

**FIRE SAFETY
IN
PURPOSE-BUILT BLOCKS OF FLATS**

Foreword

Flats have been used to house people since Victorian times. From the early tenements for the poor to mansion blocks for the affluent, these buildings were often seen as innovative solutions to the country's housing needs.

However, it was the post war demand for affordable housing that, in the 1940s and 50s, spurred on the building of high density, purpose-built blocks of flats. In the 1960s, in particular, high rise blocks began to dominate the skyline of towns and cities across the country. Each flat represented a self-contained, domestic dwelling, the block within which it was located having all the necessary facilities and amenities each household needed to live independently of others.

Given that most fires occur in domestic dwellings, it was recognised that a block of flats, as a building containing many such dwellings, had the potential for a higher risk to people should fire break out. Accordingly, the fire safety standards that were developed to address this risk sought to afford the same level of safety found in houses to those living in blocks of flats.

These standards have been embodied in building regulations, which, now, as then, ensure adequate fire safety provisions are incorporated in blocks of flats when they are constructed.

The Regulatory Reform (Fire Safety) Order 2005 ('the FSO'), which came into force in October 2006, brought the common parts of blocks of flats within the scope of mainstream fire safety legislation for the first time.

Guidance on the FSO and its requirements has been issued in a series of guides. Blocks of flats are included, among many other types of residential premises, in the HM Government guide 'Fire Safety Risk Assessment. Sleeping Accommodation', published by the Department for Communities and Local Government (DCLG).

However, application of the FSO to blocks of flats has proved problematic. It has led to widely varying outcomes. In some buildings, significant work to upgrade fire safety standards within the common parts has been undertaken to satisfy this legislation. In others, none have been considered necessary.

There has also been confusion over the scope of this legislation. How it relates to those who live in the flats, and, indeed, to what extent, if any, this legislation can require improvements beyond the flat entrance door are often questions that tax those seeking to apply and enforce it.

Not only are enforcing authorities often unfamiliar with the particular issues that can be found in existing blocks of flats, many now giving advice to landlords and managing agents also have limited experience of these issues. Of particular concern is the resulting variation in the findings of fire risk assessments carried out by third parties on behalf of landlords and others responsible for fire safety in blocks of flats.

It is against this background that the need for specific guidance relating to purpose-built blocks of flats has arisen. This document is intended to meet this need and provide guidance tailored to this type of building.

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Acknowledgments

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INTRODUCTION

1. Responsibility for this guide

- 1.1 Local Government Improvement and Development (LGID) entrusted responsibility for the preparation of this guide to a sector-led group of relevant stakeholders, comprising:

[to be completed]

2. Purpose

- 2.1 This document is a guide to ensuring adequate fire safety in purpose-built blocks of flats, regardless of age. Practical advice is offered on how to assess the risk from fire and how to manage fire safety in such buildings. The document also includes case studies based on the commonly found issues in blocks of flats, with suggested fire safety solutions.
- 2.2 This guide does not introduce new standards or regulations, but builds upon existing good practice and guidance currently in place. In particular, it aims to provide landlords, managing agents, enforcing officers and those undertaking fire risk assessments with assistance in understanding the legislative requirements relating to blocks of flats and application of them in a consistent and reasonable manner.
- 2.3 This document does not set prescriptive standards. Its aim is to provide guidance and recommendations for use when assessing the adequacy of existing fire safety provisions in purpose-built blocks of flats.
- 2.4 While it includes definitive criteria for determining the level of safety, these are only intended to act as useful benchmarks against which comparisons can be made. Similarly, the methodology outlined here is only intended to assist in making such comparisons. Alternative fire risk assessment methods may be equally valid in order to comply with fire safety law, and alternative approaches to individual fire safety solutions may be acceptable as long as an equivalent level of safety is achieved.
- 2.5 It should be noted that building design varies considerably and no guide can ever provide specific solutions for all possible circumstances. Accordingly, this guide sets out only general principles.
- 2.6 While aimed at a broad readership, its use in assessing risk and determining an appropriate package of fire safety provisions in some buildings may require particular knowledge and experience, and it may be necessary to seek specialist help. Users of this guide should consider whether they have the necessary competence before applying this guide to a particular building.
- 2.7 The guidance in this document has been subject to an extensive consultation exercise and the final content has received input from representative groups from the housing sector as well as the Department for Communities and Local Government and the Chief Fire Officers' Association.

3. Scope of this guidance

- 3.1 This guide is intended for buildings which have been constructed as purpose-built blocks of flats. It applies to existing blocks only. Fire safety in new blocks of flats is governed by the Building Regulations 2010¹.
- 3.2 While the scope of this guide excludes buildings converted into blocks of flats, the guidance contained in this document will largely be applicable to such buildings, provided, at the time of conversion, the work was carried out in accordance with the then current building regulations.
- 3.3 Within this guide, the term 'flat' is used to describe a self-contained domestic dwelling within a building. Other terms, such as 'apartment', are commonly used to describe such accommodation. The term 'flats' is intended to include those arranged on more than one storey, such as maisonettes (duplex apartments).
- 3.4 This guide also includes flats within sheltered housing schemes and blocks containing 'cluster' flats intended for multiple occupation by, for example, students or key workers. However, the guide does not address buildings of this nature in which, in the event of a fire in a flat, the entire building is evacuated simultaneously.
- 3.5 It does not address:
- dwelling houses and bungalows;
 - shared houses;
 - HMOs;
 - hostels;
 - ancillary facilities, such as:
 - a community room.
 - a gym.
 - a hairdresser in a sheltered housing scheme.
- 3.6 The guide does cover blocks with flats located above commercial premises, such as hotels and shops. However, guidance on fire safety in the commercial element is outside the scope of the document.
- 3.7 While the guide includes fire safety within the flats themselves, this only applies to flats occupied as single family households. A flat in multiple occupation is a form of HMO and is, therefore, outside the scope of the guidance in this document.
- 3.8 This guide applies to purpose-built blocks of flats regardless of the tenure of the flats (i.e. whether owner-occupied, social housing or private rented sector). The term 'residents' is used when referring to the occupants of the flats, this is intended to cover all those who live in the building, whether tenants or leaseholders. However, the term 'tenant' is used when specifically referring to tenants, but not other forms of resident.
- 3.9 The guide is concerned only with the safety of those who live in, visit, or work in, blocks of flats. It is also restricted to those lawfully on the premises.

¹ Guidance to Part B Fire Safety for blocks of flats is contained in Approved Document B Volume 2.

- 3.10 It does not provide guidance on protecting property. Nor does it include recommendations specifically to address certain consequences of fire, such as the need to re-house residents at short notice.
- 3.11 By virtue of including guidance on the provision and maintenance of facilities for use by fire and rescue services in fighting fires in blocks of flats, the needs of fire-fighters are, to some extent, covered in this guide. However, the document is not a guide to operational fire-fighting in such buildings.
- 3.12 The guide applies to England only.

4. Intended readership

- 4.1 This guide is particularly aimed at those who manage, give advice on and enforce standards in, purpose-built blocks of flats. This specifically includes those undertaking fire risk assessments of such buildings, including those contracted to do this on a commercial basis.
- 4.2 Typically, this will include:
- private sector housing providers (landlords);
 - social housing providers;
 - residents' managing companies;
 - 'Right to manage' companies;
 - managing agents or facility managers;
 - enforcement officers in local housing authorities;
 - enforcement officers in fire and rescue authorities;
 - advice agencies;
 - consultants/contractors carrying out fire risk assessments.
- 4.3 The guide is not specifically intended for residents, although it is recommended in the guide that landlords and others responsible for managing fire safety in blocks of flats should engage and communicate with those who live in the buildings in their care.
- 4.4 It is recognised that some readers will be primarily interested in the practical application of this guide as it relates to managing fire safety in blocks of flats. Accordingly, particular advice of this nature is highlighted in the text and, where appropriate, key points are summarised. This can be found in the shaded boxes.

5. Relationship to other guidance

- 5.1 This guide builds upon the advice given in the DCLG Sleeping Accommodation Guide mentioned earlier.
- 5.2 Certain blocks of flats are also included within the scope of the LACoRS guide 'Housing - Fire Safety: Guidance on fire safety provisions for certain types of existing housing'. However, the blocks addressed in that document comprise purpose-built blocks and conversions that, in either case, do not meet the standards applied under the Building Regulations since 1992.
- 5.3 This present guide, therefore, also covers certain purpose-built blocks within the scope of the LACoRS guide. Where there is any conflict between the two guides, this guide should take precedence.

6. Layout of the guide

6.1 The guide is laid out as follows:

Part A

Contains an analysis of fires in purpose-built blocks of flats.

This is intended to put the risk from fire in these buildings into context and draw comparisons with the risk to people living in other forms of housing.

Part B

Outlines the general principles of fire safety in purpose-built blocks of flats.

This is aimed at informing the reader as to the basis of fire safety design in such buildings. It highlights how fires can develop and spread if suitable precautions are not taken and why, potentially, fires in blocks of flats can be seen as more serious.

While it is always intended that the occupants of a flat in which a fire occurs should evacuate immediately, the concept of 'stay put' as a strategy, whereby other residents remain in their flats, is explained here, along with the implications this has for building design.

The alternative of evacuating some or all of the other residents at the same time is also discussed. The particular differences that might apply in special circumstances, such as sheltered housing schemes, are also highlighted.

Part C

Provides an overview of the legal framework in relation to fire safety in purpose-built blocks of flats.

In particular, it aims to help landlords, and those managing fire safety in these buildings, to understand their obligations under housing legislation, as well as under the FSO. The extent of these obligations, particularly where, under a lease, landlords do not have control over certain fire safety provisions, is also addressed.

Part D

Outlines the principles and methodology of fire risk assessment.

This is aimed not only at those undertaking such assessments, but also enforcing authorities responsible for auditing them. It is also intended to assist landlords and others when commissioning third parties to carry out fire risk assessments on their behalf.

While there is other guidance available on fire risk assessment, the focus here is on its specific application to these types of premises. It includes guidance on the following aspects of the fire risk assessment process:

- who should carry out a fire risk assessment and what level of competence is required;
- what fire risk assessments should cover, particularly in relation to fire safety within the flats themselves;
- how intrusive they should be with regard to assessing aspects of the construction of the building;
- when they should be carried out and how often they should be reviewed;

- how they should be recorded.

Parts E and F

Describes how various fire safety measures may be applied to reduce risk.

In Part E, beginning with fire prevention, a series of practical measures are outlined to address the commonly found fire hazards in blocks of flats. This is particularly aimed at landlords and those managing fire safety in blocks of flats, but also serves to inform those giving advice as to a reasonable approach to take on particular issues.

While concentrating on the hazards arising in the common parts, reference is made to sources of guidance available to residents.

Part F outlines benchmarks relating to various fire safety measures employed in fire safety design to make a building safe. These measures include escape route design, compartmentation, smoke control provisions and facilities for the fire and rescue service when fighting fires. To the extent that they may be necessary, other aspects, such as fire detection and alarm systems, emergency escape lighting, fire extinguishing appliances and fire safety signs are also addressed here. However, as discussed in this part, with the exception of emergency escape lighting, such measures will not often be necessary and will need to be considered on a case by case basis.

A methodology is included for comparing the standard found in the building to that of the benchmarks set out in this Part of the guide.

To illustrate the application of this approach, case studies are included in the appendices. These are only examples of fire safety solutions for particular sets of circumstances. Other solutions may be equally valid and, accordingly, those described must not be used as 'off-the-peg' solutions.

Part G

Is particularly aimed at landlords and others with the responsibility for the ongoing control of fire safety in blocks of flats.

It will also be useful to those considering the standard of fire safety management when assessing risk.

Advice on the possible need for emergency plans and fire procedures is given, along with suggestions for engaging with tenants and residents to improve awareness of hazards and preparedness for fire emergencies. The benchmarks for testing and maintenance of fire safety provisions are included. This includes good practice on what should be recorded and how records should be kept.

This part also includes guidance relating to changes that might introduce new risks. Alterations to buildings can inadvertently affect fire safety standards, and examples of where this might occur are given.

7. Appendices

- 7.1 Various appendices are included which are intended to act as a reference source for all readers.

These comprise:

- a history of fire safety design standards for blocks of flats;
- the steps involved in a fire risk assessment;
- selection of a competent fire risk assessor;
- fire safety advice for residents;
- sample fire action notices;
- fire detection and fire alarm systems for blocks of flats;
- case studies illustrating the application of the guidance to various situations commonly found in existing blocks of flats.

8. Glossary

8.1 The glossary is intended as a plain English guide to some terms used in this document.

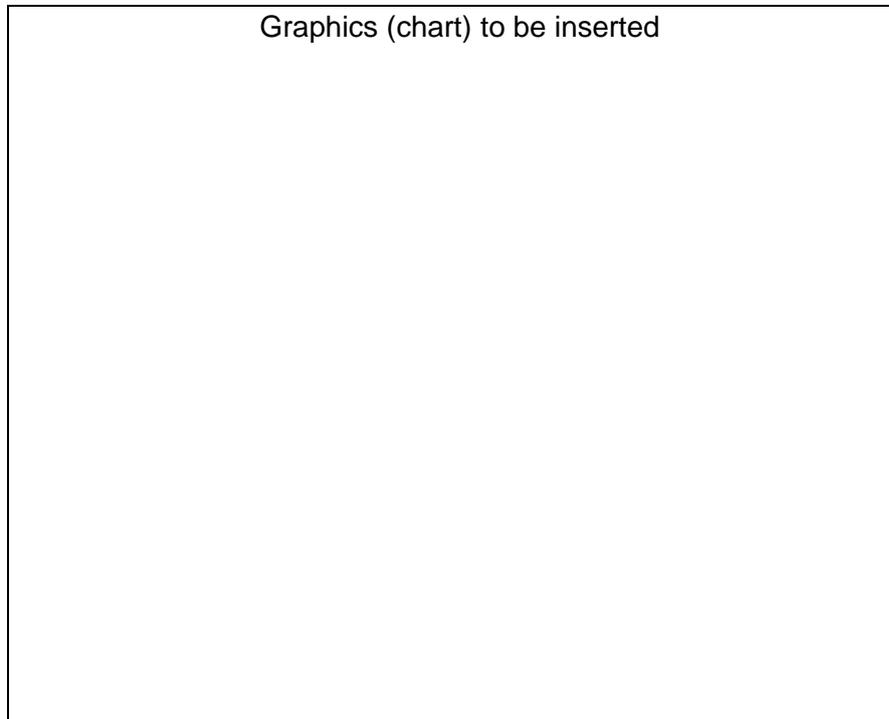
9. Bibliography

9.1 The bibliography offers sources of further reading for those seeking greater detail or researching the source of some of the guidance. It also lists the full titles of all references included in the guide.

PART A: SAFE AS HOUSES? FIRES IN FLATS AND THEIR IMPACT

10. Fires in domestic dwellings

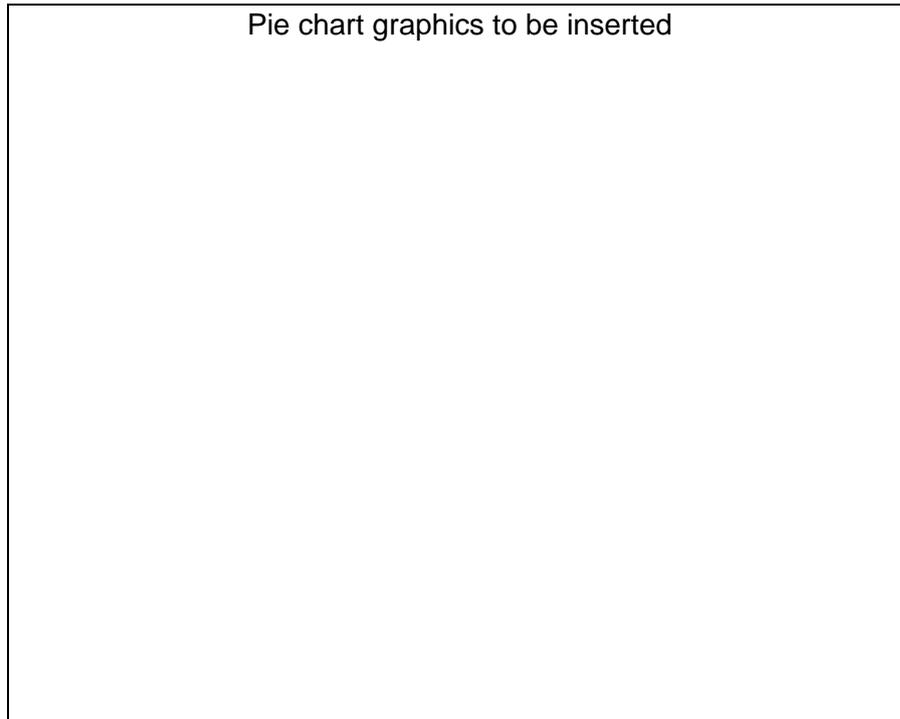
- 10.1 Generally, people are safer from fire in their homes than at any time in recent history. In 1979, 865 people in the UK died from fires in dwellings. Thirty years later, the number of deaths has fallen to around 350, a reduction of around 60% and the lowest figure since records began in 1960.



- 10.2 This significant reduction in domestic fire deaths is almost certainly the result of several factors, one of the most important of which is the great increase in the provision of smoke alarms in homes; there is overwhelming evidence to show that, where occupants of a dwelling are given an early warning of fire by a smoke alarm, the chance of anyone dying is greatly reduced. Another important factor is legislation to control the flammability of domestic furniture.
- 10.3 In addition, undoubtedly many lives have been saved by Government and individual fire and rescue services Community Fire Safety (CFS) initiatives. CFS involves proactive efforts to reduce the incidence and impact of fire through education, information and publicity. Significant CFS initiatives include the provision of smoke alarms to householders, education in schools and free home fire safety checks.

11. Relative risk in flats

- 11.1 In England, around 9-10% of the population live in an unshared, single household, purpose-built flat. Yet, during 2009-2010, around 25% of dwelling fires occurred within purpose-built blocks of flats. As a result, in that year, 23% of all fire deaths in dwellings occurred in these blocks.



- 11.2 This suggests that, while the number of fire deaths in purpose-built flats appears significantly disproportionate to the number of people who live in these dwellings, this is simply the result of the more or less equally disproportionate number of fires in such dwellings, most of which are started accidentally. The same outcome was found in previous research. There is no evidence from fire statistics to suggest that those living in purpose-built blocks of flats are exposed to greater danger from fire, once it breaks out, than those who live in houses.
- 11.3 For example, in 2009-2010, only one in every 210 fires in purpose-built blocks of flats resulted in a fatality. The frequency with which fires, once they broke out, resulted in deaths is actually less than the frequency with which fires tend to result in one or more fatalities in other types of dwelling. This, again, is supported by previous research, and the lower frequency of deaths when fire occurs is paralleled by a lower rate of injury.
- 11.4 One possible reason for this is that greater protection is afforded to escape routes in flats than in bungalows and two-storey houses.
- 11.5 In addition, as a result of the compartmentation within a block of flats, whereby each individual dwelling is totally enclosed in fire-resisting construction, the vast majority of fires are contained within the flat (and, in the majority of cases, the room) in which they start. It is certainly rare for anyone, outside the dwelling in which fire starts, to die as a result of a fire in a flat.

12. Is 'stay put' safe?

- 12.1 This is the basis for the 'stay put' principle (discussed later in this guide), whereby, when a fire occurs within one dwelling (or, less likely, in the common parts), it is normally safe for other residents to remain within their own flat. This principle is undoubtedly successful in an overwhelming number of fires in blocks of flats. In 2009-2010, of nearly 10,000 fires in these blocks, only 22 fires necessitated

evacuation of more than five people with the assistance of the fire and rescue service.

13. High rise equals high risk?

- 13.1 There is a common misconception that those living on the higher levels of a high-rise block of flats are at greater risk from fire than people living in low rise blocks, or in bungalows and two-storey houses. However, there is no evidence to support this.
- 13.2 Obviously, above first floor level, escape via windows is impossible, and, above the third floor, rescue by fire and rescue service ladders is unlikely to be possible; even high reach appliances have their limits. However, this is taken into account in the design, layout and means of escape in modern blocks of flats. They are designed so that escape or rescue via windows should not be necessary.
- 13.3 There is evidence to suggest that taller blocks experience more fires (e.g. per 1,000 dwellings) than blocks of lower height. However, more fires occur on the ground floor than on any of the higher floors. Moreover, again, once fire does break out, there is no greater likelihood of a fatality in a high-rise block than in a low-rise block. In fact, fire statistics show that a fire in a bungalow is more likely to result in a fatality than a fire in a high-rise block of flats (because of the age demographic of those living in bungalows).
- 13.4 It can, therefore, be concluded that, as in all dwelling types, the risk to people from fire (i.e. risk of death or injury) in a block of flats is governed primarily by the likelihood of fire occurring and whether smoke alarms are installed, rather than the type of dwelling in which people live, the height of the dwelling above ground or the architectural design of the block.

14. Factors influencing the likelihood of a fire

- 14.1 The likelihood of fire (and hence the risk of death or injury from fire) is strongly influenced by social and lifestyle factors, and it is these factors, more than any other, that result in the disproportionate number of fires (and fire deaths) in blocks of flats.
- 14.2 This highlights the importance of fire prevention within the individual flats. It is also clear that much can be done by landlords, other housing providers and the fire and rescue service (through their CFS activities) to reduce the risk to residents, particularly in the case of the most vulnerable people, such as elderly or disabled people, socially deprived people and those who engage in drug or alcohol abuse.
- 14.3 The assessment of risk from fire also needs to take social factors into account, particularly in the case of accommodation provided specifically for certain high risk groups. Guidance on fire risk assessment is given in Part D of this guide, while measures to prevent fire occurring are discussed in Part E of this guide.
- 14.4 Notwithstanding the importance of fire prevention, to ensure that, in any block of flats, when a fire occurs, the risk to people is minimised, various fire safety measures need to be provided. These are specific to blocks of flats, and take account of the differences between flats and traditional houses. The principal differences are discussed in Part B of this guide.

Landlords and others responsible for fire safety in blocks of flats should note that:

- People living in flats experience more fires than people living in houses. However, a fire in a flat is no more dangerous than a fire in a house.
- High rise does not mean high risk!
- To keep fire risk to a minimum, it is just as important to prevent fires as to provide measures to protect people when fire occurs.
- The most significant influences on fire risk are social and lifestyle factors and advanced age, not the type of dwelling in which people live.
- All flats should have working smoke alarms.
- Very few people die as a result of a fire in a neighbour's flat or the common parts. Nearly all fire deaths occur in the flat in which fire starts.
- In blocks of flats, each flat is designed to be a fire-resisting 'box'. It is important to maintain the integrity of this compartment, particularly when building work and alterations take place.
- It is important to ensure that fires cannot start in the common parts or common facilities.

PART B: FIRE SAFETY – HOW BLOCKS OF FLATS DIFFER FROM OTHER RESIDENCES

15. Introduction

- 15.1 With all the facilities and amenities needed for independent living, a flat is no different in many respects to any other form of dwelling. As demonstrated in Part A of this guide, the risk to people from a fire within their flat is no greater than for those living in houses and other forms of dwelling. However, there is a perception among some that, by virtue of living in a block with others, there is greater danger.
- 15.2 The potential for fire to spread from one flat to another has long been recognised. While fire safety standards have developed over the years, they have always aimed to ensure that the level of safety for those living in blocks of flats is equivalent to that for those living in houses.
- 15.3 Fundamental to this is the ability to escape safely.

16. Means of Escape

- 16.1 The fundamental objective in escape route design is that it should be possible to escape unaided while it is still safe to do so, i.e. before untenable conditions occur. A person's ability to escape will be affected by both the smoke and the heat from a fire. Smoke not only reduces visibility, but can, because of the toxic gases and irritants in the smoke, cause incapacitation. High temperatures and radiant heat from the flames will also impact on people's ability to escape. Recognising these hazards and meeting this objective underlies fire safety design in all buildings. It applies equally to dwellings.
- 16.2 There are situations in which fire and rescue services need to rescue people by using ladders. While some dwellings, including those within blocks of flats, are within reach of ladders or high reach appliances, many are not. In addition, modern traffic conditions, including congestion and restricted access due to parking, can significantly impact on the ability to carry out such rescues. It is, therefore, a fundamental principle that escape route design should not rely on external rescue by the fire and rescue service.
- 16.3 To enable people to leave in time, most houses are designed with an alternative means of escape if the occupants cannot use the normal way out of the dwelling. Alternatively, to ensure that it can be used safely, the main exit route is 'protected', i.e. enclosed in fire-resisting construction.
- 16.4 In a bungalow, the alternative escape route could be another exit from the dwelling. In a two-storey house, the alternative is often a window. Escape by dropping from a window is clearly a last resort. However, the fitting of escape windows has been, and still is, the most common means of providing an alternative in two-storey houses.
- 16.5 This approach is not feasible above the first floor. Accordingly, in the case of three storey houses, the provision of a protected stairway is the most common approach. It is unusual for houses to have two stairways, but, clearly, another stairway would serve as a better alternative to an escape window. Indeed, if there are two stairways present in a three storey house, it may not be necessary to protect the stairways.

- 16.6 In the case of flats, these principles, and the approaches to meeting the objective of escaping while it is still safe, apply equally.
- 16.7 Dropping from a window is not, of course, a feasible option in the case of blocks of flats above two storeys in height. Alternatives in this case usually involve access to a stairway, even if via a corridor or linking balcony - use of a linking balcony to gain access to a neighbour's flat has been an approach used in the past but is now considered unsuitable.
- 16.8 It is, however, possible to design a block of flats without alternative means of escape from the flats. Indeed, this is by far the norm. Even in blocks with two or more stairways, it is often necessary to escape from the flat into a single common corridor to reach both stairways.
- 16.9 In these cases, limitations on the size and layout of the flats normally apply, with restrictions on the overall distance from the front door to the furthest part of the flat. Alternatively, a protected entrance hall is provided to safeguard the internal route of escape from each habitable room to the front door. Again, limits are applied to the length of such corridors.
- 16.10 While it is clear from the above that the internal escape from flats is designed on similar principles to that of houses and bungalows, the key difference in fire safety design in a block of flats relates to the fact that, once out of the flat, there is further to go to reach ultimate safety. Escape for residents is, therefore, dependent on the common parts being suitably designed and maintained for use in an emergency.
- 16.11 While the flats, as domestic dwellings, are outside the scope of the principal legislation governing fire safety in the common parts, the FSO, those elements of the common parts that afford escape for residents once outside their flats are included. Indeed, residents are 'relevant persons' under this legislation (see Part C of this guide).
- 16.12 Design of communal means of escape in purpose-built blocks of flats is based on certain assumptions. These include:
- The most likely place of origin of a fire will be in a flat itself.
 - There is a high degree of fire separation between flats and the common parts and, therefore, the likelihood of fire and smoke spread beyond the flat of origin is low.
 - The materials used in the construction of the building or the protection afforded to them are such that fire is unlikely to spread through the fabric of the building.
 - The use of the common parts, and the nature of any combustible items present, is such that any fire originating in the common parts is unlikely to spread beyond the immediate vicinity.
 - There will be no external rescue, and residents should be able to escape by themselves.
- 16.13 These assumptions dictate the protection afforded to the communal means of escape.

As a result, the following principles would normally be incorporated in the design of escape routes in a block of flats:

- Front doors to flats need to be fire-resisting and self-closing.
- Corridors leading to stairways need to be enclosed in fire-resisting construction.
- Where there is only escape in one direction along a corridor, the extent of travel in such 'dead ends' needs to be limited.
- Open decks/balconies need to be limited in extent if escape is only possible in one direction, with fire-resisting construction to protect people passing other flats to reach a stairway.
- Stairways need to be enclosed in fire resisting construction, with fire-resisting, self-closing doors.
- Any external stairways need to be suitably separated from the building by fire-resisting construction and doors.
- Any areas, rooms or risers opening onto communal escape corridors and stairways need to be fitted with fire-resisting doors that are self-closing or kept locked shut.
- Arrangements for maintaining stairways clear of smoke need to be provided (through means such as openable windows and vents).
- Additional protection is needed where there is only a single stairway for normal access and for egress in an emergency, including lobby approach and permanent openings or automatically opening vents for clearing smoke.

16.14 It needs to be recognised that there are situations in all buildings in which people cannot escape unaided e.g. high dependency patients in hospitals. Equally, in dwellings, elderly people and people with certain disabilities may require particular consideration to be given to their needs in the event of fire. Meeting people's needs for normal living may mean that, in certain cases, specially adapted dwellings need to be provided, for example, on the ground floor. Sheltered housing is clearly an example of purpose-built accommodation intended for people with a particular set of needs. Accordingly, fire safety design in such buildings includes consideration of the implications for means of escape and other fire safety measures.

16.15 However, it is reasonable to expect that the occupants of a 'general needs' block of flats will reflect the diverse range of physical and mental capabilities of the general population as a whole. Although inclusive design is fundamental to new 'general needs' purpose-built blocks, the Building Regulations do not stipulate additional fire safety measures that must be provided as a consequence.

16.16 In many circumstances, it will be unreasonable to expect special provision to be made retrospectively with regard to fire safety design in existing blocks of flats, simply to address the nature of the occupants. However, it is generally considered unacceptable for landlords and others who own or manage blocks of flats to exclude people from the building because of factors such as disability and age, and fire safety should not be used as a reason for this.

17. Compartmentation

17.1 Even when incorporating the principles above, blocks of flats have been constructed, which might, at first, appear to have inadequate fire protection. For example, there have been those who have questioned the fact that there are so many high rise blocks of flats with only a single stairway.

- 17.2 Not only did these existing blocks fully comply with the fire safety principles at the time they were constructed, such blocks are still being built today. In fact, under current building regulations, there is no height limit for a block of flats with only one stairway.
- 17.3 The main aspect of a building containing flats that makes this possible is *compartmentation*.
- 17.4 The high degree of fire separation between flats and the common parts is achieved by making each flat a fire compartment. A compartment is simply a part of a building bounded by walls and floors that will resist the passage of fire for a specified period of time. This will minimise the likelihood that a fire in a flat will affect the escape routes through the common parts.
- 17.5 However, fire spread from a flat to the common parts is only one of the scenarios compartmentation is required to address.
- 17.6 Compartmentation is also needed to minimise the likelihood of fire spreading:
- From flat to flat.
 - Beyond communal rooms and facilities, such as plant rooms and bin stores.
 - Via common service risers and ducts.
 - Via rubbish chutes.
 - Via lifts.
 - From any car parking areas below.
 - From other occupancies where the block is part of a mixed use development e.g. above shops or a hotel.
- 17.7 The building's elements of structure are required to possess sufficient fire resistance when exposed to a fire of predicted severity to not only prevent fire spread, but also to prevent structural collapse.
- 17.8 The most likely place for fire to start is in a flat. Given this, and the fire load within the flats, the most important aspect of this compartmentation is the construction surrounding each flat. Indeed, the fire resistance of this construction is intended to be sufficient to enable a fire to burn itself out, before spreading to other parts of the building.

To achieve this, the fire safety design needs to ensure that the fire-resisting separation is maintained at all openings into, and out of, the flat. These will include:

- Flat entrance doors – these need to be fire resisting and self-closing, not only to preserve the compartmentation but also to protect the means of escape as discussed earlier.
- Any internal windows into the access corridor, or any glazing above or around the flat entrance door.
- Openings in walls and floors for services, such as water, gas and electricity.
- Vents into shared air supply ducts, but, more commonly, shared extract ducts from bathrooms and sometimes kitchens.
- Openings in walls and floors for communal heating systems, including ducted warm air systems, as well as hot water supplies.
- Doorways or hatches in walls for access to read electricity and gas meters and for deliveries and collections.

18. Evacuation strategy

- 18.1 The compartmentation between flats is analogous to the party wall separation between adjoining houses. The latter is intended to prevent conflagration by a fire spreading from house to house, to involve a whole terrace of properties. It also enshrines the principle that a person's actions, while they may affect their own safety, should not endanger their neighbours.
- 18.2 Compartmentation requires a higher standard of fire resistance than that normally considered necessary simply to protect the escape routes. The protection this actually affords is higher than that found in other residential buildings, such as hotels, halls of residence and HMOs.
- 18.3 The latter buildings, escape is usually simultaneous, i.e. all occupants leave at the same time. The evacuation strategy in blocks of flats is normally different.
- 18.4 In purpose-built blocks of flats designed and constructed in accordance with the assumptions and principles above, given that a fire should be contained within the flat of fire origin, those occupying other flats are in no immediate danger. Accordingly, it is considered that those in flats remote from the fire are safer to stay where they are than attempt to leave. Indeed, in the majority of fires in blocks of flats, residents of other flats never need to leave their flats.
- 18.5 This is the essence of the 'stay put' principle. It has underpinned fire safety design standards from even before the 1960s, when national standards were first drafted, and is still the basis upon which blocks of flats are designed today.
- 18.6 Inevitably, fires do occur in which, for operational reasons, the fire and rescue service decides to evacuate others in the building. Fires have been known to spread beyond the flat of origin to involve other flats or to spread across the top of blocks through the roof voids. In these cases, total evacuation of the block has sometimes been necessary.
- 18.7 Fortunately, these fires are rare and are usually the fault of failings in the construction, rather than flaws in the fundamental philosophy underpinning the fire safety design. Nevertheless, for some people, including fire safety professionals, these instances have undermined confidence in the 'stay put' principle.

19. 'Stay put' policy

- 19.1 Based on this principle, the policy adopted in evacuating most blocks of flats in the event of a fire usually encompasses the following:
- In the event of a fire within an individual flat, the occupants would be expected to alert others in the flat, make their own way out of the building using the common escape routes and summon the fire and rescue service.
 - If the fire were to start within any of the common areas, any occupants in these areas who become aware of the fire would be expected to make their own way out of the building and summon the fire and rescue service.
 - All other residents not directly affected by a fire in either of these scenarios would be expected to 'stay put' and remain in their flat unless and until directed to leave by the fire and rescue service.

- 19.2 It is not implied that those not directly involved who wish to leave the building should be prevented from doing so. Nor does this preclude those evacuating a flat that is on fire from alerting their neighbours so that they can also escape if they feel threatened.
- 19.3 The alternative to a 'stay put' policy is one involving simultaneous evacuation.
- 19.4 Whether of part of the building or the entire block, simultaneous evacuation involves evacuating the residents of a number of flats together. It requires a means to alert all of these residents to the need to evacuate, i.e. a fire detection and alarm system. Purpose-built blocks of flats are not normally provided with such systems.
- 19.5 Simultaneous evacuation is sometimes applied to buildings converted into blocks of flats, but usually only where it has not been possible to achieve the level of compartmentation required for a 'stay put' policy.
- 19.6 Some prefer to view an evacuation strategy based on a 'stay put' policy as in fact 'delayed evacuation'. The concern is that for anyone to stay indefinitely in a building in which there is a fire will put them in grave danger. The emphasis in such an approach is on residents only being expected to stay inside temporarily. In practice, however, experience has shown that most residents do not need to leave their flats when there is a fire elsewhere. Indeed, arguably they place themselves at greater risk when they do.
- 19.7 Others consider that a 'stay put' policy can never be relied upon, given that the standard of construction will only ever be proven when there is a fire. By this time, it will be too late if originally there was poor workmanship, or if there have been subsequent alterations that have been detrimental to the building, and the construction is found wanting. This is considered unduly pessimistic. Indeed, it is not borne out by experience, including statistical evidence from fires in blocks of flats (see Part A of this guide).
- 19.8 Without detracting from very real concerns about the impact of defective construction on the adequacy of fire protection, such an approach would inevitably lead to doubt over the standard of safety in any building.
- 19.9 Indeed, because of this concern, some enforcing authorities and fire risk assessors have been adopting a precautionary approach. The essence of this is that, unless it can be proven that the standard of construction is adequate for 'stay put', the assumption should be that it is not. As a consequence, simultaneous evacuation has sometimes been adopted and fire alarm systems fitted retrospectively. This is despite the fact that the fire safety design was based on the 'stay put' principle.
- 19.10 This approach is at variance with the principles of fire risk assessment (see Part D of this guide).
- 19.11 Indeed, if this approach were appropriate for blocks of flats, it would also be logical to apply it to adjoining houses which are also dependent on the standard of construction to prevent fire spread from house to house. Again, experience does not support this.

20. Fire detection and alarm systems

- 20.1 Early warning of fire is an essential component of ensuring that residents can evacuate safely from their flats in a fire. In Part A of this guide, the success of smoke

alarms in cutting the number of casualties in fires in dwellings was highlighted. Provision of appropriate smoke (and sometimes heat alarms) is now considered a basic component of fire safety design for flats.

- 20.2 As stated above, purpose-built blocks of flats are not normally provided with communal fire detection and alarm systems. The exceptions to this are buildings such as sheltered housing schemes, but these are special cases, and, even in these, a 'stay put' policy is normal.
- 20.3 Fire detection may also be provided in order to operate automatically opening vents to clear smoke from common areas. However, these systems do not incorporate means to warn the occupants of flats.
- 20.4 In buildings designed and constructed in accordance with the 'stay put' principle, it is generally unnecessary and undesirable for a fire alarm system to be provided. False alarms are a common occurrence in domestic dwellings. A communal fire detection and alarm system will inevitably lead to a proliferation of false alarms. This will place an increased burden on fire and rescue services responding to such occurrences.
- 20.5 As in other residential accommodation in which there are regular false alarms, this will also prove counterproductive - the 'cry wolf' effect of prolonged exposure to false alarms is highly likely to lead to residents ignoring warnings of genuine fires.
- 20.6 A fire alarm system ought to be provided only in a building in which some control can be achieved over the occupants to ensure that they respond appropriately and evacuate when the system is activated. For most blocks of flats, it would be unrealistic to expect that this kind of response can be achieved. Nor is it necessarily desirable that evacuation should take place from areas remote from the fire, unless and until these areas themselves become threatened by the fire.
- 20.7 Requiring landlords and others with responsibility for the common parts retrospectively to install fire detection and alarm systems may give rise to onerous burdens on management of the block.
- 20.8 The ability to manage a fire alarm system is rarely possible in a block of flats unless staffed at all times, e.g. by a concierge or caretaker. Allowing residents to silence and reset a system is inappropriate in these circumstances. Access to use of these facilities also enables major disablement of a fire alarm system. This could expose landlords and others with responsibility for managing fire safety to liability if, through the actions of a resident, the system is left inoperative and fails to perform correctly in the event of a fire.
- 20.9 In view of the above, only in unusual circumstances will a communal fire detection and alarm system be appropriate for a 'general needs' purpose-built block of flats.
- 20.10 These could include:
- Where the fire safety design does not meet the assumptions and principles outlined earlier and cannot be readily upgraded to satisfy them.
 - Where the flats are not sufficiently separated from commercial premises below, e.g. share a common stairway.
- 20.11 It may not always be necessary to adopt simultaneous evacuation when providing a communal fire alarm system (see Appendix 6). There may be circumstances in

which the objective of the system is to compensate for a particular shortcoming in an aspect of, say, escape route design or compartmentation in a building, which otherwise is suitably designed for a 'stay put' policy. In these cases, it may, for example, only be necessary to alert the fire and rescue service in the event of activation of the system.

- 20.12 Use of such systems will only be applicable in specific circumstances, and will require careful consideration by those assessing the fire safety design. They should only be fitted in existing blocks of flats where there is clear justification, and only as a last resort alternative to upgrading other measures to enable a 'stay put' policy to be adopted.

21. Other fire safety measures

- 21.1 It is a basic principle of fire safety design that there should be adequate illumination of escape routes to be able to see the way out in an emergency. With the possible exception of small two-storey blocks of flats, with good borrowed light from, for example, street lighting, blocks of flats should be provided with emergency escape lighting.

- 21.2 Similarly, fire exit signs should be displayed where there is a need to direct people to use an escape route with which they are unfamiliar. In the case of single stairway buildings, there is rarely a need for such signs. It is not usually considered necessary to signpost the route that residents normally use to gain access to their flats.

- 21.3 Given the restrictions on the use of stairways, lobbies and corridors, and the absence of combustible material, it is rare for there to be a need for fire-fighting equipment to be used by people present in the common parts of blocks of flats. It is, nevertheless, usually provided in plant rooms and other such rooms, for use by the staff and contractors.

- 21.4 The provision of fire extinguishers and other forms of fire-fighting equipment for use by residents is problematic. It is not expected that residents should need to tackle a fire in their flats to make their escape. Indeed, to obtain a fire extinguisher located in the common parts for this purpose would involve the person leaving their flat in the first place.

- 21.5 This does not preclude residents from providing their own such fire extinguishers and fire blankets. Indeed, it may be appropriate for landlords, and others responsible for the common parts, to encourage this as part of the process of engaging with, and educating residents on, fire safety.

22. Fire-fighting

- 22.1 Special facilities for use by the fire and rescue service in effecting rescue and fighting a fire are sometimes provided in purpose-built blocks of flats. This is usually dependent on the height of the block.

- 22.2 It may be necessary for the fire safety design to incorporate a fire-fighting shaft, comprising suitably protected stairways and lobbies. Additional facilities in the form of specially designed lifts for use by fire-fighters, and fire mains readily to obtain water, may also be needed.

- 22.3 These facilities are intended to assist the fire and rescue service. Normally, their presence (or indeed absence) has no direct bearing on the evacuation strategy of the block. Nor would it normally be appropriate to seek improvements to such facilities to address issues relating to escape route design and compartmentation in blocks of flats.

In ensuring there is adequate fire safety in a block of flats, landlords and others responsible for the common parts should understand the principles used in fire safety design.

In particular they should recognise that:

- While escape within flats is based on similar principles to those for houses, to reach ultimate safety relies on using the common parts.
- Most blocks of flats are designed on the 'stay put' principle. This relies on there being effective compartmentation.
- Provided there is effective compartmentation, 'general needs' blocks of flats will not normally require a communal fire alarm system.

23. Benchmark standards

- 23.1 The assumptions and principles outlined above have underpinned fire safety design standards for many decades and, with some exceptions, still remain valid today. They are largely part of the current guidance for new blocks of flats contained in Approved Document B.
- 23.2 While many of the design principles have not changed, there have been changes in the benchmark standards that are applied. There have also been changes to some of the approaches to applying these principles. For example, smoke dispersal by means of cross ventilation is no longer accepted as an effective means of keeping common escape routes clear of smoke.
- 23.3 It is wholly inappropriate to impose the current guidance in Approved Document B retrospectively to existing buildings. Nevertheless, with this caveat in mind, this guidance can be considered when setting benchmarks against which to assess the adequacy of fire protection within existing blocks of flats.
- 23.4 However, it should be recognised that benchmarks are intended simply to make comparisons. Judgement is needed by fire risk assessors and others when reviewing fire safety in a particular block.
- 23.5 It will often need to be accepted that it is neither realistic to meet current benchmark standards, nor risk proportionate to impose many of the solutions available today to the situations found in the designs of existing buildings.
- 23.6 Indeed, current benchmark standards simply do not fit with many of the purpose-built blocks of flats in existence today. There have been many variations in the design of blocks of flats over the years. Not only has the height of blocks varied considerably, including the modern resurgence of high rise, but the popularity of different flat layouts has changed. Ranging from the once popular cross-over flats split over three levels, to the modern trend for open plan layouts, these developments have required

careful application of the fire safety principles highlighted earlier in this part of the guide.

- 23.7 The result of this is that there are many variants of fire safety design, not only in relation to the flats but also to the common parts of blocks. Some, such as communal escape balconies, are no longer common. Others, such as break out panels between rooms to bypass an internal stairway in a maisonette, have fallen into disrepute. Not only are some of these designs not intuitive to residents, fire safety professionals may also be unfamiliar with some of these largely forgotten arrangements.
- 23.8 Today's benchmarks do not address many of these arrangements. It is therefore important to attempt to understand the original design concepts when reviewing the fire safety design of an existing building.
- 23.9 It is recognised that, with older blocks, it can be difficult to discern what the original design intent was, and whether it has been preserved or altered subsequently. Similarly, it can also be difficult to determine what standard has been achieved, especially in relation to compartmentation, given that some of the relevant elements of structure are often hidden and inaccessible.
- 23.10 Nevertheless, it is considered essential, when assessing the adequacy of fire protection in existing blocks of flats, to endeavour to determine the benchmark standards that applied when the block was built. It is important to establish just how far removed the original standards are to what is considered acceptable today, and whether this has given rise to an unacceptable level of risk.
- 23.11 This is needed to inform decisions regarding the need or otherwise to upgrade fire protection when considering the fire risk in a particular block.
- 23.12 Guidance on appropriate benchmark standards is given in Part F of this guide. This includes consideration of the many flat layouts and escape route designs that can be found in existing buildings.
- 23.13 It includes a framework for comparing the standard of fire safety found in a building against these benchmark standards.
- 23.14 Appendix 1 gives a brief history of the development of fire safety standards that have applied to purpose-built blocks of flats over the years.

