



**FIRE SAFETY PRINCIPLES  
FOR  
RESIDENTIAL ACCOMMODATION**

**HOUSING REGULATION TEAM**

HOUSING SERVICES

25<sup>th</sup> July 2011

## Foreword

This document has been produced by Leeds City Council, in consultation with the West Yorkshire Fire and Rescue Service, other West Yorkshire local authorities and representatives from landlord groups. It is based on the national guidance document produced by LACORS, *Housing – Fire Safety, Guidance on fire safety provisions for certain types of existing housing* published in July 2008 and aims to provide guidance for the design of fire safety schemes for residential accommodation in all tenure groups, including owner-occupied, social housing providers as well as those in the private rented sector. This guidance replaces previous Fire Safety Principles issued by Leeds City Council (“LCC”)

This guide offers practical advice on undertaking fire risk assessments and contains case studies of fire safety solutions in a range of property types. It aims to provide recommendations and guidance when assessing the adequacy of fire precautions and does not set prescriptive standards. Where there is doubt on the suitability of a fire safety scheme, then further advice can be sought from LCC’s Housing Regulation Team or alternatively, West Yorkshire Fire & Rescue Authority (“WYFRA”).

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<b>Private Rented Sector Housing Team</b> , Leeds City Council, for queries relating to single household properties and non-licensable HMOs ..... (0113) 247 7594
<b>HMO Team</b> , Leeds City Council, for queries relating to licensed and licensable HMOs ..... (0113) 247 6248
<b>Fire Safety Office Leeds</b> , West Yorkshire Fire and Rescue Service ..... (0845) 1550595
<b>Development Enquiry Centre</b> , Leeds City Council, for all queries relating to planning and building control matters ..... (0113) 222 4409

It is important to note that some fire safety works may be classed as building works for the purpose of building regulations and therefore approval maybe required from the local authority’s Building Control Services. Similarly new-build residential accommodation or conversions where there is a change of use of an existing building to a house in multiple occupation or self contained flats may also require planning permission.

*This document may be periodically revised so please check that you have the current edition. This can be done by either telephoning the Housing Regulation Team at LCC (details above) or by visiting the council’s website, [www.leeds.gov.uk](http://www.leeds.gov.uk)*

## **Introduction**

This fire safety guide applies to all buildings constructed or converted for use as domestic dwellings and includes single and shared households, bedsit HMO's, purpose built flats and buildings converted into self-contained flats to a standard that does not comply with the Building Regulations 1991, sheltered accommodation where no personal care is provided and small hostels where the HM Government Sleeping Accommodation Guide\* does not apply. Where self contained flats did meet the 1991 Building Regulations standards but they are now in a poor condition due to a lack of maintenance, damage or alteration, or where they are occupied in a manner other than intended (i.e. in multiple occupation) then appropriate additional measures from this guide can be applied.

The guide does not apply to a range of other residential uses, including guest houses and hotels used by visitors, large hostels, refuges, residential training and conference centres and health and beauty spa centres, student halls of residence, boarding schools, residential care homes and workplaces where employees sleep on the premises as a business requirement e.g. a hotel, but not including tied accommodation and accommodation above pubs. For these premises the Regulatory Reform (Fire Safety) Order 2005 ("FSO") applies and guidance is contained in the HM Government Sleeping Accommodation Guide\*.

The FSO introduced duties on the *responsible person*, (ie. the person in control of premises) in relation to fire safety in the common parts of HMO's, flats, maisonettes, bedsits and sheltered accommodation where no personal care is provided. The duty is to carry out a *fire risk assessment* and to take specific action to minimise the risk of fire in common parts. Whilst the assessment is of common parts only, in practice it will take into account the whole of the premises including all units of accommodation. It is important to note that the FSO does *not* apply to HMO's that are occupied as shared houses. The FSO is enforced by the fire and rescue authorities. There is a small section in this guide that covers the key aspects of undertaking a fire risk assessment in smaller residential premises. Specialist advice should be sought for larger, complex premises or premises with mixed use.

In addition to the FSO, fire safety in residential accommodation is also covered by the Housing Act 2004, by way of the housing, health and safety rating system ("HHSRS"), the licensing provisions for HMO's and the management regulations for HMO's. This legislation is enforced by local authorities.

As there is a dual enforcement role for fire safety, the general protocol in Leeds is that the council will lead on single households, shared houses (Category B HMO's), bedsits (Category A HMO's) and self-contained flats, whilst WYFRA will lead on mixed use premises, sheltered housing, large hostels, hotels and bed and breakfast accommodation and all multiply occupied property managed and owned by the local authority. In dual enforcement situations Leeds City Council may take action in consultation with WYFRA.

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**\* HM Government Fire Risk Assessment: Sleeping Accommodation Guide published by Communities and Local Government in May 2006**

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## **1.0 The Principles of Risk Assessment for Fire Safety**

A fire risk assessment is a methodical inspection of premises, examining the activities undertaken there, the likelihood of a fire starting and the risk of harm occurring to occupiers and people around the premises. The aim of the assessment is to identify fire hazards, reduce the risks of hazards causing harm to as low as reasonably practicable, and to decide what physical fire precautions and management arrangements are necessary to ensure the safety of people within the building if a fire does occur.

### **1.1 Identifying Fire Hazards in Premises**

A hazard is anything that has the potential to cause harm. In terms of a fire safety risk assessment the following hazards should be considered -

**The vulnerability of occupiers** – People at risk must be considered. This may include the elderly and the young; people with personal challenges such as drug abuse or alcohol dependency; people with disabilities that would affect them using the means of escape without assistance (i.e. impaired mobility, hearing or vision) and people with difficulty understanding English.

