PRACTICAL FIRE SAFETY GUIDANCE FOR HEALTHCARE PREMISES

safer
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SCOTTISH GOVERNMENT

Health Facilities Scotland

SCOTTISH BUILDING
STANDARDS AGENCY

HSE

The guidance in this document has been jointly produced by the Scottish Government's Police and Community Safety Directorate, Health Facilities Scotland, HM Fire Service Inspectorate for Scotland, the Scottish Building Standards Agency and the Health and Safety Executive.

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Chapter 1:   INTRODUCTION

1.   This guide has been produced to assist those who have responsibility for ensuring fire safety in healthcare premises in Scotland. The *Fire (Scotland) Act 2005*, as amended, introduced changes to fire safety law in Scotland and repealed previous fire safety legislation.   Sections 53, 54 and 56 of the *Fire (Scotland) Act 2005* place a duty on employers, employees, managers, owners and others in relation to fire safety. The guide may also be helpful to all other persons with a role in ensuring fire safety in healthcare premises.

2.   The complexity of healthcare premises and their contents along with the vulnerability of patients may combine to pose a serious risk. This guide will assist owners, managers and staff to achieve a fire safe environment in their premises and will also assist in achieving compliance with fire safety law. Reducing the risk from fire is one of the most important and fundamental duties in healthcare premises.

3.   This guidance has been prepared by the Scottish Government, and is one in a series of guidance documents aimed at offering fire safety advice for different types of premises. In Scotland, this guide replaces the use of the following guidance documents in respect of hospitals:

- *Guide to Fire Precautions in Existing Places of Work that Require a Fire Certificate. Factories, Offices, Shops and Railway Premises (ISBN 0 11 341079 4)*
- *Fire Safety at Work. (ISBN 0 11 340905 2)*
- *Fire Safety. An employer's guide. (ISBN 0 11 341229 0)*

4.   Substantial technical and management guidance exists for fire safety in NHS healthcare premises in Scotland. This guide acknowledges the breadth of the existing guidance - most notably the suite of documents known as 'NHSScotland Firecode' issued by Health Facilities Scotland - and the range of fire safety issues in healthcare premises. Accordingly, this guide covers general guidance and principles and seeks to be complementary to the NHSScotland Firecode guidance and references Scottish Health Technical Memoranda (SHTM) and Scottish Fire Practice Notes (SFPN) where appropriate. In this respect, NHSScotland Firecode guidance is considered relevant to non-NHS healthcare premises.   Details of how to access these documents are available in the Reference Material section at the end of the guide.

5.   The guide has twelve chapters. The first three chapters are an introduction, a description of the scope and an overview of fire safety law and responsibilities under the *Fire (Scotland) Act 2005*, as amended. The fourth chapter explains what fire safety risk assessment is and how it may be undertaken. Fire safety risk assessment should be the foundation for all the fire safety measures in the premises. Chapters 5 to 12 are about managing fire safety and identifying the general fire safety measures which should be in place. These chapters are written to provide guidance for those with statutory duties in relation to fire safety (as set out in the *Fire (Scotland) Act 2005,* as amended*).

6.   In the event that this guide is read by persons with duties under the *Fire (Scotland) Act 2005*, as amended, and those persons feel unable to apply the guidance, then they should seek assistance from someone with sufficient technical knowledge. In this respect, the Fire and Rescue Authority or Joint Fire and Rescue Board, as enforcer of the legislation, cannot undertake the role. However, the enforcing authority does have a statutory requirement to provide general advice on request about issues relating to fire safety and should be able to provide information and advice which will assist dutyholders to understand their obligations under the law.

Chapter 2:   SCOPE

7.   Part 3 of the *Fire (Scotland) Act 2005,* as amended, and related subordinate legislation makes provision in relation to fire safety in certain premises. These premises are defined in section 78 of the Act but are predominantly most premises which are not private dwellings. The Act and related subordinate legislation covers general fire safety which includes risk reduction measures, means of fire warning, fire-fighting, escape and staff training and instruction.

8.   The guidance in this document is applicable to general fire safety in healthcare premises, primarily hospitals and treatment centres (premises where invasive and other procedures are undertaken, placing a reliance on staff for evacuation). This excludes small medical practitioner and dental practice premises only if treatments are unlikely to affect the ability of patients to respond to an alarm of fire. For further information on these types of premises refer to the practical fire safety guidance for offices, shops and similar premises guide.

9.   Parts of premises may be substantially put to a functional use which falls within the scope of another fire safety guide. Where there is multiple functional use within premises, it may be appropriate to check whether there is a specific fire safety guide which is more appropriate for that area.

10.   The fire safety provisions in Part 3 of the *Fire (Scotland) Act 2005,* as amended, take precedence over terms, conditions or restrictions in licences which relate to fire safety. Section 71 of the Act makes it clear that terms, conditions or restrictions in licences – including statutory certification or registration schemes – are to have no effect if they relate to fire safety requirements or prohibitions which are, or could be, imposed under Part 3 of the Act.

11.   Where possible, this guide does not set down prescriptive standards, but provides recommendations regarding the fire safety risk assessment process, the reduction of risk and guidance on fire safety measures that can be implemented to mitigate risk. It is not necessary to follow the recommendations of this guide if other fire safety risk assessment methods, or fire safety measures which achieve the same end, are used. In some premises, the fire safety measures already in place may not be the same as those referred to in this guide as benchmarks, but so long as it can be demonstrated that they meet the requirement of the outcomes of the risk assessment and provide a suitable level of fire safety, they may be acceptable. Indeed, NHSScotland Firecode contains such an alternative approach in SHTM 86 Parts 1 & 2. This means there is no obligation to adopt any particular solution in this guide if the outcomes of a fire safety risk assessment can be met in some other way.

12.   Where the healthcare premises are, or include, a listed building (a building of special architectural or historic interest, included in a list compiled by the Scottish Ministers), there may be a need to consider the character of the building inside as well as out. Measures to prevent fire, to limit its spread, and to ensure life safety will be as necessary in a historic building as in any other. Before changes are made, advice should be obtained from the local planning authority as to whether Listed Building Consent may be required. Alternatives could be considered to conventional fire safety measures, as these may, in some cases, harm the character of historic buildings. A fire engineering approach combining automatic fire detection, fire suppression system and smoke control is recommended in the Historic Scotland Technical Advice Notes 11, 14, 22 and 28.

13.   All new buildings, including healthcare premises, must be designed to the mandatory standards under the *Building (Scotland) Regulations 2004.* Guidance on the design and

construction of new premises is contained in the *Scottish Building Standards Technical Handbook for Non-Domestic Buildings* and in SHTM 81. Similarly, buildings which undergo extension, structural alteration or change of use should also meet the same standards and be subject to building warrant approval, if required.

14.   In many premises, existing fire safety measures have been incorporated in accordance with Building Regulations. Nothing in this guide should be interpreted as permitting a reduction in the standard of fire safety measures where they have been provided to comply with Building Regulations. It is possible for a standard higher than that required by Building Regulations to be necessary and appropriate as a consequence of a fire safety risk assessment.

Chapter 3: WHAT THE LAW REQUIRES

15.   This guide and its contents constitute guidance given by the Scottish Ministers in terms of section 61(2) of the *Fire (Scotland) Act 2005,* as amended. Part 3 of the *Fire (Scotland) Act 2005*, as amended, and related subordinate legislation set out the fire safety duties for the majority of premises in Scotland, with the exception of private dwellings. Healthcare premises will be subject to the Act and related subordinate legislation. In general, the legislation seeks to ensure the safety of persons (whether they are employees, patients, visitors or others) in the premises in respect of harm caused by fire, by setting out fire safety responsibilities.

16.   Some healthcare premises required a fire certificate under previous legislation for parts of the premises which were used for factory, office or shop use. One of the changes brought in by the *Fire (Scotland) Act 2005*, as amended, is the removal of the need for premises to be issued with a fire certificate. Where healthcare premises have previously been issued with a fire certificate, such fire certificates will have no legal force and fire safety in premises will be achieved by compliance with the legislation identified in paragraph 15 above.

17.   The legal duty which is imposed by the legislation seeks to achieve safety in the event of fire and can be considered in terms of seven general requirements:

- Carrying out a fire safety risk assessment of the premises;
- Identifying the fire safety measures necessary as a result of the fire safety risk assessment outcome;
- Implementing these fire safety measures using risk reduction principles;
- Putting in place fire safety arrangements for the ongoing control and review of the fire safety measures;
- Complying additionally with the specific requirements of the fire safety regulations;
- Keeping the fire safety risk assessment and outcome under review; and
- Record keeping.

18.   Guidance on complying with these requirements is considered in more detail in the remaining chapters. It should be noted that this chapter of the guidance is not intended to be a comprehensive summary of requirements under the *Fire (Scotland) Act 2005*, as amended, and related subordinate legislation. Anyone in any doubt about their legal obligations should seek their own independent legal advice.

Who Must Comply With These Duties?

19.   The responsibility for complying with these fire safety duties sits with the employer and other persons who have control of the premises to any extent, such as managers and contractors and volunteers working on site may also have some responsibilities. Employers are required to ensure the safety of employees so far as is reasonably practicable. This means that the sacrifice in terms of time, effort, expense and any other disadvantages associated with the provision of fire safety measures should be weighed against the magnitude of the fire risk if they were not taken.

20.   All other persons with fire safety responsibilities in respect of the premises are required to take all reasonable measures regarding the safety of persons in, or in the immediate vicinity of the premises. Where premises or responsibilities are shared, each employer or other person who has control over any part of the premises is required to co-operate and co-ordinate in respect of complying with fire safety law and to inform each other of risks.

Who Enforces The Fire Safety Law?

21.   The responsibility for compliance with the legislation sits principally with the persons who manage, operate and work in healthcare premises but there is also provision in the legislation for an enforcing authority with enforcement powers.

22.   The Fire and Rescue Authority or Joint Fire and Rescue Board for the area will be the enforcing authority in respect of the majority of healthcare premises (other than defence premises). The powers of enforcement officers in relation to premises for which they have enforcement responsibilities are listed in section 62 of the Act and are summarised below.

