 to 3.4.6).

The level of fire protection you need to provide will depend on the level of risk that remains in the premises after you have removed or reduced the hazards and risks. Part 2, Section 4.1 can help you decide the level of risk that you may still have.

Flexibility of fire protection measures

Flexibility will be required when applying this guidance, the level of fire protection should be proportional to the risk posed to the safety of the people in the premises. Therefore, the objective should be to reduce the remaining risk to a level as low as reasonably practicable. The higher the risk of fire and risk to life, the higher the standards of fire protection will need to be.

Your premises may not exactly fit the solutions suggested in this guide and they may need to be applied in a flexible manner without compromising the safety of the occupants.

For example, if the travel distance is in excess of that in Part 2, Table 2 on page 78, it may be necessary to do any one or a combination of the following to compensate:

- Provide earlier warning of fire using automatic fire smoke detection.
- Revise the layout to reduce travel distances.
- Reduce the fire risk by removing or reducing combustible materials and/or ignition sources.
- Control the number of people in the premises.
- Limit the area to trained staff only (no public).
- Increase staff training and education.

Note: The above list is not exhaustive and is only used to illustrate some examples of trade-offs to provide safe premises.

If you decide to significantly vary away from the benchmarks in this guidance then you should seek expert advice before doing so.

3.4.1 Fire-detection and warning systems

All healthcare premises will need some form of system for detecting fire and warning the occupants. Detection and warning of fire can be provided by staff and/or automatic fire-detection and warning systems.

In some small, single-storey open-plan premises, a fire may be obvious to everyone as soon as it starts. In these cases, where the number and position of exits and the travel distance to them is adequate, a simple shout of 'fire' or a simple manually operated device, such as a gong or air horn that can be heard by everybody when operated from any single point within the building, may be all that is needed. Where a simple shout or manually operated device is not adequate, it is likely that an electrical fire warning system will be required.

In larger premises, particularly those with more than one floor, where an alarm given from any single point is unlikely to be heard throughout the building, an electrical fire warning system incorporating sounders and manually operated call points (break-glass boxes) is likely to be required. This type of system will probably be acceptable in single occupancy premises where all parts are occupied simultaneously and it is unlikely that a fire could start without somebody noticing it quickly.

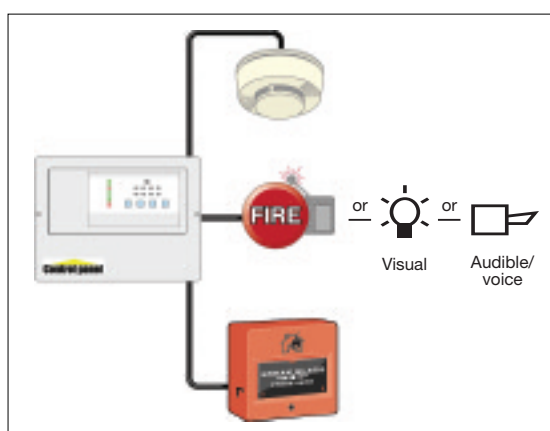


Figure 7: Fire-detection and warning system

However, in premises where there are significant unoccupied areas or common corridors and circulation spaces, particularly in more complex premises that are in multiple-use or multiple-occupation, where a fire could develop to the extent that escape routes could be affected before the fire is discovered, automatic fire detection is likely to be necessary.

You may need to consider special arrangements for times when people are working alone or when your normal occupancy patterns are different, e.g. when maintenance staff or other contractors are working in the building.

In larger multi-use healthcare premises, it is possible that a more sophisticated form of evacuation, e.g. phased evacuation or horizontal evacuation, will be used. In these cases it will be necessary for the fire-detection and warning system to automatically trigger the action that people need to take (in accordance with the pre-determined fire procedures). The warning system may also be based on voice alarms.

You need to consider how patients, in particular non-ambulant or semi-ambulant patients, should respond to an alarm. Patients who require staff assistance to make their escape can do little except wait for rescue and the sound of the alarm

could be distressing. The sound level provided for patients then becomes of less significance. Communication procedures should be in place so that patients, who can hear the alarm but not respond, are notified as quickly as possible about what is happening.

It is of critical importance that staff know how to respond to an alarm and have well-rehearsed procedures in place.

If you have an electrical fire-detection and warning system, then it is desirable to have an alarm repeater panel at the building entrance and a means of briefing the fire and rescue service when they arrive.

False alarms from electrical fire warning systems are a major problem and result in many unwanted calls to the fire and rescue service every year. To help reduce the number of false alarms, the design and location of activation devices should be reviewed against the way the premises are currently used.

If you are not sure whether your current arrangements are adequate, see the additional guidance on fire-detection and warning systems in Part 2, Section 2.

Checklist



- Can the means of detection ensure a fire is discovered quickly enough for the alarm to be raised in time for all the occupants to escape safely?
- Can the means of warning be clearly heard and understood by everyone throughout the relevant parts of the building when initiated from a single point?
- If the fire-detection and warning system is electrically powered, does it have a back-up power supply?
- Are the detectors of the right type and in the appropriate locations?

3.4.2 Firefighting equipment and facilities

Firefighting equipment can reduce the risk of a small fire, e.g. a fire in a waste-paper bin, developing into a large one. The safe use of an appropriate fire extinguisher to control a fire in its early stages can also significantly reduce the risk to other people in the premises by allowing people to assist others who are at risk.

This equipment will need to comprise enough portable extinguishers that must be suitable for the risk.