24. Developments in fire safety technology and practice

- 24.1 As stated earlier, it is not normal practice retrospectively to apply current guidance relating to the design and construction of new buildings when assessing existing buildings, unless the design principles are far removed from those acceptable today. It is, nevertheless, appropriate to consider developments in fire safety technology and practice that could reasonably be applied to existing buildings.
- 24.2 There have been numerous developments since many of today's blocks of flats were built. Many buildings pre-date one of the most significant of these, the widespread use of smoke alarms in domestic dwellings.
- 24.3 As indicated earlier, some elements of fire safety design are no longer considered acceptable, e.g. escape into a neighbour's flat via a linking balcony. Also, the

approach taken to meeting fire safety principles has changed. For example, smoke containment is now preferred as the means of keeping common escape stairways clear of smoke, while smoke dispersal is deprecated.

- 24.4 However, other forms of smoke control, using mechanical means, rather than natural ventilation, have been introduced. For example, systems using pressurisation to keep smoke routes clear are now available, and smoke extract systems are now being used in fire engineering designs for blocks of flats to facilitate extended travel within 'dead ends'.
- 24.5 Another key development has been the use of sprinklers. Although more commonly associated with other types of building, systems specifically intended for domestic and residential premises have been developed, along with appropriate standards to govern their use. Guidance under the Building Regulations now calls for blocks of flats over 30m in height to be fitted with sprinklers in the flats. Their use can also provide design freedoms, for example in open plan layouts.
- 24.6 Water mist systems are also now available. These too have been developed for domestic and residential applications as well as for more commercial and industrial applications.
- 24.7 The extent to which such developments in technology can, and should be, taken into account when assessing existing blocks of flats needs to be considered carefully. It is important that the cost, practicality and benefit gained are all taken into account. Strategies to address shortcomings in fire safety should be proportionate to the risk. This is a key principle in fire risk assessment (see Part D of this guide).
- 24.8 While smoke alarms have been retrofitted readily into existing buildings, other fire safety technology cannot always easily be applied to existing buildings while they are still occupied. It is unlikely that sprinklers or water mist systems would be considered a practical proposition for existing blocks, nor would retrofitting mechanical means of smoke control. Nevertheless, this does not preclude their use where there is clear justification and appropriate consideration of the practicalities of their installation and subsequent maintenance.

Other key points for landlords and others responsible for fire safety in blocks of flats to note are:

- Residents are 'relevant persons' and it is vital that any fire risk assessment of the common parts takes account of their use by residents for escape (see Parts C and D of this guide).
- Given the importance of the common parts to escape from the building, you should maintain satisfactory standards of fire prevention and on-going control (see Parts E and G of this guide).
- Proposals to upgrade fire protection in an existing block should aim to ensure, or restore, a satisfactory standard of compartmentation in order to maintain the original 'stay put' policy (see Part F of this guide).
- You should challenge fire risk assessors and enforcing authorities where an unduly precautionary approach is taken. It should not automatically be assumed that constructional standards will be inadequate.

- You should challenge efforts to apply current benchmark standards retrospectively to existing blocks, unless there is clear justification. It is important that appropriate benchmarks are applied, taking into account that it is simply not possible in some buildings to achieve solutions that are recognised in today's standards.
- You should not accept proposals for communal fire alarm systems unless it can be demonstrated that there is no other way of ensuring an adequate level of safety. You should ensure that it is possible to make the necessary arrangements to manage such a system.
- You should ensure that a change to a strategy based on simultaneous evacuation is fully justified and only implemented where it is not practical to retain a 'stay put' policy.
- You should expect developments in fire safety technology and practice to be considered when existing buildings are subject to fire risk assessment. However, you should also expect any application of these to be risk proportionate and to take account of cost, benefit, practicality and risk.

PART C: THE LAW GOVERNING FIRE SAFETY IN BLOCKS OF FLATS

25. Relevant Legislation

- 25.1 When a block of flats is designed and constructed, building regulations make requirements in respect of various fire safety measures. However, there is no ongoing control for the maintenance of these measures under building regulations; the regulations have no further effect until there are proposals for alterations. After the block is occupied, control of fire safety is transferred to the Housing Act 2004 and the Regulatory Reform (Fire Safety) Order 2005.
- 25.2 The above legislation and its application is discussed in this Part of the guide.

26. Building Regulations

- 26.1 In England, for blocks of flats, the Building Regulations 2010 make requirements regarding:
- means of escape from fire;
 - measures to assist in the use of common escape routes (such as smoke control arrangements and emergency escape lighting);
 - restriction in the flammability of wall and ceiling linings to prevent fire spread;
 - structural measures to prevent fire spread within the block (such as compartmentation);
 - measures to restrict fire spread beyond the block;
 - access and facilities for the fire and rescue service (such as, in high-rise blocks, fire mains and fire-fighting lifts).
- 26.2 The Building Regulations only apply to new building work, such as erection of a new block of flats, extension of an existing block or material alterations.
- 26.3 For those responsible for existing blocks of flats, it is important to understand the relevance of the current Building Regulations to alterations, as inappropriate and unauthorized alterations can undermine the measures provided to ensure safety of occupants from fire.
- 26.4 'Material alterations' must be approved by a building control body (local authority building control or an Approved Inspector). An alteration is material if, at any stage of the work, the work renders the flat, or the common parts in which the work is carried out, non-compliant with the requirements of current Building Regulations, or makes an existing non-compliance even less compliant. (This does not apply to alterations to wall and ceiling linings.)
- 26.5 It can sometimes be difficult for the Responsible Person to judge whether or not an alteration is material. Therefore, in practice, proposals to carry out alterations to fire alarm systems, means of escape or smoke control arrangements, structural alterations and alterations to facilities for the fire and rescue service should be submitted to a building control body to determine if approval is necessary (and, if so, to obtain approval of the proposals) under the Building Regulations.
- 26.6 However, minor work, in which compliance is only affected temporarily until completion of the work, is unlikely to need approval. For example, making penetrations through fire-resisting construction to install services would not need approval, as, on completion, the penetration should be fire-stopped to maintain the

integrity of the fire-resisting construction. Similarly, improvements in fire safety measures (e.g. installation of additional smoke alarms within flats) are unlikely to need approval.

- 26.7 Nevertheless, it should be noted that quite minor alterations and building works can often result in a contravention of the Building Regulations, which is an offence under the Building Act 1984. For example, removal of cross-corridor fire doors or replacement of a fire door within a flat by a non-fire resisting door would normally result in such a contravention. Prosecution proceedings for such offences can be instituted for 24 months after completion of the unauthorized work.
- 26.8 A common contravention is replacement of a self-closing, fire-resisting flat entrance door by a non-fire resisting door and/or by a door that is not self-closing. This is a particularly serious contravention as it may place other residents at serious risk if a fire occurs in the flat in question. This highlights the importance of making residents aware of their responsibilities to maintain in place the fire precautions originally required under the Building Regulations at the time of construction of the flats (see Part G of this guide).
- 26.9 Older blocks of flats frequently do not satisfy the requirements of the Building Regulations 2010. There is no requirement under the Building Regulations for upgrading of existing fire safety measures to current standards (but improvements may be required under other legislation discussed in this Part of the guide). However, existing non-compliances with the current Building Regulations must not be made any worse in the course of alterations or building works.
- 26.10 For example, for compliance with the Building Regulations 2010, where only a single stairway is provided for means of escape from fire (other than in certain small blocks of flats), a lobby is provided between each flat entrance door and the stairway (see Part F of this guide). In blocks of flats built in the 1970s, no lobby was required on the topmost floor. However, in, for example, an existing 1970s block of flats, removal of the existing lobbies on other floors without approval of a building control body would contravene the Building Act. The existing non-compliance with the standards applied under current Building Regulations (the absence of a lobby on the top floor) would be made worse by the removal of lobbies on lower floors.
- 26.11 Guidance on the fire safety measures required by the Building Regulations is given in Approved Document B. However, there is no obligation to adopt the guidance in Approved Document B provided the requirements of the legislation can be satisfied by some other means. Alternative means for compliance are likely to necessitate the advice of a competent fire safety specialist. The guidance in Approved Document B is not intended to be applied retrospectively; accordingly, while this guidance can be used as a benchmark against which to compare the standard of fire safety in older blocks of flats, it does not follow that fire safety measures will need to be brought up to this standard.

Landlords and other Responsible Persons should note that:

- Material alterations to existing buildings, including alterations to individual flats, need to be approved by a building control body, otherwise an offence is committed.
- All residents of flats need to be made aware of the importance of maintaining in place the fire safety measures required by legislation at the time of construction of

the block. Alterations by residents within their own flats may not only put those residents at risk, but also other residents in the block.

- Even if the block satisfied earlier legislation, proposed alterations must be considered in the light of the current Building Regulations; it is not sufficient to carry out alterations on the basis of the earlier legislation.

27. Housing Act 2004

- 27.1 The Housing Act 2004 makes requirements regarding the condition of a broad spectrum of housing, including both individual flats within a block and the common parts of that block (i.e. all parts of buildings to which this guide applies). Local housing authorities, who are the enforcing authority for this legislation, must keep the housing conditions in their area under review with a view to identifying any action needed to ensure compliance with the Act.
- 27.2 Assessment of the conditions within flats or the common parts of blocks of flats is carried out by means of the Housing Health and Safety Rating System ('HHSRS') specified in the Act. The purpose of the HHSRS is to provide a means of assessment that identifies hazards and allows a judgement to be made as to whether the consequent risk to people is acceptable. A total of 29 hazards, which are arranged in four main groups, must be considered in carrying out the HHSRS. One of these groups is protection against accidents, and one of the hazards in this group is the hazard of fire (the assessment is carried out on each individual flat, rather than the entire block as a single building).
- 27.3 Hazards are classified under the Act as either Category 1 or Category 2, according to the extent of risk to the most vulnerable occupants. Category 1 hazards create greater risk than Category 2 hazards. If a local housing authority becomes aware (whether as a result of a complaint or any other means) that a Category 1 or Category 2 hazard may exist, they are obliged to carry out an inspection.
- 27.4 If it is confirmed that a Category 1 hazard exists, the housing authority are obliged to take one of a number of possible enforcement actions. (However, the local authority cannot take enforcement action against itself.) Enforcement actions include the serving of various forms of notice, which may require the person on whom the notice is served to take remedial action, or may prohibit the use of the building or part of the building. In the case of serious risk, the housing authority may, itself, take emergency remedial action.
- 27.5 In the case of Category 2 hazards, the Act confers a discretionary power on a local authority to issue the notices described above. However, for these hazards, there is no power to take emergency remedial action.

Landlords and other Responsible Persons should note that:

- The Housing Act 2004 is enforced by local housing authorities.
- The housing authority must inspect properties if they become aware of significant fire hazards. Housing authorities have powers of entry for this purpose.
- The housing authority may make requirements for improvements in fire precautions. In the event of serious risk, the housing authority has the power to take emergency remedial action.

28. Regulatory Reform (Fire Safety) Order 2005

- 28.1 The Regulatory Reform (Fire Safety) Order 2005 (the 'FSO') does not apply to domestic premises (i.e. individual flats), but does apply to the common parts of blocks of flats. The FSO also applies to workplaces within a block of flats. For example, these can include a room used by a caretaker or concierge, a plant room, commercial premises, such as a hairdressing salon in sheltered housing, and to any other non-domestic premises even though no one works there, such as a TRA hall or other similar facility (arguably common parts may be a workplace if, for example, they are patrolled by porters).
- 28.2 The FSO imposes requirements and duties on the 'Responsible Person'. In the case of a block of flats, the Responsible Person is the person having control of the premises, but, if any part of the block is a workplace, the Responsible Person in that workplace is the person who employs people to work there. (Commonly, the Responsible Person is, therefore, not a named individual, but a company or organisation.)
- 28.3 Normally, the Responsible Person is the freeholder or landlord. However, responsibilities and duties imposed on the Responsible Person are also imposed on any other person who, under a tenancy or contract, has a responsibility for maintenance or repair of the premises, maintenance or repair of anything in or on the premises, or for the safety of the premises.
- 28.4 Managing agents normally have responsibilities and duties imposed on them by the FSO, as they will normally be either a Responsible Person or another person having control of the premises; the same responsibilities and duties are imposed on the managing agent in each case.
- 28.5 Other than any part of the block that is a workplace, the responsibilities and duties imposed are limited to matters over which the person has control. For example, sometimes flat entrance doors may be outside the control of a freeholder, because, under each resident's lease, the door is legally part of the demised premises and so responsibility for maintenance of the flat entrance door rests with the resident. The landlord has no legal right to force a tenant to upgrade the door to the current standard, nor to carry out the works unilaterally.
- 28.6 The other persons having control of premises, on whom responsibilities and duties are imposed, can include further parties. For example, these include contractors who carry out maintenance of fire safety measures. If maintenance is not carried out properly, an offence may be committed by the maintenance contractor.
- 28.7 The FSO imposes a general duty of fire safety care in respect of anyone lawfully on the premises (or in the immediate vicinity of the premises). The duty is primarily to ensure that the fire safety measures within the common parts, plant rooms, etc are such as may reasonably be required in the circumstances of the case to ensure that the premises are safe. (If any part of the block is a workplace, the fire safety measures must, so far as is reasonably practicable, ensure the safety of the employees.)
- 28.8 The fire safety measures within the common parts, that must be adequate for compliance with the FSO, comprise the following:

- The means of escape from fire.
- The measures necessary to assist people in the use of the escape routes, such as emergency escape lighting, fire exit signs and measures for smoke control. (Some of these measures may not be necessary in all buildings; for example, where escape routes are straightforward, easily identifiable and likely to be well-known to occupants, fire exit signs will normally be unnecessary.)
- Where necessary, fire extinguishing appliances. (These are not normally necessary within common parts, but might be necessary within a plant room, caretaker's office or other non-domestic parts of the block.)
- Any fire alarm system necessary to ensure the safety of occupants. (Normally, a fire alarm system within the common parts is not necessary or appropriate.)
- An emergency plan. (In a small block of flats, this may be as simple as a fire action notice, but it is important that the procedure to adopt in the event of fire is disseminated to all residents.)
- Maintenance of all of the above measures.
- Maintenance of measures required by legislation (including the Building Regulations) for the safety of, or use by, fire-fighters.

- 28.9 The FSO requires that the appropriate fire safety measures are determined by means of a fire risk assessment (see Part D of this guide). The fire risk assessment must be suitable and sufficient to ensure that the general duty of fire safety care is satisfied within the common parts.
- 28.10 This fire risk assessment does not address the safety of residents from fire within their own flat.
- 28.11 If the Responsible Person or person having control of the premises employs five or more persons in their organisation (regardless of where they are employed), the significant findings of the fire risk assessment must be documented. In this case, the fire safety arrangements must also be recorded (see Part G of this guide). This is part of the requirement to have in place arrangements for the effective planning, organisation, control, monitoring and review of the preventive and protective measures.
- 28.12 The FSO is normally enforced by the fire and rescue authority, who carry out inspections (at a frequency determined by the risk) to audit compliance with the Order. If the fire and rescue authority identify a breach of the FSO, they will notify the Responsible Person, and may issue an enforcement notice requiring that steps be taken to remedy the breach. In the case of serious risk, a prohibition notice, prohibiting or restricting the use of the premises, may be issued.
- 28.13 A person on whom a notice is served has the right of appeal to the Magistrates' Court for 21 days after service of the notice. Alternatively, if the Responsible Person and the fire and rescue authority cannot agree on the measures necessary to remedy a breach of the FSO, the two parties may agree to refer the matter for a determination by the Secretary of State, the decision of whom is binding on the fire and rescue authority.
- 28.14 Failure to provide adequate fire safety measures is an offence if the failure places one or more persons at risk of death or serious injury in case of fire. Each such offence is punishable by a fine of £5,000 in the Magistrates' Court, or by an unlimited fine and/or two years imprisonment in the Crown Court.

Landlords and other Responsible Persons should note that:

- The FSO applies to all parts of a block of flats, other than within the individual flats.
- It is not generally appropriate to endeavour to upgrade all fire safety measures in older blocks of flats to the standards currently adopted under the Building Regulations (unless renewal or replacement is necessary).
- The FSO imposes duties on persons who may include freeholders, landlords, managing agents and contractors who maintain fire safety measures and those who carry out fire risk assessments.
- All fire safety measures must be adequately maintained.
- An offence is committed if inadequate fire safety measures place people at risk of death or serious injury in case of fire.

29. Overlap of Legislation

- 29.1 It is obvious from the above that there is overlap between the Housing Act and the FSO; the Housing Act applies to the common parts and the flats themselves, while the common parts also fall within the scope of the FSO. Both legislative instruments require enforcement action by the relevant enforcing authority if fire safety measures within the common parts are inadequate, including, in cases of extreme risk, issue of a prohibition notice.
- 29.2 A further complexity is that the safety of the common parts from fire can sometimes rely on fire safety measures within the flats, into which there is no power of entry by the fire and rescue authority, or power to make requirements under the FSO, but there is such a power under the Housing Act.
- 29.3 Common examples of the influence of fire safety measures within flats on the fire safety of the common parts include the following:

Front doors

- As discussed above, the flat entrance doors are critical to the safety of the common parts in the event of a fire within a flat. The doors must be self-closing and afford an adequate degree of fire resistance (see Part F of this guide). Where these doors are, under tenancy agreements, the responsibility of the freeholder, the FSO and the Housing Act may both be used to address deficiencies, but, in many cases, it will be the FSO that is more appropriate to apply.

In the case of many existing leasehold flats, the responsibility for maintenance of the flat entrance doors rests with the residents, in which case the freeholder's power to arrange for defects to be rectified may be limited or non-existent, making enforcement action on the freeholder inappropriate.

Under these circumstances, the residents might be regarded as other persons having control of premises (as defined by Article 5(3) of the FSO), with a duty to ensure the adequacy of the flat entrance doors. However, use of powers under the Housing Act may be a more appropriate and better defined route to achieving

compliance with the FSO. In new leases, ideally the freeholder should retain control over all flat entrance doors.

Internal doors

- To protect the common parts from a fire within a flat, reliance is sometimes placed on internal fire doors to each room (other than a bathroom or toilet) within every flat (see Part F of this guide). In determining compliance with the FSO, it may be necessary to determine whether these doors are present. Reliance may need to be placed on the powers of the Housing Act to address this issue.

Ventilation systems

- Common kitchen or bathroom extract arrangements can be a route for fire spread between flats. A 'stay put' policy (see Part B of this guide) may be compromised by inadequate measures to prevent spread of fire via a common extract duct; again, while it may be argued that some powers to address such deficiencies might exist under the FSO (though, at present, there is no case law to support this), there is no doubt that the powers of the Housing Act can be used for this purpose, so ensuring the adequacy of the 'stay put' policy incorporated within the emergency plan required by the FSO.

29.4 Powers also exist under the Building Regulations to require unauthorized material alterations (see above) to be rectified if a breach of the Regulations resulted from the work. These powers only exist for 12 months after the work has been carried out. However, at any time, an application can be made to the local authority building control for 'regularisation', of unauthorized work carried out after 1985, enabling retrospective approval to be granted, subject to the work being satisfactory.

29.5 A protocol between local housing authorities and fire and rescue authorities sets out the interrelationship between the Housing Act and the FSO, and describes the way in which the two enforcing authorities will work collaboratively to discharge their powers and duties in respect of fire safety. This allows the application of common fire safety standards, while not necessitating joint inspections by the two authorities. Under the Protocol, arrangements are put in place for consultation and communication between the local housing authority and the fire and rescue authority, so that unnecessary duplication is avoided and one authority can take the lead in any given case.

PART D: FIRE RISK ASSESSMENT

30. Introduction

- 30.1 A fire risk assessment is the underpinning for the fire safety measures required for the safety of residents, visitors and anyone else who is lawfully present in a block of flats.
- 30.2 A suitable and sufficient fire risk assessment carried out by, or on behalf of, the Responsible Person will help to ensure that the chance of fire occurring in the areas under the control of the Responsible Person is minimized, and that, in the event of a fire anywhere in the block, people can, if necessary, use the common parts safely to evacuate the building. The fire risk assessment will also help to ensure that appropriate managerial arrangements, such as fire procedures and maintenance of fire safety measures, are in place (see Part G of this guide).

31. Requirement for a Fire Risk Assessment

- 31.1 The Regulatory Reform (Fire Safety) Order 2005 (see Part C of this guide) requires that every Responsible Person carries out (or arranges for) a suitable and sufficient assessment of the risks to which people are exposed, so as to identify appropriate fire safety measures, proportionate to the risk. The fire risk assessment must be such as to ensure that the general duty of fire safety care, set out in Article 8 of the FSO, is satisfied (see Part C of this guide).
- 31.2 The fire and rescue authority will examine the fire risk assessment at the time of any audit of the building. They do not carry out the fire risk assessment, but may give a certain amount of advice to the Responsible Person. The fire risk assessment should not be confused with an assessment carried out by the Local Housing Authority for the purpose of the Housing Health and Safety Rating System (see Part C of this guide); this is simply a tool used by the Authority for identifying hazards, as required by the Housing Act 2004.
- 31.3 The flats themselves are outside the scope of the FSO. Accordingly, the scope of the fire risk assessment required by the FSO does not include measures to protect residents from a fire in their own flat. However, it will normally be necessary to gain limited entry to at least a sample of flats to examine those measures that are necessary to ensure that, when a fire occurs in a flat, there is not undue risk to other residents.

32. What is a Fire Risk Assessment?

- 32.1 Fire risk is a combination of the likelihood of fire occurring and the consequences to the safety of people if it does occur. A fire risk assessment is, therefore, simply a systematic and structured assessment of the likelihood of fire and the likely consequences to residents and others who may be affected by a fire.
- 32.2 The purpose of a fire risk assessment is to evaluate the risk to people from fire, taking into account existing fire safety measures, and to determine whether additional measures are necessary.

33. Common Misconceptions about Fire Risk Assessments

33.1 There is often confusion regarding what is meant by the term fire risk assessment. There is also different opinion over the exact scope of a fire risk assessment, particularly one required by the FSO. Landlords and other Responsible Persons are also frequently uncertain as to the extent to which existing fire safety measures, particularly relating to the structure of the building, need to be investigated.

33.2 These matters are discussed later in this Part of the guide, but, first, some common misconceptions should be corrected.

- A fire risk assessment is not carried out at the design stage of a building.

Fire strategy reports are commonly prepared at the design stage for the purpose of obtaining approval under the Building Regulations. However, a fire risk assessment involves a physical inspection of the completed building, and it considers the management arrangements that are in place.

- A fire risk assessment is not a building snagging exercise, carried out just prior to occupation.

While such an exercise is necessary to ensure that fire safety measures have been installed correctly in a new building, a fire risk assessment is carried out soon after occupation to consider the building as it is actually being used by residents.

- A fire risk assessment need not always be carried out by specialists, such as consultants.

Use of this Guide might enable the Responsible Person to carry out their own fire risk assessment, particularly in small, simple blocks of flats.

- Normally, fire risk assessments need not involve invasive inspection of the building, such as opening up of construction.

However, where practicable, it may be appropriate to lift a sample of accessible false ceiling tiles, or to open a sample of service risers.

On the other hand, although the scope of a fire risk assessment is limited to the common parts, it is essential that the fire resistance between the flats and the common parts is considered. In particular, it will be necessary to examine at least a sample of flat entrance doors to ensure that they are fire resisting and self-closing. Care should be taken to look out for other obvious ready routes of fire spread between the flats and the common parts, such as meter or milk delivery cupboards, windows, etc.

- Just as a fire risk assessment is not an exercise to identify failings in workmanship and materials at the time a new building is handed over, it is equally not intended to identify all latent defects in existing buildings.

It is undoubtedly the case that a fire may reveal hidden shortcomings that could not reasonably be identified by a fire risk assessment.

- Simply because the FSO requires that, where necessary, certain fire safety measures are required, it does not mean that such measures are necessary in all cases.

For example, the FSO requires that, where necessary, all premises to which the Order applies have adequate fire extinguishers and fire alarm systems. In a purpose-built block of flats, these measures are not normally necessary.

- It is not sufficient for a fire risk assessment to consider only the measures needed to assist residents to escape from fire.

For example, measures to prevent a fire within the common parts must be considered, as must the maintenance of any measures that were required under building regulations for the safety of, or use by, the fire and rescue service.

- Although the FSO only applies to the common parts, residents within flats are 'relevant persons', whose safety from a fire, that starts in, or spreads to, the common parts, must be considered.

34. Scope of a Fire Risk Assessment

34.1 The relevant fire safety measures and managerial arrangements that must be considered in a fire risk assessment are, in effect, the fire safety duties set out in Articles 10-22 of the FSO. These measures were summarized in Part C of this guide, and their application to a particular block of flats is discussed in detail in Parts E, F and G of this guide.

34.2 In summary, the fire risk assessment must consider the 'general fire precautions' defined in the FSO. Of these, the principal ones for a purpose-built block of flats are:

- measures to reduce the risk of fire and the risk of the spread of fire;
- means of escape from fire;
- measures to ensure that escape routes can be safely and effectively used;
- an emergency plan, including procedures for residents in the event of fire;
- measures to mitigate the effects of fire.

34.3 'General fire precautions' also include fire extinguishing equipment and fire alarm systems, but, as noted above, these are not normally necessary. However, if such measures are present, consideration needs to be given as to whether they are appropriate or whether they are, in fact, undesirable.

34.4 The fire risk assessment must also consider the maintenance arrangements for all measures required under the FSO or, in the case of equipment and facilities for the fire and rescue service, under building regulations.

35. Types of Fire Risk Assessment

35.1 For the purpose of this guide, there are four different types of fire risk assessment appropriate for a purpose-built block of flats. These are referred to as Types 1 to 4. They differ in the extent to which, in the course of the fire risk assessment, the building is inspected.

Type 1

A Type 1 fire risk assessment is the basic fire risk assessment required for the purpose of satisfying the FSO.

The inspection of the building is non-invasive, but includes examination of, at least, a sample of flat entrance doors, and considers, so far as reasonably practicable, the separating construction between the flats and the common parts, without any opening up of construction. However, entry to flats, beyond the area of the flat entrance door, is not necessary.

Where there are demountable false ceilings in the common parts, it may be appropriate to lift a sample of readily accessible false ceiling tiles. In addition, it may be appropriate to open a sample of service risers.

Unless there is reason to expect serious deficiencies in structural fire protection, such as inadequate compartmentation, or poor fire stopping, a Type 1 inspection will normally be sufficient for most blocks of purpose-built flats. Where doubt exists in relation to these matters, the action plan of a Type 1 fire risk assessment may recommend that one of the other types of fire risk assessment be carried out or that further investigation be carried out by specialists. (However, this should not be a generic recommendation of all Type 1 fire risk assessments; the recommendation should be based on identification of issues that justify reason for doubt.)

Type 2

A Type 2 fire risk assessment goes beyond the scope of the FSO (but not the scope of the Housing Act) by considering the arrangements for means of escape and fire detection (i.e. smoke alarms) within a sample (or all) of the flats. Within the flats, the inspection is non-invasive, but the fire resistance of doors to rooms is considered.

Measures to prevent fire are not considered unless (e.g. in the case of maintenance of the electrical and heating installations) the measures are within the control of, for example, the landlord.

A Type 2 fire risk assessment may sometimes be appropriate for rented flats if (for example, because of the age of the block or reason for suspicion of widespread, unauthorized material alterations) there is reason to suspect serious risk to residents in the event of a fire in their flats.

Type 3

The scope and objectives of a Type 3 fire risk assessment are generally similar to those of a Type 1 fire risk assessment, except that there is a degree of invasive inspection, carried out on a sampling basis. This will usually necessitate the presence of a contractor for the purpose of opening up construction and making good after the inspection.

The areas in which invasive inspection is carried out may include a sample of flats, but the nature of the work is such that this can often only be carried out in those that are vacant.

A Type 3 fire risk assessment is usually a one-off exercise, which is carried out only if there is good reason to suspect serious structural deficiencies that could lead to spread of fire beyond the flat of fire origin. The age of the block alone is not generally sufficient to warrant a Type 3 inspection. The need for a Type 3 fire risk

assessment may sometimes be identified in a Type 1 fire risk assessment, but should not simply be recommended as a matter of course.

Type 4

A Type 4 fire risk assessment has the same scope of work as a Type 3 fire risk assessment, but, in addition, means of escape and fire detection within a sample of flats are considered.

This is the most comprehensive fire risk assessment, but will only be appropriate in unusual circumstances, such as when a new landlord takes over a block of flats in which the history of works carried out is unknown and there is reason to suspect serious risk to residents from both a fire in their own flats and a fire in neighbours' flats.

36. The Risk Assessment Process

- 36.1 There is no single right or wrong way of carrying out a fire risk assessment; the important issue is that the scope is appropriate and that the relevant fire safety measures are properly examined. Traditionally, guidance has referred to the 'five steps' to risk assessment. This is the approach outlined in the HM Government guide 'Fire Safety Risk Assessment. Sleeping Accommodation Guide'. The five steps are summarised in Appendix 2.
- 36.2 In practice, several of these steps can be broken down into more discrete stages. However, the actual number is not significant.
- 36.3 More detailed guidance on the steps involved in carrying out a fire risk assessment are set out in the British Standards Institution publicly available specification, PAS 79 (*Fire risk assessment-Guidance and a recommended methodology*). PAS 79 sets out nine separate steps in the fire risk assessment process. However, it is stressed that many other approaches are equally acceptable.
- 36.4 The nine steps of PAS 79 are summarized below, and are discussed in more detail in Appendix 2.
1. Obtain information about the building and the people at risk from fire.
 2. Identify possible causes of fire and consider the adequacy of measures to prevent fire.
 3. From step 2, consider how likely fire is to occur.
 4. Consider the measures to protect people if fire occurs.
 5. Consider the relevant managerial arrangements.
 6. From steps 4 and 5, consider possible consequences to people if fire occurs.
 7. From steps 3 and 6, consider the overall risk to people from fire.
 8. Formulate an action plan.
 9. Define a date by which the fire risk assessment should be reviewed.
- 36.5 It is a legal requirement that, if the Responsible Person employs five or more people in the organization (regardless of where they are employed to work), the significant findings of the fire risk assessment must be documented. (Even where less than five persons are employed, the fire and rescue authority can issue an alterations notice, which can require that the significant findings are recorded and that proposals for future alterations are notified to the fire and rescue authority. Alterations notices are, however, uncommon.)

36.6 The information that must be recorded in the above circumstances comprises:

- The measures that have been taken, or are in place, to satisfy the FSO.
- The measures that will be taken to achieve compliance (the action plan).
- Any group of persons identified by the fire risk assessment as especially at risk.

36.7 Just as there is no unique way of approaching the assessment process, there is no legal requirement to use any particular style or format for recording the findings of a fire risk assessment. (PAS 79 contains a template that can be used, but, even if the fire risk assessment is carried out in accordance with the recommendations of PAS 79, the template shown in the document is simply an example, and other formats can be equally acceptable.)

37. The Action Plan

37.1 The outcome of the fire risk assessment should be a suitable action plan. The action plan contains a list of (normally prioritized) physical and/or managerial measures that are necessary to ensure that fire risk is maintained at, or reduced to, an acceptable level. Prioritization should be commensurate with the risk, while acknowledging that major capital work cannot normally be implemented immediately.

37.2 In formulating an action plan, the following questions should be considered:

- Will the plan, once implemented, achieve adequate safety for people?
- Will any new hazards be created?
- Are the actions reasonably practicable, taking cost, effort and risk into account?
- What will the view of residents be if the actions are implemented?
- Will it be practicable to maintain the precautions in place during normal use of the building?
- Do the proposed actions have any implications for accessibility and safety of disabled people?

38. Who Should Carry Out the Fire Risk Assessment?

38.1 There is no legal requirement for the fire risk assessment to be carried out by specialists, such as consultants. Indeed, in the case of, say, small or recently constructed blocks of flats, it can be advantageous for the landlord or other Responsible Person to use this guide and carry out the fire risk assessment themselves; their consequent understanding of the fire safety design in the building will enable them to manage fire safety better on an ongoing basis.

38.2 In the case of taller blocks of flats (e.g. comprising more than a ground and three upper storeys), more specialist knowledge may be necessary to carry out a suitable and sufficient fire risk assessment, particularly if the block was designed and constructed before 1992. However, the decision as to whether to use outside specialists to carry out a fire risk assessment rests with the Responsible Person.

38.3 Regardless of who carries it out, the Responsible Person will be liable to prosecution if, as a result of an inadequate fire risk assessment, people are placed at the risk of death or serious injury in case of fire. Equally, anyone carrying out the fire risk assessment for the Responsible Person has the same liability. Nevertheless, external services can only be advisory in nature and there will still be a need for some involvement of the Responsible Person in the fire risk assessment process, even if only to provide certain information and arrange access.

39. Review of Fire Risk Assessments

- 39.1 The fire risk assessment is a living document, which cannot remain valid for an unlimited length of time.
- 39.2 For compliance with the FSO, fire risk assessments need to be reviewed:
- Regularly (see below).
 - When material alterations take place.
 - When there is a significant change in the matters that were taken into account when the risk assessment was carried out; this includes a widespread change in the type of residents occupying the block.
 - When there is a reason to suspect that the original fire risk assessment is no longer valid (e.g. after a fire that occurred within, or spread to, the common parts).
- 39.3 Review of a fire risk assessment is not necessarily the same as a repeat of the entire fire risk assessment process. If a thorough fire risk assessment has been carried out, a shorter review exercise might be carried out regularly, with a more fundamental new fire risk assessment completed at less regular intervals.
- 39.4 A review will normally be appropriate after significant works have been completed to address fundamental shortcomings identified by a fire risk assessment.
- 39.5 The frequency with which fire risk assessments should be reviewed in the absence of any known changes is not defined in the FSO. The date by which a fire risk assessment should be reviewed should be determined as part of the process of carrying out a fire risk assessment.
- 39.6 The frequency of review should take into account the rate with which changes, including those arising from the need for maintenance work, are likely to occur, and the risk to people that might arise from changes. This means that a less frequent review might be acceptable if there is close management control of the common parts, including frequent routine inspections.
- 39.7 As a general guide, for a low risk, modern, low rise block (e.g. no more than three storeys above ground), a review every two years might be sufficient, with a new fire risk assessment completed every four years. For blocks with higher risk, arising from social factors, the age of the building, etc, and blocks over four storeys in height, an annual review might be more appropriate, with a new fire risk assessment every three years.
- 39.8 For the highest risk premises, an annual fire risk assessment might be appropriate, or an annual review with a new assessment every two years.
- 39.9 Even if outside specialists carry out the fire risk assessments, it is possible that reviews could be carried out by those with less specialist knowledge, such as in-house staff (to whom suitable training could be given), as the review concentrates primarily on progress with the previous action plan and identification of changes.

40. Competence of Professional Fire Risk Assessors

- 40.1 Commonly, freeholders, landlords and managing agents prefer to use the services of external specialists ('fire risk assessors') to carry out their fire risk assessment. In

this case, since, as discussed above, the legal responsibility for the adequacy of the fire risk assessment cannot be delegated, it is essential that the competence of the fire risk assessor is ensured.

- 40.2 Guidance on selecting a suitable professional fire risk assessor is given in Appendix 3 to this guide.

When commissioning a fire risk assessment from external specialists, landlords and other Responsible Persons should:

- Specify what Type of fire risk assessment is required – remember Type 1 will often suffice and other Types involve extra time, cost and disruption that may not be justified unless there is good reason to suspect serious deficiencies in fire safety.
- Recognise that all risk assessments will involve a degree of access to a sample of flats. You will need to assist in arranging access.
- Where you specify a risk assessment requiring invasive surveys, expect to employ a contractor to open up the construction – rarely do third party fire risk assessors have in-house resources to carry this out.
- Recognise that no risk assessment can be exhaustive. Expect recommendations for further investigation if there is difficulty in establishing, for example, the suitability of floors and walls to resist fire spread. However, challenge generic recommendations which are not supported by justified concern that serious deficiencies are present.
- Consider specifying the style and format you require for the fire risk assessment reports. Consider adopting recognised templates, such as those in PAS 79 or the HM Government guide ‘Fire Safety Risk Assessment . Sleeping Accommodation’.
- Insist that action plans include a clear priority and timescale for all recommendations and differentiate between those recommendations essential to satisfy legislation and those that are a matter of good practice.
- Remember that using an external specialist does not absolve you of your responsibilities under the FSO.
- Ensure your fire risk assessor is competent.
- Establish that your fire risk assessor has suitable experience and knowledge of carrying out fire risk assessments in the type of buildings within your housing stock.

PART E: MANAGING FIRE RISK – PREVENTING FIRES

41. Introduction

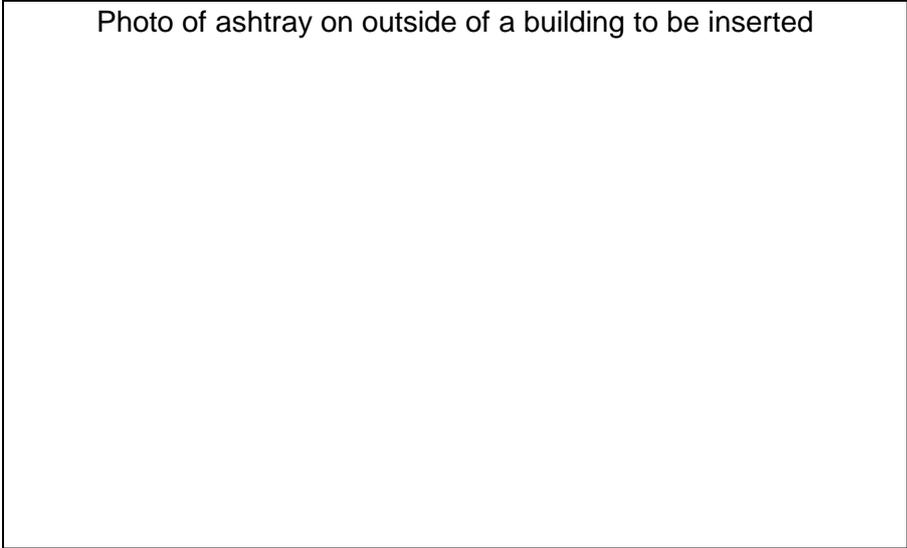
- 41.1 Fire prevention is naturally the first consideration in managing the risk from fire in any building, and this applies equally to purpose-built blocks of flats. Unfortunately, fires occur all too often in such buildings, but, by taking reasonable steps, it is possible to prevent many of these fires.
- 41.2 The importance of fire prevention cannot be overstated and it is a key consideration in a fire risk assessment (see Part D of this guide). It is also fundamental to good fire safety management (see Part G of this guide).
- 41.3 Arguably, if it were possible to prevent all fires from occurring, there would be no need for any special fire safety measures to be incorporated into buildings. However, experience suggests that it would be unwise to base a strategy for managing risk in blocks of flats solely on fire prevention. Indeed, even with good fire prevention, it is unrealistic to expect zero risk or to consider the likelihood of a fire to be negligible.
- 41.4 There is, nevertheless, a balance to be struck. While preventing fires must be seen as key to managing risk, it must also be recognised that efforts to reduce and eliminate hazards can sometimes so constrain the use of a building that it ceases to meet its function. For example, all hazards associated with electricity could clearly be eliminated if there were no electrical supplies to a building. However, domestic dwellings need electricity, and such an approach to hazard reduction would be wholly unrealistic.
- 41.5 That said, it is possible to take steps, through preventive maintenance, to reduce the likelihood of a fire of electrical origin. It is important though that such controls are reasonable and achievable.
- 41.6 For example, the widespread practice of carrying out inspection and testing of portable electrical appliances in the workplace would, no doubt, be highly beneficial if applied to domestic electrical appliances in people's flats. However, it is not practical to expect landlords to facilitate this. Nor is it realistic to expect residents to arrange for this to be carried out themselves, or even to expect all to take advantage of it if this were a service offered to them without charge.
- 41.7 This Part of the guide is aimed primarily at giving guidance on fire prevention within the common parts of blocks of flats. However, the most likely place for a fire to start within a block of flats is the flats themselves. It is recognised that the scope for landlords to take steps to prevent fires within flats is limited. Nevertheless, there are opportunities through, for example, regular gas safety checks and periodic inspections of electrical installations to impact on the potential for certain fires within flats.
- 41.8 It is strongly recommended that landlords and those managing blocks of flats take every suitable opportunity to engage with, and educate, residents on basic fire prevention. This is discussed further in Part G of this guide.
- 41.9 Advice on domestic fire safety and preventing fires in the home is available from the Government (see <http://firekills.direct.gov.uk/index.html>).

- 41.10 A guide such as this cannot be exhaustive, and landlords and those managing fire safety must be vigilant for other hazards that might be present or new hazards that might materialise in the future.
- 41.11 This Part of the guide is aimed at giving practical advice on fire prevention. It is based on experience of the common hazards encountered in blocks of flats and the common causes of fires. These hazards and possible measures to control or eliminate them are set out below.

42. Smoking

- 42.1 By law, smoking is not allowed in the common parts of blocks of flats. However, the potential for fires started by careless use and disposal of cigarettes and smokers' materials cannot be ignored. There still exists the very real need to remain vigilant, not only because of people inadvertently smoking in areas where the law prohibits it, but also because of illicit and surreptitious smoking. Indeed, with regard to smoking, people's efforts to conceal their actions, can often result in increased risk.
- 42.2 Residents need to be reminded that the law on smoking applies to the common parts. 'No smoking' signage is a statutory obligation, but taking other simple, basic steps can help. These can include providing suitable receptacles for smokers' materials outside entrances to encourage people to put out their cigarettes before entering.

Photo of ashtray on outside of a building to be inserted



- 42.3 Tenants' handbooks, fire safety leaflets and other communications with residents provide opportunities to inform and educate on this basic, but vital, message (see Part G of this guide).

Landlords and other Responsible Persons should remain vigilant for hazards from smoking. When inspecting the block, use the opportunity to:

- Look out for evidence of smoking in the common parts.
- Check that 'No smoking' signs are still in place.
- Make sure receptacles provided for disposal of smokers' materials are being emptied on a regular basis.

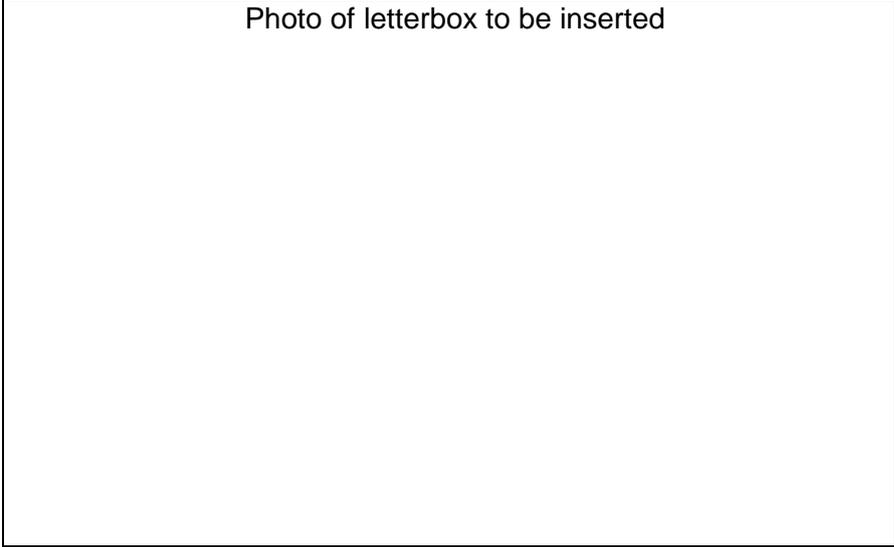
43. Arson

- 43.1 In 2008, deliberate ignition was the cause of some 17% of fires in dwellings. These fires accounted for 45% of the total number of deliberate fires in all buildings. Thankfully, there appears to be a decreasing trend in such fires. Nevertheless, they represented the third largest cause of fires in dwellings. They also resulted in 59 deaths and nearly 1,600 non-fatal casualties.
- 43.2 The potential for fires to be started deliberately is as much a threat for residents of flats as it is for other buildings in which people live. Security is therefore a key element of fire prevention in blocks of flats.
- 43.3 The nature of deliberate fires experienced in blocks of flats varies, but can range from people setting fire to rubbish and storage left within the common parts to igniting flammable liquid poured through letter boxes of front doors. The profile of those carrying out such acts clearly varies. Anti-social behaviour can be a factor in accounting for some of these fires. Basic security can often be very effective in countering these fires.
- 43.4 However, it must be recognised that some fires are started by those with the deliberate intent of causing serious harm to people. It is unlikely to be practical to implement physical measures completely to counter this risk. Vigilance by residents, along with visiting staff and contractors, will continue to be key to any programme of arson prevention.