23.   Enforcement officers may do anything necessary to allow them to enforce the fire safety duties, including:

- Entering premises for inspection at any reasonable time, or at any time if the officer has reason to believe that the situation is dangerous;
- Requesting information, records etc, or assistance from any persons with fire safety duties;
- Inspecting, copying or removing any relevant documents from the premises;
- Carrying out any inspections, measurements or tests considered necessary on the premises or any article or substance found on the premises;
- Taking samples of any article or substance found on the premises;
- Dismantling articles found on premises which appear likely to cause danger from fire; and
- Taking possession of an article for purposes of examination or use as evidence.

24.   If the enforcing authority is dissatisfied with the outcome of the fire safety risk assessment or the action taken, or the fire safety measures in place, it has the power to take action which could be:

- Informal action;
- Formal enforcement action which could result in the issue of an enforcement notice that requires specified action to be taken;
- In extreme cases, a prohibition notice may be issued that restricts the use of all or part of the premises until specified matters are remedied; or
- Reporting the matter for prosecution. Failure to comply with a notice issued by the enforcing authority **or** placing persons at risk by failing to carry out any duty imposed by fire safety law is an offence.

25.   Enforcing authorities are required to take into account the content of this guide to assist in determining whether enforcement action may be necessary but in doing so they should have a flexible approach to enforcement and should not use the benchmarks in NHSScotland Firecode as prescriptive standards. This would be a misinterpretation, as the objective is to use the relevant benchmarks when assessing the existing fire safety measures and the guidance provided in NHSScotland Firecode may be a method of assisting with the reduction of the risk.

26.   Where there is disagreement with the enforcing authority on compliance issues, there is a mechanism for joint referral for third party independent determination. The enforcing authority will supply details in relevant cases. There is also a right of appeal to the court against formal enforcement action.

27.   Additionally, if the premises pose a serious risk to persons in respect of harm caused by fire, or would pose such a risk if particular changes were made to the premises, the authority may issue an alterations notice that obliges the recipient to inform the enforcing authority before making specified changes to the premises.

28.   In all cases, when dealing with an enforcing authority, it is important to be able to distinguish between fire safety measures that are necessary for the protection of life and which are required to comply with fire safety legislation, as opposed to any fire safety measures that provide a higher standard than is necessary to comply with fire safety legislation, such as measures provided for the protection of property or the continuation of business.

29.   Fire and Rescue Service crews may visit premises to enable crew members to gain familiarisation with them in the event they are called to a fire in the premises. This type of visit is unlikely to include an assessment of compliance with fire safety law. The fact that a Fire and Rescue Service visit has taken place should not be interpreted as an endorsement of fire safety measures and procedures in the premises.

Chapter 4: FIRE SAFETY RISK ASSESSMENT

30.   Employers, managers and any persons with control to any extent of the healthcare premises, have duties in respect of fire safety of the premises. It is a legal requirement to carry out a fire safety risk assessment. This forms a crucial element in the overall safety policy for the premises. It is essential that the risk assessment is specific to **fire safety** and to the **premises concerned**. An overall generic risk assessment will **not** be sufficient. It is essential that the person who undertakes this fire safety risk assessment is proficient to do so.

31.   Persons can be considered proficient where they have sufficient technical training and experience or knowledge, both to carry out a fire safety risk assessment and understand fully the procedures and management involved, and to undertake properly the measures referred to in this guide. Risk assessment in complex premises may require the assessor to have a greater level of knowledge and expertise - SHTM 86 Part 2 provides further guidance.

32.   This chapter explains fire safety risk assessment and sets out a step-by-step guide to the process. The method suggested shares a similar approach to that used in general health and safety guidance.

What Is A Fire Safety Risk Assessment?

33.   A fire safety risk assessment is an organised and methodical look at the premises, the activities within the premises, the potential for a fire to occur and the harm it could cause to the people in and around the premises. The existing fire safety measures are evaluated and kept under review to establish whether they are adequate or if more requires to be done.

34.   For the purpose of fire safety risk assessment, a **hazard** is a situation that can give rise to a fire. **Risk** has two components: the **likelihood** that a fire may occur; and the potential for a fire to cause death or injury i.e. **consequence**. Both of these components should be considered in a fire safety risk assessment.

35.   The aims of a fire safety risk assessment are:

- To identify hazards and reduce the risk of those hazards causing harm to as low as is reasonably practicable; and
- To determine what fire safety measures and management policies are necessary to ensure the safety of people in the building should a fire occur.

How Is A Fire Safety Risk Assessment Carried Out?

36.   There are five steps in the assessment process and these are shown in Figure 1.

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FIRE SAFETY RISK ASSESSMENT	
1	Identify people at risk
2	Identify fire hazards Sources of ignition Sources of fuel Sources of oxygen
3	Evaluate the risk and decide if existing fire safety measures are adequate Evaluate the likelihood of a fire starting Evaluate the consequence to people from fire Implement fire safety measures · Remove or reduce fire hazards · Remove or reduce risks to people · Fire alarm · Fire-fighting equipment · Escape routes and lighting · Signs and notices · Maintenance · Effective management · Staff training
4	Record Record significant findings and action taken / action to be taken
5	Review Keep assessment under review Revise where necessary

Figure 1 Five steps of the fire safety risk assessment process

Step 1: Identify People At Risk

37.   An assessment should be made of those persons at risk if a fire occurs. This involves identifying the number, dependency and location of patients, staff and other persons who frequent the healthcare premises. In considering staff, any disability should be taken into account along with the inexperience, lack of awareness and immaturity of any young persons employed. In addition, the fact that visitors to the premises may have disabilities and will be unfamiliar with the premises, should be taken into account.

38.   Healthcare premises pose special problems in respect of fire as some patients may be incapacitated and totally reliant on staff. In some cases moving them may place them at risk such as where there is monitoring or support systems. Others may be asleep or under the influence of medication and mobility, awareness and understanding may therefore be impaired. This will directly affect their ability to respond to an emergency. Elderly and infirm persons are particularly susceptible to the effects of smoke and toxic gases produced in a fire.

39.   In healthcare premises where people are treated, the fire safety measures provided should be based on the degree of dependency of the patients. The ability of patients to respond to an alarm of fire will depend amongst other things on the degree of mobility, perception, and/or hearing.

40.   Many healthcare premises will have a number of patients with varying levels of dependency and it will be necessary to identify the general dependency of the type of patient accommodated in each part. The potential mobility and responsiveness of patients should be considered and needs should be established in terms of assistance required and method of movement in an emergency situation.

Step 2: Identify Fire Hazards

41.   This step involves identifying potential ignition sources, the materials that might fuel a fire and the oxygen supplies which will help it burn.

42.   For a fire to start, three components are needed: a source of ignition, fuel and oxygen. These components can be represented in the form of a triangle of fire as shown in Figure 2. If any of these components are missing, a fire cannot start. Taking steps to avoid the three coming together will therefore reduce the chances of a fire occurring.

Figure 2 The triangle of fire

FUEL
(flammable gases, liquid or solids)

OXYGEN   **IGNITION SOURCE**
(present in the air)   (such as cooking, smoking
electrical equipment)
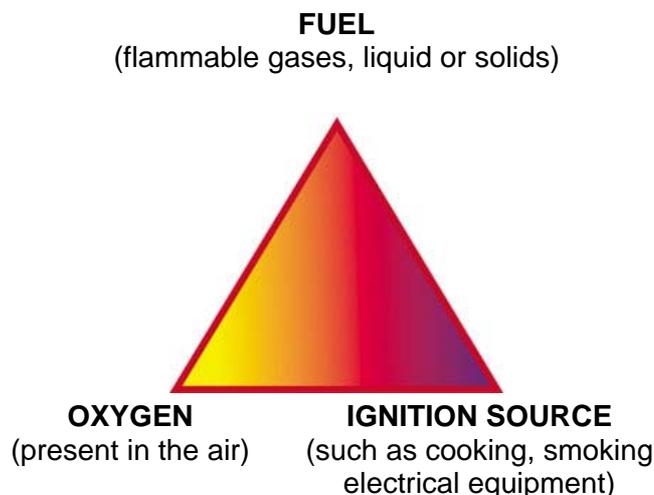
43.   More detailed guidance on the fire hazards particular to healthcare premises can be found within SHTM 83.

Identify Sources Of ignition

44.   Potential ignition sources are those where sources of heat could get hot enough to ignite material found in the premises. These sources could include:

- Smokers' material such as cigarettes, matches and lighters;
- Naked flames such as candles or gas open-flame equipment;
- Electrical, gas or oil-fired heaters (fixed or portable);
- Hot processes such as repair work by contractors;
- Cooking equipment;
- Lighting;
- Deliberate fire raising; and
- Faulty or misused electrical equipment.

45.   Indications of 'near misses', such as scorch marks on furniture or fittings, discoloured or charred electrical plugs and sockets, cigarette burns etc, can help identify hazards.

Identify Sources Of Fuel

46.   Anything that burns is fuel for a fire. Material which will burn reasonably easily and is in enough quantity to provide fuel for a fire, or cause it to spread to another fuel source, should be identified. This applies to contents, fixtures and fittings and also to structure and materials used to construct or line walls and ceilings such as polystyrene or tiles. How these fuels might contribute to the spread of fire should be identified.

47.   Some of the most common 'fuels' found are:

- Textiles, soft furnishings, clothing and laundry;
- Flammable liquids and solvents, such as white spirit, methylated spirit, cooking oils, alcohol based hand gels, and mediwipes;
- Seasonal or religious occasion decorations;

- Plastics and rubber, such as video tapes and upholstered furniture;
- Waste material, particularly when finely divided such as shredded paper; and
- Flammable gases.

Identify Sources Of Oxygen

48.   The main source of oxygen for a fire is in the air around us. Air supply generally falls into one of two categories: natural air flow through doors, windows and other openings; or mechanical air conditioning systems and air handling systems. In many buildings there will be a combination of sources, which will be capable of introducing or extracting air to or from the building.

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

- Some chemicals (oxidising materials), which can provide a fire with additional oxygen and so assist it to burn; or
- Oxygen supplies from cylinder storage and piped systems used in oxygen therapy.