In simple premises, having one or two portable extinguishers of the appropriate type, readily available for use, may be all that is necessary. In more complex premises, a number of portable extinguishers may be required and they should be sited in suitable locations, e.g. on the escape routes at each floor level. It may also be necessary to indicate the location of extinguishers by suitable signs



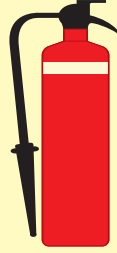

Main types of portable extinguishers, their uses and colour coding			
<p>WATER</p> <p>For wood, paper, textile and solid material fires</p> 	<p>POWDER</p> <p>For liquid and electrical fires</p> 	<p>FOAM</p> <p>For use on liquid fires</p> 	<p>CARBON DIOXIDE (CO₂)</p> <p>For liquid and electrical fires</p> 
<p>DO NOT USE on liquid, electrical or metal fires</p>	<p>DO NOT USE on metal fires</p>	<p>DO NOT USE on electrical or metal fires</p>	<p>DO NOT USE on metal fires</p>
<p>The contents of an extinguisher is indicated by a zone of colour on the red body. Halon extinguishers are not shown since no new Halon production is permitted in the UK</p>			

Figure 8: Types of fire extinguishers

Some premises will also have permanently installed firefighting equipment such as hose reels for use by trained staff or firefighters.

People with no training should not be expected to attempt to extinguish a fire. However, all staff should be familiar with the location and basic operating procedures for the equipment provided, in case they need to use it. If your fire strategy means that certain people, e.g. fire marshals, will be expected to take a more active role, then they should be provided with more comprehensive training.

Extinguishers should primarily be used to protect life and facilitate safe escape. They should otherwise only be used if they can be used safely and without risk of trapping the user.

Other fixed installations and facilities, such as dry rising mains, access for fire engines or automatically operated fixed fire suppression systems such as sprinklers and gas or foam flooding systems, may also have been provided. Where these have been required by law, e.g. the Building Regulations or local Acts, such equipment and facilities must be maintained. Similarly, if provided for other reasons, e.g. insurance, it is good practice to ensure that they are properly maintained.

In most cases it will be necessary to consult a competent service engineer with regard to servicing and maintenance of these facilities. Keeping records of the maintenance carried out will help you demonstrate to the enforcing authority that you have complied with fire safety law.

Appendix A1 provides a sample fire safety maintenance checklist you can use.

For further guidance on portable fire extinguishers see Part 2, Section 3.1, for fixed firefighting installations, see Part 2, Section 3.2, and for other facilities (including those for firefighters) see Part 2, Section 3.3.



Checklist

- Are the extinguishers suitable for the purpose?
- Have you taken steps to prevent the misuse of extinguishers?
- Are there enough extinguishers sited throughout the premises at appropriate locations?
- Are the right types of extinguishers located close to the fire hazards and can users get to them without exposing themselves to risk?
- Are the extinguishers visible or does their position need indicating?
- Do you regularly check any other equipment provided to help maintain the escape routes?
- Do you carry out daily checks to ensure that there is clear access for fire engines?
- Are those who test and maintain the equipment competent to do so?
- Do you have the necessary procedures in place to maintain any facilities that have been provided for the safety of people in the building or for the use of firefighters, such as access for fire engines and firefighting lifts?

3.4.3 Escape routes and strategies

Once a fire has started, been detected and a warning given, everyone in your premises should be able to escape safely, either unaided or with assistance, but without the help of the fire and rescue service. Where people with disabilities need assistance, staff will need to be designated for the purpose.

In all cases, escape routes should be designed to ensure, as far as possible, that any person confronted by fire anywhere in the building should be able to turn away from it and escape (or be evacuated), either direct to a place of total safety (single stage evacuation) or initially to a place of reasonable safety (progressive horizontal or delayed evacuation), depending on the escape strategy adopted.

A place of reasonable safety can be a protected fire compartment (delayed evacuation) or an adjacent sub-compartment or compartment on the same level (progressive horizontal evacuation). From there, further escape should be possible either to another adjacent compartment, or to a protected stairway or direct to final exit.

The level of fire protection that should be given to escape routes will vary depending on the level of risk of fire within the premises and other related factors. Generally, premises that are simple, consisting of a single storey, will require fairly simple measures to protect the escape routes, compared with a large multi-storey building, which would require a more complex and inter-related system of fire precautions. Where occupants need assistance to evacuate, you must ensure that there are sufficient staff to ensure a speedy evacuation.

When determining whether your premises have adequate means of escape, you need to consider a number of factors, including:

- the type, number and dependency of people using the premises;
- assisted means of escape;
- the evacuation strategy;
- escape time and travel distance;
- the age, construction and size of the premises;
- the number of escape routes and exits;
- management of escape routes; and
- emergency evacuation of people with mobility impairment.

The type, number and dependency of people using the premises

The people in your premises will primarily be a mixture of patients, staff and visitors.

Staff can reasonably be expected to have an understanding of the layout of the premises (or of the part in which they work), while visitors are unlikely to have knowledge of alternative escape routes. Patients may have limited knowledge, but will generally be guided or assisted to a place of safety by staff.

The number and dependency of people present will influence your assessment of the escape routes. You must ensure that your existing escape routes are sufficient and capable of safely evacuating all the people likely to use your premises at any time, particularly during busy times such as visiting hours. If necessary you may need either to increase the capacity of the escape routes, restrict the number of people in the premises or consider other safety measures (see Part 2, Section 4).

How quickly people can evacuate will depend on their level of reliance on staff, and it will therefore be helpful to consider the various categories of patient dependencies:

- **Independent:** the mobility of patients is not impaired in any way and they are able to physically leave the premises without the assistance of staff or, if they experience some mobility impairment, they are able to leave with minimal assistance from another person.
- **Dependent:** all patients except those defined as independent or very high dependency. This category also includes children and mental health patients regardless of their independent mobility.
- **Very high dependency:** those patients whose clinical treatment and/or condition create a high dependency on staff. This includes those in intensive care/intensive therapy units and operating theatres and those where evacuation would prove potentially life-threatening.