**Sources of ignition** – Potential sources of heat that could get hot enough to ignite materials around them should be considered. These may include:

- Cookers, toasters and other kitchen equipment (especially when shared);
- Radiant and portable space heaters;
- Smokers materials such as cigarettes, matches and lighters (if people smoke within the premises);
- Faulty or misused electrical appliances;
- Electrical wiring in poor condition;
- The gas installation;
- An inadequate number of electrical power points causing overloading, and
- Naked flames such as candles and night lights.

**Sources of fuel** - Anything that burns is fuel for a fire. Therefore a risk assessment should identify things that burn reasonably easily and that are in large enough quantity to provide fuel for a fire or cause it to spread to other fuel sources. Sources of fuel include:

- Non-fire retardant fabrics and furnishings;
- Textiles, bedding, clothing, curtains and laundry;
- Accumulations of unwanted mail, paper, cardboard, books, etc;
- Flammable liquid-based products such as varnish, paint, thinners, etc;
- Plastics and rubber such as video tapes, and
- Wall, floor and ceiling coverings and surface finishes.

## 1.2 Factors that Increase the Risk of Harm from Fire

The main building characteristics that increase the risk of death or injury from a fire include the following:

- The number of occupiers;
- The number of storeys;
- The travel distance to evacuate the building;
- The complexity of the escape route;
- The presence of final exit doors requiring the use of a key for opening;
- The location of the kitchen;
- Flammable materials within the escape route, including wall coverings, furniture and fittings;
- The size of rooms;
- The presence of key operated security grilles fixed to escape windows and external doors, and
- Rooms where the means of escape is through another high fire risk room, i.e. through a kitchen and/or living room.

## 1.3 Fire Safety Measures

The following fire safety measures will reduce the risk of death or injury from fire:

- The provision of a 30 or 60 minute fire protected route of escape;
- Fire separation between units of accommodation, including walls & ceilings;
- The provision of fire doors with intumescent strips (and cold smoke seals as necessary) and self closing devices;
- Automatic and manual fire detection systems;
- Emergency lighting;
- Whole stair lighting;
- Escape windows;
- Sprinkler and mist systems, and
- Fire extinguishers and fire blankets.

## 1.4 The Basic Principles of Undertaking a Fire Risk Assessment

When carrying out a risk assessment the responsible person should consider the hazards and factors outlined in paragraphs 1.1-1.3 to enable them to determine the following:

- The likelihood that a fire may cause death or injury;
- The building characteristics that could increase the risk of harm, and
- What fire safety measures are needed to reduce the fire risk to a reasonably acceptable level or to minimise the likelihood of harm should a fire start. This could include for example, raising the occupiers awareness of fire safety; removing potential sources of ignition and providing fire safety measures as outlined in paragraph 1.3 above.

## **2.0 Design Principles for Fire Safety Schemes**

The fire safety schemes detailed in this guide are based on properties which present a *normal risk*, i.e. there are no factors that increase the level of risk in the property and the occupiers are not from high risk groups. Where such factors exist, or if a property deviates from the types listed below, then the risk can be deemed higher and accordingly a higher level of fire protection may be appropriate. Please note the new LACORS guidance also proposes the possibility of some properties being classified as to be of lower risk. A definition of the applicable criteria can be found in the glossary to this document.

### **2.1 Converted Buildings Comprising of Self-Contained Flats**

These are houses or buildings that have been converted into self-contained flats and where the conversion did not and does not meet the building standards under the Building Regulations 1991. Buildings that were converted in accordance with these regulations should not require any further fire safety measures unless they are occupied in a manner other than intended under the original conversion scheme e.g. occupation of a flat as an HMO, or where an additional risk has been introduced post-conversion. Self-contained flats comprise single or multi-room lets with exclusive amenities and behind the flat's exclusive entrance door.

#### **2.1.1 Three or Four Storey Buildings Converted into Self-Contained Flats**

Where one or more floor level exceeds 4.5 metres above the ground level:

- A 30 minute protected route of escape in the building with FD30S doors (with self closing devices fitted) to entrances of flats where they open onto the route of escape. There is generally no requirement for a 30 minute protected route within the flats but sound, well constructed and close fitting conventional doors are required. For multiply occupied flats, the route of escape must not pass through a risk room and where there are poor construction standards, long travel distances or high risk factors, a 30 minute protected route will be required within the flat and/or an LD2 AFD system within the flat;
- A mixed grade AFD is required comprising an LD2 Grade A AFD to the common areas of the building and an interlinked heat detector in each flat located in the room/lobby opening onto the route of escape *plus*:
  - for a flat occupied by a single household, a non-interlinked LD3 Grade D smoke alarm in each individual flat, located in the room/lobby opening onto the escape route. This is to protect the sleeping occupants of the flat, or
  - for a one storey flat in multiple occupation, an interlinked LD3 Grade D smoke alarm in each flat, located in the internal hall and a heat detector in the communal kitchen, or
  - for a two storey flat in multiple occupation, an interlinked LD3 Grade D smoke alarm each flat, located in the escape route at each level, communal lounge and a heat detector in the communal kitchen.

Where a risk assessment identifies a higher than normal risk, rooms within flats requiring automatic fire detection may include living rooms, kitchens and bedrooms, in which a Grade D system should be used to prevent whole house false alarms:

- A dedicated lighting circuit should be installed so that the use of any one switch/control anywhere along the route will illuminate the entire escape route;
- A manual fire alarm;
- Final exit and signage along the escape route if the escape is complex;
- Fire blankets are recommended in the kitchens of flats occupied by single households and are required in the kitchens of multiply occupied flats;
- A multi-purpose fire extinguisher is recommended at each floor in the common parts of the building containing the flats;
- Emergency lighting is only required in the escape route for the building containing the flats and in flats that are in multiple occupation, where the escape route is long and complex or where there is no effective borrowed light, and
- If there is a basement see section 2.6 of this guide.