Step 3: Evaluate The Risk And Decide If Existing Fire Safety Measures Are Adequate

50.   Step 3 of the fire safety risk assessment involves an assessment of the hazards and analysis of whether the fire safety measures taken reduce the risks posed by the hazards to an acceptable level.

Evaluate The Likelihood Of A Fire Starting

51.   The chances of a fire starting will be low if there are 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 bedside lights are knocked over.
- By **act or omission**, such as when electrical equipment is not properly maintained, or when waste is allowed to accumulate near to a heat source.
- **Deliberately**, such as intentional setting fire to external rubbish bins.

52.   The premises should be critically examined to identify any potential accidents and any acts or omissions which might allow a fire to start. This should include situations that may present an opportunity for deliberate ignition.

53.   Deliberate fire-raising associated with mental impairment is a relatively frequent occurrence in mental health hospitals. Some mental health patients, for example, can pose risks if they have access to smoking materials.

Evaluate The Consequences To People From A Fire Starting In The Building

54.   Having considered the people likely to be at risk should a fire start in the building and the chances of a fire occurring, the extent of the actual risk to those people if a fire starts and spreads should be considered. The risk to patients will be partly influenced by their dependency and capability; this will have been identified at Step 1 of this process.

55.   In evaluating the risk to people it is necessary to consider situations such as:

- Fire starting on a lower floor affecting the escape routes for people on upper floors;
- Fire developing in a space that people have to pass by to escape from the building;
- Fire or smoke spreading through a building via routes such as poorly installed, poorly maintained or damaged vertical shafts, service ducts, ventilation systems, walls, partitions, ceilings and roof voids;
- Fire and smoke spreading through the building due to open doors, doors not fitted with self-closers, doors being wedged open or damaged doors; and
- The need for continued occupation and/or delayed evacuation.

Risk Reduction

56.   In implementing fire safety measures, fire safety law requires that certain principles should be considered, these are:

- Avoiding risks;
- Evaluating risks which cannot be avoided;
- Combating risks at source;
- Adapting to technical progress (as this often offers opportunities for improving working methods and making them safer);
- Replacing the dangerous with the non-dangerous or less dangerous;
- Developing a coherent fire prevention policy which covers technology, organisation of work and the influence of factors relating to the working environment;
- Giving collective fire safety protective measures priority over individual measures; and
- Giving appropriate instruction to employees.

Avoid Or Reduce The Hazards That May Cause A Fire

57.   Having identified the fire hazards in Step 2, the risks should be avoided or removed if reasonably practicable to do so. If the hazards cannot be removed, measures should be taken to reduce the risks.

Remove Or Reduce Sources Of Ignition

58.   There are various ways to reduce risk caused by potential sources of ignition, for example:

- If smoking is permitted by residents in residential psychiatric hospitals, it should be in designated smoking rooms only;
- Ensure electrical and mechanical equipment is installed, used, maintained and protected in accordance with the manufacturer's instructions; and
- Take precautions to avoid deliberate fire raising.

Remove Or Reduce Sources Of Fuel

59.   There are various ways to reduce the risks caused by materials and substances which burn, for example:

- Ensure flammable materials are stored properly;

- Remove combustible wall and ceiling linings, such as polystyrene or carpet tiles, to reduce the surface rate of flame spread and smoke production; and
- Develop a system for the control of combustible waste by ensuring that rubbish is not allowed to build up.

Remove Or Reduce Sources Of Oxygen

60.   The potential source of oxygen supplied to a fire can be reduced by:

- Closing doors and other openings;
- Ensuring that doors are close fitting and, where appropriate, fitted with seals;
- Controlling the use and storage of oxygen cylinders and apparatus; and
- Closing down ventilation equipment.

61.   In some cases the action may be a precaution taken in case a fire starts, such as keeping certain doors closed or using oxygen safely. In other cases the action may take place once a fire is detected, such as when ventilation equipment is shut down (either manually or automatically) or the automatic release of door hold open devices.

Remove Or Reduce The Risks To People From A Fire

62.   The fire risk to people should be reduced to as low as is reasonable by putting into place fire safety measures. The level of fire safety measures provided in healthcare premises should be proportional to the risk posed to the safety of the people in the building. The higher the fire risk, the higher the standards of fire safety measures required. Fire safety law organises fire safety measures into seven groupings, which are:

- Measures to reduce the risk of fire and the spread of fire;
- Means of escape;
- Securing that the means of escape can be safely and effectively used;
- Means for fighting fires;
- Means for detecting fire and giving warning of fire;
- Arrangements for action to be taken in event of fire, including instruction and training and mitigation of the effects of fire; and
- Other measures prescribed in fire safety regulations.

63.   The objective of fire safety law is to achieve life safety. Chapters 5 to 12 contain further guidance on fire safety measures which can be adopted within healthcare premises and NHSScotland Firecode documents contain further information and benchmarks against which existing fire safety measures can be compared. The guidance should be applied in a flexible manner but without compromising the safety of the occupants.

64.   Where improvements to fire safety measures in premises are identified as a result of a fire safety risk assessment, a programme for the implementation of improvements should be drawn up. The programme should have determined timescales indicating the completion dates for any action required. Where improvements involve building work they are subject to Building Regulations and may also require compliance with the additional provisions contained within NHSScotland Firecode.

65.   It is important that the status of the NHSScotland Firecode documents in relation to this guide are understood.   Most of the benchmarks in the NHSScotland Firecode documents are a modification of the Building Regulation standards and associated Technical Handbook guidance that applies to new buildings. The intent of the modification is to provide benchmarks that can be used as a comparison in existing premises. Achieving the same

standard as the benchmarks may reduce the risk in existing healthcare premises to a degree consistent with the result of a fire safety risk assessment. It may be reasonably practicable to upgrade to a particular benchmark in some situations but not in others. The relevant benchmarks in the NHSScotland Firecode documents should be used as guidance in order to achieve an overall degree of safety and reduction of risk.

66. Enforcing authorities should not seek to compel these benchmarks on a prescriptive basis. Prescription is not compatible with fire safety risk assessment and all premises will be different, with each risk assessment being site specific and decisions in respect of fire safety standards should at all times be based on judgement of risk and be justifiable, both from a compliance and an enforcement perspective.

Step 4: Record Fire Safety Risk Assessment Information

67. Having carried out a fire safety risk assessment in relation to the healthcare premises, the findings should be recorded, including any action taken or action still to be taken. Fire safety law requires information to be recorded where five or more employees are employed (whether they are on site or not) or the premises are subject to licensing or registration or an Alterations Notice has been issued requiring this. Recommendations in respect of recording are contained in Chapter 5.

Step 5: Review Of Fire Safety Risk Assessment

68. A review of the fire safety risk assessment should be carried out regularly. If the findings of the fire safety risk assessment are considered to be no longer valid or there has been a significant change in the matters to which it relates, such as a change to the premises that has affected the risk or the fire safety measures, the assessment should be reviewed. Other such changes that might prompt a review include:

- A change in the number of people present or the characteristics of the occupants;
- Changes to work procedures, including the introduction of new equipment;
- Alterations to the building, including the internal layout;
- Significant changes to furniture and fixings;
- The introduction or increase in the storage of dangerous substances; or
- Becoming aware of shortcomings in fire safety measures or potential improvements.

69. The potential risk of any proposed change should be considered before the change is introduced. If a change introduces new hazards consider the fire risk and, if significant, do whatever is needed to keep the fire risk under control. In any case the fire safety risk assessment should be kept under review to make sure that the fire safety measures remain adequate.

70. If a fire or 'near miss' occurs, this could indicate that the existing assessment may be inadequate and a re-assessment should be carried out. Identify the cause of any incident and then review and, if necessary, revise the outcome of the fire safety risk assessment in light of this experience. If the Fire and Rescue Service has attended a fire in the premises, their findings may help inform a review of the fire safety risk assessment.

Chapter 5: MANAGING FIRE SAFETY

71.   A management commitment to fire safety is essential to assist with achieving suitable fire safety standards in premises and in the maintenance of a staff culture of fire safety. This chapter covers management standards that should be achieved within all healthcare premises in respect of:

- **Fire safety policy;**
- **Emergency fire action plan;**
- **Fire safety information and training;**
- **Fire drills;**
- **Maintenance of fire safety measures; and**
- **Recording information and keeping records.**

Fire Safety Policy

72.   Health authorities and management should ensure that they have a clearly defined fire safety policy for the protection of all persons using the healthcare premises including patients, staff and visitors, and this should include arrangements for the planning, organisation, control, monitoring and review of fire safety measures. Factors to consider include:

- Planning: adopting a systematic approach which identifies priorities and objectives;
- Organisation: having a structure with the aim of ensuring improvement in fire safety performance;
- Control: ensuring decisions for achieving fire safety are being implemented as planned;
- Monitoring and review: constant development of policies and approaches;
- There should be one named individual with overall management responsibility for fire safety within the premises;
- The arrangements for carrying out and reviewing fire safety risk assessments;
- There should be an adequate number of trained persons responsible for supervising and implementing the emergency fire action plan at all times of day or night;
- Preparation of an emergency fire action plan;
- All means of escape should be maintained to ensure that they can be safely used at all times;
- Maintenance and testing of all other fire safety measures;
- Staff training on fire safety and the arrangements for ensuring that this training is given;
- The need for contingency plans for when life safety systems such as fire-detection and alarm systems or sprinklers are out of order; and
- Arrangements for notifying information on risks and fire safety measures to:
    - workers from outside agencies or undertakings who are working in the premises and their employers; and
    - the parents of any child who may be employed to work on the premises.

73.   Additional considerations for health authorities and larger organisations are:

- The responsibility for fire safety within the organisation and the arrangements for ensuring fire safety in all premises;
- The responsibility for fire safety at authority level; and
- The arrangements whereby regional or area managers may monitor and check that individual managers are meeting the requirements of fire safety law.

74.   Further guidance on fire safety policies and staffing levels can be found within SHTM 83. The NHSScotland Firecode document ' A Model Management Structure for Fire Safety' and the Scottish Government Health Directorate's 'Fire Safety Policy for NHSScotland' contain guidance on the management structure for NHSScotland.