Landlords and other Responsible Persons should take steps to prevent arson. Measures that can be used to address the risk include:

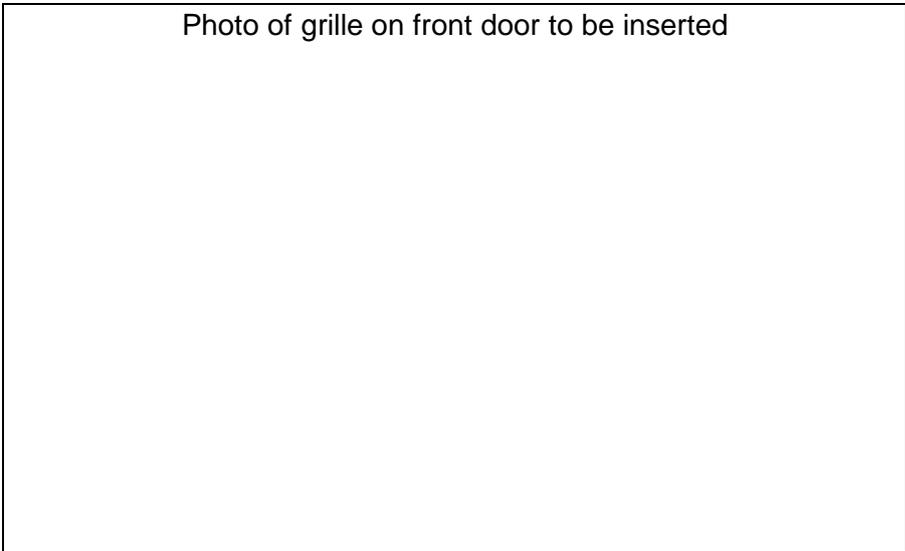
- Good physical security, with suitable locks on doors and windows.
- Access control linked to entry phones in flats.
- Effective lighting, both externally and internally, in the common parts.
-
- CCTV, particularly on entrances and external façades.
- Maintaining common areas free from combustible material (see Housekeeping below).
- Where possible, maintaining a presence by people such as caretakers and concierges.
- Where appropriate, for communal letterboxes, use of suitable enclosures designed to contain burning material.
- Supporting initiatives to address anti-social behaviour.

Photo of letterbox to be inserted



- 43.5 The possible conflict between security and fire safety must be taken into account. Any measures taken to restrict access must not prevent people escaping easily in a fire (see Part F of this guide).
- 43.6 Residents should also be encouraged to make their homes secure. Advice on crime prevention in the home is available from www.direct.gov.uk/en/CrimeJusticeAndTheLaw/CrimePrevention
- 43.7 Residents may take their own measures, including fitting additional locks to front doors and installing intruder alarm systems. Again, care is needed to ensure that any such measures do not conflict with the need to escape in the event of fire. Leases should be used to constrain the fitting of excessive security measures, such as grilles, gates and shutters that might delay escape by the residents, impinge on the safety of others (e.g. across a common balcony), or prevent access to the fire and rescue service to effect rescue and fight a fire in a flat.

Photo of grille on front door to be inserted

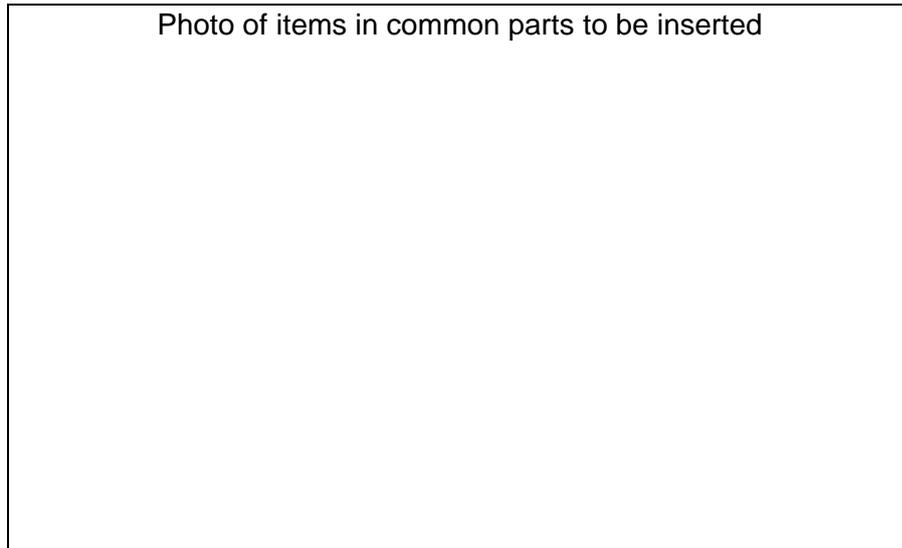


Steps that landlords and other Responsible Persons can take to address arson when inspecting blocks of flats include:

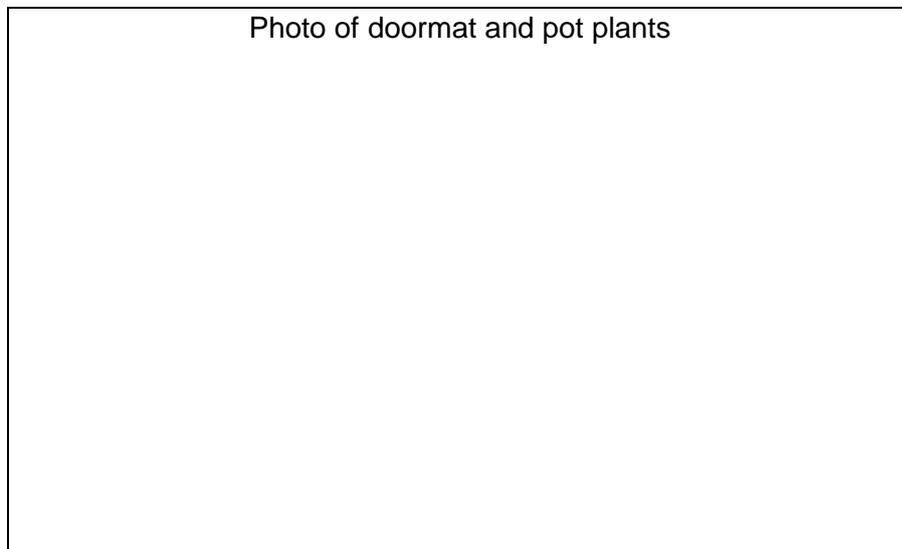
- Checking that basic security is being maintained, e.g. entrance doors are closing effectively and security lights are working.
- Being vigilant for signs of anti-social behaviour involving fire setting, both inside the block and outside in the vicinity.
- Checking that doors to residents' store cupboards and garages are kept locked.
- Making sure that plant rooms and electrical cupboards are locked shut and bin rooms are kept secure.
- Monitoring housekeeping in common areas and ensuring that the organisation's policy on the use of common parts is being followed.

44. Housekeeping

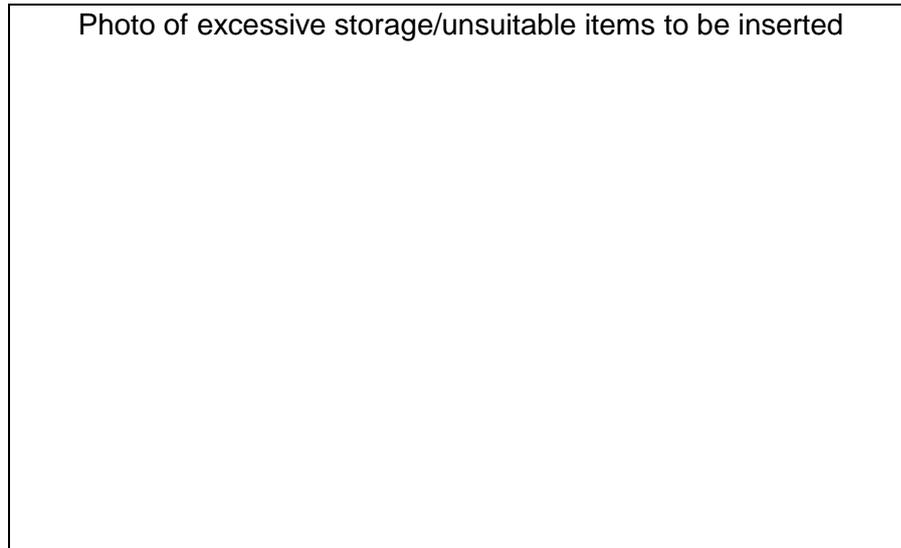
- 44.1 Good housekeeping is fundamental to reducing risk in blocks of flats. Controlling the presence of combustible materials and ignition sources not only results in a dramatic reduction in the potential for accidental fires to start and develop in the common parts, it also significantly reduces the scope for deliberate fires (see above). It also ensures escape routes are free of obstructions that might hinder the evacuation of people from the building (see Part F of this guide) and access for fire-fighters.
- 44.2 The ignition of combustible material directly within the common corridors, stairways and landings will give rise to the presence of smoke in escape routes and the possibility of fire spread from unoccupied areas into flats. Even if combustible material is present in a room separated from escape routes, such as a lift motor room, there is still a danger that any resultant fire could eventually threaten the escape of occupants of flats, as well as the more direct risk posed to employees and others who might have to work in these rooms. Indeed, many such rooms have a higher probability of fire inception (e.g. communal boiler rooms and electrical switch rooms) and therefore should be free of combustible materials for that reason alone.
- 44.3 There is a tendency for some residents to treat the common areas of blocks of flats as an extension of their own home. As a consequence, it is not unknown to find personal belongings being stored in corridors and on stairway landings, along with furniture and electrical appliances.



- 44.4 Sometimes residents see the common parts as communal amenity areas, where, for example, they can store bicycles, dry clothes and sit on furniture. Some landlords encourage this, particularly in sheltered schemes, in an effort to avoid the block having the appearance of an institution. The presence of, for example, door mats, pot plants, pictures and seating is seen as part of making the block homely for the residents.

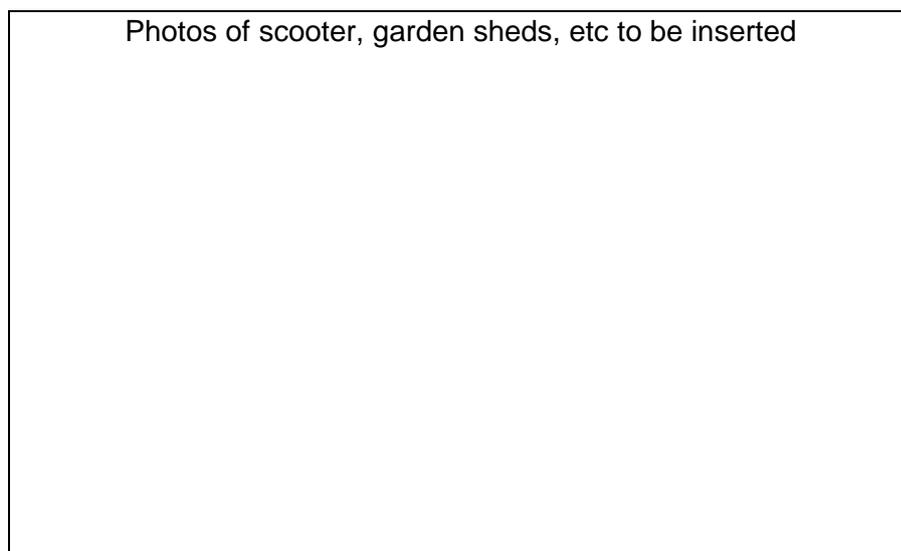


- 44.5 However, many landlords battle with the problems that can arise from this, particularly of residents taking matters to extremes (e.g. holding barbeques on access decks and escape balconies). A further problems is one of abuse, such as dumping unwanted belongings and rubbish in the common parts. Not only can this result in people potentially putting their own lives at risk, it could also endanger the lives of others.
- 44.6 The inappropriate actions of residents in this regard could also be exposing landlords and others who manage the common parts to liability under fire safety law (see Part C of this guide).



44.7 The nature of items found in the common parts of blocks of flats can vary widely, but have been known to include:

- Rubbish bags.
- Wheeled bins.
- Buggies and prams.
- Mobility scooters, bicycles and motor cycles.
- Lockers and cabinets.
- Washing machines, tumble dryers and other goods awaiting disposal.
- Unwanted bedding and mattresses.
- Upholstered seating.
- Children's toys and play furniture.
- Shopping trolleys.



44.8 The actual potential for significant smoke production and fire development when combustible materials are ignited varies enormously, depending upon the inherent properties of the material, including its ease of ignition, the quantity present and its configuration. Not all of the items commonly found are either easily ignitable or likely to give rise to a serious risk if ignited in isolation.

- 44.9 This suggests that it might be possible to allow some items to be present without unduly exposing residents to risk. However, the difficulties landlords and others responsible for the common parts face is how to manage use of the building in this way.
- 44.10 Unrestricted use of common parts is clearly not acceptable. It will, therefore, be necessary to adopt one of the following alternatives:
- i) 'Zero tolerance'
 - ii) 'Managed use'.
- 44.11 A 'zero tolerance' approach is one in which residents are not permitted to use the common parts (other than for access and egress) or to store or dispose of their belongings or rubbish in them. No exceptions would apply. It would ensure that the common parts are effectively 'sterile' i.e. free of combustible material, ignition sources and obstructions.
- 44.12 The benefits of this approach are:
- It is the simplest policy to adopt.
 - It removes not only the risk from accidental fires, involving items in the common parts, but also denies fuel for the arsonist.
 - There is no ambiguity regarding what is allowed and therefore residents know exactly where they stand.
 - It is easier for landlords to 'police' when carrying out inspections.
 - Enforcing authorities usually favour this approach.
 - It is simpler to audit by those carrying out fire risk assessments.
 - It arguably reduces the liability on landlords.
- 44.13 There are, however, disadvantages including:
- By not taking into account the specific circumstances, this policy might not be risk proportionate.
 - It unduly penalises those who could manage their common parts effectively.
 - It denies residents an opportunity to personalise and improve their living environment.
- 44.14 The alternative is 'managed use'. This is an approach that allows strictly defined use of common parts, limits the items allowed to control fire load and ease of ignition and includes strict conditions on where such items can be kept. For example, a 'managed use' policy might permit residents to place pot plants and door mats outside their front doors, have framed pictures and notice boards on walls, and to store bicycles, prams and mobility scooters in places that are out of the way and not likely to cause obstruction.
- 44.15 This approach also has advantages and disadvantages. The benefits include:
- By making the common areas 'homely', it fosters a sense of pride and value in the block, which can impact positively on anti-social behaviour.
 - It benefits elderly and disabled people in particular, by allowing them to store mobility aids at the point of access.

- It removes the need for dedicated residents' stores or communal facilities, such as mobility scooter parking areas.
- It allows the specific risk factors in the building to be taken into account.

44.16 The disadvantages include:

- It is more difficult to adopt as it requires a clearly defined policy with a list of 'dos and don'ts'.
- There is more scope for misunderstanding, requiring more education of, and communication with, residents.
- While it might be possible to minimise accidental fires with an appropriate 'managed use' policy, deliberate ignition may still be a significant concern.
- By allowing valuables to be left on view, it can encourage crime and subsequently increase the risk of deliberate ignition.
- It is more difficult for landlords to 'police', and for enforcing authorities and fire risk assessors to audit.
- It is likely to require more frequent inspections by landlords.
- Failure to adopt the policy effectively could result in liability for landlords should a situation occur that places residents at risk of serious injury or death in the event of fire.

44.17 The most appropriate approach will depend upon the specific circumstances, and whatever approach is taken should be considered within the overall context of the fire safety measures in the building. It should be considered as part of the fire risk assessment for the block.

A 'zero tolerance' policy should:

- Be adopted by way of 'default'.
- Always apply when there is doubt over the ability of residents to apply a 'managed use' policy.
- Be adopted where flats open directly onto stairways unless 'managed use' is considered acceptable by the fire risk assessment.
- Be considered for all single stairway blocks, except possibly low rise.
- Always apply where the escape stairway is of timber construction.
- Always apply where the building needs to be evacuated immediately i.e. where the standard of fire protection does not support a 'stay put' policy.

44.18 While it may be easier for landlords to take the 'zero tolerance' approach, it should be recognised that residents may be put at significant inconvenience and resort to infringements of the policy through frustration. Consideration of the needs of residents in ways that encourage them to follow the constraints of such an approach can contribute significantly to fire safety. Providing suitable communal storage facilities and, for example, charging rooms for mobility scooters, can greatly assist.

When adopting a 'managed use' policy, landlords and other Responsible Persons should:

- Carry out a specific risk assessment.
- Never apply the policy without consideration of the specific circumstances in each building.
- Consider whether residents are disposed towards keeping 'rules' and avoid 'managed use' where this is not the case.
- Ensure that there are clearly defined 'do's and don'ts' that residents can easily follow.
- Only apply it where there is a suitable standard of fire protection – particular care should be taken when applying it to situations such as single stairway buildings and 'dead end' corridors.
- Limit it to buildings in which the main elements of structure are made of concrete, brick and other non-combustible materials.
- Never adopt it where there are unsuitable surface finishes and linings.
- Take notice of instances of anti-social behaviour and avoid 'managed use' where there is particular concern regarding the potential for deliberate ignition.
- Only apply it to buildings which have effective security, e.g. access control.
- Never allow storage of combustible material – where appropriate, make arrangements for residents to have communal facilities for storage.
- Never allow items to be left awaiting disposal, not even in chute rooms - even short term presence poses a risk.
- Only allow basic furniture and not upholstered seating.
- Never allow motorcycles, mowers and other gardening equipment containing petrol and other fuels.
- Never allow charging of mobility scooters, batteries or other electrical equipment in common parts. Consider providing dedicated rooms for charging, suitably fire separated from the rest of the block.
- If storage cabinets are appropriate, only permit lockable metal cabinets to be used and never timber or plastic sheds or lockers.
- Never allow residents to store hazardous chemicals, gas containers or flammable liquids in storage cabinets or dedicated storerooms/cupboards.
- Only allow scooters, bicycles, prams, etc if there are suitable areas, that will not pose an obstruction, where they can be kept.
- Never allow tea lights, and other candles or incense burners to be used.

- Avoid allowing decorative lighting to be used – despite the low voltage involved, use of temporary lighting by residents can result in poor wiring practices.

44.19 Regular inspection is a key component of maintaining good housekeeping. Landlords should ensure that every opportunity is taken to monitor the situation in a block. This should apply to the common parts, including stairways, lobbies, corridors, escape balconies and chute rooms. It should also apply to plant rooms, landlords' stores, riser cupboards, TRA lounges and facilities and other communal rooms.

When carrying out inspections, use a checklist and include within this the following:

- If mobility scooters are allowed, make sure they are not on charge - be vigilant for people running extension leads into their flats, as this compounds the hazard by compromising the fire separation between the flat and the common parts.
- Notice boards are not always conducive to good housekeeping. Where they are allowed, check they are not overflowing. If necessary, consider encased notice boards with restricted access.
- Make sure bicycles, prams, etc are being stored appropriately.
- Check chute rooms and make sure residents are using the disposal facilities effectively.

45. Recycling

45.1 Recycling initiatives to encourage householders to avoid waste and use resources sustainably are being successfully applied to residents of blocks of flats. However, collection schemes often involve materials being set out in corridors, lobbies and stairways within the common parts. This has given rise to a new and potentially serious fire hazard.

45.2 Bags of clothes for charity and boxes/bags of newspapers and plastic containers represent a significant fire load. The material is in a form in which it can be easily ignited and lead to rapid fire spread and produce copious amounts of smoke.

Photo of recycling materials in common parts to be inserted

- 45.3 The fire safety design, and specifically the smoke control arrangements, in purpose-built blocks of flats are not intended to cope with fires of this size and severity within these areas of the building.
- 45.4 While only transitory, such material is nevertheless wholly inappropriate. It cannot be considered acceptable even where 'managed use' policies apply. Landlords should put in place alternative arrangements for recycling that do not rely on collection from within the common parts.

46. Electrical hazards

- 46.1 Fires of electrical origin account for some 17% of all fires in the home, the second largest cause. In 2008, these fires resulted in 28 deaths and around 1,200 injuries.
- 46.2 Ignition of combustible materials through overheating or arcing can result when faults develop in wiring or in appliances. However, such faults are often evident before a fire occurs. By being vigilant when appliances do not work and circuit breakers keep tripping, and arranging for these faults to receive attention, householders can considerably reduce the likelihood of a fire developing. Residents should also be encouraged to take preventive action by arranging for their electrical installation to be inspected and tested periodically.
- 46.3 In the case of rented flats, landlords should plan to carry out such an inspection and test at least once every 10 years on occupied properties, and at other suitable opportunities such as when a flat is subject to modernisation or refurbishment.
- 46.4 Current guidance states that the electrical installations supplying the flats and the common parts of the block should also be subject to periodic inspection and test. This should be undertaken every five years.
- 46.5 Periodic inspection and testing of electrical installations should be undertaken by suitable competent persons e.g. an NICEIC approved electrical contractor or a member of the ECA. The inspection and test, and any necessary remedial work, should be undertaken in accordance with the current IEE Wiring Regulations (BS 7671) and the recommendations in IEE Guidance Note 3.
- 46.6 In the case of any portable electrical appliances that might be present in the common parts and other areas under the control of the Responsible Person, these should also be subject to inspection and test on a regular basis. Guidance on the nature and frequency of this can be found in the IEE Code of Practice for In-Service Inspection and Testing of Electrical Equipment.
- 46.7 Others, such as TRAs, who occupy parts of blocks of flats which are outside the control of the Responsible Person, and cleaners and maintenance contractors who bring portable electrical appliances into the building, should be encouraged to ensure that they have suitable inspection and testing regimes in place.

Steps that landlords and other Responsible Persons can take to address electrical hazards in blocks of flats include:

- Being vigilant during inspections for any obvious damage to electrical fittings and equipment within the common parts.

- Making sure electrical distribution boards are located in secure cupboards or rooms, within which there is no storage or rubbish inside.
- Stopping residents from connecting wiring from their flats to decorative lights or other equipment in the common parts.
- Looking out for residents using sockets in the common parts to charge their appliances.
- Considering the installation of key-operated socket outlets within common parts to restrict access to cleaners and other legitimate users.

47. Heating and Ventilation Systems and Equipment

- 47.1 Heating and ventilation systems serving the common parts are often now completely separate from the systems in the flats. However, this has not always been the case. In the past, communal ducted warm air systems have been employed to heat individual flats, and there has been widespread use of common extract systems for kitchens and bathrooms.
- 47.2 The hazards arising from communal heating and ventilation systems include both a potential for ignition and a route for fire spread through common ducts and risers. Planned preventive maintenance is the key to minimising the likelihood that, for example, a central boiler will catch fire or that a fire within supply and extract fans or in ductwork will spread smoke and flames widely through a building.
- 47.3 Where portable heaters are used, e.g. in TRA lounges and community rooms, these should be suitable for their intended use and not subject to easily being knocked over or damaged. Portable gas heaters should not be used.
- 47.4 Residents should also be encouraged to have their heating systems serviced regularly. While landlords are obliged to arrange annual gas safety checks for rented properties, residents of leasehold flats should also be encouraged to have their appliances checked every year.

48. Lightning

- 48.1 Lightning is a source of ignition in a small proportion of fires in the UK each year. However, the risk this poses is very much dependent on factors such as the location of the building, its size and construction, its proximity to other structures and the local topography.
- 48.2 A risk assessment tool for determining the need for lightning protection on a block of flats can be found in BS EN 62305-2. This is particularly useful when establishing whether or not to include lightning protection when a building is erected.
- 48.3 Retrospective installation of lightning protection is rarely likely to be considered essential as part of managing the risk in existing blocks of flats. However, it is important that, as part of ongoing control of fire safety in the building, any existing protection systems are subject to regular inspection and testing. Guidance on this is available in BS EN 62305-3.

49. Other causes

- 49.1 Although not normally considered a hazard likely to be found in the common parts of a block of flats, cooking accounts for the largest proportion of all fires in domestic dwellings – some 45% in 2008.
- 49.2 It may be necessary to consider cooking hazards where there are communal facilities, such as TRA lounges, and in sheltered schemes where catering is provided.
- 49.3 A key component to reducing the risk is regular maintenance and cleaning of cooking appliances and any associated extract systems, especially if deep fat frying is undertaken.
- 49.4 There are other hazards that might only be present on occasions. Good examples are the hazards associated with building works and contractors operations. This is considered in Part G of this guide.

PART F: MANAGING FIRE RISK – FIRE PROTECTION

50. Introduction

- 50.1 This Part of the guide is concerned with the in-built fire safety measures in a block of flats, i.e. those elements necessary to ensure a satisfactory standard of fire protection.
- 50.2 The objectives and principles behind these measures are discussed in Part B of this guide. The aim of these measures is to ensure reasonable safety for those escaping a fire and, where a 'stay put' policy applies, for those remote from the fire while they remain in their flats.
- 50.3 This Part of the guide contains benchmarks, against which the standard of safety in a particular block can be assessed.
- 50.4 The means of escape and the fire safety measures provided in a block of flats should be based on the threat to the occupants should a fire occur anywhere in the building. It is never possible completely to remove the potential for a fire, and it should therefore be assumed that a fire can occur and that fire safety measures will be required to ensure the safety of the people in the building if it does.
- 50.5 Although there will always remain a risk of multiple fires, the recommendations in this Part of the guide are based on the assumption that a fire will not start in two different places within the same building at the same time.
- 50.6 Initially, a fire will only present a threat to those in its immediate vicinity. The majority of fires in purpose-built blocks of flats do not spread beyond the location of origin. However, it has also to be assumed there is a small chance that, at some stage, fire might spread to affect other areas of the building, including the common parts and the communal escape routes.
- 50.7 As indicated in Part B of this guide, fire safety design in purpose-built blocks of flats, and, in particular, the means of escape provisions, have traditionally been based on the following assumptions:
- The most likely place of fire origin will be within a flat.
 - The high degree of compartmentation provided in purpose-built flats means that there is a low probability of fire spread beyond the flat of origin to other flats or to the common parts.
 - Simultaneous evacuation of the building will not normally be necessary.
 - The construction, materials and use of the common parts of blocks of flats are such that any fire originating in the common parts will be unlikely to spread beyond the immediate vicinity of the place of fire origin, nor will it spread to affect the fabric of the building.
 - The main risk to the occupants of flats in the initial stages of a fire will be from the smoke and hot gases produced by the fire.
 - The occupants of the flat of fire origin will be able to evacuate unaided from their flat.
 - No reliance will be placed on external rescue

51. 'Stay put' policy

- 51.1 Adoption of a 'stay put' policy for the occupants of flats not directly affected by a fire is universally accepted practice in purpose-built blocks of flats. It is recognised that blocks of flats need to be provided with adequate horizontal and vertical means of escape to permit people to evacuate, either because their flat is the place of fire origin, or, because of a desire, or need, to evacuate e.g. if a developing fire presents a threat to them. However, the level of compartmentation built into blocks of flats should ensure that a fire is sufficiently contained to limit the need for those beyond the flat of origin to ever evacuate.
- 51.2 Nevertheless, it should be recognised that a 'stay put' policy also relies on attendance by the fire and rescue service. While a fire within a flat may burn itself out, the assumption is made that the fire and rescue service might need to extinguish the fire in order to prevent its spread. While it is intended that residents in flats not directly affected by the fire will be safe to remain within their own flats, it is recognised that there may be circumstances in which they may be directed to evacuate by the fire and rescue service.

52. Limitations of this guidance

- 52.1 The wide variation in age, design and construction of blocks of flats is such that this guide, and particularly this Part, can only cover the more common designs and more commonly employed fire safety measures found in purpose-built blocks of flats. Inevitably, there will be layouts and circumstances that will not be fully addressed by this guide. However, it is hoped that use of the basic principles outlined in this Part will enable a meaningful assessment to be made of the level of safety in these blocks.
- 52.2 Landlords and other Responsible Persons should be aware that, in these circumstances, it is likely that help will be needed from suitable specialists.
- 52.3 Those undertaking fire risk assessments of such blocks of flats should have the necessary competence to make these judgements.

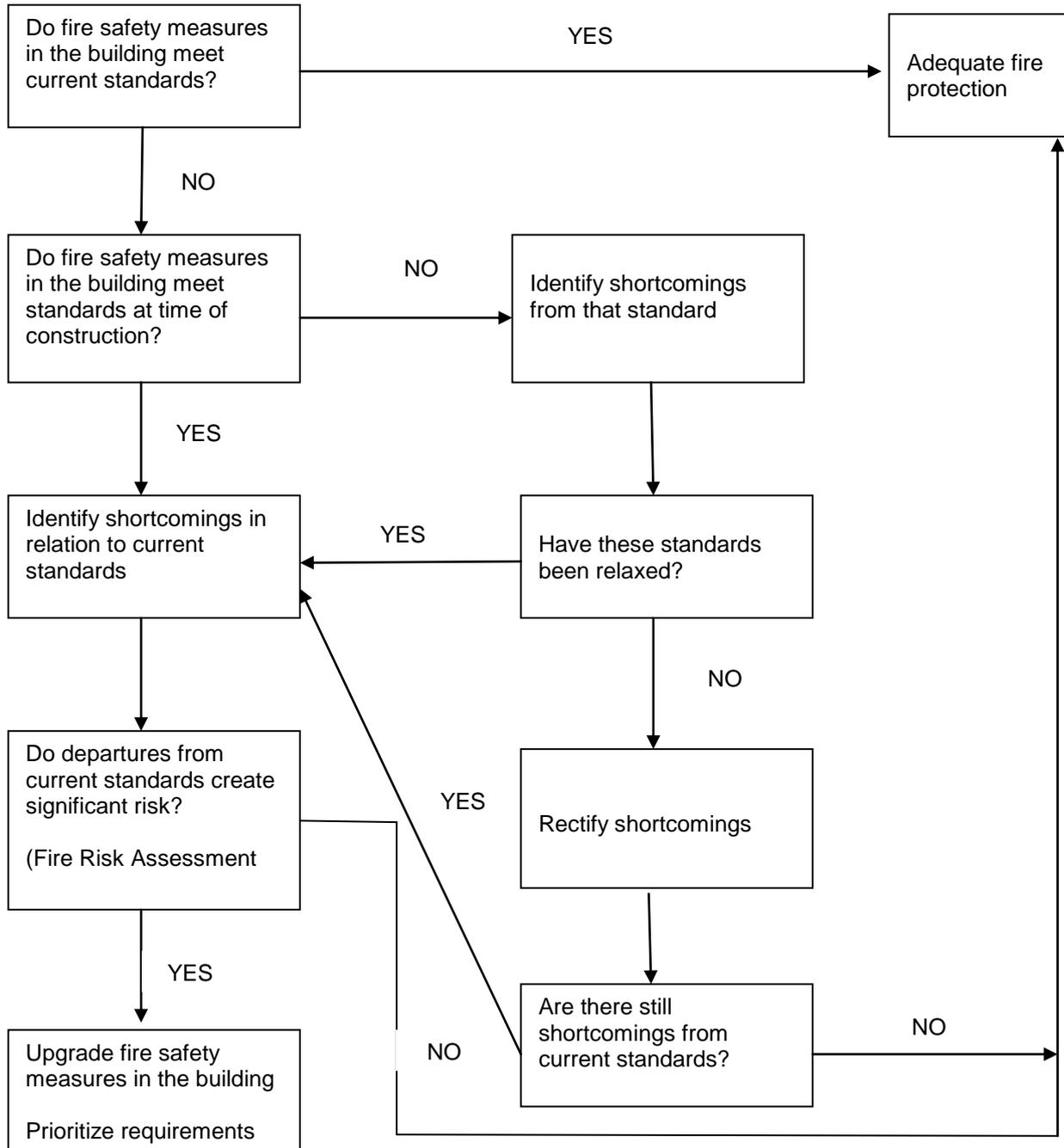
53. Methodology for using benchmarks

- 53.1 When carrying out a fire risk assessment, or otherwise reviewing fire safety design in a block of flats, it is important to compare the standard found in a particular block against *appropriate* benchmarks. Only then can judgements be made about the adequacy of the fire safety measures.
- 53.2 However, initially, these benchmarks might be those that were in place when the block was built and not those that currently apply. Indeed, it is normally inappropriate retrospectively to upgrade existing blocks to meet current benchmarks without justification on the basis of fire risk.
- 53.3 Nevertheless, there may be situations in which the original benchmarks of the day are far removed from what is acceptable today and, as a result, there may be an unacceptable risk.
- 53.4 The guidance in this Part is set out in such a way as to detail:

- The benchmark standards recommended by current codes and guides for the design of modern blocks of flats.
- The standards of the day that may have been applied when an existing block of flats was built.
- The most commonly found differences between newly built blocks and those designed to meet previously accepted benchmark standards.
- Possible solutions that might be suitable where the standard found in an existing building has not been maintained in line with the original design intent, or falls far short of the standard considered acceptable today.

53.5 The following illustrates a framework used when carrying out a fire risk assessment for comparing the standard of fire safety found in a particular block with these benchmarks.

Decision Tree for when an existing building does not comply with current standards



53.6 The aim is to determine a *reasonable* approach to improving fire safety in existing blocks of flats where the existing fire safety measures have been found to be inadequate.

53.7 However, it must be recognised that it will not always be reasonable and practical to upgrade fire safety measures to achieve solutions that conform to today's standards. Indeed, the appropriate solution may simply be to restore what was originally there until such time as it can be upgraded through the normal process of refurbishment of the building. The objective is to establish whether the departures from current benchmarks create significant risk and, if they do, to determine a realistic solution that can be implemented within the constraints of an existing building.

54. Compartmentation

54.1 The fundamental element of fire protection that underpins fire safety design in blocks of flats is compartmentation.

54.2 Adequate compartmentation is a basic requirement in all purpose-built blocks of flats. The standard of fire separation, whether between individual flats, between flats and the common parts, or between the common parts and ancillary accommodation, such as refuse chutes and plant rooms, should be a key consideration when undertaking a fire risk assessment.

54.3 However, fire risk assessments by their very nature do not involve destructive exposure. Even when encompassing intrusive surveys (see Part D of this guide), they can only be considered as sampling the standard of construction. A fire risk assessment should not be viewed as a means of identifying all the latent defects.

54.4 The benchmarks that follow in this Part of the guide are based on the understanding that, where deficiencies in the standard of compartmentation are identified, these will be rectified.

54.5 It is further assumed that any necessary improvements will, at least, restore the fire separation to the standard of the day when the block was built and, where possible, meet today's benchmarks.

54.6 The standard of compartmentation and fire separation recommended in design guides for blocks of flats has changed over the years, particularly in comparison to those published prior to the 1960s. This has inevitably led to variations, both in the nature of the construction and in the periods of fire resistance that can be found in existing blocks of flats.

54.7 For example, in older buildings, particularly traditionally built, low rise blocks of two to four storeys, it will not be uncommon to encounter timber floors, with lath and plaster ceilings, and traditional brick walls. In more modern blocks, particularly high rise blocks, it is more likely that there will be concrete framed construction, with most floors being constructed of concrete, and walls of brick, blockwork or concrete.

54.8 When assessing the levels and adequacy of compartmentation and fire separation in existing blocks of flats, there is a need to consider the overall risk in each building. This should be based on consideration of the original design intent, the height of the building, the number of flats, the available means of escape and any other fire safety measures provided.

54.9 In general, the adequacy of the existing compartmentation and fire separation can be assessed by considering the following factors:

- Does the existing compartmentation meet current benchmark standards of fire resistance?
- If not, is the existing period of fire resistance adequate, taking into account the overall risk in the building?
- Are there deficiencies in the existing compartmentation as a result of poor construction, alteration or the installation of additional services.

Current benchmark guidance for purpose-built blocks of flats recommends that the following should be constructed as compartment floors and walls:

- every floor (unless it is within a multi-level flat);
- every wall separating a flat from any other part of the building;
- every wall and floor enclosing a refuse storage room.

54.10 The minimum level of fire resistance should be 60 minutes (higher in the case of high rise blocks), but this would not generally apply to small, two-storey blocks of flats, with no floor more than 5m above ground or access level.

54.11 Previous design standards for older, traditionally built blocks of flats, with timber floors, permitted a lower level of fire resistance, typically 30 minutes. Indeed, in current guidance, it is permissible to have a 30 minutes' standard of fire resistance when converting an existing house or building of not more than three storeys into flats, provided the means of escape conforms to current guidance.

54.12 This not only recognises the practical difficulties of upgrading the fire resistance of floors in existing buildings, but also recognises the reduced risk in lower rise blocks of flats.

54.13 In practice, the materials that were used, and the method of construction adopted, in older blocks of flats, might not achieve the periods of fire resistance. For example, the combination of a lath and plaster ceiling below a timber floor can only be considered to provide a notional 30 minutes fire resistance. In reality, the performance of lath and plaster is highly variable, given that the thickness of the plaster is not uniform.

Fire resistance of compartment walls and floors

54.14 In principle, the risk to the occupants of flats increases with the height of the block, the size of the building and the number of flats present. It may, therefore, be reasonable to accept reduced levels of fire resistance for compartment floors and walls in existing small, low rise blocks. However, this would be dependent on other inter-related factors, most importantly the provision of adequate means of escape.

As a guide, minimum levels of fire resistance for compartment walls and floors for existing flats with satisfactory means of escape should be:

- 3 storey – notional 30 minutes fire resistance – typically timber floors with lath and plaster ceilings.

- 4 and 5 storey – full 30 minutes fire resistance - typically timber floors with plasterboard ceilings.
- 6 storey and above – 60 minutes fire resistance.

54.15 In certain situations, where it is not possible to achieve the periods of fire resistance detailed above, additional fire protection measures may need to be considered. These measures might include one or more of the following:

- the provision of alternative means of escape or upgrading protection to the enclosure of escape routes to current benchmark standards, e.g. FD30S doors; or,
- as a last resort, provision of an automatic fire detection and alarm system to compensate for the reduced levels of fire resistance.

54.16 The provision of automatic detection in these situations is discussed in more detail later.

Condition of compartment walls and floors

54.17 Regardless of the nature of the construction, the materials used and the anticipated level of fire resistance of compartment walls and floors, it is vital that floors and walls are in good condition and that there are no openings, whether intentional or unintentional, that would permit the uncontrolled spread of fire and smoke.

54.18 The assessment must therefore consider the potential for fire to spread through any service ducts and risers, ventilation ducts and rubbish chutes and by means of openings around gas, electricity, water, drainage and telecommunications services.

Common parts

54.19 Consideration of the standard of fire separation between flats or ancillary rooms and the common parts is necessary in all types of fire risk assessment. The extent to which this is invasive will vary with the type of fire risk assessment (see Part D of this guide).

54.20 Obvious openings between floors, and in walls between flats and other ancillary accommodation (e.g. plant rooms) and the common parts, should, where practicable, be inspected. Particular attention should be paid to service ducts and risers.

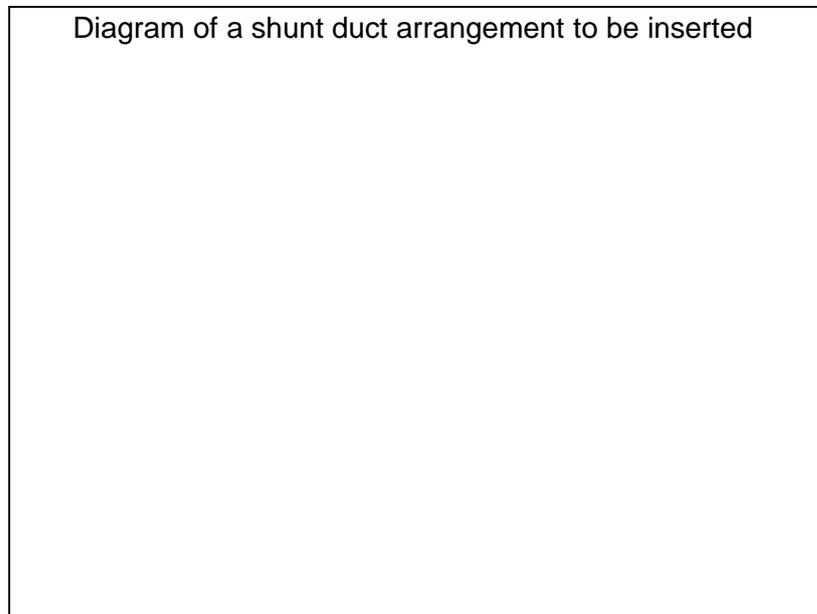
54.21 Walls and ceilings can usually be inspected without too much difficulty, but, where demountable false ceilings are present, efforts should be made to lift a small sample of tiles to check the condition of the soffit and look for inappropriate openings in the walls.

54.22 There may also be common ventilation systems serving the common parts. The provision of fire dampers or the enclosure of the ducts in fire-resisting materials may be required where the ducts pass through compartment walls and floors. Typically, fire dampers will usually be heat actuated by means of fusible links.

Within individual flats

- 54.23 Within flats, consideration will need to be given to the adequacy of fire stopping around any openings in walls and floors for services such as gas, water, electricity, telecommunications and drainage. These may be present where such services enter from the common parts or pass between flats. In most cases, the extent of any openings and the extent of fire stopping can only be ascertained through invasive inspections, and the opening up of panels in kitchens, bathrooms and other areas. This would only apply when Types 2 and 4 fire risk assessments are carried out.
- 54.24 Small bore pipes, typically less than 40mm in diameter, are not normally considered to be of concern. Larger pipes, especially if made of a combustible material, could, in a fire, give rise to an opening that will allow significant fire and smoke spread. Proprietary fire seals, including externally mounted collars, are used in new buildings and could be used to address this problem in older blocks. However, the difficulties of retrofitting such seals in an occupied block of flats may mean that it will only be practicable to undertake this on a long term basis as and when flats become vacant.
- 54.25 In addition, in some designs of blocks of flats, use will be made of common ventilation ducts to provide extract from bathrooms and, less commonly, kitchens. These ducts may well travel the full height of the building, serving a large number of flats and terminating at roof level. Fans may be provided to draw air, but others may rely on passive ventilation. In modern blocks of flats, these ducts could be provided with fire dampers. However, older blocks are unlikely to be provided with dampers.
- 54.26 It has been traditional for many years for the common extract from bathrooms to incorporate shunt ducts which reduce the likelihood of fire and smoke spread between flats. Some earlier designs used the same arrangement for kitchen extract, although this was not a preferred method. However, there are blocks of flats that do not incorporate shunt ducts and have no adequate means of preventing fire and smoke spread between flats via ventilation ducts.
- 54.27 The absence of measures to prevent fire and smoke spread via common ventilation systems is so far removed from what is acceptable today that action will be necessary to reduce the risk it poses.

Diagram of a shunt duct arrangement to be inserted



- 54.28 In existing flats, it will rarely be practicable to upgrade ventilation systems to meet current benchmark standards and retrospectively introduce mechanical fire and smoke dampers into the ducts. However, one way of reducing the potential for fire spread between flats would be to fit intumescent fire dampers to the vents into the ducts. Although this would not restrict the spread of smoke in the early stages of a fire, it would prevent spread of flames and hot gases.
- 54.29 This is a reasonable approach for bathrooms, but is less satisfactory for kitchens, where there is the potential for a serious fire in the room in which the vent is located. Undoubtedly, in these cases, the better solution would be to rearrange the ventilation to discharge directly to outside and not via a common duct.

Photograph of a circular intumescent fire grille to be inserted

- 54.30 Again, the difficulties of access to retrofit intumescent fire dampers in an occupied block of flats need to be considered.

55. Means of escape - general

- 55.1 The means of escape in a block of flats can be considered to comprise two distinct, but obviously linked, components:
- i. means of escape from an individual flat, and
 - ii. means of escape from the exit of each flat, using the common horizontal and vertical routes in a building, to a final exit leading to a place of ultimate safety outside.

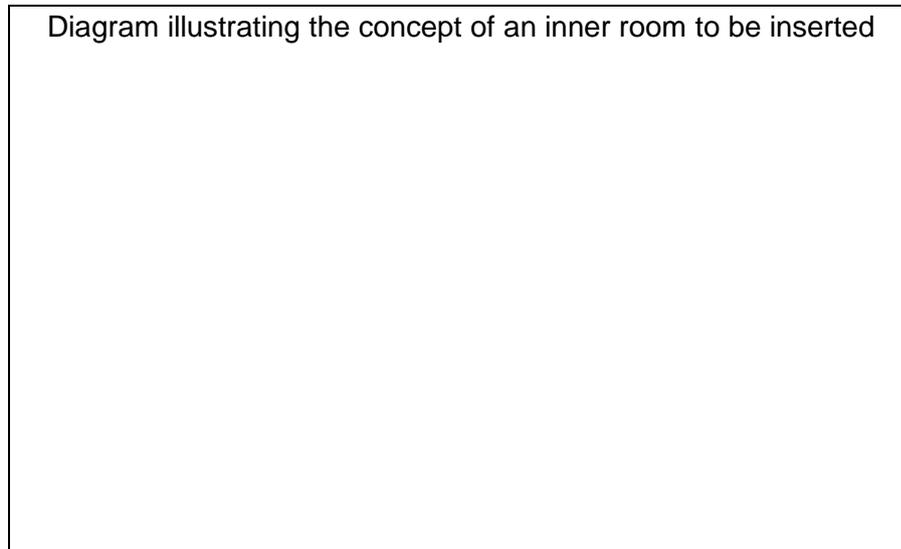
56. Means of escape within the flat

- 56.1 The provision of means of escape from flats is dependent on a number of factors including the height and position of the flat and the number of floors/levels within the flat. Irrespective of the design, size or layout, the important principle to consider is that a fire anywhere within a flat should not prevent the occupants of that flat from escaping unaided to an exit from the flat.
- 56.2 The recommendations in this Part do not apply to ground floor flats entered from outside the building, or for flats situated above the ground floor but with their own entrance at ground level, or a flat on a first floor podium level. In these situations, fire

safety provisions similar to those required for a single family house would be applicable.

