PRACTICAL FIRE SAFETY GUIDANCE FOR CARE HOMES

Issued by Scottish Ministers in terms of section 61(2) of the Fire (Scotland) Act 2005

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CHAPTER 1: PREFACE

INTRODUCTION

1. In 2006, the *Fire (Scotland) Act 2005 (the 2005 Act)* introduced changes to fire safety law in Scotland and repealed previous fire safety legislation. This guide has been produced to assist those who have responsibility under this Act for ensuring fire safety in care homes in Scotland.

2. Reducing the risk from fire is an important and fundamental duty in a care home. Fatalities have occurred in fires in premises providing residential care, most notably the fire at Rosepark Care Home in 2004, when a short, rapidly developing fire originated in a cupboard on a bedroom corridor. Inhalation of smoke and toxic gases claimed the lives of 14 residents. This demonstrates the serious risk that fire poses to the occupants of care homes, the tragic consequences which may occur, and the importance of management of fire safety.

3. This guide, prepared by the Scottish Government, is one in a series of guidance documents offering fire safety advice for different types of premises. It supersedes the February 2008 version of *Practical Fire Safety Guidance for Care Homes*. There are a substantial number of editorial changes in the revision aimed at improving dutyholders' understanding of the guidance – these changes take account of the results of a public consultation on the content of the guidance.

SCOPE

4. The guidance in this document is applicable to general fire safety in existing premises in which a care home service is provided (as defined in the *Public Services Reform (Scotland) Act 2010*). These are care homes which provide a service for the following categories of resident:

- Older people;
- Children and young people;
- People with learning disabilities;
- People with drug and alcohol problems;
- People with mental health problems; and
- People with physical and sensory impairment.

5. Generally, care homes comprising either a ground floor, ground and first floor or ground, first and second floor, will fall within the scope of this guide. However, the benchmarks in this guide are unlikely to be appropriate for very small premises, registered as care homes, that are akin to dwellings and which may have only one or two residents[1].

6. This guide applies to existing premises and is not a design guide for new build. All new residential care buildings must be designed to the mandatory standards under the *Building (Scotland) Regulations 2004*. Similarly, buildings which undergo extension, structural alteration or change of use should also meet the standards (and be subject to building warrant approval, where required). Guidance on design and construction in respect of building regulations is contained in the *Scottish Building Standards Technical Handbook for Non-Domestic Buildings*.

1 While the benchmarks and standards may not be relevant to some small care homes, the fire safety legislation applies to all premises used for the provision of a care home service, regardless of size.

FIRE SAFETY LAW

7. Part 3 of the *2005 Act*, along with the *Fire Safety (Scotland) Regulations 2006*, sets out the fire safety duties in respect of the majority of non-domestic premises in Scotland. The legislation requires the provision of fire safety measures; this includes risk reduction, means of fire warning, fire-fighting, escape, staff training and instruction, as well as emergency procedures.

8. The legislation applies in respect of care homes; it sets out fire safety responsibilities and seeks to ensure the safety of persons (whether they are employees, residents, visitors or others) from harm caused by fire.

9. The legal duties which are imposed by the legislation can be considered in terms of the following general requirements. The list is a summary of requirements under the legislation and is not intended to be comprehensive; anyone in doubt about their legal obligations may wish to seek further advice. Guidance on complying with these general requirements is considered in more detail in the remaining chapters:

- Assessing the risk from fire in respect of the premises;
- Identifying the fire safety measures necessary as a result of the assessment of risk;
- 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.

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

Who must comply with these duties?

11. The responsibility for complying with the fire safety duties in a care home sits with the employer and other persons who operate or have control of the premises to any extent, including managers, owners and staff. Contractors and volunteers working on site may also have some responsibilities. In this guide, **persons with fire safety responsibilities are referred to generally as 'dutyholders'**.

12. Under fire safety law, dutyholders are required to take all reasonable measures regarding the safety of persons. Employers additionally have a specific obligation to ensure the safety of employees in the event of fire, so far as is reasonably practicable. This means that the effort, expense and any other disadvantages associated with the provision of fire safety measures need only be proportionate to the fire risk. Where premises or responsibilities are shared, each employer, owner 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.

External assistance

13. The responsibility for assessing the risk from fire in premises and taking fire safety measures, sits with dutyholders. Fire safety may be dealt with by the care home operator and their staff. Large care home operators may have specialist in-house advisers. However, where resources or expertise is insufficient to match the complexity of the situation, care providers may wish to engage an external fire safety consultant who has a greater depth of understanding of the issues and an ability to judge and solve problems and to assess the level of risk.

14. In care homes with high dependency residents, care providers with no specialist in-house expertise on fire safety are likely to need external specialist advice to assist with an initial fire safety risk assessment.

15. It can be difficult to judge the competence of companies and persons who advertise their services as fire risk assessors. The fact that a person or company is operating in the fire sector or that someone has previous fire service experience, does not mean that they are a competent fire safety specialist.

16. Where dutyholders seek external assistance, they should satisfy themselves with the credentials of external consultants. The quality assurance of fire safety consultants is a developing area and readers should check for relevant guidance, including on the Scottish Government FireLaw web pages.

17. External consultants are accountable under the legislation when, for example, they undertake fire safety risk assessment. Even where external assistance is used, the care home management remain legally responsible and accountable for fire safety in the premises.

Who enforces the fire safety law?

18. While the responsibility for compliance with the legislation sits principally with the persons who operate and work in care homes, there is provision in the legislation for an enforcing authority with enforcement powers.

19. The Scottish Fire and Rescue Service (SFRS) enforce Part 3 of the *2005 Act* and relevant regulations in respect of care homes. Enforcement officers' powers are listed in section 62 of the Act: they may do anything necessary to allow them to enforce the provisions of the legislation. This includes entering premises, inspecting, requesting information, records or assistance, copying or removing documents; carrying out measurements or tests; taking samples, dismantling articles, and taking possession of an article for examination or evidence.

20. If the SFRS is not satisfied with the outcome of a dutyholder's assessment of fire risk in the premises, the action taken by a dutyholder, or the fire safety measures in place, it may deal with this informally or formally.

21. The SFRS may send out an informal letter which requests or specifies that certain action or measures be taken and may request that a dutyholder draws up an action plan for implementation of the measures. This informal letter may be called a 'notification of deficiencies'.

22. The SFRS has the power to take formal action in certain situations. This could involve:

- The issuing of an 'Enforcement Notice' that requires specified action to be taken;
- The issuing of a 'Prohibition Notice' in cases of serious risk so that the use of all or part of the premises is restricted 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 of death or serious injury by failing to carry out any duty imposed by fire safety law is an offence).

23. Additionally, the SFRS has power to issue an 'Alterations Notice' that requires the recipient to inform the enforcing authority before making specified changes to the premises.

24. Where there is disagreement between a dutyholder and the SFRS on compliance issues, the dispute may be suitable for referral for a determination. Dispute determination is a third party independent arbitration arrangement. Information on this provision is available on the web pages of the Fire Service Inspectorate at *www.scotland.gov.uk/fireinspectorate*.

25. There is also a right of appeal to the court against a Prohibition Notice, Enforcement Notice or Alterations Notice, within a short timescale from the date the notice is issued.

26. SFRS crews may also visit premises to gain familiarisation with the layout or for tactical planning in case they are called to a fire. The managers of large care homes should have local liaison arrangements with SFRS to facilitate such visits and the exchange of information.

27. While the general fire safety measures required by the *2005 Act* are enforced by SFRS, there are some matters that, in care homes, are enforced by the Health and Safety Executive or the local authority under various pieces of health and safety legislation. Some examples are precautions relating to:

- Storage of flammable liquids;
- Ventilation systems to dilute or remove flammable gas or vapour;
- Selecting equipment that will not be a source of ignition; and
- Maintenance of electrical equipment.

HOW TO USE THIS GUIDE

28. The remaining chapters in this guide provide information on the assessment of fire safety risk, the reduction of risk and identification and implementation of fire safety measures.

29. It is not necessary to follow the risk assessment method in this guide; other suitable risk assessment methods can be used.

30. The fire safety standards described in this guide are principally benchmarks. Many of the benchmarks which refer to physical fire precautions are based on the guidance in the *Building Standards Technical Handbook* that applies to new buildings. When deciding what fire safety measures are appropriate for premises, the benchmarks can be used as a comparison against what exists in the premises.

31. The benchmarks should not be applied prescriptively to premises, they are not minimum standards nor are they provisions that are deemed to satisfy the legislation. In each case, the measures adopted should be risk appropriate for the particular circumstances in which they are applied. A standard lower than the benchmark may be adequate, in other cases a standard above the benchmark may be necessary. The assessment of risk needs to be specific to the individual premises. Decisions on fire safety measures should be based on judgement of risk in the premises.

32. The objective of fire safety law is life safety. Fire safety measures are only necessary where they are required to ensure an acceptable level of life safety. In care homes, there should be recognition of the need to maintain a homely, non-institutionalised environment, where the residents' quality of life needs to be taken into consideration.

33. If persons feel unable to interpret this guidance, they should seek assistance from someone with sufficient technical knowledge. The SFRS as enforcer of the legislation, cannot undertake a dutyholder's risk assessment obligation. It has 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.

34. While the principal purpose of this guide is to assist dutyholders to comply with their legal obligations, its contents constitute guidance given by the Scottish Ministers in terms of section 61(2) of the *2005 Act*. The SFRS is therefore required to take it into account in determining whether enforcement action may be necessary.

35. Enforcement officers should not apply the benchmarks in this guide on a prescriptive basis. Where an enforcement officer considers that additional fire safety measures are necessary, decisions should be based on risk, taking likely cost into account. It will assist the awareness of dutyholders if enforcement officers explain why the existing performance is not acceptable, and how the additional measures will deliver improvement.

36. Nothing in this guide should be interpreted as permitting a reduction in the standard of fire safety measures where the measures have been incorporated to comply with Building Regulations. Where a fire safety strategy and fire safety measures have been determined at the building design stage to comply with building regulations, this information should be taken into account to assist in the safe operation of the premises and to inform the assessment of fire risk. It is possible for a standard higher than that required by Building Regulations to be necessary as a consequence of assessment of risk.

CHAPTER 2: ASSESSMENT OF FIRE RISK IN PREMISES

37. In premises where fire safety law applies, it is a legal requirement to assess the premises to identify risk to persons from fire and to take fire safety measures. The assessment of risk should be specific to fire safety and to the specific care home concerned. A generic risk assessment will not be sufficient.

38. Fire safety risk assessment is a practical exercise aimed at evaluating the risk from fire and how to ensure the safety of persons in the event of fire. It involves an organised and methodical look at the home, the activities within the premises, the type of occupants, the potential for a fire to occur and the harm it could cause to people. The existing fire safety measures are evaluated to establish whether they are adequate or if more requires to be done. In this respect, fire safety measures include not just physical measures, such as fire alarm systems and escape routes, but also standards of management.

39. The risk assessment process described in this chapter is shown in **Figure 1**.

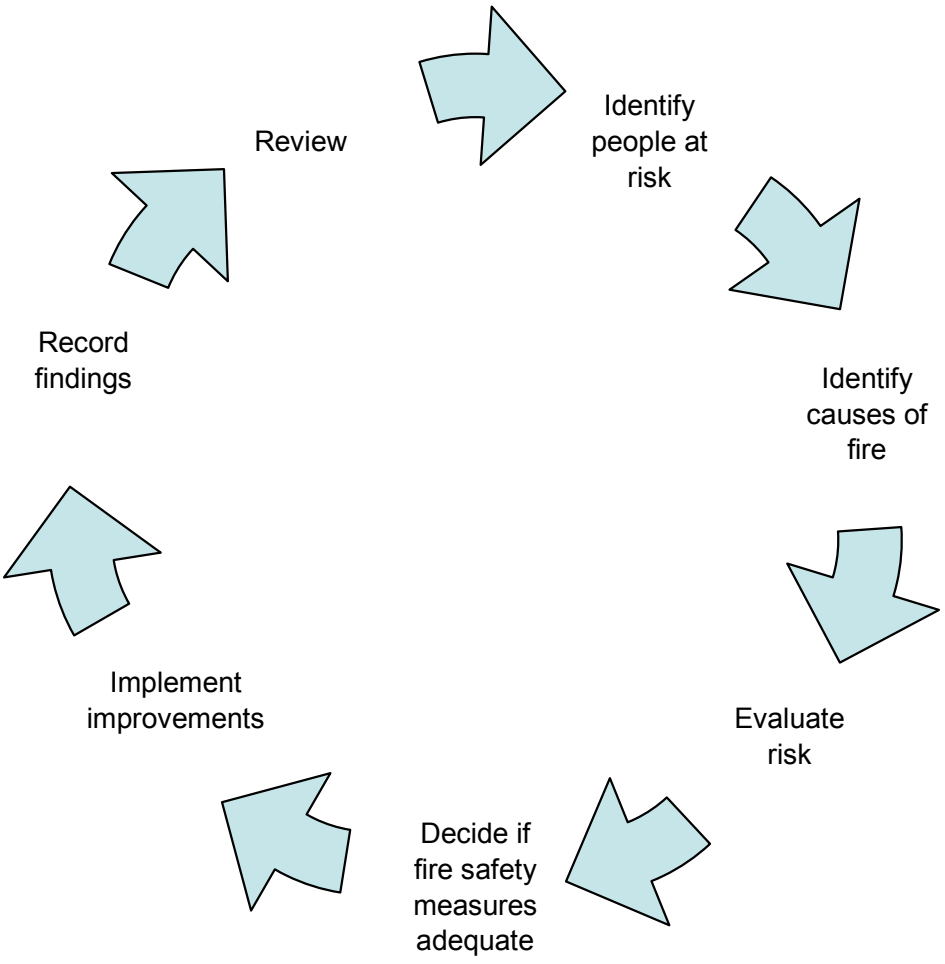


Figure 1 – Fire Safety Risk Assessment Process

Identify people at risk

40. An assessment should be made of those persons at risk if a fire occurs within or in the vicinity of the premises. The number, characteristics and location of occupants, residents, staff and other persons who frequent the premises should be identified. Disabilities should be taken into account along with people's familiarity with the premises. The inexperience, lack of awareness and immaturity of any young persons (under 18 years) employed or resident, should be also considered.