Emergency Fire Action Plan

75.   In healthcare premises, staff are always present and are expected to play a role in the evacuation of patients where this is necessary. The method and speed of evacuation will be influenced by the location and dependency of the patients and the number of staff available. Lifts should not be used unless specifically designed or designated for the purposes of evacuation. Guidance on the provision and use of 'escape bed lifts' is contained in SFPN 3.

76.   It is a management responsibility to have in place both an emergency fire action plan and arrangements to implement the plan. Emergency evacuation is a management responsibility which cannot be delegated to the Fire and Rescue Service.

77.   In smaller healthcare premises **immediate evacuation** may be an appropriate strategy. This describes a situation where, upon discovery of a fire and a warning being given, the emergency fire action plan involves immediate evacuation of the building.

78.   More commonly, in larger healthcare premises, it will not be appropriate to evacuate patients to the outside. In these cases **progressive horizontal evacuation** will be appropriate, this describes a situation where, upon discovery of a fire and a warning being given, the predetermined emergency fire action plan involves:

1. Carrying out an assessment of the situation to determine where the fire is and who is at immediate risk;
2. Evacuation of those patients considered immediately at risk to a separate compartment or sub-compartment on the same floor; and
3. Progressive movement of patients where needed as the situation develops.

79.   In some healthcare premises there may be a need for a combination of immediate and progressive horizontal evacuation. For most, the level of dependency of the patients will favour adoption of a progressive horizontal evacuation strategy due to the difficulty in movement and extended evacuation time. But progressive horizontal evacuation needs to be accompanied by suitable fire safety measures which will ensure that the development and spread of fire is restricted, that early warning of fire is given and, that prompt response and appropriate action by staff is taken. Should a fire occur, the plan is likely to require consideration of evacuation of the sub-compartment involved using the principle of progressive horizontal evacuation.

80.   In existing buildings it may be that the level of fire safety measures may dictate which strategy could be achieved and subsequently certain parts of the building may not be suitable for progressive horizontal evacuation.

81.   Although staffing levels may be influenced by the level of treatment and care provided within the premises, it is necessary to consider the time required to transfer patients with varying degrees of dependency to a place of temporary safety and the number of staff required to carry out an evacuation in the event of an emergency. It is important therefore that the staffing levels in relation to the emergency fire action plan are given careful consideration along with the location of patients. A small number of staff cannot be expected

to move large numbers of high dependency patients. Other factors which should be taken into account include authorised staff breaks and the conditions relating to these periods, such as duration, location and arrangements for recalling staff in the event of an emergency. Further guidance on staffing is contained within SHTM 83.

82.   There should be a written emergency fire action plan which sets out the action that staff and other people in the premises should take in the event of a fire. It should be kept on the premises, be available in a format understood by all, as well as being known by staff and forming the basis of the training and instruction which is provided. The plan should also be available for inspection by the enforcing authority.

83.   The purpose of the plan is:

- To ensure that the people on the premises know what to do if there is a fire; and
- To ensure that appropriate action is taken in the event of fire and that the premises can be safely evacuated.

84.   In drawing up the emergency fire action plan, the results of the fire safety risk assessments should be considered and the dependency of the patients should be taken into account. The plan should also cover the fact that where progressive horizontal evacuation is the strategy, there may be an ultimate need to have further progressive horizontal evacuation of patients.

85.   The plan should include the contingency arrangements in place to move patients who may have been evacuated from the building, to short term shelter where this is necessary to avoid hazardous weather conditions or because the building or part of the building has become unusable.

86.   The plan should set out details of the procedures to be followed by staff in the event of fire and by any other persons present. It should be specific to the premises and should include:

- How people will be warned if there is a fire;
- What staff should do if they discover a fire;
- What staff should do in the event of a fire;
- The arrangements for calling the Fire and Rescue Service;
- The specific action to be taken by the person in charge when the fire alarm activates or a fire is discovered;
- The procedure to be followed to evacuate the premises by staff and by any other persons present;
- In the case of progressive horizontal evacuation, the different stages of the evacuation;
- Identification of evacuation receiving areas where patients are to be taken;
- Arrangements for fighting fire by staff trained in the use of portable fire extinguishers;
- Any processes or power supplies that need to be stopped or isolated if there is a fire; and
- Procedures for meeting the Fire and Rescue Service on its arrival and notifying it of the circumstances of the incident, whether all persons are accounted for and the presence of any special dangers.

Fire Safety Information, Training And Fire Drills

87.   The actions of staff are crucial to the safety of patients in healthcare premises. It is essential that staff know what they have to do to safeguard themselves and others on the premises and to have an awareness of the importance of their actions. This includes risk reduction, maintenance of fire safety measures and action if there is a fire. Staff training and awareness of fire safety is of paramount importance in healthcare premises.

88.   Information and instruction should be in a form that can be clearly understood, taking account of those with differing abilities such as hearing or sight impairment, those with learning difficulties and those who do not use English as their first language.

89.   Fire drills should be carried out to check that staff understand and are familiar with operation of the emergency fire action plan, to evaluate effectiveness of the plan and to identify any weaknesses in the evacuation strategy.

90.   Further detailed guidance on the conduct and content of fire safety training and drills is contained in SHTM 83: Section 5.

Maintenance Of Fire Safety Measures

91.   The premises, emergency routes and exits, fire-fighting equipment, fire alarm, emergency lighting, Fire and Rescue Service facilities and other fire safety measures should be kept in efficient working order and covered by a suitable system of maintenance. There should be regular checks, periodic servicing and maintenance and any defects put right as quickly as possible. Recommendations for the maintenance and testing of installed systems and equipment are likely to be contained in the relevant British or European Standard for the equipment or system.   The manufacturer's instructions may also need to be followed. Experience in individual premises may show that there is a need to vary the suggested frequencies. The examples below of testing and maintenance are not intended to be prescriptive and other testing regimes may be appropriate where this can be justified.

92.   It may be necessary to adopt a service contract so that equipment and installations (for example emergency generators, fire sprinkler systems, and fire extinguishers) are only serviced and maintained by someone who has the appropriate technical proficiency to do so. The following are examples of checks and tests that should be carried out:

93.   Daily:

- Walk through premises and check escape routes to ensure they are clear of obstructions and combustible materials and that self-closing doors are not wedged open; and
- Check the fire alarm control and indicating equipment to ensure the system is active and fully operational.

94.   Weekly:

- Test fire alarm system by activating a manual call point (using a different call point for each successive weekly test), usually by inserting a dedicated test key. This will check that the control equipment is capable of receiving a signal and in turn, activating the warning alarms. Manual call points may be numbered to ensure they are sequentially tested. It is good practice to test the alarm at the same time each week, but consider the need to ensure that staff working shifts are given the

opportunity to hear the alarm. During a test, the alarm should not operate for too long so that there can be a ready distinction between a test and an unplanned actuation. Where the system is connected to an alarm receiving centre, the centre should be notified prior to testing and on completion of the test;

- A check should be made to determine that the testing of the fire alarm also results in the operation or disabling of other linked features such as electrically powered locks, the release of any doors on hold open devices, the operation of doors on swing free arms and automatic opening doors reverting to manual operation;
- Check that all safety signs and notices are legible;
- Check escape routes, and test exit locking mechanisms such as panic bars, push pads and electromagnetic locking devices;
- Turn the engine of the emergency generator(s) over with the fuel isolated;
- Ensure that fire door self-closing devices operate effectively; and
- Check sprinkler system.

95.   Fortnightly:

- Test the emergency generator(s) on a no load run for a duration of no more than 15 minutes.

96.   Monthly:

- Functional tests of all emergency lighting systems should be at an appropriate time when, following the test, they will not be immediately required. However, some modern systems have self-testing facilities that reduce routine checks to a minimum. Depending on the type of installation certain routine checks and routine maintenance work may be able to be done in house. Test methods will vary. Further maintenance may need to be carried out by a service engineer;
- Carry out brief visual check of fire extinguishers and hose reels to ensure there are no obvious faults;
- Test the emergency generator(s) on an operational run (with loads in excess of 70% of full capacity) for a duration of at least 2 hours;
- Check sprinkler system; and
- Fire doors should be checked to ensure they are in good working order as follows:
    − Inspect doors for any warping or distortion that will prevent the door from closing flush into the frame;
    − Check any fire-resisting glazed panels are in good condition and secure in their frame; and
    − Check that intumescent strips and smoke seals are in good condition.

97.   Three monthly:

- Quarterly checks and inspection of sprinkler system.

98.   Six monthly:

- A person with specialist knowledge of fire-warning and automatic detection systems should carry out six-monthly servicing and preventative maintenance on the fire alarm; and
- Six-monthly checks and inspections of sprinkler system

99.   Annual:

- Maintenance of portable fire extinguishers;
- Annual discharge test of emergency lighting;
- Maintenance check to hose reels; and
- Annual checks, inspection and test of sprinkler system.

Recording Information And Keeping Records

100.   Information and records as necessary to comply with the legislation should be kept and made available for inspection. The information recorded should in itself offer proof that a suitable fire safety risk assessment has been carried out. Information should be recorded in respect of:

- The significant findings from the fire safety risk assessment;
- The resulting fire safety measures and action to be taken;
- Persons who are especially at risk; and
- Fire safety arrangements for the effective planning, organisation, control, monitoring and review of the fire safety measures.

101.   The serious potential consequences of a fire in a healthcare premises demand that high standards of fire safety be observed. The maintenance of accurate records can assist with the provision of fire safety standards, the review of a fire safety risk assessment and with staff awareness. Maintaining an up-to-date drawing or plan of the premises will assist in verifying that the fire safety measures that are in place are appropriate. Features which could be included in a plan are:

- Indication of essential structural features such as the layout of the premises, escape routes, doorways, walls, partitions, corridors, stairways etc, including fire-resisting structure and self-closing fire doors provided to protect the means of escape;
- The extent of compartments and location of ventilation system fire dampers;
- Details of the number, type and location of the fire-fighting equipment;
- The location of manually operated fire alarm call points and control equipment for the fire alarm;
- The extent and type of automatic fire detectors;
- The location of any emergency lighting equipment and any exit route signs;
- The location of any automatic life safety fire suppression systems such as sprinklers and the location of the sprinkler shut-off valve;
- The location of the main electrical supply switch, the main water shut-off valve and, where appropriate, the main gas or oil shut-off valves;
- The location of fire hazard departments and rooms; and
- Details of any facilities that are provided to assist fire-fighters.