Assisted means of escape

Patients being cared for in healthcare premises will vary considerably in terms of mobility and levels of awareness during a fire situation. There may be patients who exhibit severe mobility restriction but will have a good awareness of the situation, being able to co-operate with staff. Others may exhibit normal mobility, but their level of awareness may be such that they present unpredictable behaviour (including violent behaviour), which may impede staff in an emergency. Patients with some forms of mental illness may become distressed by the alarm and the sudden activity. Some patients may not be fully ambulant or may be bedridden and dependent on medical equipment for their continued survival (for example in operating theatres and intensive care units) while others may have normal mobility and awareness (for example in outpatient clinics and GP surgeries).

In many cases, the evacuation of patients is likely to rely on the action of staff, guiding or moving them from the vicinity of the fire to an adjacent area providing reasonable safety.

The numbers of patients that may need to be moved in the event of a fire should be designed to be as few as possible. This may be achieved by establishing a number of protected areas within the premises. Restricting the number of patients within each protected area will be of benefit in an evacuation in terms of fewer patients requiring to be moved away from the fire.

You should ensure that staffing levels are both sufficient and available at all material times, to facilitate the movement of patients to a place of safety within the determined safe escape time (see below).

It is essential that your risk assessment takes full account of all difficulties that staff may encounter in moving people in an emergency. The conditions and dependency of patients, and hence their evacuation needs, can change over short periods of time. Therefore, it is important that staff play a part in the development of the emergency procedures. They will have a valuable contribution to make in terms of being aware of these changes, and be able to suggest any practical improvements to the evacuation procedure.

Evacuation strategy

You should not depend upon the fire and rescue service to evacuate people; your evacuation strategy must be dependent only on factors which are within your own control. However, you should consult with your enforcing authority when planning and determining an appropriate and effective evacuation strategy for your premises. Whichever system of evacuation you use must be supported by suitable management arrangements.

In healthcare premises, evacuation strategies are likely to fall into one or more of the following arrangements:

- single stage evacuation;

* See Part 2, Section 4.1 for the definition of a protected area.

- progressive horizontal evacuation; and
- delayed evacuation.

Single stage evacuation

This strategy is appropriate for healthcare premises where patients predominantly fall into the 'independent' category, where it may reasonably be expected that all people in the building are able to (and will) evacuate quickly out of the building to a place of total safety.

Progressive horizontal evacuation

This strategy is likely to be necessary where people are dependent on staff to assist with their escape. It works on the principle of moving the occupants from an area affected by fire, through a fire-resisting barrier to an adjoining area on the same level, where they can wait in a place of reasonable safety while the fire is dealt with, or await further evacuation to another similar area or, if necessary, down a protected route to total safety.

Delayed evacuation

In some parts of healthcare premises it may not be desirable or practical to evacuate some occupants immediately (e.g. because of medical conditions or treatments). In these circumstances, it may be appropriate to allow them to remain where they are while the fire is dealt with and the danger has passed, or to allow any additional time necessary to prepare them for evacuation (e.g. those in operating theatres, intensive care, etc.). In such circumstances it will be necessary to provide enhanced levels of structural fire protection to the individual room. However, where this strategy has been adopted, a suitable evacuation plan will still be required.

See Part 2, Section 4.1 for more information on evacuation strategies.

Escape time and travel distance

In the event of a fire, it is important to evacuate people as quickly as possible from the affected area or the building. Escape routes in a building should be designed so that people can escape quickly enough to ensure they are not placed in any danger from fire. The time available for escape will depend on a number of factors, including how quickly the fire is detected and the alarm raised, the number of available escape routes, the volume and height of the space, the ventilation conditions, the speed of fire growth, the mobility of the patients and adequate availability of staff. For simplicity, travel distances in Part 2, Table 2 on page 78 take these factors into account. Part 2, Section 4.1 provides additional guidance.

At the design stage of a building, the length of escape routes are kept within certain guidelines so that, in the event of a fire, the occupants can escape in the shortest time reasonably practicable.

The amount of escape time available will be closely linked to how quickly the staff are made aware of a fire within the premises, combined with the distances to be travelled.

For single stage evacuation strategies, where it would be expected that all the occupants would evacuate immediately, either to a place of reasonable safety inside the building e.g. a protected stairway, or to a place of total safety outside the building, it is the time needed to reach these points which is measured. However, where progressive horizontal evacuation is adopted, the escape time is related to how long it takes to move patients from the area involved in fire, to a place of reasonable safety in an adjoining protected area on the same level (see Figure 22).

The time required to do this will be influenced by a number of factors, including:

- the degree of mobility of each patient to be moved;
- the level of awareness of each patient, and the level of co-operation that may be expected;
- the distance to be travelled to the adjoining protected area;
- the number of staff members available to move patients;
- the level of training given to staff in moving patients quickly in an emergency; and
- the need to disconnect any medical devices and to prepare the patient the patient for evacuation.

The ideal way to determine the actual time required would be to conduct a timed simulation involving the actual movement of all of the patients. This would identify many simple problems that may be rectified before any emergency evacuation should occur. However, as this is not practical in most cases, other methods should be developed for calculating escape time, including walking the escape routes (slowly) from all parts of the premises and then considering the number of patients needing staff assistance and the minimum number of staff on duty at any time.