Identify causes of fire

41. For a fire to start, three components are needed: a source of ignition; fuel; and oxygen. These components can be represented as the sides in a simple 'Triangle of Fire' model shown in **Figure 2**. If any one of these components is missing, a fire cannot start. Taking steps to avoid the three coming together will reduce the chance of a fire occurring, while reducing the quantity of oxygen (smothering) or fuel (starvation) may restrict the development of a fire.

Figure 2 – Triangle of Fire

42. The premises should be critically examined to identify potential ignition sources and materials that might fuel a fire and the circumstances which might allow a fire to start, whether accidentally, deliberately or through lack of maintenance or precautions. Indications of 'near misses' should also be considered, such as scorch marks on furniture or fittings, discoloured or charred electrical plugs and sockets or cigarette burns. Some general information and examples are given in **Table 1** at the end of this chapter and recommendations on controlling ignition sources are contained in **Chapter 5**.

Evaluate the risk

43. The risk in the premises should be evaluated so that a judgement can be made on the adequacy of fire safety measures. 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 likelihood and consequence should be considered when assessing risk.

44. The likelihood of a fire starting will be low if there are few ignition sources, and if combustible materials are kept away from them.

45. Having considered the people likely to be at risk should a fire start in the building and the chances of a fire occurring, the consequences and extent of the risk to those people if a fire starts and spreads should be considered. In evaluating the risk to people, it is necessary to consider different situations and possible scenarios 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 vertical shafts, service ducts, ventilation systems, walls, partitions, ceilings and roof voids; and
- Fire and smoke spreading through the building due to open doors, doors fitted with self-closers being wedged open or damaged doors.

Decide if existing fire safety measures are adequate

46. A judgement needs to be made to determine whether the fire safety measures and fire safety arrangements are adequate or if more needs to be done to safeguard persons.

47. The level of fire safety measures provided in the premises should be proportional to the level of risk posed to the safety of people.

Implement improvements

48. Carrying out an assessment of the premises is not an end in itself. The outcome of the risk assessment needs to be acted upon, risks need to be controlled in a practical way, and fire safety measures and arrangements need to be put in place.

49. Potential causes of fire identified should be avoided or removed if reasonably practicable to do so. If they cannot be removed, measures should be taken to control the risks.

50. Where improvements to fire safety measures in premises are considered necessary as a result of assessment of risk, a programme for implementation of the improvements should be drawn up. The programme should have timescales for the completion of the action required.

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

- Avoiding risks;
- Evaluating risks which cannot be avoided;
- Combating risks at source;
- Adapting to technical progress (this may offer opportunities for improving fire safety);
- 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.

52. Where improvements involve building work, the work should be done in accordance with Building Regulation procedures. In a listed building (a building of special architectural or historic interest included in a list compiled by the Scottish Ministers), alternatives to conventional fire safety measures may be appropriate. Guidance is available in *Guide for Practitioners 7 Fire Safety Management in Traditional Buildings* from Historic Scotland.

Record the findings

53. Having carried out a fire safety risk assessment of the premises, the findings should be recorded, including any action taken or action still to be taken. Fire safety law requires that certain information be recorded where five or more employees are employed (whether they are on the premises or not) or the premises is subject to licensing or registration or an Alterations Notice has been issued requiring this. **Chapter 4** contains recommendations in respect of record keeping.

Review the assessment

54. The fire safety risk assessment should be reviewed before any changes are made, if relevant safety issues arise, and in any case regularly.

55. Where changes are proposed, the consequence to fire safety in the care home should be considered before the change is introduced. This will involve reviewing the risk assessment and considering whether the change would affect the risk and therefore whether the control measures are still appropriate. Changes that might prompt a review of the risk assessment include:

- A change in the number of people present or the characteristics or dependency 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; and
- The introduction or increase in the storage of dangerous substances.

56. A review should occur on becoming aware of shortcomings in fire safety measures, potential improvements; or a fire or 'near miss' occurs which may indicate that the existing fire safety measures are inadequate. If the Fire and Rescue Service has attended a fire in the premises, its fire investigation findings may help inform a review.

57. In any case, a review of the fire safety risk assessment should be carried out regularly. This will involve setting time aside to consider whether there has been any change which would affect the risk and therefore confirming that the control measures are still appropriate.

58. Generally, reviews of a risk assessment should be carried out in-house by the care home management and in so doing, this will reinforce ownership of fire safety management and assist in the development of relevant knowledge and of a fire safety culture.

Table 1 – Causes of Fire

IGNITION SOURCES

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
- Heaters – electrical, gas or oil-fired (fixed or portable)
- Hot processes – such as repair work by contractors
- Cooking equipment and lighting equipment
- Deliberate fire-raising
- Electrical equipment or fixed installations.

There are various ways to reduce potential sources of ignition, for example:

- Replace naked flame and radiant heaters with a central heating system
- Restrict the movement of, and guard, portable heating appliances
- Install, use and maintain electrical and mechanical equipment in accordance with the manufacturer's instructions
- Take precautions to avoid deliberate fire-raising.

FUEL

Material which will burn and is in enough quantity may provide fuel for a fire. This includes contents, fixtures, fittings, structure, wall and ceiling linings and surfaces. Some examples of 'fuels' are:

- Textiles, soft furnishings, clothing and laundry
- Flammable liquids and solvents, such as white spirit, methylated spirit, cooking oils, disposable cigarette lighters and adhesives
- Wood, paper, cardboard, plastics, cellular foam, rubber and upholstered furniture
- Flammable gases such as liquefied petroleum gas (LPG) and aerosol contents.

There are various ways to reduce the materials and substances which burn, and to separate them from ignition sources, for example:

- Store flammable materials properly
- Remove combustible wall and ceiling linings, such as timber, polystyrene or carpet tiles (to reduce the surface rate of flame spread and smoke production)
- Ensure rubbish is not allowed to build up.

OXYGEN

The main source of oxygen for a fire is in the air around us. Air supply can be by natural air flow through doors, windows and other openings; or mechanical air conditioning systems and air handling systems. Buildings may have a combination of sources capable of introducing or extracting air.

Potential sources 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
- Closing down ventilation equipment.

The action may be a precaution taken in case a fire starts, such as keeping certain doors closed. 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 when doors are closed, either manually or by the automatic release of hold-open devices.

Additional sources of oxygen can be from cylinder storage and piped systems used in oxygen therapy. High concentrations of oxygen pose a special hazard (see **Chapter 5**).

CHAPTER 3: CARE HOME RESIDENTS AND STAFFING

59. Care homes often pose special problems in respect of fire as a result of the nature of the residents. Many homes accommodate residents who require assistance, and in some cases considerable assistance, due to infirmity, lack of mobility, impaired awareness and/or lack of understanding. Elderly and infirm persons are also particularly susceptible to the effects of smoke and toxic gases produced in a fire.

60. Even mobile residents may present difficulties. They may be asleep or on medication when a fire starts and this may affect their ability to respond to an emergency.

61. In this guide, the term 'dependency' is used to mean a resident's ability to understand and physically respond to a warning of fire. The provision of fire safety measures will be influenced by the dependency category of residents. For the purposes of this guide, three categories of dependency are used:

- **Low dependency** describes residents who have the physical and mental capability to respond to a fire emergency and exit the premises unaided or with minimal staff assistance.
- **Medium dependency** describes residents who either:
  (a) require physical assistance or guidance from a staff member to respond appropriately in a fire emergency; or

  (b) can exit the premises unaided, but will take an extended time to achieve this.
- **High dependency** describes residents who are totally dependent on staff and may require the assistance of two or more staff members in a fire emergency.

62. In some cases, a person's dependency will be influenced by their particular circumstances and by their location in, and familiarity with, the premises.

63. The personal evacuation needs of residents should be considered. Many care homes will have residents with varying levels of dependency, and their mobility and responsiveness should be considered. The assistance required and the method of movement in an emergency should be established. Needs may vary over time as the mental and physical capability of residents change and evacuation needs should therefore be kept under review.

64. One of two recognised evacuation strategies may be appropriate for the premises, either **Immediate Evacuation** or **Progressive Evacuation**. The strategy adopted will depend principally on the dependency of residents, the number of staff available to assist with evacuation and the layout and construction of the premises.

65. Immediate evacuation describes a situation where, upon discovery of a fire and a warning being given, the emergency fire action plan (see **Chapter 4**) involves immediate evacuation of the whole building.

66. Progressive evacuation is evacuation in a controlled sequence, with those within the building who are at greatest risk being evacuated directly to another part of the building through a fire door(s) into another sub-compartment (see **Chapter 6**) within the building where, for a time, they would be relatively safe from the effects of fire in its initial stages. This movement would normally be to a separate sub-compartment on the same floor, if the premises layout and the location of the fire allowed this option.

67. Upon discovery of a fire and a warning being given, progressive evacuation involves:

a. Carrying out an assessment of the situation to determine the fire location and who may be at immediate risk;

b. Deciding if there is a need to evacuate the sub-compartment involved;

c. Deciding if there is a need to evacuate any other persons threatened by fire; and

d. Progressive movement of residents to lower risk areas (including the open air), as needed, as the situation develops.

68. For care homes with high dependency residents, a progressive evacuation strategy will be the only realistic option due to the difficulty in moving residents and the extended evacuation time. A progressive evacuation strategy 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 appropriate action is taken by staff.

69. The level of fire safety measures may dictate which evacuation strategy could be achieved and subsequently what category of resident can be accommodated. Certain parts of a building may not be suitable for high dependency residents. This can pose difficulty in the long term where a resident's dependency may change over time.

70. The evacuation of residents when fire occurs is the responsibility of staff and not the Fire and Rescue Service, the role of which is to tackle the fire, and rescue residents only if the pre-defined evacuation strategy has failed.

71. The care home management should have an evacuation strategy and have evidence that staffing levels in relation to implementation of the emergency fire action plan has been considered. In all cases, there should be sufficient staff available to ensure the safety of residents and that residents can be moved safely (from any sub-compartment to an adjoining sub-compartment or other safe place from which further escape is possible or to a place of ultimate safety), consistent with the strategy adopted.

72. The demands on staff to provide physical assistance during an evacuation of residents may be challenging. It can be difficult to assess what staff may be able to physically achieve if confronted with a fire situation, particularly where there is a need to move residents urgently.

73. Although staffing levels may be determined purely for care provision needs, there also needs to be consideration of the number of staff required to carry out an evacuation and consider the time and effort required to move residents with varying degrees of dependency to a place of temporary safety if a fire occurs. A small number of staff cannot be expected to move large numbers of high dependency residents. Difficulties are likely to be more severe at night with reduced staffing levels. In some homes, there may be a complex relationship between the dependency of residents, the potential for different fire scenarios, the effectiveness of fire safety measures and the ability of staff to deal with the situation.

74. The number of high dependency residents in a single sub-compartment should be capable of being evacuated by the members of staff on duty at night, before fire makes evacuation impractical. Having a mix of low dependency and high dependency residents may allow easier evacuation.

75. Each individual resident should be considered in respect of where they could be located to minimise their dependency in the event of fire. Where there is a mix of residents with different dependencies, there may be potential to locate high and medium dependency residents in rooms which offer the least difficulty for evacuation or where the threat from fire is least. This may be on the ground floor and/or in the smallest sub-compartment. It may be difficult to relocate residents from existing locations and friends, since a move could cause confusion and isolation.

76. There is a need to consider the supervision and welfare needs of residents in the event of evacuation and what effect the supervision requirements of early evacuees may have on staff actions.

77. Care providers should consider any issues that may arise with high staff turnover or where there is infrequent use of bank staff.

78. Staff should be made aware if residents have known behavioural issues relevant to fire safety. This could be behaviour such as careless use of smoking materials, attempts to start fires, potential for wandering off, or an agitated or confused reaction to the sound of the fire warning system. Some residents in care homes may, prior to admission, have been identified as being particularly at risk from fire when in their own home. Where known, this type of background information should be passed on to the care home manager to enable suitable risk control measures.

79. There may be a need to protect some residents from harm where there is the potential for falls or wandering off. In such cases, and in the case of security against unauthorised entry, it is important that measures do not compromise the operation of the emergency fire action plan or potential fire and rescue service operations. Equally, the design and operation of fire safety measures should not cause risk to residents from hazards other than fire.