### 2.1.2 Two Storey Buildings Converted into Self-Contained Flats

Where no floor level exceeds 4.5 metres above the ground level:

- A 30 minute protected route of escape with FD30S doors (with self closing devices fitted) to entrances of flats where they open onto the route of escape. There is no requirement for fire doors within flats but sound, well constructed and close fitting conventional doors are required. For flats occupied by single households, a lower standard of protection in the protected route may be acceptable where there are suitable escape windows from bedrooms and living rooms (see the Glossary for escape window requirements); For flats in multiple occupation, the route of escape must not pass through a risk room. Where there are poor construction standards, long travel distances or high risk factors, a 30 minute protected route will be required within the flat and/or an LD2 AFD within the flat.
- A mixed grade AFD comprising an LD2 Grade D AFD to the common areas of the building and an interlinked heat detector in each flat, in the room/lobby opening onto the route of escape, *plus*:
  - for a flat occupied by a single household, a non-interlinked LD3 Grade D smoke alarm in each individual flat, located in the room/lobby opening onto the escape route. This is to protect the sleeping occupants of the flat, or
  - for a one storey flat in multiple occupation, an interlinked LD3 Grade D smoke alarm in each flat, located in the internal hallway and a heat alarm in the communal kitchen, or
  - for a two storey flat in multiple occupation, an interlinked LD3 Grade D AFD in each flat, located in the escape route at each level with an interlinked smoke alarm in the communal lounge and an interlinked heat alarm in the communal kitchen.

Where a risk assessment identifies a higher than normal risk, rooms within flats requiring automatic fire detection may include living rooms, kitchens and bedrooms, in which a Grade D system should be used to prevent false alarms:

- A dedicated lighting circuit should be installed so that the use of any one switch/control anywhere along the route will illuminate the entire escape route;
- Fire blankets are recommended in the kitchens of flats occupied by single households and are required in the kitchens of multiply occupied flats;
- A multi-purpose fire extinguisher is recommended at each floor in the common parts of the building containing the flats;
- Emergency lighting is only required in the escape route for the building containing the flats and in flats that are in multiple occupation, where the escape route is long and complex or where there is no effective borrowed light;
- If there is a basement see section 2.6 of this guide.

## 2.2 Category A HMO's (HMO's Occupied as Bedsits and Non Self-Contained Flats)

These are HMOs that contain a number of individual lettings. Each letting has the exclusive use of certain rooms (this maybe specified in a tenancy agreement) and each letting door usually has a lock on it. Occupiers may share some or all of the basic amenities (washing, toilet and kitchen facilities) or they may have their own amenity within or outside their unit of accommodation, for example:

- A single room bedsit may have exclusive washing, toilet and kitchen facilities or there may be an element of sharing;
- In flatlets (a multi-room let) tenants are likely to share some of the washing, wc and kitchen facilities, and
- In none self-contained flats (single or multi-room lettings) tenants have amenities for their own exclusive use but they are not all located behind one door.

Category A HMO's tend to not have a communal living room and the occupiers tend not to have the characteristics of a single household - they tend to live independently with little or no communal living.

### 2.2.1 **Category A HMO - Three to Four Storey Buildings**

Where one or more floor level exceeds 4.5 metres above the ground level:

- A 30 minute protected route of escape with FD30S doors with self closing devices to all risk rooms that open onto the route of escape. Travel distance must not be excessive;
- A mixed grade AFD is required, comprising an LD2 Grade A AFD with a control panel located on the inside wall adjacent to the exit door and including smoke detectors located throughout the route of escape *plus*:
  - where cooking facilities are located within the bedsits, there should be an interlinked Grade A heat detector in each bedsit and a non-interlinked Grade D smoke alarm in each bedsit.
  - where there are communal cooking facilities, not being within the bedsits, there should be an interlinked Grade A smoke detector in each bedsit and Grade A heat detectors in each communal kitchen;
- Manual fire alarm;
- A dedicated lighting circuit should be installed so that the use of any one switch/control anywhere along the route will illuminate the entire escape route;
- Final exit and signage along the escape route if the escape is complex;
- A fire blanket is required in each bedsit with cooking facilities and in any shared kitchen;
- A multi-purpose fire extinguisher at each level within the common parts is recommended;
- Emergency lighting is only required in the escape route where the escape route is long and complex **or** where there is no effective borrowed light;
- If there is a basement see section 2.6 of this guide.

## 2.2.2 Category A HMO - Two Storey Buildings

Where no floor level exceeds 4.5 metres above the ground level:

- A 30 minute protected route of escape with FD30S doors with self closing devices to all risk rooms opening onto the route of escape. Travel distance must not be excessive. *Note that a full 30 minute protected route is the ideal option. However, in a normal risk 2 storey HMO the provision of suitable escape windows from all bedsit rooms may be acceptable in lieu of a fully protected route (see the glossary for escape window requirements);*
- A mixed grade AFD system is required comprising an LD2 Grade D AFD with interlinked smoke detectors located throughout route of escape *plus*:
  - where cooking facilities are located within the bedsits, there should be an interlinked heat detector in each bedsit and a non-interlinked Grade D smoke alarm in each bedsit, or
  - where there are communal cooking facilities, not being within the bedsits, there should be interlinked smoke detectors in each bedsit and interlinked heat alarms in each communal kitchen;
- A dedicated lighting circuit should be installed so that the use of any one switch/control anywhere along the route will illuminate the entire escape route;
- Signage along the escape route if it is complex;
- A fire blanket is required in each bedsit with cooking facilities and in any shared kitchen;
- A multi-purpose fire extinguisher at each level in the common parts is recommended;
- Emergency lighting is only required in the escape route where the escape route is long and complex **or** where there is no effective borrowed light;
- If there is a basement see section 2.6 of this guide.