The age and construction of the premises

Older buildings may comprise different construction materials from newer buildings, and may be in a poorer state of repair. The materials from which your premises are constructed and the quality of building work and state of repair could contribute to the speed with which any fire may spread, and potentially affect the escape routes the occupants will need to use. A fire starting in a building constructed mainly from combustible material will spread faster than one where fire-resisting construction materials have been used.

If you wish to construct internal partitions or walls in your premises, perhaps to divide up a recreation area, you should ensure that any new partition or wall does not obstruct any escape routes or fire exits, extend travel distances or reduce the sound levels of the fire alarm system. Any walls that affect the means of escape should be constructed of appropriate material.

Depending on the findings of your fire risk assessment, it may be necessary to protect the escape routes against fire and smoke by upgrading the construction of the floors, ceiling and walls to a fire-resisting standard. You should avoid having combustible wall and ceiling linings in your escape routes. Any structural alterations may require building regulation approval and you may need to seek advice from a competent person.

Further technical information on fire resisting construction and wall and ceiling linings is provided in Appendix B.

If your premises have been purpose built for the provision of healthcare, and have been the subject of a fire risk assessment (such as HTM 86⁸⁰) for this use in the past, it is likely that the level of structural protection present will be adequate. However, the number and size of protected areas that are available to staff for evacuation purposes may need to be reviewed if circumstances within the premises change significantly. An example may be that the dependency of patients being cared for within the premises overall is increased, for example an out-patient clinic catering for the needs of fully ambulant patients in the past changes use to accommodate largely non-ambulant patients.

It is important that the correct balance is provided between adequate protection from fire and maintaining a comfortable and effective healing environment.



*Figure 9:
A blocked corridor
with incorrect signage*

The number of escape routes and exits

In general there should normally be at least two escape routes from all parts of the premises but in some small premises a single escape route may be acceptable in some circumstances (e.g. part of your premises accommodating less than 60 people) or where the travel distances are limited (see Part 2, Section 4).

Where more than one escape route is necessary and to further minimise the risk of people becoming trapped, you should ensure that the escape routes are completely independent of each other. This will prevent a fire affecting more than one escape route at the same time.

When evaluating escape routes, you may need to build in a safety factor by discounting the largest exit from your escape plan, then determine whether the remaining escape routes from a room, floor or building will be sufficient to evacuate all the occupants within a reasonable time. Escape routes that provide escape in a single direction only may need additional fire precautions to be regarded as adequate.

Exit doors on escape routes and final exit doors should normally open in the direction of travel, and be quickly and easily openable without the need for a key unless there are specific security reasons (e.g. medium secure or secure psychiatric premises – see also Part 2, Section 4: Means of escape – security). Checks should be made to ensure final exits are wide enough to accommodate

the number and type of people (e.g. wheelchairs users) who may use the escape routes they serve.

Management of escape routes

It is essential that escape routes, and the means provided to ensure they are used safely, are managed and maintained to ensure that they remain usable and available at all times when the premises are occupied. Inform staff during training sessions about the escape routes within the premises.

Hospital streets, corridors and stairways that form part of escape routes should be kept clear and hazard free at all times. Items that may be a source of fuel or pose an ignition risk should not normally be located on any hospital street, corridor or in a protected stairway.

Closing doors

In wards or bedrooms designed to accommodate patients that are elderly or those with mental illness, the individual room may need to become a place of temporary safety for a period of time compatible with safe conditions remaining in the building (delayed evacuation). Although doors to these rooms are not normally required to be fitted with automatic self-closing devices, your emergency plan may require that staff immediately, on hearing the fire alarm, close all the doors in the building, in particular bedroom doors, to limit the growth of the fire, and to provide protection to patients. Alternatively, in other types of ward or bedroom, the doors could be on automatic closing devices which operate when the fire detection and warning system operates. After this, and only if (or while) it is safe, should evacuation be attempted. The rooms and their doors should have an appropriate level of fire resistance, and doors should be fitted with smoke seals (see Part 2, Section 4.1).

Emergency evacuation of persons with mobility impairment

The means of escape you provide must be suitable for the evacuation of everyone likely to be in your premises. This may require additional planning and allocation of staff roles – with appropriate training. Provisions for the emergency evacuation of disabled persons may include:

- stairways;
- evacuation lifts;
- firefighting lifts;
- horizontal evacuation;
- refuges;

- ramps; and
- suitable evacuation equipment.

Use of these facilities will need to be linked to effective management arrangements as part of your emergency plan. The plan should not rely on fire and rescue service involvement for it to be effective.

Further guidance on escape routes is given in Part 2, Section 4.

Checklist



- Is your building constructed, particularly in the case of multi-storey buildings, so that, if there is a fire, heat and smoke will not spread uncontrolled through the building to the extent that people are unable to use the escape routes?
- Are any holes or gaps in fire-resisting walls, ceilings and floors properly sealed, e.g. where services such as ventilation ducts and electrical cables pass through them?
- Are there an adequate number of protected areas?
- Can all the occupants escape to a place of total safety in a reasonable time?
- Are the existing escape routes adequate for the numbers and type of people that may need to use them, e.g. patients, visitors, and disabled people?
- Have you made arrangements to ensure that all the escape routes within the building are properly maintained and available for use when required?
- Are the exits in the right place and are they adequately protected, and lead as directly as possible to a place of total safety?
- If there is a fire, could all available exits be affected or will at least one route from any part of the premises remain available?
- Are the escape routes and final exits kept clear at all times?
- Do the doors on escape routes open in the direction of escape?
- Can all final exit doors be opened easily and immediately (other than secure environments) if there is an emergency?
- Will everybody be able to safely use the escape routes from your premises?
- Are your staff aware of the importance of maintaining the safety of the escape routes, e.g. by ensuring that fire doors are not wedged open and that combustible materials or obstructions are not stored within escape routes?
- Are there any particular or unusual issues to consider?