80. There are two elements of residents' record keeping that may be necessary:

i A 'fire register' containing up-to-date operational information on residents as may be necessary for use during a fire evacuation; and

ii. Within the assessment record of each person in care, a record of the specific consideration given to fire safety issues and personal evacuation needs as necessary to meet management's needs for pre-planning.

81. Additionally, it is good continuity practice to have a grab bag of essential information on residents that would be needed if evacuation required the relocation of residents. Alternatively such information could be kept accessible at another physical location.

CHAPTER 4: MANAGING FIRE SAFETY

82. A management commitment to fire safety is essential to assist with achieving suitable fire safety standards in premises and in maintaining a staff culture of fire safety. It is important to promote to staff that the concept of 'care' includes care from fire.

FIRE SAFETY POLICY

83. There should be a clearly defined fire safety policy which includes arrangements for planning, organisation, control, monitoring and review of fire safety measures:

- **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 implemented as planned; and
- **Monitoring and review** – constant development of policies and approaches.

84. There should be one named individual with overall responsibility for the coordination of fire safety management within each premises. In multi-site organisations there is a need to establish responsibility for fire safety within the organisation as a whole and arrangements for monitoring the management of fire safety in all premises.

EMERGENCY FIRE ACTION PLAN

85. An emergency fire action plan sets out the action that staff and other people in the premises should take in the event of a fire. It is a management responsibility to have in place a comprehensive emergency fire action plan specific to the premises and to have in place arrangements to implement the plan. **Table 2** shows a checklist relevant to a care home emergency fire action plan.

Table 2 – Emergency Fire Action Plan Checklist

- 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 or the fire alarm actuating.
- The arrangements for calling the Fire and Rescue Service.
- The action to be taken by the person in charge when the fire alarm activates or a fire is discovered.
- Arrangements for fighting fire by staff.
- Any processes or power supplies that need to be stopped or isolated.
- The procedure to be followed to evacuate the premises by staff (and by any other persons present), taking into account the personal evacuation needs of individual residents.
- Procedures for meeting the Fire and Rescue Service and passing on details of the incident, whether all persons are accounted for and the presence of any special dangers.
- In the case of progressive evacuation, the emergency arrangements should it be necessary to evacuate all of the residents.
- Where residents should assemble or be taken after they have left the premises and procedures for checking whether the premises have been evacuated.
- Contingency arrangements to move evacuated residents to short-term shelter and to ensure continuity of welfare and care.

86. 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. Emergency evacuation is a management responsibility and the plan should not rely on the attendance of the Fire and Rescue Service to work.

87. The emergency fire action plan should provide that staff do not delay the summoning of the Fire and Rescue Service when the premises fire warning system actuates and indicates a fire.

88. Staff should be aware of the emergency fire action plan through their training and instruction. Staff notices containing extracts of the emergency fire action plan should be permanently displayed in appropriate positions in the building. These notices should contain sufficient instructions for staff on their actions in the event of fire. Notices need to be in a format understood by staff. There may also be a need for notices designed specifically for residents and visitors.

89. Where practical, an overview of the evacuation arrangements should be communicated to those residents who will comprehend, so that they are aware of the planned procedure for their evacuation. This may assist with a more organised evacuation.

FIRE SAFETY INFORMATION AND TRAINING

90. The actions of staff are crucial to the safety of residents in care homes. 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 including risk reduction, maintenance of fire safety measures and action if there is a fire.

91. All staff (including shift workers, cleaners, volunteers, temporary and agency staff) should be given information, instruction and training on the action to be taken in case of fire and the measures to be taken or observed on the premises.

92. Training of each member of staff should take place as soon as possible after they are appointed and after that, at a frequency which will ensure that they remain familiar with procedures. The specific fire safety training needs of any young persons employed should be considered.

93. Fire safety training should be specific to the care home. **Table 3** shows a care home staff training checklist. What is important is not simply the fact that staff training has taken place, but that the training is effective and that staff have knowledge and understanding of what they should do in the event of fire and also actions to prevent fire. It is therefore necessary to include assurance to confirm staff understanding. This could be achieved by incorporating a post-training check to confirm whether staff have understood and assimilated the training.

Table 3 – Fire Safety Training Checklist

- Instruction on the operation of the fire alarm control panel, with particular attention to the information displayed and how to interpret this information.
- The action to take on discovering a fire.
- How to raise the alarm of fire.
- The action to take upon hearing the fire alarm.
- The arrangements for calling the Fire and Rescue Service.
- The significant findings of the fire safety risk assessments.
- The measures that have been put in place to reduce the risk from fire.
- The identity of people nominated with responsibilities for fire safety.
- Any special arrangements for serious and imminent danger to persons from fire.
- The procedures for alerting visitors including, where appropriate, directing them to exits.
- The measures in place to ensure a safe escape from the building and how they will operate.
- The personal evacuation needs unique to each resident.
- The evacuation procedures for everyone in the building to reach an assembly point at a safe place.
- The principle of progressive evacuation (if used in the premises).
- The fire prevention and fire safety measures and procedures in the premises and where they impact on staff and others in the building.
- The location and use of fire-fighting equipment.
- The location of the escape routes, especially those not in regular use.
- How to open all doors on escape routes, including the use of any emergency fastenings (and locks where appropriate).
- The purpose of fire doors and the importance of keeping fire doors closed to prevent the spread of fire, heat and smoke.
- The importance of good housekeeping.
- The risks from flammable materials used or stored on the premises.
- The precautions to be taken to minimise and control the risks, with particular attention to their role in reducing and controlling fuel and ignition sources.
- The need for staff to report defects in fire safety measures.

94. The knowledge and understanding that employees require will be guided by the role and function the member of staff is expected to fulfil. Staff should be given details of the findings of the fire safety risk assessments. Those who have a supervisory role should receive additional training which will enable them to discharge their specific responsibility.

95. Those staff who may require to physically move or assist residents during an evacuation, should receive manual handling training on the method of achieving this and should be familiar with the use of any evacuation aids or equipment provided for this purpose.

96. A record should be kept of individual staff member training. Records should include the date and time, content, duration, trainer, and assurance check, as evidence that adequate training has been given.

97. Fire safety law specifically requires that information on risks and fire safety measures be notified to workers in the premises from outside agencies or undertakings and their employers; and to the parents of any child not over school age who may be employed to work on the premises.

98. Written information may need to be issued to staff whenever there is a change in the risk from fire, where changes have been made to the emergency fire action plan or other fire safety measures, or where working practices or people's responsibilities have changed. This includes temporary changes such as when contractors' work is in progress. Written instructions should be concise, comprehensible and relevant and should be in a form that can be understood, taking account of those with differing abilities such as sight impairment, learning difficulties and those who do not use English as their first language.

FIRE DRILLS

99. Staff may not follow appropriate action in an emergency if they have never experienced that action. Fire drills should be carried out to check that staff understand and are familiar with the operation of the emergency fire action plan, to evaluate effectiveness and identify any weaknesses in the plan.

100. The frequency of drills for each building should reflect the level of risk. Fire drills should take place at least twice a year. Each member of staff should participate at least once a year. During drills, fire scenarios should be introduced to reflect what could occur in a fire and problems that staff may be faced with, such as an escape route unusable due to fire.

101. During drills, a member of staff who is told of the supposed outbreak should operate the fire alarm and the staff should then rehearse the routine as fully as possible. The degree of resident participation in a fire drill will depend on the nature of residents and their capability. Some fire drills should take place when staffing levels are at their minimum.

102. Where there is the possibility that someone may misinterpret the fire drill and call the Fire and Rescue Service, it will be appropriate to inform the Fire and Rescue Service prior to the commencement and on conclusion of a drill in order to prevent its unnecessary attendance. If the fire warning system is connected to a remote alarm receiving centre, the receiving centre should be informed (to prevent the Fire and Rescue Service being called) and then advised when the drill is terminated.

103. When carrying out a fire drill it may prove helpful to:

- Circulate details and inform staff of their participation. 'Surprise drills' will not normally be appropriate in certain care homes, particularly with high and medium dependency residents; health and safety risks will outweigh the benefits;
- Ensure that any equipment which is in use, such as cookers, can be made safe by isolating or turning off controls;
- Inform visitors if they are present; and
- Nominate observers to assess the appropriateness of actions and identify problems; such as communication difficulties; the use of a frequently used route instead of the most appropriate escape route; and difficulties with door fastenings.

104. Where the evacuation strategy involves immediate evacuation, the drill should include a roll-call at the designated assembly point(s), noting any persons who are unaccounted for. In a fire situation, this information would be passed to the Fire and Rescue Service on arrival.

105. The results of the fire drill should be recorded, discussed with staff, and action should be taken to address any issues which have arisen.

MAINTENANCE OF FIRE SAFETY MEASURES

106. There should be regular checks, periodic servicing and maintenance of the physical fire safety measures. Any defects which occur should be put right as quickly as possible, though there may be a need for contingency plans when life safety systems such as fire-warning systems or sprinklers are defective.

107. The maintenance and testing of some systems and equipment will fall within the recommendations of a British Standard. Examples of testing and maintenance are given below. Experience in individual premises may show that other maintenance and testing regimes may be appropriate. Six-monthly and annual tests may normally be carried out by a person with specialist knowledge, usually via a service contract.

Escape routes and doors

- Daily walk through to check escape routes are clear of obstructions and combustible materials, and that self-closing doors are not wedged open.
- Weekly check of escape routes, safety signs and notices, exit securing mechanism; and door self-closing devices.
- Monthly check that fire doors are in good working order: inspect doors for warping or distortion, fire-resisting glazed panels are in good condition and secure in their frame, and that intumescent strips and smoke seals are in good condition.

Portable fire-fighting equipment

- Monthly visual check of fire extinguishers and hose reels to ensure no obvious faults.
- Annual maintenance.

Fire warning system

- Daily check of the control and indicating equipment to ensure the system is operational.
- Weekly test by activating a manual call point (usually by inserting a test key). This checks that the control equipment is capable of receiving a signal and in turn, activating the sounders. A different call point is used for each successive weekly test. Call points can be numbered to assist with sequential testing. It is good practice to test the alarm at the same time each week, but also to ensure that shift workers are given the opportunity to hear the alarm. During test, the alarm should not operate for too long so there is a distinction between a test and an unplanned actuation. Check that the test causes the operation or disabling of other features such as electrically powered locks, the release of doors on hold-open devices, the operation of doors on swing free arms and automatic opening doors reverting to manual operation. Where the system is connected to an alarm receiving centre, the centre should be notified prior to and on completion of the test.
- Six-monthly servicing and preventive maintenance.

Emergency lighting

- Monthly functional test of all emergency light fittings at a time when, following the test, the lighting will not be immediately required. Test methods vary; some systems have self-testing facilities that reduce routine checks to a minimum.
- Annual maintenance and full discharge test (care should be taken not to leave the home without emergency lighting during the night).

Suppression system

- Annual inspection and test.

Dampers

- Maintenance at least every two years.

THIRD-PARTY CERTIFICATION

108. Other than where work is exempt, any work to the building must comply with the building regulations irrespective of whether or not a building warrant is required. Products must be able to fulfil the requirements of the building standards in the particular circumstances of their use. Building regulations requires that materials, fittings, and components used should be suitable for their purpose, correctly used or applied, and sufficiently durable, taking account of normal maintenance practices to meet these regulations.

109. Fire protection products should be fit for their purpose and properly installed and maintained, while installation and maintenance contractors should be competent. Third-party certification, where a reputable certification body independently checks competencies and processes and that standards are being met, is one method of providing a reasonable assurance of quality of products and services, provided that the certification body itself is a competent evaluator. Accreditation by UKAS[2] is an indication that a third-party certification body is a competent evaluator. Products and services that are not third-party approved by an accredited body are not necessarily less reliable, but accredited third-party certification can offer assurance.

RECORDING INFORMATION AND KEEPING RECORDS

110. Information and records should be kept and should be available for inspection. The minimum information that should be recorded is:

- 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.

111. Records of maintenance and testing should be kept in either electronic or paper-based format and retained for at least three years for possible audit by the enforcing authority.

2 UKAS (United Kingdom Accreditation Service) is the national accreditation body for the UK.

Manual for staff

112. It is valuable for a simple fire safety manual for staff to be prepared, in which fire safety measures are shown and responsibilities are set out. As a guide for reference, this will assist with staff awareness, fire safety arrangements and the maintenance of fire safety measures. Features which could be shown by plan in the manual are:

- The layout of the premises, escape routes, doorways, walls, partitions, corridors, stairways etc, including fire-resisting structure and self-closing fire doors;
- The extent of compartments and sub-compartments;
- The location of ventilation system dampers;
- Details of the fire-fighting equipment;
- The location of fire alarm call points and control equipment;
- The extent and type of automatic fire detectors;
- The location of emergency lighting equipment and any exit route signs;
- The location of automatic life safety fire suppression systems and the location of the 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; and
- Details of facilities that are provided to assist fire-fighters.

CHAPTER 5: REDUCING THE LIKELIHOOD OF FIRE

113. An effective strategy should be in place to reduce the likelihood of a fire starting. At its simplest, this means separating flammable and combustible materials from ignition sources and ensuring that equipment and installations are maintained.