102.   Records of the maintenance and testing recommended in paragraphs 91 to 99 above, should be made and retained. It is for management to determine how long they wish to retain this type of record, but for the purposes of audit by the enforcing authority, records for a minimum period of three years should be available. Records can be kept in either an electronic or paper based format and should include:

- Escape routes, including exit locking mechanisms, such as panic bars, push pads and electromagnetic locking devices;

- Means of escape (self-closing doors, stairways, corridors and essential structural features);
- Fire alarm systems, including weekly alarm tests and periodic maintenance;
- False alarms of the fire alarm system;
- Emergency lighting systems;
- Fire extinguishers, hose reels and fire blankets etc;
- Any automatic life safety fire suppression systems such as sprinklers;
- Staff instruction and training in fire safety and the evacuation procedure; and
- Fire drills.

Chapter 6: REDUCING THE LIKELIHOOD OF FIRE

103.   This chapter provides further information which will assist in evaluating the risk from fire and its prevention. A long-term workable and effective strategy should be developed to reduce hazards and the likelihood of a fire starting. At its simplest this means separating flammable and combustible materials from ignition sources. Advice under the following headings is given in this chapter:

- **Housekeeping and storage;**
- **Storage and use of dangerous substances;**
- **Safe use of equipment;**
- **Electrical;**
- **Smoking;**
- **Managing building work and alterations;**
- **Particular hazards in escape routes;**
- **Fire raising; and**
- **Textiles, furniture, bedding and sleepwear etc.**

104.   Further guidance on fire prevention is contained in SHTM 83.

Housekeeping And Storage

105.   All reasonable provision should be made to reduce the possibility of fires occurring due to accidental ignition. Control of combustible materials should be achieved by attention to good housekeeping principles; this can reduce the likelihood of fire. Combustible materials are not just those generally regarded as highly combustible, but all materials that will readily catch fire. By carefully considering the type of material, the quantities kept and the storage arrangements, the risks can be significantly reduced.

Storage And Use Of Dangerous Substances

106.   Certain substances and materials are by their nature, flammable, oxidising or potentially explosive. These substances are controlled by other legislation in addition to fire safety law, in particular the *Dangerous Substances and Explosive Atmospheres Regulations 2002*. The principles of safe handling and storage are:

- Avoid the use of flammable materials and liquids wherever possible or substitute flammable substances and materials with less flammable ones;
- Reduce the quantity of dangerous substances to the smallest reasonable amount necessary for use;
- Correctly store dangerous substances, for example in a fire-resisting enclosure. All flammable liquids and gases should ideally be locked away, and segregated if necessary, to reduce the chance of them being involved in a fire or used in deliberate ignition;
- Ensure good ventilation to allow any flammable vapours to be dispersed; and
- Ensure that all staff are aware of the fire risk of dangerous substances present and the precautions necessary to avoid danger.

107.   **Flammable liquids** present a particularly high fire risk. For example, a leak from a container of flammable liquid may produce large quantities of flammable vapours. These vapours can travel large distances, increasing the likelihood of their reaching a source of ignition well away from the original leak. The risk is reduced by ensuring the storage and use of flammable liquids is carefully managed and that materials contaminated with flammables

are properly disposed of. Chapter 8 of SHTM 83 contains guidance and SFPN 10 contains specific guidance on the use of flammable substances in healthcare premises laboratories.

Safe Use Of Equipment

108.   Lack of preventative maintenance increases the likelihood of fire starting in equipment. Common causes of fire in equipment are:

- Inadequate cleaning of equipment such as tumble driers;
- Allowing extraction equipment in kitchens to build up excessive grease deposits; and
- Disabling or interfering with automatic or manual safety features and cut-outs.

109.   A capable person should adequately and regularly maintain machinery, equipment and plant, including cooking and heating equipment and office equipment such as photocopiers. Appropriate signs and instructions on safe use may be necessary. Further detailed guidance on fire hazards in healthcare premises is contained within SHTM 83, Chapter 7.

110.   Fires in healthcare premises' kitchens can occur due to poor maintenance or operation. Further detailed guidance is contained in SHTM 83, Chapter 7 and in SFPN 4.

111.   **Oxygen** poses a special hazard. High concentrations of oxygen can cause materials to burn extremely rapidly and some materials which are not normally considered combustible can burn in an enriched oxygen atmosphere. Oxygen saturation can occur in clothing, upholstery or bedding, as a consequence of procedures such as oxygen therapy and may remain hazardous for a considerable time after exposure. Oxygen is also dangerous when in contact with grease or oil. Within healthcare premises **medical gases** pose a special hazard and further guidance is contained in SHTM 83.

Electrical

112.   Electrical equipment is a significant cause of accidental fires. The main causes are:

- Overheating cables and equipment due to overloading or loose connections;
- Incorrect installation or use of equipment;
- Damaged or inadequate insulation on cables or wiring;
- Combustible materials being placed close to electrical equipment which may give off heat (heat may be generated when equipment is operating normally or when equipment becomes hot due to a fault or inadequate ventilation); and
- Arcing or sparking by electrical equipment.

113.   All electrical equipment should be installed and maintained in a safe manner. If there is any doubt about the safety of electrical installations, consult an electrician. Where portable electrical equipment is used, including items brought into the premises by staff, then the potential for defects can be reduced if it undergoes portable appliance testing at suitable intervals.

114.   An effective programme of planned preventative maintenance for all fixed installations and portable appliances should be implemented for the premises, with an agreed procedure for reporting faults. Once reported, action should be taken to repair any faults as quickly as possible or otherwise ensure that the equipment is made safe:

- Instruction should be available for all equipment;

- Only correctly fused extension leads should be used and should be positioned to avoid a tripping hazard;
- Ensure correct wiring of plugs and correct fuse ratings; and
- Electrical equipment should only be used for its intended purpose.

115.   Further guidance is contained within SHTM 83.

Smoking

116.   A cigarette may smoulder for some time, especially when surrounded by combustible material. Many fires are started several hours after smoking materials have been emptied into waste bags and left for future disposal.

117.   In each case, premises should have a clearly defined smoking policy for patients. The prohibition on smoking does not apply to patients in adult residential psychiatric hospitals and units where management have designated rooms for patients to smoke in, although they are not obliged to designate any rooms. Designated rooms are required to be completely enclosed spaces with ventilation systems that do not ventilate into any other part of the building that is required to be smoke-free and must be clearly marked as a room in which smoking is permitted.

118.   Where smoking by patients is permitted in designated rooms, sufficient quantities of suitably placed ashtrays should be provided. Ashtrays should be emptied at least daily into a metal container and taken outside. Ashtrays should not be emptied into plastic waste bags which are then left inside for disposal later. Inspections of smoking areas should be made at regular intervals with staff being vigilant for any sign of scorch marks or burning and to ensure that smokers' materials which have been discarded are removed and that they will not ignite other materials.

119.   Further guidance on evaluating the hazards associated with smoking is contained within SHTM 86: Worksheet A2.

Managing Building Work And Alterations

120.   Fires often occur when buildings are undergoing refurbishment or alteration, therefore before any building work or decoration starts, the fire safety risk assessment should be reviewed and additional risks likely to be introduced, considered and evaluated. Lack of pre-planning can lead to haphazard co-ordination of fire safety measures.

121.   The impact of the building work on the general fire safety measures should be continuously monitored. Only allow the minimum materials necessary for the work in hand within or adjacent to the building. Additional hazards associated with building work can include:

- Hot work such as soldering, roof repair and paint stripping;
- Use of temporary electrical equipment;
- Blocking or obstruction of escape routes including external escape routes;
- Loss of normal storage facilities;
- Fire safety equipment, such as automatic fire detectors becoming affected;
- Fire-resisting partitions being breached or fire-resisting doors being wedged open; and
- Increased risk from quantities of combustible materials and accumulated waste.

122.   Any areas where hot work is undertaken should be frequently inspected during the first 30 minutes after the work is completed, and again 30 minutes later to ensure that materials are not smouldering.

123.   The content of skips or refuse containers may be subject to deliberate ignition; these containers should not be sited against or close to a building; they should normally be a minimum of 6 m away.

124.   Building and other maintenance issues are considered further in SHTM 83.

Particular Hazards In Escape Routes

125.   If a fire were to occur in an escape route or spread to material in the escape route, this would be a particularly difficult and threatening situation preventing occupants from escaping. 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 ignition should not be located on any corridor or stairway that will be used as an escape route (reduction in escape route width may also be an issue). Such items include:

- Portable heaters;
- Gas cylinders for supplying heaters;
- Cooking appliances;
- Wheelchairs;
- Upholstered furniture;
- Coat racks;
- Vending machines;
- Gas pipes, meters and similar fittings;
- Electrical equipment such as photocopiers;
- Seasonal decorations; and
- Combustibles such as refuse, laundry supplies and catering supplies.

126.   Physical features within escape routes may also hinder evacuation, for example carpeted floors (which may affect mattress or ski-pad evacuation), decorative planters, magazine or display racks, and leaflet holders. Seasonal or festive decorations and other obstructions placed in escape routes may cause trip hazards, or reduce the available escape width.

Fire Raising

127.   The possibility of deliberate fire raising should be considered as a component of the fire safety risk assessment particularly in areas with a known history of vandalism or fire-setting. Appropriate security measures, including the protection of stored materials, the efficient and prompt removal of rubbish and security against unauthorised entry or access, can do much to alleviate this particular problem. SFPN 6 contains specific advice in respect of fire raising in healthcare premises.