## 2.3 Category B HMO's (Shared Houses)

These are houses rented to a group of mainly unrelated people, commonly students, young professional adults, work colleagues and friends. Occupiers share personal washing, WC and kitchen/dining facilities and usually have a communal living room. The occupiers of the HMO tend to have some of the characteristics of a single household. The HMO is usually but not always let on a single joint contract.

### 2.3.1 **Large Shared (Higher Risk) HMO - Three to Four Storey Building.**

- A 30 minute protected route of escape with FD30 doors (without smoke seals) with self closing devices to all risk rooms opening onto the route of escape. Travel distance must not be excessive;
- Where exit from the property is possible in more than one direction at ground floor level via risk rooms (ie either the front or rear rooms) then FD30S doors between these ground floor rooms and the staircase will be required. Vision panels must be provided in these doors to allow tenants to identify the source of the fire and the appropriate route of escape;
- LD3 Plus Grade D AFD;
- A dedicated lighting circuit should be installed so that the use of any one switch/control anywhere along the route will illuminate the entire escape route.
- Signage along the escape route if it is complex;
- A fire blanket in each shared kitchen is required;
- A multi-purpose fire extinguisher at each landing is recommended;
- Emergency lighting is only required in the escape route where the escape route is long and complex **or** where there is no effective borrowed light;
- If there is a basement see section 2.6 of this guide.

### 2.3.2 **Medium Sized Shared (Lower Risk) HMO - Three to Four Storey Buildings.**

In order for a property to be classified as 'lower risk' the following features must be present:

- Three storeys or less above ground level;
- An occupancy of 6 or less people, who are able bodied and capable of using the means of escape without assistance; the occupiers do not present a higher risk due to factors such as limited mobility or alcohol/drug dependency;
- And
- Either a secondary alternative means of escape, for example a dedicated escape window at first floor in addition to the normal route of escape having sound, conventional construction (which for the purpose of 'low risk' cannot pass through a risk room)
- or an enhanced fire detection system at the property - an LD2 Grade D AFD,
- And
- There is a minimal chance of a fire occurring and few, if any, highly combustible or flammable materials or other fuel for a fire present.

In 'lower risk' properties, meeting the above, the standard for a protected route may be relaxed. In such cases, the property must meet the following criteria:

- Doors opening onto the escape route should be sound, solid construction, close-fitting, conventional doors (lightweight doors and doors with very thin panels should be avoided) and self closing;
- an appropriate system of fire detection and warning is in place (LD3 Plus Grade D AFD as a minimum);
- the stairs must lead directly to the final exit without passing through a risk room;
- the staircase enclosure must be of sound, conventional construction throughout the route.

In addition:

- A fire blanket in each shared kitchen is required;
- A simple multi-purpose fire extinguisher at each landing is recommended;
- Emergency lighting is only required in the escape route where the escape route is long and complex **or** where there is no effective borrowed light;
- If there is a basement see section 2.6 of this guide.

### 2.3.3 Small Shared HMO - Up To Two Storey Buildings.

- There is no requirement for a full 30 minute protected route of escape, but the escape route should have traditional construction and not pass through risk rooms. There is no requirement for fire doors but sound, well constructed and close fitting conventional doors are required. Alternatively suitable escape windows can be provided from bedrooms and living rooms. *Note that where construction standards are poor in the route of escape, travel distances are long or other high risk factors are present a 30 minute protected route of escape may be required;*
- LD3 Plus Grade D AFD;
- A fire blanket in each shared kitchen is required;
- A multi-purpose fire extinguisher in the hallway is recommended, and
- If there is a basement see section 2.6 of this guide.

## 2.4 Single Household Occupancy Properties

These are houses, flats and maisonettes occupied by persons living as a single household (please see the Glossary for the definition of household).

### 2.4.1 **Three to Four Storey Buildings**

- There is no requirement for a full 30 minute protected route of escape but the escape route should have sound conventional construction not passing through risk rooms and travel distance should not be excessive. There is no requirement for fire doors but sound, well constructed and close fitting conventional doors are required. *Note that where construction standards are poor in the route of escape, travel distances are long or other high risk factors are present a 30 minute protected route of escape may be required;*
- LD3 Grade D AFD;
- A fire blanket in each kitchen is recommended, and
- If there is a basement see section 2.6 of this guide.

### 2.4.2 **Up to Two Storey Buildings**

- There is no requirement for a full 30 minute protected route of escape but the escape route should have sound conventional construction, not passing through risk rooms and travel distance should not be excessive. There is no requirement for fire doors but sound well constructed and close fitting conventional doors are required. Alternatively suitable escape windows can be provided from bedrooms and living rooms. *Note that where construction standards are poor in the route of escape, travel distances are long or other high risk factors are present a 30 minute route of escape may be required;*
- LD3 Grade D AFD;
- A fire blanket in each kitchen is recommended, and
- If there is a basement see section 2.6 of this guide.

## 2.5 Back-To-Back Houses (Single and Multiply Occupied Households)

These are houses that back directly onto another at the party wall and have other properties at either side. This results in there being only one route of escape out of the property. In a high number of cases this route passes through a risk room, thus creating a situation where all bedrooms in the property become inner rooms. In larger double fronted back-to-back properties, the route of escape can come down the middle of the property to the final exit door. Where this situation arises the fire design principles for this type of back-to-back can follow the schemes detailed for the appropriate property type, for example a 2 or 3 storey building, and the mode of occupation (i.e. single household, flats, Category A HMO or Category B HMO).