HOUSEKEEPING AND STORAGE

114. Control of combustible materials should be achieved by attention to good housekeeping principles. By carefully considering the type of material, the quantities kept and the storage arrangements, risks can be significantly reduced. Appropriate practices are:

- Not storing combustible materials in plant rooms, boiler rooms, attics, service voids and shafts, electrical main or sub-switch rooms;
- Storage in dedicated storage areas, storerooms or cupboards;
- Regular checks and cleaning to remove and prevent the accumulation of waste in spaces such as plant rooms, service voids and shafts, and basements;
- Control and frequent disposal of packaging, waste and other combustible rubbish;
- Loose storage, bins and waste external to the building, sited well away from the building so that any fire cannot affect external walls or overhanging eaves;
- External bins and storage containers secured to prevent movement;
- Where fire-raising is a potential problem, bin and container lids fitted with locks; and
- Regular building checks to ensure that storage arrangements are being complied with.

STORAGE AND USE OF DANGEROUS SUBSTANCES

115. Certain substances and materials are by their nature, flammable, oxidising or potentially explosive. These substances are controlled by legislation, 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 those that are preferably non-flammable or with those that are less flammable;
- Reduce the quantity of dangerous substances to the smallest reasonable amount necessary for use;
- Correctly store dangerous substances, for example in a fire-resisting metal 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 is provided by way of high and low level vents 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.

116. Flammable liquids present a high risk of increasing the chance of a fire starting and its rate of development. For example, a leak from a container of flammable liquid may produce flammable vapours which can travel some distance away from the source of the leak, increasing the likelihood of reaching a source of ignition. Vapours could reach rooms containing heating plant or electrical equipment. The risk can be reduced by ensuring the storage and use of flammable liquids is carefully managed and materials contaminated with flammable liquids are properly disposed of. Further guidance is available on the HSE website at www.hse.gov.uk/fireandexplosion/.

117. Under normal circumstances, Liquefied Petroleum Gas (LPG) is flammable and is heavier than air. Where LPG cylinders or cartridges are used, these should be stored and used in the open air outside the building. Particular care should be taken to minimise the possibility of involvement in a fire.

118. Some care homes use bulk LPG fixed installations for cooking or heating, comprising an external tank and supply piping. In these installations there is a need to ensure that there are no fires in the vicinity of the LPG tank, and to consider the maintenance of the installation and piping.

119. Guidance on the safe storage and use of LPG is available from the supplier, and the trade association for the LPG industry UKLPG (www.uklpga.org), and on the gas safety pages of the HSE website at www.hse.gov.uk.

120. LPG is commonly used as a propellant in aerosol cans. Aerosols are liable to explode if involved in a fire, causing spread and intensification of fire and possibly damaging doors so that they fail to function in restricting the spread of fire and smoke. These potential consequences should be taken into account and appropriate use, storage and disposal arrangements put into place for aerosols, taking into account the quantities involved. Manufacturers' instructions should be followed. Storage should be away from escape routes and no storage should be allowed in boiler houses or other areas containing fixed sources of ignition such as electrical distribution boards in cupboards. They should not be stored or placed in damp areas (such as under sinks) where the container might corrode. Aerosol cans can overheat and rupture in direct sunlight therefore avoid placing aerosol cans containing LPG/flammable liquid propellant on window ledges.

SAFE USE OF EQUIPMENT

121. Lack of preventive 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, such as in kitchens, to build up excessive grease deposits; and
- Disabling or interfering with automatic or manual safety features and cut-outs.

122. A competent person should regularly maintain (and where necessary clean), machinery, equipment and plant, including cooking, heating and office equipment. Appropriate signs and instructions on the safe use of equipment may be necessary.

ELECTRICAL

123. Electrical installations[3] and electrical equipment can be a significant cause of fire. Possible causes include:

- Equipment faults;
- Overheating cables and equipment due to overloading or loose connections;
- Incorrect installation, use or maintenance of the installation or equipment;
- Damaged or inadequate insulation on cables or wiring;
- Combustible materials placed close to electrical equipment which may give off heat;
- Arcing or sparking; and
- Modifications to an installation by unskilled/incompetent persons.

124. Some precautions are:

- Only correctly wired and fused extension leads and plugs should be used;
- Electric blankets should be maintained and serviced in accordance with the manufacturers' guidance;
- Electrical equipment should only be used for its designed purpose;
- Sockets and extension leads should not be overloaded; and
- Maintenance of installations and equipment should be done only by persons competent to do so.

125. To reduce the potential for a fire occurring, there should be an effective programme of planned preventive maintenance for electrical installations and equipment.

126. In the case of fixed electrical installations, this is likely to involve periodic visual inspection at a frequency based on risk, possibly by a member of staff trained in what to look for, along with testing at intervals no greater than five yearly, normally by an approved electrician. If there is any doubt about the safety of electrical installations, a competent electrician should be consulted.

127. Where portable electrical equipment is used, including items brought into the premises by staff or residents, it should be maintained – this is likely to include portable appliance testing at suitable intervals.

128. Guidance on electrical safety, including FAQs on maintaining portable appliances, is available on the HSE website at www.hse.gov.uk/electricity/index.

129. There should be a procedure for reporting faults. Faulty equipment should be taken out of use when it is identified or suspected of being defective, and thereafter repaired by a competent person or replaced.

3 An 'electrical installation' is the electrical system from the care home's supply meter point to the socket outlets etc.

OXYGEN EQUIPMENT

130. The most common use of oxygen in care homes will probably be therapeutic clinical use on an ongoing basis. 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 enrichment can occur in clothing, upholstery or bedding. Oxygen can cause an explosion when in contact with grease or oil.

131. Smoking should not be allowed where oxygen is used or stored, this includes residents using oxygen masks. Electrical equipment such as electric razors, hairdryers, electric blankets or electric heaters should not be used in close proximity to oxygen equipment or in an oxygen-enriched environment. There should be suitable instruction and warning signs highlighting the dangers. Staff should be aware of the inherent dangers of using oxygen and be trained in safe handling and use.

132. When not in use, oxygen cylinders should ideally be stored in a secure outdoor location. For clinical and operational reasons it may not be practical to store cylinders externally. Cylinders stored indoors for clinical use, should be stored upright in a suitable rack or trolley, secured in such a way that they cannot easily fall or be easily pulled or pushed over. Empty and full cylinders should be segregated and indicated with appropriate empty or full cylinder necklace tags. Cylinders should not be located in corridors, stairways or near exit doors or be beside any fires, naked lights, oils or grease. It should be ensured that equipment is not leaking and that the area where they are located, is adequately ventilated.

SMOKING

133. Careless use of cigarettes and other smoking materials is a common cause of fire. Staff need to be vigilant. A cigarette may smoulder for some time, especially when surrounded by combustible material. A fire can start several hours after smoking materials have been emptied into waste bags and left for future disposal.

134. There should be a clearly defined smoking policy for residents, staff and visitors, and robust management control. The prohibition on smoking does not apply to residents in adult care homes where care providers have designated rooms for residents to smoke in, although they are not obliged to designate any rooms. Designated rooms, clearly marked as a room in which smoking is permitted, should be completely enclosed spaces with ventilation systems that do not ventilate into any other part of the building required to be smoke-free. The number of combustibles in dedicated smoking rooms should be limited.

135. Where smoking by residents is permitted in designated rooms, sufficient quantities of ashtrays should be provided. Ashtrays should be emptied regularly each day into a metal container which is then taken outside. Ashtrays should not be emptied into plastic waste bags. Inspections of smoking areas should be made at regular intervals with staff being vigilant for any sign of scorch marks or burning. Staff should ensure that discarded smokers' materials are removed and that they are fully extinguished. Evidence of scorch marks or burning on furniture or carpets indicates that some residents may need additional supervision.

136. Risk control and supervision needs to be considered for those residents that have a history or may be susceptible, be it through careless use of smoking materials, a medical condition that increases the risk when smoking, or those who may use lighters or matches in an attempt to start a fire.

MANAGING BUILDING WORKS AND ALTERATIONS

137. Fires often occur when buildings are undergoing refurbishment or alteration. Before any building work or decoration, the fire safety risk assessment should be reviewed and additional risks considered and evaluated. The impact of the work should be considered in terms of the introduction of new ignition sources and combustibles and the effect on the existing fire safety measures.

138. To ensure that fire safety measures are not compromised and that adequate controls are in place, it is important to ensure co-operation between the building contractor and the care home management. It may be appropriate to specify site-specific fire precautions in contract conditions.

139. Examples of issues that may arise with building work that need to be considered and controlled are:

- The potential for fires to be caused by hot work such as soldering, welding, flame-cutting, roof repair, paint stripping; and by temporary electrical equipment;
- Increased quantities of combustible materials and accumulated waste;
- Obstruction of internal and external escape routes;
- Loss of normal storage facilities;
- Fire safety equipment, such as automatic fire detectors, out of use due to alteration work; and
- Fire-resisting partitions being breached or fire-resisting doors being wedged open.

140. Hot work should only be undertaken when suitable precautions and fire safety equipment have been provided. This may be the use of an industrial quality fire blanket to mask areas adjacent to the work being carried on, an appropriate fire extinguisher provided immediately to hand, or where the activity presents a high fire risk, an observer standing-by with responsibility to identify any fire propagation from sparks or other source. Hot work should cease at least one hour before contractors leave site for the day. Areas where hot work is undertaken should be frequently inspected during the first 30 minutes after the work is completed, and then 30 minutes later to ensure that no materials are smouldering.

141. Modern buildings of timber frame construction contain combustible material in the structure. Care needs to be taken with tools or heat sources where any construction work or alteration involves drilling or cutting openings in the outer cladding or the inner plasterboard skin.

142. The content of skips, waste containers or combustible material may be subject to deliberate ignition. Storage, preferably in lockfast non-combustible containers, should be away from the building so that any fire cannot affect external walls or overhanging eaves.

143. Only the minimum materials necessary for the work in hand should be allowed within the building or close to the exterior of the building.

KEEPING ESCAPE ROUTES CLEAR

144. There needs to be control over the provision of combustible materials in escape routes. If a fire was to occur in an escape route or spread to material in the escape route, this could be a particularly difficult and threatening situation, preventing occupants from escaping and preventing staff accessing to assist.

145. Stairways that form part of escape routes should be kept clear of combustible items and items that could be a source of ignition. Items kept in corridors should be controlled, particularly bedroom corridors, consistent with the need for the normal functioning of the premises and the needs of residents.

146. Examples of some items which are normally unacceptable in stair and corridor escape routes are:

- Gas cylinders, gas pipes, meters and similar fittings;
- Cooking appliances;
- Upholstered furniture;
- Coat racks;
- Vending machines;
- Electrical equipment such as photocopiers and battery chargers; and
- Storage of combustibles (such as refuse and laundry outwith normal controlled cleaning periods).

FIRE-RAISING

147. The possibility of deliberate fire-raising should be considered. This may be particularly relevant in areas with a history of vandalism or fire-setting. Appropriate precautions should be taken. The premises should be secure against unauthorised access to non-residents and secure against unauthorised access to plant areas or other unoccupied spaces. Waste, particularly stored external to the building, should be kept in lockfast bins or stores. Security measures should not compromise the means of escape and the ability to evacuate.

148. Where a resident has a known predisposition to starting fires, increased supervisory measures may need to be implemented.

FURNITURE AND TEXTILES

149. A number of fires in care homes are the result of the ignition of textiles or furnishings. The choice of furniture and textiles can influence the ease of ignition and growth of a fire. Fabrics and textiles should be either inherently flame retardant or durably treated and appropriately labelled. Laundering should be undertaken in accordance with the manufacturers' specific instructions.

150. The filling material used in upholstered furniture may be easily ignitable and consequently, furniture should be maintained in good condition so that there are no tears which expose the filling material. Upholstered furniture (and composites of cover material and infill) should meet the standards in the *Furniture and Furnishings (Fire) (Safety) Regulations 1988*, and in addition, pass the flammability standard in BS 5852 with ignition source 5. Loose furniture covers should be capable of meeting BS 5852 ignition source 1.

CHAPTER 6: RESTRICTING THE SPREAD OF FIRE AND SMOKE

151. To reduce the risk to persons from 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 smoke. To evaluate the risk requires a basic appreciation of the way fires grow and how smoke can spread through a building. A fire in a building can generate smoke that is thick and black, obscures vision, causes difficulty in breathing, and can block escape routes. Smoke is a serious threat to life which should not be underestimated.

152. Fire is spread by convection, conduction and radiation. Convection causes the major proportion of injuries and deaths. When fire starts in 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. Some materials, such as metal beams 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. Combustible material close to a fire will absorb the heat until the item starts to smoulder and then burn.

FIRE COMPARTMENTATION

153. A fire compartment is part of a building constructed to provide a physical fire-resisting barrier to prevent the spread of fire and smoke to or from another part of the building. A compartment can be further sub-divided into sub-compartments to aid progressive evacuation.

154. Where residents are dependent on staff assistance in the event of a fire and the evacuation strategy is progressive evacuation, the building should be divided into different fire-resisting compartments or sub-compartments by fire-resisting doors, walls and floors. This restricts the number of residents who would be at immediate risk in the event of a fire occurring and allows their evacuation, as a first stage, to an adjoining compartment or sub-compartment. **Figure 3** shows the principle of sub-compartmentation.