Furniture, Textiles, Bedding And Sleepwear etc

128.   The choice of furniture, textiles, bedding and sleepwear etc. can influence the ease of ignition and growth of a fire. SHTM 87 contains information on textiles, furniture, beds and bedding, sleepwear, floor coverings, curtains and drapes, soft toys, dried and artificial flowers. Where possible, those items which are used, fitted or supplied in healthcare premises should meet the benchmarks in SHTM 87. Where possible, bedding and sleepwear provided by patients should achieve the same benchmarks.

Chapter 7: RESTRICTING THE SPREAD OF FIRE AND SMOKE

129.   To reduce the risk to persons if there is a fire, it is necessary to consider how to control or restrict the spread of fire and smoke. The majority of people who die in fires are overcome by the smoke and gases. To evaluate the risk to people in premises requires a basic appreciation of the way fires grow and how smoke and poisonous gases can spread through a building. A fire in a building can generate smoke that is thick and black, obscures vision, causes great difficulty in breathing, and can block the escape routes. Smoke is a serious threat to life which should not be underestimated.

130.   Fire is spread by three methods:

- Convection;
- Conduction; and
- Radiation.

131.   Fire and smoke spread by **convection** is the most dangerous and causes the major proportion of injuries and deaths. When fire starts in an enclosed space such as a building, the smoke rising from the fire becomes 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.

132.   Some materials, such as metal can absorb heat readily and transmit it to other rooms by **conduction**, where it can set fire to combustible items that are in contact with the heated material. **Radiation** transfers heat in the air in the same way that 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.

133.   In this chapter, restricting the spread of fire is considered under the headings of:

- **Fire compartmentation;**
- **Doors;**
- **Fire separation;**
- **Fire spread through cavities;**
- **Ventilation systems;**
- **Fire spread on internal linings;**
- **Fire spread on external walls; and**
- **Fire spread from neighbouring buildings.**

134.   The protection of fire spread into escape routes is covered in Chapter 8.

Fire Compartmentation

135.   The building should be divided into fire-resisting compartments by fire-resisting doors, walls and floors. This restricts the number of patients who would be at immediate risk in the event of a fire occurring and allows their progressive horizontal evacuation to an adjoining compartment.

136.   The provision of compartments, sub-compartments and the enclosure of fire hazard departments and rooms will provide a physical barrier to a fire. When combined with a

limitation on the number of patients' beds in any sub-compartment, additional time for staff and patients to evacuate is provided.

137.   SHTM 85 contains benchmarks against which existing provision can be compared.

Doors

138.   A closed door may restrict fire spread by holding back fire and smoke. A 'fire door' is a fire-resisting door which is rated by performance to fire when tested to an appropriate standard. Fire doors are an essential part of a fire compartment and for the protection of means of escape. A self-closing device is a normal feature of a fire door other than for some doors such as cupboards which are kept locked when not in use.

139.   In determining the fire-resistance of a door, it is necessary to consider all the doorset components including the frame, glazing, side-panels, transoms and ironmongery.

140.   SHTM 85 contains guidance and benchmarks against which existing provision can be compared.

Fire Separation

141.   Where buildings or parts of buildings are in different occupation this poses particular problems in terms of fire safety, as one occupier does not usually have any control over the working practices of their co-occupiers. The purpose of fire separation is to restrict fire spread between different occupancies.

142.   Where a healthcare premises adjoins or is part of a larger building, such as where it is in a terrace, the potential for an outbreak of fire in the neighbouring building ultimately spreading to the premises should be considered. The provision of fire separation will ensure that in the event of an outbreak of fire within the building, fire and smoke is inhibited from spreading beyond the area of occupation where the fire originated.

143.   SHTM 85 contains benchmarks against which existing provision can be compared.

Fire Spread Through Cavities

144.   A cavity is a concealed space enclosed by elements of a building or contained within a building element. The unseen spread of fire and smoke within concealed spaces in the structure and fabric could pose a serious risk to occupants, particularly those with high dependency.

145.   The premises should be examined to see if there are any easy paths through which smoke and fire may spread. Many buildings will have void areas, possibly hidden from view, which will allow smoke and fire to spread away from its source. It will be necessary to consider the provision of cavity barriers to restrict the spread of fire in the following:

- Vertical shafts and dumb waiters;
- False ceilings, especially if walls do not continue above the ceiling;
- Voids behind wall panelling;
- Unsealed holes in walls and ceilings where pipe work, cables or other services have been installed;
- A roof space or attic; and
- A duct or any other space used to run services around the building.

146.   In particular, certain types of buildings which are of a modular construction have hidden voids through which fire may spread. In this type of building it is important that an appropriate assessment is carried out and cavity barriers that restrict the spread of fire are installed if appropriate, especially to walls and floors that need to be fire-resisting.

147.   SHTM 85 contains benchmarks against which existing provision can be compared.

Ventilation Systems

148.   The potential for ventilation systems to allow the spread of fire and smoke should be considered. A powered ventilation system may assist the spread of smoke unless it is designed to shut down automatically if fire is detected. The ducting of any ventilation system may also provide a pathway for the spread of heat and smoke and this needs to be considered to prevent potential spread between compartments or sub-compartments. The integrity of compartments and sub-compartments can be achieved by means of fire dampers which close automatically and hold back fire and smoke in the event of a fire.

149.   SHTM 85 contains benchmarks against which existing provision can be compared.

Fire Spread On Internal Linings

150.   Materials used on the surfaces of walls and ceilings can significantly affect the spread of fire and its rate of growth. The potential for fire spread on internal linings in escape routes is particularly important as rapid fire spread could prevent occupants from escaping. The internal linings of healthcare premises should be such that in the event of an outbreak of fire within the building, the development of fire and smoke from the surfaces of walls and ceilings within the area of origin is inhibited.

151.   Multiple layers of wallpaper or certain paints applied to the face of a wall or ceiling surface can increase flame spread and hence the fire growth rate. For this reason, multiple layers of paper or paints are not recommended when carrying out refurbishment work involving the re-decoration of wall and ceiling surfaces.

152.   SHTM 85 contains benchmarks against which existing provision can be compared.

Fire Spread On External Walls

153.   If there is combustible external wall cladding, such as timber, it will be necessary to consider the potential for an outbreak of fire within the building, or from an external source, to spread on the external walls of the building and pose a risk especially where there are high dependency patients and extended evacuation times. Fire can spread horizontally along the face of the building and vertically up the face of the building and this can result in extensive fire spread both externally and internally.

154.   SHTM 85 contains benchmarks against which existing provision can be compared.

Fire Spread From Neighbouring Buildings

155.   An assessment should be made to what extent a fire may spread to the premises from a neighbouring building or structure and whether this could pose a risk to occupants. In some building configurations, such as a courtyard, the fire spread potential may be from one compartment in the building across an open space to another compartment of the same building. This is of particular relevance if any external wall cladding is of a combustible

material. The results of the assessment should then be considered and appropriate fire safety measures put in place.

156.   SHTM 85 contains benchmarks against which existing provision can be compared.

Chapter 8: MEANS OF ESCAPE

157.   Once a fire has started, been detected and a warning given, everyone in the healthcare premises should be able to move or be assisted to move away from the fire to a place of reasonable safety such as a protected stair or other compartment. From there they should be able to continue to escape if necessary to an unenclosed safe area beyond the premises before being affected by fire or smoke. Sufficient means of escape should be provided for persons using the premises, both in terms of the number of escape routes and capacity and in terms of protection by enclosure from fire and smoke. In determining the appropriateness of means of escape, account should be taken of the nature of the patients.

158.   Structural fire protection should also be considered to ensure that in the event of an outbreak of fire within the building, the load-bearing capacity of the building will continue to function until all occupants have escaped, or been assisted to escape, from the building.

159.   The level of provision of means of escape and the fire protection that should be given to an escape route will vary depending on the level of risk within the premises and the dependency of patients. Other than in exceptional cases, there should be at least two exits and independent escape routes from each storey of the premises. This will prevent a fire affecting more than one escape route at the same time. When determining whether premises have adequate escape routes, a number of interdependent factors should be considered, these are:

- The number of people in the premises;
- The method of moving patients;
- The time it will take people to escape;
- The construction of the premises and potential for fire and smoke spread; and
- The fire compartmentation of the premises (see Chapter 7).

160.   The people present in healthcare premises will primarily be patients and staff and they will have been considered during the fire safety risk assessment. The escape time available will depend on a number of factors, including the number of escape routes available, the travel distance to be covered, the nature of the occupants, staff availability and the speed of fire growth.

161.   The outcome of a fire safety risk assessment may necessitate an increase in the number of escape routes or the restriction of use of certain areas of the premises.

162.   SHTM 85 contains benchmarks against which existing provision can be compared.

Chapter 9: ENSURING THAT MEANS OF ESCAPE CAN BE USED

163.   Means of escape and protected escape routes should be provided with effective lighting to allow persons to safely use these routes in the event of a fire occurring or in the event of failure of the normal lighting power supply. Signs and notices should be provided to help people identify escape routes, find fire-fighting equipment, or to provide specific information or warning about particular equipment, doors, rooms or procedures.

164.   This chapter considers:

- **Escape route lighting;**
- **Emergency lighting;**
- **Signs; and**
- **Notices.**

Escape Route Lighting

165.   The premises should be provided with escape route lighting to the extent necessary to ensure that in the event of an outbreak of fire within the building, illumination is provided to assist in escape and to aid staff in implementing the emergency fire action plan.

166.   SHTM 85 contains benchmarks against which existing provision can be compared.

Emergency Lighting

167.   Emergency lighting is lighting designed to come into, or remain in, operation automatically in the event of a local or general power failure. Emergency lighting may also be provided on a wider scale to allow some of the normal functions of the premises to continue, in event of interruption to the mains supply.

168.   The size and type of the premises and the risk to the occupants will determine the complexity of appropriate emergency lighting.

169.   SHTM 85 contains benchmarks against which existing provision can be compared.

Signs

170.   Fire signs should be sited in conspicuous positions. They should be recognisable, readable and informative, as they convey essential information to frequent and infrequent users of the premises. The visibility, illumination and height of display should be carefully considered. Fire signs should normally follow the guidance in British Standards. There is also a need to consider the requirement for building users who are visually impaired.