Internal layout of flats – Inner rooms

- 56.3 An inner room is a room from which escape is only possible by passing through another room (access room). One of the factors to consider is the provision of inner rooms, which are used as habitable rooms, e.g. a bedroom, living room or dining room. These situations can commonly occur in larger flats and will also occur in open plan layouts and galleries. In addition, it is not uncommon for the occupants of flats to remove internal doors or partitions, thereby creating inner room situations.



- 56.4 In general, any inner room, which is used as a habitable room (other than as a kitchen), should be provided with an alternative exit that leads to a place of safety beyond the flat.

Ground floor flats, basement flats and flats where the floor is no more than 4.5m above ground level

- 56.5 Inner rooms used as a habitable room would be acceptable provided:
- there is a window or door from the inner room, which can be used by the occupants to reach a place of safety, and
 - the door or window is suitable for escape in case of fire.
- 56.6 Any emergency window or door should be fit for purpose, and the residents of the flat should be able to escape unaided using the window or door to reach a place of safety. In circumstances where the residents are elderly, mobility impaired or disabled, they may not be able to use the alternative exit, particularly a window exit, and additional measures may be required or restrictions placed on occupancy.
- 56.7 A specification for an emergency escape window is given in Approved Document B.
- 56.8 Where none of the above arrangements are practicable, as a less preferable alternative, a mains-operated smoke alarm (with a standby supply) should be provided in the access room to warn occupants of the inner room of a fire. However, in this case, the access room should not be a kitchen.

Flats with a floor more than 4.5m above ground level

- 56.9 An inner room should not be used as a habitable room, unless alternative means of escape is provided
- 56.10 An alternative exit should lead to a final exit or the common parts by way of:
- a door to an access corridor, access lobby or common balcony;
 - an internal private stairway leading to another level giving access to one of the above;
 - A door to a common stairway, external stairway or to an escape route over a flat roof.
- 56.11 The provision of alternative exits via linking balconies, pass doors between adjoining flats and break out panels within the flat has featured in previous guidance and can be found in many existing blocks of flats. However, these arrangements are no longer recommended (see later).
- 56.12 Where none of the above arrangements are practicable, as a less preferable alternative, a mains-operated smoke alarm (with a standby supply) should be provided in the access room to warn occupants of the inner room of a fire. However, in this case, the access room should not be a kitchen.

Internal layout of flats – means of escape

a) Flats where the floor is not more than 4.5m above ground or access level

- 56.13 Means of escape from flats where the floor is not more than 4.5m above ground level should be relatively simple to achieve and would be similar to the provisions required for a two-storey house. These include:
- On the ground floor, all habitable rooms should open directly onto a hallway leading to the entrance door or an alternative exit, or be provided with an escape window or door.
 - On the first floor, all habitable rooms should be provided with an alternative exit via an escape window or door, or open directly onto an internal protected stairway leading to an exit.
- 56.14 A single alternative exit can serve two rooms, provided that each room has a door which opens onto the stairway, and that a pass door is provided between the two rooms so that the occupants do not have to pass through the stairway enclosure or inner lobby to reach the alternative.
- 56.15 The provision of alternative exits from each room is a relatively new design principle and there will be many flats where the occupants of habitable rooms may need to access a stairway or inner lobby to reach an exit from the flat. Provided that there are smoke alarms on each level (see later), this arrangement is considered to be acceptable in most circumstances. However, where occupants are considered to be particularly vulnerable to fire, the lounge and kitchen doors should be fire resisting.

b) Flats more than 4.5m above ground or access level with the entrance door on the same level

56.16 There are three commonly acceptable approaches to providing adequate means of escape from flats where all rooms and the entrance door are on a single level. These are:

- i. Limit the travel distance within the flat.
- ii. Provide a protected escape route.
- iii. Provide an alternative exit.

Flats with limited travel distance

Recommendations for flats with limited travel distance:

- The travel distance from any point in a habitable room to the flat entrance door should be limited to 9m.
- Cooking facilities should be remote from the entrance door or be separated by fire-resisting construction.

56.17 The principle underlying the escape strategy is that the travel distance from any point in a habitable room to the flat entrance door is limited, so reducing the chance that residents could become trapped in the event of a fire.

56.18 Slightly increased travel distances of, say, an additional 3m might not require any additional measures. However, another approach, or additional compensatory measures, are likely to be necessary if travel distances in excess of this are involved.

56.19 The acceptability of departures from the benchmark should take account of the individual circumstances in the flat, including social factors and lifestyles of the residents.

56.20 Compensatory measures might include increased levels of automatic detection and/or fire-resisting doors to any kitchen or lounge.

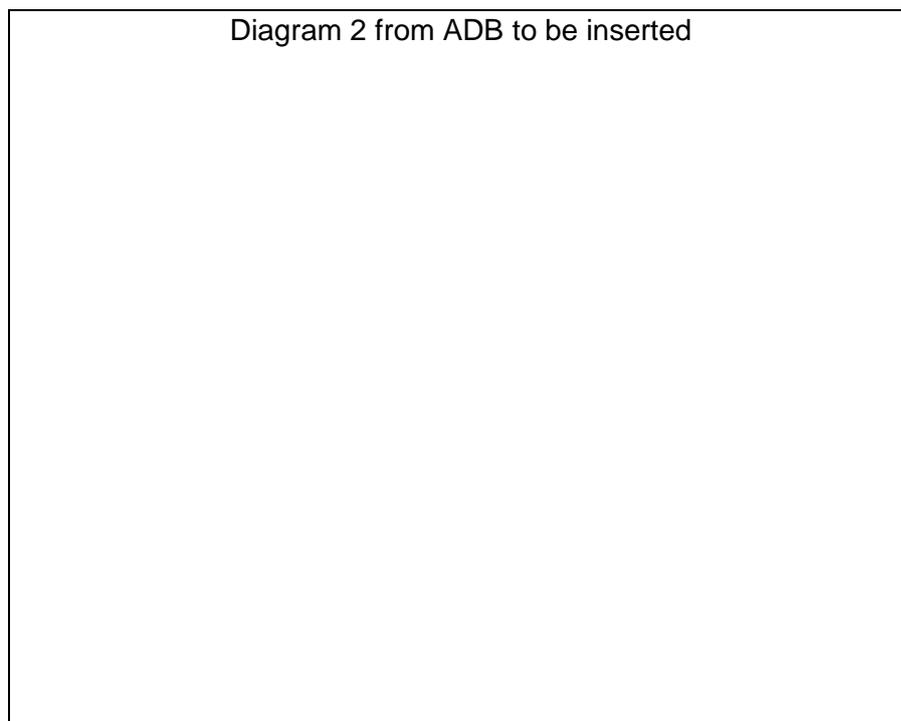
Diagram 3 from ADB to be inserted

Flats with protected entrance hall

Recommendations for flats with protected entrance halls:

- All habitable rooms should open onto the entrance hall.
- The travel distance between a door to a habitable room and the entrance door to the flat should be limited to 9m.
- The entrance hall should be a protected route, with 30 minutes fire-resisting construction and 20 minutes fire-resisting doors.

56.21 The principle underlying the escape strategy is that, as a result of the protected entrance hall, the escape route within the flat will remain relatively smoke free in the early stages of a fire in a room, but, as an additional safeguard, the length of travel in the entrance hall is limited.



56.22 Slightly increased travel distances of, say, an additional 3m might not require any additional measures. However, another approach, or compensatory measures, are likely to be necessary if travel distances in excess of this are involved. For example, automatic detection might be provided in the kitchen and living room. In extreme cases, automatic detection might also be provided in bedrooms.

56.23 In older blocks of flats, it is not unusual to find that only the partitions and doors to kitchens and living rooms are fire resisting (see Appendix 1). Whether there is a need to upgrade doors and partitions in these circumstances will depend on the overall risk.

56.24 For example, this may not be necessary where the travel distance in the entrance hall is no more than 12m and automatic detection is provided in the hallway of the flat. Where the travel distance is in excess of 12m, additional automatic detection should

be installed in the living room and kitchen, and, either all doors onto the hallway should be fire-resisting doors or further automatic detection should be installed to cover all other rooms, including bedrooms (but not toilets and bathrooms).

- 56.25 The fitting of self-closing devices to internal fire-resisting doors opening onto protected entrance halls was a normal requirement of previous benchmark standards. In many cases, in older blocks, these would have been rising butt hinges, which, over the years, have often become ineffective.
- 56.26 The fitting of self-closing devices to internal fire-resisting doors in flats is no longer recommended in the latest guidance to the Building Regulations. This, in part, is in recognition of the fact that many residents remove these devices or hold open doors. The emphasis today is on educating residents to close these doors when people are sleeping.
- 56.27 This then raises the question as to whether or not internal fire-resisting doors that were originally required to have self-closing devices should have these devices reinstated to meet the standard of the day.
- 56.28 In general, it would seem inappropriate to require doors to be self-closing, providing the other current benchmark standards for means of escape can be achieved. However, as a further compensating feature for excessive travel distance, consideration might be given to fitting positive action, self-closing devices to high hazard rooms, e.g. the kitchen and living room, particularly where the latter are closer to the entrance door than the bedrooms.
- 56.29 It is not uncommon to find in some circumstances that residents have either changed internal fire doors to non-fire resisting doors or have removed doors and, in some cases, partitions, altogether. In almost all of these cases, it will be necessary to reinstate the fire doors and partitions to ensure adequate means of escape. This may also be necessary to protect the common means of escape where there is dependence on the protection of the internal hallway to safeguard the communal escape routes. This is discussed in more detail later.

Flats with an alternative exit

Recommendations for flats with alternative exits:

- Alternative exit routes should be available at all times.
- Alternative exits should be remote from the entrance door.
- The alternative exit should lead to a final exit from the building.
- Acceptable alternative exit routes from the flat commonly include a common corridor, lobby or balcony leading to a common stairway.
- Linking balconies or pass doors, in each case, into neighbouring flats should be avoided.

- 56.30 Flats provided with alternative exits should allow access from all habitable rooms to both the main entrance door and an alternative exit. Internal fire-resisting partitions

may be required between living areas and bedrooms particularly where habitable rooms (bedrooms) do not have direct access to the entrance hall.

- 56.31 It is important that any alternative exit is available at all times. The exit should be under the control of the residents.
- 56.32 Alternative exits should be remote from the main entrance door to the flat and lead to a final exit or common stairway by way of:
- a door to an access corridor, access lobby or common balcony;
 - an internal private stairway leading to another level, giving access to one of the above;
 - a door to a common stairway, external stairway or to an escape route over a flat roof.
- 56.33 Escape via linking balconies, or pass doors between neighbouring flats, was a commonly accepted alternative escape arrangement under previous benchmark standards and can be found in many existing blocks of flats. However, these arrangements are no longer recommended in current benchmark standards. In most designs of this type, the linking balcony, and pass doors, were shared by the residents of two adjoining flats. In some other designs, more than two flats shared the linking balcony but, in all cases, there was a need to gain access into a neighbour's flat to reach an alternative exit route.
- 56.34 The difficulties of ensuring access into, and exit from, an adjoining flat to reach an alternative exit are obvious and cannot be relied upon with any degree of certainty to be available at all times.
- 56.35 Despite the above, in many existing flats, the provision of other, more suitable alternative exit routes, such as common balconies or stairways will be impractical to achieve.
- 56.36 In these situations, either one of the other two approaches (limited travel distance or protected entrance hallway) should be adopted, or compensatory measures will need to be considered. The latter include:
- pass doors between internal rooms to access a protected exit route;
 - additional automatic detection to a category LD2 or even LD1 standard;
 - a sprinkler, or other suitable fixed automatic suppression, system.
- 56.37 However, there may be circumstances where, even with these additional measures, the access to the linking balcony or the pass doors might still be retained for use as a last resort.

Diagram 4 from ADB to be inserted

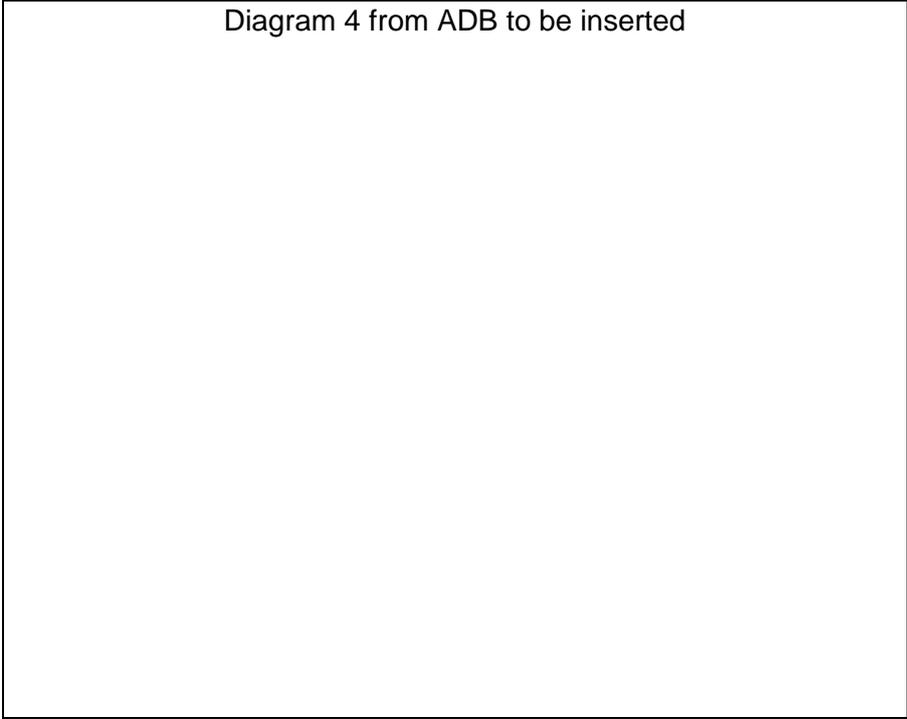
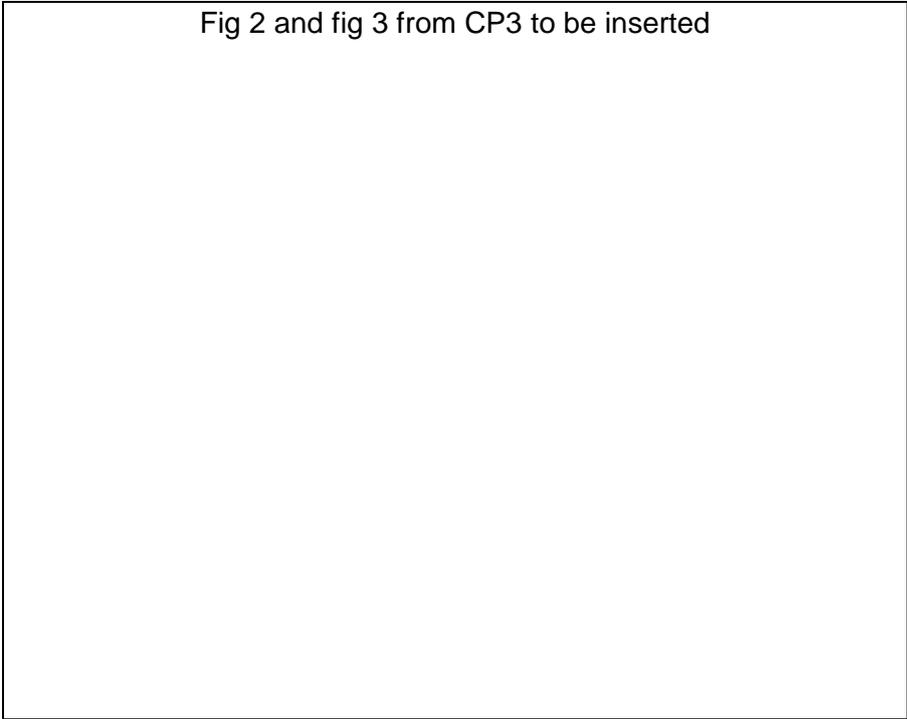


Fig 2 and fig 3 from CP3 to be inserted



c) Flats where all rooms are on one storey – entered from above or below

56.38 Flats where the accommodation is on one level, as detailed above, can also be entered from the floor above or below. In these situations, the access stairway and entrance level should not contain any significant fire hazard.

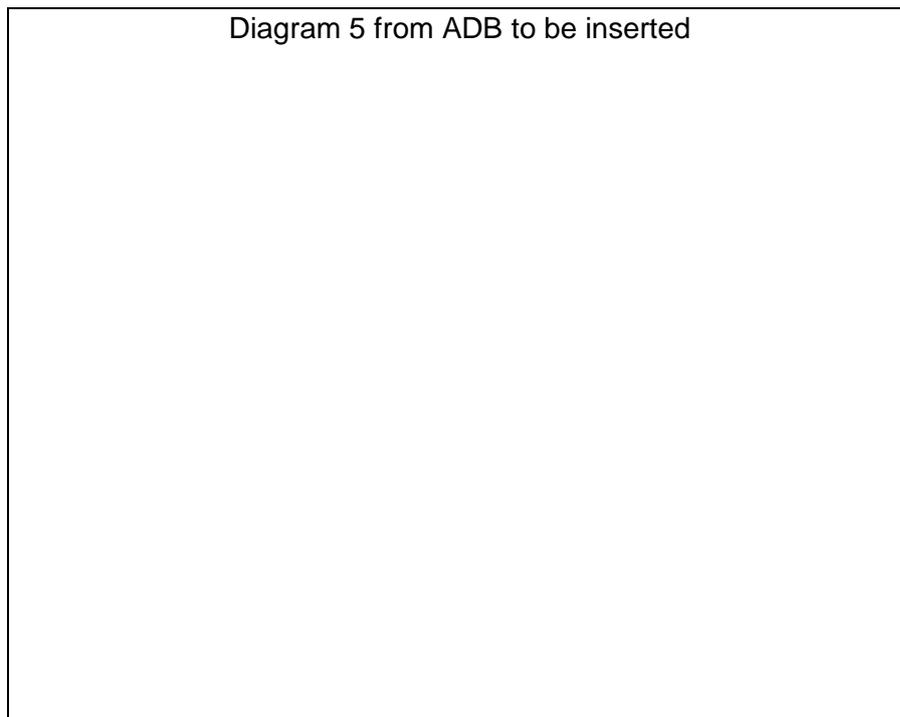
56.39 In these situations the means of escape options are very similar to those described earlier.

d) Flats with more than one storey

- 56.40 The internal means of escape from flats with more than one storey provide slightly different issues from those encountered in flats on one level. Nevertheless, the basic approaches of providing either a protected exit route or an alternative exit remain the same.
- 56.41 A multi-storey flat with an independent external entrance at ground level is similar to a dwelling house and means of escape provisions should be provided accordingly.
- 56.42 The following guidance applies to a flat with more than one storey, with levels above or below the entrance level. It includes, by definition, traditional maisonettes and cross-over flats.
- 56.43 More recent benchmark guidance has recommended four approaches to the planning of means of escape:
- i. Provide an alternative exit from each habitable room, not on the entrance level.
 - ii. Provide a single alternative exit from each level, other than the entrance level, with fire separation and/or a protected landing or hall.
 - iii. Provide a protected route and install additional automatic detection.
 - iv. Provide a protected route and install an automatic suppression system.

Flats with alternative exits (i and ii)

- 56.44 The first solution (i) is that all habitable rooms not on the entrance level should be provided with an alternative exit (see diagram). The stairway landing is not required to be protected in these situations. The entrance hall is only required to be protected if the maximum travel distance from any point in a room to the flat entrance door is more than 9m and there are no alternative exits from each of the rooms on that level.



- 56.45 In an open plan flat, all habitable rooms not on the entrance level would be considered to be inner rooms and there would need to be an alternative exit from each room (see diagram).
- 56.46 The second solution (ii) is to provide a single alternative exit from one or more of the habitable rooms not on the entrance level. This could be accepted in any of the following situations:
- All habitable rooms should open directly onto a protected entrance hall and landing (see diagram), or
 - A fire-resisting partition should be provided at the head or base of the stairway to separate the entrance level from the level with the alternative exit (see diagram) (the landing need not be protected provided the maximum distance between any point in a room on the non-entrance level and the alternative exit does not exceed 9m); or,
 - Pass doors are provided between habitable rooms not on the entrance level so that residents do not have to enter the stairway enclosure to reach an alternative exit (see diagram).
- 56.47 In some existing flats, it may not be possible or practicable to provide a fire-resisting partition to separate the two levels or provide pass doors between rooms or provide a protected stairway. In these situations, an alternative option could be to provide a protected route only on the entrance level and provide additional automatic detection in all hazard rooms on this level (e.g. kitchen and living room). Consideration should also be given to fitting self-closing devices to the fire-resisting doors to these rooms. It is not necessary for there to be a protected landing, provided the maximum distance between any point in a room on the non-entrance level and the alternative exit does not exceed 9m.
- 56.48 Cross-over flats can sometimes present particular problems because of the complexity of design and layout. Cross-over flats are flats on more than one level and the principles set out above can be applied. However, the complexity of this arrangement will require careful consideration of the means of escape, and specialist advice may need to be sought.

Diagram Fig 9 BS 5588-1 to be inserted

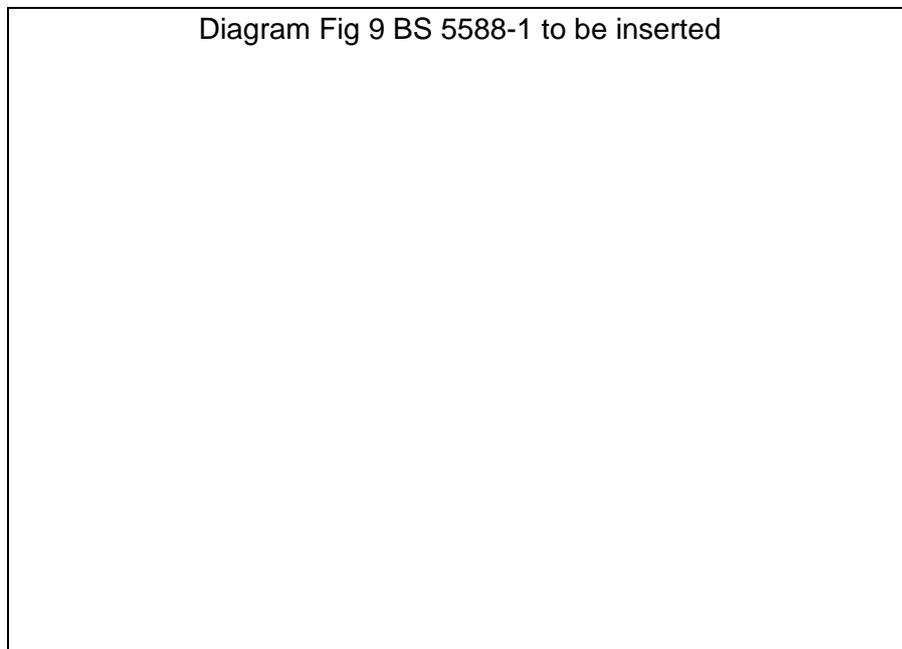
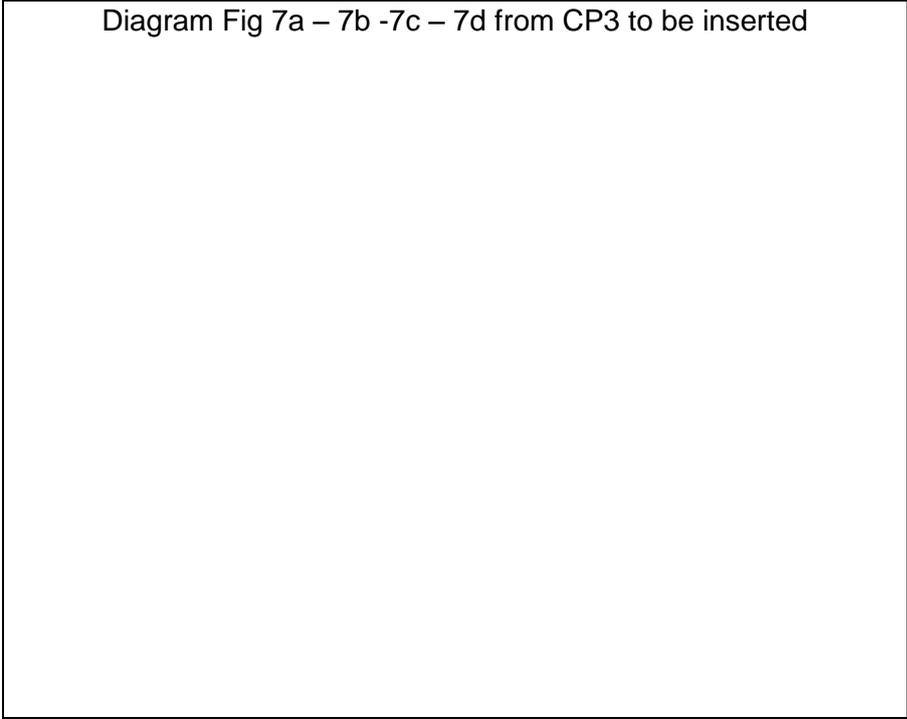


Diagram Fig 10 BS 5588-1 to be inserted

Diagram Fig 11 BS 5588-1 to be inserted

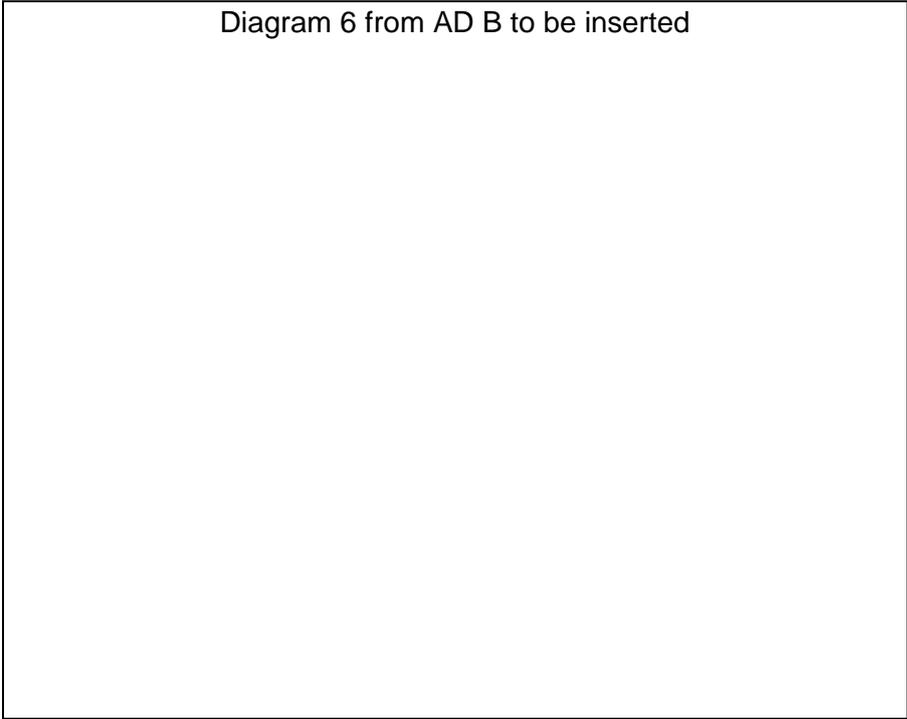
Diagram Fig 7a – 7b -7c – 7d from CP3 to be inserted



Flats with a protected route (iii)

- 56.49 This applies to flats where the vertical distance between the entrance level of the flat and any floors above or below does not exceed 7.5m. The entrance hall, stairway and landing should be a protected route and additional automatic detection, in all rooms (other than toilets or bathrooms), should be provided (a Category LD1 system as defined in BS 5839-6) (see diagram).

Diagram 6 from AD B to be inserted



Flats with a protected route (iv)

- 56.50 Another option for multi-storey flats is to provide a protected route and install an automatic suppression system. The entrance hall, stairway and landing should be a protected route and a domestic sprinkler or water mist system should be installed throughout the flat, together with an automatic detection in the circulation spaces (a Category LD3 system as defined in BS 5839-6).
- 56.51 The travel distances and means of escape provisions specified above are in line with current benchmark standards. However, these should not be considered prescriptive, and the acceptance of slightly increased distances of travel, for example, may be considered appropriate in individual circumstances. This will be particularly relevant in older types of property, where slightly different escape provisions and travel distances may have been used in the original design. In some cases, there might be a need to consider compensatory measures of the type described for single storey flats, e.g. additional automatic fire detection.

57. Escape routes - within the common parts

- 57.1 Escape routes from a flat to ultimate safety outside the building rely on using the common parts. There are two elements to this:
- Horizontal escape from the flat entrance door to a stairway, and
 - Vertical escape via a stairway leading to a final exit.
- 57.2 Adequate levels of fire protection need to be provided to the communal escape routes so that smoke and heat from a fire in a flat or ancillary room will not prejudice use of the corridors, lobbies, external balconies or stairways. This will include provisions to ensure that the common escape routes remain relatively smoke free and safe to use in the event of a fire.
- 57.3 The fire safety measures needed to achieve this will depend on factors such as the number of stairways, the layout and arrangement of individual flats and the normal means of access to the flats.
- 57.4 In general, in existing blocks of flats, to access the flat entrance doors, it is necessary to use either an internal corridor or lobby or an external balcony or deck. The provisions required to safeguard the escape routes in each of these scenarios will vary. The guidance and recommendations on means of escape via the common parts are therefore dealt with separately for flats with:
- i. Internal corridor or lobby approach
 - ii. External balcony or deck approach

58. Escape from flats with internal corridor or lobby approach

- 58.1 Current benchmark guidance recommends two methods of ensuring that the horizontal escape routes can be safely used in the event of a fire. These are:
- Provide protected corridors and lobbies leading to a stairway and place limits on the distance of horizontal travel; or
 - Provide independent alternative escape routes from each flat, either by way of a common internal corridor at another level or by an external common balcony, in both cases leading to a stairway.

Protected corridors or lobbies

- 58.2 The corridors and lobbies used for means of escape need to be protected routes i.e. enclosed in 30 minutes fire-resisting construction. As discussed earlier, walls between flats and the common parts need to be compartment walls and, as such, will provide the necessary fire resistance.
- 58.3 Ancillary rooms, risers and other areas opening onto corridors and lobbies also need to provide this protection.
- 58.4 Doors from these ancillary rooms, as well as flat entrance doors, need to be fire resisting. In all cases of doors opening into internal corridors and lobbies, the benchmark is a door capable of providing 30 minutes fire resistance and, with the exception of risers and ancillary rooms, the doors should be self-closing.

Stairways

- 58.5 Stairways need be enclosed in fire-resisting construction to minimise the risk of flames and smoke entering the stairways while they are being used for escape. Again, the benchmark for doors is that they be capable of providing 30 minutes fire resistance and be self-closing.
- 58.6 Stairways should lead directly to a final exit, or to a protected route leading to a final exit. The stairways should not contain any significant fire hazards and should, ideally, not contain anything other than lifts or protected electrical meter cupboards. Gas installations should not be located within protected stairways.
- 58.7 It is unlikely that the width of stairways will be a significant issue with regard to their use for escape, as there is normally no requirement for simultaneous evacuation of purpose-built blocks of flats. Therefore, the number of people expected to use a stairway in the event of a fire will be limited. Widths of 1,000mm would normally be considered adequate for means of escape in most cases. Indeed, narrower width stairways may well be found in some existing buildings, and even these might be acceptable depending upon the circumstances.
- 58.8 In single stairway buildings, other than in small blocks of flats (less than four storeys), the stairway should not continue down to serve a basement or enclosed car park. In multiple stairway buildings, where the stairways serve basements and car parks, one of the stairways should be terminated at ground level. Other stairways may extend to serve basements and corridors, providing they have lobby or corridor protection.
- 58.9 Except in small blocks of flats, a single stairway should not serve any covered car park, boiler room, fuel storage room or other similar high risk ancillary rooms. In multiple stairway blocks of flats, the ancillary rooms should be separated from the stairways by a protected lobby or corridor.

Smoke Control

- 58.10 Both current guidance and previous national standards for purpose-built blocks of flats recommend that measures be provided to ensure that escape routes remain free of smoke. However, different approaches have been employed in order to achieve this, and, indeed, the philosophy behind smoke control design has changed over the years.

- 58.11 The current benchmark standard is based on using smoke control to protect the common stairways. While this might afford some protection to the corridors and other horizontal routes, this is not the design intent. The emphasis in previous design guidance has been on protecting not only the stairways, but also the entire horizontal route to them.
- 58.12 The current approach is that of containment of smoke, along with ventilation of lobbies and/or corridors where they adjoin a stairway. That ventilation can be achieved by natural or mechanical means.
- 58.13 Natural ventilation, either direct to open air or via smoke shafts that rise up through the building, involves the provision of vents or windows, usually of minimum free area of 1.5m². These can be permanently open vents (PVs), as recommended in some previous design guides, manually openable vents (OVs) or automatically opening vents (AOVs), the latter operated by smoke detectors provided specifically for this purpose. The method of operation employed is dependent on the design of the block of flats.
- 58.14 Current guidance states that lobbies or corridors adjoining single stairways should be operated automatically (AOVs). In multiple stairway blocks, manually openable vents will suffice.
- 58.15 Protected stairways also need means to ventilate any smoke that may enter the stairway during evacuation or fire fighting and allow a route for air to reach ventilated lobbies and corridors. A vent of at least 1m² needs to be provided at the head of the stairway for this. Current guidance states that, in blocks of flats with more than one escape stairway, this vent can be opened manually, but, in blocks of flats with a single stairway, it is recommended that the vent is operated automatically (an AOV).
- 58.16 Mechanical ventilation systems can achieve the same objective in protecting a stairway and, in some respects, more effectively, given that they are less influenced by wind effects. These usually comprise pressurisation systems to keep smoke out of the stairway.
- 58.17 A further part of the containment principle is the subdivision of corridors linking stairways and the separation of any dead end sections from the rest of the corridor. This is to ensure that smoke will not affect access to more than one stairway or, in the case of the dead ends, affect access to the nearest stairway.

Surface finishes in common escape routes

- 58.18 The surface finishes of walls and ceilings in escape corridors, lobbies and stairways can significantly affect the rate of fire spread and contribute to the development of a fire. It is, therefore, important to control the fire performance of linings within the common parts.
- 58.19 Combustible surface finishes should not be permitted in escape corridors, lobbies or stairways. Products and materials that will afford a Class 0 performance are normally necessary for use in the common areas of blocks of flats. This is a classification defined in Approved Document B.

- 58.20 In general, where a wall or ceiling is constructed of non-combustible materials, such as masonry, brick, concrete or plasterboard, or has plaster finishes, the fire performance characteristics will be acceptable in the common escape routes.
- 58.21 However, in existing blocks of flats, it is often difficult to identify the classification of existing surface finishes, particularly if the materials used are not obvious. Even those finishes normally considered acceptable may have been subject to many instances of over-painting. This can affect their performance when exposed to fire.
- 58.22 Multiple layers of paint have, over the years, been applied to walls and ceilings in the common parts of blocks of flats. The build up of paint layers can give rise to rapid fire spread. In these situations, where the risk is considered significant, action should be taken to remove or treat the paint. Proprietary products are available that can be used to treat the surfaces in order to provide a protective outer coating that will reduce the extent of fire spread. Treatments are also available for timber linings.
- 58.23 False ceilings can sometimes be found in the common corridors and lobbies of blocks of flats. These ceilings can be provided as a decorative finish or are sometimes used to enclose services, such as pipes and cables, which are run in the common parts. The materials used to construct the ceilings and the surface finishes should preferably be non combustible or, at least, Class 0. There should be little or no additional fire hazards within the false ceilings. On this basis, there may not be a need for cavity barriers to sub-divide the voids, but this would need to be considered in each circumstance.

Benchmark guidance

- 58.24 The following reflects the current benchmark guidance for both single and multiple stairway blocks of flats with corridor or lobby access.

Flats served by a single escape stairway

Flats with a single escape route from a flat entrance door to the stairway:

- Every flat should be separated from the common escape stairway by a protected corridor or lobby.
- The distance of travel between the flat entrance door and the door to a lobby or stairway should be limited to 7.5m.
- Smoke control should be provided by natural or mechanical ventilation in the lobby or corridor adjacent the stairway.
- The smoke vents on the fire floor and the vent at the head of the stairway should be operated automatically by means of smoke detectors in the common access corridor or lobby to the flats.

Diagram based on diagram 7 AD B a) and b) to be inserted

Small single stairway buildings

58.25 Where a single stairway building is small, relaxations in the provisions apply, providing:

- The top floor of the building is no more than 11m above ground level.
- There are no more than three storeys above the ground level storey.
- The stairway does not connect to a covered car park.
- The stairway does not serve ancillary accommodation, unless the ancillary accommodation is separated from the stairway by a protected lobby or corridor with a permanent natural vent or ventilation by a mechanical smoke control system.
- There is an openable vent provided on each floor level for use by the fire and rescue service, or alternatively, there is a remotely operated vent at the head of the stairway.

In these situations, a single escape route is acceptable providing:

- Every flat is separated from the common escape stairway by a protected corridor or lobby.
- The distance of travel from flat entrance doors to the stairway should be limited to 4.5m. If smoke control is provided in the lobby, the travel distance can be increased to 7.5m.
- In single stairway buildings with only two flats per floor, the lobby between the stairway and the flats is not essential, providing the flats have protected entrance halls. In these circumstances, the vent at the head of the stairway should be an AOV operated by smoke detectors.

Diagram 9 AD B a) small flats to be inserted

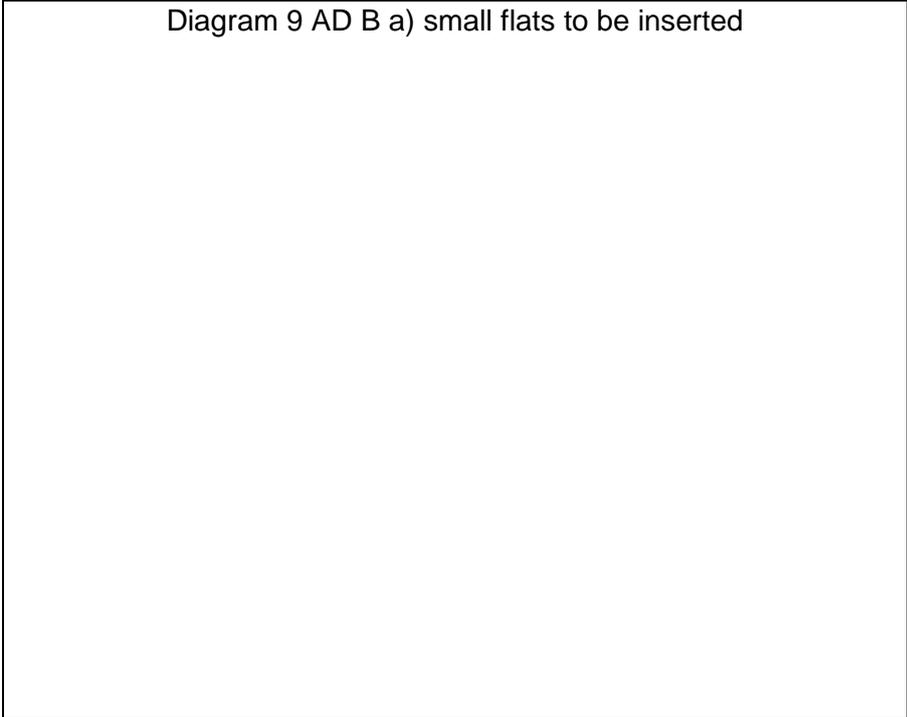
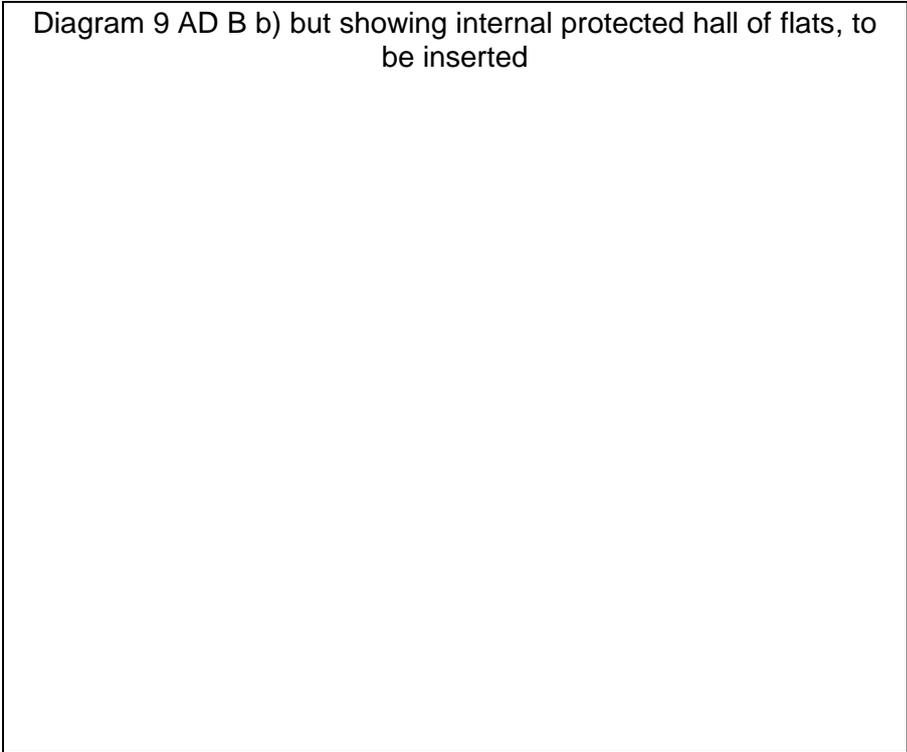


Diagram 9 AD B b) but showing internal protected hall of flats, to be inserted



Flats with more than one escape stairway

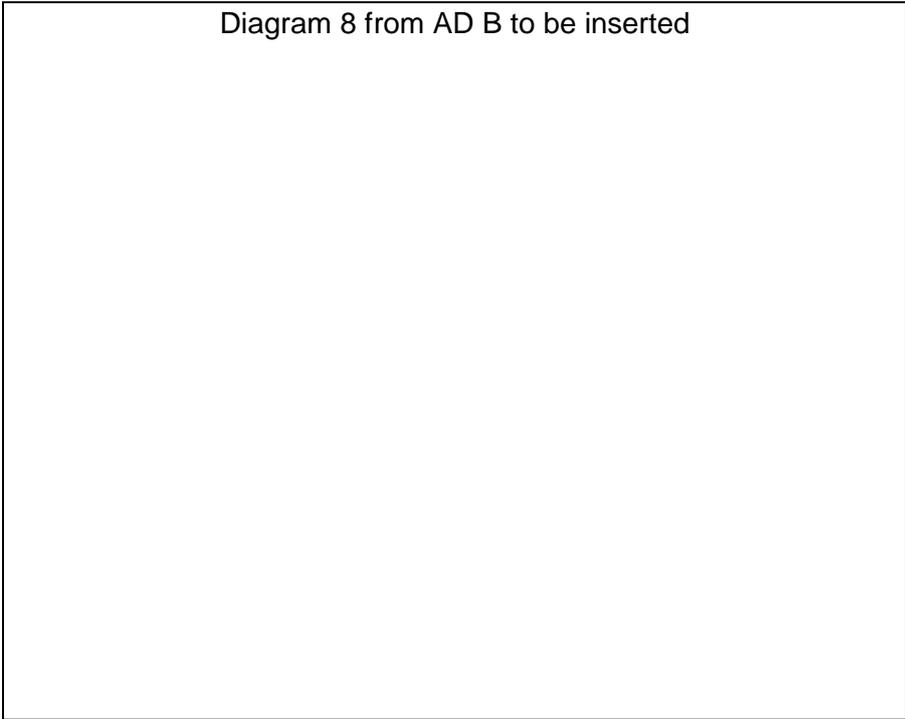
Flats with more than one common escape stairway and alternative routes from the flat entrance door to a stairway:

- Every flat should be separated from each common escape stairway by a protected corridor or lobby.
- The travel distance for escape in more than one direction, from a flat entrance door to the door to the nearest stairway or lobby should be limited to 30m.

- A common corridor that connects two or more escape stairways should be subdivided by a self closing fire-resisting door to ensure smoke will not affect access to more than one stairway. This door can be omitted if the maximum travel distance from a flat entrance door to a stairway or lobby is not more than 15m.
- Any dead-end section of an access corridor should be separated from the rest of the corridor by a self-closing fire resisting door. The single direction of travel in the dead-end section of corridor should be limited to 7.5m.
- Smoke control by natural or mechanical ventilation should be provided in the lobby or the corridor adjacent the stairway to protect the stairway.
- An openable vent should be provided at the head of the stairway.

58.26 In flats with both single and multiple escape stairways, where all flats on a storey have independent alternative means of escape leading to an access corridor or access lobby at another level, the maximum distances of travel specified above do not apply. In these situations, the distances specified for fire and rescue service access detailed later will apply.