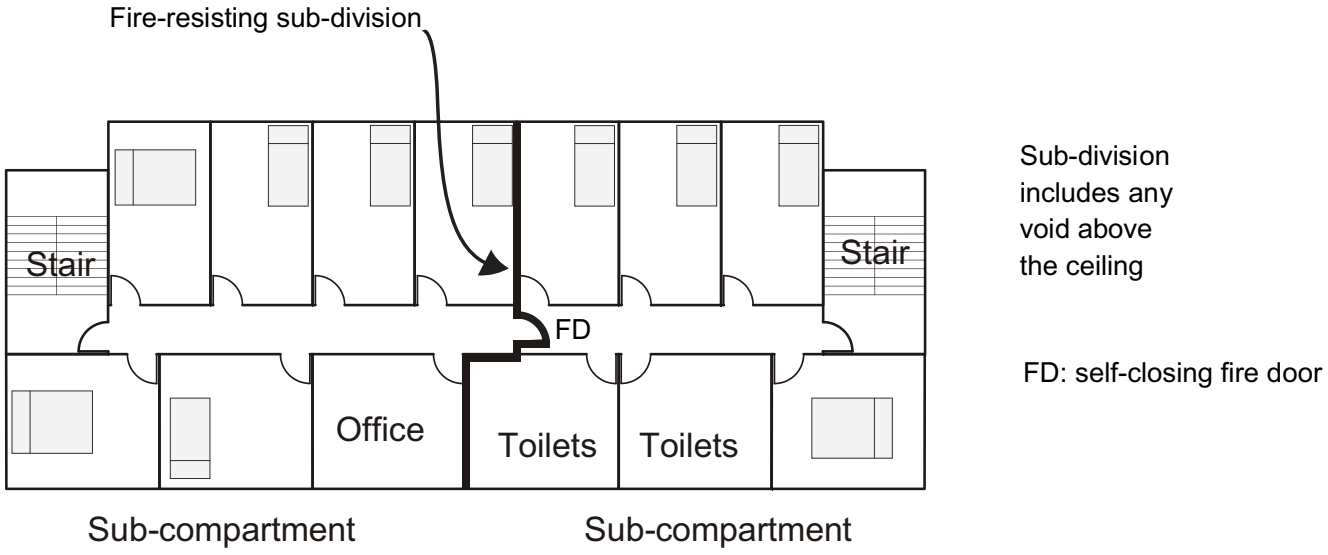


Figure 3 – Plan Layout of an Upper Floor of a Care Home which is Sub-Divided into Two Sub-Compartments

155. The following benchmarks are relevant to compartmentation in premises where progressive evacuation is adopted:

- Floors are compartment floors so that every upper storey and every basement storey is a separate compartment;
- A storey area exceeding 1500m^2, sub-divided into separate compartments, each no greater than 1500m^2;
- Compartments divided into at least two sub-compartments by a sub-compartment wall and door(s) so that each sub-compartment is no greater than 750m^2;
- Fire-resistance of compartment walls, floors and doors at least 60 minutes, or in premises with only medium and/or low dependency residents where no residents are sleeping above the ground floor, at least 30 minutes; and
- Fire-resistance of sub-compartment walls and doors at least 30 minutes.

156. Lateral fire spread could occur where a compartment wall or sub-compartment wall abuts an external wall. A precaution against this is for the external wall to have fire-resistance for a 1m wide projection. This measure is likely to be unnecessary where an automatic suppression system is provided.

157. Any door in a compartment wall or sub-compartment wall should be a self-closing fire door with at least the same fire-resistance duration as the wall and have smoke seals.

Corridors

158. The normal standard for bedroom corridors in a care home is for the corridors to be protected routes whereby the doors and walls forming the bedroom corridor, other than doors serving only toilets where the potential for fire is low, have at least a nominal 30 minutes fire resistance. The doors should be self closing and have smoke seals (see para 166). This offers protection to the bedroom corridor escape route from fire and smoke if a fire starts in a bedroom or other room, maintaining the tenability of the escape route to give maximum evacuation time. **Figure 4** shows a floor layout with a protected bedroom corridor.

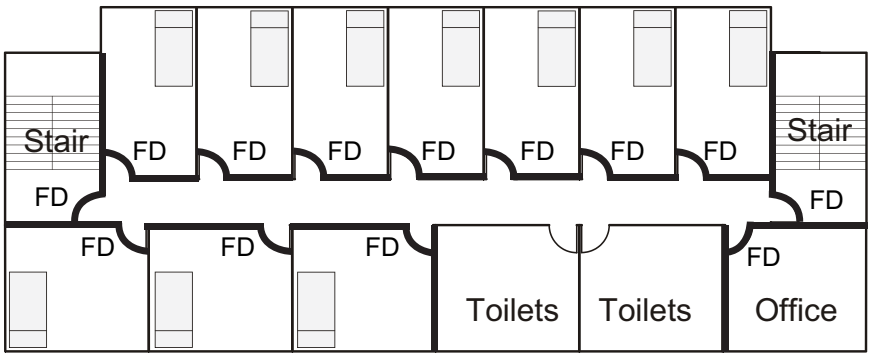


Figure 4 – Protected Bedroom Corridor

159. For purposes of smoke control, corridors which are not protected corridors, that have at least two directions of escape, and are more than 12m in length between the exits, may be divided in the middle third of the corridor with a wall or screen with at least 30 minutes fire-resistance (for integrity only) and the door in the wall or screen at least an FD 30S self-closing fire door:

Other

160. In situations other than in bedroom corridors, some rooms may need to be enclosed by floors, walls, doors and ceilings, to provide at least 30 minutes fire-resistance, in order to contain a fire in its early stages. Some examples are shown in **Table 4**.

Table 4 – Examples where Fire-Resistance may be Required

• Storage rooms and cupboards	• Smoking rooms
• Staff changing and locker rooms	• Kitchens and laundry rooms
• Disposal rooms	• Day rooms
• Rooms containing a lift drive mechanism (unless already within an enclosure)	

161. A lift well can be a route for vertical fire spread. A lift well which is enclosed by walls with at least 60 minutes fire-resistance will be a barrier to fire spread. A lift well which is totally within a protected area such as an enclosed stair, is already within a fire resisting enclosure. Where a lift well is not the full height of the building, the fire resistance of the floor and/or ceiling needs to be considered.

162. Where services pass through any fire-resisting structure, any gaps should be sealed or fire stopped to maintain the fire resistance of the structure and prevent the passage of fire or smoke. Pipes should be fitted with a proprietary sealing system capable of maintaining the fire resistance. A similar consideration exists for penetration by ventilation ducts (see page 32).

163. Boiler rooms and plant rooms are a possible source of fire. To contain a fire, a room may be enclosed by walls with at least 60 minutes fire resistance where it contains an appliance (solid fuel, oil or gas fired, or fuel oil tanks). Where the appliance or equipment uses liquid fuel, the room should be able to contain all the liquid in the appliance or equipment plus 10%.

DOORS

Fire doors

164. A 'fire door' is a fire-resisting door which is rated by performance to fire under test conditions. Fire doors are used to prevent fire spread as 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, though there are some exceptions such as doors to small cupboards which are kept locked shut.

165. A fire door rated to 30 minutes is described as FD 30[4] or E 30[5]. A suffix is added to denote that the door has a smoke control function giving FD 30S and E 30Sa respectively.

4 tested to BS 476: Part 22.

5 tested to BS EN 1634: Part 1.

A 60 minutes fire door with smoke control is designated FD 60S or E 60Sa. The rating is an indication of test performance and not necessarily how a door will perform in a real fire.

166. The level of protection provided by a fire door is determined by the time taken for a fire to breach the integrity of the door assembly, together with its resistance to the passage of smoke, hot gases and flame. The gap between the door leaf and the frame is normally fitted with intumescent strips, in either the door or the frame (except at the bottom of the door). The strips expand in response to heat from a fire, to seal the gap between the door leaf and the frame. Smoke seals prevent the spread of smoke at ambient temperatures.

167. In determining the performance of a door in fire, it is necessary to consider the whole door assembly including the frame, glazing, side-panels, transoms and ironmongery. To ensure the rated fire performance of a new door assembly, the manufacturer's installation instructions should be followed.

168. Some existing doors may have the potential to be upgraded to nominal 30 minutes standard, but replacement of existing doors and frames is often preferable.

Self-closing function

169. A fire door will only fulfil its function to provide a barrier to fire and smoke if it is closed at the time a fire occurs. It is inappropriate to rely on a procedure whereby staff will attend and close doors as an alternative to fitting self-closers. A controlled self-closing device, complying with BS EN 1154, should therefore be fitted to each fire door, including rooms off bedroom corridors (other than to cupboard doors that are normally kept locked shut).

170. The closing pressure of the self-closing device needs to be sufficient to overcome any latch mechanism. The force or speed of the self-closing action of a door could be a source of injury to some residents. Additionally a self-closing door may be difficult for some residents to open. These factors should be considered when selecting or assessing the suitability of self-closer type.

Hold-open and door-release devices

171. Doors with self-closing devices may pose an obstacle to the day-to-day operation of a care home. Many residents may wish (or need) to keep their bedroom doors open for ventilation or communication with other residents or staff. Open doors can assist staff to monitor residents with a minimum of disturbance. There are devices which allow self-closing fire doors to be held in the open position until the fire warning system operates.

172. A self-closing fire door can be held open by an electromagnetic hold-open device (which complies, where appropriate, to BS EN 1155 or BS 5839: Part 3) or with electromagnetic hold-open door closers (to BS EN 1155). Electrically operated hold-open devices should deactivate and release the door on operation of the fire warning system or any loss of power to the hold-open device. In the case of doors to stairways the doors should close automatically in the event of fault in the fire warning system, including total loss of power (mains and standby) to the system.

173. An alternative type of release is an acoustically-activated door release mechanism complying with BS EN 1155. Acoustic devices should not be used on fire doors to protected stairs in care homes. Acoustic devices actuate in response to the sound from the fire alarm sounders so will be inappropriate where there is a voice alarm or where the initial fire alarm warning alerts staff only.

174. A further type of self-closing device comprises a 'swing-free' arm[6], allowing the door leaf to work normally and independently of the closing device in normal conditions. On the operation of the fire alarm or on power failure, the self-closer operates and closes the door. This type is particularly suitable for use on bedroom doors.

175. Some hold-open and 'swing-free' devices are able to be radio-linked to reduce the need for wiring. Some acoustic systems are battery powered.

176. BS 7273: Part 4 contains detailed guidance on conditions for use of door-release devices.

177. A hold-open or swing-free device should not be used on a fire door protecting an escape stair if there is only one escape stair in the building, or if it is the only escape stair serving part of the building. They should also not be used for a door to a room in which the type of automatic fire detector is solely a heat detector.

178. The automatic closing of a door fitted with a hold-open or release device, should occur when the fire warning system operates. The closing of doors may take residents by surprise and the force of the closing mechanism could knock a resident over and may be a source of injury. Consequently, precautions should be taken to avoid injury. Any scheduled test or action which will result in release of the doors should occur when residents will not be passing through the doors.

179. There may be a need to consider the situation of mobile residents in bedrooms with door-release or swing-free devices. Some residents, who may be accustomed to passing through their doorway unaided, may be unable to overcome the force of the self closer and therefore be unable to open the door and exit the room, in the event of the fire warning system actuating.

FIRE SEPARATION

180. Fire separation is construction designed to restrict fire and smoke spread between different occupancies. Where a care home adjoins or is part of a larger building, such as where it is semi-detached or in a terrace, the potential for an outbreak of fire in the neighbouring building ultimately spreading to the care premises, such as through a roof void, should be considered.

181. A separating wall or separating floor provided between parts of a building where they are in different occupation should have at least 60 minutes fire resistance and have no openings. Ideally, there should be no pipes, wires or other services between occupancies, but where these already exist, they should be fire-stopped or protected by intumescent materials to maintain the fire-resistance.

FIRE SPREAD THROUGH CAVITIES

182. Many buildings have cavities and voids, sometimes hidden from view, which may allow smoke and fire to spread. Examples are:

- Vertical shafts and dumb waiters;
- False ceilings, especially if walls do not continue above the ceiling;
- Voids behind wall panelling;

6 The mutual terms 'swing-free' and 'free-swing' are both in common use.

- Unsealed holes in walls and ceilings for pipe work, cables or other services;
- A roof space or attic; and
- A duct or any other space used to run services around the building.

183. Potential fire spread through cavities and voids should be assessed and, where practical, physically examined to see if there are voids that fire and smoke could spread through.

184. Cavity barriers may be necessary to restrict the spread of fire in cavities, particularly for those cavities that could allow fire spread between compartments and/or sub-compartments.

185. Modern timber frame buildings have cavities within the frame and these should have been installed with fire resisting cavity barriers between the external cladding and the timber wall panel at the time of construction.

VENTILATION SYSTEMS

186. The potential for ventilation systems to allow the spread of fire and smoke should be assessed. A powered ventilation system may assist the spread of smoke unless it is designed to shut down automatically if fire is detected.