### 2.5.1 **Two to Three Storey Back-to-Back (Shared House up to 6 Occupiers and Single Household)**

- A 30 minute protected route of escape at the first and second floor levels, with FD30 doors to risk rooms on those floors;
- In all cases the door separating the ground to first floor should at least be FD30S. However in circumstances where the staircase from first to ground floor extends into the ground floor living room, then it may not be possible to fit a FD30S. In such cases it will be permissible to fit a fire door blank with intumescent strip and cold smoke seal. A self-closing device will not be required. It is recommended that a fixed glazed panel is fitted to this door in order to allow borrowed light onto the staircase and ensure safe access and egress;
- In all cases the door to the kitchen should be at least FD30S. Where a kitchen and living room are open plan, then a fire door to the kitchen is not appropriate;
- LD3 Plus Grade D AFD;
- An escape window at first floor level. Please see the Glossary for the requirements for escape windows. Note that where this requirement cannot be met, alternative arrangements may have to be made, by for example:
  - i. constructing a 30 minute protected route of escape through the house to the final exit, or
  - ii. providing 60 minute fire separation between the ground and first floor levels, along with arrangements for calling the fire and rescue service (such as a fire alarm linked to the fire brigade or to a monitoring agency), or
  - iii. installing a domestic water suppression system.
- In HMO's (except smaller shared houses) a dedicated lighting circuit should be installed so that the use of any one switch/control anywhere along the route will illuminate the entire escape route;
- A fire blanket in the kitchen is required;
- Emergency lighting is only required in the escape route where the escape route is long and complex **or** where there is no effective borrowed light;
- If there is a basement see section 2.6 of this guide;
- Where an alternative scheme of fire safety measures is proposed, this may be accepted if it meets the relevant fire safety standards and with prior consent from the Housing Regulation Team.

## 2.6 Basements and Cellars

Consideration needs to be given to the fire risk presented to the occupiers of any storey below the main entry/exit level of the house. Such storeys may include true basements or lower ground floors where the main house entry level is raised above ground and accessed by steps.

### 2.6.1 **Habitable Basements**

- Thirty minute fire separation between the basement and ground floor, including the staircase soffit and spandrel, with a self-closing FD30S door fitted at the head of the basement stairs. *Note for single household or low risk shared houses (both of no more than two storeys) the existing construction such as lath and plaster or plasterboard can be accepted provided it is sound and in traditional materials. Also existing doors to all risk rooms can be accepted where they are solid, in a sound condition and self-closing. Lightweight doors and doors with very thin panels should be avoided;*
- In very large occupied basements, two FD30S doors (one at the top and one at the bottom of the basement staircase) are required. This is to ensure that occupiers do not have to escape through a trapped layer of smoke and heat;
- The route of escape from a basement habitable room should not pass through a risk room such as a living room or kitchen. Ideally a separate exit to an ultimate place of safety is required at basement level. However, where this is not possible escape windows should be provided to all habitable rooms in the basement (see the glossary for escape window requirements). If escape windows cannot be provided then a 30 minute protected route is required, and
- The AFD and warning system in the house should be extended to cover the basement. It should be of the same grade and type as that required for the remainder of the house.

### 2.6.2 **Unoccupied Basements/Cellars**

Unoccupied basements and cellars are often used for storage and usually contain gas and electric meters and electrical wiring. As a result fire can spread quickly and attack the underside of the ground floor, thus compromising the escape route at ground floor level.

- Thirty minute fire separation between the basement and the ground floor escape route, including the staircase soffit and spandrel, with a self-closing FD30S door fitted at the head of the basement stairs. *Note for single household or low risk shared houses (both of no more than two storeys), where the basement is well maintained, the existing construction such as lath and plaster or plasterboard can be accepted provided it is sound and conventional. Also an existing door at the head of the basement stairs can be accepted provided it is solid, in a sound condition and self-closing. Lightweight doors or those with very thin panels should be avoided, and*
- There should be AFD coverage in the basement/cellar areas. It should be of the same level as that installed in the remainder of the house. Large multi-roomed cellars may require a number of detectors as appropriate. As a minimum there should be interlinked hard wired smoke alarms with integral battery backup in the circulation areas.

## Glossary

### Automatic Fire Detection (“AFD”)

The presence of a suitable, properly installed and maintained fire detection and warning system will alert occupiers to the presence of a fire in its early stages and it will enable them to evacuate the house to a place of safety before escape routes become blocked by smoke or directly affected by fire. An AFD should therefore be designed to wake people who are sleeping and to alert the presence of a developing fire in any hidden areas such as a store room or cellar, before the fire affects the escape route.

### **Type and Grade**

AFDs are described by *type* and *grade*. *Type* refers to the parts of a property that the AFD covers and *grade* to the design of the system.

Types:

- *Type LD1* systems incorporate mains-wired, interlinked detectors in *all areas* of a property and the route of escape;
- *Type LD2* systems incorporate mains-wired, interlinked detectors in the route of escape and all rooms that open directly onto it, including the entrance lobbies of any self contained flat that may be present. Suitable detection will be required in any basement or cellar. This type of system is appropriate for higher fire risk properties as both the route of escape and the high fire risk rooms are protected;
- *Type LD3* systems incorporate mains-wired, interlinked detectors along the route of escape only and any cellar. This type of system is appropriate for lower risk properties, and
- *Type LD3 Plus* systems incorporate mains-wired, interlinked detectors along the route of escape together with an interlinked heat detector in the kitchen and interlinked smoke alarms to the lounge/living room and any cellar.