Diagram 8 from AD B to be inserted

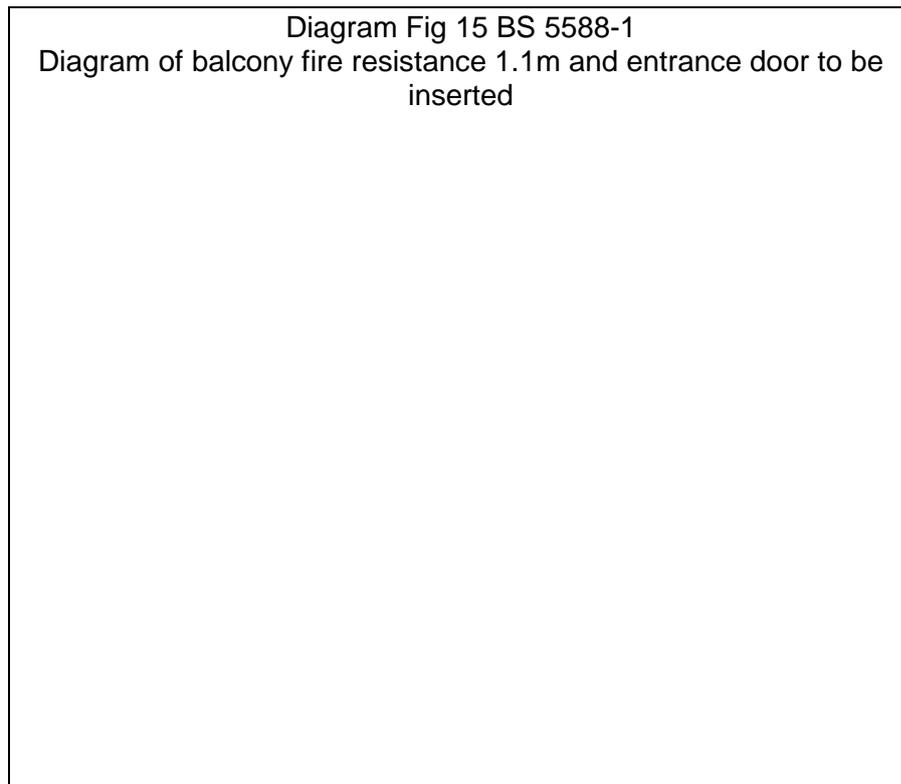


59. Escape from flats with external balcony or deck access approach

- 59.1 If the width of the access balconies or deck is less than 2m, it can be assumed that there is little risk of horizontal smoke spread along the balcony or deck, from a fire in a flat, that would prevent residents from using the escape route. There is, however, some potential for smoke spread along balconies or decks wider than 2m. In these situations, downstands may need to be considered to restrict the lateral spread of smoke along the balcony or deck.
- 59.2 There should be no additional fire hazards, such as stores or other ancillary rooms, located off the balcony or deck.
- 59.3 There are no limitations on travel distance in the common escape routes for flats with external balcony or deck approach. However, the distances specified for fire-fighting access later will apply; all areas of a flat should be within 45m of the fire-fighting

vehicle access point, or within 45m of a landing valve of a dry rising main (60m when the landing valve is in a fire-fighting shaft).

- 59.4 In blocks of flats where there is alternative escape available from each flat entrance along the open balcony or deck to two or more escape stairways, the separating walls between the flats and access balcony/deck and the flat entrance doors are not required to be fire resisting.
- 59.5 In flats with a single direction of escape to a single escape stairway, the separating walls between the flats and the balcony/deck should be fire resisting up to a height of 1.1m from balcony/deck level. The flat entrance doors in these situations should be self-closing 20 minutes fire-resisting doors.
- 59.6 This will allow residents, if they wish, to pass a fire in an adjoining flat to reach the stairway. In flats with alternative independent escape to another balcony/deck on the same level, which leads back to the single stairway, only one of the enclosures between the flats and the balcony needs to be fire resisting.



60. Blocks of flats that do not meet the benchmarks for means of escape

- 60.1 Although the above benchmarks reflect current standards, many existing blocks of flats, designed to earlier guidance, will not comply with these benchmarks. However, as stated earlier, current guidance is not intended to be applied retrospectively.
- 60.2 Existing blocks of flats may have significantly increased travel distances, there may be no corridor or lobby protection to the stairways, and smoke control arrangements may be non-existent or differ from what is acceptable today. The latter will be particularly relevant in blocks of flats designed on the principles of smoke dispersal where increased travel distances were permitted. Also, the requirement for lobby protection in single stairway blocks of flats was also different in earlier guidance, with

flats in some blocks over four storeys in height opening directly on to the stairways and the number of flats per floor exceeding current recommendations.

- 60.3 In these circumstances, upgrading to current standards, although ideal, may not be possible, due to the physical constraints in the building, or justifiable on the basis of risk.
- 60.4 In these situations, therefore, there will be a need to consider the overall risk. The decision making process described earlier (see Figure X) involves assessing the situation found in a building and determining whether, if the means of escape were to comply with the standard of the day when the block was built, the risk would still be acceptable. This process will identify where the means of escape in a building are far removed from what is acceptable today.
- 60.5 In some buildings, restoring the block back to the standard of the day might be all that is needed. In others, compensatory measures, such as increased levels of fire protection, provision of smoke control or installation of an automatic detection and alarm system, might need to be considered. However, the provision of a fire detection and alarm system in a purpose-built block of flats should only be considered as a last resort where a significant risk exists and the standards of compartmentation and means of escape differ significantly from what is considered acceptable today.
- 60.6 Factors to consider when assessing whether the existing means of escape are adequate include:
- The nature of the building's construction.
 - The standard of compartmentation.
 - The height of the building.
 - The number of flats per floor.
- 60.7 The acceptance of standards in existing blocks of flats, where they significantly differ from current benchmark standards should be subject to careful scrutiny. This may require assessment by a suitable specialist. However, the following guidance is intended for use when considering means of escape in existing blocks of flats that do not comply with current standards.
- 60.8 The following scenarios are considered:
- Blocks of flats in which the travel distance is greater than current benchmark standards.
 - Blocks of flats in which the flats open directly onto a stairway and not through a lobby.
 - Blocks of flats in which the smoke control arrangements are unsatisfactory.
 - Blocks of flats in which fire-resisting doors do not meet current benchmark standards.

Travel distance

- 60.9 The travel distances specified earlier are, to a large extent, arbitrary, and different limits have applied in the past (see Appendix 1). Accordingly, they should not be seen as prescriptive, and the acceptance of increased distances of travel may be considered appropriate in individual circumstances. This will be particularly relevant

in older types of property, where there will be little scope to reduce the existing travel distances or provide alternative means of escape.

- 60.10 Small increases in travel distance can be accepted in most situations without any additional measures.
- 60.11 Acceptance of significant increases in travel distance should be subject to careful scrutiny and may require advice from specialists. In these cases, additional measures may need to be considered, such as additional cross-corridor doors to restrict smoke spread, improvements to the smoke control arrangements and, in unusual cases, possibly automatic fire detection. Additional measures will almost certainly need to be considered in blocks of flats designed on smoke dispersal principles, as the travel distances involved in the blocks can often greatly exceed those of blocks designed on the basis of smoke containment.
- 60.12 The possible approach to this situation when found in existing buildings is as follows.

Blocks of flats (corridor/lobby approach) with increased travel distances - single direction escape:

- Increases from the 4.5m limit to 6m in unventilated lobbies are likely to be acceptable in most situations with no additional measures. Increase beyond this will require additional measures, such as 'upgraded FD30S' doors (see later), smoke control or automatic fire detection.
- In ventilated lobbies/corridors, increases from 7.5m up to 10m are likely to be acceptable in most situations with no additional measures, but with either OVs, AOVs or PVs present as required by the benchmark standard of the day.
- Travel distances of 10-15m may be acceptable, providing all doors to the common corridor/lobby are, at least, 'upgraded FD30S' doors (see later) and there is a means of smoke ventilation in the corridor/lobby (PV or AOV).
- Travel distances over 15m are likely to be unusual, and cannot be considered acceptable without additional measures, which might include 'replacement FD30S' doors, improved smoke control and/or automatic fire detection. The advice of specialists will be necessary.

Blocks of flats (corridor/lobby approach) with increased travel distances - escape in two directions:

- Travel distances increased from 30m to 40m (e.g. resulting from a change from smoke dispersal to smoke containment) should be acceptable in most situations without the need for additional measures.
- Travel distances in excess of 40m will only be acceptable with additional measures, which might include 'replacement FD30S' doors, improved smoke control and/or automatic fire detection. The advice of specialists will be necessary.

Flats opening directly onto stairways

- 60.13 As indicated in Appendix 1, previous regulations and guidance have permitted flats to open directly onto stairways above the limits in height currently considered acceptable in today's benchmark standards. The introduction of lobbies in these buildings is not a realistic proposition. The possible approach to this situation when found in existing buildings is as follows.

Blocks of flats (corridor/lobby approach) with flats opening directly on to a single stairway:

- Blocks up to four storeys in height, with any number of flats per floor opening directly on to the common stairways, should be acceptable in most situations, provided the stairway has openable windows or vents.
- Flats up to six storeys in height, with any number of flats per floor opening directly on to the common stairways, should be acceptable providing the walls enclosing the stairway are 60 minutes fire-resisting, flat entrance doors are at least 'upgraded FD30S' doors and the stairway has openable windows or vents. Within flats there should be internal entrance halls protected with fire-resisting doors to at least the hazard rooms (kitchen and lounge), but not necessarily bedrooms.
- Flats over six storeys opening directly on to the common stairways should not be accepted without additional measures, which might include 'replacement FD30S' front doors, fully protected entrance hall and/or automatic fire detection. The advice of specialists will be necessary.

Smoke control

- 60.14 Although there have been changes in smoke control design, it is still appropriate, when assessing an existing building's smoke control arrangements, to review these in the light of the standards that were in place at the time the block was built. The approach of at least ensuring that what is there continues to work as originally intended must be the starting point before considering the need to improve the arrangements.
- 60.15 However, an example of where the previous benchmark standard is so far removed from what is acceptable today is in relation to smoke dispersal.
- 60.16 Smoke dispersal was a method frequently used in an endeavour to keep corridors and circulation routes free of smoke. This principle used the natural air movement in and around buildings to disperse and dilute any smoke that made its way into the common parts. It typically required permanently open vents (PVs) at each end of corridors to create a through draught of air to carry the smoke away. In these designs, there were no cross-corridor doors, and increased travel distances of up to 15m in a single direction and 40m in two directions were accepted.
- 60.17 However, smoke dispersal has proved to be very unreliable for a number of reasons, and is no longer seen as an accepted method of smoke control. In existing blocks of flats with smoke dispersal, action should be taken to review both the smoke control arrangements and the existing travel distance. The advice of specialists may need to be sought.
- 60.18 Three commonly found situations, in which there are inadequate smoke control provisions, are discussed below.

Blocks of flats with inadequate smoke control provisions:

- In single stairway blocks with no means of ventilation in the access corridor/lobby and a travel distance over 6m, if smoke ventilation is considered necessary, ideally it should be provided in the corridor/lobby. If this is not feasible, smoke ventilation should be provided in the stairways (e.g. an opening vent on each landing). In

blocks over six storeys, consideration should be given to using AOVs or PVs in the stairways instead of OVs.

- In blocks of flats designed with corridor smoke dispersal systems, consideration should be given to providing cross-corridor doors to change to a smoke containment approach, but maintain the OVs/PVs to ventilate the sections of corridor remaining. Advice from a specialist should be sought if smoke dispersal is present in single stairway buildings.
- In blocks in which flats open directly onto a single stairway, and only manually opening vents or windows are provided in the stairway, this might be acceptable for blocks up to six storeys in height, but AOVs should be provided in blocks over six storeys.

Fire-resisting doors

- 60.19 Fire-resisting doors have an important role to play in the protection of both internal escape routes in flats and the protection to common corridors, lobbies and stairways from the flat entrance door to the final exit. Suitably constructed, well-fitting fire doors are required to restrict the spread of fire and smoke, and to protect escape routes for a specified period of time.
- 60.20 As stated earlier, under current guidance, doors forming part of the protected entrance halls and stairways within flats are normally specified as 20 minutes fire-resisting doors (designated FD20 in current benchmark standards). Similarly, doors forming part of the protected escape route from the flat entrance door to the final exit, including the flat entrance door itself, are normally specified as 30 minutes fire-resisting doors with smoke seals (designated FD30S in current benchmark standards).
- 60.21 While the performance of any new or replacement doors within an existing block of flats should meet current standards for fire-resisting doors (BS 476-22 or BS EN 1634 parts 1, 2 and 3), it does not follow that existing doors in older blocks should be expected to achieve this level of performance. Indeed, they will not.
- 60.22 There are many different types and designs of fire-resisting doors to be found in existing blocks of flats, particularly flat entrance doors. At the time they were fitted, the vast majority of these doors would have complied with the standard of the day for a 20 or 30 minute fire-resisting door. In addition, many of these doors have performed satisfactorily in a fire situation and, it could be argued, will continue to do so, providing they remain in good condition.
- 60.23 Original timber fire-resisting doors fitted prior to 1972 would have a different appearance to today's fire-resisting doors. A modern fire-resisting door has intumescent strips and cold smoke seals fitted along its side and top edges (or within the frame in these locations), letter boxes would be of a type incorporating intumescent materials to protect the opening and the door would be fitted with an overhead self-closing device or a concealed closer in the door jamb. The doorset, the complete entity incorporating door hardware and furniture, would be tested for its performance as a whole.

Fig 65 from CLG sleeping accommodation guide to be inserted here

- 60.24 Original flat entrance doors will lack intumescent strips and cold smoke seals and will not have protected letterboxes. There will have been reliance on 25mm door stops to achieve 'smoke control'. (Subsequent research showed that increasing the size of the doorstop does not provide the benefit previously anticipated.) Where older doors were self-closing, this is likely to have been achieved by using rising butt hinges which are unlikely to be effective today.
- 60.25 Upgrading existing doors simply because they are not fitted with intumescent strips or smoke seals, or fail to meet some other requirement of current benchmark standards, should not be made a generic recommendation applicable to all existing blocks of flats. Similarly, upgrading existing letterboxes in flat entrance doors to meet current standards is not always necessary; this will be dependent on the location of the letterbox in the door, the location of the flat within the block, and the construction of the letterbox. However, any new letterboxes that are fitted should be of the protected type e.g. lined with intumescent material to seal the opening when exposed to fire.
- 60.26 Three options exist in relation to doors that do not meet current benchmark standards:
- i. Accept the door as it is, provided it fits in its frame ('notional FD30' door).
 - ii. Upgrade the door by, for example, fitting intumescent strips and smoke seals along the edges, and fitting a protected letter box ('upgraded FD30S' door).
 - iii. Replace the door with one certificated as achieving 30 minutes fire resistance ('replacement FD30S' door).
- 60.27 An upgraded FD30S door cannot be guaranteed to achieve the same performance as a replacement FD30S door. This is to be expected and is reasonable provided that the door has sufficient thickness of timber (e.g. 44mm). Simply fitting intumescent strips and smoke seals to a thin door or one with panels will not render it

suitably fire-resisting. Specialist advice may need to be sought in order to make an assessment of the likely benefits of upgrading existing doors.

- 60.28 The decision as to whether or not an existing fire-resisting door is satisfactory in any particular situation will be partly subjective; it will not be practicable to test existing doors to confirm their actual fire resistance.
- 60.29 It is essential that, irrespective of which option is chosen, fire-resisting flat entrance doors, and doors provided to protect common corridors, lobbies and stairways, should be fitted with suitable positive action self-closing devices. The self-closing device should be capable of closing the door in its frame from any angle and overcoming the resistance of any latch.
- 60.30 Rising butt hinges used to be acceptable under previous benchmark guidance, but are no longer considered suitable devices. Replacement will always be justifiable.
- 60.31 The fitting of suitable self-closing devices, whether to replace rising butt hinges or because the doors are not fitted with self-closing devices, **must** be undertaken in the short term as a matter of priority.
- 60.32 In many existing blocks of flats, it might be acceptable, due to the overall risk, to accept the existing fire-resisting doors and not replace or upgrade the doors as a matter of course. For this to be the case, any existing fire-resisting door will need to be well fitting in its frame and be in good condition. In addition, although it may be appropriate to upgrade or replace doors, this will not necessarily mean that this work has always to be undertaken as a matter of urgency; in many blocks of flats, the upgrading/ replacement of doors can be part of a long term programme (e.g. over a five year period).
- 60.33 The following is guidance only and will be dependent on the specific circumstances in a block. It refers to flat entrance doors, but a similar approach could be undertaken when considering stairway doors.

External balcony or deck access – single stairway and/or within a dead end with acceptable travel distances:

- The benchmark is an FD20 door.
- Existing doors that are notionally fire resisting (20 minutes) should be acceptable.
- Fitting of intumescent strips and smoke seals is not essential.
- Glazing in the door above 1.1m is not required to be fire resisting.
- A fire-resisting letterbox is not essential.
- The door must be fitted with a positive action self-closing device.

Corridor/lobby access – single stairway with acceptable travel distance:

- 'Notional FD30' doors should be acceptable for blocks up to six storeys in height.
- Above six storeys (but no more than 30m) in height, doors should be at least 'upgraded FD30S'.
- Over 30m in height, doors should be 'replacement FD30S'.

Single stairway with acceptable travel distance, but doors opening directly onto the stairway:

- Up to four storeys in height, 'notional FD30' doors should be acceptable.
- Doors should be at least 'upgraded FD30S' for blocks over four storeys in height.
- Doors opening directly on to stairways, over six storeys in height should be 'replacement FD30S'.

Corridor/lobby access – multiple stairways with acceptable travel distance:

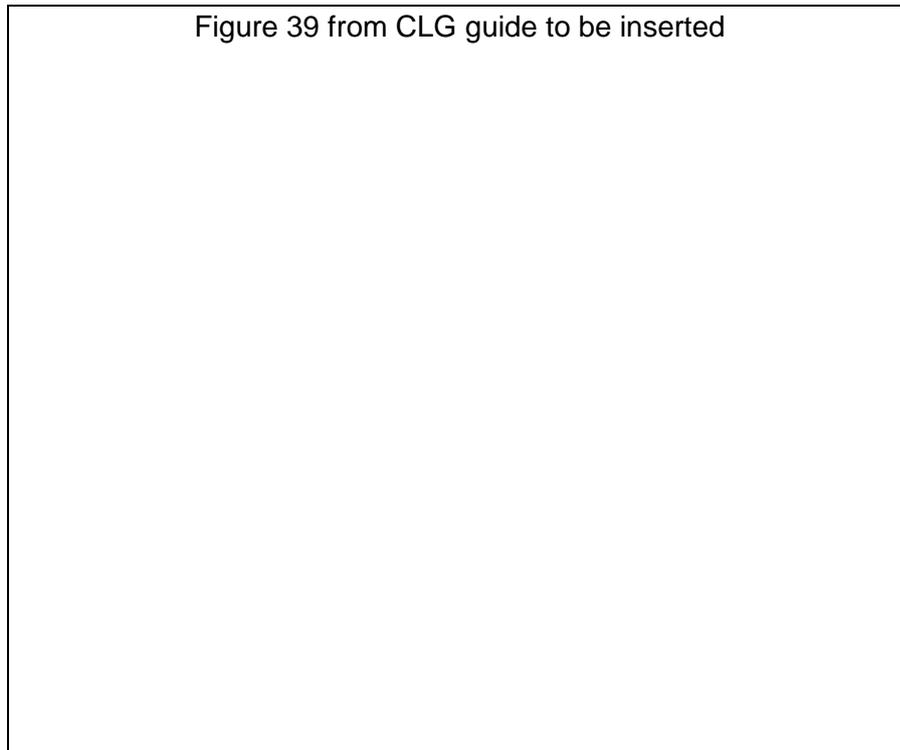
- Blocks up to six storeys in height, 'notional FD30' doors should be acceptable.
- Over six storeys in height, doors should be 'upgraded FD30S'.

61. External stairways

61.1 Current guidance is that external stairways should be limited to serve a floor not more than 6m above ground level. However, in existing blocks of flats, there may be external stairways over this height, and it would be unreasonable not to continue to rely upon them simply because of this height limitation.

61.2 In these situations, it should be ensured that the stairway remains safe to use at all times in the event of a fire. External stairways need to be protected from a fire in the building by means of fire-resisting partitions, fire-resisting glazing and self-closing fire-resisting doors.

Figure 39 from CLG guide to be inserted



62. Escape routes over flat roofs

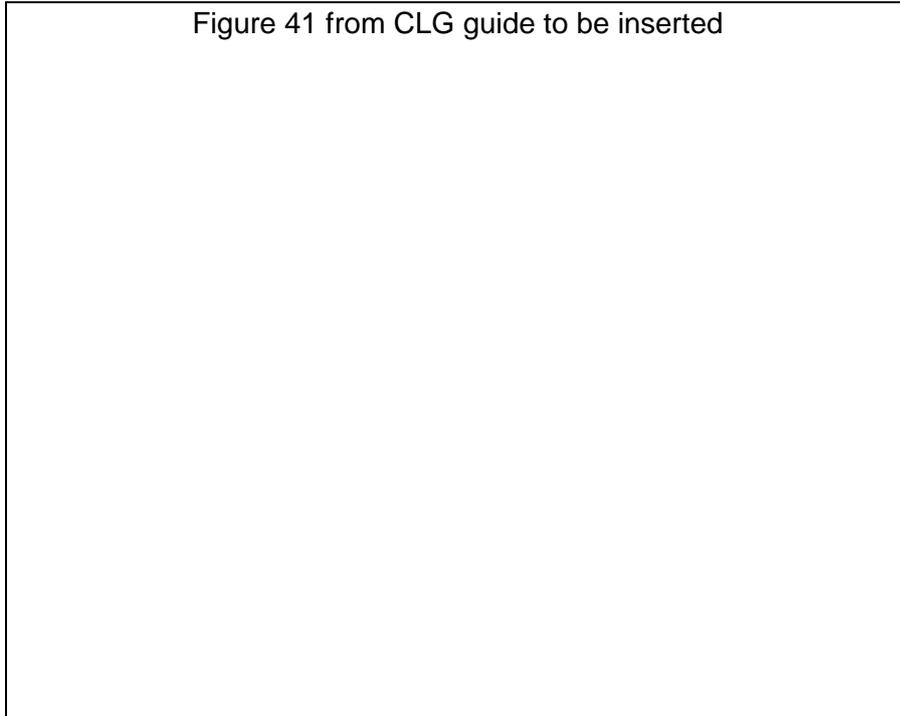
62.1 Current guidance recommends that, if more than one escape route is available from a storey, one of the routes may be by way of a flat roof.

62.2 Not only do some existing blocks of flats utilise escape across a flat roof, there are some in which upward escape is necessary to reach the flat roof. In these situations, fire-resisting doors need to be provided across the stairways to separate the route down from the route up.

62.3 If escape across a flat roof is encountered, it should be ensured that:

- The route across the flat roof leads to a protected escape stairway (which may be in an adjoining building) or leads to an external stairway.
- Both buildings and/or stairways are under the same control of the landlord/owner, or, alternatively, there are legal agreements in place to ensure right of access to use the route.
- The route across the roof is adequately defined and guarded.
- There is adequate emergency lighting and signage as necessary.
- The part of the roof forming the escape route and its supporting structure is fire resisting.

Figure 41 from CLG guide to be inserted



63. Fire safety signs

63.1 The normal access and egress routes within a block of flats do not usually require fire exit signs to assist residents and visitors to make their way out of the building in the event of fire. The provision of unnecessary signage should be minimized to avoid an institutional ambience.

63.2 Flats with a single stair, regardless of the number of floors, would, for example, not usually require any fire exit signage, as the means of escape would be via the normal access and egress routes and therefore obvious to residents and visitors.

63.3 Fire exit signage may be required in circumstances where there are alternative exit routes, secondary exits by way of an external stair or across a flat roof, or where there is any potential for confusion.

- 63.4 In general, 'Fire Door Keep Locked Shut' signs should be provided on the external face of doors to store rooms, electrical equipment cupboards and any ancillary rooms located within the common parts.
- 63.5 In general, 'Fire Door Keep Shut' signs should be provided on both faces of fire-resisting doors forming part of the protection to the common escape routes and on cross-corridor fire doors. However, this does not apply to flat entrance doors. (In the unusual case of fire doors that are held open, but release on operation of the fire alarm system, the signs should read 'Automatic Fire Door Keep Clear').
- 63.6 Other signage that may be considered includes:
- Signs advising residents not to use lifts in the event of fire.
 - No smoking signs.
 - Simple fire procedure notices for residents.
- 63.7 Where fire exit signs are provided, they should satisfy the requirements of BS 5499-5 and be installed in accordance with the recommendations of BS 5499-4. It should be noted that, for compliance with the Health and Safety (Safety Signs and Signals) Regulations 1996, any fire exit sign should incorporate the "running man" pictogram.

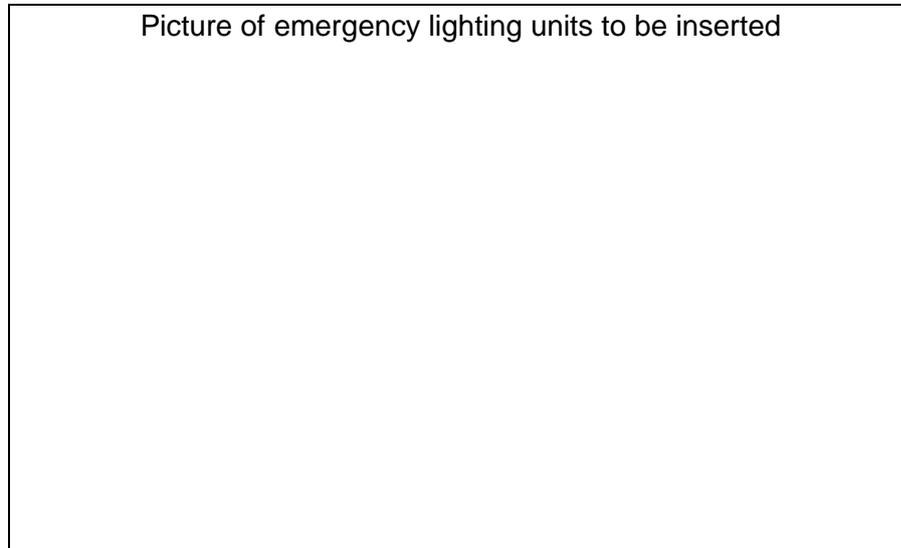
Pictures of fire exit signs – Door signs to be inserted

64. Lighting on escape routes

- 64.1 Adequate artificial lighting and, where necessary, emergency escape lighting should be provided in common escape routes, such as corridors, lobbies and stairways, to enable residents and visitors to make their way safely out of the building.
- 64.2 Artificial lighting will be provided by the normal electrical lighting in the common parts and, in small blocks of flats, can sometimes be operated by normal light switches or by light or motion sensors.
- 64.3 Emergency escape lighting is designed to operate when part or all of the normal lighting has failed as the result of fire damage to normal lighting circuits. Other than in small blocks of flats of no more than two storeys, with adequate levels of natural or street lighting (borrowed lighting), emergency escape lighting should be provided within all common escape routes, including, where necessary, external stairways, balconies and roof level escape routes. Where borrowed lighting is not reliable, e.g. street lighting switched off during part of the night, emergency escape lighting may be required even in two storey blocks.
- 64.4 Emergency escape lighting was not normally required in the common parts of blocks of flats until the Building Regulations 1991 came into force in 1992. However, in blocks built in accordance with the 1962 or 1971 versions of CP3 Chapter IV Part 1, (see Appendix 1), the corridor and staircase lights were served by electrical circuits exclusive to the corridor and stairway lighting, and the cable routes were restricted to those of negligible fire risk. In the case of stairways without natural lighting, the stairway lighting and corridor lighting did not share the same circuits.
- 64.5 Accordingly, although many blocks of flats may still have no emergency escape lighting, the likelihood of loss of normal lighting within escape routes, as a result of fire, at a time when residents may need to use the escape routes, is very low. Since the absence of emergency escape lighting is, therefore, unlikely to result in the risk of death or serious injury of any resident in the event of fire, it would be acceptable, in the case of blocks comprising no more than three storeys above ground level, to develop a programme of work for its installation over a period of, say, three years, according to the level of urgency identified in the fire risk assessment.
- 64.6 It should be noted that this guidance only addresses loss of normal lighting as a result of fire. Other considerations (such as the safety of residents in the event of failure of power supplies to the building) may dictate the urgency with which emergency escape lighting should be installed.
- 64.7 Emergency lighting should conform to the recommendations and requirements of the relevant parts of BS 5266, and it should provide illumination for three hours in the event of power failure. Lighting units can be either maintained units, which are continuously lit, or non-maintained units, which will only operate when the normal lighting fails. In the case of non-maintained emergency escape lighting, it is important to ensure that the emergency escape lighting in any area is designed to operate when the normal lighting circuits in that area fails.
- 64.8 Emergency escape lighting can comprise self contained luminaires, with batteries within each luminaire, or a central battery system, with “slave” luminaires supplied from one or more centrally located battery units. Where central battery units are provided, it is important to ensure that non-maintained luminaires will operate in the event of the failure of a single final circuit serving normal lighting on any part of the

escape routes; it is not adequate for the luminaires to operate, for example, only in the event of a power failure to the building.

- 64.9 One or more test switches should be provided, so that the emergency escape lighting can be tested every month by simulating failure of the normal power supply to the luminaires without the need to isolate normal lighting circuits.
- 64.10 Any new emergency lighting should only be installed by a competent electrical contractor. The use of contractor that is third party certificated gives confidence that the work will be carried out competently.



65. Refuse and chute rooms

- 65.1 Arrangements for the disposal of waste and refuse are important provisions within blocks of flats, to prevent the build up and storage of combustible rubbish in the common parts (see Part E of this guide). Refuse storage rooms and refuse chutes are therefore normally present in all but the smallest of blocks of flats.
- 65.2 It is recommended that refuse and chute rooms should:
- Ideally be approached directly from the open air or by way of a protected lobby with permanent ventilation.
 - Be separated from all other parts of the building by fire-resisting construction (60 minutes fire resistance).
 - Not be located within protected stairways or protected lobbies.
- 65.3 However, chute rooms can often be found within stairways, corridors and on balconies. In these situations, the rooms should be enclosed in fire-resisting construction and have permanent ventilation direct to open air.
- 65.4 Refuse chutes and access hatches can sometimes be found directly opening onto protected corridors, lobbies and stairs and provide the potential for the spread of fire and smoke to the common escape routes. In these situations, an automatic fire-resisting shutter should be fitted at the base of the refuse chute to restrict the spread of fire and smoke from a fire in the bin room. The shutter should, as a minimum, be operated on a fixed temperature fusible link. Further protection can be provided by a sprinkler system located over the bins, with either frangible bulb/fusible link sprinkler

heads or open sprinkler heads with water discharge controlled operated by smoke detectors. The provision of sprinklers should always be considered where access hatches open into protected stairways or lobbies containing more than two flat entrance doors.

Photographs of refuse/chute rooms – chutes in stairs, fusible link and shutter to be inserted

66. Fire detection and alarm systems

Within flats

- 66.1 In **all** flats, early warning of fire should be provided by means of smoke alarms installed in accordance with BS 5839-6. A category LD3 system should be considered the minimum in all circumstances. This is one in which there is one or more smoke alarm(s) solely in the circulation spaces of a flat. Flats with more than one level and those with more than one hallway/circulation space will always require more than one smoke alarm.
- 66.2 Provision of smoke alarms in flats is discussed further in Appendix 6.
- 66.3 As stated earlier, more extensive coverage of smoke alarms (and heat alarms in certain rooms) may be an appropriate additional compensatory measure when the

escape route design falls far short of acceptable benchmark standards. This is again discussed further in Appendix 6.

Within the common parts

- 66.4 Fire detection and alarm systems are not normally provided in the common parts of blocks of flats (with the exception of sheltered housing schemes). This has been the benchmark standard for many years (see Appendix 1) and continues to be the case for new blocks of flats under the current guidance in Approved Document B.
- 66.5 As indicated earlier, there may be circumstances in which such a system needs to be provided in order to compensate for shortcomings in compartmentation and means of escape.
- 66.6 Appendix 6 highlights possible variants that might be employed to address these shortcomings and the circumstances in which they might be appropriate.
- 66.7 In any block of flats in which a communal fire alarm system is installed, the system should be of the type to which BS 5839-1 applies. Domestic smoke alarms are not appropriate for the common parts of blocks of flats, nor is it appropriate to apply the recommendations of BS 5839-6 to a communal fire alarm system. Where domestic smoke alarms exist in the common parts of a block, they may, and often should, be removed and be replaced, if this is essential, with a fire alarm system of the type to which BS 5839-1 applies.
- 66.8 Where a communal fire alarm system with fire alarm sounders is installed in a block of flats, it is essential that residents are fully aware of the action to take on hearing the fire alarm sound. This should be part of a documented emergency plan. Suitable fire procedures should be displayed in the common parts, and all residents should be given written information (where necessary in the case of those for whom English is not their first language, in their own language). This is discussed further in Part G of this guide.

67. Fire-fighting equipment

- 67.1 Given the restrictions placed on the construction and materials used in the common parts of blocks of flats, the likelihood of a fire starting in the common parts can be considered to be low. In addition, any fire that does occur in the common parts should, due to these restrictions, be contained in the location of origin and not spread to other parts of the building to the extent it would affect the safety of residents in their own flats.
- 67.2 Accordingly, it is not considered necessary to provide fire extinguishers or hose reels in the common parts of blocks of flats. Such equipment should only be used by those trained in its use. It is not considered appropriate or practicable for residents in a block of flats to receive such training.
- 67.3 In addition, if a fire occurs in a flat (which is, by far, the most likely location for a fire in a block of flats), the provision of fire-fighting equipment in the common parts might encourage the occupants of the flat to enter the common parts to obtain a fire extinguisher and return to their flat to fight the fire. Such a procedure is inappropriate; after leaving their flat, residents should make their way out of the block, summon the fire and rescue service (if they have not already done so) and prepare to meet the fire and rescue service on their arrival.

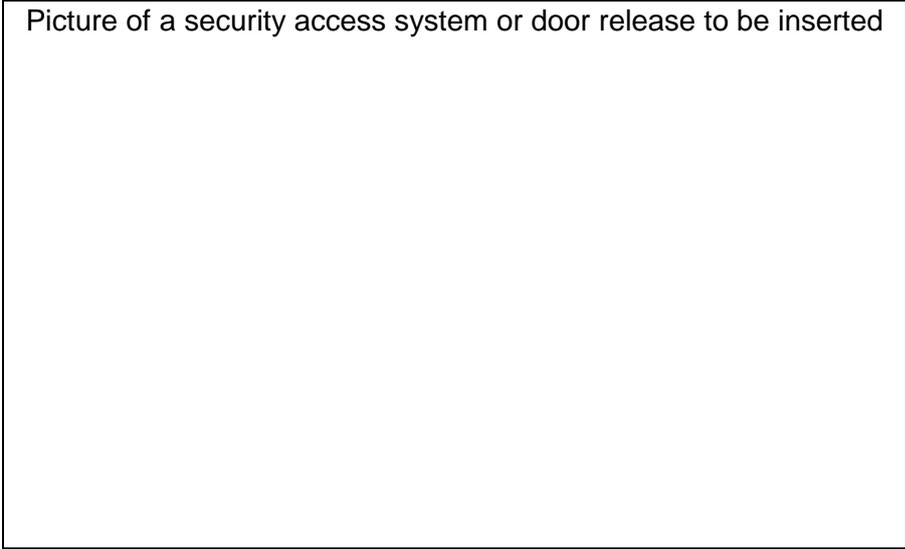
- 67.4 The provision of hose reels in a block of flats is particularly undesirable. It is very unlikely that the equipment will be used by the fire and rescue service. If residents attempt to use hose reels in the event of a fire in a flat, the unlimited supply of water may encourage them to remain in the flat for much too long before they evacuate. In the meantime, the hose will prevent the flat entrance door from closing fully, so permitting smoke and fire to spread into the common parts.
- 67.5 The removal of existing fire-fighting equipment from the common parts of blocks of flats has caused some concerns. However, on the basis that portable fire-fighting equipment is not considered necessary because of the reasons discussed above, there is normally no need for it to be retained, particularly where it is subject to vandalism. Any proposal for the provision of such equipment, or continued presence of existing equipment, should be based only on full justification of the proposal by a fire risk assessment. Where hose reels are currently provided in a block of flats, it is recommended that, subject to consultation with the fire and rescue service, they be removed.
- 67.6 Notwithstanding the above, it is appropriate to provide portable fire extinguishers in plant rooms and similar ancillary accommodation, common community facilities, any staff rooms, places where people are employed to work, etc. In sheltered housing, portable fire extinguishers should be provided in all common facilities, such as laundries and common lounges, ancillary accommodation and any commercial premises within the block, such as hairdressers. However, extinguishers need not be provided within flat corridors.
- 67.7 This does not preclude residents in any block of flats from providing their own equipment, such as fire blankets or fire extinguishers to tackle a fire in their own flat should they wish to do so. Additional advice on fire extinguishers for the home can be found on <http://firekills.direct.gov.uk>.
- 67.8 Where fire extinguishers are provided, they should be installed in accordance with the recommendations of BS 5306-8.

Pictures of portable extinguishers in plant rooms and
community rooms to be inserted

68. Security locks and access systems

- 68.1 Ideally, any security locks fitted to flat entrance doors and alternative exit doors from flats should be easily operable by the residents from the inside without the use of a removable key.
- 68.2 As flat entrance doors are required to be self-closing, there is a risk that any self-locking security devices fitted to the doors could accidentally lock residents outside of their own flats. As well as being a general nuisance for residents who may leave their keys inside the flat, there is also a risk during a fire, if residents leave their flat and dependent family members remain inside the flat. The danger in these circumstances is that residents may resort to removing or disconnecting the self-closing device. It is therefore recommended that flat entrance doors are fitted with a suitable lock that can only be locked on the outside by the use of a key operated deadlock, but can still be opened from the inside by a handle or lever without the use of a key.
- 68.3 Residents sometimes also take their own security measures and fit additional locks, and, in some cases, external security grilles/gates to entrance doors and secondary exits. In these situations, residents should be advised of the risks these may present to their safety in the event of a fire within their own flats. Residents should be advised that any security locks, grilles or gates should be easily openable without the use of a key at all times. The fitting of these should not impair the effective self-closing of flat entrance doors.
- 68.4 It might be possible to restrict or prevent the use of external grilles or gates under the terms of the lease, where those do not only present a risk to the individual residents, but impinge on the safety of others (e.g. if fitted on external balconies used for common escape) and may delay or prevent access to the fire and rescue service to effect rescues or fight a fire.
- 68.5 All final exit doors from the building should be easily openable from the inside without the use of a key or code by residents and visitors. A simple turn handle or lever is preferred.
- 68.6 Any exits fitted with separate electronic locking mechanisms, or such mechanisms which form part of a security access system, must fail-safe on power failure and have a standby power supply. In some situations (including mixed commercial and residential buildings), it might be necessary to consider the provision of suitable override controls in accordance with BS 7273-4.

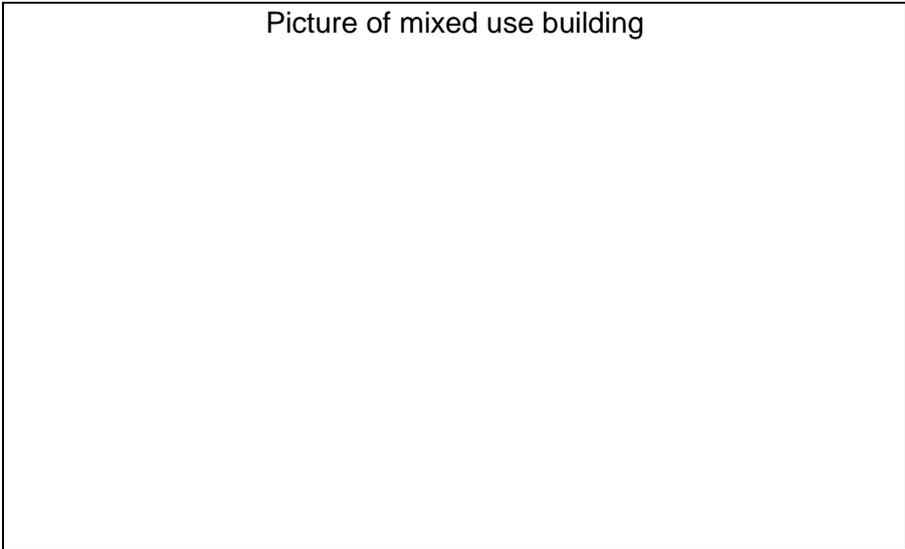
Picture of a security access system or door release to be inserted



69. Flats in mixed use buildings

- 69.1 In mixed use buildings, the risks presented by other occupancies and the way these risks can impact on the safety of the residents of flats needs to be taken in to account. The use of shared means of escape routes and the potential for fire spread between other occupancies and the flats should be a prime focus.

Picture of mixed use building



- 69.2 It is important that compartmentation between flats and other occupancies is to a high standard to reduce the risk of fire spread and to support the 'stay put' policy adopted for flats in purpose-built blocks. Flats should be separated from other occupancies in mixed use buildings by walls and floors affording a minimum fire resistance of 60 minutes.
- 69.3 It is equally important that the common means of escape from flats is suitably protected from the effects of a fire in other occupancies. The common means of escape routes, including corridors, lobbies and stairways, should be separated from other occupancies by fire-resisting construction to ensure the escape routes remain safe to use at all times.

- 69.4 In buildings of four storeys, stairways may serve both flats and other occupancies, provided that the stairways are separated from each occupancy by a protected lobby at each level.
- 69.5 In buildings over four storeys, where the flats are not ancillary to the main use and form a substantial residential element of the building, the flats should be served by an independent alternative means of escape stairway that is not shared with other occupancies in the building.
- 69.6 Where a block of flats shares a common escape stairway with, for example, commercial premises below, it is conventional practice to extend the fire alarm system that is present in the commercial premises to cover the flats. This, in effect, means that a 'stay put' policy cannot be adopted. Given the disruption to which this will give rise, options for designing or configuring the system to reduce the likelihood that the entire block will need to be evacuated simultaneously should be considered (see Appendix 6).

70. Sheltered housing

- 70.1 Sheltered housing schemes vary in respect of size, design, use and complexity. For the purposes of this guide, sheltered housing can be defined as purpose-built, self-contained flats where personal care, akin to that received in a care home, is not provided. The residents, who are normally from a restricted elderly age group (e.g. over 55 years), have their own self-contained flat and a degree of independent living.
- 70.2 Sheltered schemes can range from a collection of self-contained bungalows or flats with no on-site facilities or wardens to much larger complexes that may provide communal facilities such as kitchens, laundry rooms, communal lounges and on-site wardens, and managers.
- 70.3 One of the original features of many sheltered schemes was the provision of an on-site warden or scheme manager who provided a degree of support to residents and, more importantly perhaps, managed various aspects of fire safety. In other than private or much larger sites, there are no longer on-site wardens on 24 hour call in the majority of sheltered schemes. Most landlords now rely on on-call systems, through social alarm systems, to provide support to the elderly residents. This has left many sheltered schemes with only limited day time cover and usually no management presence during the night to provide any assistance to the residents in the event of a fire.
- 70.4 Sheltered schemes should be designed and constructed on similar lines to purpose-built blocks of flats, with compartment walls and floors and protected escape routes. The principles of a 'stay put' policy apply equally in the same way to sheltered schemes as they do to purpose-built blocks of flats. Residents in the flat of origin of a fire should be able to make their own way out of the building, while those residents not directly affected by a fire should be safe to remain in their own flats until directed otherwise by the fire and rescue service.
- 70.5 The concerns many fire safety professionals share is that some elderly residents, particularly in what is known as 'extra care' sheltered schemes, are unable to escape from their own flat without outside assistance. Although this, in many ways, is no different from elderly persons living in their own home, it does present a particular challenge due to the number of floors and layout of the buildings, and the lack of any management support, particularly during the night.

- 70.6 The limitations of the residents should be taken into account when undertaking assessments in sheltered schemes, and any particular concerns resulting from the vulnerability of any residents should be addressed. However, the recommendations in this guide for sheltered schemes are based on the assumption that residents are able to escape unaided from their own flats and can make their way to a place of safety using the common means of escape.