187. Ventilation ducts may provide a pathway for the spread of fire and smoke between compartments or sub-compartments or into stairs. Where ventilation ducts penetrate the walls or floors of these enclosures, automatic dampers provided inside the ducts hold back fire and smoke. Dampers may need to be actuated by smoke detection. Specialist guidance on the use of dampers is contained in BS 9999.

FIRE SPREAD ON INTERNAL SURFACES

188. Fire can rapidly spread on the surfaces of walls and ceilings, significantly affecting overall fire spread and rate of fire growth and smoke production. The potential for fire spread on surfaces in escape routes is particularly important as this could prevent occupants from escaping. The internal surfaces of care homes can be compared by reference to the 'reaction to fire grading' shown in **Table 5**.

Table 5 – Surface Fire Spread by Reference to Room Use and Size and Resident Type

Dependency of the residents	Surface	Rooms less than 4m² (category)	Rooms 4m² to 30m² (category)	Rooms more than 30m² (category)	Protected stairs & corridors* (category)
High	walls	2	1	0	0
	ceilings	2	1	1	0
Medium	walls	2	2	1	0
	ceilings	2	2	2	0
Low	walls	2	2	2	1
	ceilings	2	2	2	1

* includes any toilet or washroom within the enclosure of a protected stair.

189. The surface spread of fire grading system relates to performance against tests set out in certain British Standards. Examples of materials which may fall into these categories are:

Category 0 – brickwork, blockwork, concrete, ceramic tiles, plaster finishes (including rendering on wood or metal lathes), wood-wool cement slabs and mineral fibre tiles or sheets with cement or resin binding.

Category 1 – timber, hardboard, blockboard and particle board, which have been treated to achieve this category.

Category 2 – timber, hardboard, blockboard, particle board and certain dense timber or plywood.

190. Additional finishes may be detrimental to the fire performance of the surface. Multiple layers of wallpaper or certain paints applied to the face of a wall or ceiling surface can increase surface flame spread.

191. The use of plastics for surface finishes is a complex issue and outwith the scope of this guidance document. Information on the suitability of plastic materials can be found in the Scottish Building Standards Technical Handbook for Non-Domestic Premises.

FIRE SPREAD ON EXTERNAL WALLS

192. If there is combustible external wall cladding or construction, 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 residents and extended evacuation times.

FIRE SPREAD FROM NEIGHBOURING BUILDINGS

193. An assessment should be made in respect of the potential for a fire to spread to the premises from any neighbouring buildings or structures and whether this could pose a risk to occupants.

CHAPTER 7: PROVISION AND USE OF MEANS OF ESCAPE

194. Means of escape is the provision of safe escape routes for people to travel from any point in a building to an unenclosed safe area beyond the premises, and includes the measures to maintain those routes. Once a fire has been detected and a warning given, everyone in a care home should, if necessary, be able to move or be assisted away from the fire to a place of reasonable safety such as an enclosed protected stair or another compartment or sub-compartment from where they should be able to continue to escape to an unenclosed safe area beyond the premises.

195. Means of escape should be provided both in terms of the number and capacity of escape routes and in terms of their protection from fire and smoke. When determining whether premises have adequate escape routes, a number of interdependent factors should be considered, including:

- The dependency, number and location of people in the premises;
- The method of moving high dependency residents;
- The construction of the premises and the potential for fire and smoke spread;
- The fire compartmentation of the premises; and
- The time it will take people to escape.

ESCAPE ROUTES

196. Care homes will normally have at least two independent escape routes from each storey of the premises used by residents.

197. Each sub-compartment should have at least two exits which give access to open air, a protected stair or an adjoining compartment or sub-compartment. Where a compartment or sub-compartment does not have either a final exit or direct access to a protected stair, each adjoining compartment or sub-compartment should then have a final exit or direct access to a protected stair. **Figure 5** shows an upper floor arrangement with three sub-compartments served by two escape stairs.

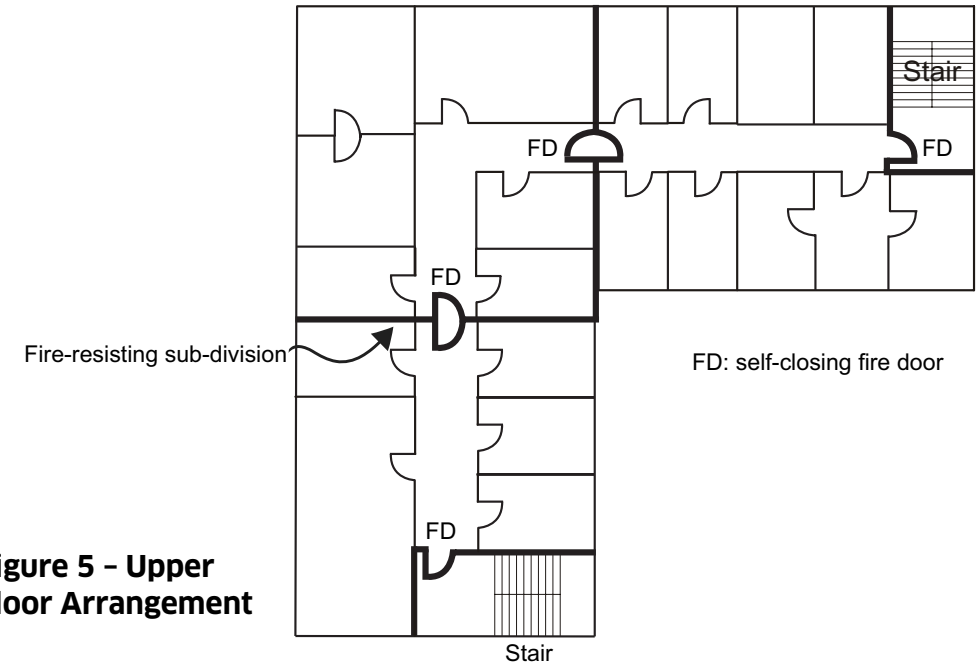


Figure 5 – Upper Floor Arrangement

198. A room with an occupant capacity of more than 60 should have at least two exits, the directions of travel from any point within the room should:

- Diverge at an angle of at least 45°; or
- Be combined for a distance of not more than 9m and then diverge at an angle of at least 45° plus 2½° for every metre travelled in one direction.

199. The sequence of travel for an escape route is to access a safe area beyond the building (or to another compartment):

- Directly;
- By way of a corridor or a protected stair;
- By way of a corridor to a protected stair;
- By way of a flat roof (for persons who can safely make use of such a route);
- By way of an exit to an external escape stair (for persons who can safely make use of such a route); or
- In the case of an inner room not used as sleeping accommodation, by way of one other room (but not through boiler or plant rooms etc).

200. Windows are not suitable as means of escape in a care home.

201. An escape route should not be by way of a lift. Lifts should not be used for evacuation unless specifically designed for the purpose.

202. A clear headroom for escape routes and circulation areas is at least 2m, and not less than 1.9m in a doorway.

203. The width and geometry of escape routes should be sufficient to facilitate the evacuation method used for residents. An unobstructed width at least 1200mm may be necessary for high dependency residents but where the residents are low dependency, not less than 1000mm may be adequate. At doorways the width can normally be reduced by 150mm.

204. Where the evacuation strategy is progressive evacuation, compartments and sub-compartments should have sufficient space to accommodate the additional persons who may be evacuated into these areas temporarily.

205. Where possible and appropriate, a door across an escape route should open in the direction of escape to assist with evacuation, particularly where the occupancy capacity is 60 or more, or where occupants may need to exit quickly or the door is a final exit.

206. The area outside final exit doors should have suitable hard standing underfoot for persons being evacuated and provided with pathways so that residents can move, or be moved, to a place of safe congregation away from the building.

TRAVEL DISTANCE

207. There should be a limit on the distance that persons should have to travel to reach a place of reasonable safety. Travel distance is the distance measured along the actual route of escape (having regard to the layout of furniture and fittings) from any point within a storey to the nearest door giving direct access to either another sub-compartment; another compartment; a protected stair; or to a final exit. An assessment of travel distance should be made by reference to **Table 6**.

Table 6 – Travel Distance by Reference to Residents and Suppression

Dependency of resident	Suppression system	Single direction distance (m)	Maximum distance* (m)
High	No	9	18
	Yes	12	25
Medium	No	12	25
	Yes	15	32
Low		15	32

* This includes the single direction distance.

208. A single direction of escape is travel before there is the choice of escape routes. Single direction ceases at the point where there are alternative routes. See **Figures 6, 7 and 8**. A single direction of escape may involve persons moving towards or past a fire, if the fire occurs between the occupant and the choice of escape routes.

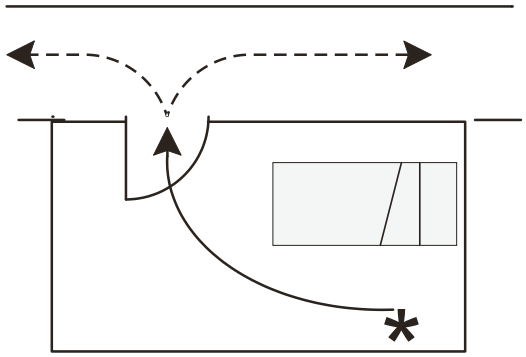


Figure 6 – Single Direction of Escape Within a Room Before a Choice of Escape Routes Become Available

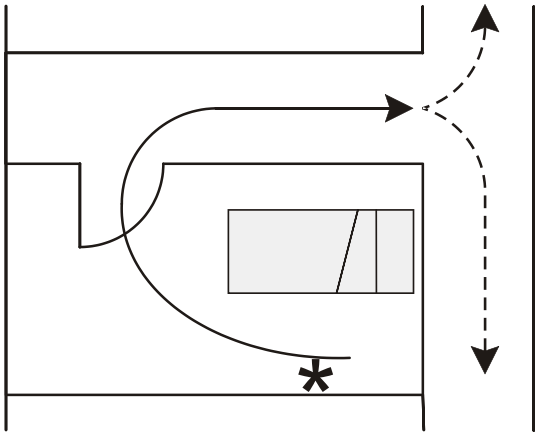


Figure 7 – Single Direction of Escape Out of Room and Along a Corridor Before a Choice of Escape Routes Become Available

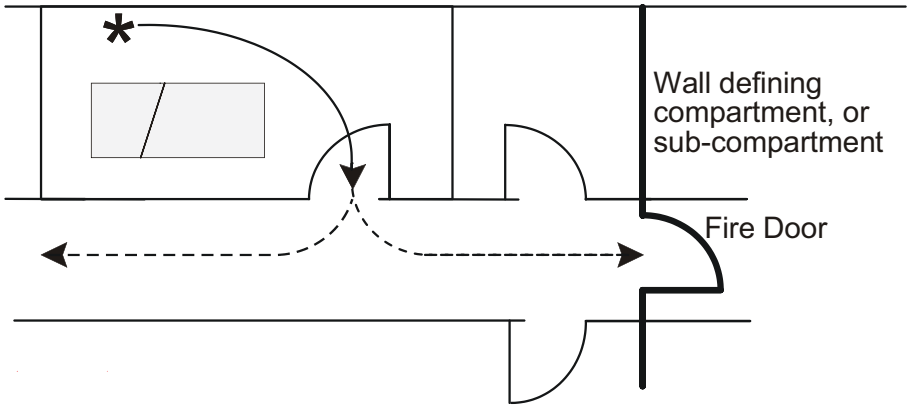


Figure 8 – Single Direction of Escape Within a Room Before a Choice of Escape Routes, One of which Goes Through a Fire Door into Another Compartment or Sub-Compartment

INNER ROOMS

209. An inner room is a room where access to a circulation area can only be achieved by passing through an access room (see **Figure 9**). A fire could develop unnoticed in the access room preventing the occupant of the inner room escaping. The following conditions will limit the risk to persons in the inner room:

- inner room not used as a bedroom;
- access room contains limited combustibles and ignition sources; and
- travel distance from any point in the inner room to the exit from the outer room no greater than 9m, unless there are alternative exits from the outer room.

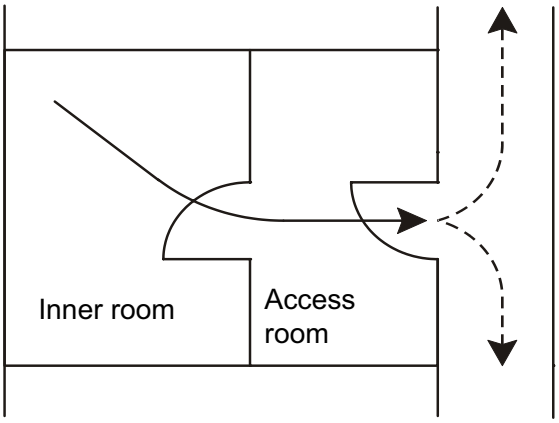
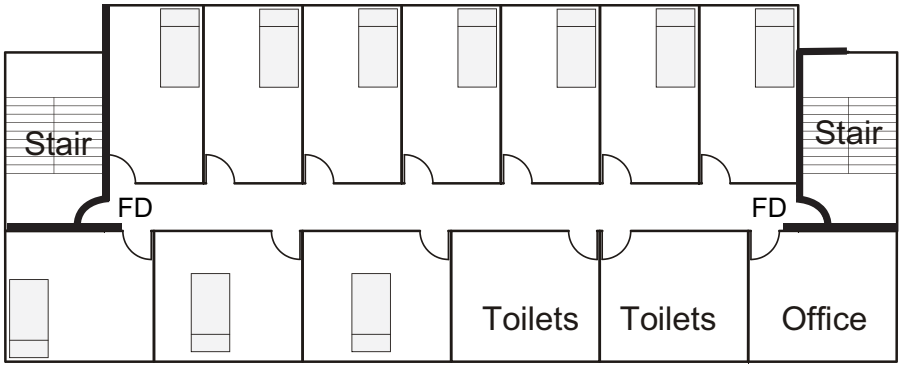


Figure 9 – Inner Room Arrangement

STAIRS

Escape stairs

210. To protect escape routes from fire, the normal standard for escape stairs is for stairs to be enclosed within a fire-resisting enclosure (creating a protected zone) such that the enclosing structure between the stair and the rest of the building has at least 60 minutes fire-resistance and any door in the enclosing structure at least an FD 60S self-closing fire door. This arrangement is shown in **Figure 10**. Each escape stairs should have its own independent final exit.