3.4.4 Emergency escape lighting

People in your premises must be able to find their way to a place of total safety if there is a fire by using escape routes that have enough lighting. Where any escape routes are internal and without windows or your premises are used during periods of darkness, including early darkness on winter days, some form of back-up to the normal escape route lighting should be provided.

In simple premises, e.g. a small single-storey GP surgery where the escape routes are straightforward, borrowed lighting, e.g. from street lamps where they illuminate escape routes, may be acceptable.

In most healthcare premises a more comprehensive system of automatic emergency escape lighting should be in place to illuminate all the escape routes.

In addition, where people have difficulty seeing conventional signs, a 'way guidance' system may need to be considered.

Further guidance on emergency escape lighting is given in Part 2, Section 5.

Checklist



- Is there sufficient lighting to safely use escape routes during periods of darkness?
- Do you have emergency escape lighting to back up the normal lighting?

3.4.5 Signs and notices

Signs

In some premises it is important to avoid an 'institutional' environment. However, signs must be used, where necessary, to help people identify escape routes, find firefighting equipment and emergency fire telephones. These signs are required under the Health and Safety (Safety Signs and Signals) Regulations 1996^{5,6} and must comply with the provisions of those Regulations.

A fire risk assessment that determines that no escape signs are required (because, for example, trained staff will always be available to help members of the public to escape routes), is unlikely to be acceptable to an enforcing authority.

For a sign to comply with these Regulations it must be in pictogram form. The pictogram can be supplemented by text if this is considered necessary (see Figure 10) to make the sign more easily understood, but you must not have a safety sign that uses only text.

Where the locations of escape routes and firefighting equipment are readily apparent and the firefighting equipment is visible at all times, then signs are not necessary. In all other situations it is likely that the fire risk assessment will indicate that signs will be necessary.



Figure 10: Typical fire exit sign

Notices

Notices must be used, where necessary, to provide the following:

- instructions on how to use any fire safety equipment;
- the actions to be taken in the event of fire; and
- Information for the fire and rescue service (e.g. location of sprinkler valves or electrical cut-off switches).

All signs and notices should be positioned so that they can be easily seen and understood.

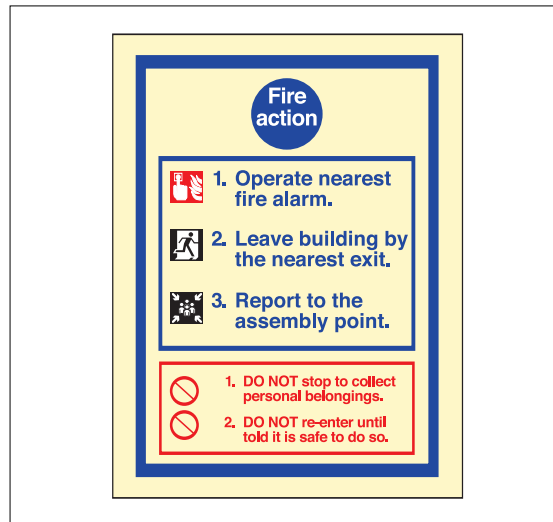


Figure 11: Simple fire action notice

Further guidance on safety signs and notices is given in Part 2, Section 6.

Checklist



- Where necessary are escape routes and exits, the locations of firefighting equipment and emergency fire telephones indicated by appropriate signs?
- Have you provided notices such as those giving information on how to operate security devices on exit doors, those indicating doors enclosing fire hazards that must be kept shut and fire action notices for staff and other people?
- Are you maintaining all the necessary signs and notices so that they continue to be correct, legible and understood?
- Are you maintaining signs that you have provided for the information of the fire and rescue service, such as those indicating the location of water suppression stop valves and the storage of hazardous substances?

3.4.6 Installation, testing and maintenance

New fire precautions should be installed by a competent person.

You must keep any existing equipment, devices or facilities that are provided in your premises for the safety of people, such as fire alarms, fire extinguishers, lighting, signs, fire exits and fire doors, in effective working order and maintain separating elements designed to prevent fire and smoke entering escape routes.

You must ensure regular checks, periodic servicing and maintenance are carried out whatever the size of your premises and any defects are put right as quickly as possible.

You, or a person you have nominated, can carry out certain checks and routine maintenance work. Further maintenance may need to be carried out by a competent service engineer. Where contractors are used, third party certification is one method where a reasonable assurance of quality of work and competence can be achieved (see Part 2, Section 8).

The following are examples of checks and tests that should be considered.

Daily checks

Remove bolts, padlocks and security devices from fire exits, ensure that doors on escape routes swing freely and close fully, and check exits and escape routes to ensure they are clear from obstructions and combustible materials, and in a good state of repair. Check the fire alarm panel to ensure the system is active and fully operational. Where practicable, visually check that emergency lighting units are in good repair and apparently working. Check that all safety signs and notices are legible. (See Appendix B3 for more details on bolts, padlocks and security devices.)

Weekly tests and checks

Test fire-detection and warning systems and manually-operated warning devices weekly following the manufacturer's or installer's instructions. Check that fire extinguishers and hose reels are correctly located and in apparent working order.

Monthly tests and checks

Test all emergency lighting systems to make sure they have enough charge and illumination according to the manufacturer's or supplier's instructions. Check that all fire doors are in good working order and closing correctly and that the frames and seals are intact.

Six-monthly tests and checks

A competent person should test and maintain the fire-detection and warning system.

Annual tests and checks

The emergency lighting and all firefighting equipment, fire alarms and other installed systems should be tested and maintained by a competent person. All structural fire protection and elements of fire compartmentation should be inspected and any remedial action carried out.