Internal means of escape from flats

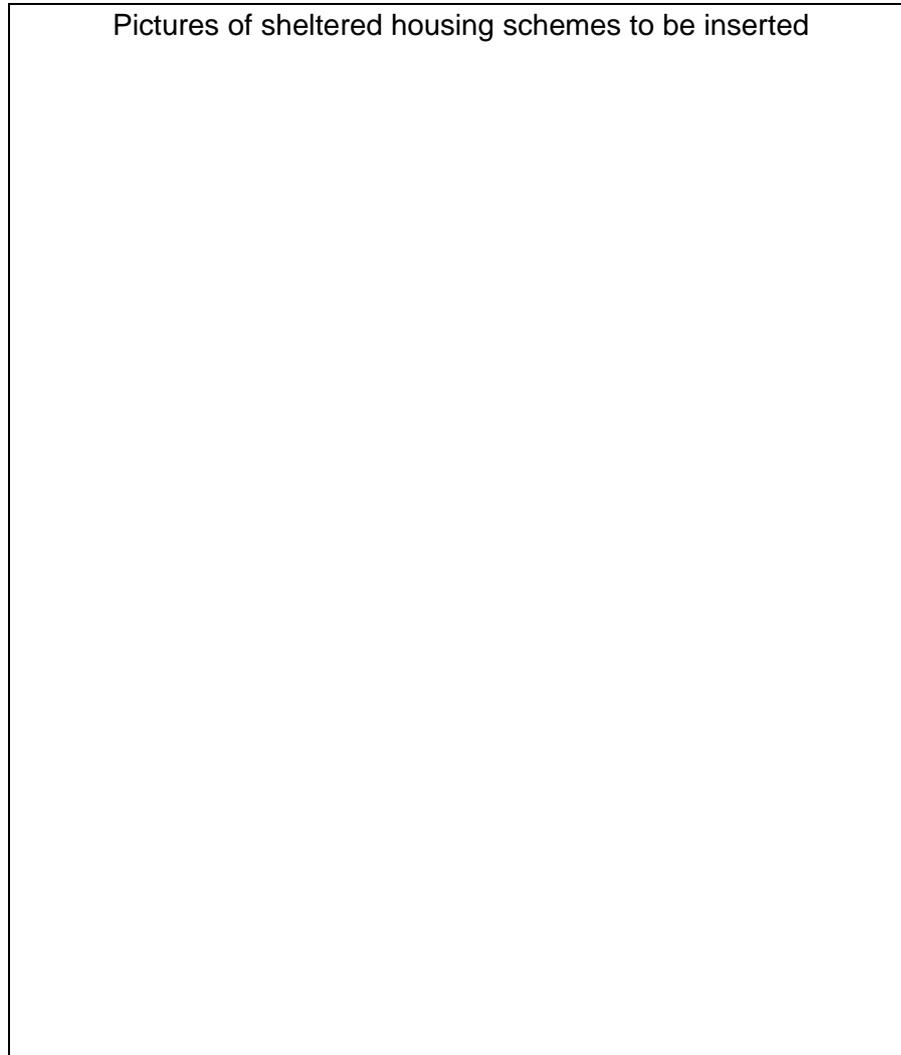
- 70.7 Rather than provide protected entrance halls with self-closing doors, which can be seen as an obstacle to elderly residents, planners preferred to design flats with limited travel distances or provide alternative exits, particularly for those flats on the ground level. When assessing the suitability of the existing internal means of escape from the flat, the likely inability of the resident to negotiate self-closing fire doors and use escape doors or escape windows should be carefully considered. This would include any security locks or fastenings fitted to escape doors or windows.
- 70.8 Each flat within a sheltered scheme should be provided with a means of giving warning in the event of a fire in their own flat. The provision of fire detection and alarm systems in sheltered schemes is dealt with in more detail in Appendix 6. However, each flat should have a minimum of a Grade D Category LD3 system with smoke alarms in the circulation space and/or entrance hall. This may need to be extended to a LD2 system, dependent on the layout of the flat and the nature of the resident.

Common means of escape

- 70.9 As most sheltered schemes will have corridor access, the recommendations detailed earlier for horizontal and vertical means of escape will apply. In sheltered schemes, the distance of travel from a front entrance door to a door to a protected stairway, protected lobby or door sub-dividing a corridor should be limited to allow residents to escape unaided, as it cannot be assumed that a warden or other persons will be available to render assistance. Elderly or disabled residents should not be required to travel far in a smoke filled corridor to a place of safety, and the benchmark distances of travel recommended should be followed in most cases.
- 70.10 Most elderly residents will find it difficult to negotiate self-closing fire doors during everyday use of the building. The fitting of hold open devices, particularly on doors within the horizontal circulation spaces and in communal areas, should be considered and will be acceptable in most locations. Reference should be made to BS 7273-4 for further advice on the fitting of hold-open devices.
- 70.11 Many elderly and disabled residents will find it difficult to use stairs in the event of a fire, and additional measures may need to be considered. These could include temporary safe refuge areas or space within protected lobbies and stairs. If lifts are provided, consideration should be given to the provision of evacuation lifts that residents may use in the event of a fire. In these instances, further advice should be sought from a suitable specialist as to the suitability of temporary safe refuge areas and the use of lifts.
- 70.12 All communal facilities, such as kitchens, lounges, laundry rooms and any plant or service room should, where necessary, be separated from common escape routes

including corridors and stairways with 30 minutes fire-resisting partitions and FD30S doors. High hazard rooms should be separated from stairways by a protected lobby.

- 70.13 Adequate means of escape should be provided from communal areas, such as a lounge, which, ideally, should have one exit leading direct to open air. Any furniture or soft furnishings provided in the common parts should be subject to a risk assessment.



71. Fire-fighting facilities

71.1 Fire-fighting facilities are required in certain blocks of flats to assist the fire and rescue service for the safety of life.

71.2 These facilities may include:

- Vehicle access for fire appliances.
- Access for fire-fighting personnel.
- Fire mains within buildings.
- Venting of heat and smoke from basement areas.

- 71.3 In small blocks of flats, it is usually only necessary to ensure vehicle access is adequate, and some means of smoke control is available. In taller blocks, facilities, such as fire mains, fire-fighting shafts and fire-fighting lifts, may be required.
- 71.4 In other than very unusual circumstances, there would be no requirement to provide fire-fighting facilities in an existing block of flats or upgrade any facilities if these were not required at the time of construction to comply with the standards of the day.
- 71.5 However, there is a requirement placed on landlords to maintain any facilities provided for the use or safety of fire-fighters to ensure they are in a good state of repair and in effective working condition (see Part C of this guide).
- 71.6 Listed below are the current benchmark recommendations for fire-fighting facilities for new blocks of flats:
- In blocks of flats without an internal fire main, there should be vehicle access for a fire appliance to within 45m of all points within each flat. In previous guidance, this distance was 60m.
 - In blocks of flats fitted with a fire main, all points within each flat should be within 60m of a landing valve on the fire main in a fire-fighting shaft (45m if the landing valve is in a protected stairway).
 - Flats over 18m in height should be provided with a fire-fighting shaft, consisting of a fire-fighting stairway and a fire main located in the stairway, and a fire-fighting lift. The fire-fighting lift can, in blocks of flats, open into the common corridor giving access to the flat entrance doors, providing the lift doors are no more than 7.5m from the door to the stairway.
- 71.7 In existing blocks of flats, the fire-fighting facilities may not be in accordance with the benchmark standards detailed above. In these circumstances, it may not be possible, or even appropriate, to recommend upgrades to meet current standards. What is important is that the facilities provided should meet the standard of the day when the block was built and that these should be maintained in efficient working order.

Diagram 52 ADB to be inserted

PART G: MANAGING FIRE RISK – ONGOING CONTROL

72. Introduction

- 72.1 Whatever physical fire safety measures are provided in blocks of flats to ensure a suitable standard of safety, their effectiveness will only be as good as their management and maintenance. Consideration of the suitability of the managerial arrangements in place is a key part of a fire risk assessment (see Part D of this guide).
- 72.2 There are many aspects to the management of fire safety in buildings. These range from day-to-day control over hazards, such as poor housekeeping, to ensuring that occupants understand what is expected of them in an emergency and know how to escape from the building. In summary, these are:
- Controlling hazards and preventing fires.
 - Informing and educating occupants on avoiding fires and escaping safely.
 - Managing evacuations.
 - Maintaining fire safety measures.
 - Managing changes that could impact on fire safety.
- 72.3 Guidance on fire safety management in buildings is contained in BS 9999. There is also guidance in the HM Government guide 'Fire Safety Risk Assessment: Sleeping Accommodation'.
- 72.4 The recommendations in these documents apply equally to the common parts of blocks of flats. However, given the relatively simple nature of a block of flats, many of the recommendations will not be relevant.
- 72.5 Indeed, there are several fundamental differences between blocks of flats and many other types of building that impact on how fire safety can, and should be, managed. These include the following:
- There is usually no-one on the premises to manage fire safety on a day-to-day basis.
 - The response to a fire in a block of flats where the evacuation strategy is to 'stay put' contrasts with the immediate or progressive evacuation of the occupants in most other buildings.
 - Parts of the building may be under different ownership e.g. leasehold flats.
 - Landlords and others responsible for fire safety have limited control over the activities of tenants within their flats, and even less over leaseholders.
 - Access to flats may not be possible and, even where entry can be gained, restrictions may apply.
 - Residents are usually a disparate group with no common allegiance. It cannot be expected that they would respond or behave like the occupants of other types of residential accommodation, such as hotels and halls of residence.
 - The level of fire safety knowledge of residents will be variable and rely upon voluntary co-operation in embracing fire safety initiatives.
- 72.6 Those responsible for ensuring adequate fire safety in blocks of flats and managing this on an ongoing basis can include owners, providers and managing agents. Social landlords, such as local authorities and housing associations, as well as private rented sector landlords and management companies established by residents, are

included in this. As discussed in Part C of this guide, all are Responsible Persons under the FSO and all have obligations in this regard under the law.

- 72.7 Residents also have their part to play. As discussed in Part E of this guide, preventing a fire in the first place must be one of the highest priorities in reducing risk. Given that the majority of fires in blocks of flats start in the flats themselves, residents can, by their actions, significantly influence the likelihood that a fire will occur, and can ensure that, in the event that there is a fire, they react appropriately and make their escape in time. Engaging with residents, and communicating not only the fire prevention message, but also explaining what fire protection there is in the building and how they can ensure it remains effective, is a fundamental element of ongoing control over fire safety.
- 72.8 In view of the scope of fire safety management above, the role of landlords and other Responsible Persons needs to include at least the following:
- Establishing clear responsibilities within their organisation, including appointing a suitable person to take responsibility for fire safety in the block.
 - Ensuring adequate access to competent advice on fire safety legislation.
 - Co-ordinating with any non-domestic occupier, such as commercial occupiers elsewhere in the building and TRAs/community organisations using facilities in the block.
 - Communicating with residents and providing basic fire safety advice.
 - Providing fire safety instruction and information to employees and others present on the Responsible Person's behalf.
 - Preparing for emergencies.
 - Documenting the fire safety arrangements in the block.
 - Controlling hazardous activities.
 - Implementing programmes for inspection, testing and maintenance of fire safety systems and equipment.
 - Carrying out inspections and repairs of other fire safety measures.
 - Monitoring the common parts and being alert to new hazards.
 - Reviewing and auditing fire safety standards.
 - Controlling alterations so that they are not detrimental to fire safety.
 - Being alert to possibilities to improve fire safety standards.
 - Liaising with authorities responsible for fire safety.
- 72.9 Fire risk assessors and enforcing authorities must understand what is achievable by management and be realistic in their expectations. Although circumstances will differ, it would, for example, normally be inappropriate to relax other fire safety measures in the building on the assumption that a high level of management will be in place.
- 72.10 Equally, it must be recognised that, in stipulating certain fire safety measures, such as communal fire alarm systems, there will be a consequent level of management needed. This may or may not be possible, and solutions to fire safety deficiencies identified through, for example, a fire risk assessment should avoid placing unrealistic burdens on management.
- 72.11 Despite the above, there are minimum requirements for fire safety management that should be achieved in order for the standard of fire safety to be maintained at an adequate level. These, along with examples of good practice, are discussed below.

73. Responsibility for fire safety in the building

- 73.1 Although there will not necessarily be anyone on site to manage fire safety on a day-by-day basis, it is important that there is someone within the organisation who has overall responsibility for fire safety. It is common in larger organisations for this to be split. For example, estates maintenance teams may be responsible for repairs and routine testing and inspection of fire safety measures, with the letting department responsible for ensuring that residents understand the conditions applying to alterations to their flats and have received fire safety information on taking up occupation. Housing officers may then be responsible for routine inspections of fire safety.
- 73.2 Where responsibility is shared in this way, it is important that there is someone who has overall control and authority to ensure that everyone's activities are co-ordinated and nothing is missed. This may well be someone at board level in the organisation.
- 73.3 All organisations should formalise the roles and responsibilities of those contributing to the management of fire safety. This should form part of a fire safety policy. Such a policy would normally be part of arrangements required by the FSO for the effective planning, organization, control, monitoring and review of the 'preventive and protective' measures (see Part C of this guide).

74. Access to competent advice on fire safety legislation

- 74.1 There is a responsibility under the FSO to appoint a competent person to provide safety assistance, i.e. guidance on the fire safety measures required by the legislation and how they should be implemented.
- 74.2 However, this does not preclude an organisation obtaining assistance with this from an appropriately qualified and experienced consultant, or another suitable source, to support the person in fulfilling this role. It is clearly essential that anyone providing this service to a Responsible Person is fully familiar with fire safety requirements in purpose-built blocks of flats.

75. Co-ordination with other occupiers

- 75.1 The FSO also imposes duties on a Responsible Person to 'co-ordinate and co-operate' with other Responsible Persons, either located in the same building or having responsibility for fire safety measures in the block. This may apply where the block of flats is part of a development with shops, hotels and other commercial premises.
- 75.2 A key element of this is co-ordination of fire procedures. However, it does not imply that, simply because the flats are in a mixed use building, a 'stay put' policy will not be appropriate.
- 75.3 The difficulties that can arise when a building or its fire safety systems are shared do need to be recognised. For example, the detectors needed to operate AOVs in the lobbies to stairways may be part of a fire alarm system covering commercial areas. As the system is common to both, it is important that a single organisation takes responsibility for its testing and maintenance and that there is adequate recourse in contracts/leases to take action if there is a failing on this organisation's part to effect this.

76. Engaging with residents

- 76.1 Landlords and others responsible for managing blocks of flats should seek to engage with residents and communicate a number of vital fire safety messages, including:
- How they can prevent fires in their own home and in the common parts.
 - The importance of maintaining their block secure (making sure doors close behind them when they enter or leave) and being vigilant for deliberate fire setting.
 - That they should never store or use petrol, bottled gas, paraffin heaters or other flammable materials in their flats, on their balcony or in shared areas.
 - What action they should take if they discover a fire.
 - How they can ensure they can make their way safely from their flats.
 - How to exit the building once they have left their flat.
 - What 'stay put' means if there is a fire elsewhere in the building.
 - What they must do to safeguard communal escape routes, especially taking care to make sure fire doors self-close properly and are not wedged, tied or otherwise held open.
 - What the policy on the use of common parts requires of them.
 - In particular, that they should avoid leaving combustible materials in inappropriate places, especially when disposing of rubbish or collecting and putting out materials for recycling.
 - How they can avoid inadvertently damaging the building's fire protection when making changes to their flat.
 - When and how they should use fire extinguishers and other fire-fighting equipment, if provided, and why they should not move it or otherwise interfere with it except to use it in an emergency.
 - What is involved in testing their smoke alarms and how often they should do it.
 - Ways they can assist the fire and rescue service by not blocking access when parking, and by keeping fire main inlets and outlets, where provided, clear.
 - How they can report essential repairs needed to fire safety measures in their flat and elsewhere in the block.
- 76.2 Tenants' handbooks are traditionally one way in which basic fire safety advice is communicated to new residents in rented accommodation. Similarly, many organisations use their website to convey information of this nature to their tenants.
- 76.3 Where appropriate, and subject to the policy on use of the common parts (see Part E of this guide), this can be reinforced with notices displayed in the building.
- 76.4 However, specifically targeted campaigns of leafleting and other initiatives to promote fire safety may be necessary to keep the message fresh in people's minds, up to date and relevant to their particular circumstances. The fire and rescue service can assist in this, combining with landlords, other Responsible Persons and other agencies on initiatives to offer free home fire safety checks to residents.
- 76.5 Other forums, such as TRA meetings, can provide opportunities to increase awareness of key issues and provide people with advice.
- 76.6 Basic fire action notices are usually the simplest means of conveying to residents the actions they should take in the event of a fire. Examples of various fire action notices for blocks of flats and other residential accommodation are contained in BS 9999. These describe what residents should do in the event of fire.

- 76.7 General advice to give to residents on domestic fire safety is also contained in BS 9999 as well as from <http://firekills.direct.gov.uk/index.html>.
- 76.8 It is important that the needs of non-English speaking residents are taken into account. Fire safety information in a number of alternative languages is available to download from www.direct.gov.uk/en/HomeAndCommunity/InYourHome/FireSafety.
- 76.9 Appendix 4 to this guide contains suitable content for basic advice to include when communicating with residents. Appendix 5 contains templates for simple fire action notices applicable both to situations in which a 'stay put' policy applies and situations in which, by virtue of a communal fire alarm system, a simultaneous evacuation strategy applies.
- 76.10 In blocks of flats with communal fire alarm systems, such as sheltered schemes, it is particularly important that residents understand how to respond to fire alarms in their own flats, what is expected of them if the alarm sounds in the common parts and why they should not interfere with the fire alarm system, for example to silence the alarm. It is vital that they have a means to contact someone from the organisation who can respond quickly if the system is activated when there is no scheme manager, caretaker or other person responsible for the system on the premises at the time. This should be displayed prominently by the fire alarm panel.

77. Instruction, training and information for non-residents

- 77.1 Those working in, or visiting, blocks of flats need to be provided with instruction, training and information relating to the fire safety measures in the building and the procedures they should follow in the event of fire. This should relate to the activities they undertake.
- 77.2 It is, however, important that the extent of such training and instruction, and the scope of the information provided, should reflect the relatively simple nature of these buildings and the limited fire safety measures present. Blocks of flats are far simpler than many other residential buildings and often have simple means of escape.
- 77.3 Those to which this will apply include:
- Housing officers.
 - Caretakers, porters and concierges.
 - Cleaners.
 - Employees or contractors undertaking maintenance, including those carrying out routine inspections, such as gas safety checks.
 - Scheme managers in sheltered housing, and care providers in 'extra care' schemes.
- 77.4 For most of these, all that is required is basic fire awareness training. This will need to ensure that they:
- Are aware of fire hazards that might be encountered in their workplace, and in the common parts.
 - Know how to prevent fires.
 - Recognise the importance of good housekeeping.
 - Know when and how to use fire extinguishers and other fire-fighting equipment.
 - Understand what to do if they discover a fire.
 - Know how to escape from the building should they encounter a fire.

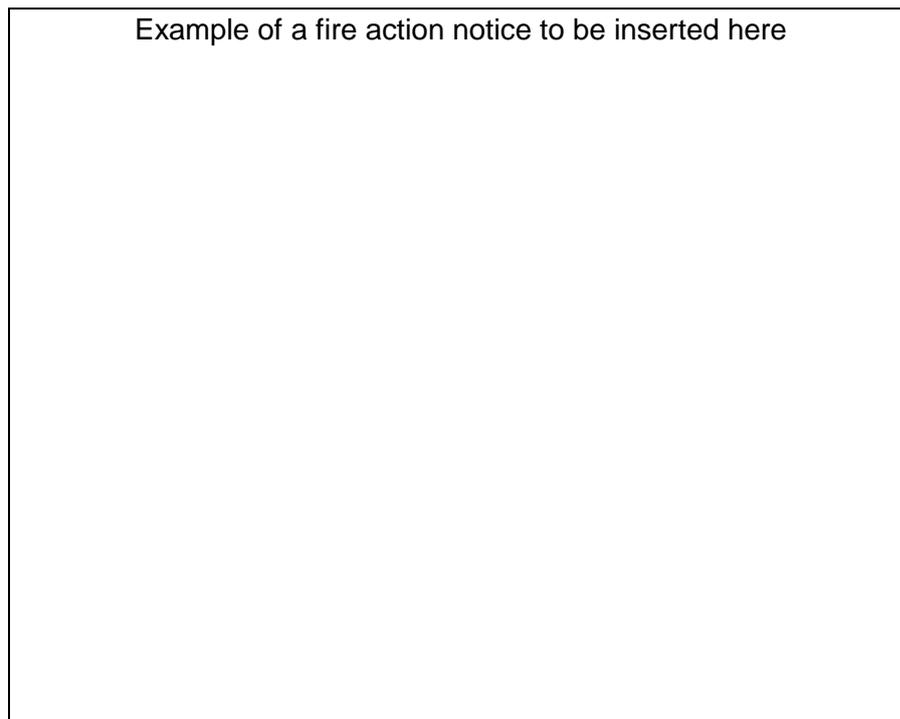
- Are aware of how their actions might adversely affect the fire safety measures present in the building, e.g. by propping open fire doors.
- Are able to spot obvious deficiencies in fire safety measures e.g. a damaged fire door.

- 77.5 They need to receive this as soon as they start work for the organisation. It should be repeated at appropriate intervals to ensure people remain vigilant and prepared.
- 77.6 Many of those visiting blocks of flats in the course of their duties can be expected to have received this basic fire awareness training at their normal place of work.
- 77.7 More extensive training will be required for scheme managers and other staff with a role to play in responding to alarms and managing evacuations in sheltered housing schemes. It is important that they are fully conversant with the fire procedures in the emergency plan (see below).
- 77.8 While fire drills and practice evacuations are used in many buildings to reinforce the training given to staff and other occupants, it is neither practical nor necessary to carry them out in purpose-built blocks of flats. Even in buildings with communal fire alarm systems, this is unrealistic. In large sheltered housing schemes incorporating extensive communal amenities, such as hairdressers, cafeterias and shops, fire drills may be necessary. However, these will still only apply to people present in the common parts. Just as residents within their flats would not need to leave their flat if there is a fire elsewhere in the building, they would not be expected to take part in fire drills.
- 77.9 Employees and others working in offices, workshops and other accommodation that may be present in the same building as the flats would be expected to receive appropriate instruction and training and, where necessary, to take part in fire drills. Suitable guidance on this can be found in the HM Government guide 'Fire Safety Risk Assessment, Offices and Shops'.
- 77.10 Additional training may be required where in-house staff monitor fire safety as part of routine visits and inspections. Those tasked with carrying out and/or reviewing fire risk assessments will need appropriate training to ensure satisfactory competence (see Part D of this guide).

78. Preparing for emergencies

- 78.1 It is a requirement of the FSO that there should be a suitable emergency plan for the premises. In many small buildings, fire action notices will suffice as the fire procedures are simple. In large, more complex buildings, emergency plans can be extensive documents detailing the roles and responsibilities of staff and others expected to carry out specific actions, such as summoning the fire and rescue service, checking areas to ensure people have evacuated and meeting the fire and rescue service on arrival.
- 78.2 Rarely, in purpose-built blocks of flats, will it be necessary to have a more elaborate emergency plan than a simple fire action notice (see Appendix 5 for examples). Nor will it be universally necessary to display such notices. Indeed, it is more common not to display notices, but to convey this information to tenants in other ways (e.g. through tenants' handbooks, etc).

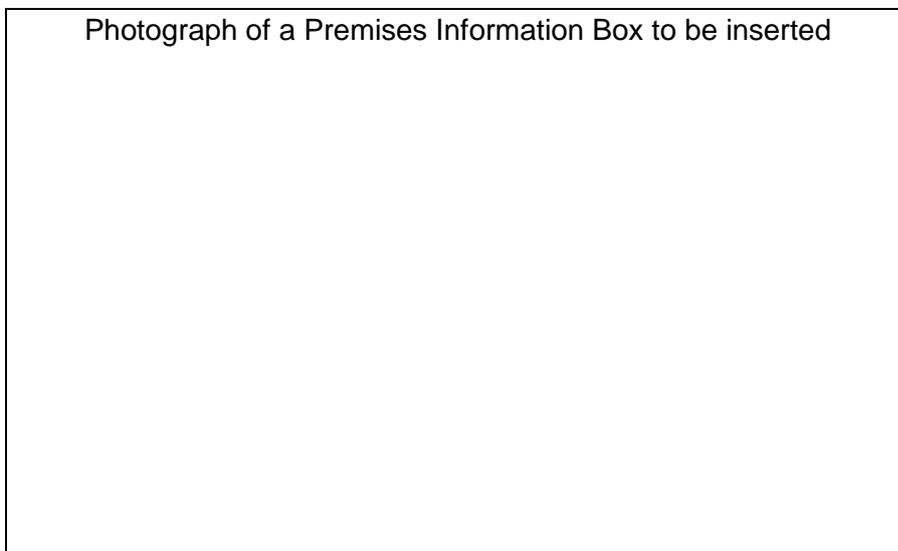
- 78.3 Where fire action notices are displayed, they must be relevant. Standard fire action notices often refer to using fire extinguishers, raising the alarm by breaking a fire alarm call point and, once outside of the building, gathering at an assembly point. Most blocks of flats have neither a fire alarm system nor fire extinguishers, and, given the 'stay put' policy adopted in most blocks of flats, assembly at a designated place serves little purpose.
- 78.4 Most standard fire action notices also advise people not to use lifts in a fire. This again will not be relevant if there is no lift in the block.
- 78.5 If a fire action notice is to be displayed, it would be good practice to place it in a location where it will be viewed routinely by people entering the building e.g. by the main entrance or, where relevant, by the controls inside a lift.



- 78.6 In the case of 'general needs' blocks of flats provided with communal fire alarm systems, the fire action notice should reflect the presence of this system and clearly state the action required of residents in response to an alarm. There should be contact details so that residents can arrange for the system to be silenced and reset as quickly as possible in the event of a false alarm. It is vital in the case of blocks of flats with simultaneous evacuation that this response is as short as possible – any longer than a few minutes could result in residents interfering with the system in an effort to stop the noise of the alarm sounding and re-enter their flats.
- 78.7 This will apply equally to sheltered housing schemes. Many of these schemes do not have scheme managers or other people on site all of the time ready to respond to activations of the fire alarm system.
- 78.8 In these buildings, emergency plans will need to be more detailed. The role of scheme managers and others in responding to fire alarm activations received from flats through the social alarm/warden call system needs to be clearly defined, with particular consideration given to the associated risks from entry into a flat in which there might be a fire.

- 78.9 The role of scheme manager and others in assisting with the rescue of the occupants of flats also needs to be considered. Whether through physical or mental disability, some residents may have difficulty in leaving their flat quickly. A resident's needs for support are usually assessed when they take up occupation, and this should include their ability to escape unaided in a fire. As with other aspects related to their welfare, this should be reviewed as a matter of course as a person's circumstances change.
- 78.10 In 'general needs' blocks of flats, it can equally be expected that a resident's physical and mental ability will vary. It is usually unrealistic to expect landlords and other Responsible Persons to plan for this or to have in place special arrangements, such as Personal Emergency Evacuation Plans. Such plans rely on the presence of staff or others available to assist the person to escape in a fire.
- 78.11 Even in sheltered housing schemes, there will be reliance ultimately on rescue by the fire and rescue service in the event that residents cannot escape by themselves. However, in sheltered housing schemes, it is commonplace to hold information relating to any resident with particular mobility or other issues affecting their ability to escape, and to make this available to the fire and rescue service on arrival at the premises (e.g. by keeping it in a 'premises information box', which can only be unlocked by the fire and rescue service, at the main entrance). Details of any residents using oxygen or other medical gases are also usually kept with this information.
- 78.12 It is not realistic to expect such an approach to be adopted where there are disabled people and others requiring assistance in a 'general needs' block. Any attempts to keep information of this kind must be updated regularly as inaccurate information could potentially be more harmful than no information.
- 78.13 In large, more complex 'general needs' blocks of flats, it can be of great assistance to the fire and rescue service to keep plans on the premises detailing information on the layout of the building and its services. This can be helpful at the time of an incident in dealing with the emergency. Again, use of a 'premises information box' at the main entrance is a way in which this can be achieved.

Photograph of a Premises Information Box to be inserted



79. Controlling hazardous activities

79.1 Unlike many other types of building, there are few activities that take place within the common parts of block of flats that are inherently hazardous. The exception is building and engineering works, whether alterations or repairs.

79.2 Irrespective of whether they are undertaken by in-house personnel or a contractor, there is potential during such works, not only to start fires or create new hazards, but also to impair fire safety measures, even if only temporarily.

Examples of new hazards or impairments to fire safety measures that can arise from building works include:

- Making holes in compartment walls and floors.
- Removing stairway doors required to protect the escape routes in order to allow free access for delivering materials.
- Parking over fire hydrants.
- Placing site huts too close to the building.
- Leaving gas cylinders inside the building overnight to avoid having to store them properly away from the building.
- Blocking access to a fire main inlet.
- Leaving combustible building materials in common parts.
- Opening up parts of the structure without providing suitable fire resistant hoarding to separate work areas from occupied parts.

79.3 Landlords and other Responsible Persons should place strict obligations on those undertaking works to implement appropriate fire precautions when carrying out works and to avoid issues such as those above. Incorporating conditions within contracts is one common means of achieving this, but this should also be reinforced by scrutiny of method statements and by inspections during the course of the works.

79.4 The extent of this will vary. The Construction (Design and Management) Regulations 2007 may apply, but not in the case of small works and maintenance. The latter may still involve the potential to create hazards and it is important that account is taken of this.

79.5 Of most concern is the potential for fires to be started when 'hot work' is undertaken. It is vital that control is exercised over such works to minimise any potential for a fire to be started. Usually, this is achieved by adopting a 'permit to work' system, which places obligations on those carrying out the work to inspect the areas in which work is taking place, both before and after the work, and to take all necessary precautions, including provision of accessible fire extinguishers.

79.6 Further advice on fire safety during construction work is available from the HSE and the Fire Protection Association as follows:

- *Construction Information Sheet No. 51 Construction fire safety. Health and Safety Executive.*
- *Fire safety in construction work, HSG168. Health and Safety Executive.*
- *Fire prevention on construction sites. The joint code of practice on the protection from fire of construction sites and buildings undergoing renovation (seventh edition). Fire Protection Association and Construction Federation, 2009.*

80. Inspection, testing and maintenance of fire safety systems and equipment

- 80.1 All fire safety systems and equipment provided for the safety of those who work, or reside, in blocks of flats, and for the use of operational fire-fighters, need to be maintained in effective working order. It is therefore necessary to have in place arrangements for routine inspection, testing, servicing and maintenance.
- 80.2 Some of the inspection and testing can be carried out by in-house staff, provided they are suitably competent. However, it is anticipated that most landlords and other Responsible Persons will need to employ suitable contractors to carry this out. Again, it is essential that these contractors are competent. Various third party certification and approval schemes are available that provide landlords and other Responsible Persons with confidence that listed companies have been assessed initially in relation to their capability against a recognised standard, and that this is continually monitored through surveillance visits.
- 80.3 Where elements of the testing are carried out by in-house staff or other non-specialists, it is important that there is access to a suitable contractor to follow up and address deficiencies identified through the testing and, in particular, to attend site at short notice to carry out emergency repairs resulting from the tests e.g. in the event that a smoke vent will not close or a fire alarm system will not reset.
- 80.4 The following details the basic requirements for routine attention in relation to the various fire safety systems and equipment commonly found in purpose-built blocks of flats.

Emergency escape lighting

- 80.5 Unless the emergency lighting is of the self-testing type, there will be a need to test each fitting periodically to ensure that the lamp (or other light source) has not failed, the changeover to standby power is effective and that the batteries are still capable of supplying the fitting for the required duration.
- 80.6 In most cases, the testing involved comprises:
- A monthly, functional test using a suitable test facility – the purpose of this is simply to establish by switching from the normal to the standby supply that the fitting has not failed.
- This is a quick, simple test that can easily be undertaken by, for example, housing officers, or indeed as part of value added service from contractors who visit regularly e.g. cleaners.
- A full duration discharge test once a year – the purpose of this is to confirm that the batteries are still capable of supplying the fitting for long enough.

- 80.7 Care should be taken not to leave a building entirely without escape lighting while batteries recharge after a test.
- 80.8 Further guidance on testing and servicing emergency escape lighting systems can be found in BS 5266-8.

Smoke ventilation

- 80.9 Systems of automatically opening vents, or vents electrically controlled, but manually operated, should be subject to routine testing and periodic servicing.
- 80.10 AOVs and electrically operated OVVs should be tested once a week for correct operation using the manual controls provided. Again this is a simple test that can be undertaken readily by non-specialists.
- 80.11 Testing of the smoke detectors and controls associated with AOVs should take place at least once a year, and in accordance with the manufacturer's instructions.
- 80.12 Other systems of smoke control, including smoke extract systems and pressurisation systems, should again be tested and serviced periodically in accordance with the manufacturer's instructions. This will normally be at least annually, but may involve monthly or more frequent functional tests where the systems are intended to protect the means of escape. It is important that those servicing such systems are familiar with the fire engineering performance parameters used in the design of the system.
- 80.13 Further guidance on testing and servicing of smoke control systems can be found in BS 9999.

Fire extinguishing appliances

- 80.14 Where fire extinguishers and fire blankets are provided, they should be inspected and maintained every 12 months. This is a task for suitably trained specialists. However, there is a role for others, such as housing officers, to be alert to any missing or damaged equipment as part of normal walk rounds or formal fire safety inspections, and to report this for action.
- 80.15 Further guidance on inspection and maintenance of fire extinguishing appliances can be found in BS 5306-3.

Fire detection and alarm systems

- 80.16 Where provided, fire alarm systems should be subject to routine testing and servicing. There are two parts to this, regular testing and periodic servicing.
- 80.17 A simple functional test should be undertaken, once a week, by operating a manual call point (or test switch on the panel). This can readily be carried out by non-specialists e.g. housing officers and in-house maintenance teams. Only one call point needs to be operated to meet the objective of this test, but it is good practice to use a different call point each week and progressively test them all this way.
- 80.18 The aim of this test is simply to check that the system is functional. It is not intended that this test be used to confirm audibility of the alarm, for example. However, where operation of this system is associated with say, release of devices holding open fire

doors or securing electrically locked fire exits (where permitted), the weekly test should be used to check the function of these ancillary actions.

- 80.19 Periodic servicing should be undertaken at least once every six months.
- 80.20 Further guidance on testing and servicing of fire alarm systems can be found in BS 5839-1.

Smoke/heat alarms

- 80.21 The need for regular testing applies equally to the smoke alarms and other devices provided for early warning of fire within the flats themselves.
- 80.22 Rarely are landlords in a position to undertake this on behalf of tenants, and it is usually the responsibility of residents to test their smoke alarms. However, landlords should use opportunities that arise to check on the condition of smoke alarms they have provided. For example, anyone needing to visit a flat can easily check for signs that a tenant has interfered with a smoke alarm or otherwise disabled it. Damage to the device and evidence of battery removal can often be readily visible. In addition, a test of a smoke alarm could be a value added service carried out by any contractor undertaking a routine visit for the purposes of carrying out a repair or, for example, during annual gas safety checks.
- 80.23 Further guidance on testing smoke alarms can be found in BS 5839-6.

Fire dampers

- 80.24 Fire dampers, where provided in communal ductwork or rubbish chutes, should be subject to inspection and test periodically to ensure that they will still operate in a fire. Depending upon ease of access, this should be undertaken at least once every two years for those operated by fusible links. For those that are spring operated, this should take place every year.
- 80.25 Further guidance on testing of fire dampers can be found in BS 9999.

Sprinklers (and other fire extinguishing/suppression systems)

- 80.26 Sprinkler systems and water mist systems, where provided, should be regularly tested and serviced periodically. A weekly test will be necessary along with three monthly, six monthly and annual routines for servicing and maintenance. Where the water supply is pumped, more frequent tests, e.g. monthly, will be needed to check operation of the pumps.
- 80.27 It is unlikely that a landlord will have staff with appropriate specialist knowledge in-house, and suitable contractors will need to be employed.
- 80.28 Further guidance on testing and servicing of sprinkler systems can be found in BS EN 12845 and in the case of domestic sprinklers, BS 9251.
- 80.29 Further guidance on testing and servicing of water mist systems can be found in DD 8489-1 and in the case of domestic water mist systems, DD 8485-1.

Fire mains

- 80.30 Fire mains need to be inspected every six months and tested every 12 months. Inspections largely involve simple checks to confirm that the outlets are not damaged and padlocks and straps on the landing valves are still in place. This could readily be incorporated within formal fire safety inspections or fire risk assessment reviews. Testing will involve pressurising the main, and will, therefore, normally require a specialist contractor to carry it out.
- 80.31 Further guidance on testing and maintenance of fire mains can be found in BS 9990.

Fire-fighting lifts

- 80.32 Lifts used for fire-fighting need to be subject to tests and maintenance on a regular basis. This will involve weekly operation of override switches and monthly inspections and annual testing and maintenance of the lifts.
- 80.33 Further guidance on testing and servicing of fire-fighting lifts can be found in BS 9999.

81. Inspections and repairs of other fire safety measures.

- 81.1 Other fire safety measures provided for the safety of those who work in or reside in blocks of flats and for the use of operational fire-fighters need also to be maintained. It is therefore necessary to have in place arrangements for routine inspection, maintenance and repair.
- 81.2 The following details the basic requirements for routine attention in relation to these other fire safety measures.

Fire-resisting doors

- 81.3 Good practice is to inspect timber fire-resisting doorsets on a six monthly basis as part of a programme of planned preventative maintenance. These inspections are aimed at identifying defects such as:
- Missing or ineffective self-closing devices.
 - Damaged doors or frames.
 - Removal of locks without suitable repairs to the integrity of the doors.
 - Poorly fitting doors caused by distortion or shrinkage, or as a result of wear and tear.
 - Newly fitted, but inappropriate, door furniture.
 - Doors which have been replaced using non-fire resisting types.
- 81.4 Flat entrance doors should be included within this programme. Where leasehold flats are involved, this will only be possible if there is legal right of access, by means of a condition within the lease to carry this out. It is important that any new leases include such a condition.
- 81.5 The defects highlighted above will often be obvious to those carrying out fire safety inspections and, indeed, it is straightforward to train others to be alert to them. Where defects are reported, it is important that action is taken within an appropriate timescale and that they are not simply left to the next six monthly inspection.

81.6 Further advice on routine inspection and maintenance of fire-resisting doors can be found in BS 8214.

Fire separating construction

81.7 Routine inspection of fire-resisting walls and floors required for compartmentation or protection of the means of escape cannot be so readily achieved. Nevertheless, damage to walls or signs of unauthorised work, including DIY by residents, are likely to be obvious when within the common corridors, lobbies and stairways.

81.8 Fire safety inspections and fire risk assessment reviews also offer opportunities to inspect other areas such as riser cupboards, plant rooms, etc.

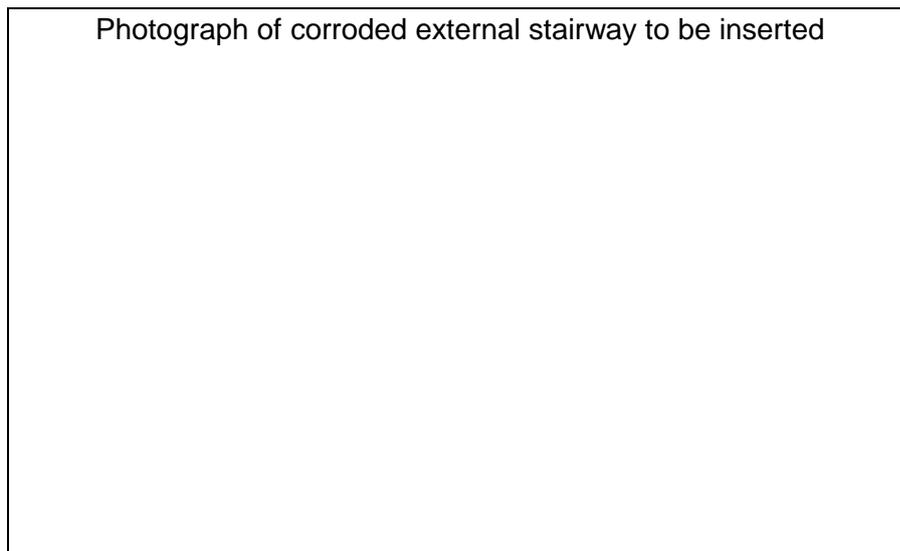
81.9 Other opportunities, such as when flats become vacant or change tenancy, should be used to inspect the condition of compartmentation and to undertake fire safety improvements.

External fire escape routes

81.10 Where external routes, particularly involving metal escape stairways, are part of the means of escape, they should be subject to periodic inspection and maintenance. Fire safety inspections should include visual checks to look for:

- Evidence of damage or corrosion;
- Build up of moss or other slip hazards;
- Trip hazards or obstructions on the stairway.

81.11 Survey by a specialist, at least once every three years, should also be included to ensure that the stairway still has suitable structural integrity.



Manually openable smoke vents

81.12 Windows and other means provided for venting smoke should be opened on a regular basis (e.g. at least once a year), to ensure that they open freely and have not become stuck.

82. Monitoring the common parts and being alert to new hazards

- 82.1 A formal fire safety inspection of a block of flats is a common means of identifying issues relating to fire prevention and maintenance of fire safety measures. Exercises of this kind, whether solely dedicated to fire safety or combined with checks on health and safety, provide a snapshot of the standard being maintained. However, many of the day-to-day activities that take place in a block of flats provide opportunities to continuously monitor fire safety in the common parts.
- 82.2 Indeed, ensuring that housing officers, repair teams, cleaners and any other staff or regular contractors are aware of what to look out for can significantly impact on the standard found in a particular building. Scheme managers and care providers are also well placed to undertake this in sheltered housing schemes.
- 82.3 TRAs can also have their part to play as they may carry out inspections for other reasons, part of which could include looking out for any fire safety concerns. Raising awareness among residents can also lead to them recognising issues, particularly in respect of the use of the common parts, and raising these with landlords or directly with their neighbours.
- 82.4 The extent to which formal fire safety inspections need to be carried out depends upon how successfully standards are being maintained. No set frequency can be applied. At one extreme, it may not be necessary to carry out any inspections other than as part of safety audits or fire risk assessment reviews. However, it should be recognised that more frequent inspections are likely to be necessary in blocks in which there are particular concerns over anti-social behaviour and the consequent threat of arson, or in which a 'managed use' policy applies to the use of the common parts (see Part E of this guide).

Landlords and other Responsible Persons should consider creating a checklist for fire safety inspections. Checks should confirm that:

- Combustible waste or storage is not present in corridors, lobbies, stairways and chute rooms.
- Any notice boards are not overflowing with outdated messages and posters.
- Other infringements of the policy on the use of the common parts are not taking place.
- Doors to residents' store rooms are not being left or held open.
- Doors to electrical cupboards, plant rooms, bin stores and other ancillary rooms are not being left or held open.
- Front doors and other entrance/exit doors are closing properly.
- Letterboxes are not damaged leaving apertures through which smoke can spread.
- Where provided, fire extinguishing appliances are not missing, discharged or damaged.
- There are no signs of damage to fire-resisting walls, doors and glazing between flats and the common parts.

- Where provided, automatically opening vents have not been tampered with or forced open and damaged (e.g. by residents seeking to air stuffy atmospheres or to remove the smell from illicit smoking).
- Fire exit signs or fire action notices are not missing or defaced.
- Where provided, fire detectors, call points and sounders are still in place and have not been damaged, covered over or interfered with in anyway.
- Rising main outlets, where provided, are not damaged or obstructed.
- Emergency light fittings are working normally e.g. illuminated signs are still lit.
- Vents required for smoke control have not been blocked up to prevent draughts.

82.5 Those undertaking inspections should also be alert to new hazards that might arise from time to time e.g. use of temporary heaters in common parts during cold snaps, use of extension leads from flats to charge a mobility scooter brought in by a visitor, inappropriate use of candles and decorative lights during celebrations.

83. Reviewing and auditing fire safety standards

83.1 As discussed in Part D of this guide, there is an obligation under the FSO to review the fire risk assessment regularly, and whenever there is a material alteration, there is a significant change, or there is reason to consider it is no longer valid (e.g. following a fire). Many organisations also undertake audits as part of the process of ensuring compliance with their legal obligations and demonstrating due diligence in the management of their housing stock.

83.2 Audits and formal reviews need not take place every time there is a change of resident. Nor, indeed, will it be necessary to do so every time minor works take place. Good practice is to encourage a process of dynamic risk assessment by all those responsible for fire safety. This way, people continuously think about fire safety during their work activities.

83.3 However, periodically, and where warranted by the nature of the changes that have taken place, a formal review needs to be carried out and should be recorded. Periodic reviews should always include consideration of the action undertaken in response to the previous risk assessment.

84. Controlling alterations so that they are not detrimental to fire safety

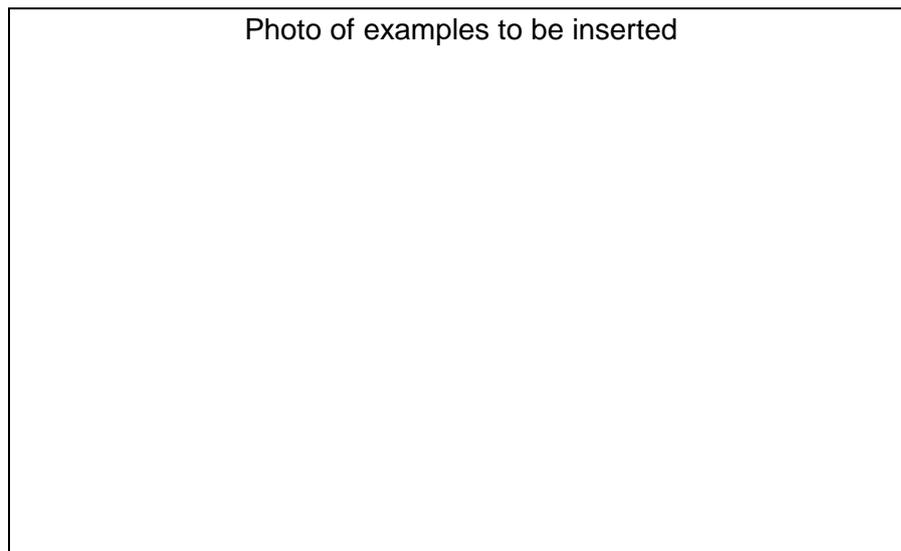
84.1 Alterations and improvements to blocks of flats can be detrimental to fire safety if careful thought is not given to the possible impact they might have. Problems can arise, not only when large scale refurbishment programmes are carried out, but also during minor work that residents themselves might undertake.