171.   **Escape route signs** clearly indicate exits not in normal use. The legibility of an escape sign is determined by the size of the sign, the level of illumination and the distance over which it is viewed. The use of signs within the same premises should follow a consistent design pattern or scheme. Where the exit cannot be seen or where a person escaping may be in doubt about an escape route, signs with directional arrows should be provided along the route.

172.   **Other safety signs** should be provided to indicate non-automatic fire safety equipment if there is any doubt about its location, such as fire extinguishers that are kept in cabinets or in recesses. A number of other signs may also be necessary such as:

- 'Fire door keep shut' or 'Fire door keep locked shut' on fire doors;
- How to operate the locking devices on doors;
- Location of sprinkler stop valve; and
- Not to use lift in event of fire.

173.   All signs and notices should be illuminated to ensure they are conspicuous and legible.

174.   SHTM 85 contains further information and benchmarks against which existing provision can be compared.

Notices

175.   Notices are used to provide instructions on how to use any fire safety equipment, the actions to be taken in the event of fire, and to help the Fire and Rescue Service.

176.   Notices containing details of the emergency fire action plan specific to the healthcare premises should be permanently displayed in appropriate positions throughout the building. A distinction should be made between notices that are designed for patients and visitors as opposed to those for staff. Notices giving full instruction for staff should also be displayed on staff notice boards.

Chapter 10: MEANS FOR DETECTING FIRE AND GIVING WARNING

177.   It is essential that an outbreak of fire in healthcare premises should be detected at an early stage so that the occupants are alerted and the emergency fire action plan implemented as soon as possible. The longer a fire continues undetected, the greater the risk to the safety of patients. There should also be a means so that anyone in the premises who discovers a fire, can alert others to the existence of the fire.

178.   Healthcare premises should be provided with a fire warning and automatic detection system which can be operated both by a person and automatically by means of the automatic fire detectors. The provision of a suitable fire detection and warning system (fire alarm system) will only achieve compliance with requirements where the staff (and where appropriate other occupants) know how to operate the system and how to respond to system operation.

179.   Some of the features of a fire alarm system may be:

- **Manual call points;**
- **Automatic fire detectors;**
- **Sounders and other warning devices;**
- **Control and indicator panel;**
- **Detection zoning; and**
- **Linked operation.**

180.   SHTM 82 contains further information and benchmarks against which existing provision can be compared.

Fire Alarm Features

181.   **Manual call points**, often known as 'break-glass' call points, enable a person who discovers a fire to operate the fire alarm and immediately raise the alarm and warn other people in the premises of the danger.

182.   **Automatic fire detectors.** The choice of type depends on the nature of the hazard, the required speed of system response and the need to avoid false alarms. The common types of automatic fire detector are:

- **Heat detectors** operate when a fixed temperature is reached and may also have a sensor that responds to an abnormal rate of rise of temperature. Heat detectors have a good performance in respect of false alarms but are not appropriate in areas where the detection of the presence of smoke is required.
- **Smoke detectors** detect the presence of smoke using either an **ionisation** chamber or **optical** light scatter sensor. They give a speedier response to most fires than heat detectors but have greater potential to generate false alarms.
- **Optical beam detectors** are a type of smoke detector which comprise a separate light source and receiver and operate by detecting the obscuration of the light source by smoke. They may be suited for large, open plan spaces with high ceilings such as in atria where access to point smoke detectors for maintenance could be difficult.
- **Combustion gas detectors** respond to gases produced in a fire such as Carbon Monoxide. They can be sensitive to smouldering fires, respond to many fires faster

than heat detectors and have a good false alarm performance in the presence of dust, steam and cigarette smoke.

- **Multi-sensor detectors** can be used which combine heat and smoke or combustion gas detection. Combined sensors enhance system performance and have the potential for a reduction in false alarm actuations.

183.　**Sounders** are provided to alert occupants. In all cases, the sounders of a fire alarm system should be capable of alerting the staff. As an alternative to conventional sounders, a specially designed voice-alarm may be suitable for some premises. **Voice alarm systems** can provide significant benefits in terms of reduced response time and improved information dissemination: factors that are critical to staff in a healthcare premises.

184.　Where there are staff or visitors with hearing impairment to the extent that the fire alarm sounders cannot be perceived, then it will be necessary to consider whether there is a need to provide tactile and/or visual alarm devices for those persons.

185.　The **control and indicator panel** provides the facility for indication of fire or fault signals and manual controls such as silencing and resetting. The fire alarm control and indicator panel should be sited at a location which is appropriate for staff and Fire and Rescue Service use taking account of the fire and evacuation strategy that is adopted for the building.

186.　When a fire alarm system operates, the source of the actuation should be quickly identifiable to allow staff to investigate the location. To achieve this, the building should be divided into **detection zones**. These zones should be influenced not by the physical installation of the fire alarm system but by compatibility with the emergency fire action plan.

187.　Where the fire alarm system is zoned, a **schematic plan** showing the fire detection zones in a simple and unambiguous way should be displayed adjacent to the control panel to allow staff to quickly locate the source of a fire alarm actuation. Even in the case where an addressable system is installed, zone indication is also likely to be an essential feature (an addressable fire alarm system is one where individual detectors and call points can be identified at the control and indicating equipment).

Linked Operation

188.　If a sprinkler system or other automatic life safety fire suppression system is installed in the building, this should be interlinked so that actuation of the suppression system in response to a fire should also cause operation of the fire alarm system.

189　Operation of the fire alarm system should cause the following:

- Automatic closure of self-closing doors which are normally held in the open position by automatic release devices;
- Automatic closure of self-closing doors which are fitted with swing free arms;
- Internal swing doors with automatic opening should have the automatic opening facility disabled, this is particularly essential for fire resisting doors;
- Electronically powered locks on doors should return to the unlocked position; and
- Exit doors that are intended to open automatically in the same zone in which the fire alarm operates.

Remote Monitoring

190.   With remote monitoring, the actuation of the fire alarm will cause a signal to be transmitted automatically to a remote alarm receiving centre (ARC); on receipt of a signal, the ARC would then call the Fire and Rescue Service.

191.   In healthcare premises, in the event of fire an early call to the Fire and Rescue Service should be made. Where there is monitoring by a remote alarm receiving centre, a back up 999 call should also be made to the Fire and Rescue Service.

Reducing False Alarms

192.   False alarms from automatic fire detection systems are a major problem which cause disruption to the running of premises and result in many unwanted calls to the Fire and Rescue Service. If there are frequent false alarms in the premises, people may become complacent and may not respond correctly to a warning in the event of a real fire. False alarms should not be seen as inevitable: each one should be investigated and the cause identified. Where remedial action is required to prevent a recurrence, such as changing a detector head or re-siting a call point, then this should be implemented. A fire alarm system should never be disabled by staff; if it is posing a problem then specialist help should be sought. Further guidance is contained within SFPN 11.

193.   Information on maintenance and testing of fire alarm systems is contained in Chapter 5.

Chapter 11:   MEANS FOR FIGHTING FIRE

194.   A small fire tackled with fire-fighting equipment in the early stages may be prevented from developing into a fire of life-threatening proportions. Fire-fighting equipment can fall into one of two categories; either (a) it is designed for use by persons, such as portable fire extinguishers and hose reels or (b) it is a fixed installation, such as a sprinkler system which comes into operation automatically in the event of fire.

Fire-fighting Equipment For Use By Persons

195.   Portable fire-fighting equipment should be provided in healthcare premises for staff use. Fire-fighting equipment can be used to prevent a small fire 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 people in the premises. Fire extinguishers, in association with staff trained to use them, are an essential element in the measures to reduce the risk to people from fire, particularly where there are patients who cannot be readily moved.

196.   For the purpose of selecting fire extinguishers, fires generated by different materials can be classified as in the following table.

Table 1 Class of fire

Class of fire	Description
Class A	Fires involving solid materials such as wood, paper or textiles
Class B	Fires involving flammable liquids such as petrol, diesel or oils
Class C*	Fires involving gases
Class D*	Fires involving metals
Class F	Fires involving cooking oils such as in deep-fat fryers

* Note: For class C and D fires, specialist advice is required.

197.   A **Water Extinguisher (red body)** can only be used on Class A fires. It allows the user to direct water onto a fire from a considerable distance. A 9 litre water extinguisher can be quite heavy and some water extinguishers with additives can achieve the same rating, although they are smaller and therefore considerably lighter. This type of extinguisher is not suitable for use on live electrical equipment because water is a conductor of electricity.

198.   A **Water Extinguisher with Additives (red body)** is suitable for Class A fires and can also be suitable for use on Class B fires and where appropriate, this will be indicated on the extinguisher. This type is generally more efficient than conventional water extinguishers.

199.   A **Foam Extinguisher (red body with cream label/band)** can be used on Class A or B fires and is particularly suited to extinguishing liquid fires. It should not be used on free-flowing liquid fires unless the operator has been specially trained, as these have the potential to rapidly spread the fire to adjacent material. This type of extinguisher is not suitable for deep-fat fryers or chip pans.

200.   A **Powder Extinguisher (red body with blue label/band)** can be used on most classes of fire and achieve a good 'knock down' of the fire. It can be used on fires involving electrical equipment but may damage the equipment. Since powder does not cool a fire appreciably, it should be noted that the fire may re-ignite.

201.   A **Carbon Dioxide (CO_2) Extinguisher (red body with black label/band)** can be used on Class B fires and is particularly suitable for fires involving electrical equipment as it

is a non-conductor. As with all fires involving electrical equipment, the power should be disconnected if possible. The loud noise accompanying discharge and the freezing effect on the discharge horn of this extinguisher can startle operators so that they drop the extinguisher. It should be noted that CO_2 may not cool a fire appreciably and the fire may therefore re-ignite.

202.   A **Class 'F' Extinguisher (red with canary yellow label/band)** is particularly suitable for commercial catering establishments with deep-fat fryers.

203.   In small premises, having one or two **portable fire extinguishers** of the appropriate type and readily available for use, may be all that is necessary. In larger, more complex premises, more extinguishers will be required. Portable extinguishers should be simple to operate and readily accessible. They should also be within the handling capabilities of staff who may be called upon to use them. It may also be necessary to indicate the location of extinguishers by suitable signs.