Appendix A1 provides an example of a fire safety maintenance checklist. You will find it of benefit to keep a log book of all maintenance and testing.

Further guidance on maintenance and testing on individual types of equipment and facilities can be found in the relevant sections in Part 2.

Checklist

- Do you regularly check all fire doors and escape routes and associated lighting and signs?
- Do you regularly check all your firefighting equipment?
- Do you regularly check your fire-detection and alarm equipment?
- Are those who test and maintain the equipment competent to do so?
- Do you keep a log book to record tests and maintenance?

Step 3 Checklist**Evaluate, remove, reduce and protect from risks by:**

- Evaluating the risk to people in your building if a fire starts
 - Removing or reducing the hazards that might cause a fire
- Have you:
- Removed or reduced sources of ignition?
 - Removed or reduced sources of fuel?
 - Removed or reduced sources of air or oxygen?
- Have you removed or reduced the risks to people if a fire occurs by:
- Considering the need for fire detection and for warning?
 - Considering the need for firefighting equipment?
 - Determining whether your escape routes are adequate?
 - Determining whether your lighting and emergency lighting are adequate?
 - Checking that you have adequate signs and notices?
 - Regularly testing and maintaining safety equipment?
 - Considering whether you need any other equipment or facilities?

STEP 4 RECORD, PLAN, INFORM, INSTRUCT AND TRAIN

In Step 4 there are four further elements of the risk assessment you should focus on to address the management of fire safety in your premises. In some premises with simple layouts this could be done as part of the day-to-day management, however, as the premises or the organisation get larger it may be necessary for a formal structure and written policy to be developed. Further guidance on managing fire safety is given in Part 2, Section 7.

4.1 Record the significant findings and action taken

If your organisation employs five or more people, your premises are licensed, or an alterations notice requiring you to do so is in force, you must record the significant findings of your fire risk assessment and the actions you have taken.

Significant findings should include details of:

- The fire hazards you have identified (you don't need to include trivial things like a small tin of solvent-based glue).
- The actions you have taken or will take to remove or reduce the chance of a fire occurring (preventive measures).
- Persons who may be at risk, particularly those at greatest risk.
- The actions you have taken or will take to reduce the risk to people from the spread of fire and smoke (protective measures).
- The actions people need to take in case of fire including details of any persons nominated to carry out a particular function (your emergency plan).
- The information, instruction and training you have identified that people need and how it will be given.

For further information see Part 2.

You may also wish to record discussions you have had with staff or staff representatives (including trade unions).

Even where you are not required to record the significant findings, it is good practice to do so.

In some simple premises providing healthcare, record keeping may be no more than a few sheets of paper (possibly forming part of a health and safety folder), containing details of significant findings, any action taken and a copy of the emergency plan.

The record could take the form of a simple list which may or may not be supported by a simple plan of the premises.

In more complex premises, it is best to keep a dedicated record including details of significant findings, any action taken, a copy of the emergency plan, maintenance of fire-protection equipment and training. There is no one 'correct' format specified for this. Further guidance is given in Part 2, Section 7.1.

You must be able to satisfy the enforcing authority, if called upon to do so, that you have carried out a suitable and sufficient fire risk assessment. Keeping records will help you do this and will also form the basis of your subsequent reviews. If you keep records, you do not need to record all the details, only those that are significant and the action you have taken.

It can be helpful to include a simple line drawing to illustrate your fire precautions (see Figure 12). This can help you check your precautions as part of your ongoing review.