Examples include:

- A leaseholder changing their flat entrance door, but not replacing it with a suitably fire-resisting and self-closing door.
- A resident installing a new bathroom suite, but not ensuring that breaches of riser walls created for new drains are fire stopped afterwards to maintain fire separation to the common riser.

- A resident removing the doors and walls to the kitchen and lounge to create an open plan living area, but in so doing, making all the bedrooms inner rooms and possibly impairing protection to the common parts.
- A utility company installing new gas supplies to flats and creating the necessary ventilation to gas meters by unprotected openings into common corridors and stairways.
- A landlord adding a pitched roof to a flat roofed block without providing suitable cavity barriers.
- Residents fitting non-condensing tumble dryers with holes through fire walls and doors for vent pipes.
- A landlord replacing windows and using sealed units which cannot be opened to vent smoke from common parts.
- A contractor installing a new false ceiling without transfer grilles to allow smoke to reach existing permanent vents.
- A landlord undertaking a project to fit rain screen cladding to an existing block of flats without considering the potential for a fire from a flat to travel upwards through the cavity behind the cladding to spread into the flats above.
- Electricians installing new down lighters in flats without fitting protection to the back of the lights and therefore breaching the fire separation provided by the ceiling.
- A resident undertaking DIY to fit additional socket outlets and, in so doing, damaging the protection to the timber frame construction.

84.2 Processes should be in place to scrutinise all alterations, whether involving major capital outlay or small works carried out under term contracts. It is essential that the implications of such works are considered in relation to the effect they might have on fire safety in the block.



84.3 Tenancy agreements should also restrict the works that tenants can undertake without first seeking permission. Leaseholders should also be suitably constrained from making detrimental changes by virtue of the conditions within their lease.

85. Being alert to possibilities to improve fire safety standards

85.1 Alterations and improvements to a block of flats can also provide ideal opportunities to upgrade the fire safety measures, often at minimal extra cost. For example, when

lift replacement becomes necessary, specifying that the old standard fireman's lift be upgraded to current fire-fighting lift standard, particularly in relation to power supplies, will significantly improve the protection afforded to fire-fighters at the time of an incident in the building.

86. Maintaining records

- 86.1 It is good practice to keep records that show that people have received fire training and that inspection, testing and maintenance has been carried out on fire safety systems and equipment.
- 86.2 While the absence of such records does not imply that, for example, testing and maintenance have not been undertaken, having such records enables a Responsible Person to demonstrate due diligence in the event that fire safety is found wanting, either as a result of routine audit or following scrutiny after a fire.
- 86.3 Various methods can be used to keep records, from the ubiquitous log book to electronic methods using PDAs to capture data.
- 86.4 As stated earlier, there is an obligation under the FSO to maintain records of the fire safety arrangements in a building. It is particularly important so those tasked with managing fire safety are aware of the fire safety features incorporated within the design of the building. It is important so that fire safety measures can be suitably maintained on an ongoing basis. It also enables landlords and other Responsible Persons to ensure that these measures are preserved and protected during future alterations to the building.
- 86.5 In new buildings, there is an obligation under the Building Regulations 2010 to pass on information on the fire safety design to those who have responsibility for managing the building and meeting their obligations under the FSO. This is particularly important where fire engineering has been employed to produce fire safety designs that are not code-compliant. This information is usually contained in a fire safety strategy developed during the building project to support the approval under the Building Regulations.
- 86.6 It is possible that this may have applied to the larger more complex blocks of flats built recently. However, for most existing blocks of flats, it is unlikely that any such information will have been documented.
- 86.7 A record of the fire safety arrangements can often take the form of a plan of the building showing the various fire safety measures. The example given in the HM Government guide 'Fire Safety Risk Assessment, Sleeping Accommodation' is reproduced below.

Copy of record plan from Sleeping Accommodation guide to be inserted here

86.8 Such plans might be appropriate for some medium and high rise blocks of flats but are rarely likely to be warranted for low rise blocks. In practice, there will be no need for a specific record of the fire safety arrangements in many blocks, particularly if the fire safety measures are detailed sufficiently in the fire risk assessment. Generic policies and procedures covering maintenance arrangements etc would then suffice to meet the FSO's requirements in this respect.

86.9 In some cases, particularly where the flats are part of a larger mixed use development, it might be appropriate to prepare a fire safety manual as a record of the fire safety arrangements. This might also apply in the case of, say, a large extra care sheltered housing scheme, particularly where different organisations are involved in the running of the building and provision of care.

86.10 Guidance on the content of a fire safety manual can be found in BS 9999.

87. Liaising with agencies responsible for fire safety

87.1 Fire and rescue services routinely undertake visits to certain premises in order for operational crews to become familiar with the features of the building, including the access for fire appliances, availability of water for fire-fighting and the provision of any special facilities for their use, such as fire-fighting lifts and fire mains.

87.2 Most blocks of flats would not warrant such a visit, other than possibly in the case of high rise blocks. However, crews may also visit larger sheltered schemes. Whether a particular block of flats needs to be visited is a matter for the discretion of the local fire and rescue service. Nevertheless, landlords and others with responsibility for the blocks should welcome such visits, as pre-planning for an emergency in this way can be invaluable in an emergency.

87.3 The fire and rescue service are also able to assist landlords and others responsible for fire safety in reinforcing the fire safety message to residents. Home fire safety

checks are a key component of the Community Fire Safety initiatives of fire and rescue services and are available to residents of any domestic dwelling. Landlords and other Responsible Persons should use suitable opportunities to draw this to the attention of residents.

- 87.4 Should deficiencies be found in fire safety in a block of flats, the fire and rescue authority may recourse to issuing warnings and possibly even an enforcement notice. In extreme cases, they can prohibit use of a building and they may prosecute a Responsible Person over circumstances that put occupants at risk of death or serious injury in case of fire (see Part C of this guide).
- 87.5 Fire and rescue authorities may use a Notice of Fire Safety Deficiencies or another means of highlighting the need for action to be taken on improving fire safety. While these low level notices may not have any statutory force, it is necessary for landlords and other Responsible Persons to respond to these notices and take appropriate action, including informing the fire and rescue authority of their response.

Landlords and other Responsible Persons should ensure that their arrangements for managing fire safety include the following:

- Developing a fire policy and appointing someone in the organisation to take overall responsibility for fire safety.
- Making sure someone is designated to provide guidance on fire safety measures required by the FSO, and supporting this person with help from specialists, where necessary.
- Co-ordinating and co-operating with other occupiers, particularly on issues such as fire procedures.
- Using tenants' handbooks, websites and other media to engage with residents and communicate vital fire safety messages.
- Providing generic training to ensure housing officers and others visiting blocks of flats have sufficient fire safety awareness.
- Preparing relevant fire procedures and making everyone aware of them.
- Managing the risk from building works, including adopting a 'hot work' permit system.
- Putting in place programmes for routine inspection, testing, servicing and maintenance of fire safety systems and equipment.
- Arranging similar programmes to monitor the condition of other fire safety measures, such as fire-resisting doors.
- Monitoring the common parts through formal inspections, and as part of day-to-day activities by staff.
- Carrying out additional fire risk assessment reviews to monitor standards.
- Putting in place processes for scrutinising planned alterations in order to consider their impact on fire safety.

- Maintaining suitable records.
- Liaising with the fire and rescue service and encouraging residents to take up the offer of home fire safety checks.

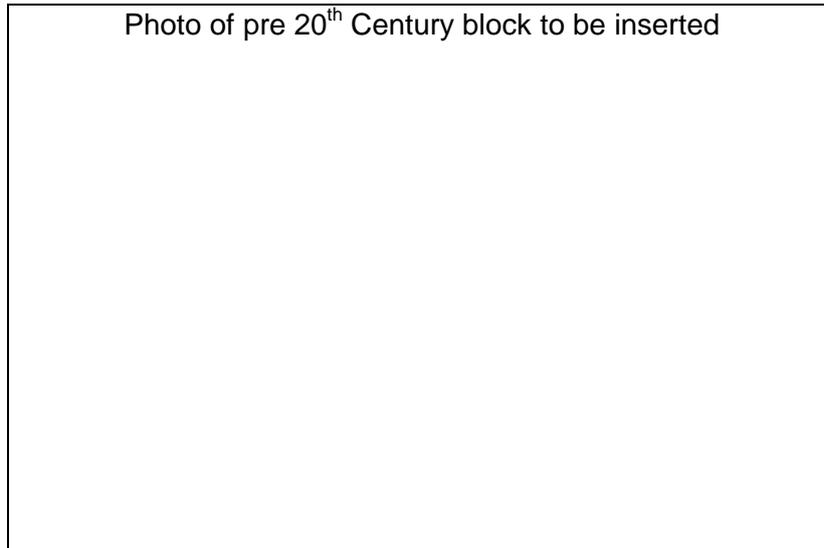
APPENDIX 1

HISTORY OF FIRE SAFETY DESIGN STANDARDS FOR PURPOSE-BUILT BLOCKS OF FLATS

- A1.1 In order to carry out a fire risk assessment for an older block of flats, designed before current guidance on design of measures such as means of escape and smoke control, there is a need to have some understanding of the original principles on which the block was probably designed. This enables an understanding of whether significant departures from current guidance on the design of a new, purpose-built block of flats have arisen from radical changes in guidance, or from material alterations that compromised the original design and that should, therefore, be rectified (see Figure X in Part F of this guide).
- A1.2 This enables a sympathetic approach to old blocks of flats designed in accordance with superseded standards. It is not appropriate simply to apply current standards to such blocks, with no consideration of the risk to people from continuation of the original fire safety measures without expensive upgrading that is not proportionate to the risk. (By analogy, an old car may not incorporate all the safety features of current models, but may still meet road traffic legislation.) Requirements for upgrading fire safety measures in such circumstances should be based on identification of material risk, rather than prescriptive application of current guidance.
- A1.3 General guidance on the relevant legislation and design principles that were typically adopted at various periods of time are outlined below, along with the relevant superseded codes of practice, which can often be consulted to obtain further detail. Many of the codes of practice to which this appendix refers are lengthy and detailed; they can only be briefly summarized in this guide.

Pre 20th Century Blocks of Flats

- A1.4 Flats built prior to the 20th century may well have been constructed in accordance with local legislation and bye-laws. In the Victorian era, mansion-style blocks of flats were constructed for upper class people, and tenement blocks were constructed for working class people.
- A1.5 Typically, these blocks may comprise a single stairway of four or five storeys, with flats entered directly from the stairway, or blocks with corridors, often of considerable length, with or without alternative stairways for means of escape from fire. In early tenements, construction may have originally incorporated lath and plaster ceilings and timber floors, which would, by today's standards, not provide sufficient fire resistance between storeys.



- A1.6 However, lath and plaster ceilings may have been replaced with plasterboard that would afford a reasonable degree of fire resistance, and concrete floors often exist in mansion blocks constructed in the latter half of the 19th century. Endeavours should be made, to the extent practicable, to determine the likely construction of floors and ceilings. A reasonable degree of fire resistance between floors may be adequate to support a 'stay put' policy, subject to reasonable protection of the communal means of escape from a fire in a flat and/or suitable alternative means of escape.
- A1.7 In the latter part of the 19th century, very basic measures to support means of escape were sometimes incorporated, such as escape, via roofs, into adjacent buildings. There may also have been efforts over the years to upgrade means of escape, by provision of alternative escape routes comprising routes over roofs and external stairways.
- A1.8 Possible shortcomings of which it is important to be aware and consider in respect of means of escape from these old blocks of flats include:
- Flats of more than three storeys above ground, served by a single stairway, with no alternative means of escape.
 - Inadequate fire resistance between each flat and the common parts. Particular note should be taken of any glazed fanlights or sidelights, as these are unlikely to afford any significant fire resistance, unless they have been replaced with fire-resisting glazing or fire-resisting secondary glazing within flats.
 - Panelled flat entrance doors, with less than a notional fire resistance of around 20 minutes if tested in accordance with current fire resistance tests.
 - Flat entrance doors that are not effectively self-closing.
 - Long travel distances along corridors leading to protected stairways, sometimes in a single direction with no alternative escape route.
 - Escape routes onto, and over, roofs, which are often unsuitable for disabled, elderly or infirm residents, or for young children.
 - External escape routes, such as walkways or stairways, which may be exposed to a fire in an adjacent flat, may not terminate at a place of ultimate safety, or may be in poor condition.
- A1.9 There were not normally any special measures for smoke control in these blocks, and it is usually not reasonably practicable to install such facilities today. However, often

there are openable windows within common parts, which are of value to the fire and rescue service for smoke clearance and should normally be maintained in place.

- A1.10 Consideration may need to be given to any common shafts for ventilation (e.g. from kitchens or bathrooms), which may have been added over the years and may not incorporate adequate measures to prevent fire spread between flats.

Flats Built in Early Part of 20th Century

- A1.11 These flats were, again, often subject to local bye-laws, produced from time to time over many years, relating to general standards of construction, though not necessarily to means of escape from fire. The Public Health Act 1936 empowered all local authorities in England to make such bye-laws for the construction of buildings and the materials used.

- A1.12 The Public Health Act also required local authorities to make such requirements as considered necessary to ensure adequate means of escape from blocks of flats over two storeys and with a floor over 20ft above ground level. This sometimes comprised escape routes via roofs or external stairways.

- A1.13 The power of local authorities to make bye-laws relating to these matters was withdrawn by the Public Health Act 1961, by which time there were around 1,400 sets of bye-laws. This Act also gave the power to Ministers to produce national building regulations.

- A1.14 In London, the London Building Acts (see below) made requirements for the construction of buildings, and for means of escape from certain blocks of flats. Certain other Acts, specific to particular cities, also made requirements on such matters.

- A1.15 None of the above legislation made specific detailed requirements for the design of measures such as means of escape, and there were no nationally adopted codes of practice to which reference can now be made until the publication of a British Standard code of practice, CP3 Chapter IV, in 1948. This code of practice only applied to two-storey blocks of flats. In view of its obsolescence and very restricted scope, it is not considered further, other than to note that a fire resistance of 30 minutes was specified for construction that separated the lower flats from the stairway to upper flats.

London legislation

- A1.16 Locally applicable guidance was produced by some authorities, most notably the London County Council (LCC) in support of their local legislation. LCC produced guidance that applied from 1907-1936, after which it was substantially revised.

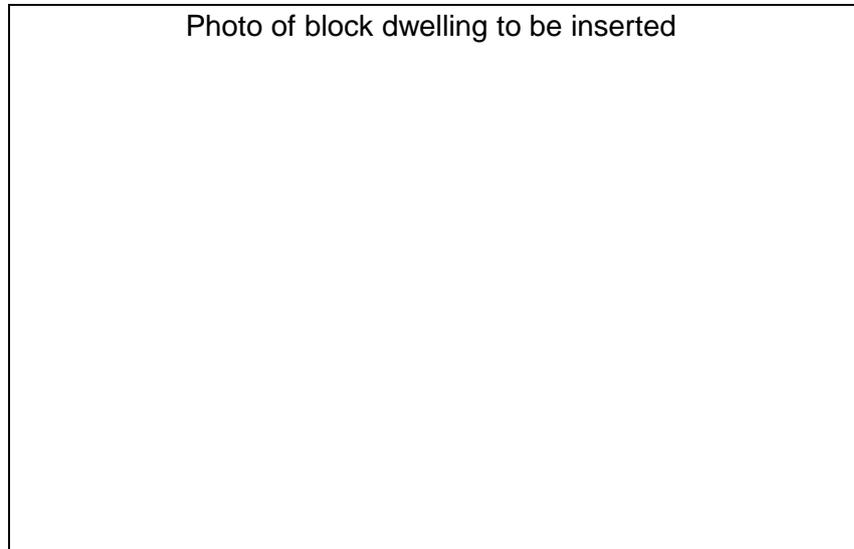
London legislation 1936-1946

- A1.17 Under the LCC guidance of 1936, a single, non-combustible stairway was acceptable in residential blocks not exceeding four storeys above ground level, with each flat accessed directly from the stairway (or from a protected lobby or corridor).

- A1.18 There was a maximum of four flats per storey, where floors were timber and ceilings were plastered, or six flats if the floors were non-combustible and there was a fire-

resisting screen and door separating the stairway from any common corridor. It was required that rooms within flats had to be entered from an entrance hall.

- A1.19 For blocks exceeding four storeys above ground, or with a floor more than 50ft above ground, an alternative means of escape, independent of the stairway, was necessary. Bedrooms in flats over 50ft in height, or on floors inaccessible to fire and rescue service appliances, had to be entered from an entrance hall or be provided with a pass door to the common parts or an alternative means of escape.



- A1.20 In the case of 'block dwellings' (for working class people), access to flats was via open balconies. In these blocks, a single stairway, partly open to the outer air, was acceptable for blocks not exceeding four storeys above ground level (or five storeys if the top two storeys were maisonettes) with accommodation for not more than 150 persons. All dwellings had to have an entrance hall. The maximum distance of travel between any flat and the stairway was limited to 80ft (approximately 24m). For blocks with more than four storeys above ground level, a second stairway was necessary, except that, where there was only one additional storey, access could be provided from each flat to the balcony of the flat below (or, in the case of the upper storey of a maisonette, to a link balcony to the adjacent maisonette).

- A1.21 From 1939, (until the current day), Section 20 of the London Buildings Acts (Amendment) Act 1939 has enabled additional requirements to be made in respect of construction of blocks of flats with a storey greater than 100ft (approximately 30m) above ground, or above 80ft (approximately 24m) if the area of the building exceeds 10,000 square feet (approximately 929m²).

- A1.22 The requirement for alternative means of escape in the case of buildings with more than four storeys above ground was subsequently applied where any floor was above 42ft (approximately 13m).

London legislation 1946-1962

- A1.23 New guidance for flats in London was produced in 1946. The maximum travel distance to a single stairway was increased to 100ft (approximately 30m), or 90ft (approximately 27m) to the nearest stairway in the case of buildings requiring two stairways.

A1.24 The two stairways could be no more than 180ft (approximately 55m) apart, except in the case of open balcony approach, where no limitation applied.

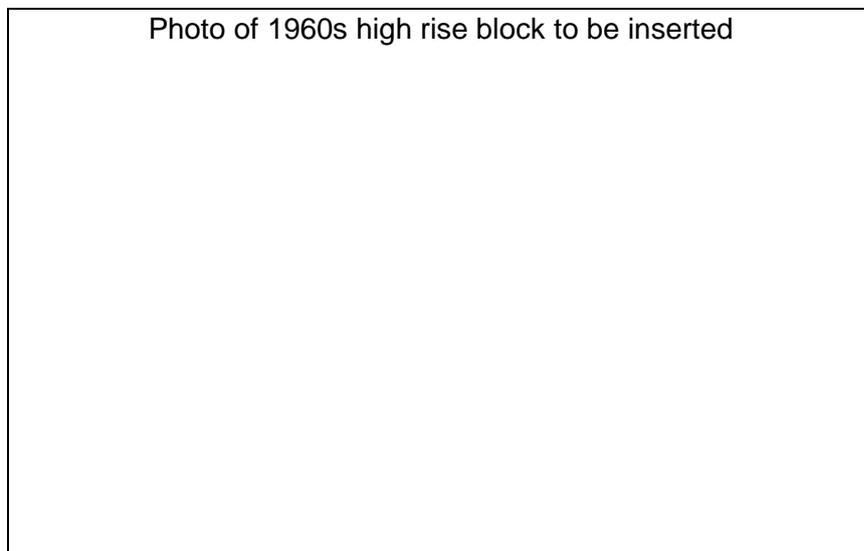
General

A1.25 Where blocks of flats were built prior to 1962, several of the possible shortcomings of which it is important to be aware and consider in respect of means of escape are similar to those previously described for pre-20th century blocks. However, original flat entrance doors were likely to have been fire resisting, as defined by the standards of the time, and may continue to afford a reasonable degree of fire resistance, other than in critical situations, such as long dead ends, where upgrading to current standards may be warranted.

A1.26 In the latter part of this period, shunt ducts may have been used to prevent fire spread between flats via common ventilation shafts, but this may need to be confirmed where there is a 'stay put' policy.

Flats Built Between 1962 and 1971

A1.27 In 1962, BSI published a new code of practice, CP3 Chapter IV Part 1, which provided recommendations for fire precautions in blocks of flats over 80ft (approximately 24m) in height. The code of practice was also considered appropriate for buildings less than 80ft in height.



A1.28 The 1962 version of CP3 Chapter IV Part 1 was highly significant as it was the first national code to advocate, and incorporate, fire safety measures based on, what is now known as a 'stay put' policy, expressed in 1962 as a principle whereby those in flats on floors above that in which a fire occurred would be safe to remain within their own flats. (It was acknowledged that flats on the same floor as the fire, or even in the immediate vicinity of the fire, might need to be evacuated, but a fire alarm system was not considered necessary.) The fire safety measures recommended were intended to ensure that means of escape remained safe for use by those with a need, or desire, to evacuate the block.)

A1.29 This strategy has proved appropriate over the last half century, and has worked satisfactorily in the vast majority of fires in blocks of flats. Accordingly, it should not readily be abandoned today. Even if a fire alarm system is considered necessary

(e.g. as a result of serious structural shortcomings that cannot be rectified), complete evacuation of a high-rise block of flats in the event of a fire in one flat is unlikely to be appropriate (see also Part F and Appendix 6 of this guide).

- A1.30 The code recommended that all flats have an entrance hall, in which there was no fire hazard. Bedrooms were to either open directly from this entrance hall (and be nearer to the entrance than any door to a living room, dining room or kitchen), or the bedrooms were to have an alternative exit leading directly to a main escape route outside the flat. The living room, dining room and kitchen doors were required to be fire resisting and self-closing. This often enables identification of a block of flats built in accordance with this early version of CP3 Chapter IV Part 1; the bedroom doors are often hollow core domestic doors, without any substantial doorstop, whereas the living room and kitchen doors are solid fire doors, closing onto a 25mm stop.
- A1.31 Maisonettes were, in addition, required to have an alternative means of escape from the non-entrance level. If the escape route from any room on the upper level passed the landing at the head of the stairway, a fire-resisting screen with a fire door was required at the head of the stairway, to separate the stairway from the upper level. Alternatively, pass doors between rooms, or an internal entrance hall, could be used to protect the upper floor escape route from a fire on the level below.
- A1.32 Where alternative exits from a bedroom were necessary, this could be provided via a balcony leading to a stairway, or via an internal stairway leading to common parts on the floor above or below the bedroom floor.
- A1.33 To facilitate safe escape within the common parts, in the case of flats accessed via balconies, alternative means of escape from each dwelling to a stairway was considered necessary. This normally comprised a balcony leading to a stairway at each end, but alternatively could comprise a balcony at both sides of the block leading to one or more stairways. In the case of maisonettes, these latter balconies could be on alternate floors, so ensuring safe escape from a fire within the maisonette, as well as safe escape from a fire that affected any balcony.

Photo of block with balcony escape to be inserted

- A1.34 For dwellings with a corridor approach, where every dwelling was provided with an alternative exit to a main stairway (e.g. via a balcony with escape in two directions), the maximum travel distance from the flat entrance door to a main stairway was

limited to 100ft (approximately 30m) and the corridor was to be provided with permanent or openable ventilation.

A1.35 Where an alternative exit was not available from each flat, the maximum distance from any entrance door to the nearest stairway was still limited to 100ft, provided the dwelling was situated between two stairways, or otherwise was limited to 50ft (approximately 15m). In addition, every dwelling had to open into a corridor and be either:

- (i) Not more than 15ft (approximately 4.5m) from the door to the main stairway (or to a smoke-stop door across the corridor) or not more than 15ft from a permanently ventilated lobby; or
- (ii) Open into a permanently ventilated lobby and be not more than 15ft from a smoke-stop door separating the lobby from the corridor leading to the stairway.

A1.36 Where a single stairway was permitted, access to it was either from a balcony or a ventilated lobby.

A1.37 Where common ventilation shafts served flats on each storey, a shunt duct was used to link each flat to the common shaft, or alternatively any horizontal duct from a flat to the shaft was required to be at least 3ft long. In the latter case, the junctions between the horizontal sections from each separate dwelling and the main duct were to be at least one storey height apart.

A1.38 National building regulations, applicable throughout England (other than inner London) were first produced in 1965. These made no requirements for means of escape, but did require compartmentation between flats.

London legislation

A1.39 In 1962, London County Council also published guidance on fire precautions in blocks of flats, in support of the London Building Acts.

A1.40 This guidance required entrance halls within flats, and it continued to permit direct access from flats to a single stairway (or to an internal protected lobby or corridor leading to a stairway or to an external balcony leading to an open stairway or partially open stairway) provided no floor was greater than 42ft in height (typically, a block of flats with up to four upper storeys).

A1.41 For blocks with floors over 42ft in height, an alternative means of escape was required, but this could comprise access to the roof (with a screen across the stairway to separate the lower floors from the uppermost floors). From the roof, access was provided to an adjoining building, a balcony or an external stairway. For balcony approach dwellings with only one storey above 42ft, a suitable alternative means of escape comprised a stairway to the balcony below.

A1.42 The maximum distance from a dwelling to a stairway was 100ft (approximately 30m), or, where there were two stairways, 90ft (approximately 27m) and the two stairways were not to be more than 180ft (approximately 55m) apart.

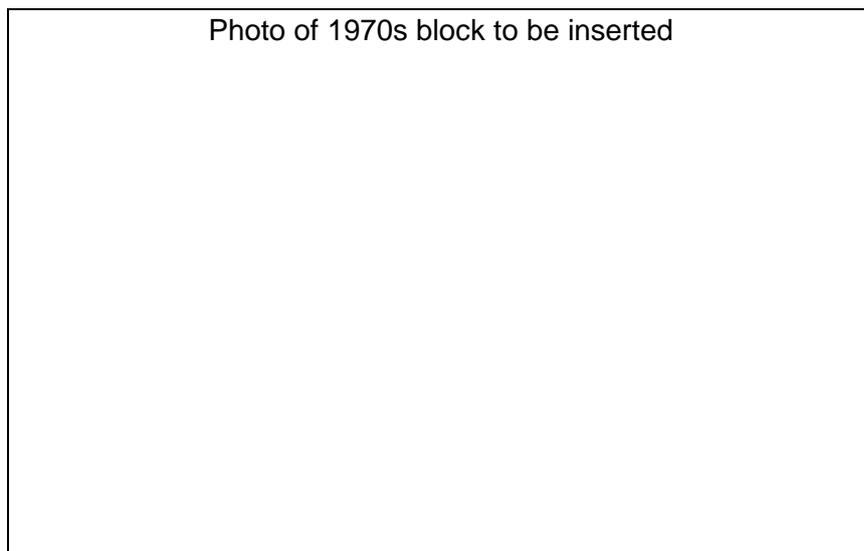
A1.43 Different recommendations applied to blocks accessed via open balconies or ventilated lobbies that connected to enclosed stairways. The recommendations varied according to whether there was only one flat in line from the stairway or more than one flat. In both cases, entrance halls were required within flats and the cross

ventilation of the lobby was required. However, in the case of blocks with more than one flat in line from the stairway, alternative means of escape was required from all floors over 80ft (24m) in height.

A1.44 Additional requirements for blocks over 80ft in height were required under Section 20 of the London Building Acts (Amendment) Act 1939.

Flats Built Between 1971 and 1985

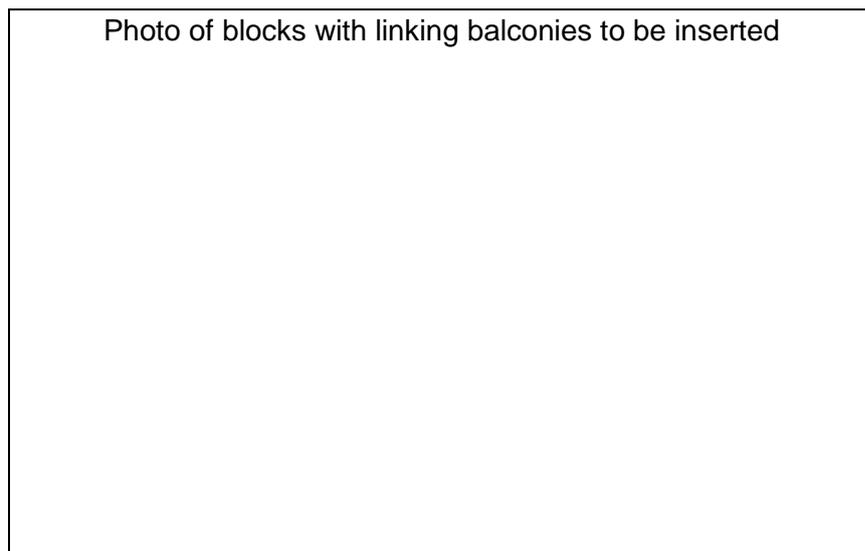
A1.45 In 1971, CP3 Chapter IV Part 1: 1962 was superseded by CP3 Chapter IV Part 1: 1971, which provided recommendations for precautions from fire in flats and maisonettes over two storeys. This code of practice was adopted in London for the purpose of compliance with the London Building Acts. However, in the case of tall blocks of flats, to which Section 20 of the London Building Acts (Amendment) Act of 1939 applied, a code of practice produced in support of that legislation specified additional measures, and, more generally, was accepted as an alternative code to CP3 Chapter IV Part 1 in relation to all the relevant fire precautions.



A1.46 In 1972, the Building Regulations were revised (but were still not applicable in Inner London). The Building Regulations 1972 (and all later versions of the Building Regulations) continued to require compartmentation between flats, and additionally required a protected stairway in blocks of flats of three or more storeys. In addition, reasonable means of escape were required in the case of blocks of flats above 4.5m in height (a traditional three, or more, storey block). CP3 Chapter IV Part 1 was deemed to satisfy a specification for reasonable means of escape. The Building Regulations 1976 continued these requirements (with the additional requirement that the enclosure of the protected stairway must extend to a final exit).

A1.47 The original 1972 version of CP3 Chapter IV Part 1 was amended in 1972, 1973, 1976 and 1978. None of the first three amendments are of significance for the purpose of this guide. The 1978 amendment reproduces advice to owners and occupiers of flats, originally published in the report of the working group of the Central Fire Brigades' Advisory Councils for England and Wales and for Scotland on Fire Safety in High Rise Blocks of Flats. It is of particular note that the advice to occupiers was that, if a fire is evident or reported elsewhere than their own flat, it will normally be safe to stay within their flat, closing doors and windows. This is what is now normally described as a 'stay put' policy.

- A1.48 CP3 Chapter IV Part 1 provided numerous options for the design of flats and maisonettes, and, in acknowledging the difficulty of making comprehensive recommendations for every situation, the code of practice advocated intelligent application of its principles and recommendations. As it is still available (from the British Standards Institution), its recommendations are only broadly summarized below.
- A1.49 A number of the principles of the 1962 and 1971 codes are very similar. However, in contrast with the 1962 version, the 1971 version no longer assumed that a whole floor or even adjoining dwellings need be evacuated if a fire occurred in a flat. It was considered that, as a result of the compartmentation in blocks of flats at that time (as a result of requirements under building regulations), the spread of fire and smoke from one dwelling to another, and the need to evacuate occupants of adjoining dwellings, was unusual.
- A1.50 A further contrast with the 1962 code relates to the protected entrance halls within flats. Both versions recommended the provision of these entrance halls, but the 1962 version recommended that only the lounge, dining room and kitchen doors need be fire resisting and self-closing, whereas the 1971 code recommended this for all doors, other than bathrooms and WCs containing no fire hazard.
- A1.51 Bedrooms were to open into an entrance hall and preferably be nearer to the flat entrance door than the living room and kitchen. The bedroom doors were not to be further than 7.5m from the entrance door unless there was an alternative means of escape from the bedrooms, which could comprise a linking balcony to an adjoining flat.

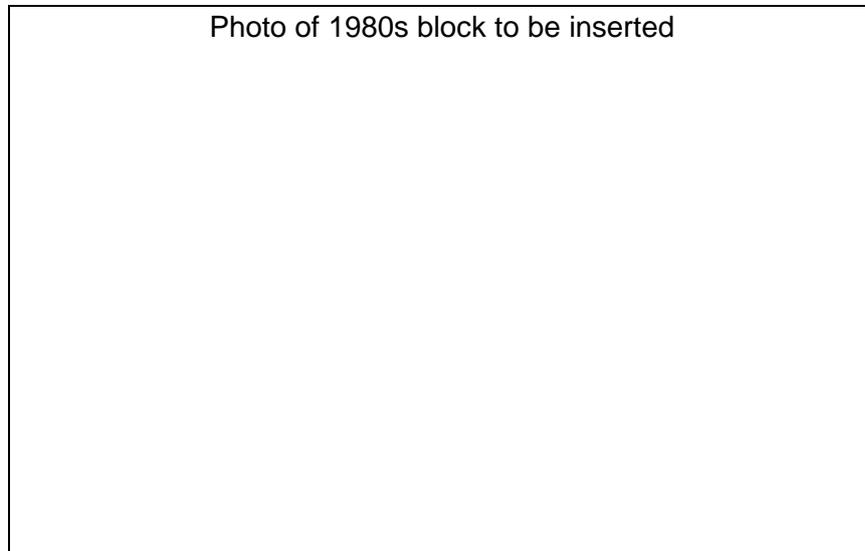


- A1.52 Various layouts for maisonettes were acceptable, but an alternative means of escape was required from every floor on which a habitable room was located, other than the entrance floor. This could comprise a linking balcony to an adjoining dwelling or a stairway to, for example, the corridor on another floor of the block. An open plan maisonette, in which the upper floor was accessed via a stairway from the lounge was acceptable, provided there was an alternative means of escape from each floor and there was a protected hallway within the dwelling to protect the common parts from a fire in a room within the dwelling.

- A1.53 For dwellings accessed from a balcony, there was not generally any limit in travel distance to a stairway. Where there was escape only in one direction along the balcony, either there was to be an alternative route to a main stairway or construction below 1,100mm above the balcony floor was to be fire resisting and unglazed.
- A1.54 In the case of conventional corridor access (without alternative means of escape from the dwellings), two alternative methods of smoke control were specified, as follows.
- A1.55 In smoke containment, the entrance door of every dwelling was to be no more than 4.5m from a door to a fire door to a main stairway, to a fire door across the corridor or to the door to a ventilated lobby. If the design was such that the 4.5m distance was to a cross-corridor door, and any other flat entrance door was located between the cross-corridor door and the stairway, there was to be an alternative means of escape to a further stairway. Alternatively, the flats could open into a ventilated lobby and have entrance doors no further than 4.5m from a door separating the lobby from a corridor that led to a stairway.
- A1.56 In smoke dispersal, reliance was placed on cross ventilation of the corridor, uninterrupted by cross-corridor doors. The cross ventilation could be provided by manually opened vents, together with either permanent vents or automatically opening vents operated by smoke detectors. Dead end corridors were limited in length to 15m, but, where there was escape in two directions, the travel distance from a flat entrance door to a stairway could be 40m.
- A1.57 In buildings with a single stairway, the stairway could be entered only from a balcony or a permanently ventilated lobby. However, there was a relaxation for small single stairway buildings of not more than four floors above ground level. In the latter case, if the net floor area of dwellings above first floor did not exceed 380m², the stairway could be entered from an unventilated lobby; this lobby could be omitted from the topmost floor.
- A1.58 Alternatively, if the net floor area of dwellings above first floor did not exceed 720m², the stairway could be entered from lobbies with either permanent ventilation or openable windows.
- A1.59 Stairways in all buildings were required to have either permanent ventilation or openable windows. Where a main stairway was not located against an external wall, or had no opening windows, it was to have a permanent vent at the top.
- A1.60 It should be noted that thinking on the subject of smoke control in the common parts of blocks of flats has changed significantly since the publication of CP3 Chapter IV Part 1. Accordingly, it may be inappropriate to restore original smoke control arrangements that have been undermined (e.g. by blocking of permanent ventilation because of discomfort to residents) if more suitable smoke control arrangements, in line with current design philosophy, are practicable.
- A1.61 In particular, it should be noted that smoke dispersal has been shown to be vulnerable to failure as a result of wind direction, and so may be unreliable. While it might be appropriate to leave in place existing arrangements of this type, maintained as originally designed, it might be less appropriate to engage in capital expenditure to restore such arrangements to their original design, if the expenditure could, instead, provide more effective smoke control in line with modern standards.

Flats Built Between 1985 and 1992

- 1.62 The Building Regulations were subject to a major restructuring in 1985 (and applied in Inner London from 1987). Previous editions of the Regulations set out prescriptive technical requirements for the design of fire precautions. The Building Regulations 1985 were cast in 'functional form', such that they contained only 'functional requirements', which, in effect, are objectives that must be achieved, with flexibility, in general, as to the design of the measures by which the objectives are achieved.

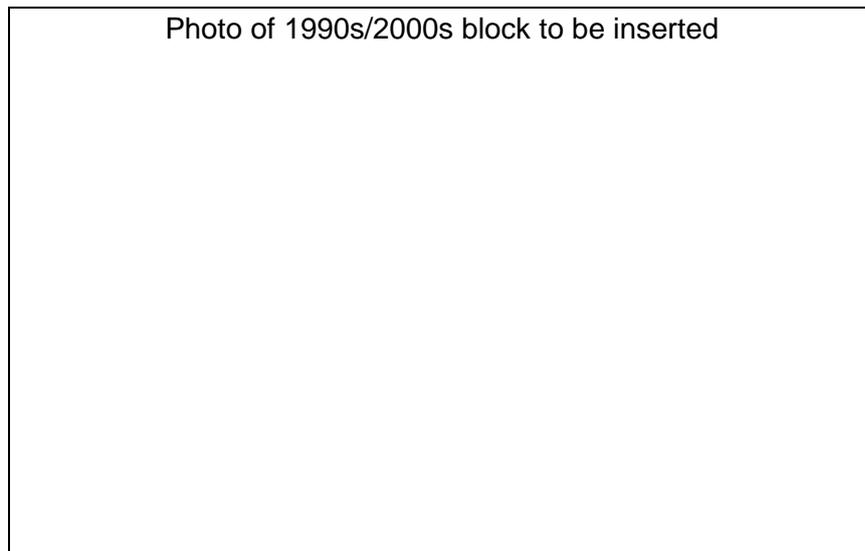


- A1.63 One of the functional requirements (Requirement B1) was the provision of means of escape from fire. However, in the case of blocks of flats, this requirement only applied to buildings of three or more storeys, with one or more flats on the second floor or above. Means of escape was only required for people on the second floor or above. This was, in effect, simply a continuation of much of the previous legislative requirements to which this Appendix makes reference, in which any requirements for means of escape from flats related to floors more than 20ft (6m) above ground level. On these floors, escape via windows is not generally possible.
- A1.64 For compliance with the functional requirement for means of escape from fire, no flexibility was afforded. Instead, there were 'mandatory rules for means for escape'. No other ways of compliance with the functional requirement were acceptable. The mandatory rules required that the means of escape complied with specified clauses of CP3 Chapter IV Part 1: 1971. These clauses included all those concerned with design of means of escape, both within the flats and in the common parts.
- A1.65 Given the major changes in recommendations for means of escape from flats contained in later codes of practice, it is to be expected that blocks of flats built before 1992 might well not meet the design principles for means of escape adopted after 1992.
- A1.66 Requirement B3 of the Building Regulations 1985 required various structural fire precautions, including compartmentation to limit fire spread. Non-mandatory guidance on means for compliance with Requirement B3 was given in Approved Document B under the Regulations. This guidance specified that all floors in flats (other than floors within maisonettes) and all walls separating a flat from another part of the building should be constructed as compartment floors and walls, with, in the case of flats in buildings of three or more storeys, at least 60 minutes fire resistance.

A1.67 In 1990, CP3 Chapter IV Part 1 was superseded by BS 5588-1. However, the mandatory rules on means of escape still referred to CP3 Chapter IV Part 1 until they were withdrawn in 1992. As BS 5588-1 is still current, it is not considered further in this review of historic standards. However, it is anticipated that BS 5588-1 will be superseded by a new code of practice, BS 9991, during the course of 2011.

Flats Built After 1992

A1.68 The mandatory rules for means of escape were withdrawn in 1992, when the Building Regulations 1991 came into force. These Regulations were superseded by the Building Regulations 2000 and then the Building Regulations 2010.



A1.69 From 1992 until the current time, Approved Document B has provided recommendations on compliance with all the fire safety requirements of the Building Regulations, including Requirement B1 regarding means of escape from fire, which applies to blocks of any number of storeys and not only to those of three storeys or more. For less common designs, such as flats entered from above or below, flats containing galleries and flats with balcony or deck approach, Approved Document B refers to the guidance in BS 5588-1.

A1.70 It is anticipated that fire precautions in blocks of flats designed in accordance with the requirements of the 1991 and later Building Regulations will not require any further work to satisfy current legislation, provided the fire precautions approved under the Regulations remain in place and are properly maintained.

A1.71 It should be noted that the need for smoke alarms in new flats first arose from the Building Regulations 1991, though, for compliance with these Regulations, the smoke alarms could be mains powered without a standby supply. The need for smoke alarms to be mains powered with a standby supply first arose in the 2006 edition of Approved Document B. If existing mains operated smoke alarms without a standby supply are replaced, models with a standby supply should be installed. Smoke alarms within the circulation areas of dwellings should be of the optical (rather than ionization chamber) type.

- A1.72 From 2006, Approved Document B no longer specified that there need be alternative means of escape from maisonettes provided that there is a protected entrance hall and either smoke alarms in each habitable room (but a heat alarm in the kitchen) or a sprinkler system. (The smoke alarm option does not apply where the entrance storey to the maisonette and the floors above and below are more than 7.5m vertically apart.)
- A1.73 Guidance on smoke control in the common parts of blocks of flats was also changed in 2006. However, it is not expected that these changes be applied retrospectively.
- A1.74 The most major change in guidance on blocks of flats since 1992 is the specification in Approved Document B for sprinkler protection of blocks of flats that exceed 30m in height. The sprinklers need only be installed within the flats, but not the common parts. It is recognised that this will, in the future, greatly enhance the safety of residents from fire in high rise blocks of flats, making a death from fire, even in the flat in which fire starts, unlikely. However, it is acknowledged that retrofitting of sprinkler systems in existing general needs blocks of flats is unlikely to be reasonably practicable when risk from fire to those beyond the flat in which fire starts is taken into account.

APPENDIX 2

STEPS IN A FIRE RISK ASSESSMENT

- A2.1 As noted in Part D of this guide, the number of defined steps in a fire risk assessment is largely irrelevant. It is the scope of the fire risk assessment that is important; all relevant fire precautions required by the FSO must be considered.
- A2.2 Some guidance, such as that produced by DCLG in support of the FSO, suggests five steps in a fire risk assessment, namely:
1. Identify fire hazards (sources of ignition, fuel and oxygen).
 2. Identify people at risk (people in and around the premises and people especially at risk).
 3. Evaluate the risk of a fire occurring and the risk to people from fire, remove or reduce fire hazards. Remove or reduce the risks to people by means of:
 - Detection and warning;
 - Fire-fighting;
 - Escape routes;
 - Lighting;
 - Signs and notices;
 - Maintenance.
 4. Record significant findings and action taken, prepare an emergency plan, inform and instruct relevant people, co-operate and co-ordinate with others and provide training.
 5. Keep assessment under review and revise where necessary.
- A2.3 The following nine steps are reproduced from the British Standards Institution publicly available specification, PAS 79. They amplify, but do not conflict with, other published guidance on fire risk assessment, that refers to five steps.
- A2.4 The nine steps defined in PAS 79 are:
1. Obtain information on the building, the activities carried out in the building and the people present, or likely to be present, in the building.
 2. Identify the fire hazards and means for their elimination and control.
 3. Assess the likelihood of fire, at least in subjective terms.
 4. Determine the fire protection measures currently in the building.
 5. Obtain relevant information about fire safety management.
 6. Make an assessment of the likely consequences to people in the event of fire, at least in subjective terms.
 7. Make an assessment of the fire risk.
 8. Formulate and document an action plan, with prioritization if appropriate.
 9. Define the date by which the fire risk assessment should be reviewed.
- A2.5 The nine steps set out above, while in a logical, structured order, are not necessarily set out in the chronological order in which the steps are carried out during a site

inspection. For example, some information relevant to control of fire hazards, the fire protection measures and the management of fire safety is normally most appropriately obtained in a single meeting that is held prior to inspection of the building.

A2.6 Each of the nine steps is discussed in the sub-sections below.

Step 1: Obtain information

- a) The following information will be relevant, as it has a bearing on fire risk:
- The number of floors below ground and the number of floors above ground.
 - The approximate area of each floor.
 - Any ancillary uses to which one or more areas of the building is put, such as commercial, community activities, etc.
 - The number and nature of the residents. This includes any social and known lifestyle factors that affect the risk from fire. It should be determined as to whether the number of disabled people is likely to be different from a typical, general needs block of flats (e.g. where housing is specifically provided for disabled people).
 - The presence of staff, e.g. a caretaker, porter or concierge.
 - Previous experience of fires.