Grades - BS 5839:part 6 (2004) details the grades of an AFD. There are 6 in total, grades A to F. For the purpose of this guidance however, grades will be explained:

- *Grade A* AFDs (or monitored fire alarm systems) comprise a series of electrically operated smoke and/or heat detectors which are linked to a control panel that is normally located in the ground floor hallway of a property. The panel should comply with BS 5739: part 4 and the wiring, siting and type of detectors and sounders with BS 5839: part1. BS5839 is the British Standard that covers the design, installation and maintenance of fire alarm systems and AFDs should be fitted in accordance with it. Grade A AFDs are appropriate for higher risk HMOs as the control panel constantly monitors the detectors and sounders to ensure that they are functioning properly. If a fault occurs then the control panel indicates this;
- *Grade D* AFDs comprise a system of ceiling-mounted and mains-powered smoke (or heat) alarms each with an integral sounder and battery standby supply, for example an automatically rechargeable battery. The detectors are inter-linked so that when one detector is activated all the alarms sound. Grade D detector/sounder units are the normal domestic battery operated smoke/heat detectors but are manufactured so as to be capable of being mains-wired and inter-linked. Grade D systems are less expensive to purchase and install than Grade A systems. However they are of a lower specification and therefore not suitable for higher fire risk HMOs, and

- *Mixed Grade Systems.* In some properties, for example student cluster flats where there are individual occupancies in shared self contained flats in multiple occupation, a mixed grade system may be appropriate. In these cases the flat is protected by a local automatic fire alarm system i.e. it is *not* connected to the main system for the building. This is so that, when activated it only gives warning to the occupants of the flat and so reduces the disruptive effect of false alarms elsewhere in the building. With the exception of some types of properties, a risk assessment should be carried out to determine whether or not such a system is required.

### **Detectors**

Smoke/heat detectors should be mains wired and inter-linked so that when one detector is activated all alarms sound. In addition each detector unit should have an integral sounder and battery standby supply. As a minimum they should comply with BS 5446. In order to avoid false alarms heat detectors should be fitted in rooms where cooking facilities are provided. Smoke detectors are required in all other areas, with the exception of bathrooms or WCs. However, if there is a risk of a fire starting in a bathroom or WC compartment, (i.e. if there is a source of ignition such as a wall mounted electric radiant fire) then a heat detector should be fitted. Note that electrically operated showers are not regarded as a source of ignition.

With regard to their sounding, the number of detectors fitted in a property and their siting should be such that, when *all doors are closed*, a sound level of 75 dB(A) minimum is achieved at the bed head. In all other accessible parts of the dwelling a sound level of not less than 65 dB(A) should be achieved.

### **Testing and Maintenance**

Routine testing and maintenance of AFD systems is essential and recommendations set out in BS 5839: part 1, Section 6 should be followed. It is recommended that all systems are tested at least once per year by a specialist alarm engineer to ensure that they respond to smoke. Specific test aerosols should be used and the test should be recorded in a log book. A periodic inspection report and test certificate should be issued. In addition to this routine testing and maintenance should be carried out as follows:

#### *Grade A systems:*

- At least one detector or call point in each zone should be tested weekly to ensure correct operation. Any defects and remedial action should be recorded in the log book.
- A six-monthly service should be undertaken by a competent person, normally an alarm engineer, to carry out a full test as specified in BS 5839. This should be recorded in the logbook and a periodic inspection report and test certificate issued.

#### *Grade D systems:*

- The button of each alarm should be pressed every month and this action recorded in a logbook. This can be carried out by tenants where they have been provided with clear instructions for undertaking the test and recording the results. Faults or false alarms should be reported to the landlord or agent.
- The system should be cleaned periodically in accordance with the manufacturer's recommendations.

## **Commercial/ Domestic Property**

Where commercial accommodation is located in close proximity to residential uses, such as flats above shops, any fire in the commercial area can quickly spread into the neighbouring residential use. This is particularly so at night when a fire may not be noticed until it is well developed. A risk assessment will determine the level of risk but it is considered high risk where there is accommodation above a pub, hot food take-away or restaurant. Generally 60 minutes fire separation is required between the uses. In lower risk commercial properties, the fire separation can be reduced to 30 minutes where an AFD is installed in the commercial unit and it is linked to the residential use. In higher risk premises, 60 minutes fire separation *and* an AFD will be required. Consultation with WYFRA should take place on mixed use buildings.

## **Emergency Lighting**

Emergency lighting should automatically illuminate when there is complete failure of the power supply to the artificial lighting or localised failure within the lighting circuit. It should illuminate an escape route to enable people to exit to a place of safety. It should also highlight any hazards such as stairs and changes in direction, and should enable easy identification of any manual fire alarm call points and fire fighting equipment along the route of escape. Importantly the system should be designed to comply with BS 5266 Parts 1 and 7.

In most cases the need for emergency lighting is determined by risk assessment. Factors to consider in the assessment include the size and layout of the property; the length of the escape route; the presence or absence of natural or borrowed light in the escape route and the vulnerability of the occupiers of the property.

If fitted, lights should be mounted approximately two metres above floor level (when measured to the underside of the luminaire) and in the following positions:

- Near any intersections of corridors;
- Above final exit doors;
- Near each change of direction (other than on a stairway);
- Within each stairway so that each flight of stairs receives direct light;
- Near each manual fire alarm call point;
- Outside any secondary escape exit if the street lighting is poor;
- Near each fire alarm call point; and
- Near fire fighting equipment.