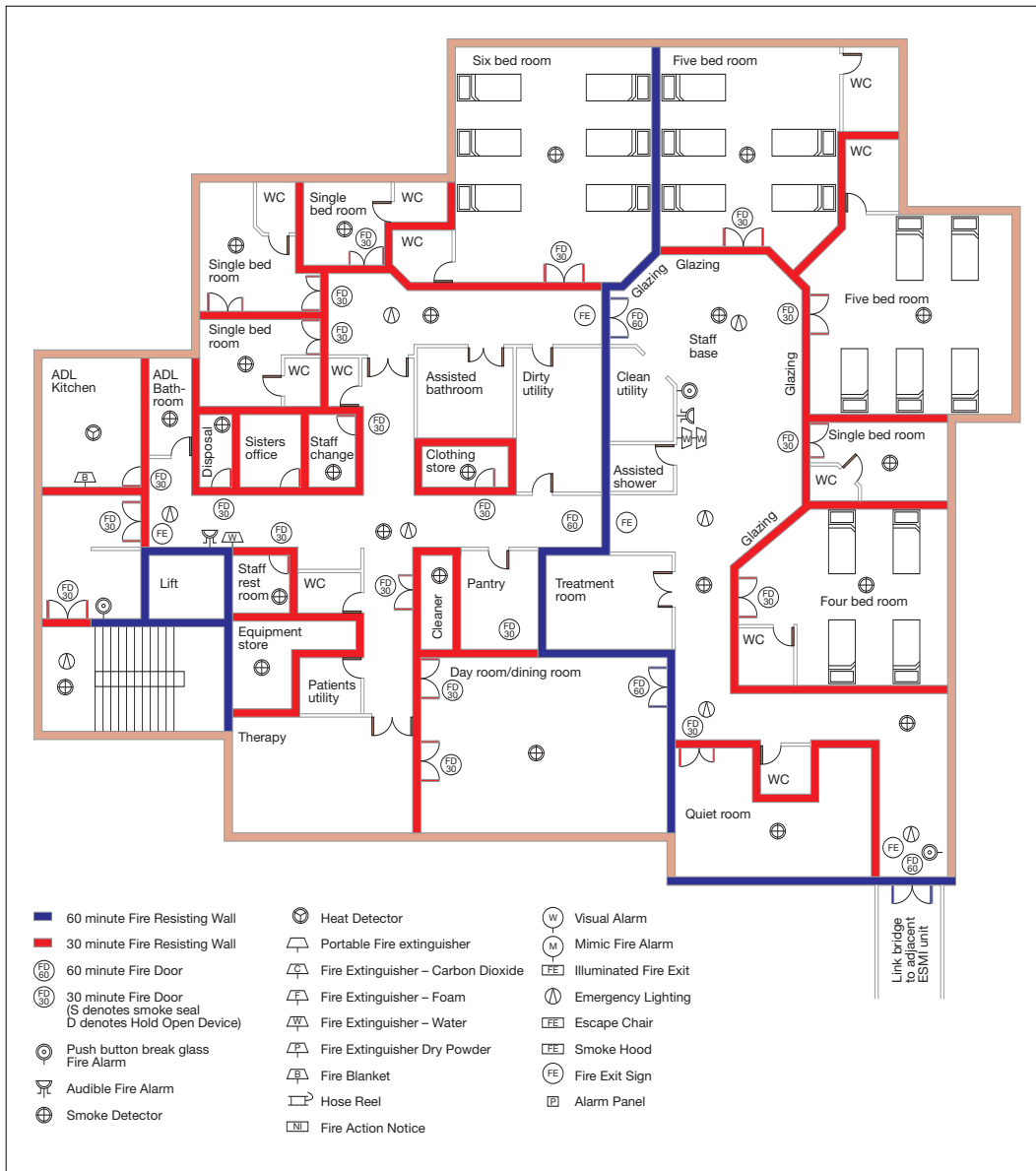


Figure 12: Example of a line drawing showing general fire safety precautions

The findings of your fire risk assessment will help you to develop your emergency plan, the instruction, information and training you need to provide, the co-operation and co-ordination arrangements you may need to have with other responsible people and the arrangements for maintenance and testing of the fire precautions. If you are required to record the significant findings of your fire risk assessment then these arrangements must also be recorded.

Further guidance about fire safety records with an example is given in Part 2, Section 7.1.

Checklist



- Have you recorded the significant findings of your assessment?
- Have you recorded what you have done to remove or reduce the risk?
- Are your records available for inspection by the enforcing authority?

4.2 Emergency plans

You need to have an emergency plan for dealing with any fire situation.

The purpose of an emergency plan is to ensure that, where practicable, all the staff in your premises know what to do if there is a fire and that the premises can be safely evacuated.

If you or your organisation employ five or more people, or your premises are licensed or an alterations notice requiring it is in force, then details of your emergency plan must be recorded. Even if it is not required, it is good practice to keep a record.

Your emergency plan should be based on the outcome of your fire risk assessment and be available for your employees, their representatives (where appointed), patients (if they request it) and the enforcing authority.

In simple premises providing healthcare the emergency plan may be no more than a fire action notice.

In most premises providing healthcare, the emergency plan will need to be more detailed and, where necessary, compiled only after consultation with other occupiers and other responsible people, e.g. other occupiers in a multi-occupied building or others who have control over any part. In most cases this means a single emergency plan covering the whole building, and it will help if you can agree on one person to co-ordinate this task.

Further guidance on emergency plans is given in Part 2, Section 7.2.

Checklist



- Do you have an emergency plan and, where necessary, have you recorded the details?
- Does your plan take account of other emergency plans applicable in the building?
- Is the plan readily available for staff to read?
- Is the emergency plan available to the enforcing authority?

4.3 Inform, instruct, co-operate and co-ordinate

You must give clear and relevant information and appropriate instructions to your staff and the employers of other people working in your premises, such as contractors, about how to prevent fires and what they should do if there is a fire. In some premises you may also want to give information to patients and regular visitors.

All other relevant persons should be given information about the fire safety arrangements as soon as possible, e.g. contractors when they start work.

If you intend to employ a child, you must inform the parents of the significant risks you have identified and the precautions you have taken. You must also co-operate and co-ordinate with other responsible people who use or are connected to any part of the premises. It is unlikely that your emergency plan will work without this.

Information and instruction

All staff should be given information and instruction as soon as possible after they are appointed and regularly after that. Make sure you include staff who work outside normal working hours, such as contract cleaners or maintenance staff.

The information and instructions you give must be in a form that can be used and understood. They should take account of those with disabilities such as hearing or sight impairment, those with learning difficulties and those who do not use English as their first language.

The information and instruction you give should be based on your emergency plan and must include:

- the significant findings from your fire risk assessment;
- the measures that you have put in place to reduce the risk;
- what staff should do if there is a fire;
- the identity of people you have nominated with responsibilities for fire safety; and
- any special arrangements for serious and imminent danger to persons from fire.

In simple premises, where no significant risks have been identified and there are limited numbers of staff, information and instruction may simply involve an explanation of the fire procedures and how they are to be applied. This should include showing staff the fire-protection arrangements, including the designated escape routes, the location and operation of the fire-warning system and any other fire-safety equipment provided, such as fire extinguishers, and how to care for and evacuate patients. Fire action notices can complement this information and, where used, should be posted in prominent locations.

In most healthcare premises, written instructions should be provided to your staff who have been nominated to carry out a designated safety task, such as calling the fire and rescue service or checking that exit doors are available for use at the start of each shift.

Information about the premises should be readily available for the attending fire and rescue services. The information should be located at a pre-agreed location (usually the main entrance area). Information needed by fire crews about their construction, contents, hazards and built-in fire protection measures is becoming increasingly complex; the more information you can make available, the lower the risk to occupants, fire crews and, potentially, the premises.