204.   SHTM 85 contains further information on portable fire extinguishers and benchmarks against which existing provision can be compared.

205.   Permanent **hose reels** provide an effective fire-fighting facility; they are fixed units permanently connected to a water supply. They may offer an alternative, or be in addition to, portable fire extinguishers. There are disadvantages with hose reels that should be considered; when deployed a hose reel may obstruct doors causing the spread of smoke, and it may pose an obstacle to the movement or escape of patients.

206.   A **fire blanket** is appropriate where there are containers of cooking oil or fat and there is the potential for fire. A fire blanket may be used to smother a small fire involving oil or fat.

207.   Further guidance on fire-fighting equipment is contained within SHTM 83, Chapter 4.

208.   People with no training should not be expected to attempt to extinguish a fire. There should therefore be suitable training in place that will enable staff in the premises to safely use the fire-fighting equipment provided (see Chapter 5). Further guidance on fire safety training for staff in healthcare premises is contained within SHTM 83, Chapter 5.

Automatic Life Safety Fire Suppression Systems

209.   An automatic life safety fire suppression system may be an automatic sprinkler system or an equivalent system. Sprinklers can be designed to protect life and/or property and may be regarded as a cost-effective solution for reducing the risks created by fire. Automatic life safety fire sprinkler systems operate automatically on detection of an outbreak of fire within the building to inhibit the spread of fire. Water is discharged from the individual sprinkler head which has detected heat from the fire, other sprinkler heads remain closed.

210.   An automatic life safety fire suppression system can be very effective in controlling a fire. It may limit fire growth and extend the time taken for untenable conditions to develop outside the room involved in fire giving more time to evacuate patients, particularly in cases where the standard of fire compartmentation, structural fire protection, fire spread on internal linings or travel distance may be a concern.

211.   Further guidance on automatic life safety fire suppression systems is contained within SHTM 82 Supplement A.

Chapter 12: FIRE AND RESCUE SERVICE FACILITIES

212. Building Regulations and other legislation may have required premises to be provided with facilities, equipment and devices provided for use by, or protection of, fire-fighters. Fire safety law includes a duty requiring suitable maintenance of such features to keep them in good order. Examples of such facilities are given below.

213. It will also be helpful to provide information to the Fire and Rescue Service if there is a temporary loss of a fire-fighting facility or a change in access arrangements.

Fire And Rescue Service Access

214. Buildings that have been constructed to Building Regulations may have been provided with facilities that allow Fire and Rescue Service vehicles to approach and park within a reasonable distance so that fire-fighters can use their equipment without too much difficulty. These facilities may consist of access roads to the building, hard standing areas for Fire and Rescue Service vehicles and access into the building for fire-fighters. Where such facilities are provided access should be maintained and available for use at all times.

Water Supply For Fire And Rescue Service Use

215. External water hydrants provide a water supply for use by the Fire and Rescue Service. Where no piped water supply is available, or there is insufficient pressure and flow in the water main an alternative supply may have been provided such as a water tank, or access provided to a spring, river, canal, loch or pond, to which a hard standing is available for Fire and Rescue Service vehicles. In some cases, water supplies may be under the control of the healthcare provider.

Fire-fighting Shafts And Lifts

216. Fire-fighting shafts are provided in tall buildings to provide fire-fighters with a protected route from the point of building entry to the floor where the fire has occurred and to enable fire-fighting operations to commence. The stairway within the shaft is likely also to be used by the occupants for normal movement through the building. Entry points from a stairway in a fire-fighting shaft to a floor will be via a protected lobby.

217. Most fire-fighting shafts will also incorporate a fire-fighting lift. The lift will have a back-up electrical supply and car control overrides. A function of the lift is to transport fire-fighting personnel and their equipment to the scene of a fire.

218. Fire-fighting shafts, lifts and self-closing doors of protected lobbies require to be maintained in good condition.

Smoke Ventilation

219. Smoke ventilators or outlets may be provided for the specific purpose of assisting Fire and Rescue Service personnel with smoke control and clearance. These may be located in basement storeys and stairs and may be openable windows.

Dry And Wet Rising Fire Mains

220.   The rising fire main is an important facility for the Fire and Rescue Service in taller buildings. It consists of an inlet box where fire-fighters can connect their hose; a pipe running up or through the building; and outlet valves on each floor level for the connection of a hose. Dry risers are empty fire mains which are charged with water by Fire and Rescue Service personnel when they arrive; a wet riser is kept full of water from the mains water supply. Wet rising mains have a facility to allow the Fire and Rescue Service to supplement the water supply.

221.   It is important that fire mains remain in good working order. Issues to be considered include the following:

- The physical approach to the inlet box should be such that a Fire and Rescue Service vehicle can reach within 18 m;
- Car parking should be prohibited in front of the inlet box;
- The inlet box door should be secured in such a way that fire-fighters can readily open the door;
- The outlet valves (landing valves) should be secured in the closed position, usually with a leather strap and padlock to prevent tampering; and
- The outlet valves should be maintained so that they are easily openable.

Information Arrangements For Fire-fighters

222.   In complex buildings, there may be layout plans available for fire-fighters or information on the presence of particular hazards.

Definition of Terms Used in this Guide

Child	A person who is not over school age (to be construed in accordance with section 31 of the *Education (Scotland) Act 1980*).
Combustible	Capable of burning in the presence of oxygen.
Compartment	Part of a building (which may contain one or more rooms, spaces or storeys and includes, where relevant, the space above the top storey of the compartment) constructed so as to prevent the spread of fire to or from another part of the same building.
Emergency lighting	Lighting designed to come into, or remain in, operation automatically in the event of a local and general power failure.
Escape route	A route forming part of the means of escape from any point in the building to the final exit.
Final exit	Termination of an escape route from a building, giving direct access to a street or open space, where people are no longer in danger from fire.
Fire damper	A device within a duct, which operates automatically and will stop the passage of fire and smoke which together with its frame, has the same fire-resistance as that element of building construction through which the duct passes.
Fire door	A fire door is rated by its fire-resistance performance under test conditions: a door rated to 30 minutes (short duration) will be described as FD 30 (when tested to BS 476 Part 22) or E 30 (when tested to BS EN 1634 Part 1). A suffix is added to denote the door has a smoke control function giving FD 30S and E 30Sa respectively. An equivalent 60 minutes (medium duration) fire door will be designated FD 60S or E 60Sa. This test rating is an indication of test performance and not necessarily how a door will perform in a real fire.
Fire-fighting shaft	A shaft enclosed by walls forming the enclosing structure of a protected zone with a long fire-resistance duration.
Hard standing	An area of ground which will support the weight of a Fire and Rescue Service vehicle regardless of the weather conditions.
Hazard	A situation that can give rise to a fire.
Means of escape	Safe routes provided for people to travel from any point in a building to an unenclosed safe area beyond the premises including fire safety measures to maintain those routes.
Progressive horizontal evacuation	A method of evacuation in a controlled sequence, with those parts of the building at greater risk being evacuated first.

Protected door	A fire door giving access to: • A protected zone, (including a protected lobby); or • A fire-fighting shaft; or • Another compartment; or • An unenclosed safe area beyond the premises; or • An unenclosed external escape stair; or • An open access balcony; or • An escape route across a flat roof or access deck.
Protected zone	That part of an escape route within a building, but not within a room, and to which access is only by way of a protected door from which there is an exit directly to an unenclosed safe area beyond the premises
Risk	The potential for a fire to occur (likelihood) and cause death or injury (consequence).
Sub-compartment	Part of a building (which may contain one or more rooms, and includes where relevant, the space above the top storey of the sub-compartment) constructed so as to aid progressive evacuation.
Voice alarm system	A method that provides the means for automatically broadcasting a speech message and warning signal.
Young person	Any person who has not attained the age of 18.

Reference Material

1. Fire (Scotland) Act 2005: Part 3, as amended

2. Fire legislation website: www.infoscotland.com/firelaw

3. Building (Scotland) Regulations 2004

4. Scottish Building Standards Technical Handbook for Non-Domestic Buildings

5. Dangerous Substances and Explosive Atmospheres Regulations 2002
    (www.hse.gov.uk/fireandexplosion/dsear.htm)

6. Guidance on smoking policies for the NHS, local authorities and care service providers
    (www.clearingtheairscotland.com)

7. Scottish Government Health Directorate Fire Safety Policy for NHSScotland
    (www.pcpd.scot.nhs.uk)

8. NHSScotland Firecode
    (www.hfs.scot.nhs.uk)

    Scottish Health Technical Memorandum 81: Fire precautions in new hospitals
    Scottish Health Technical Memorandum 82: Alarm and detection systems
    Scottish Health Technical Memorandum 82: Supplement A: Automatic fire control systems and voice alarm systems
    Scottish Health Technical Memorandum 83: Fire safety in healthcare premises: General fire precautions
    Scottish Health Technical Memorandum 85: Fire precautions in existing hospitals
    Scottish Health Technical Memorandum 86 Part 1: Fire risk assessment in community healthcare premises
    Scottish Health Technical Memorandum 86 Part 2: Fire risk assessment in healthcare premises
    Scottish Health Technical Memorandum 87: Textiles and furniture

    Scottish Fire Practice Note 3: Escape bed lifts
    Scottish Fire Practice Note 4: Hospital main kitchens
    Scottish Fire Practice Note 6: Arson prevention and control in NHS healthcare premises
    Scottish Fire Practice Note 10: Laboratories on hospital premises
    Scottish Fire Practice Note 11: Reducing unwanted fire signals in healthcare premises

    A Model Management Structure for Fire Safety

9. Historic Scotland Technical Advice Notes:

    TAN 11   Fire Protection Measures in Scottish Historic Buildings
    TAN 14   The Installation of Sprinkler Systems in Historic Buildings
    TAN 22   Fire Risk Management in Heritage Buildings
    TAN 28   Fire Safety Management in Heritage Buildings

10. British Standards: British Standards Institution (www.bsi-global.com). The dates quoted below are those at the time of publication.

British Standard 476: Part 22:1987 Fire tests on building materials and structures. Methods for determination of the fire resistance of non-loadbearing elements of construction