Near is normally considered to be within two metres, measured horizontally. The route should be reasonably uniformly lit.

As with AFDs, emergency lighting systems should be routinely inspected and tested.

### **Escape Windows**

Escape windows will only be considered satisfactory if they meet the following criteria:

- They have an unobstructed openable area that is at least 0.33m<sup>2</sup>; a minimum height and width of 450mm, and the bottom of the openable area should not be more than 1100mm above the floor. All windows must comply with the above as they are building regulation requirements. Where an existing conversion does not comply with the building regulations, then the Housing Regulation Team should be contacted so that other options can be considered;
- Please note that in situations where any part of an openable window is below 800mm from floor level, the window must have a quick release opening restrictor suitable for means of escape windows. Any glazing extending to within 800mm of the floor level must be safety glass or glazed to meet Building Regulation requirements;
- They serve rooms whose floor level is no more than 4.5m from the ground;
- For shared and single household properties, entry to the room containing the escape window can be gained without the use of a key;
- The ground below the escape window is level and free from obstructions and other encumbrances, such as basement light wells and railings;
- They are openable from the inside without the use of a removable key, and
- They lead to a place of safety, clear of the building;
- Occupiers should be able-bodied individuals who can be reasonably expected to exit via the window unaided.

If these requirements cannot be met, the use of the escape window should not be accepted and an alternative solution should be adopted.

### **Fire Fighting Equipment**

Fire blankets and simple fire extinguishers can be useful in restricting the development and spread of small fires in their early stages. However, unless the fire is very small, occupants should be advised to evacuate the building to a place of safety and call the fire and rescue service.

### **Fire Extinguishers**

LACORS recommend that simple multi-purpose extinguishers are provided on each floor in the common parts of HMOs and buildings containing flats. However, the potential for extinguishers to be discharged through horseplay or malice in certain types of HMO's may negate this requirement. Where extinguishers are installed they should comply with BS EN 3-7 and be maintained in accordance with BS 5306-3. Suitable instructions and training should be given to tenants on their correct use at the start of the tenancy.

### **Fire Blankets**

With the exception of HMO's, fire blankets are recommended as good practice in kitchens of all houses, including single household occupation. Where provided they should be capable of dealing with small fires such as cooking fires or fires involving clothing, and they should comply with BS 6575 or equivalent. They should be wall mounted (approximately 1.5m high) and situated sufficient distance from a cooking facility(ies) so that the blanket can be safely removed from its housing in the event of a fire. Note that they should be closer to the room exit than the cooking facility itself.

### **House In Multiple Occupation (“HMO”)**

An HMO is a property is defined in Section 254 of the Housing Act 2004. A HMO includes a property occupied by **2** or more unrelated people who make up 2 or more households (see the definition of “household” below) for the purposes of Part 1 of the Housing Act 2004 (Housing conditions and enforcement of housing standards). For Part 2 of the Act, which relates to the Licensing of Houses in Multiple Occupation, a HMO is a property occupied by **3** or more un related people who make up 2 or more households. High risk HMO’s, namely properties comprised or 3 or more storeys, including any basement/cellar, and occupied by **5** or more mainly unrelated people who share some or all basic amenities(kitchen, toilets and bathroom facilities) are required to be licensed under the provisions of Part 2 of the Housing Act 2004.

### **Household**

The term ‘ single household’ is referred to Section 258 of the Housing Act 2004. A single household means either a single person or members of the same family who are living together This includes people who are married or living together as a married couple (including same sex couples). ‘Family’ means specific relatives - parents, grandparents, children and step-children, grandchildren, brothers, sisters, uncles, aunts, nephews, nieces or cousins. Foster children are treated as part of their parent’s household.

### **Inner Rooms**

An inner room is a room where the only escape route is through another room, termed the “outer” or “access” room. Inner rooms present a risk to the occupier should a fire start unnoticed in an outer or access room.

An inner room situation may be accepted where the inner room is a bathroom, kitchen or WC room. However, where the inner room is a habitable room such as a living room or bedroom, then the following must be considered in order to remove the high risk factor associated with this type of arrangement:

- Redesigning the flat/bedsit by providing lobbies and corridors so that a traditional route of escape is created within the unit, or
- Where the inner room is small, removing where possible the structure between the inner and outer room, thereby creating one larger room.

Where the above have been considered and the inner room layout is still unavoidable, the following measures may be acceptable:

- The provision of an alternative exit from the inner room directly onto the route of escape; OR
- The provision of an escape window from the inner room which will allow for rescue by the fire and rescue service (see the section on escape windows); AND
- The provision of an FD30S door between the inner and outer room, AND
- The provision of an adequate AFD in the inner and outer room which should be of the same grade as that in the remainder of the building or flat.

In addition, the following requirements *must* be met for the arrangement to be acceptable:

- The outer room must be under the same control as the inner room;
- Nobody should have to pass through more than one outer room to make their escape, and
- The outer room should not be a risk room. Where this is impracticable, an exit via a door or escape window may be an acceptable arrangement.

**Low Risk**

In order for a property to be classified as low risk the following features must be present:

- 3 storeys or less above ground;
- An occupancy of 6 or less people, who are able bodied and capable of using the means of escape without assistance; the occupiers do not present a higher risk due to factors such as limited mobility or alcohol/drug dependency;
- *Either* a secondary alternative means of escape, for example a dedicated escape window at first floor *in addition to* the normal route of escape having sound, conventional construction (which for the purpose of ‘low risk’ cannot pass through a risk room) *or* an enhanced fire detection system at the property - an LD2 Grade D AFD; and
- There is a minimal chance of a fire occurring and few, if any, highly combustible or flammable materials or other fuel for a fire present.