Further guidance on information and instruction to staff, and on working with dangerous substances is given in Part 2, Section 7.3.

Co-operation and co-ordination

In premises that are not multi-occupied you are likely to be solely responsible. However, in buildings owned by someone else, or where there is more than one occupier, and others are responsible for different parts of the building, it is important that you liaise with them and inform them of any significant risks that you have identified. By liaising you can co-ordinate your resources to ensure that your actions and working practices do not place others at risk if there is a fire, and a co-ordinated emergency plan operates effectively.

Where two or more responsible persons share premises in which an explosive atmosphere may occur, the responsible person with overall responsibility for the premises must co-ordinate any measures necessary to protect everyone from any risk that may arise.

Employees also have a responsibility to co-operate with their employer so far as it is necessary to help the employer comply with any legal duty.

Further guidance on co-operation and co-ordination is given in Part 2, Section 7.3.

Checklist



- Have you told your staff about the emergency plan?
- Have you identified people you have nominated to do a particular task?
- Have you, where appropriate, told patients about the emergency plan?
- Have you given staff information about any dangerous substances?
- Do you have arrangements for informing temporary or agency staff?
- Do you have arrangements for informing other employers whose staff are guest workers in your premises, such as maintenance contractors and cleaners?
- Have you co-ordinated your fire safety arrangements with other responsible people in the building?
- Have you recorded details of any information or instructions you have given and the details of any arrangements for co-operation and co-ordination with others?

4.4 Fire safety training

You must provide adequate fire safety training for your staff. The type of training should be based on the particular features of your premises and should:

- take account of the findings of the fire risk assessment;
- explain your emergency procedures;
- take account of the work activity and explain the duties and responsibilities of staff;

- take place during their individual working hours and be repeated periodically where appropriate;
- be easily understandable by your staff and other people who may be present; and
- be tested by fire drills.

In simple premises this may be no more than showing new staff the fire exits and giving basic training on what to do if there is a fire. In complex premises, with a high staff turnover and many shift patterns, the organisation of fire safety training will need to be planned.

Your staff training should include the following:

- the importance of keeping fire-doors closed (or closing them) to prevent the spread of fire, heat and smoke;
- what to do on discovering a fire;
- how to raise the alarm and what happens then;
- what to do upon hearing the fire alarm;
- when to adopt a progressive horizontal evacuation;
- the procedures for alerting other staff, patients and visitors including, where appropriate, directing them to exits;
- the arrangements for calling the fire and rescue service;
- the evacuation procedures for everyone in your premises to reach an assembly point at a place of total safety, in particular the role of patients;
- the evacuation procedures for patients who require assisted escape, to reach an assembly point at a place of total safety;
- the location and, when appropriate, the use of firefighting equipment;
- the location of escape routes, especially those not in regular use;
- how to open all emergency exit doors;
- where appropriate, how to stop machines and processes and isolate power supplies in the event of a fire;
- the reason for not using lifts (except escape bed lifts or those specifically installed or nominated, following a suitable fire risk assessment, for the evacuation of people with a disability);
- the safe use of and risks from storing or working with highly flammable and explosive substances and bottled or piped oxygen;
- the importance of general fire safety, which includes good housekeeping; and
- fire drills, with and without patients' involvement.

All the staff identified in your emergency plan that have a supervisory role if there is a fire (e.g. heads of department, fire marshals or wardens and, in complex premises providing healthcare, fire parties or teams), should be given details of your fire risk assessment and receive additional training, and be aware of the importance of staff roles and staffing ratios.

Further guidance on fire safety training and examples of how to carry out a fire drill is given in Part 2, Section 7.4.

Checklist



- Have your staff received fire safety training?
- Have you carried out a fire drill recently?
- Are staff aware of specific tasks if there is a fire?
- Are patients aware of specific actions if there is a fire?
- Are you maintaining a record of training sessions?
- If you use or store hazardous substances, have your staff received appropriate training?

STEP 5 REVIEW

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 has affected your fire precautions, you will need to review your assessment and if necessary revise it. Reasons for review could include:

- changes to work processes or the way that you organise them, including the introduction of new equipment;
- alterations to the building, including the internal layout;
- substantial changes to furniture and fixings;
- the introduction, change of use or increase in the storage of hazardous substances;
- the failure of fire precautions, e.g. fire-detection systems and alarm systems, life safety sprinklers or ventilation systems;
- significant changes to type and quantities of stock;
- a significant increase in the number of people present; and
- the presence of people with some different or specific form of disability.

You should consider the potential risk of any significant change before it is introduced. It is usually more effective to minimise a risk by, for example, ensuring adequate, appropriate storage space for an item before introducing it to your premises.

Do not amend your assessment for every trivial change, but if a change introduces new hazards you should consider them and, if significant, do whatever you need to do to keep the risks under control. In any case you should keep your assessment under review to make sure that the precautions are still working effectively. You may want to re-examine the fire prevention and protection measures at the same time as your health and safety assessment.

If a fire or 'near miss' occurs, this could indicate that your existing assessment may be inadequate and you should carry out a re-assessment. It is good practice to identify the cause of any incident and then review and, if necessary, revise your fire risk assessment in the light of this.

Records of testing, maintenance and training etc are useful aids in a review process. See Appendix A1 for an example.

Alterations notices

If you have been served with an 'alterations notice' check it to see whether you need to notify the enforcing authority about any changes you propose to make as a result of your review. If these changes include building work, you should also consult a building control body.

END OF PART 1

You should now have completed the five-step fire risk assessment process, using the additional information in Part 2 where necessary. In any review you may need to revisit Steps 1 to 4.