FD: self-closing fire door

Figure 10 – Protection of Escape Stairs

211. If an external wall of the building makes an angle of not more than 135° with the external wall of the enclosure, the wall or enclosure should have at least 30 minutes fire-resistance for a distance of 2m.

212. Where the effective width of an existing escape stair is less than 1200mm, a check should be made that the width of the stair is suitable for the persons who would use it and the method of evacuation.

213. Where part of a building has only one escape route by way of an escape stair, for example a stair serving part of the building not used by residents, if access to the escape stair is by way of a protected lobby, this will provide an additional barrier to fire and may afford people additional time to escape. A protected lobby is where there are two self-closing fire doors between the adjoining accommodation and the stair. Thirty minutes fire-resistance (for integrity only), and any door in the wall at least an FD 30S self-closing fire door.

214. Where an escape stair also serves a basement storey, a self-closing fire door at ground-floor level separating the basement stair enclosure from the stair enclosure serving the rest of the building, will provide improved protection to the means of escape from any fire that may start in the basement.

215. Ideally, an escape stair (including landings) and the floor of a protected lobby will be non-combustible. Where an existing escape stair is combustible, consider the potential for the stair to be directly affected by fire, such as a fire occurring in an under-stair cupboard, and the possibility of lining the underside of the stair with non-combustible material.

216. A cleaner's cupboard not more than $3m^2$, a toilet or a washroom may be sited within the protected zone enclosing an escape stair if:

- the fire risk is considered low;
- no flammable materials are stored in the rooms; and
- all other parts of the building served by the escape stair have at least one other escape route.

217. The walls, floors and ceiling separating a cleaner's cupboard from the protected zone should have 30 minutes fire-resistance. A door to a cleaner's cupboard should be at least an FD 30S fire door but need not be self-closing provided it is kept locked.

External stairs

218. An external escape stair may present problems for persons evacuating a building because people can feel less confident using an unenclosed stair at a height. For this reason, an external escape stair may only be suitable where the topmost storey height is not more than 7.5m; and the stair is used only by those who can safely make use of it. Appropriate weather protection may be necessary to enable the stair to be used in all weather conditions.

219. An external escape stair should lead directly to a safe area beyond the premises and should be non-combustible.

220. An external escape stair may be unusable if fire occurs in the building. External stairs with a rise more than 1.6m, may need to be protected against fire from within the building with at least 30 minutes fire-resistance.

ESCAPE ACROSS FLAT ROOFS

221. An escape route across a flat roof should be used only for those who can safely make use of it, and be an alternative additional provision to a protected stair in a building.

222. The following criteria apply to an escape route across a flat roof:

- be clearly defined, illuminated and guarded with protective barriers not less than 1.1m in height;
- have a slip-free surface;
- have at least 60 minutes fire-resistance for a distance of 3m on either side of the route;
- have no unprotected openings such as roof ventilators, windows or other openings, from adjacent rooftop structures, within a distance of 2m; and
- any wall within 3m of the route, having at least 30 minutes fire-resistance up to a height of at least 1.1m from the level of the escape route.

DOOR FASTENING

223. It is important that doors can be easily opened. Where a door across an escape route has to be secured against entry, it should be fitted with a fastening which is readily operated without a key, from the side approached by people making their escape. Where a door is operated by a code, combination, card, biometric data or similar means, it should be capable of being manually overridden from the side approached by people making their escape.

Where there is a need to protect people who may be unable to keep themselves safe if they wander off, and some form of control is necessary under non-fire conditions, door-release systems can be provided which allow manual opening only under fire conditions or are fitted with door alert systems or break domes.

224. Push pad devices (to BS EN 179) are suitable securing devices for outward opening final exit doors where occupants can be expected to be familiar with the devices. In other cases, panic exit devices operated by a horizontal bar (to BS EN 1125), are suitable.

225. A door with a fastening which can only be opened from one side of the door may offer difficulty for staff during an evacuation. Members of staff after passing through the door in an emergency situation, could be prevented from re-entering the building by this route to assist residents if the door closes behind them, especially if the door is self-closing.

226. Control measures may be required to safeguard residents who are prone to wandering and who may be at risk of injury if they pass through doors unsupervised. There are a number of options for egress control, some are listed below:

- electrically powered lock (with appropriate fail-safe);
- thumb-turn latch;
- confusion lock;
- increased staff supervision;
- motion detector which actuates local alarm;
- door exiting alert; or
- relocation of particular residents.

Electrically powered locks

227. Electrically powered locks can be operated by electromagnetic or electromechanical means. Electromagnetic are considered to be more reliable than electromechanical due to the absence of moving parts and their inherent 'fail-safe' operation.

228. Electrically powered locks should not be installed on any door which provides the only route of escape from the building or part of the building.

229. Electrically powered locks should return to the unlocked position:

- On operation of the fire warning system;
- On loss of power or system fault; and
- On actuation of a manual door release unit positioned at the door on the side approached by people making their escape (where the door provides escape in either direction, a unit should be installed on both sides).

230. BS 7273: Part 4 provides detailed guidance on the electrical control arrangements for the fail-safe release of powered locks.

Locking of bedroom doors

231. Where management allow residents to lock their bedroom doors, the following should apply:

- a suitable lock will be one that can be easily overcome by force in an emergency;
- such doors should be readily openable from the inside without the use of a key;
- members of staff should carry a master key for the doors; and
- management should ensure that a robust staff master key handover is established.

Automatic opening doors

232. An internal door may be linked to a motion sensor or other device so that the door opens automatically to facilitate movement of residents. Some devices can be triggered by smoke movement which may cause a door to open precisely at the time when it should be closed as a barrier to fire and smoke. These doors should be linked to the fire warning system so that the automatic opening function is disabled if the fire warning system is triggered (but still permitting the door to be manually opened). If the door is a fire door, the opening mechanism should not reduce the fire resistance of the door. When the automatic opening function is disabled following actuation of the fire warning system, the fire door's normal self-closing function should continue to operate.

233. Automatic opening doors should not be placed across exits unless they are designed in accordance with BS 7036 and are either:

- arranged to fail safely to outward opening from any position of opening; or
- are provided with a monitored fail-safe system for opening the door from any position in the event of mains supply failure and also in the event of failure of the opening sensing device; and opens automatically from any position in the event of operation of the fire alarm in the fire alarm zone within which the door is situated.

Powered sliding doors

234. Powered sliding doors often open in response to a motion sensor. Such a door across an escape route, should fail-safe and should open:

- On operation of the fire warning system;
- On loss of power; and
- On actuation of a manual door release unit positioned at the door on the side approached by people making their escape (where the door provides escape in either direction, a unit should be installed on both sides).

235. BS 7273: Part 4 contains detailed guidance on the electrical control arrangements for fail-safe operation of powered sliding doors.

LIGHTING

236. 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.

Escape route lighting

237. Premises should be provided with lighting in the escape routes to the extent necessary to ensure that in the event of an outbreak of fire, illumination is provided to assist in escape and to aid staff in implementing the emergency fire action plan.

238. If there are escape routes that are not permanently illuminated, such as external stairs, then a switch, marked 'escape lighting', or some other means of switching on the lighting, such as a motion sensor, should be provided.

Emergency lighting

239. Emergency lighting is lighting designed to come into, or remain in, operation automatically in the event of a local or general power failure. An emergency lighting system provided for escape purposes will normally illuminate the following:

- Internal and external escape routes, exit doors and escape route signs;
- Intersections of corridors;
- Staircases so that each flight receives adequate light;
- Changes in floor level;
- Fire-fighting equipment;
- Fire alarm call points;
- Signs; and
- Equipment that needs to be shut down in an emergency.

240. Emergency lighting may also be provided to allow some of the normal functions of the premises to continue, in event of interruption to the mains supply.

241. Emergency lighting should comply with BS 5266: Part 1 as read in association with Parts 7 and 8 (BS EN 1838).

242. Emergency lighting can be stand-alone dedicated units or incorporated into normal light fittings. Power supplies can be rechargeable batteries integral to each unit or a central battery bank. Single 'stand-alone' emergency lighting units may be sufficient in some premises and these can sometimes be combined with exit or directional exit signs, though the level of general illumination should not be significantly reduced by the sign.

243. Emergency lighting is described as 'maintained' if it is permanently illuminated, and 'non-maintained' when it only operates if the normal lighting fails.

SIGNS AND NOTICES

244. Escape route signs are used to indicate escape routes not in normal use and are only necessary where there might otherwise be confusion regarding the route to follow in the event of fire. The following criteria apply to escape route signs:

- They should provide enough information to enable people to identify escape routes;
- Where the location of an exit is not obvious, signs with directional arrows may be provided along the route;
- Escape route and exit signs should not be fixed to doors as they will not be visible if the door is open; and
- Signs mounted above doors should be at a height of between 2m and 2.5m above the floor. Signs on walls should be mounted between 1.7m and 2m above the floor.

245. 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. Signs should be in pictogram form. The pictogram can be supplemented by text if necessary to make the sign easily understood. Guidance on the use of escape route signs is available in BS 5499: Part 4.

246. Signs to indicate the location of non-automatic fire safety equipment may be necessary if there is any doubt about its location, such as fire extinguishers that are kept in cabinets or in recesses. Other signs may also be necessary such as:

- 'Fire door keep shut' or 'Fire door keep locked shut' on fire doors;
- 'Automatic fire door – keep clear';
- How to operate the securing devices on doors; and
- Location of sprinkler stop valve.

247. New safety signs should comply with BS EN ISO 7010.

248. Notices are used to provide instructions such as the instruction not to use the lift in event of fire.

Wayfinding

249. Depending on the characteristic of the residents, in some premises there may be benefit in providing schemes to assist residents with directional wayfinding, such as an embedded colour navigation scheme.

CHAPTER 8: FIRE DETECTION AND WARNING

250. It is essential that an outbreak of fire in a care home 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 residents.

251. Care homes should be provided with a fire warning system which can be activated by a person using a manual call point and automatically by means of automatic fire detectors.

252. Guidance on the design, installation and maintenance of fire detection and warning system is contained in BS 5839: Part 1. The normal standard for a care home is a category L1 system. A category L1 system is a system designed for the protection of life and includes automatic detectors throughout the building (including roof spaces and voids). Information on maintenance and testing of fire warning systems is in **Chapter 4**.

AUTOMATIC FIRE DETECTION

253. The choice of automatic fire detector type depends on the nature of the hazard and the balance between the speed of system response and the need to avoid false alarms. The common types of automatic fire detector are:

- Heat detectors which operate when a fixed temperature is reached (and may also respond to abnormal rate of rise of temperature). Heat detectors have a good performance in respect of false alarms but are not appropriate where the detection of smoke is required (such as in escape routes).
- Smoke detectors which detect the presence of smoke (either ionisation or optical type). They give a speedier response to most fires than heat detectors but have greater potential to generate false alarms. Smoke detectors within corridors and stairs should be of the optical type.
- Combustion gas detectors which respond to the 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 contain a combination of heat, smoke or combustion gas detection. These sensors enhance system performance and have a low potential for false alarm actuations.

254. Some premises may have existing systems which include heat detectors in bedrooms. Where a corridor serves any bedroom for high or medium dependency residents, smoke detection should be provided in all the bedrooms served by the corridor, in preference to heat detectors.

CALL POINTS

255. Manual call points, often known as 'break-glass' call points, enable a person who discovers a fire to operate the fire warning system and immediately raise the alarm to warn other people in the premises. Manual call points are normally positioned at exit doors. They should be conspicuous and positioned no higher than 1.4m from the floor, but this may be reduced to make them more accessible to wheelchair users.

WARNING

256. Sounders are provided to alert building occupants. The type of warning signal and sound level should be appropriate for the premises and the characteristic of the residents. Where there is a progressive evacuation strategy with delayed evacuation, the sounder type is important because of the continuing occupation of the premises. Sounders which have a distinct tone of urgency or are strident and distracting may be inappropriate and be counter productive to the effort of staff. Some sounders may cause anxiety for residents, particularly those who depend on staff assistance. Some sounder types may trigger difficult behaviour in some residents with mental health issues. A coded staff alert may be desirable in some circumstances to warn only staff.