Step 2: Identify the fire hazards and control measures

- a) A fire hazard is any source, situation or unsafe act that can cause a fire. Fire hazards within the flats and under the control of the residents need not be considered.
- b) Consideration should be given to the potential following causes of fire and to measures provided to eliminate or reduce the likelihood of each cause:
- Arson.
 - Electrical faults (in fixed wiring and any equipment provided).
 - Smoking.
 - Use of portable heaters.
 - Contractors' activities.
 - Heating installations.
 - Lightning.
 - Poor housekeeping, including inappropriate storage of refuse and discarded items.
- c) For discussion of these hazards and control measures, see Part E of this guide.

Step 3: Assess likelihood of fire

- a) All that is required is a subjective judgement as to whether, based on the findings of Step 2, there is an untoward likelihood of fire as a result of inadequate control over fire hazards.

Step 4: Determine the fire protection measures

- a) Fire protection measures are design features, systems, equipment or structural measures to reduce danger to people if fire occurs.
- b) The principal fire protection measures to consider comprise:
 - The means of escape from fire, with consideration given to:
 - The fire resistance between flats and the common parts.
 - Flat entrance doors, which should be fire resisting and self-closing.
 - Protection of stairways from fire in adjacent areas.
 - Travel distance from flat entrance doors to the nearest stairway or final exit.
 - Means for smoke control within the common parts.
 - Emergency escape lighting.
 - Fire escape route signs (which are not normally necessary in simple blocks of flats).
 - Any fire extinguishing appliances provided (these are not normally necessary).
 - Any fire alarm system within the common parts (such a system is not normally necessary, but smoke detectors may be provided to open vents automatically as part of the smoke control measures).
 - Compartmentation, particularly the enclosure of flats within fire-resisting construction.
 - Any sprinkler installations provided.
 - In tall blocks of flats, fire mains and fire-fighting lifts for use by the fire and rescue service.
- c) The adequacy of the existing fire protection measures should be assessed and any need for improvements should be identified. (Measures to assist the fire and rescue service, such as fire mains and fire-fighting lifts, are not required by the FSO, but will normally have been required under building regulations at the time of construction of a tall block of flats; adequate maintenance of these measures should be verified.)
- d) For discussion of fire protection measures, see Part F of this guide.

Step 5: Obtain information about fire safety management

- a) Matters to consider include the following:
 - Responsibility for fire safety in the building.
 - Access to competent advice on fire safety legislation.
 - The emergency plan, particularly the procedures for residents to follow in the event of fire.
 - Testing and maintenance of fire protection systems and equipment.
 - Documentation of the fire safety arrangements, where this is required.
 - Training of any persons employed to work in the building.
 - Co-ordination with any non-domestic occupier, such as commercial premises and community facilities.
 - Arrangements for routine inspections of the building and its fire precautions, and, where appropriate, formal fire audits.

- c) For discussion of fire safety management, see Part G of this guide.

Step 6: Assess the likely consequences to people in the event of fire

- a) This is based on an understanding of the fire protection measures and fire safety management. In addition, account needs to be taken of the way occupants are likely to respond in the event of fire.
- b) All that is normally required is a subjective judgement as to whether, as a result of shortcomings identified in Steps 4 or 5, there is an untoward exposure of people to injury or death in the event of a fire anywhere in the building, including a fire within a flat.

Step 7: Make an assessment of the fire risk

- a) Fire risk is a combination of the likelihood of fire (identified in Step 2) and the consequences of fire (identified in Step 6).
- b) There is no unique way in which fire risk should be expressed, but it is innate to the process of carrying out the fire risk assessment that there be an assessment of fire risk, which it is then appropriate to document.
- c) One simple method of consistently expressing fire risk is given in PAS 79 and can be useful for comparing the fire risk in one building to that in another (e.g. within the single estate of one organisation). This is reproduced below:

Potential consequences of fire ⇒ Likelihood of fire ↓	Slight harm	Moderate harm	Extreme harm
Low	Trivial risk	Tolerable risk	Moderate risk
Medium	Tolerable risk	Moderate risk	Substantial risk
High	Moderate risk	Substantial risk	Intolerable risk

Step 8: Formulate and document an Action Plan

- a) The Action Plan is discussed in Part D of this guide. If it is considered that the fire risk and existing fire precautions are such that no improvements are necessary, this should be recorded within the fire risk assessment.
- b) The Action Plan should address both physical fire precautions and managerial issues, and should normally prioritize measures (unless all required measures are relatively trivial and can be implemented in a short time), so that the appropriate effort and urgency is clear. Measures within the Action Plan should be both practicable to implement and possible to maintain, taking into account the nature of the building and its occupants.

Step 9: Set a date for review

- a) The fire risk assessment should set a 'long stop' date by which it should be reviewed, even if no changes have taken place in the interim period. The frequency for review of fire risk assessments is discussed in Part D of this guide.

APPENDIX 3

SELECTING A COMPETENT, PROFESSIONAL FIRE RISK ASSESSOR

- A3.1 The FSO does not require that fire risk assessments are carried out by competent specialists. Responsible Persons, or their employees, can often carry out a fire risk assessment for a small, simple block of flats without formal training in fire safety or fire risk assessment, simply by studying relevant guidance. However, where external professional fire risk assessors are employed, it is important that they are competent, as criminal liability will arise for the Responsible Person if the fire risk assessment is not suitable and sufficient and people are placed at risk of death or serious injury as a result.
- A3.2 Competence does not necessarily arise from specific qualifications, but will be the result of a suitable blend of education, training and experience, knowledge and other qualities to enable a fire risk assessor to carry out a fire risk assessment for a block of flats.
- A3.3 It is generally accepted that a competent fire risk assessor appointed by the Responsible Person for a block of flats will require the following:
- A sound knowledge of the intent, objectives and requirements of the FSO, as it relates to a purpose-built block of flats.
 - An understanding of the design principles of blocks of flats, including blocks constructed in accordance with previous standards and legislation.
 - An understanding of the causes of fire and means for their prevention.
 - An understanding of relevant fire protection measures, particularly means of escape and compartmentation in purpose-built blocks of flats.
 - The appropriateness of fire alarm systems in purpose-built blocks of flats.
 - The appropriateness of fire extinguishing appliances in purpose-built blocks of flats.
 - The appropriate evacuation strategies for purpose-built blocks of flats, including 'stay put' policies.
 - An understanding of fire safety management, as it relates to purpose-built blocks of flats.
 - An understanding of the effect of social and lifestyle factors on the risk to residents of purpose-built blocks of flats, and of the special needs for disabled people in the event of fire.
- A3.4 At the time of publication of this guide, the Fire Risk Assessment Competency Council, a broad group of fire industry and business sector stakeholders, is preparing a competency standard for persons who carry out fire risk assessments on a commercial basis. It is anticipated that this will be published by the end of 2011.
- A3.5 Competence can often be established by professional registration or third party certification. For example, a number of professional bodies operate registers of persons deemed to be competent to carry out fire risk assessments, and it is also possible to achieve certification of competence by an independent certification body. It is also possible for companies that carry out fire risk assessment work to achieve third party certification by a certification body for this purpose. Use of registered or third party certificated persons and/or third party certificated firms to carry out fire risk assessments is one means by which Responsible Persons can establish due

diligence in compliance with the requirement for a suitable and sufficient fire risk assessment.

- A3.6 Purpose-built blocks of flats are very different in nature from commercial premises, such as offices, shops and factories. In selecting a fire risk assessor, the Responsible Person should ensure that the competence of the fire risk assessor extends specifically to the principles of fire safety applicable to purpose-built blocks of flats.

APPENDIX 4

FIRE SAFETY ADVICE: Protecting you and your household

You can prevent fire from happening by taking a few simple steps:

- Don't overload electrical sockets.
- Turn off appliances when not in use. Don't even leave them on standby.
- Make sure cigarettes are put out properly, use a proper ashtray and don't smoke in bed.
- Keep matches out of reach and sight of young children.
- Never leave lit candles in rooms with children on their own. Keep candles clear of curtains or other items that catch fire and make sure they are on a surface that doesn't burn.
- Don't leave cooking unattended, especially with children around.
- Be especially vigilant when cooking with oil. Don't overfill chip pans and NEVER throw water on a chip pan fire.

Keep safe and plan your escape:

If your home is not already provided with smoke alarms, fit one in your entrance hallway (and outside your bedroom). For even better protection, fit one in your lounge and fit a heat alarm in your kitchen. Make sure your smoke/heat alarms meet British/European standards. If you fit more than one, link them together so they all sound the alarm.

Get an electrician to fit mains powered devices, and buy models that have a standby power supply in case of mains failure.

Your flat is in a building designed to be fire resisting. A fire should not spread from one flat to another, so that you need not leave your home if there is a fire elsewhere in the block. That said, if in doubt, get out.

Always leave if your flat is affected by smoke or heat or if told to by the fire service.

Your stairway is designed to be safe for escape throughout the course of a fire. Always use the stairway to descend to ground level if escaping.

DO NOT USE THE LIFT.

DO NOT LEAVE YOUR BELONGINGS OR RUBBISH IN CORRIDORS, THE LIFT LOBBY OR THE STAIRWAY.

This could affect you and your neighbours if there was a fire.

If you are in a corridor, lift lobby or stairway and you notice a fire, leave the building immediately and, if safe to do so, alert other residents in the immediate vicinity on your way out (knock on their door).

DO NOT PUT YOURSELF AT RISK. DO NOT RETURN TO YOUR FLAT UNTIL IT IS SAFE TO DO SO.

REMEMBER:

- Test your smoke alarm once a week.
- Keep the exit from your flat clear so you can escape in an emergency.
- Close doors at night, especially the doors to the lounge and kitchen.
- Plan your escape NOW. Be prepared and don't wait until it happens.

APPENDIX 5

Example of notice for use in blocks with a 'stay put' policy

FIRE ACTION

IF FIRE BREAKS OUT IN YOUR HOME:

- Leave the room where the fire is straight away, then close the door.
- Tell everyone in your home and get them to leave. Close the front door of your flat behind you.
- Do not stay behind to put the fire out.
- Call the fire service.
- WAIT OUTSIDE, AWAY FROM THE BUILDING.

IF YOU SEE OR HEAR OF A FIRE IN ANOTHER PART OF THE BUILDING:

- The building is designed to contain a fire in the flat where it starts. This means it will usually be safe for you to stay in your own flat if the fire is elsewhere.
- You must leave IMMEDIATELY if smoke or heat affects your home, or if you are told to by the fire service.
- If you are in any doubt, get out.

TO CALL THE FIRE SERVICE:

- Dial 999 or 112.
- When the operator answers, give your telephone number and ask for FIRE.
- When the fire service reply give the address where the fire is.
- Do not end the call until the fire service has repeated the address correctly.

Example of notice for use in blocks with a communal fire alarm system and simultaneous evacuation

FIRE ACTION

IF FIRE BREAKS OUT IN YOUR HOME:

- Leave the room where the fire is straight away, then close the door.
- Tell everyone in your home and get them to leave. Close the front door of your flat behind you.
- Do not stay behind to put the fire out.
- Raise the alarm by using a 'break glass' call point.
- Call the fire service.
- WAIT OUTSIDE, AWAY FROM THE BUILDING.

IF YOU SEE OR HEAR OF A FIRE IN ANOTHER PART OF THE BUILDING:

- The evacuation plan for this building requires all residents to proceed to the assembly point when the communal fire detection and alarm system sounds.
- You must also leave IMMEDIATELY if smoke or heat affects your home, or if you are told to do so by the fire service.
- If you are in any doubt, get out.

TO CALL THE FIRE SERVICE:

- Dial 999 or 112.
- When the operator answers, give your telephone number and ask for FIRE.
- When the fire service reply give the address where the fire is.
- Do not end the call until the fire service has repeated the address correctly.

APPENDIX 6

FIRE DETECTION AND FIRE ALARM SYSTEMS FOR BLOCKS OF FLATS

General Comments

- A6.1 There has never been any requirement under building regulations, Local Acts or by-laws to install a communal fire alarm system in a purpose-built block of flats, nor is there any such requirement today under the Building Regulations 2010. The reason for this is that, when a fire occurs within one flat, it should be safe for residents of other flats to remain within their own flat, closing the windows and doors in the flat. This is commonly now described as a 'stay put' policy.
- A6.2 The concept of 'stay put' is not new. It has always been an underlying principle of the design of blocks of flats. The principle was first formally stated in CP3 Chapter IV Part 1: 1962, and it was reiterated after a study on fire safety in high rise blocks of flats by fire and rescue services in the 1970s (see Appendix 1).
- A6.3 There is a wealth of evidence to show that, in effect, the compartmentation between flats prevents, as it is designed to do, fire spread between flats. Compartmentation is not a recent design innovation. Other than in old tenement type buildings, with original lath and plaster walls and ceilings, the walls and ceilings of buildings constructed over much of the past century can generally contain a fire within a flat for the duration of the fire, provided the compartmentation has not been compromised (either at the time of construction or as a result of improperly designed modifications, sometimes carried out without the proper approval).
- A6.4 It follows that where, on rare occasions, compartmentation does fail in a fire, the likelihood is that this is not so much as a result of the age of the building, but as a result of poor build quality, or of unauthorized or badly carried out alterations.
- A6.5 Nevertheless, it is necessary to ensure that, when a fire occurs in a flat, there are reasonable means of escape within the common parts, by which other residents can evacuate the block, either on the instructions of the fire and rescue service or, simply, because of a desire to do so. The design of fire precautions, such as protected escape routes and smoke control, in old blocks of flats may not be equivalent to that of modern blocks. This, alone, does not necessarily mean that a 'stay put' policy cannot be adopted. Much will depend on the circumstances of the case, particularly the overall level of safety afforded by a combination of means of escape and compartmentation.
- A6.6 However, sometimes communal fire alarm systems have been, and are being, installed in blocks of flats. In some cases, where the means of escape and compartmentation can be demonstrated to be of a very poor standard, this may be warranted. However, fire alarm systems are often installed as a result of various misconceptions.
- A6.7 Typical misconceptions or misunderstandings include:
- A misunderstanding regarding the distinction between the provision of smoke detectors as part of smoke control provisions (e.g. to actuate AOVs) and provision of these detectors as part of a fire warning system.

- A general misconception that, because of the presence of sleeping persons, there is a need for a communal fire alarm system to evacuate the whole building in the event of fire, as would occur in a hostel, HMO, hotel, etc.
- A misconception that the construction that separates flats in older blocks will always be inadequate to resist a fire.
- An approach that compartmentation should be regarded as 'guilty until proven innocent', in the sense that, unless the compartmentation can be proved to be adequate and uncompromised (which is rarely possible), a communal fire alarm system should be installed. In fact, a system should only be considered if it can be demonstrated that it is essential for the safety of residents.

A6.8 As discussed in Part A of this guide, the risk to residents of blocks of flats arises mainly from the threat of a fire in their own dwelling, rather than a fire in a neighbour's dwelling. Accordingly, the real priority, in terms of fire warning, is to ensure that one or more working smoke alarms are provided in every flat. Indeed, it would be no exaggeration to say that, in current times, a flat without one or more working smoke alarms is not generally fit for occupation.

Smoke (and Heat) Alarms in Dwellings

A6.9 Smoke alarms would have been installed in each flat at the time of construction of any blocks of flats built after 1992. These smoke alarms are mains operated, but those installed prior to 2006 might not have a standby supply (battery or capacitor). Most of the models originally installed would have been of the ionization chamber type. The typical lifetime of a smoke alarm is often considered to be around 10 years, though smoke alarms may operate satisfactorily for several years longer than this.

A6.10 It is essential that, in all flats, regardless of the date of construction, there is an adequate number of working smoke alarms (at least one per storey). In owner-occupied flats constructed before 1992, smoke alarms may be battery operated.

A6.11 Smoke alarms in rented single-storey flats built before 1992 should only be battery operated if the battery has an anticipated life in normal service of at least five years, and if the battery is "tamper proof" (i.e. removal necessitates the use of a tool). When any major electrical wiring takes place in rented flats, battery operated smoke alarms (and mains-operated smoke alarms without a standby supply) should be replaced with smoke alarms that are mains operated with a standby supply (a Grade D system as defined in BS 5839-6).

A6.12 All smoke alarms in rented maisonettes should be mains operated with a standby supply (a Grade D system). It is not recommended that battery-operated smoke alarms (a Grade F system) are installed in these maisonettes; existing battery-operated devices should be replaced.

A6.13 Generally, any new smoke alarms installed in the circulation spaces within dwellings for compliance with the above recommendations should be of the optical type. These are less prone to false alarms from kitchens, and they respond better to slow smouldering fires. However, in a maisonette, it would be acceptable to install an optical smoke alarm on the storey that contains the kitchen, and to install an ionization chamber smoke alarm on the other level(s).

- A6.14 At least one smoke alarm should be installed in the circulation space on each storey (a Category LD3 system as defined in BS 5839-6). For a higher standard of protection, consideration may be given to the installation of a smoke alarm in the lounge and/or a heat alarm in the kitchen (as is required for new flats in Scotland and Northern Ireland). Most domestic fires start in the kitchen, while most fatal domestic fires start in the lounge or dining room. This higher standard of protection (Category LD2) might be appropriate in flats occupied by vulnerable occupants or where the additional alarms are needed to compensate for shortcomings in the means of escape within the flat. In the latter case, battery-operated alarms should not be used.
- A6.15 For the highest standard of protection, a smoke alarm could be installed in all habitable rooms, other than kitchens, where heat alarms should be installed (Category LD1 system). This standard of protection is not normally justifiable, but might be appropriate in flats specifically designed, or provided, for those who are particularly vulnerable to fire, such as disabled people and those suffering from serious drug or alcohol abuse.
- A6.16 Where more than one alarm is installed these should be interlinked to maximize the audibility of the fire alarm signal. As well as models that are interlinked by wiring, radio-linked smoke alarms are available. It is preferable that all smoke alarms incorporate an alarm silence control, so that false alarms do not cause unnecessary or prolonged disruption to the residents of a flat.
- A6.17 Where occupants of a dwelling are deaf or hard of hearing and are likely to be alone at any time within a flat, suitable smoke alarm kits complying with BS 5446-3 should be used. These incorporate one or more flashing beacons, to alert people who are awake, and vibrating pads to wake people who are asleep. A vibrating pager can be incorporated in addition to these devices.
- A6.18 Although the above paragraphs refer to smoke alarms, a more sophisticated system, incorporating smoke detectors incorporated within an intruder alarm system, can be provided (a Grade C system). Alternatively, a complete fire alarm system complying with the relevant recommendations of BS 5839-6 for a Grade A system could be installed, but the cost of this is unlikely to be justifiable in most cases.
- A6.19 In sheltered housing, fire alarm signals from individual flats should be relayed to the same location as alarm signals from any social alarm systems installed in the flats. If there is an on-site warden, fire alarm signals should be investigated by the warden (e.g. using a two-way speech communication facility between the warden's facility and the dwelling) prior to summoning of the fire and rescue service. If no on-site warden is present, and fire alarm signals are transmitted to an alarm receiving centre that has a direct two-way speech facility for communication with the flat (of the type normally provided in social alarm systems), the alarm receiving centre should endeavour to determine, by use of this facility, whether the alarm signal is a false alarm, or has arisen as a result of a fire, before the fire and rescue service is summoned.
- A6.20 Where fire alarm signals are transmitted to an alarm receiving centre by the same equipment as social alarm signals, the two types of signal should be separately identifiable at the alarm receiving centre. It should be ensured that the receipt of fire alarm signals cannot be delayed significantly by a previously initiated social alarm signal.

- A6.21 If smoke (and/or heat) detectors are connected to an existing social alarm system that has no facilities for discrimination between different types of alarm signal, the recommendation for distinguishable signals need not be followed in the case of signals transmitted to an on-site warden, provided that the pre-planned response by the warden to signals from the fire alarm system in any flat is identical to the pre-planned response to other alarm signals and is an appropriate action in the event of fire.
- A6.22 For guidance on the design, installation, commissioning and maintenance of fire alarm systems and smoke alarms in dwellings, reference should be made to BS 5839-6. Smoke alarms, heat alarms and fire alarm systems should only be installed by competent persons that are preferably third party-certificated to carry out this work.

Communal Fire Detection and Fire Alarm Systems

- A6.23 For reasons set out earlier in this appendix, there is normally no need for any form of communal fire alarm system in a purpose-built block of flats. However, it is common for smoke detectors to be installed within corridors, lobbies and/or stairways to operate AOVs.
- A6.24 The vents form part of the smoke control arrangements to keep the common parts, particularly stairways, free from smoke. As the function of these detectors is not related to giving any form of warning of fire, no fire alarm sounders should be connected to these detectors, and signals from detectors should not be automatically relayed (e.g. via an alarm receiving centre) to the fire and rescue service. Any existing facilities for giving fire warnings of these types may, and often should, be disconnected.
- A6.25 It is not only unnecessary to provide a communal fire alarm system, it is also normally undesirable. Normally, communal fire alarm systems are only provided in buildings in which some control can be achieved over the occupants so that a pre-determined response leading to the evacuation of the building can be triggered. This cannot be achieved in general needs blocks of flats. Moreover, it is not necessarily desirable that evacuation should take place from areas remote from a fire unless these areas themselves become threatened by the fire, in which case normally the fire and rescue service will warn people of the need to evacuate.
- A6.26 Undesirable aspects of a communal fire alarm system include the following, all of which should be fully considered before installing any form of communal fire alarm system. In this connection, advice of fire safety specialists, with substantial experience of advising on fire safety measures in blocks of flats, will normally be necessary.
- If a single communal system is installed throughout the flats and the common parts, each resident will be disturbed by any false alarms in other flats and the common parts. If smoke detectors were installed in each flat within a large block, the level of false alarms would be likely to become intolerable, such that residents would, at least, ignore fire alarm signals, and would be likely to interfere with, or seriously impair, the system.
 - If the system is installed only in the common parts (which may be all that is practicable in blocks with long leasehold flats), the alarm sounders would not be sufficiently audible in the flats to rouse people from sleep, which begs the question as to the value of the system.

- Smoke detection installed only in long corridors (and stairways) will not necessarily operate before the corridors are smoke logged (unless detectors are installed much closer together than normally adopted spacing).
- The operation of the fire alarm system may cause people, who could have safely remained within their flats, to enter common parts in which they might be exposed to serious danger from smoke. This is particularly the case if the detection is provided only in common parts, as operation of the system indicates that there is already smoke within certain of the common parts.
- There can be great ambiguity as to who (if anyone) should summon the fire and rescue service in the event of operation of the system. There is a risk that either no one calls the fire and rescue service, or, in the case of a large block of flats, the fire and rescue service are swamped with multiple calls.
- In a 'general needs' block of flats, there is not normally any person present 24 hours a day to take responsibility for silencing and resetting the system. (The fire and rescue service, even if summoned to the block, will not reset a fire alarm system.) Residents are unlikely to tolerate prolonged operation of fire alarm sounders (e.g. as a result of a false alarm) while they are within their flats, nor are they likely to remain outside the block until the system can be silenced.
- Often, when a fire alarm system within common parts operates, the lifts return automatically to ground level, where they park. This could leave mobility impaired disabled people unable to evacuate. If the fire strategy for the building involves evacuation, this then affects the right of disabled people to be afforded the same standard of safety as able bodied people. On the other hand, if there is a fire within the common parts, it may be hazardous to use the lift, though it was safe to remain within a flat.
- Similarly, the rights of deaf and hard of hearing people would be compromised unless the fire alarm system was specially adapted to their needs.

A6.27 However, as discussed in Part F of this guide, there may be unusual circumstances, in which it might be necessary to consider the installation of a communal fire alarm system. Nevertheless, this does not imply that such a system need incorporate fire detectors within all flats, or that, in the event of detection of fire, an evacuation signal need be sounded. In particular, it will normally be wholly inappropriate to adopt simultaneous evacuation of all floors in a high rise block.

A6.28 Where, in addition to smoke alarms within flats, it is considered necessary to install a communal fire alarm system in a block of flats, the extent of the fire detection, the extent to which sounders are provided and the areas in which alarm signals should be given should each be considered separately. The following forms of system may be considered:

Fire detection

1. A system with heat detectors within the flats (the coverage of a Category L5 system, as defined in BS 5839-1).

Such a system can be virtually immune to false alarms, but will operate in the event of a significant fire. The number and siting of detectors needs to be related to the objective of the system, including whatever serious shortcomings in other fire safety measures necessitated the system.

For example, if the shortcoming relates to means of escape (e.g. unduly long or inadequately protected escape routes, a heat detector located just inside each flat entrance door may be sufficient, as it will, for example, operate well before fire

significantly damages a timber door or lath and plaster construction. In some such cases, the system described in 3 below may be appropriate.

Alternatively, if the shortcoming relates to inadequate compartmentation between floors, a single heat detector in the hallway of each flat might suffice, but there might be a need to supplement these with heat detectors in rooms in which a large fire could develop rapidly (e.g. kitchens and lounges), particularly if doors to rooms off the hallway are fire resisting.

While smoke detectors could be used instead of heat detectors, this is not recommended, because of the problems that would be created by false alarms. However, the use of smoke detectors could be considered where the fire alarm signal is restricted as in b) or c) below.

The use of smoke detectors could, more generally, also, in exceptional cases, be considered provided the number of households likely to be disturbed by false alarms is limited (e.g. because of the size of the block or because of the restriction in the area throughout which the alarm signal sounds), and provided there is a time delay between sounding of the fire alarm system in the flat in which a smoke detector operates and sounding of the fire alarm system beyond that flat. In this case, there should be a readily accessible facility within each flat to enable residents in the flat to reset the fire alarm system (but only in response to operation of detectors in their own flat). The time delay should be 2-3 minutes.

2. A system as described in 1, but with manual call points within common parts (the coverage of a Category M/L5 system, as defined in BS 5839-1).

Manual call points should be provided only where there are either 24 hour staff on site or a combination of access control and minimum likelihood of malicious operation of call points.

3. A system as described in 1 or 2, but with smoke detectors in the common parts (the coverage of a Category L3 or L2 system, as defined in BS 5839-1, but with the possible omission of manual call points).
4. A system with smoke detectors in the common parts, but with no detectors in the flats and with or without the provision of manual call points (the coverage of a Category L4 system as defined in BS 5839-1, with the possible omission of manual call points).

Manual call points should be provided only where there is either 24 hour staff on site or a combination of access control and minimum likelihood of malicious operation of call points. In long corridors, it might be necessary to reduce the spacings between detectors below those normally adopted.

5. A system with manual call points in the common parts, and with no automatic fire detection (a Category M system, as defined in BS 5839-1).

This system, which is sometimes found in older blocks of flats, is unlikely to make any significant contribution to the safety of residents. Where it exists, normally it can be removed, or should be upgraded to one of the other systems described above.

Fire Warning

- a) A system with only fire alarm sounders in the common parts. This system is unlikely to make a significant contribution to the safety of residents. Where it exists, the sounders can sometimes be removed, or the system should be upgraded to one of the other systems described above or below.
- b) In blocks with 24 hour supervision on site (e.g. by security officers, porters or a concierge), a system in which there are no fire alarm sounders, but, on operation of the system, a signal is relayed to a staffed location or to a pager carried by staff. (Where there is a permanently staffed location, CCTV monitoring of common parts may assist in dealing with fire alarm signals quickly and effectively.)
- c) A system as described in a) but with sounders in the common parts, so that anyone within the common parts evacuates, while residents within their flats remain there, pending an investigation by staff.

In this case, the sound pressure level within the common parts need only be high enough for the fire alarm to be audible in these areas, but not necessarily within the flats.

- d) A system in which there are no fire alarm sounders, but fire alarm signals are relayed to an alarm receiving centre, from where the fire and rescue service are summoned. Other than in the case of certain sheltered housing blocks, only signals from manual call points and heat detectors should be relayed to the fire and rescue service without some form of verification that there is a fire. Signals from smoke detectors should only result in summoning the fire and rescue service if it can be confirmed by persons on site that there is a fire or the signal transmitted to the alarm receiving centre is indicative of the operation of two smoke detectors.
- e) A system with fire alarm sounders within every flat and the common parts.

The sound pressure level of the fire alarm system within any flat, if measured at every open bedroom doorway, should be not less than 85dB(A). Various evacuation strategies are possible, according to the circumstances and the reason for providing a communal fire alarm system.

For example, according to circumstances, in the event of fire, it might be sufficient to evacuate:

- only the flats on the floor on which the fire is located; or
- only those on the floor on which the fire is located, plus those on the floor immediately above; or
- those on the floor on which the fire is located and all those on floors above that floor; or
- those on the floor on which the fire is located, those on all floors above that floor and the floor immediately below that floor.

A6.29 In addition to the triggering of the fire alarm signal by automatic detectors, where sounders are installed in flats, it is possible to provide facilities at the control and indicating equipment on the ground floor for the fire and rescue service to trigger an evacuation signal within flats. For example, a separate evacuation control could be

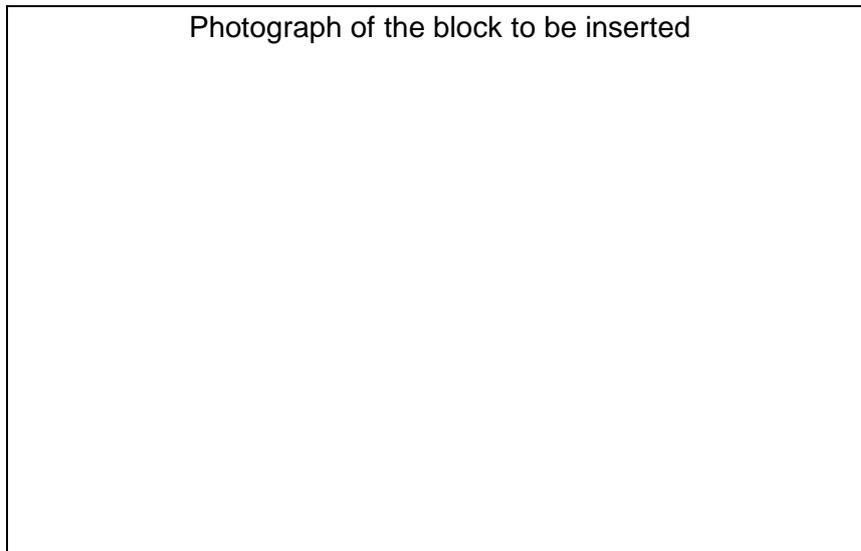
provided for flats on each storey. Before providing facilities of this type, there should be consultation with the fire and rescue service.

- A6.30 There are certain special circumstances in which a communal fire alarm system is always appropriate. The most common examples of these are certain forms of sheltered housing. In its simplest form, sheltered housing is architecturally, and in terms of the facilities provided, no different from a 'general needs' block of flats. In these sheltered blocks, the special needs of the residents relate to assistance when a fire occurs within their own dwelling, which was discussed above. There may be no need for a communal fire alarm system.
- A6.31 However, at the other extreme, many modern sheltered housing blocks incorporate communal facilities, such as communal lounges, guest rooms, hairdressers, laundries and sometimes even restaurants. Where there is good fire separation between these facilities and areas containing flats, the latter areas can be treated in the same manner as a 'general needs' block of flats, although it is usual to have sounders in the common parts to warn anyone present. The communal and commercial premises should be protected with a fire alarm system complying with the recommendations of BS 5839-1 for a Category L1 or L2 system.
- A6.32 Fire detectors and fire alarm sounders should be installed throughout the common parts, including corridors containing flats, and in all rooms and areas off the common corridors. The system should also incorporate manual call points.
- A6.33 The communal fire alarm system in these cases need not always extend into the individual flats, provided it is considered that, in the event of a fire anywhere within the building, residents are safe to remain within their own flats. In that case, the sound pressure level of the fire alarm system in the common parts should be low enough to avoid sound pressure levels of more than 45dB(A) within the flats.
- A6.34 Where a communal fire alarm system is installed in sheltered housing, fire alarm signals should be monitored at a 24 hour staffed location, such as an alarm receiving centre. The smoke detectors within flats, provided to give residents a warning of a fire in their own flat, may be incorporated in the system, but, since, normally, in the event of a fire in a flat, a 'stay put' policy will apply to other flats, operation of a smoke detector within a flat should only operate the sounder within that flat.
- A6.35 Another situation in which a communal fire alarm system might be appropriate is flats that form part of a mixed user development. An example is flats located above shops. In these cases, unless there is a good level of fire resistance between the shops and the flats immediately above, residents will be at risk from a fire within the shops. This makes them relevant persons within the meaning of the FSO, and the fire risk assessment for each shop should identify measures to ensure their safety.
- A6.36 Often this can best be achieved by upgrading the fire resistance between the shops and the flats. However, alternatively, heat detection can be installed within the shops and fire alarm sounders can be installed within the flats to evacuate the flats in the event of a fire in the shops. Under these circumstances, there is no need for the communal fire alarm system to incorporate fire detectors within the flats or the common parts of the flats, unless this is needed for some other reason.
- A6.37 In blocks which do not have independent access to the flats, there may also be a need to extend the fire alarm system into the flats above. However, a system configuration which avoids having to evacuate all residents simultaneously is to be

preferred, subject to all other aspects of compartmentation and means of escape being able to support a 'stay put' policy.

APPENDIX 7

CASE STUDY: 3 STOREY BLOCK



- A7.1 As a result of a Type 1 fire risk assessment, the need to upgrade fire safety measures in this 1970s? purpose-built block of flats was indentified. The block is one of many similar properties owned by a local housing association.
- A7.2 The three storey block has six self-contained flats. Each of the flats is accessed directly off a single stairway. The common parts comprise the entrance hallway, the stairway and the landings on each upper floor.
- A7.3 Constructed from concrete and brick, the block has rendered timber façades front and rear. Floors were found to be of concrete, and the building has a concrete stairway. The building originally had a flat roof, but a tiled pitched roof was added subsequently.
- A7.4 There are no specially adapted dwellings for vulnerable/disabled people in this 'general needs' block. The flats were occupied mainly by tenants but some had been sold.
- A7.5 The block had been designed on the 'stay put' principle, and, consequently, there was no communal fire alarm system. As such, it met not only the original design standard, but also the current benchmark. Emergency escape lighting had been installed some years ago. Although not required by the standard of the day when it was built, it had been considered a necessity at some point later. This, and the absence of fire extinguishers in the common parts, was also considered to be in line with current benchmark standards.
- A7.6 The block was found not to have a lobby between the flats and the stairway. This would still meet current benchmark standards provided there was an internal protected entrance hall in each flat and an AOV at the top of the stairway, operated by smoke detectors on each landing.
- A7.7 Given that a sample of flats were accessed for this Type 1 fire risk assessment, primarily to check the standard and condition of flat entrance doors, it was soon

established that the protection to the entrance halls was not in line with current standards. As a result of the age of the block, the stairway did not have an AOV, although smoke venting could easily be achieved by opening windows.

- A7.8 The front entrance doors to flats were also found to be original and not therefore in line with the current benchmark standard on these doors. Nevertheless, the original doors were fire resisting and met the standard of the day. Part of that standard, however, permitted the use of rising butt hinges as was the case here.

Photograph of existing flat entrance door to be inserted

- A7.9 The majority of the flat entrance doors were found to be in good condition, although it was noted that one had been fitted with a cat flap and another was badly fitting in its frame.
- A7.10 While most doors were the same, there were a number of doors that appeared to have been changed more recently. It transpired that some leaseholders had replaced the original doors, but with ones that were not fire resisting.
- A7.11 It was not considered reasonable or practicable to bring the block into line with current benchmark standards for single stairway buildings without lobby approach to the stairway. Account was taken to the presence of the Grade D, category LD3 system of smoke alarms that the landlord had fitted in each of the flats, something not required at the time the block was built. The good standard of compartmentation, including the lack of any common extract ventilation from flats, was also noteworthy. It was also relevant that, although the roof space had not been sub-divided, the original flat roof was of concrete and the access hatches built into it were fire resisting.
- A7.12 Overall, the fire risk assessment did not consider the issues relating to the common parts to pose a high risk to people. However, the action plan included a number of short term and long term solutions to address the findings. In summary, these were:

Short term

- To require the leaseholders to replace front doors to their flats if they were not fire resisting.
- To fit positive action self-closing devices in place of rising butt hinges to all original flat entrance doors.

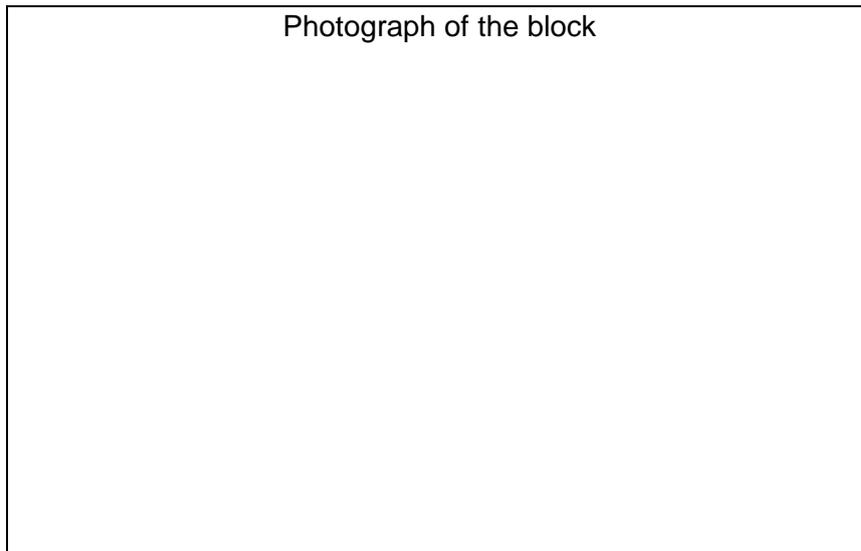
- To repair the badly fitting door, or, if a repair was not possible, to replace it with an FD30S fire-resisting, self-closing door meeting current fire door standards.
- To remove the cat flap and repair the door to at least restore its integrity.

Long term

- As and when the opportunity arose, to upgrade or replace the front entrance doors to meet current benchmark standards and in particular, to fit intumescent strips and smoke seals and protected letter boxes. It was suggested to the landlord that this could be during the course of the normal maintenance programme or at time of refurbishment of the flat

APPENDIX 8

CASE STUDY: MIXED USE BLOCK OF 4 STOREYS PLUS BASEMENT



- A8.1 During refurbishment works to this pre 20th century building, significant weaknesses in the structural fire protection were identified. This cast doubt on the effectiveness of the compartmentation normally needed for this mixed use residential block.
- A8.2 The four storey building had three self-contained flats, one on each of the upper floors. The ground and basement floors were occupied by two shops.
- A8.3 Each of the flats was accessed directly off a single staircase. The common parts comprised the entrance hall, the staircase and the landings on each upper floor. Although the two shop units on the ground floor had independent entrances from the street, one also had a door into the entrance hall.
- A8.4 Built with brick walls, the block had timber floors and the staircase was of timber construction. The original roof had been replaced with a metal clad roof.
- A8.5 The block had been designed on the 'stay put' principle, and, consequently, there was no communal fire alarm system. As such, it met not only the original standard on this but also the current benchmark. Emergency escape lighting had been installed some years ago. This, and the absence of fire extinguishers in the common parts, were also considered to be in line with current benchmark standards.
- A8.6 The block was found not to have a lobby between the flats and the stairway. Although all had entrance hallways, none of these were protected. There was no automatic vent in the stairway for smoke ventilation and none of the flat entrance doors were even considered nominal FD30 doors.
- A8.7 Internally, the flat layouts were poor, with inner room conditions. The first and second floor levels had access to alternative exits onto external metal fire escape stairways. However, these could not be reached from the inner rooms. The top floor flat had no access to the external escape stairway. However, a ladder gave access to the roof for residents to await rescue.

- A8.8 The works to the building revealed serious deficiencies in both the standard of the fire separation and its condition. Ceilings were lined with lath and plaster and, in some parts, a composite of plywood, chipboard and hardboard. Some walls, including those enclosing the staircase, were of thin timber panels and it was possible to see between a flat and the stairway through splits in the panels.
- A8.9 Given the situation found, it was considered that the residents were exposed to an unacceptable risk. However, it was not considered reasonable or practical to bring the block into line with current benchmark standards. While every effort was made to improve the condition of fire separation, including fitting replacement FD30S flat entrance doors, it was not realistic to fully upgrade floors and walls.
- A8.10 Despite misgivings over the implications for false alarms, it was decided that a fire detection and fire alarm system would need to be installed. The communal system provided, a Category L1 system to BS 5839-1, extended into the flats. This was not only to ensure all residents were warned of an activation of the system, but also to provide fire detection in all habitable rooms. Manual call points were also fitted by the ground floor exits but not on the upper floor landings.
- A8.11 Given that the detectors were installed in flats to compensate for serious shortcomings in fire separation, heat detectors were used. These were deemed sufficient to provide warning before fire spread between flats occurred and also to reduce the potential for false alarms from residents. However, in recognition that these would not provide local warning for the occupants of each flat, a Grade D Category LD3 system of smoke alarms was also installed in each of the flats.

APPENDIX 9

CASE STUDY: (To be inserted)

APPENDIX 10

CASE STUDY: (To be inserted)

APPENDIX 11

CASE STUDY: (To be inserted)

GLOSSARY

Some useful fire safety terms

AOV

Automatically opening vent

OV

Openable vent

PV

Permanent vent

PDA

Pre-determined attendance

'Stay put'

An evacuation strategy based on the principle that only the residents of the flat of fire origin need to escape initially while other residents may remain in their own flats.

Responsible Person

(to be added)

Competent Person

(to be added)

Relevant Person

(to be added)

Compartmentation

(to be added)

'General needs'

Used to describe a block of flats intended to be occupied by members of the general population and not those of a specific demographic, e.g. age.

RTA

Residents'/Tenants' Association

BIBLIOGRAPHY

References

- HM Government Guide 'Fire Safety Risk Assessment Sleeping Accommodation. Department for Communities and Local Government (DCLG) May 2006.
- The Regulatory Reform (Fire Safety) Order 2005
- Building Regulations 1972
- Building Regulations 1985
- Building Regulations 2000
- Building Regulations 2010.
- Approved Document B: Fire Safety (Volume 2)
- Building Act 1984
- Building Act 2000
- LACoRS - Local Authorities Coordinators of Regulatory Services (now Local Government Regulation)
- Housing Act 2004
- Housing Health and Safety Rating System - Guidance for Landlords and Property Related Professional: May 2006
- PAS 79: 2005 – Fire Risk Assessment Guidance and a Recommended Methodology
- National Inspection Council for Electrical Installation Contracting (NICEIC)
- The Electrical Contractors' Association (ECA)
- IEE Code of Practice for the In-Service Inspection and Testing of Electrical Equipment
- IEE Wiring Regulations (BS 7671)
- IEE Guidance Note 3: 17th edition
(BS 7671: 2008) – Inspection and Testing
- The Construction (Design and Management) Regulations 2007
- Public Health Act 1936
- Public Health Act 1961 (An Act to amend the provisions of the Public Health Act 1936)
- British Standard code of practice CP3 Chapter IV: 1948. Precautions against fire.
- British Standard code of practice CP3 Chapter IV Part 1: 1962.

British Standard code of practice CP3 Chapter IV Part 1: 1971

British Standard code of practice CP3 Chapter IV Part 1: 1978

London Buildings Acts (Amendment) Act 1939

BS EN 1634, Parts 1, 2 and 3. Fire resistance and smoke control tests for door, shutter and openable window assemblies and elements of building hardware. Fire resistance tests for doors, shutters and openable windows.

BS EN 12485: 2004. Fixed fire-fighting systems - Automatic sprinkler systems - Design, installation and maintenance.

BS EN 62305-2: 2006. Protection against lightning. Risk management.

BS EN 62305-3: 2006. Protection against lightning. Physical damage to structures and life hazard.

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

BS 5306-3: 2003. Fire extinguishing installations and equipment on premises - Code of practice for the inspection and maintenance of portable fire extinguishers.

BS 5446-3: 2004. Fire detection and fire alarm devices for dwellings - Specification for smoke alarm kits for deaf and hard of hearing people.

BS 5588-1: 1990. Fire precautions in the design, construction and use of buildings - Code of practice for residential buildings.

BS 5839-1: 2002. Fire detection and fire alarm systems for buildings - Code of practice for system design, installation, commissioning and maintenance.

BS 5839-6: 2004. Fire detection and fire alarm systems for buildings – Code of practice for the design, installation and maintenance of fire detection and fire alarm systems in dwellings.

BS 7273-4: 2007. Code of practice for the operation of fire protection measures - Actuation of release mechanisms for doors.

BS 9251: 2005. Sprinkler systems for residential and domestic occupancies. Code of practice

BS 9990: 2006. Code of practice for non-automatic fire-fighting systems in buildings.

BS 9999: 2008. Code of practice for fire safety in the design, management and use of buildings.

DD 8489-1: 2011. Fixed fire protection systems. Industrial and commercial watermist systems. Code of practice for design and installation

DD 8485-1: 2010. Fixed Fire Protection Systems. Residential and domestic water mist systems. Code of practice for design and installation.