**Manual Fire Alarms**

A manual fire alarm system consists of break glass points that are situated next to final exit doors (and in larger multiple storey properties, on each landing). It allows the occupier of a property to raise the alarm in the event of a fire *prior* to the AFD being activated.

In most cases, with the exception of buildings converted into self-contained flats and Category A HMOs, the need for a manual fire alarm system is determined by risk assessment.

**Protected Route of Escape and Fire Doors****Protected Route**

A protected route should remain free from smoke and fire for a time to allow occupiers to pass safely along it to a place of safety. Ideally the standard of fire resistance enclosing the protected route is 30 minutes. To achieve this, the walls and ceilings to stairs, including the structure separating the ground floor and basement level, should be of 30 minute fire resisting construction. Sound lath and plaster can be regarded as this. However, if the plaster is un-keyed or perished, then it should be renewed or over-boarded. Surface coverings to walls and ceilings should be of a nature that will not assist the spread of flame.

Gas or electric meters located in cupboards that are large enough to be capable of storing potentially flammable materials and which are situated in the staircase enclosure, should be encased with materials with a 30 minute fire resistance.

Similarly storage cupboards situated within the staircase enclosure should be kept locked shut and lined with material to provide 30 minute fire resistance. A 30 minute fire door to the cupboard and a AFD fitted within the room.

In lower risk properties, for example an average single household occupancy, or ‘low risk’ shared houses, the standard for a protected route may be relaxed. In such cases, however the property must meet the following criteria:

- the stairs must lead directly to the final exit without passing through a risk room;
- the staircase enclosure must be of sound construction throughout the route;
- all risk rooms should be fitted with sound, close-fitting, conventional doors (lightweight doors and doors with very thin panels should be avoided); and
- an appropriate system of automatic fire detection and warning is in place.

A protected route should be maintained free from any obstructions and/or fire risks.

## **Fire Doors**

Where fire resisting walls are specified, then any doors within the wall must provide fire resistance to at least the same standard usually for 30 or 60 minutes. Fire doors are specified by the integrity performance time of the doorset, being an frame and door manufactured to be fitted together. For example an *FD30* is a 30 minute fire door where the door or frame is fitted with an intumescent strip. A letter ‘S’ after the figure denotes a requirement for cold smoke seals to be fitted *in addition* to the intumescent strips e.g. *FD30S*.

Doors without smoke seals are fitted where there is an AFD with LD3 coverage. Whereas doors with smoke seal are fitted where there is an AFD with LD2 coverage.

It is recommended that existing doors and frames are replaced with a new doorset rather than being upgraded. However, where door frames are square and in sound condition they may be capable of being upgraded. Doors should not be upgraded unless they are of special architectural merit such as those used in listed buildings. Professional advice can be obtained from TRADA or English Heritage for technical advice on upgrading doors that have subject to fire tests.

All fire doors should be installed and maintained in accordance with BS 8214:1990.

The final exit door(s) from an HMO or a building containing flats must be fitted with a lock that can be opened from the inside without the use of a key. Similarly doors separating units of accommodation from the escape route must be capable of being opened from the inside without the use of a key such as thumb turn locks.

Self-closing devices must be fitted to all entrance doors to flats and bedsit rooms complying with BS EN 1154: 1997. They must also be fitted to fire doors on risk rooms in shared houses where the occupancy is seven or more, or where it is deemed appropriate by risk assessment.

## **Risk Assessment**

For the purpose of this guidance “risk assessment” relates to a fire risk assessment, an organised and methodical look at premises. The aim of an assessment is to identify fire hazards in a house; to reduce the risk of those hazards causing harm to as low as reasonably practicable and to decide what physical fire precautions and management arrangements are necessary to ensure the safety of people in the premises if a fire does start. The assessment should be undertaken by the *responsible person* i.e. the person who has control of the premises. The principles of risk assessment for fire safety at Section 1 deals with risk assessment in greater detail.

## **Risk Room**

A risk room is a room with a function, where its use or contents present a risk of a fire occurring and developing. Typically this would be a kitchen, shared living room or bedsit room. However on risk assessment it could also include bedrooms due to their location, vulnerability of the tenant or any other factors which would increase the risk of fire. It excludes bathrooms and WC’s containing no fire risk.

### **Sprinkler & Mist Systems**

Water suppression systems detect, give warning, control, contain and often extinguish a fire. They consist of supply pipes that are permanently filled with water and fire suppression heads. The suppression heads are fitted with small thermal elements that are activated by heat. Each unit is independent and in most fires just one suppression head is operated.

Further advice should be sought from Building Control Services, West Yorkshire Fire and Rescue Service and the Housing Regulation/HMO Team should consideration be given to installing a water suppression system.

### **Storeys**

Storeys for fire safety purposes used in this guidance, need to be counted from the final exit door to the uppermost level, including mezzanines as a storey. Where the final exit is located on the ground floor, or raised ground floor, any lower ground floor or basement or cellar should not be counted as a storey. Please note that this definition of storey is different to that used in HMO Licensing, as in this guidance the travel distance to the final exit door is the factor in determining fire risk.

### **Whole Stair Lighting**

Such lighting comprises of a dedicated lighting circuit so that the use of any one switch/control anywhere along the route will illuminate the entire escape route. In the case of HMOs or flats with habitable basements, then two lighting systems can be installed. The first illuminates all floors at ground level and above, and the second illuminates the basement and ground floor levels. Where push button slow release light switches are used, the duration should be assessed, taking account of the travel distance in the circulation area to reach the flat or room from the final exit door and the mobility of the occupiers.