257. An appropriate sound level will vary with the nature of the premises, the fire action plan, and staffing arrangements. Where staff sleep on the premises there should be a suitable sound level at the bed-head in staff bedrooms to waken them.

258. Fire warning systems that incorporate a sounder base unit in each detector head may be appropriate since they can provide a more even and tolerable sound level throughout than the peak sound associated with the use of separate point sounders.

259. Where there are residents or staff with hearing impairment to the extent that the 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.

260. As an alternative to conventional sounders, a voice-alarm facility that provides an automatically broadcast verbal warning of fire, may be suitable for some premises. Voice alarm systems can provide significant benefits in terms of reduced response time by residents and improved information dissemination. Where a voice alarm system is installed then it should comply with the guidance in BS 5839: Part 8. In considering the areas of the care home to be provided with a voice alarm system, the desirability or otherwise of providing residents with information regarding the fire and factors such as background noise levels need to be taken into account. The wording of the message on a voice alarm system needs to be clear and precise.

SYSTEM INFORMATION

261. The control and indicating panel provides the facility for indication of fire or fault signals and manual controls such as silencing and resetting. The control and indicating panel should be sited at a location which is appropriate both for staff and for the arriving Fire and Rescue Service.

262. The provision of a suitable fire detection and warning system should be accompanied by suitable staff training so that staff know how to operate the system and how to respond to system operation. When the system operates, the source of the actuation needs to be quickly identifiable to allow staff to investigate the location. A schematic plan should be displayed adjacent to the control panel to allow staff to quickly identify and locate the source of an actuation. If the fire warning system has detection zones, these zones should be shown on a zone plan in a simple and unambiguous way.

263. The building should be divided into detection zones so that the actuation can be located quickly. The allocation of detection zones needs to take into account the layout of the building and should facilitate the emergency fire action plan. Detection zoning should comply with the recommendation in BS 5839-1, zones should not be determined purely for the convenience of the system installer.

264. An addressable fire warning system is one where individual detectors and call points can be identified at the control and indicating equipment. Addressable systems are of great advantage in care homes as they reduce the time taken to identify the location of a fire. Even in the case where an addressable system is installed, zone indication is also a necessary feature.

265. Certain fire safety measures are designed so that they operate when the fire warning system operates; examples are:

- Automatic release of door hold-open devices;
- Automatic closure of self-closing doors which are fitted with swing-free arms;
- Automatic opening facility disabled on swing doors with automatic opening;
- Electronically powered locks on doors returning to the unlocked position; and
- Automatic opening of some exit doors.

266. If an automatic life safety fire suppression system is installed, the fire warning should actuate if the suppression system operates.

REMOTE MONITORING

267. With remote monitoring, the actuation of the fire warning system causes a signal to be transmitted automatically to a remote alarm receiving centre (ARC). On receipt of a signal, the ARC then calls the Fire and Rescue Service. An ARC arrangement is particularly suitable for care homes with high and/or medium dependency residents due to the competing demands on staff in the event of fire.

REDUCING FALSE ALARMS

268. False alarms from automatic fire detectors are a major problem causing disruption to the running of premises and many unwanted calls to the Fire and Rescue Service. If frequent false alarms occur in the premises, members of staff 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 false alarm should be investigated to try to establish the cause. Remedial action may be needed, such as re-positioning a detector head or changing a detector to a different type. A fire warning system should not be disabled; if it is posing a problem, specialist advice should be sought.

269. Where any residents have a predisposition to operating a call point, as may be associated with some dementia-related behaviour, steps should be taken to discourage inappropriate call point use such as by the provision of a hinged cover on the call point with or without a tamper alarm.

REPLACEMENT SYSTEMS

270. When a fire warning system needs to be replaced due to age or condition or because dutyholders wish to improve reliability or functionality, dutyholders should consider technological advances. A replacement fire warning system should be an addressable system, other than in small or simple layout premises with 10 or less residents and where identification of actuation will be obvious. Dutyholders should also consider the benefit of incorporating multi-sensor detectors as part of a replacement system.

CHAPTER 9: MEANS FOR FIGHTING FIRE

271. 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 or (b) it is a fixed installation, such as a sprinkler system which comes into operation automatically in the event of fire.

AUTOMATIC LIFE SAFETY FIRE SUPPRESSION

272. Since May 2005, new or altered residential care buildings are provided with an automatic life safety fire suppression system to comply with Building Regulations.

273. An automatic life safety fire suppression system operates automatically on detection of an outbreak of fire within the building. In the case of residential sprinkler systems, water is discharged from the individual head which has detected heat from the fire, all other discharge heads remain closed unless similarly affected by heat.

274. An automatic life safety fire suppression system can be very effective in controlling a fire and can be a cost-effective solution for reducing the risks created. It may limit fire growth and extend the time taken for untenable conditions to develop giving more time to evacuate residents, particularly in the challenging circumstances that may be found in care homes with high dependency residents.

275. The retrofitting of an automatic life safety fire suppression system to an existing building may be an appropriate solution where other problematic fire safety measures cannot otherwise be improved, such as fire compartmentation, structural fire protection, fire spread on internal surfaces or excessive travel distance, particularly where there are high dependency residents and staff would have difficulty in achieving an effective evacuation.

276. Traditionally, sprinklers have been considered as systems which were fitted throughout all parts of a building. However, for life safety purposes in those existing care homes which have a particular fire evacuation difficulty in part of the building, a cost effective strategy could be the installation of an automatic life safety fire suppression system only in those parts of a home where a fire would be particularly challenging.

277. An automatic life safety sprinkler system should be designed and installed in accordance with the recommendations for 'residential occupancies' contained in BS 9251.

278. BS DD 8458-1 contains recommendations for the design and installation of water mist suppression systems. Water mist systems are bespoke systems designed on the basis of established test performance.

FIRE-FIGHTING EQUIPMENT FOR USE BY PERSONS

279. Portable fire-fighting equipment should be provided in care homes for staff use. The safe use of an appropriate fire extinguisher to control a fire in its early stages can significantly reduce the risk to people in the premises. Fire extinguishers, in association with staff trained to use them, are an important element in the measures to reduce the risk to people from fire, particularly where evacuation times are lengthy.

280. However, tackling a fire with a portable extinguisher should not be undertaken at the expense of ensuring the Fire and Rescue Service has been called, or the commencement of evacuation. Should fire fighting with an extinguisher fail to control or extinguish the fire, precious time may have been lost in commencing evacuation. Staff must therefore consider quickly whether it is better to isolate the fire by closing a door on it and evacuating residents, or whether fire fighting action is justified and they are confident that they can control it in its incipient stage.

Number and type of extinguishers

281. The number of fire extinguishers required will vary depending on the circumstances within and the size of individual premises. Portable extinguishers should be simple to operate, readily accessible, within the handling capabilities of staff and be suitable for the classes of fire anticipated (see **Table 7**). Extinguishers are described by their extinguishing capacity and size. They are marked with a letter and a number: the letter denotes the class of fire, the number denotes the fire size extinguishing capability. An extinguisher could for example have a rating such as '13A' or '55B'.

282. Information on the selection and installation of fire extinguishers is contained in BS 5306: Part 8. A guide to the level of provision of class A extinguishers is obtained by multiplying the floor area of a storey by 0.065. For example, a floor area of 400m^2 would have a rating of 26A (400 x 0.065 = 26) which is the total value of class A extinguisher and can be achieved by combinations of extinguishers with different ratings to achieve the total value. Where there are other classes of fire, appropriate extinguishers for these may be necessary.

283. Fire extinguishers should be positioned on escape routes, close to room or storey exits, final exits from the building or, if necessary, adjacent to hazards. They should be placed on a dedicated stand or hung on a wall at a convenient height so that staff can easily lift them off. Generally no one should have to travel more than 30m to reach a fire extinguisher. It is good practice to group extinguishers together in fire points at a similar position on each floor.

Other equipment

284. While permanent hose reels can provide an effective fire-fighting facility when used by trained personnel, there are disadvantages which make hose reels unsuitable for general staff use. When deployed, a hose reel may prevent doors from fully closing causing the spread of smoke, and the hose may pose an obstacle to the movement or escape of residents.

285. A fire blanket may be appropriate. It may be used to smother a small fire involving cooking oil or fat. Where a kitchen provides meals on a scale larger than a normal domestic household, a heavy duty fire blanket may be appropriate. This is larger, heavier and more durable.

Table 7 – Extinguisher Types

Water Extinguisher 	*Red body*
• Suitable for Class A fires (fires involving solid materials such as wood, paper or textiles) but not suitable for use on live electrical equipment because water is a conductor of electricity.	
Water Extinguisher with Additives 	*Red body*
• Suitable for Class A fires. Some also suitable for Class B fires (fires involving flammable liquids such as petrol, diesel or oils) if so indicated on the extinguisher.	
Foam Extinguisher	*Red body with cream label/band*
• Suitable for Class A or B fires and particularly suited to extinguishing liquid fires. • Should not be used on free-flowing liquid fires unless the operator has been specially trained. • Not suitable for deep-fat fryers or chip pans.	
Powder Extinguisher 	*Red body with blue label/band*
• Suitable for most classes of fire. • Can be used on fires involving electrical equipment but may damage the equipment. • Since powder does not cool a fire appreciably, the fire may re-ignite. **Inappropriate for general use internally in care homes**	
Carbon Dioxide (CO_2) Extinguisher 	*Red body with black label/band*
• Suitable for Class B fires and particularly suitable for fires involving electrical equipment as it is a non-conductor. • Since CO_2 does not cool a fire appreciably, the fire may re-ignite.	
Wet Chemical Extinguisher	*Red body with canary yellow label/band*
• Suitable for Class F Fires (fires involving cooking oils such as in deep-fat fryers).	

CHAPTER 10: FIRE AND RESCUE SERVICE FACILITIES

286. To comply with building regulations or other legislation, premises may have been provided with facilities, equipment and devices for use by, or protection of fire-fighters. Fire safety law includes a duty requiring maintenance of such features. Some general information is included below, current provision standards can be obtained from the *Building Regulation Technical Handbook*.

287. The Fire and Rescue Service should be notified of any changes affecting existing facilities for fire-fighters.

FIRE AND RESCUE SERVICE ACCESS

288. Buildings may be provided with facilities such as access roads and hard standing areas that allow Fire and Rescue Service vehicles to approach and park within a reasonable distance. Vehicle access to the building exterior may enable high reach appliances, such as turntable ladders and hydraulic platforms to be used, and to enable pumping appliances to supply water and equipment for fire-fighting and rescue. **Table 8** shows access dimensions.

Table 8 – Access Route for Fire and Rescue Service Vehicles

	High reach appliance	**Pumping appliance only**
Minimum width of road between kerbs	3.7m	3.7m
Minimum width of gateways etc	3.5m	3.5m
Minimum clearance height	4m	3.7m
Minimum turning circle between kerbs	26m	16.8m
Minimum turning circle between walls	29m	19.2m
Minimum axle loading	14 tonnes	14 tonnes

WATER SUPPLY FOR FIRE AND RESCUE SERVICE USE

289. Fire-fighting operations often depend on a sufficient supply of water to control fire growth. External water hydrants provide a water supply for use by the Fire and Rescue Service. Where no adequate piped water supply is available, an alternative supply may have been provided such as a fixed water tank, or access to a spring, river, canal, loch or pond, with suitable access for a Fire and Rescue Service pumping appliance.

SMOKE VENTILATION

290. 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.

ANNEX

British Standards – British Standards Institution (www.bsi-global.com).

EN 179: Building hardware. Emergency exit devices operated by a lever handle or push pad. Requirements and test methods

EN 1125: Building hardware. Panic exit devices operated by a horizontal bar. Requirements and test methods

EN 1154: Building hardware. Controlled door closing devices. Requirements and test methods

EN 1155: Building hardware. Electrically powered hold open devices for swing doors. Requirements and test methods

EN 1634: Part 1: Fire-resistance tests for door and shutter assemblies. Fire doors and shutters

EN ISO 7010 graphical symbols – safety colours and safety signs – registered safety signs

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

5266: Part 1: Emergency lighting. Code of practice

5266: Part 7: (BS EN 1838:) Lighting applications. Emergency lighting

5266: Part 8: Emergency escape lighting systems (BS EN 50172: 2004)

5306: Part 8: Fire extinguishing installations and equipment on premises. Selection and installation of portable fire extinguishers. Code of practice

5499: Part 4: Safety signs, including fire safety signs. Code of practice for escape route signing

5839: Part 1: Fire detection and fire alarm systems for buildings. Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises

5839: Part 3: Fire detection and alarm systems for buildings. Specification for automatic release mechanisms for certain fire protection equipment

5839: Part 8: Fire detection and fire alarm systems for buildings. Code of practice for the design, installation, commissioning, and maintenance of voice alarm systems

5852: Methods of test for assessment of ignitability of upholstered seating by smouldering and flaming ignition sources

7036: Code of practice for safety at powered doors for pedestrian use

7273: Part 4: Code of practice for the operation of fire protection measures. Actuation of release mechanisms for doors

7671: Requirements for Electrical Installations

9251: Sprinkler systems for residential and domestic occupancies

9999: Code of practice for fire safety in the design, management and use of buildings

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